NOTICE OF INTENT TO ADOPT
A DRAFT INITIAL STUDY AND MITIGATED NEGATIVE DECLARATION

To: All Interested Persons and Agencies
Date of Notice: September 22, 2017
From: West Basin Municipal Water District
Project Title: Palos Verdes Recycled Water Pipeline Project

Lead Agency:

West Basin Municipal Water District
17140 South Avalon Blvd #210
Carson, California 90746

A Draft Initial Study and Mitigated Negative Declaration (IS-MND) has been prepared for the proposed Palos Verdes Recycled Water Pipeline Project. West Basin Municipal Water District is the local lead agency, pursuant to the California Environmental Quality Act, responsible for the preparation of this document. West Basin Municipal Water District intends to adopt the IS-MND prepared for the proposed Palos Verdes Recycled Water Pipeline Project.

Project Location: City of Torrance, City of Palos Verdes Estates

The proposed project would be located in the southern portion of the City of Torrance and the northern portion of the City of Palos Verdes Estates. The project would traverse between the cities beginning at the intersection of Calle Mayor and Anza Avenue in Torrance southward to the Palos Verdes Golf Club, with the primary line following Anza Avenue, Vista Montana, Paseo De Las Tortugas, Torrance Utility Road, Via Las Vegas, Palos Verdes Drive North, Via Navajo, and Paseo Del Campo.

Project Description:

The proposed project consists of extending the existing Anza Lateral approximately 20,000 linear feet from the intersection of Anza Avenue and Calle Mayor in Torrance to the PVGC in Palos Verdes Estates. The expanded recycled water system network would provide approximately 240 total AFY of recycled water from the Hyperion Wastewater Treatment Plant to the golf course and additional municipal WBMWD customers along the pipeline alignment. The pipeline extension would consist of one pipeline alignment with three branch extensions. The primary alignment infrastructure would extend from the intersection of Calle Mayor and Anza Avenue in Torrance southward to the Palos Verdes Golf Club, with the primary line following Anza Avenue, Vista Montana, Paseo De Las Tortugas, Torrance Utility Road, Via Las Vegas, Palos Verdes Drive North, Via Navajo, and Paseo Del Campo. The additional lateral branches would serve other facilities including Pacific Coast Highway medians, Richardson Middle School, Lago Seco Park, Los Arboles Park and Riviera Elementary School. The project would also involve construction of an aboveground pump station in Lago Seco Park, to help convey the water to the golf course, and a new water storage tank that would be located in the southern portion of the Palos Verdes Golf Club.

Summary of Impacts:

The proposed project would not result in any potentially significant unavoidable adverse impacts. Potential impacts to biological resources, cultural resources, geology and soils, hazards and hazardous materials, noise, and transportation would be less than significant with the implementation of mitigation measures contained in the IS-MND.

The site is not listed on any lists enumerated under Section 65962.5 of the Government Code.

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Public Comment Period

The public comment period for this IS-MND begins on Friday, September 22, 2017 and will end on Monday, October 23, 2017 (comments must be received no later than 5PM on October 23, 2017). Copies of the IS-MND will be available for review at the West Basin Municipal Water District office, located at 17140 South Avalon Blvd #210, Carson, California 90746.

The document will also be available on the West Basin Municipal Water District Website: http://www.westbasin.org/about-us-transparency/public-notices

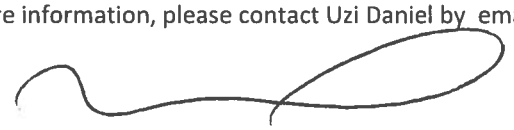
Please submit comments in writing to the following address:

West Basin Municipal Water District
Attn: Uzi Daniel, Environmental Compliance Supervisor
17140 South Avalon Blvd #210
Carson, California 90746

Contact Information:

For more information, please contact Uzi Daniel by email at uzid@westbasin.org

Signed:



Uzi Daniel, Environmental Compliance Supervisor
West Basin Municipal Water District

September 21, 2017

Palos Verdes Recycled Water Pipeline Project

Initial Study – Mitigated Negative Declaration

prepared for
West Basin Municipal Water District
17140 South Avalon Blvd #210
Carson, California 90746

prepared with the assistance of
Rincon Consultants, Inc.
250 East 1st Street
Los Angeles, California 90012

September 2017

Rincon Consultants, Inc.
Environmental Scientists Planners Engineers
www.rinconconsultants.com

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Chapter 1: Introduction

1.1 Project Title

Palos Verdes Recycled Water Pipeline Project

1.2 Lead Agency Name and Address

West Basin Municipal Water District
17140 South Avalon Blvd #210
Carson, California 90746

1.3 Contact Person and Phone Number

Curt Roth, P.E.
Engineering Project Manager
West Basin Municipal Water District
EngineeringPM@westbasin.org

1.4 Project Sponsor's Name and Address

West Basin Municipal Water District
17140 S Avalon Blvd #210
Carson, California 90746

1.5 Project Background and Overview

The West Basin Municipal Water District (WBMWD) in conjunction with the City of Palos Verdes Estates (Palos Verdes Estates), the City of Torrance (Torrance), and the Palos Verdes Golf Club (PVGC) propose to deliver recycled water from the existing Anza Lateral to the PVGC. Ten years ago, the golf course invested in construction of a dual plumbed distribution system (including purple pipe) to allow for distribution of recycled water, to increase the sustainability of the PVGC and provide a reliable, long-term source of water for irrigation use. The proposed Palos Verdes Recycled Water Pipeline Project (project) would facilitate this goal by constructing an additional approximately 20,000 linear feet (including customer laterals) of recycled water pipeline from the intersection of Anza Avenue and Calle Mayor in Torrance to the PVGC.

The project would serve the PVGC with about 210 acre-feet per year (AFY) of recycled water. In addition to PVGC, the project could also serve other sites along the alignment including Pacific Coast Highway medians, Richardson Middle School, Lago Seco Park, Los Arboles Park and Riviera Elementary School. These connections could constitute an additional provision of 15 to 30 AFY.

The project begins at an existing recycled water pipeline at the intersection of Anza Avenue and Calle Mayor in Torrance and extends to the PVGC. In addition to the project pipelines, a new 100 horsepower booster pump station, is proposed to be constructed in Lago Seco Park, required to pump the recycled water from the point of connection to the existing Anza Lateral, to the PVGC and

other potential users, and an aboveground storage tank at the terminus in the PVGC may be required. A detailed project description, including figures, is provided in Chapter 2, Project Description.

1.6 Project Location

The project site is located in the southern portion of the City of Torrance, California, and the northern portion of the City of Palos Verdes Estates, with approximately one third of the pipeline infrastructure located north of Pacific Coast Highway and the other two thirds located south of the highway. Torrance and Palos Verdes Estates are surrounded by the cities of West Carson, Lomita, and Rolling Hills Estates on the east, Redondo Beach and the Pacific Ocean on the west, Lawndale and Gardena to the north and Rancho Palos Verdes to the south. Figure 1 shows the regional location of the project and Figure 2 shows the proposed pipeline route, including the boundary between the cities of Torrance and Palos Verdes Estates. A detailed description of the pipeline alignment, including figures, is provided in Chapter 2, Project Description.

1.7 Project Objectives

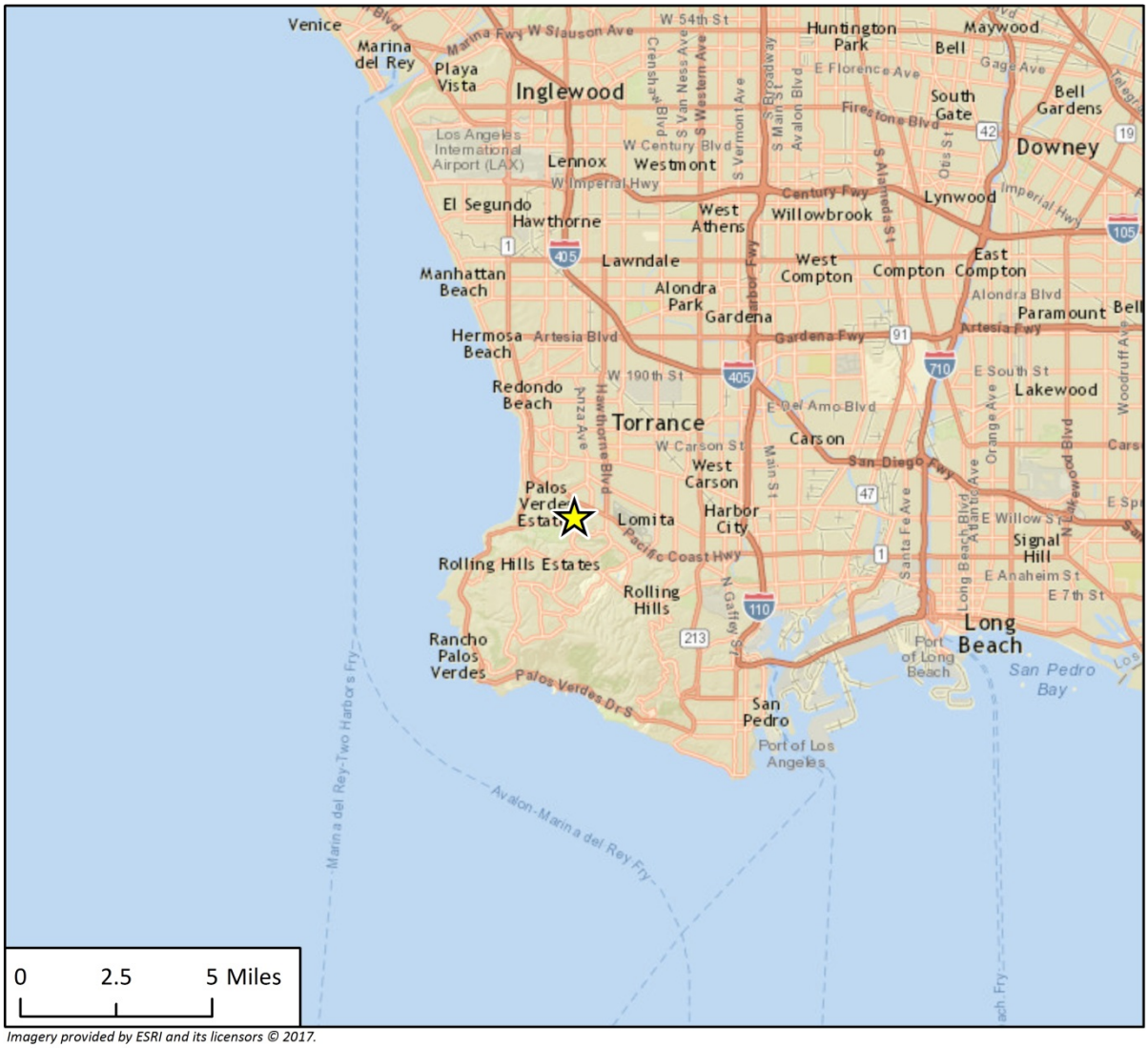
Continued drought in Southern California has strained available water supplies within Los Angeles County. WBMWD is committed to providing its customers and communities with water reliability, water quality, and environmental stewardship by providing recycled water supplies. WBMWD is an internationally recognized expert in water recycling, conservation, water education, and water resource management. By extending existing recycled water supplies to the PVGC, the project intends to introduce new water supplies to be used for landscape irrigation. This would help support the long-term needs of municipal and residential users.

1.8 Recycled Water Supply

WBMWD completed construction of the Edward C. Little Water Recycling Facility (ELWRF) in the City of El Segundo in 1992. In light of the severe statewide drought of the late 1980s and early 1990s, WBMWD aimed to build a state-of-the-art water recycling treatment facility to meet the needs of its municipal, commercial, and industrial customers. Since its construction, the facility has undergone five expansions to meet increasing demand. It converts secondary effluent from the Hyperion Wastewater Treatment Plant into ultra-high-quality recycled water, currently producing roughly 44,800 AFY, conserving enough drinking water to meet the needs of 80,000 households for a year. The five types of water produced include Title 22 tertiary water, nitrified water, softened reverse osmosis water, pure reverse osmosis water, and ultra-pure reverse osmosis water. WBMWD's Urban Water Management Plan outlines plans to increase supply provision of all recycled water products (WBMWD 2017).

The ELWRF delivers recycled water throughout WBMWD's recycled water distribution system using a network of existing pipelines. Currently, the project proposes connecting to the distribution system from a 6-inch PVC pipeline at the intersection of Anza Avenue and Calle Mayor in Torrance.

Figure 1 Regional Location



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Project Location

N

ISMNDFig 1 Regional Location

Figure 2 Project Location

The project is projected to utilize approximately 240 AFY of the total 44,800 AFY production capacity of the ELWRF, which amounts to half of one percent of existing production. The quantity of water delivered is subject to change with other demands for recycled water. The project would not result in any new domestic or industrial uses and would not increase the generation of wastewater. The proposed project would further WBWMD's goal to provide reliable water supplies and expand recycled water availability.

1.9 Existing Setting and Surrounding Land Uses

Land uses in and around the project area are predominantly residential, with some commercial, open space, and recreational uses. The pipeline alignment primarily traverses residential areas with small stretches of open space areas, as well as some commercial uses along Anza Avenue between West 238th Street and Newton Street. The land uses at the termini of the primary pipeline and laterals are either open space and recreational uses, or educational uses that include open space and recreational facilities.

1.10 General Plan Designation

The project corridor is within the following General Plan land use designations for the cities of Torrance and Palos Verdes Estates: Single Family Residential, Multi-Family Residential, Commercial and Services, Golf Course, and Open Space and Recreation. See Figure 3 for General Plan designations along the pipeline alignment and surrounding area.

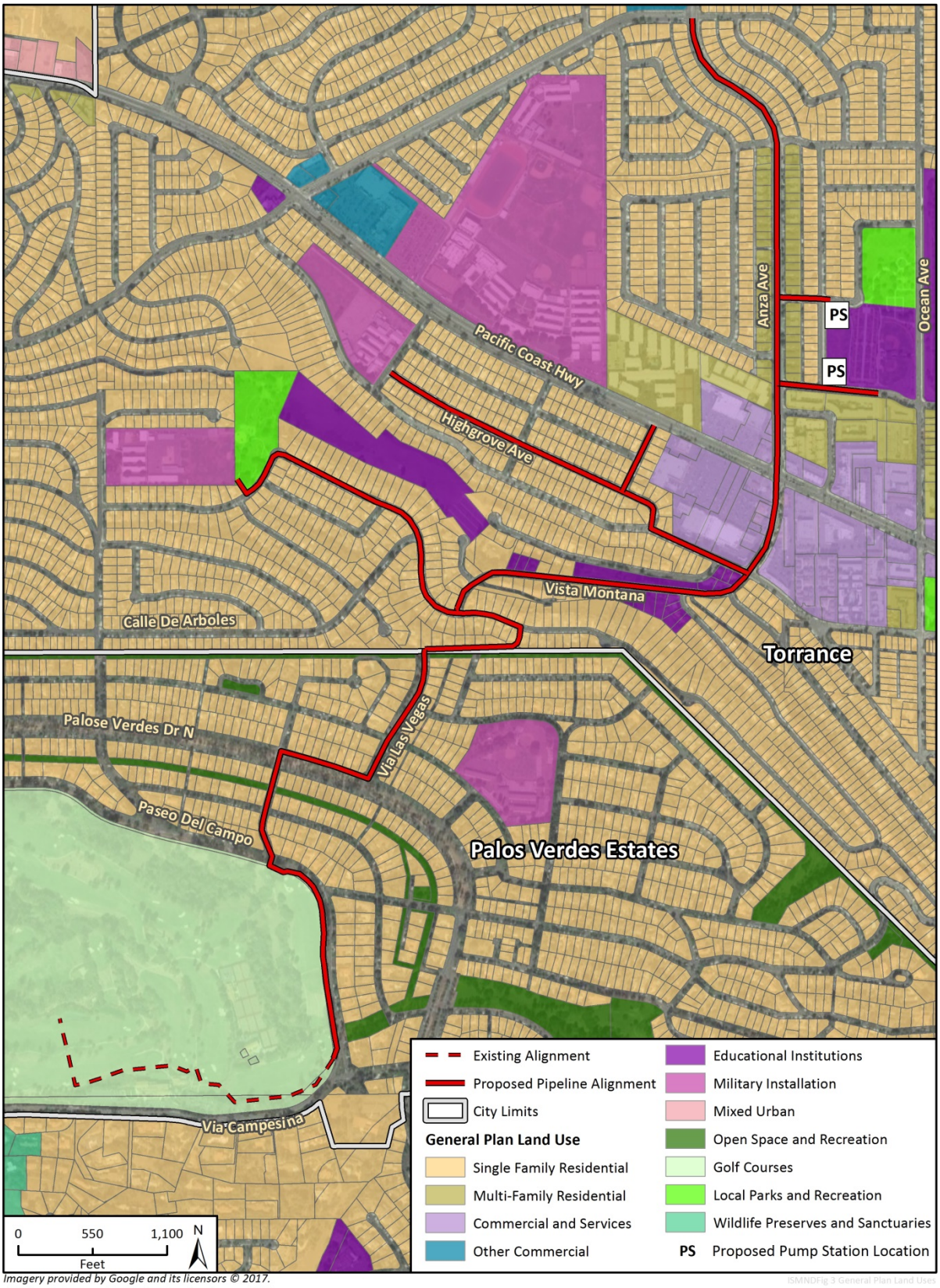
1.11 Required Approvals

WBMWD is the lead agency under the California Environmental Quality Act (CEQA) with responsibility for approving the project. Table 1 lists the other approvals that would likely be required for the project.

Table 1 Summary of Required Approvals

Entitlement	Jurisdiction(s)
Encroachment Permit	Cities of Torrance and Palos Verdes Estates; California Department of Transportation (Caltrans)
Temporary Construction Permits (for disturbance)	Cities of Torrance and Palos Verdes Estates; County of Los Angeles
Temporary Construction Easements (for legal permission to cross or use property or rights-of-way)	Cities of Torrance and Palos Verdes Estates; County of Los Angeles; utilities as needed
Permanent Maintenance Easements	Cities of Torrance and Palos Verdes Estates; County of Los Angeles
Building, Electrical, Mechanical, and Plumbing permits (for pump station)	City of Torrance
Permanent Maintenance Easement	Cities of Torrance and Palos Verdes Estates; County of Los Angeles
Construction Site Maintenance Agreement	City of Palos Verdes Estates
Flood Permit	Los Angeles County Flood Control District
NPDES Stormwater Pollution Prevention Plan	State Water Resources Control Board
Order for Water Reclamation Requirements application/amendment	Los Angeles Regional Water Quality Control Board

Figure 3 General Plan Land Use



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Additional data provided by Los Angeles County, 2009.

ISMNDFig 3 General Plan Land Uses

1.12 Scope and Use of this Document

This Initial Study-Mitigated Negative Declaration (IS-MND) provides an assessment of the potential impacts to environmental resources that would result from implementing the proposed project. The discussion and level of analysis are commensurate with the expected magnitude and severity of each impact to environmental resources. This document primarily addresses the environmental effects of constructing and operating recycled water conveyance and storage infrastructure and the effects of using the water supplies under consideration. The analyses in Chapter 3 are based on technical reports and studies prepared for the project, supplemented with other public information sources as provided in the list of references.

This document evaluates the potential for impacts to resources areas identified in Appendix G of the *State CEQA Guidelines*. These resources areas include:

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

1.12.1 Administration of the Clean Water State Revolving Fund Program in California

The Federal Water Pollution Control Act (Clean Water Act or CWA), as amended in 1987, established the Clean Water State Revolving Fund (CWSRF) program. The CWSRF program offers low interest financing agreements for water quality projects. The proposed project may be partially funded with a loan from the CWSRF Loan Program. The program is administered, nationally, by the United States Environmental Protection Agency (USEPA), and in certain instances the administration has been delegated to the states. In California, administration of the CWSRF program has been delegated to the State Water Resources Control Board (SWRCB). In turn, the SWRCB requires that all projects being considered under the CWSRF program must comply with CEQA and certain federal environmental protection laws. SWRCB requires compliance with the Federal Endangered Species Act (FESA; Section 7), the National Historic Preservation Act (NHPA; Section 106), the General Conformity Rule for the Federal Clean Air Act (FCAA), and other executive orders and federal regulations. Collectively, the SWRCB refers to these requirements as "CEQA-Plus." Therefore, this IS-MND has been prepared in accordance with the Environmental Review Process Guidelines for State Revolving Fund Loan Applicants (SWRCB 2004) and is expanded beyond the typical content requirements of an IS-MND to include additional "CEQA-Plus" information. The SWRCB, as a responsible agency for the project, will consider this CEQA document prior to any CWSRF loan authorization.

1.12.2 Impact Terminology

The anticipated environmental impacts are identified for each of the resource areas listed above. The level of significance for each resource area uses CEQA terminology as specified below:

- **Potentially Significant**. Adverse environmental consequences that have the potential to be significant according to the threshold criteria identified for the resource, even after mitigation strategies are applied and/or an adverse effect that could be significant and for which no mitigation has been identified. If any potentially significant impacts are identified, an Environmental Impact Report (EIR) must be prepared to meet the requirements of CEQA.
- **Potentially Significant Unless Mitigation is Incorporated.** Adverse environmental consequences that have the potential to be significant, but can be reduced to less than significant levels through the application of identified mitigation strategies that have not already been incorporated into the proposed project.
- **Less than Significant.** Potential adverse environmental consequences have been identified. However, they are not so adverse as to meet the significance threshold criteria for that resource. Therefore, no mitigation measures are required.
- **No Impact.** No adverse environmental consequences have been identified for the resource or the consequences are negligible or undetectable. Therefore, no mitigation measures are required.

1.12.3 Recommended Level of Environmental Documentation

Based on the analysis presented herein, an MND is the appropriate level of environmental documentation for the project.

Chapter 2: Project Description

The proposed project consists of extending the existing Anza Lateral approximately 20,000 linear feet from the intersection of Anza Avenue and Calle Mayor in Torrance to the PVGC in Palos Verdes Estates. The extension would also include additional laterals providing services to other facilities, including Pacific Coast Highway medians, Richardson Middle School, Lago Seco Park, Los Arboles Park and Riviera Elementary School. The expanded recycled water system network would provide recycled water from the Hyperion Wastewater Treatment Plant to the golf course and additional municipal WBMWD customers along the pipeline alignment. The project would provide approximately 210 AFY of recycled water to the golf course and an additional 15 to 30 AFY to the additional sites.

2.1 Pipeline and Storage Infrastructure

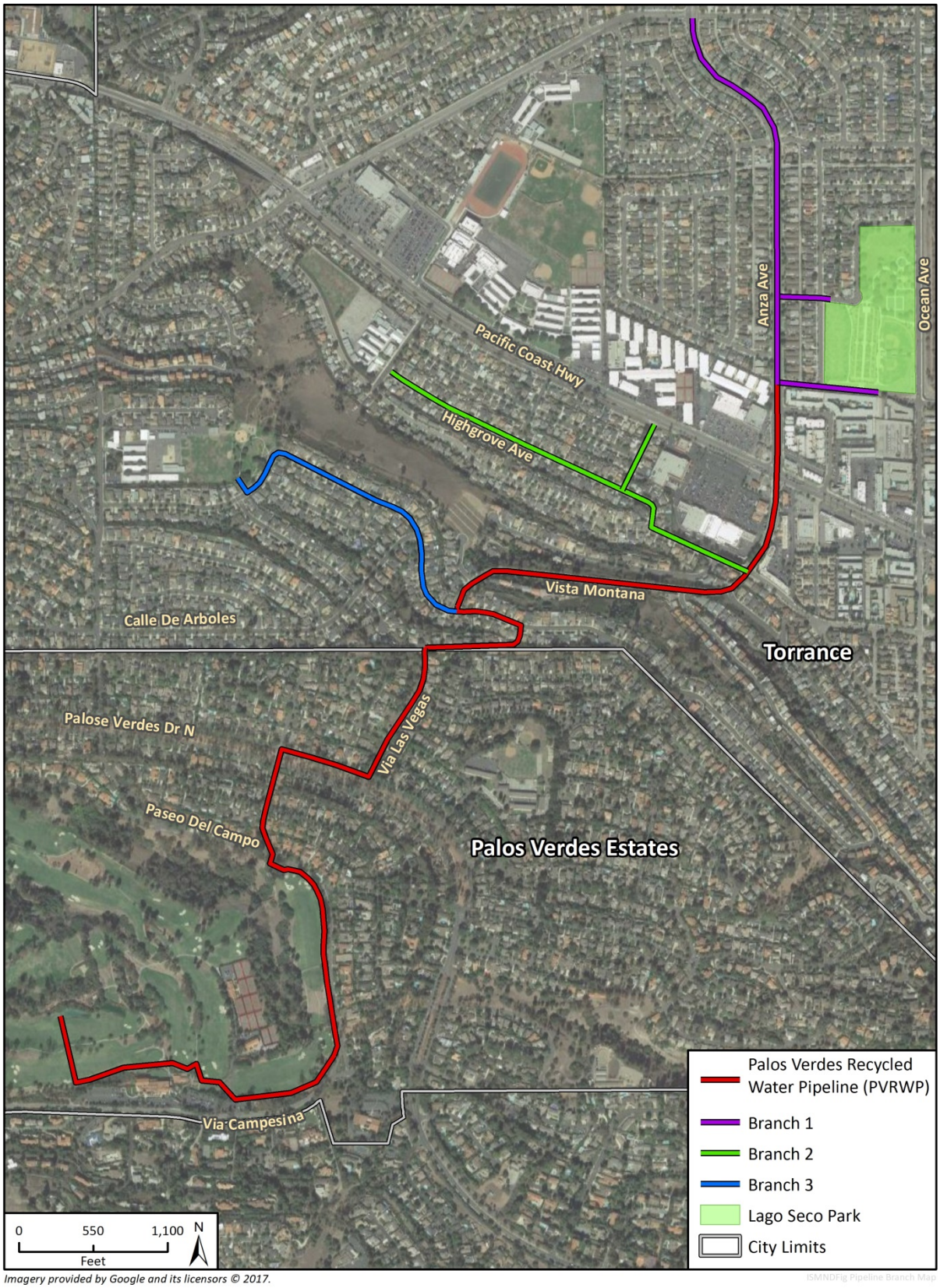
The pipeline infrastructure for the project would be located in existing paved roads and ROW in residential, commercial, and open space areas; in one location at the Torrance Utility Road approximately 800 feet of pipeline would be located in an easement to be obtained as part of this project. The pump station would be located in Lago Seco Park at one of two locations currently under consideration. Recycled water storage would be located at PVGC.

The proposed project consists of: one pipeline segment (identified as Branch 1 in Figure 4) which would convey recycled water from the existing pipeline to the proposed pump station; a discharge pipeline from the pump station to convey recycled water to PVGC, identified as Palos Verdes Recycled Water Pipeline in Figure 4; and two (2) proposed customer laterals identified as Branch 2 and 3, respectively (Figure 4). The point of connection for proposed pipeline infrastructure is the intersection of Calle Mayor and Anza Avenue in Torrance, with the primary line following southward along Anza Avenue, Vista Montana, Paseo De Las Tortugas, Torrance Utility Road, Via Las Vegas, Palos Verdes Drive North, Via Navajo, and Paseo Del Campo. The project would also involve construction of several customer laterals from the main pipeline alignment, to provide recycled water supplies to other local land uses, including parks and schools. The location and purpose of the pipeline branches are described in Table 2. Figure 5, Figure 6, and Figure 7 show an overview of the pipeline system. Figure 8 and Figure 9 show images of areas where the pipeline would be located.

Table 2 Summary of Proposed Pipeline Branch Laterals

Branch	Origin	Description	Purpose
1	Anza Avenue	Extending west along West 238th Street or West 236th Street to the proposed pump station in Lago Seco Park	Connect the pump station to the pipeline to maintain service pressure
2	Vista Montana	Extending west along Newton Street and Highgrove Avenue to Richardson Middle School with a second branch extending from Highgrove Avenue north along Janet Lane to Pacific Coast Highway	Deliver recycled water supplies to the school Deliver recycled water supplies to Pacific Coast Highway medians
3	Vista Montana	Extending west along Paseo De Las Tortugas and south along Calle De Recardo to Los Arboles Park and Riviera Elementary School	Deliver recycled water supplies to the park and school

Figure 4 Identification of Pipeline Branches



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ISMNDFig Pipeline Branch Map

Figure 5 Pipeline Overview (Northern Portion)

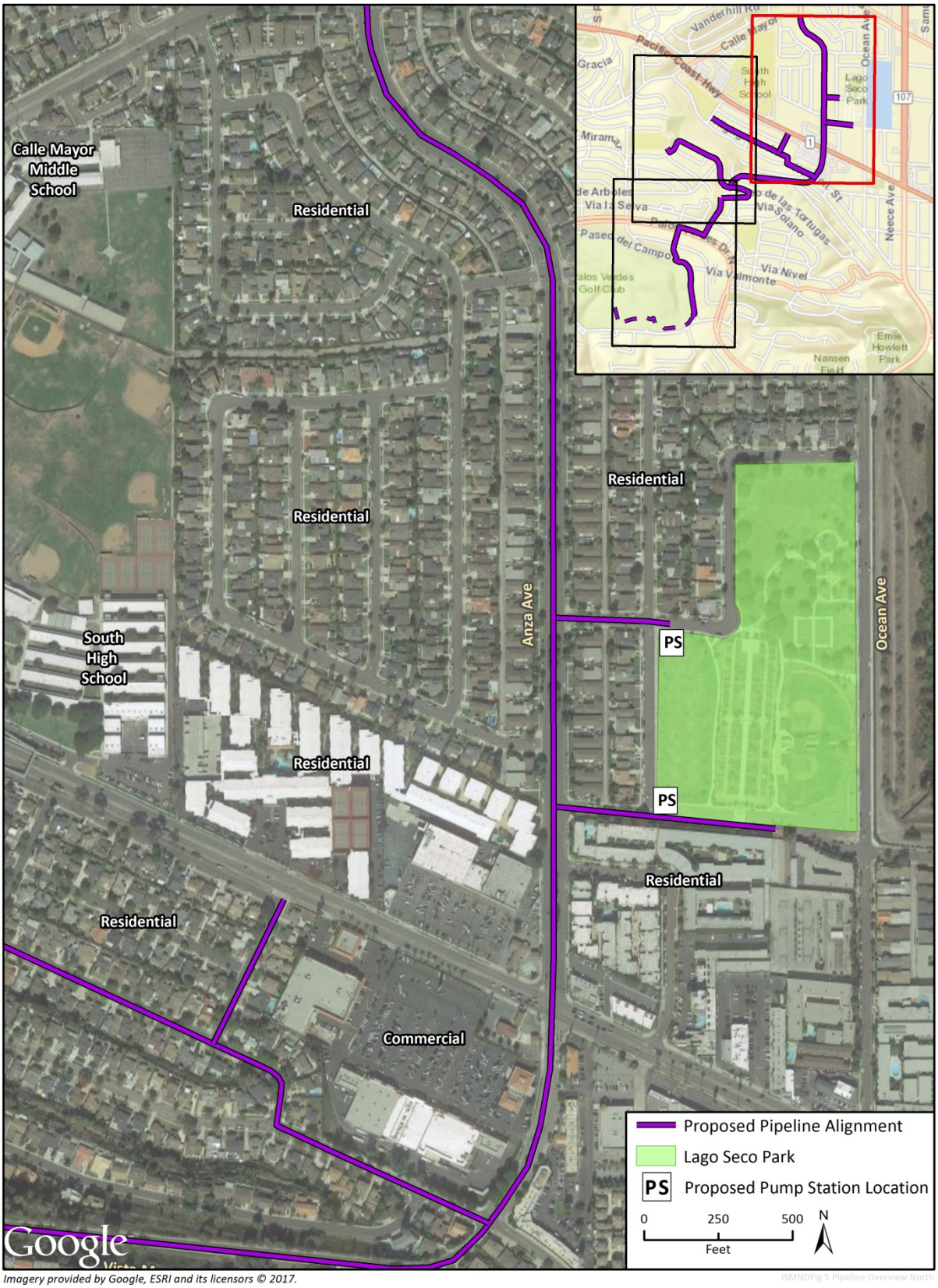

Figure 6 Pipeline Overview (Central Portion)

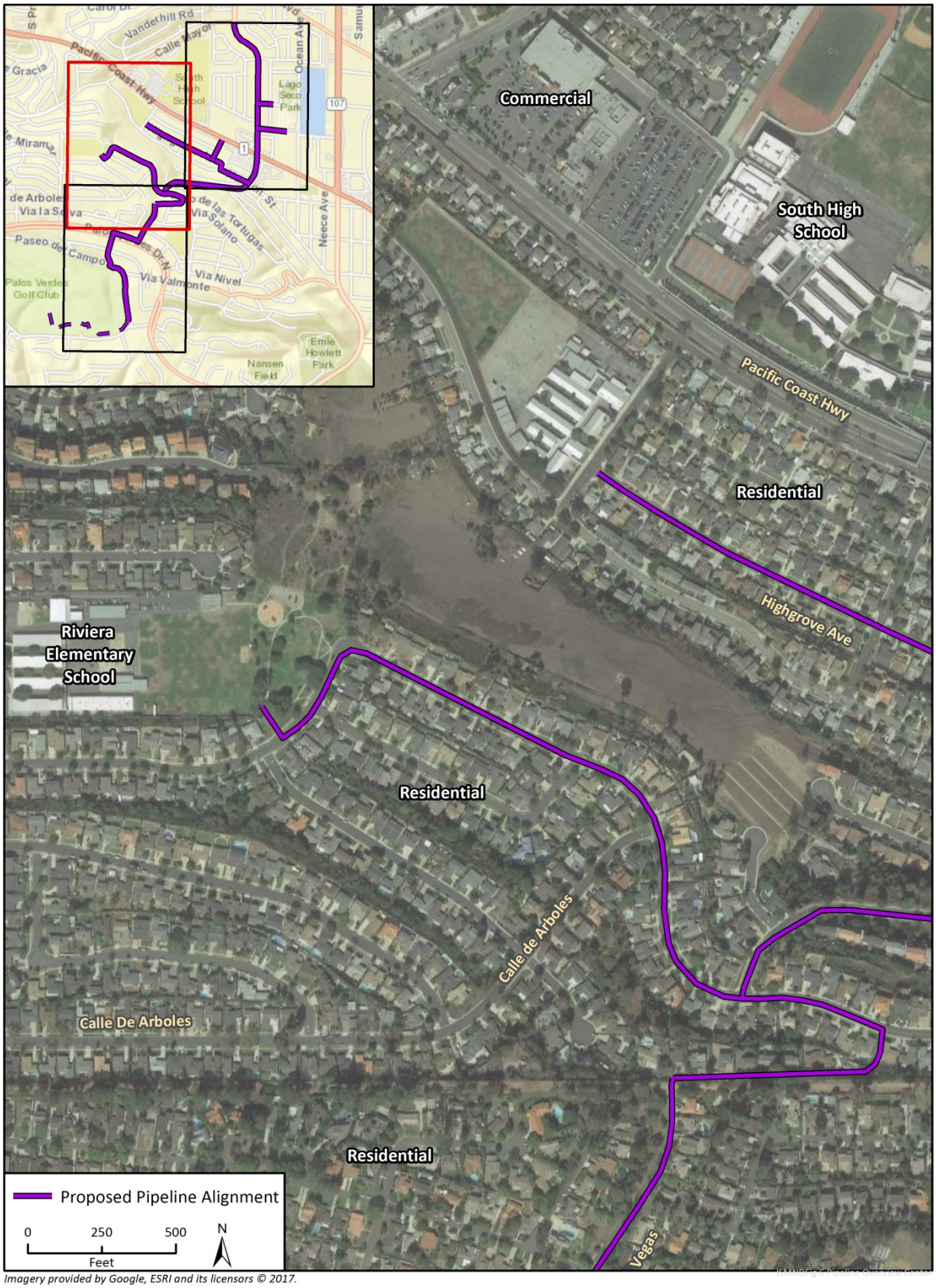

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Figure 7 Pipeline Overview (Southern Portion)

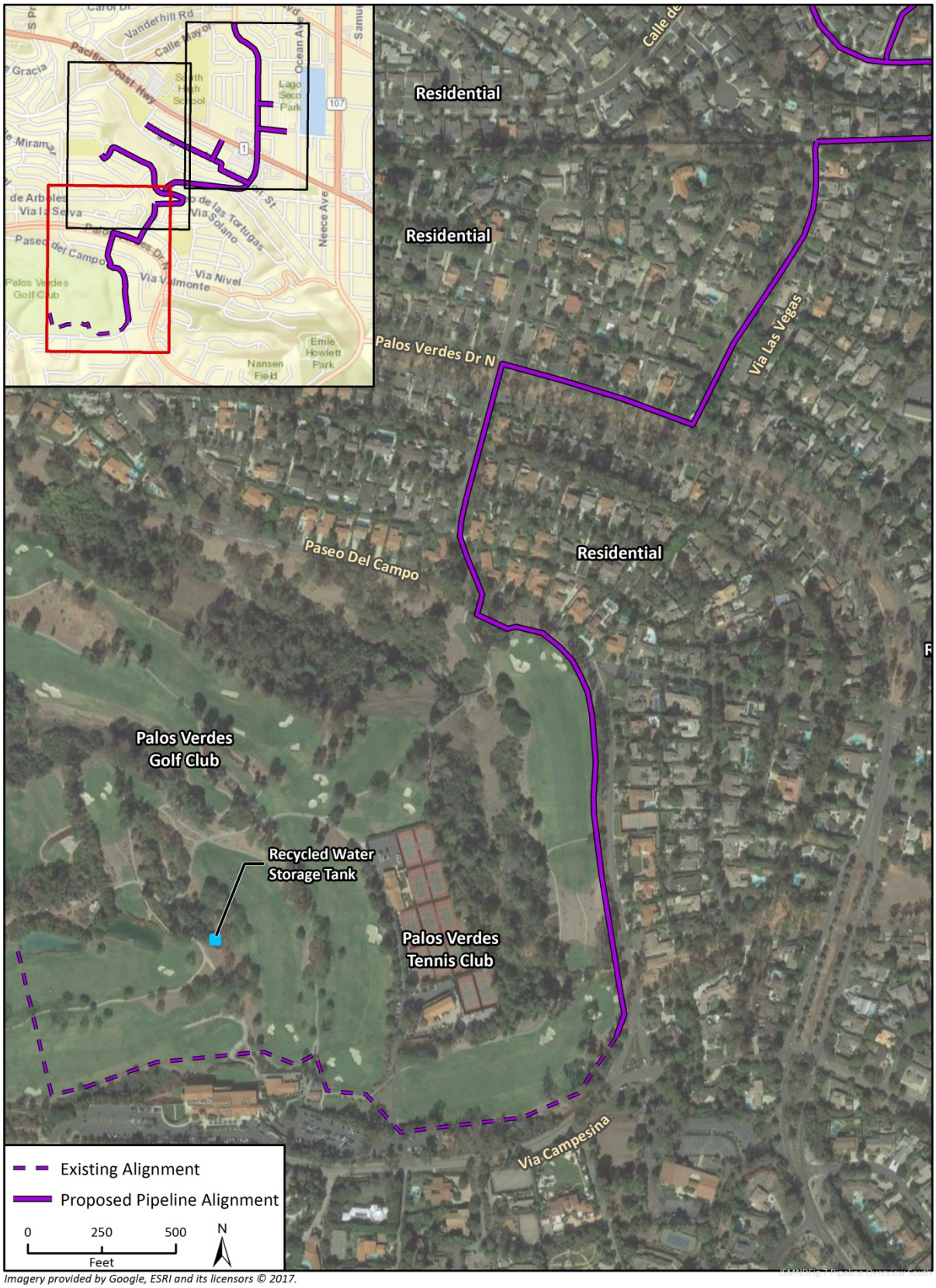

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Figure 8 Site Photographs 1 - 2

The proposed alignment would be located in existing paved roads and ROW, primarily in residential areas. This figure shows the location of the alignment along Anza Avenue.

The proposed pipelines would provide recycled water to Lago Seco Park, shown in this figure, as well as other open space and recreational facilities in the project area.

Figure 9 Site Photographs 3 - 4

The proposed pipeline alignment would traverse areas with multi-family housing units along Anza Avenue, shown in this figure.

The proposed pipeline alignment would also traverse lower-density residential neighborhood, as shown along Palos Verdes Drive North in this figure.

The main pipeline alignment and the branch pipeline segments would range from 4 to 10 inches in diameter, and would extend from the existing Anza Lateral, which is 6 inches in diameter. The final size of the new pipelines would be determined based on hydraulic evaluation and customers served. A summary of the main pipeline and the branches is provided in Table 3.

Table 3 Summary of Proposed Pipelines

	PVRWP	Branch 1	Branch 2	Branch 3
Estimated Length	9,600 feet	3,320 feet	4,150 feet	2,300 feet
Estimated Size	8-inch	10-inch	4 to 6-inch	4 to 6-inch
Preferred Design Capacity	500 gpm [1]	500 gpm [1]	30 gpm [1]	100 gpm[1]
Highway Crossings	State Route 1	None	None	None
Private Property Easement Acquisitions	2	0	0	0

[1] gallons per minute (gpm)

The project would include installation of an inline booster pump station to overcome hydraulic limitations in the existing pipeline and overcome the head required to reach PVGC. The pump station would be located in either the southwest corner of Lago Seco Park, near the parking lot at the intersection of Ladeene Ave and 238th Street, or in the northwest corner of Lago Seco Park, near the intersection of Ladeene Avenue and 236th Street. The pump station would be aboveground but would be fully enclosed in a building to minimize noise disturbance and block access by the general public. Figure 5 shows the two locations being considered for the pump station.

A new water storage tank would be located in the southern portion of the PVGC. The proposed location of the tank is shown on Figure 7.

2.2 Construction Methods

2.2.1 New Pipeline Installation

The method used for installing new pipeline would depend on the specific circumstances in each section of the project area. The majority of the new pipeline would be installed using open trench excavation and shoring, while other areas may be installed using trenchless construction methods (jack and bore). In all areas, the ground surface would be returned to a condition similar to existing conditions.

Open Trench Excavation and Shoring

Installation of the pipelines for the project would primarily involve open trench excavation. This method would involve excavation of dirt by an excavator along the project corridor to create trenches approximately three feet wide and five feet deep. The bottom of the trench would be compacted with imported clean sand. Soils excavated from the trenches, if of suitable quality, would be stockpiled alongside the trench or in staging areas for later reuse in backfilling the trench. If the material is unsuitable for use, then imported material would be used for backfill. After pipeline installation and the connection of pipe segments, the top of the trench (approximately six inches to one foot) would be compacted suitable imported material. The backfill would be compacted, and the disturbed surface over the trench would be restored to pre-construction conditions. During

excavation and pipe laying the sides of the trenches would be shored using shoring or trench boxes if excavation depth requires.

The active work areas would be limited to the public ROW, allowing for traffic movement. Typical construction width would be 15 to 20 feet minimum on either side of the trench, which would provide access for trucks and loaders. Standard installation of the pipeline would proceed at the rate of approximately 200 to 300 feet per day, with an overall work zone length of approximately 200 to 300 feet. Any open trenches left at the end of a work day would be backfilled and/or plated. Depending on the need for access, trenches may be excavated with pipe laid and backfilled within one day though trenches could be open for up to three days, if needed.

If excavated soil is not reusable, the soil would be hauled offsite and disposed of at an approved facility with sufficient capacity. Dump trucks would be used to deliver imported, engineered backfill material to stockpile near the trenching operation.

Trenchless Construction Methods

Open cut trenching would occur at most of the project site; however, trenchless construction methods would be needed where open cut may not be acceptable or practical, such as across highways. Jack and bore is the trenchless construction method under consideration for this project.

Jack and bore employs a system that drives an open-ended pipe laterally using a percussive hammer (or auger), resulting in the displacement of soil limited to the wall thickness of the pipe. Two pits are first excavated on either side of the roadway to be avoided, representing the sending (jacking) and receiving pits of the pipeline segment. The pits are typically 15 to 20 feet wide and 25 to 30 feet long. The boring equipment and pipe are then lowered into the pit and aligned at the appropriate depth and angle to reach the receiving pit. The casing is jacked a distance into the soil, then the boring machine excavates the soil from within the casing. This process is repeated until reaching the receiving pit. The pipeline is then installed in the casing. Using this method, there is no disturbance of the surface above the pipeline (City of Portland 2017).

It is anticipated that jack and bore would be used for the approximately 130-foot segment of pipeline that crosses Pacific Coast Highway from Anza Avenue. WBMWD would coordinate with the cities of Torrance, Palos Verdes Estates and Caltrans to determine if permits are required and to secure permits as needed. Steel casing and slurry fill would be used for the jack and bore crossings beneath Pacific Coast Highway, as required by Caltrans.

Surface Restoration

Most of the ground surface along the alignment of the proposed pipe is not vegetated and consists of paved public asphalt road. The ground surface would be returned to a similar condition after trenching and other ground disturbance activities for pipeline segments located within street ROW. New asphalt or concrete pavement would be placed to match the surrounding road type and would occur after pipeline installation and testing is completed.

2.2.2 Construction of Structures

Construction of the pump station would involve construction of an aboveground, enclosed building, with pumps and piping located within. The pump station location is anticipated to include an approximately 1,000 square-foot masonry block building to house two 100 horsepower pumps on a 2,400 square-foot site expected to include two parking stalls for maintenance employees and a 5

foot-wide walkway. The pump station would require a power source and would likely need an aboveground power pole drop, or buried electrical service line with an electric meter. Excavation up to 20 feet for the pumps but will be on the order of 3 feet for the removal of topsoil and construction of the foundation slab for the majority of the pump station. The pump station would also require radio communications for integration with WBMWD supervisory control and data acquisition (SCADA) systems.

Construction of the water storage tank at the PVGC would also be undertaken and would be subject to the City's permit process. The storage tank would be constructed aboveground. Water would be conveyed from an existing pond at the golf course to the tank, and would be used in the golf course's irrigation system.

2.2.3 General Construction Activities

Groundwater levels are currently over 100 feet below the ground surface (approximately sea level) in the project area. If groundwater levels significantly rise before construction to a point where groundwater or runoff were to enter the trench during excavation, the water would be pumped from the excavated area and contained and treated in accordance with all applicable State and regulations, before being discharged to the existing wastewater conveyance system.

The construction contractor would provide all temporary holding tanks required for sedimentation of soil particles and treatment of other contaminants, and would conduct chemical testing of groundwater pumped into the temporary holding tanks. Where groundwater is encountered, the excavation would be dewatered as needed to place pipes and compact the soil. Other measures would be implemented, such as, localized sump pumps, and working pads made of crushed rock, to prevent water infiltration into the excavated areas.

Approximately 600 feet of ground would be disturbed at any one-time during construction activities for excavation, pipe laying, or backfilling. Soil that is excavated during construction activities would be hauled offsite and disposed of by the contractor in a suitable location. Approximately 279,300 cubic feet (cf) or 10,345 bank cubic yards (BCY) of soil would be excavated and 11,380 loose cubic yards (LCY) of this soil would be exported offsite and disposed of. Imported soil from offsite sources would total approximately 11,145 LCY (300,915 cf). Assuming a dump truck capacity of 20 cubic yards per truckload, and that all material would be hauled offsite for disposal, approximately 1,127 round trips (or 2,254 one-way trips) would be generated during the pipe installation phase of construction (569 truckloads disposing of excavated soil and 558 loads delivering imported soil).

2.2.4 Pipeline Commissioning

Pipeline pre-commissioning is the process of proving that newly installed pipeline is able to contain recycled water without leaking. Pipeline commissioning would consist of pressure testing of the pipe and is based on WBMWD's Standard Specifications for Recycled Water Pipeline Construction (July 2010). Approximately 47,320 gallons of water would be used in commissioning phase. Disposal of that water would be the responsibility of the contractor to permit and would likely be dechlorinated and discharged to a local sewer or storm drain.

2.2.5 Equipment/Staging/Workers

Installation of the project components would require equipment including, but not limited to: excavators, wheel loaders, dump trucks, diesel generator, water truck, flat-bed trucks, and boring machine.

Equipment and vehicle staging would be at a suitable location to be identified and procured by the contractor. All of these facilities are graded, fenced for security, and owned and operated by the Contractor. The cities of Torrance and Palos Verdes Estates would need to review the Construction Staging and Traffic Management Plan and approve lane closures to street segments and intersections. WBMWD or its contractor(s) would make arrangements for the use of staging areas. A total of two (2) easements may be required to accommodate pipeline construction and maintenance.

Construction of the project could be performed by multiple construction crews working concurrently. Each crew would be comprised of approximately 6 to 8 workers.

2.2.6 Best Management Practices

The project would utilize best management practices (BMPs) for reducing potential impacts of construction, including implementation of the following plans:

- **Stormwater Pollution and Prevention Plan (SWPPP)**. For ground disturbance greater than one acre, a SWPPP is required, and would describe specific actions required to control the discharge of pollutants, including sediment, into local surface water drainage areas during construction. These actions may include:
  - Temporary de-silting basins to ensure that surface water flows do not carry significant amounts of onsite soils and contaminants downstream
  - Requiring construction vehicle maintenance be conducted in staging areas where appropriate controls have been established to ensure that fuels, motor oil, coolant, and other hazardous materials are not deposited into areas where they may enter surface water and groundwater
  - Restricting the use of chemicals that may be transferred to surface waters by stormwater flows or leach to groundwater basins through water percolation into the soil
  - Requiring that permanent slopes and embankments be vegetated following final grading
  - Installation of silt fences and/or erosion control blankets
  - Requiring proper handling and disposal of wastes
  - Installing anti-tracking pads at site exits to prevent offsite transport of soil material
- **Construction Management Plan (CMP)**. The CMP would provide for traffic and parking capacity, and staging and hauling activities during construction. This plan would be subject to review and approval by the cities of Torrance and Palos Verdes Estates and, at a minimum, would include the following:
  - Storage of construction material and equipment within the designated staging area and limitation of equipment and material visibility to the public
  - Compliance with pipeline commissioning requirements, including pressure testing and associated water disposal
  - A public information program to advise motorists, cyclists, and pedestrians of impending construction activities (e.g., portable message signs, and information signs at the construction site)

- Approval from the city(ies) or Caltrans, for any construction detours or construction work requiring encroachment into public ROW or any other street use activity (e.g., haul routes)
- Timely notification of construction schedules to all affected agencies (e.g., cities of Torrance and Palos Verdes Estates, sheriff's department, fire department, waste collection, Caltrans)
- Coordination of construction work with affected agencies 5 to 10 days prior to start of work
- A traffic control plan for the streets surrounding the work area, which includes specific information regarding the project's construction and activities that would disrupt normal traffic flow
- Minimizing dirt and demolition material hauling and construction material delivery during the morning and afternoon peak traffic periods, and cleaning of streets and equipment as necessary
- Limiting the number of truck trips to and from the site in the event that soil import/export is required
- Scheduling and expediting of work to cause the least amount of disruption and interference to the adjacent vehicular and pedestrian traffic flow; weekday daytime work on city streets shall primarily be performed between the hours of 9:00 AM and 3:00 PM
- Limiting queuing of trucks on area roadways
- Scheduling of preconstruction meetings with affected agencies to properly plan methods of controlling traffic through work areas
- Provision of off-street parking for construction workers

2.2.7 Schedule

Construction is expected to last up to five months. The first month includes mobilization to the site, preparation and approval of shop drawings and materials. Time has been allotted in the schedule for one crew to lay all pipe in a linear fashion, over a three month period. However, the contractor may choose to employ multiple crews. The final month of the schedule would be for pipeline testing and commissioning, final paving and site restoration, and acceptance of the work by WBMWD. Pump station construction is expected to take three to four months and be constructed concurrently with pipe laying.

Each section of the project would be constructed in phases. For pipeline construction, the first phase would be excavation and grading or trenching. The second phase would involve installation of the new pipeline and backfilling. The third phase would involve restoring the ground surface to its preconstruction condition. In most cases this would involve repaving the roadway. The final phase, once pipeline construction is complete, would consist of pipeline commissioning and testing.

2.2.8 Project Operation and Maintenance

WBMWD would operate and maintain the pipeline system and pump station. The pump station would be mechanically or electrically actuated and would require minimal human intervention. WBMWD would inspect the pump station annually and perform preventative maintenance, as needed. Occasional maintenance, such as lubrication, would be needed to maintain the pump station. The pipeline would be constructed of Polyvinyl Chloride (PVC), Ductile Iron or High Density

Polyethylene Pipe (HDPE) and would therefore require minimal maintenance. The operation and maintenance of the pipelines would not require new employees at WBMWD.

The water storage tank would be operated and maintained by the PVGC. The PVGC would be responsible for performing annual inspections and preventative maintenance for the water tank and associated equipment.

Environmental Factors Potentially Affected

This project would potentially affect the environmental factors checked below, involving at least one impact that is "Potentially Significant" or "Potentially Significant Unless Mitigation Incorporated" as indicated by the checklist on the following pages.

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

Determination

Based on 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 to 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 potential significant effects (a) have been analyzed adequately in an earlier EIR or NEGATIVE DECLARATION pursuant to applicable standards, and (b) have been avoided or mitigated pursuant to that earlier EIR or NEGATIVE DECLARATION, including revisions or mitigation measures that are imposed upon the proposed project, nothing further is required.

Signature

Sept 20, 2017

Date

Uzi Daniel

Printed Name

Environmental Compliance Supervisor

Title

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Chapter 3: Environmental Checklist

3.1 Aesthetics

	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less than Significant Impact	No Impact
Would the project have any of the following impacts?				
a. Substantial adverse effect on a scenic vista	☐	☐	☐	■
b. Substantial damage to scenic resources, including but not limited to trees, rock outcroppings, and historic buildings along a state scenic highway	☐	☐	☐	■
c. Substantially degrade the existing visual character or quality of the site and its surroundings	☐	☐	■	☐
d. Create a new source of substantial light or glare that would adversely affect daytime or nighttime views in the area	☐	☐	■	☐

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

The proposed project is located within the cities of Torrance and Palos Verdes Estates. The portion of the pipeline within Torrance is surrounded by mostly residential uses, with some pipeline sections along general commercial and public use areas near Pacific Coast Highway and Lago Seco Park. The portion of the pipeline within Palos Verdes Estates is surrounded by mostly residential uses and the PVGC. Torrance is almost entirely flat, though the hillsides bordering the western and southern sides of Torrance provide scenic views. The San Gabriel Mountains are located 20 miles north of Torrance and the Santa Ana Mountains are located approximately 30 miles southeast of Torrance. Further, the hillsides of the Riviera neighborhood on the western side of Torrance provide views of Torrance Beach and the Pacific Ocean. Palos Verdes Estates is located immediately southwest of Torrance and shares these scenic vistas, in addition to the Palos Verdes Estates Shoreline preserve located on the westernmost side of Palos Verdes Estates along the Pacific Ocean.

The portion of the pipeline within Torrance would be located primarily in a residential use area and would be entirely underground. Further, the portion of the pipeline within Palos Verdes Estates would mostly be within residential use areas and would be underground. The pump station in Lago Seco Park and the recycled water tank in the PVGC would be aboveground and visible to users of both of these facilities, but would not interrupt or impede an identified scenic vista. Therefore, no impact would occur.

NO IMPACT

b. Would the project substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings in a State scenic highway?

There are no officially designated State scenic highways in the vicinity of the project site either within Torrance or Palos Verdes Estates. Portions of Pacific Coast Highway (State Route 1) to the north of Torrance near Santa Monica and to the south of Torrance near Long Beach are designated as eligible State scenic highways, but neither segment is officially designated as a State scenic highway by the California Department of Transportation (Caltrans; Caltrans 2011). Though the pipeline would cross Pacific Coast Highway at Anza Avenue, this portion of the highway is not identified as an eligible State scenic highway. In addition, on completion of construction no visible evidence of the project would be present near Pacific Coast Highway. Therefore, the project would not result in a substantial adverse effect on a scenic resource visible from a State scenic highway.

Additionally, as identified in the City of Torrance General Plan EIR (City of Torrance 2009), aesthetic resources include numerous tree corridors in Torrance in addition to the city's beaches and coastlines. The City of Palos Verdes Estates General Plan (City of Palos Verdes Estates 1989) also includes the city's coastal parklands, including the Shoreline Preserve, and hillsides as scenic resources. The project would not affect any identified tree corridor in Torrance, nor would it be visible from the coastal parklands or hillsides identified in the City of Palos Verdes Estates General Plan, particularly given that most of the project would be underground. Any structures associated with the project, including the aboveground pump station and water storage tanks, would have a low profile and would not adversely affect views from or toward scenic resources within the project area. No impact would occur.

NO IMPACT

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

Construction of the proposed project would be visible from surrounding land uses and would temporarily alter the existing visual character and quality of the project area and vicinity. The visual character of the project site is primarily residential neighborhoods with the area near the intersection of Anza Avenue and Pacific Coast Highway characterized as industrial/commercial. Exceptions to this are the portion of the pipeline along Vista Montana, which is designated for educational uses but is currently undeveloped, the portion of the pipeline near Lago Seco Park, and the portion of the pipeline within PVGC.

A temporary change in visual character would result from the presence of construction equipment and material, stockpiles of soil, and construction vehicles during laydown of the pipeline, but this change would end once project construction is complete as the underground components of the project would not be visible to the public once installed and the disturbed areas restored to preconstruction conditions. Pipeline installation would occur at a rate of approximately 200 to 300 feet per day, over a five month period. As described in Chapter 2, Project Description, trenches would be open at any one location for up to three days, thus the visual character of the surrounding areas would be affected for short durations only. Therefore, the alteration of visual character and quality from pipeline construction would be temporary, short-term and not substantial.

The pump station in Lago Seco Park would be a permanent change in the visual character of that facility. The pump station enclosure would be designed to be in keeping with other structures already present within the park and therefore would not substantially degrade existing visual quality

or character of the park or its surroundings. In addition, the pump station structure would include outdoor security lighting which would be motion activated.

Similarly, the water storage tank at PVGC would be located adjacent to an existing pump station and form part of the existing water management infrastructure of the golf course. As such, the water storage tank would not substantially degrade the visual character or quality of the surrounding area.

Therefore, due to the temporary nature of pipeline construction and the design and placement of aboveground project features (i.e. pump station and water storage structure), the project would not substantially degrade the visual character or quality of the site and its surroundings and impacts would be less than significant.

LESS THAN SIGNIFICANT IMPACT

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

Construction of the proposed project components may create light and glare during construction due to the presence of construction vehicles and equipment. Construction would occur primarily during the daytime hours between 9:00 a.m. and 3:00 p.m., though late afternoon activities during the winter could require some lighting be used and in some cases nighttime construction may be required to reduce traffic issues on Pacific Coast Highway. This light may be visible from surrounding roadways and residential and other land uses, but the lighting would not face toward adjacent uses and would be directed towards pipeline installation activities. The presence of exterior lights during construction activities would create a new temporary light source that would otherwise not be present. However, this would be temporary, limited to the construction period and would last only as long as each individual pipeline component is installed (typically up to three days). The pipeline would not create a new source of light or glare once construction is complete as the pipelines would be located underground. Although there would be a new pump station structure at Lago Seco Park, it would be completely enclosed in non-reflective material and would only be lighted by motion-activated security lighting; therefore, the pump station would not create a new source of lighting or glare. As a result the project would not create a new source of substantial light or glare which would adversely affect day or nighttime views in the area. Therefore, impacts related to light and glare would be less than significant.

LESS THAN SIGNIFICANT IMPACT

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3.2 Agriculture and Forest Resources

	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less than Significant Impact	No Impact
Would the project have any of the following impacts?				
a. Convert Prime Farmland, Unique Farmland, Farmland of Statewide Importance (Farmland), as shown on 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	☐	☐	☐	■

a. Would the project convert Prime Farmland, Unique Farmland, 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. Would the project conflict with existing zoning for agricultural use, 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))?

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

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?

The project site would be located on land not currently mapped under the California Department of Conservation's Farmland Mapping and Monitoring Program (FMMP) (Department of Conservation 2014). Lands not mapped by the FMMP are considered as non-agricultural and are not in proximity to any Prime Farmland, Unique Farmland, or Farmland of Statewide Importance. Further, the project site would not be on land enrolled under the Williamson Act or zoned for agricultural use (Department of Conservation 2016). The project site and surrounding areas are not zoned as forest land or timberland. The project would also not cause the loss of forest land or conversion of forest land to non-forest use. Due to the absence of agricultural land at the project site or in the surrounding area, the project would not involve changes to the existing environment which could result in conversion of Farmland to a non-agricultural use. No impact to agricultural or forest resources would occur.

NO IMPACT

3.3 Air Quality

	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less than Significant Impact	No Impact
Would the project have any of the following impacts?				
a. Conflict with or obstruct implementation of the applicable air quality plan	☐	☐	☐	■
b. Violate any air quality standard or contribute substantially to an existing or projected air quality violation	☐	☐	■	☐
c. Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors)	☐	☐	■	☐
d. Expose sensitive receptors to substantial pollutant concentrations	☐	☐	■	☐
e. Create objectionable odors affecting a substantial number of people	☐	☐	■	☐

The project site is within the South Coast Air Basin (SCAB), which is under the jurisdiction of the South Coast Air Quality Management District (SCAQMD). The local air quality management agency is required to monitor air pollutant levels to ensure that National Ambient Air Quality Standards (NAAQS) and California Ambient Air Quality Standards (CAAQS) are met and, if they are not met, to develop strategies to meet the standards.

Depending on whether or not the standards are met or exceeded, the SCAB is classified as being in "attainment" or "nonattainment." The NAAQS and CAAQS attainment statuses for the SCAB are listed in Table 4. As shown therein, the SCAB is in nonattainment for both the federal and State standards for ozone and particulate matter less than 2.5 microns in size ($PM_{2.5}$), as well as the federal standard for lead and the State standard for particulate matter less than 10 microns in size (PM_{10}; SCAQMD 2016). Thus, the SCAB currently exceeds several State and federal ambient air quality standards and is required to implement strategies that would reduce pollutant levels to recognized acceptable standards. This non-attainment status is a result of several factors, the primary ones being the naturally adverse meteorological conditions that limit the dispersion and diffusion of pollutants, the limited capacity of the local airshed to eliminate pollutants from the air, and the number, type, and density of emission sources within the SCAB. The SCAQMD has adopted an Air Quality Management Plan (AQMP) that provides a strategy for the attainment of State and federal air quality standards.

Table 4 South Coast Air Basin Attainment Status

Pollutant	Standard	Designation
1-Hour Ozone	NAAQS CAAQS	Nonattainment (Extreme) Nonattainment
8-Hour Ozone	NAAQS CAAQS	Nonattainment (Extreme)[1] Nonattainment
CO	NAAQS CAAQS	Attainment (Maintenance) Attainment
NO_2	NAAQS CAAQS	Attainment (Maintenance)[2] Attainment
SO_2	NAAQS	Designations Pending/Unclassifiable/Attainment[3]
PM_{10}	NAAQS CAAQS	Attainment (Maintenance) Nonattainment
$PM_{2.5}$	NAAQS CAAQS	Nonattainment (Serious)[4] Nonattainment
Lead	NAAQS	Nonattainment (Partial)
Hydrogen Sulfide	CAAQS	Attainment
Sulfates	CAAQS	Attainment
Vinyl Chloride	CAAQS	Attainment

NAAQS: National Ambient Air Quality Standards; CAAQS: California Ambient Air Quality Standards; CO: carbon monoxide; PM_{10}: particulate matter less than 10 microns in size; $PM_{2.5}$: particulate matter less than 2.5 microns in size; NO_2: nitrogen dioxide; SO_2: sulfur dioxide

[1] SCAB is designated Nonattainment (Extreme) for the 1997 and 2008 8-Hour Ozone NAAQS. Designation is pending for the 2015 8-Hour Ozone NAAQS

[2] SCAB is designated Unclassifiable/Attainment for the 1-Hour NO_2 NAAQS and Attainment (Maintenance) for the Annual NO_2 NAAQS

[3] SCAB has designations pending for the 1-Hour SO_2 NAAQS and is designated Unclassifiable/Attainment for the Annual SO_2 NAAQS

[4] SCAB is designated Nonattainment (Serious) for the 2006 24-Hour $PM_{2.5}$ NAAQS, Nonattainment for the 1997 Annual $PM_{2.5}$ NAAQS, and Nonattainment (Serious) for the 2012 Annual $PM_{2.5}$ NAAQS

Sources: SCAQMD 2016

The SCAQMD provides numerical thresholds to analyze the significance of a project's construction and operational emissions to regional air quality. These thresholds are designed such that a project consistent with the thresholds would not have an individually or cumulatively significant impact to the SCAB's air quality. These thresholds are listed in Table 5.

Table 5 SCAQMD Air Quality Significance Thresholds

Pollutant	Mass Daily Thresholds	
	Operation Thresholds (pounds/day)	Construction Thresholds (pounds/day)
NO_X	55	100
ROG[1]	55	75
PM_{10}	150	150
$PM_{2.5}$	55	55
SO_X	150	150
CO	550	550
Lead	3	3

NO_X: nitrogen oxides; PM_{10}: particulate matter less than 10 microns in size; $PM_{2.5}$: particulate matter less than 2.5 microns in size; SO_X: sulfur oxides; CO: carbon monoxide; ROG: reactive organic gases; VOC: volatile organic compounds

[1] Reactive Organic Gases are formed during combustion and evaporation of organic solvents. Reactive Organic Gases are also referred to as Volatile Organic Compounds

Source: SCAQMD 2015

The SCAQMD has also developed Localized Significance Thresholds (LSTs) in response to the Governing Board's Environmental Justice Enhancement Initiative (1-4), which was prepared to update the SCAQMD's CEQA Air Quality Handbook. LSTs were devised in response to concern regarding exposure of individuals to criteria pollutants in local communities. LSTs represent the maximum emissions from a project that would not cause or contribute to an air quality exceedance of the most stringent applicable federal or State ambient air quality standard at the nearest sensitive receptor, taking into consideration ambient concentrations in each source receptor area (SRA), project size, and distance to the sensitive receptor. LSTs only apply to emissions within a fixed stationary location, including idling emissions during both project construction and operation. LSTs have been developed for nitrogen oxides (NO_X), carbon monoxide (CO), PM_{10} and $PM_{2.5}$. LSTs do not apply to mobile sources such as cars on a roadway (SCAQMD 2008).

LSTs have been developed for emissions within areas up to five acres in size, with air pollutant modeling recommended for activity within larger areas. The SCAQMD provides lookup tables for project sites that measure one, two, or five acres. The proposed project involves approximately 1.3 acres of construction. The SCAQMD's (2005) *Sample Construction Scenarios for Projects Less than 5 Acres in Size* contains methodology for determining the thresholds for projects that are not exactly one, two, or five acres in size. This methodology was implemented to determine the thresholds for the proposed project. The project site is located in Source Receptor Area 3 (SRA-3, Southwest Coastal LA County). LSTs are provided for sensitive receptors at a distance of 82 to 1,640 feet from the project site boundary. Sensitive receptors typically include residences, schools, hospitals, and the elderly. The closest sensitive receptors to the project site are residences located adjacent to the pipeline along a majority of the alignment. According to the SCAQMD's LST methodology, projects with boundaries closer than 25 meters (82 feet) to the nearest receptor should use the LSTs for receptors located at 25 meters (SCAQMD 2008). LSTs for construction on a 1.3-acre site in SRA-3 are shown in Table 6.

Table 6 SCAQMD LSTs for Construction

Pollutant	Allowable emissions from a 1.3-acre site in SRA-3 for a receptor within 82 feet (pounds/day)
Gradual conversion of NO_x to NO_2	103
CO	755
PM_{10}	6
$PM_{2.5}$	4

SRA: Source Receptor Area; NO_X: nitrogen oxides; NO_2: nitrogen dioxide; PM_{10}: particulate matter less than 10 microns in size; $PM_{2.5}$: particulate matter less than 2.5 microns in size; CO: carbon monoxide

Source: SCAQMD 2008

General Conformity with the State Implementation Plan is a federal Clean Air Act (CAA) regulatory process that applies to most federal actions. For SRF funded projects, a CAA general conformity analysis applies only to projects in a nonattainment area or an attainment area subject to a maintenance plan, and is required for each criteria pollutant for which an area has been designated nonattainment or maintenance. The General Conformity Rule ensures that actions taken by federal agencies in nonattainment and maintenance areas do not interfere with the State's plans to meet NAAQS. 40 Code of Federal Regulations (CFR) Part 93.153 defines *de minimis* levels, which are the minimum threshold for which a conformity determination must be performed. If the proposed project's annual emissions are below the applicable *de minimis* levels, the project is not subject to a general conformity determination.

Based on the federal attainment statuses for the SCAB, the *de minimis* levels that apply to the SCAB are listed in Table 7. These levels apply to all direct and indirect annual emissions generated during construction and operation of the project.

Table 7 General Conformity De Minimis Emission Rates for the South Coast Air Basin

Pollutant	SCAB NAAQS Attainment Status Designation	De Minimis Emission Rate (tons/year)
Ozone (VOC or NO_X)	Extreme Nonattainment	10
CO	Serious Maintenance	100
PM10	Maintenance	100
$PM_{2.5}$	Serious Nonattainment	100
SO_2 or NO_2	Maintenance	100
Lead	Partial Nonattainment	25

SCAB: South Coast Air Basin; NAAQS: National Ambient Air Quality Standards; VOC: volatile organic compounds; NO_X: nitrogen oxides; CO: carbon monoxide; PM_{10}: particulate matter less than 10 microns in size; $PM_{2.5}$: particulate matter less than 2.5 microns in size; SO_2: sulfur dioxide; NO_2: nitrogen dioxide

Sources: USEPA 2017; SCAQMD 2016

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

A project may be inconsistent with the AQMP if it would generate population, housing, or employment growth exceeding the forecasts used in the development of the AQMP. The 2016 AQMP relies on local city general plans and the Southern California Association of Governments' (SCAG) Regional Transportation Plan (RTP) forecasts of regional population, housing, and employment growth in its projections for managing the SCAB air quality.

The proposed project involves the expansion of a recycled water system to serve non-potable demands, such as irrigation uses that are currently served by raw or potable water. Specifically, the water would serve a local golf course, as well as several other municipal uses. Provision of recycled water would not directly induce population growth because it would not produce additional water supply; rather, it would utilize locally treated water that is currently produced at WBMWD's ELWRF in El Segundo. The project does not include new housing or businesses, nor would operation and maintenance of the proposed project facilities require new employees; therefore, the project would not generate population, housing, or employment growth. The project would not exceed SCAG's projected growth forecasts, and thus, would not conflict with or obstruct implementation of the AQMP. No impact would occur.

NO IMPACT

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

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

The project would generate short-term emissions associated with project construction and long-term emissions associated with operation of the pump station. Construction and operational project emissions were estimated using the California Emissions Estimator Model (CalEEMod) version 2016.3.1. CalEEMod was developed by the SCAQMD and is used by jurisdictions throughout the state to quantify criteria pollutant emissions.

Construction Emissions

Project construction would generate temporary air pollutant emissions. These impacts are associated with fugitive dust and exhaust emissions from heavy construction vehicles. The excavation phase of the project would involve the largest use of heavy equipment and generation of fugitive dust. Table 8 summarizes maximum daily pollutant emissions during construction of the project.

Table 8 Construction Emissions (pounds/day) Compared to SCAQMD Thresholds

	Estimated Maximum Daily Emissions (pounds/day)					
Construction Phase	**ROG**	**NO_X**	**CO**	**SO_X**	**PM_{10}**	**$PM_{2.5}$**
Maximum	2.8	22.6	15.5	<0.1	5.9	3.3
SCAQMD Thresholds	75	100	550	150	150	55
Threshold Exceeded?	No	No	No	No	No	No
Maximum (Onsite only)	2.6	17.4	13.9	<0.1	2.7	1.7
Local Significance Thresholds (Onsite only)	n/a	103	755	n/a	6	4
Threshold Exceeded?	n/a	No	No	No	No	No

SCAQMD: South Coast Air Quality Management District; ROG: reactive organic gases; NO_X: nitrogen oxides; CO: carbon monoxide; SO_X: sulfur oxides; PM_{10}: particulate matter less than 10 microns in size; $PM_{2.5}$: particulate matter less than 2.5 microns in size

See Appendix A for modeling details and CalEEMod results.

Notes: Emissions presented are the highest of the winter and summer modeled emissions. Numbers may not add up due to rounding. Emission data is pulled from "mitigated" results, which include measures that will be implemented during project construction, such as watering of soils during construction required under the SCAQMD Rule 403.

As shown in Table 8, project construction emissions would not exceed the SCAQMD's regional thresholds or LSTs. Therefore, impacts to regional air quality and local receptors due to construction emissions would be less than significant.

Operational Emissions

The pipeline would not require regular maintenance. The pump station would be operated remotely via radio communications with WBMWD's supervisory control data acquisition systems. Occasional maintenance, such as lubrication, would be needed to maintain the equipment on the pump station. However, worker trips associated with maintenance would be infrequent and included as part of WBMWD's existing maintenance program. Operational emissions associated with maintenance trips would be nominal. The pump station would have operational emissions associated with daily electricity use, but as shown in Table 9, energy demand would not generate substantial operational emissions and emissions would not exceed the SCAQMD thresholds for any criteria pollutant. Therefore, operational emissions would have a less than significant impact on regional air quality.

Table 9 Operational Emissions (pounds/day) Compared to SCAQMD Threshold

	Estimated Maximum Daily Emissions (pounds/day)					
Emissions Source	**ROG**	**NO_X**	**CO**	**SO_X**	**PM_{10}**	**$PM_{2.5}$**
Area	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Energy	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Mobile	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Total Operational Emissions	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
SCAQMD Thresholds	55	55	550	150	150	55
Threshold Exceeded?	No	No	No	No	No	No

ROG: reactive organic gases; NO_X: nitrogen oxides; CO: carbon monoxide; SO_X: sulfur oxides; PM_{10}: particulate matter less than 10 microns in size; $PM_{2.5}$: particulate matter less than 2.5 microns in size

See Appendix A for modeling details and CalEEMod results.

Notes: Emissions presented are the highest of the winter and summer modeled emissions. Numbers may not add up due to rounding.

General Conformity Assessment

Table 10 summarizes the project's total annual construction and operational emissions and compares total annual emissions to the applicable *de minimis* threshold for the SCAB region. As shown in Table 10, the project's criteria air pollutant emissions would not exceed the applicable *de minimis* thresholds. Therefore, the general conformity requirements do not apply to these pollutants, and the project is exempt from a conformity determination.

Table 10 Total Annual Project Emissions Compared to De Minimis Threshold

	Estimated Annual Emissions (tons/year)						
Emissions Source	**ROG**	**NO_X**	**NO_2**	**CO**	**PM_{10}**	**$PM_{2.5}$**	**SO_2**
Construction Emissions	0.2	1.5	1.5	0.8	0.2	0.1	<0.1
Operational Emissions	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Total Emissions	0.2	1.5	1.5	0.8	0.2	0.1	<0.1
De Minimis Thresholds	10	10	100	100	100	100	100
Threshold Exceeded?	No	No	No	No	No	No	No

ROG: reactive organic gases; NO_X: nitrogen oxides; CO: carbon monoxide; PM_{10}: particulate matter less than 10 microns in size; $PM_{2.5}$: particulate matter less than 2.5 microns in size; SO_2: sulfur dioxide; NO_2: nitrogen dioxide

See Appendix A for modeling details and CalEEMod results.

LESS THAN SIGNIFICANT IMPACT

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

Certain population groups, such as children, the elderly, and people with health problems, are particularly sensitive to air pollution. Sensitive receptors are defined as land uses that are more likely to be used by these population groups and include health care facilities, retirement homes, school and playground facilities, and residential areas. As described, the pipeline alignment is predominantly surrounded by sensitive receptors. Residential neighborhoods surround the majority of the pipeline alignment, and four schools are immediately adjacent to different branches of the alignment. As discussed under items (b) and (c) above, the project's construction emissions would not exceed the SCAQMD regional thresholds or LSTs, which are designed to be protective of public health.

Further, traffic-congested roadways and intersections have the potential for the generation of localized CO levels (i.e., CO hotspots). In general, CO hotspots occur in areas with poor circulation or areas with heavy traffic. As shown in Table 9, the project's operational CO emissions would be negligible and well below the SCAQMD's regional operational thresholds. As further discussed within Section 16, Transportation, pipeline maintenance would not increase daily trips to the area. Therefore, the project would not result in CO hotspots on adjacent roadways. The project would not expose sensitive receptors to substantial pollutant concentrations and impacts would be less than significant.

LESS THAN SIGNIFICANT IMPACT

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

Recycled water pipelines would be belowground and would not create objectionable odors. The project would generate oil or diesel fuel odors during construction from equipment. The odors would be limited to the time that construction equipment is operating and would be temporary. As a result, impacts would be less than significant.

LESS THAN SIGNIFICANT IMPACT

3.4 Biological Resources

	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less than Significant Impact	No Impact
Would the project have any of the following impacts?				
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, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service	☐	☐	☐	■
c. Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means	☐	☐	☐	■
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?	☐	☐	☐	■

In June of 2017, Rincon Consultants, Inc. conducted a Biological Resources Assessment, including a literature review and field reconnaissance survey to document existing site conditions and the potential presence of special-status biological resources, including plant and wildlife species, plant communities, jurisdictional waters and wetlands, and habitat for nesting birds. The following summarizes the findings of the assessment. The complete Biological Resources Assessment is contained in Appendix B of this document.

The majority of the proposed alignment is within previously developed areas. The vegetation community type identified within the project study area is Urban/Developed lands. Urban/Developed lands include areas that have been constructed upon or are otherwise physically altered to an extent that native vegetation is no longer supported or only exists in very small remnant patches. Typically, Urban/Developed lands are characterized by permanent or semi-permanent structures, pavement or hardscape, and landscaped areas that require irrigation. Also included are areas that have been physically disturbed (by previous human activity) and are no longer recognizable as a native or naturalized vegetation association, but continue to retain a soil substrate. Urban/Developed lands may also contain important stands of native or non-native trees within the developed or altered landscape, such as street trees, residential shade trees, privacy or windbreak trees, and trail/easement or median landscape trees.

Specifically, areas identified as hardscape Urban/Developed lands along the project survey area include the structures, paved roads, and associated property landscaping. Landscaping may incorporate both native and non-native species including, but not limited to: kikuyu grass (*Pennisetum clandestinum*), annual bluegrass (*Poa annua*), bentgrass, (*Agrostis* spp.), pampas grass (*Cortadaria jubata*), willow (*Salix* spp.), Canary Island date palm (*Phoenix canariensis*), Mexican fan palm (*Washingtonia robusta*), myoporum (*Myoporum laetum*), New Zealand Christmas tree (*Metrosideros excelsa*), Peruvian pepper tree (*Schinus molle*), cherry (*Prunus* sp.), cedar (*Calocedrus* sp.), tree of heaven (*Ailanthus altissima*) western sycamore (*Platanus racemosa*), various eucalyptus (*Eucalyptus* spp.), various pines (*Pinus* spp.), various oaks including coast live oak, holly oak, and others (*Quercus agrifolia*, *Q. ilex*, *Quercus* spp.).

Important stands of trees on Urban/Developed lands along the project survey area include the eucalyptus street trees along the PVGC course margin, the Palos Verdes Drive median, Torrance Utility Road trail/easement, and the Valmonte trail/easement. Mixed ornamental trees on the Urban/Development lands include the open cut slopes along the western side of Via Las Vegas south of the Torrance Utility Road trail/easement, north and south of Vista Montana, and south of Vista Largo. The cut slopes also contain small to very small bottom story patches of non-native, weedy, grassland species mixed with ice plant (*Carpobrotus edulis*) and other ornamentals. Species of this type observed include wild oats (*Avena* spp.), filarees (*Erodium* spp.), Russian thistle (*Salsola tragus*), telegraph weed (*Heterotheca grandiflora*), and sow-thistle (*Sonchus oleraceus*).

The alignment and surrounding areas provide habitat suitable for wildlife species that commonly occur in southern California urban and residential areas. Avian species observed/detected on or adjacent to the study area include California towhee (*Melozone crissalis*), wrentit (*Chamaea fasciata*), mourning dove (*Zenaida macroura*), American crow (*Corvus brachyrhynchos*), red-tailed hawk (*Buteo jamaicensis*), acorn woodpecker (*Melanerpes formicivorus*), Anna's hummingbird (*Calypte anna*), bushtit (*Psaltriparus minimus*), house wren (*Troglodytes aedon*), house sparrow (*Passer domesticus*), northern mockingbird (*Mimus polyglottos*), house finch (*Haemorhous mexicanus*), cliff swallow (*Petrochelidon pyrrhonota*), song sparrow (*Melospiza melodia*), black-headed grosbeak (*Pheucticus melanocephalus*), yellow warbler (*Dendroica petechial*), and a kingbird (*Tyrannus* sp.).

Mammalian species observed/detected include the cottontail rabbit (*Sylvilagus* sp.) and California ground squirrel (*Otospermophilus beecheyi*). Reptilian species observed include the western fence lizard (*Sceloporus occidentalis*) and alligator lizard (*Elgaria multicarinata*). Insects observed include western tiger swallow tail (*Papilio rutulus*), monarch butterfly (*Danaus plexippus*), mourning cloak butterfly (*Nymphalis antiopa*), cabbage white butterfly (*Pieris rapae*) and orb weavers (Family Araneidae). No permanent aquatic resources are present in the study area, and no fish or amphibians species were observed during the field survey.

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

Special-status species are those plants and animals that are: 1) listed, proposed for listing, or candidates for listing as Threatened or Endangered by the United States Fish and Wildlife Service (USFWS) and National Marine Fisheries Service (NMFS) under the federal Endangered Species Act; 2) listed or proposed for listing as Rare, Threatened, or Endangered by the California Department of Fish and Wildlife (CDFW) under the California Endangered Species Act; 3) recognized as Species of Special Concern by the CDFW; 4) afforded protection under Migratory Bird Treaty Act (MBTA) and/or California Fish and Game Code (CFGC); and 5) occurring on lists 1 and 2 of the CDFW California Rare Plant Rank system per the following definitions:

- List 1A = Plants presumed extinct in California
- List 1B.1 = Rare or endangered in California and elsewhere; seriously endangered in California (over 80 percent of occurrences threatened/high degree and immediacy of threat)
- List 1B.2 = Rare or endangered in California and elsewhere; fairly endangered in California (20 to 80 percent occurrences threatened)
- List 1B.3 = Rare or endangered in California and elsewhere, not very endangered in California (<20 percent of occurrences threatened or no current threats known)
- List 2 = Rare, threatened or endangered in California, but more common elsewhere

In addition, special-status species are ranked globally (G) and subnationally (S) 1 through 5 based on NatureServe's (2010) methodologies:

- G1 or S1 - Critically Imperiled Globally or Subnationally (state)
- G2 or S2 - Imperiled Globally or Subnationally (state)
- G3 or S3 - Vulnerable to extirpation or extinction Globally or Subnationally (state)
- G4 or S4 - Apparently secure Globally or Subnationally (state)
- G5 or S5 - Secure Globally or Subnationally (state)
- ? - Inexact Numeric Rank
- T - Infraspecific Taxon (subspecies, varieties, and other designations below the level of species)
- Q – Questionable taxonomy that may reduce conservation priority

Rincon staff determined that the project alignment does not contain suitable habitat for any special status plant species. While 15 special status plant species have been previously documented within a five-mile radius by the California Natural Diversity Database (CNDDB), the project alignment does not contain suitable habitat for these species based on a variety of factors, including: the disturbance history of the alignment, hardscape and/or lack of suitable soils, inappropriate hydrologic conditions, absence of appropriate vegetation communities, or being outside the elevation range of the species. No special status plant species were observed within the alignment area, including the potential pump station and water storage tank locations, during the survey effort. The proposed project does not have the potential to result in direct or indirect impacts to special-status plant species.

Rincon evaluated 16 wildlife species for their potential to occur within the project alignment. The assessment of the potential for these species to occur is based upon the presence of suitable habitat as identified during surveys and existing knowledge of species occurrences and distributions in the region. The site was determined not to provide suitable habitat for these species based on a variety of factors, including: the disturbance history of the alignment, hardscape and/or lack of suitable soils, or inappropriate supporting environment and vegetation communities. Even so, four species have a very low potential to occur: Crotch bumble bee (*Bombus crotchii*), Palos Verdes blue butterfly (*Glaucopsyche lygdamus palosverdesensis*), western mastiff bat (*Eumops perotis californicus*), and pocketed free-tailed bat (*Nyctinomops femorosaccus*). Although there are no occurrences of these species along the alignment, suitable habitat is generally not present, and their occurrence is unlikely, there is a low potential for transient individuals to occur. The only sensitive wildlife species present in the alignment is the monarch butterfly; however, the sensitivity generally applies to the overwintering sites/populations. There are two overwintering sites/populations in eucalyptus groves northwest of Malaga Dunes, and west of the golf course, which do not intersect and are not adjacent to the project alignment. Transient individuals of monarch butterflies are present and were observed during the survey effort.

No special status wildlife species were observed within the project area during the survey effort. All of the species with potential to occur along the alignment are winged, highly mobile, and do not have essential habitat within the alignment. Even if present, occurrence of these species would be transient and temporary. Therefore, direct or indirect impacts to wildlife would be less than significant.

The project site provides general nesting bird habitat, primarily where the streets have tree-lined medians, such as Anza Avenue and Palos Verdes Drive, but also numerous residential streets with tall, dense, or otherwise prominent curbside trees, and also where the alignment intersects with parks. While focused nesting bird surveys were not conducted, the project area provides suitable nesting habitat for numerous species of birds, including common raptors such as red-tailed hawks (*Buteo jamaicensis*) and various owls (Family Tytonidae). Nesting birds are likely to be present within the project limits during the nesting season. Nesting bird species are protected by the Migratory Bird Treaty Act and the CFGC. If initial ground disturbance and vegetation/tree trimming or removal is required during the nesting bird season, the project may impact nesting birds through increased injury or mortality or disruption of normal adult behaviors resulting in the abandonment or harm to eggs and nestlings. Construction occurring within the vicinity of nesting birds may also indirectly impact individuals with construction noise and dust. Measures necessary to reduce these potential impacts to less than significant levels are recommended below.

POTENTIALLY SIGNIFICANT UNLESS MITIGATION INCORPORATED

Mitigation Measures

The following mitigation measures would reduce impacts to a less than significant level.

Mitigation Measure BIO-1: Nesting Birds

To avoid impacts to nesting bird species and raptors, all initial ground-disturbing activities and tree removal should be limited to the time period between September 15 and February 1. If initial ground-disturbing activities and tree removal cannot be limited to this time period, West Basin Municipal Water District or the project contractor shall complete a pre-construction survey to determine if nesting birds are with the project area and might be disturbed by construction activities. Such surveys must be conducted by a qualified biologist with at least two years of experience carrying out field surveys for breeding and nesting birds in Southern California.

Construction activity shall be scheduled so that no more than seven days elapse between the pre-construction survey and the commencement of any activity that would potentially disturb trees or shrubs in the nesting zone. The pre-construction survey should determine if birds are breeding and/or nesting in the construction zone or within 300 feet (500 feet for raptors) of the construction zone. Pre-construction nesting bird and raptor surveys shall be conducted during the time of day when birds are active and shall be of sufficient duration to reliably conclude presence/absence of nesting birds and raptors onsite and within the designated vicinity.

If nests are found, an avoidance buffer (which is dependent upon the species, screening vegetation, the proposed work activity, ambient levels of human activity, and existing disturbances associated with land uses outside of the site) shall be determined and demarcated by the biologist with bright orange construction fencing, flagging, construction lathe, or other means to mark the boundary until the adults and young are no longer reliant on the nest site. West Basin Municipal Water District or the project contractor shall monitor construction activities that occur near active nest areas to ensure that no inadvertent adverse impacts affect the nest.

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, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?

Plant communities are considered sensitive biological resources if they have limited distributions, have high wildlife value, include sensitive species, or are particularly susceptible to disturbance. CDFW ranks sensitive communities as "threatened" or "very threatened" and keeps records of their occurrences in CNDDB. Similar to special-status plant and wildlife species, vegetation alliances are ranked 1 through 5 based on NatureServe's (2010) methodology, with those alliances ranked globally (G) or statewide (S) as 1 through 3 considered sensitive.

According to the CNDDB, only one sensitive plant community, Southern Coastal Bluff Scrub, has been previously documented within a five-mile radius the project site. No sensitive plant communities have been previously documented within the project site and no Southern Coastal Bluff Scrub was observed onsite during the biological field survey. Consequently, the proposed project does not have the potential to result in direct or indirect impacts to sensitive vegetation communities. No impact would occur.

NO IMPACT

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

Areas potentially subject to United States Army Corps of Engineers (USACE), Regional Water Quality Control Board (RWQCB), and CDFW jurisdiction were assessed during the literature review and field visit. Results of the research and field visit determined that no potentially jurisdictional waterways are present on the project site. As described in the Topography and Soils section within the Biological Resources Assessment, the four soil types found along the project alignment are not rated as hydric, and are considered well drained. The existing alignment terminates at an artificial pond on the golf course. This pond, and another adjacent to it (on the opposite side from the alignment), are each included in the USFWS National Wetlands Inventory as an excavated, unconsolidated bottom, permanently-flooded palustrine feature. However, the existing alignment on this part of the golf course will remain the same and no excavation or construction will occur near the golf course pond. No evidence of ponding water was observed along the proposed alignment, and no obligate or facultative wetland plant species were observed within the project area. Therefore, the proposed alignment is not considered to be under the jurisdiction of USACE, RWQCB, or CDFW. The project does not have the potential to result in direct impacts to jurisdictional areas, wetlands other waters, or riparian habitats. No habitat of quality to support native riparian plant/wildlife species is present. Federally protected wetlands or waters as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) do not occur onsite. As a result, no impact would occur.

NO IMPACT

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?

The project is located within an urbanized area; therefore, it is unlikely that wildlife utilize the immediate area for regional movement. Furthermore, CDFW does not include any mapped California Essential Habitat Connectivity areas within the study area, nor does it contain any Missing Linkages, as identified by South Coast Wildlands Network. Direct impacts to wildlife movement as a result of project implementation would be less than significant. The completed project will not impede the movement of wildlife through the region. The proposed pump station in Lago Seco Park will create some noise when pumping; however, noise from the pump is expected to be negligible compared to ambient noise from the surrounding urban and residential uses, including an existing, unrelated pump house at Walteria Lake 0.25 mile northeast of the one proposed as part of this project). Therefore, the impact would be less than significant impacts.

LESS THAN SIGNIFICANT IMPACT

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

Street tree impacts would be regulated by the city within which they occur (i.e., Torrance or Palos Verdes Estates). Impacts to trees that meet the requirements of these cities' municipal codes and local policies would require a permit to be obtained prior to trimming or removal.

Per Section 5 to Article 1 of Chapter 5 of Division 7 of the Torrance Municipal Code, property owners may have the City tree adjacent to their property trimmed or removed by a private contractor

through a permit process. There is no charge for the City permit; however, property owners are responsible for contacting a licensed City-approved tree contractor, and for all costs associated with the work. Maintenance practices detrimental to trees, such as topping and over pruning, are not condoned by the City.

The City of Torrance street tree policy establishes special designated areas in the City where street trees have created an ambiance and image for Torrance and should be protected and conserved. These Street Tree Special Designated Areas are exempt from this permit process. There are no Street Tree Special Designated Areas within or immediately adjacent to the project alignment.

The City would consider removing a City tree under certain circumstances:

- Rotting of interior or roots/disease/insect infestation
- Curb/sidewalk/street repairs (based on individual assessments by an inspector)
- Structural damage (must be determined that damage was caused by a City tree)

The City does not remove City trees for sewer damage, concrete damage, or views.

Per Sections 010 – 120 of Chapter 16 of Title 12 of the City of Palos Verdes Estates', street trees are prohibited from trimming, injury, or removal without written permission and permit from the Public Works Director. Trees with an existing planting plan shall remain until natural causes or approval by the Parklands Committee permits removal.

With acquisition of appropriate pre-project approval and permits, the project would not conflict with any local policies or ordinances protecting tree preservation policy or ordinance. Assuming this approval, no impacts would occur.

NO IMPACT

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?

The project site is not located within the jurisdiction of an adopted Habitat Conservation Plan, Natural Community Plan, or other approved local, regional, or state habitat conservation plan. Thus, no impact would occur.

NO IMPACT

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3.5 Cultural Resources

	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less than Significant Impact	No Impact
Would the project have any of the following impacts?				
a. Cause a substantial adverse change in the significance of a historical resource as defined in §15064.5	☐	☐	☐	■
b. Cause a substantial adverse change in the significance of an archaeological resource as defined in §15064.5	☐	■	☐	☐
c. Directly or indirectly destroy a unique paleontological resource or site or unique geological feature	☐	■	☐	☐
d. Disturb any human remains, including those interred outside of formal cemeteries	☐	☐	■	☐

Information in this section regarding cultural (i.e., archaeological and historical) and paleontological resources includes data from the cultural resources technical study conducted by Rincon Consultants, Inc. (Appendix C) and the paleontological resources assessment conducted by Rincon Consultants, Inc. (Appendix D). The significance of cultural and/or paleontological resources and impacts to those resources is determined by whether or not those resources can increase our collective knowledge of the past. The primary determining factors are site content and degree of preservation.

For the purpose of this analysis, a significant impact would occur if physical changes to these resources would result in the following conditions, listed in Appendix G of the *State CEQA Guidelines*:

1) Cause a substantial adverse change in the significance of a historical resource as defined in CEQA Guidelines §15064.5;
2) Cause a substantial adverse change in the significance of an archaeological resource pursuant to CEQA Guidelines §15064.5;
3) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature; and/or
4) Disturb any human remains, including those interred outside of formal cemeteries.

A "substantial adverse change" in the significance of a historical resource is defined as "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." State CEQA Guidelines Section 15064.5(b) states that the significance of an historical resource is "materially impaired" when a project does any of the following:

- 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;
- Demolishes or materially alters in an adverse manner those physical characteristics that account for its inclusion in a local register of historical resources or its identification in an historical resources survey, 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 a historical resource that convey its historical significance and that justify its eligibility for inclusion in the California Register of Historical Resources as determined by a lead agency for purposes of CEQA.

State CEQA Guidelines Section 15064.5 also states that the term "historical resources" shall include the following:

1) A resource listed in, or determined to be eligible by the State Historical Resources Commission, for listing in, the California Register of Historical Resources (Public Resources Code [PRC] Section 5024.1, Title 14 California Code of Regulations [CCR], Section 4850 et. seq.).
2) A resource included in a local register of historical resources, as defined in Section 5020.1(k) of the PRC or identified as significant in an historical resource survey meeting the requirements of Section 5024.1(g) of the PRC, shall be presumed to be historically or culturally significant. Public agencies must treat any such resource as significant unless the preponderance of evidence demonstrates that it is not historically or culturally significant.
3) Any object, building, structure, site, area, place, record, or manuscript which a lead agency determines to be historically significant or significant in the architectural, engineering, scientific, economic, agricultural, educational, social, political, military, or cultural annals of California, may be considered to be an historical resource, provided the lead agency's determination is supported by substantial evidence in light of the whole record. Generally, a resource shall be considered by the lead agency to be "historically significant" if the resource meets the criteria for listing in the California Register of Historical Resources (PRC Section 5024.1, Title 14 CCR, Section 4852) as follows:
    - Is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage;
    - Is associated with the lives of persons important in our past;
    - 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; or
    - Has yielded, or may be likely to yield, information important in prehistory or history (State CEQA Guidelines Section 15064.5).

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

The project is located within the cities of Palos Verdes Estates and Torrance in Los Angeles County, California. The proposed project would be primarily within existing roads throughout previously developed residential neighborhoods, as well as city parks and the PVGC. The cultural resources records search and field survey identified no historic resources within the project site. Local historic group consultation revealed potential historic resources identified by the Palos Verdes Homes Association and Art Jury, including buildings and streets within the city, although these are not formally recorded as historic resources. The project alignment would enter Los Arboles (Rocketship) Park which contains "The Rocketship" playground structure, considered a local landmark by the Torrance Historical Society, but also not formally recorded as a historic resource. The proposed pipelines to be installed would not be near the structure, would be completely underground, and the landscaping and pavement would be repaired in kind.

In addition, the pipeline and a water storage tank would be constructed within the PVGC property. As detailed in Appendix C, the property is recommended ineligible for listing in the NRHP or CRHR due to various alterations and diminished integrity, and is not considered a historic property under Section 106 of the NHPA or a historical resource under CEQA.

Based on the above, the project would not have an adverse effect on historic resources.

NO IMPACT

b. Would the project cause a substantial adverse change in the significance of an archaeological resource as defined in §15064.5?

A cultural resources records search of the California Historical Resources Information System was conducted at the South Central Coastal Information Center located at California State University, Fullerton. The search was performed to identify all previously recorded cultural resources and previously recorded cultural resources studies within the project site and a 0.5-mile radius around it. The records search failed to identify any cultural resources within the project site. A Sacred Lands File (SLF) search was conducted by the Native American Heritage Commission (NAHC) to identify the potential for cultural resources within the project site and to provide contact information for Native Americans groups or individuals who may have knowledge of resources within the project site. The SLF search was returned with negative results. Rincon reached out to the Native American contacts provided by the NAHC to inquire about any potential cultural resources that may be impacted by the project. Several contacts requested monitoring of ground-disturbing project development due to the cultural sensitivity of the project area, and one contact (Robert Dorame of the Gabrielino Tongva Indians of California Tribal Council) indicated that a site existed within the PVGC; however, outreach attempts to obtain the details of this site were unanswered. The full results of the Native American outreach effort can be found in Appendix C. Finally, Rincon conducted a field survey of the project site to identify any cultural resources (e.g., archaeological resources) that may exist within the project site. The pedestrian survey was negative for cultural resources. Based on the results of the records search, SLF search, Native American outreach, and field survey, no known cultural resources exist within the current project site.

The project site was identified as being potentially sensitive for cultural resources through formal Native American consultation under Assembly Bill 52, including during a conference call with representatives of the Kizh Nation as part of the consultation process. Although the project site has been previously disturbed and no evidence of cultural resources was found during the investigation,

monitoring is recommended for certain areas of the project based on Tribal concerns. Therefore, it is recommended that Mitigation Measures CR-1a – CR-1d be required to reduce potentially significant impacts to a less than significant level.

POTENTIALLY SIGNIFICANT UNLESS MITIGATION INCORPORATED

Mitigation Measure

The following mitigation measure would address the potentially significant impacts relating to the possible discovery of intact archaeological resources during project implementation.

Mitigation Measure CR-1a Retain a Qualified Archaeologist

The contractor shall retain a qualified archaeologist, defined as an archaeologist who meets the Secretary of the Interior's Professional Qualifications Standards for archaeology (NPS 1983), to carry out all mitigation measures related to archaeological and historic resources. This archaeologist shall work with West Basin Municipal Water District, the City of Palos Verdes Estates and local Native American representatives to develop formal protocols for managing cultural resources.

Mitigation Measure CR-1b Worker Environmental Awareness Program

The qualified archaeologist shall prepare a Worker Environmental Awareness Program (WEAP) to address cultural resources issues anticipated at the project site. The WEAP will include information on the laws and regulations that protect cultural resources, the penalties for a disregard of those laws and regulations, the types of cultural resources that may be present at the project site, procedures to be followed if cultural resources are unexpectedly uncovered during construction, and contact information for qualified archaeologists to be notified in the case of unanticipated discoveries.

Mitigation Measure CR-1c Cultural Resources Monitoring

Certain areas of the project site are considered by local tribes to be sensitive for cultural resources. Therefore, cultural resources monitoring should occur by an archaeologist and a local culturally affiliated Native American representative for ground disturbing work in the PVGC, where previous disturbances have been less extensive than other areas of the project site. This monitoring should occur under the direction of a qualified archaeologist with oversight from the City of Palos Verdes Estates. If, during the course of monitoring, the qualified archaeologist determines that ground disturbing activities will have no potential to disturb cultural resources, monitoring may be reduced or eliminated at the discretion of the lead agency. If cultural resources are found or believed to be present in the remaining areas of the project site outside of the PVGC, a local culturally affiliated Native American representative will be contacted for consultation. Should cultural resources be identified outside of the PVGC during ground disturbing activities, cultural resources monitoring may be expanded at the discretion of West Basin Municipal Water District under advisement from the qualified archaeologist and consultation with local tribes.

Mitigation Measure CR-1d Unanticipated Discovery of Cultural Resources

If cultural resources are encountered during ground-disturbing activities, work in the immediate area shall be halted and an archaeologist meeting the Secretary of the Interior's Professional Qualification Standards for archaeology (NPS 1983) shall be contacted immediately to evaluate the find. If necessary, the evaluation may require preparation of a treatment plan and archaeological

testing for California Register of Historical Resources eligibility. If the discovery proves to be significant under CEQA and cannot be avoided by the project, additional work such as data recovery excavation may be warranted to mitigate any significant impacts to cultural resources.

c. Would the project directly or indirectly destroy a unique paleontological resource or site or unique geological feature?

Significant paleontological resources are fossils or assemblages of fossils that are unique, unusual, rare, diagnostically important, or are common but have the potential to provide valuable scientific information for evaluating evolutionary patterns and processes, or which could improve our understanding of paleochronology, paleoecology, paleophylogeography or depositional histories. New or unique specimens can provide new insights into evolutionary history; however, additional specimens of even well represented lineages can be equally important for studying evolutionary pattern and process, evolutionary rates and paleophylogeography. Even unidentifiable material can provide useful data for dating geologic units if radiocarbon dating is possible. As such, common fossils (especially vertebrates) may be scientifically important, and are therefore considered highly significant.

Paleontological Sensitivity

The Society of Vertebrate Paleontology (2010) describes sedimentary rock units as having high, low, undetermined, or no potential for containing significant nonrenewable paleontological resources. This criterion is based on rock units within which vertebrate or significant invertebrate fossils have been determined by previous studies to be present or likely to be present. While these standards were specifically written to protect vertebrate paleontological resources, all fields of paleontology have adopted these guidelines. The paleontological sensitivity of the project site is evaluated according to the following SVP (2010) categories: High Potential (sensitivity); Low Potential (sensitivity); Undetermined Potential (sensitivity); and No Potential. For further detail regarding these categories see Appendix D.

Geology and Paleontology of the Project Area

The project area lies in the Peninsular Ranges Geomorphic Province, one of 11 such provinces in the state (California Geological Survey [CGS] 2002). California's geomorphic provinces are naturally defined regions that have a distinct landscape or landform. The Peninsular Ranges province is characterized by its northwest trending valleys and faults that branch from the San Andreas Fault (CGS 2002).

The Peninsular Ranges comprise rocks that range in age from the Paleozoic to the Quaternary, with the majority of rocks being a Jurassic to Cretaceous batholith that intrudes a Triassic to Jurassic metasedimentary sequence (Kennedy et al. 2007). This batholith was emplaced across the North American and Pacific plate boundary in the Mesozoic and is composed of an older, western portion of tonalite, gabbro, and granodiorite and a younger, eastern portion of less mafic granitics (Todd et al. 2003). The project is located on the rectangular southwestern block of the Los Angeles Basin where mostly Miocene to Recent-aged marine sedimentary rocks rest on top of crystalline basement rocks (Jurassic-aged Catalina Schist; Dibblee et al. 1999), which are minimally exposed high in the Palos Verdes Hills atop the Bluff Cove Anticline (Dibblee et al. 1999; Roffers and Bedrossian 2010; Saucedo et al. 2007, 2016; Yerkes et al. 1965). The southwestern block is the exposed part of a larger tract, most of which is submerged offshore (Yerkes et al. 1965).

The project crosses Miocene to Holocene, predominantly marine, sediments (Dibblee et al. 1999). These sediments, in which project related construction activities will occur, comprise eight (8) mapped units (abbreviations follow Dibblee et al. 1999): Quaternary (Holocene) alluvium (Qa); Quaternary (Holocene) alluvium, elevated (Qae); Quaternary (Holocene to Pleistocene) older dune and drift sand (Qos); Quaternary (Holocene to Pleistocene) older alluvium (Qoa); Quaternary (Holocene to Pleistocene) elevated marine terrace remnants (t); Quaternary (Pleistocene) San Pedro Sand (Qsp); Tertiary (Miocene) Malaga Mudstone (Tmg); and Tertiary (Miocene) Monterey Formation, [Valmonte Diatomite Member (Tmv) and Alta Mira Shale Member (Tma)].

Early Holocene to Miocene units are known to contain scientifically significant paleontological resources throughout the greater Los Angeles area. The potential for uncovering significant paleontological resources is high in 7 of the 8 mapped units (excludes the Malaga Mudstone) during project related activities (e.g., ground disturbing activities). Each of these units has the potential to produce fossils and should be considered to have high paleontological sensitivity, according to the standards of the SVP (2010). Five of these sensitive units have the potential to produce fossils at any depth, including very near or at the surface [older dune and drift sand (Qos); older alluvium (Qoa); elevated marine terrace remnants (t); the San Pedro Sand (Qsp); and the Monterey Formation, [Valmonte Diatomite Member (Tmv) and Alta Mira Shale Member (Tma)]. The Quaternary alluvium (Qa) and elevated alluvium (Qae) are generally too young to preserve fossil resources at the surface. However, these sediments will increase in age with depth and therefore may preserve fossil resources in the shallow subsurface. Therefore, Mitigation Measure CR-2, in all its components, is required to reduce potentially significant impacts to a less than significant level.

POTENTIALLY SIGNIFICANT UNLESS MITIGATION INCORPORATED

Mitigation Measure

The following mitigation measures would address the potentially significant impacts relating to the possible discovery of intact paleontological resources during project implementation.

Mitigation Measure CR-2a Paleontological Worker Environmental Awareness Program

Prior to the start of construction, Qualified Professional Paleontologist (as defined by SVP [2010] standards) or his or her designee shall conduct training for construction personnel regarding the appearance of fossils and the procedures for notifying paleontological staff should fossils be discovered by construction staff. The Worker Environmental Awareness Program shall be fulfilled at the time of a preconstruction meeting, which a qualified paleontologist shall attend.

Mitigation Measure CR-2b Paleontological Monitoring

Ground disturbing construction activities (including grading, trenching, and other excavations) effecting previously undisturbed bedrock sediments in areas mapped as high paleontological sensitivity or high at shallow depth should be monitored on a full-time basis by a by the Qualified Professional Paleontologist or by qualified paleontological monitor under their direction. A qualified paleontological monitor is defined as an individual who has experience with collection and salvage of paleontological resources (SVP 2010). The duration and timing of the monitoring will be determined by the Qualified Professional Paleontologist. If the Qualified Professional Paleontologist determines that full-time monitoring is no longer warranted, he or she may recommend that monitoring be reduced to periodic spot-checking or cease entirely. Monitoring would be reinstated

if any new or unforeseen deeper ground disturbances are required and reduction or suspension would need to be reconsidered by the project paleontologist. Ground disturbing activity that occurs in previously disturbed sediments would not require paleontological monitoring, regardless of the geologic mapping.

Mitigation Measure CR-2c Fossil Discovery

In the event of a fossil discovery by construction personnel or paleontological monitors, all work in the immediate vicinity of the find shall cease and a qualified paleontologist, if not already onsite, shall be contacted to evaluate the find before restarting work in the area. If it is determined that the fossil(s) is(are) scientifically significant, the qualified paleontologist shall complete the following actions to mitigate impacts to significant fossil resources.

SALVAGE OF FOSSILS

If significant fossils are discovered, the project paleontologist or paleontological monitor should recover them. Typically fossils can be safely salvaged quickly by a single paleontologist and not disrupt construction activity. In some cases larger fossils (such as complete skeletons or large mammal fossils) require more extensive excavation and longer salvage periods. In this case the paleontologist should have the authority to temporarily direct, divert, or halt construction activity to ensure that the fossil(s) can be removed in a safe and timely manner.

PREPARATION AND CURATION OF RECOVERED FOSSILS

Once salvaged, significant fossils should be identified to the lowest possible taxonomic level, prepared to a curation-ready condition, and curated in a scientific institution with a permanent paleontological collection (such as the Natural History Museum of Los Angeles County), along with all pertinent field notes, photos, data, and maps. Fossils of undetermined significance at the time of collection may also warrant curation at the discretion of the project paleontologist.

Mitigation Measure CR-2d Final Paleontological Mitigation Report

Upon completion of ground disturbing activity (and curation of fossils if necessary) the Qualified Professional Paleontologist should prepare a final mitigation and monitoring report outlining the results of the mitigation and monitoring program. The report should include discussion of the location, duration, and methods of the monitoring, stratigraphic sections, any recovered fossils and their scientific significance, and where fossils were curated.

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

The potential for the recovery of human remains is always a possibility during ground disturbing activities. Human burials outside of formal cemeteries often occur in prehistoric archaeological contexts. In addition to being potential archaeological resources, human burials have specific provisions for treatment in Section 5097 of the PRC. The California Health and Safety Code (Sections 7050.5, 7051, and 7054) additionally has specific provisions for the protection of human burial remains. If human remains are found, the State of California Health and Safety Code Section 7050.5 states that no further disturbance shall occur until the County Coroner has made a determination of origin and disposition pursuant to Public Resources Code Section 5097.98. Per the Public Resources Code, in the event of an unanticipated discovery of human remains, the County Coroner must be notified immediately. If the human remains are determined to be prehistoric, the coroner will notify the NAHC, which will determine and notify a most likely descendant (MLD). The MLD shall complete

the inspection of the site within 48 hours of notification and may recommend scientific removal and nondestructive analysis of human remains and items associated with Native American burials. Because of existing regulations regarding the treatment of human remains, impacts would be less than significant upon compliance with these.

LESS THAN SIGNIFICANT IMPACT

3.6 Geology and Soils

	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less than Significant Impact	No Impact
Would the project have any of the following impacts?				
a. Expose people or structures to potentially substantial adverse effects, including the risk of loss, injury, or death involving:	☐	☐	■	☐
1. 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	☐	☐	■	☐
2. Strong seismic ground shaking	☐	☐	■	☐
3. Seismic-related ground failure, including liquefaction	☐	☐	■	☐
4. Landslides	☐	☐	■	☐
b. Result in substantial soil erosion or the loss of topsoil	☐	☐	■	☐
c. Be located on a geologic unit or soil that is made unstable as a result of the project, and potentially result in on or offsite landslide, lateral spreading, subsidence, liquefaction, or collapse	☐	☐	■	☐
d. Be located on expansive soil, as defined in Table 1-B of the Uniform Building Code, creating substantial risks to life or property	☐	■	☐	☐
e. Have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater	☐	☐	☐	■

The project site is located in Southern California, which is a seismically active region at the junction of the North American and Pacific tectonic plates. The proposed project would span approximately three miles in the southern portion of Torrance and the northern portion of Palos Verdes Estates, in Los Angeles County. This area is relatively flat with slight elevation changes across the city

boundaries. Soil groups in the project area primarily consist of Urban Land and alluvial deposits of fine sands and silts. (U.S. Department of Agriculture 2016).

The closest fault to the project site is the Palos Verdes Fault, which runs just south of the Torrance-Palos Verdes Estates city border. The Palos Verdes Fault is a concealed fault generally running southeast to northwest in direction. Displacement along this fault occurred during the Late Quaternary period (during the past 700,000 years) but this fault is not considered active as displacement has not occurred during the past 11,700 years (CGS 2010). The proposed project would cross the alignment of this concealed fault in the area near the intersection of Vista Montana and Newton Street. According to the Safety Element of the Torrance General Plan (City of Torrance 2009a), the area surrounding this fault is characterized as a fault hazard management zone, which requires geologic investigations to be performed if new development designed for human occupancy is proposed within the zone. As the proposed project would not be designed for human occupancy, requirements within the fault hazard management zone would not apply. Further, the Alquist-Priolo Earthquake Fault Zones map for the Torrance Quadrangle does not show the project area as being within an Earthquake Fault Zone (CGS 1986).

The project area is generally not located in a region at risk for liquefaction. The proposed alignment would traverse an area with identified earthquake-induced landslide risk along the hillsides of Vista Montana and Paseo de Las Tortugas approximately 1,000 feet south of Pacific Coast Highway (CGS 1986). This risk stems from slope instability along the Palos Verdes fault line.

a1. Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving 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?

a2. Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving strong seismic ground shaking?

a3. Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving seismic-related ground failure, including liquefaction?

a4. Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving landslides?

Though the proposed project is located in a seismically active area, the project does not involve development of habitable structures, with the only aboveground structures being the pump station at Lago Seco Park and the water storage tank at the golf course. Therefore, the project would not expose individuals to strong ground shaking. It is possible that seismic events could result in secondary seismic impacts associated with unstable soils as the pipeline alignment would traverse an area identified for landslide risk. However, the project area is generally flat and project development would consist of minimal aboveground structures, none of which are habitable, and would be engineered to resist seismic hazards such as landslides and liquefaction (CGS 2007). Further, any trenches that may be needed for pipeline placement would be lined and appropriately backfilled to resist potential effects associated with subsidence.

A large seismic event, such as a fault rupture, seismic shaking, or ground failure, could result in breakage of the pipelines, failure of joints, or underground leakage from the pipelines. In such an event, the pipelines would be inspected and repaired immediately. Additionally, geotechnical analysis required as part of the California Building Standards Code (CCR Title 24) during the design phase would incorporate appropriate standard engineering practices and specifications in the

facility design to minimize risk of structural failure in a seismic event, and would reduce secondary impacts that may occur as a result.

As discussed, the proposed project would not involve development of habitable structures, is not within an Alquist-Priolo earthquake fault zone, and does not cross an active fault. Therefore the project would not expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving rupture of a known earthquake fault, seismic ground shaking, seismic-related ground failure, or landslides. Potential impacts would be less than significant.

LESS THAN SIGNIFICANT IMPACT

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

Construction activities involving soil disturbance, such as excavation, stockpiling, and grading could result in increased erosion and sediment transport by stormwater to surface waters. As described in Chapter 2, Project Description, construction activities associated with the proposed project would include soil disturbance, as the majority of the pipeline would be installed via open cut methods. However, construction of the proposed project would be required to comply with Construction General Permit (Order Nos. 2009-0009-DWQ and 2010-0014-DWQ), which is issued by the State Water Resources Control Board (SWRCB). The Construction General Permit requires the development of a SWPPP, which outlines BMPs to reduce erosion and topsoil loss from storm water runoff. Compliance with the Construction General Permit would ensure that BMPs are implemented during construction, and prevent substantial soil erosion or the loss of topsoil. Impacts would be less than significant, and no mitigation is needed.

LESS THAN SIGNIFICANT IMPACT

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

As discussed previously, though the proposed project would be located in a seismically active area, the project site would not be located on unstable soils or a geologic unit at risk for liquefaction. The alignment would traverse through two small areas identified by CGS as being at risk for earthquake-induced landslides—predominantly located along the Palos Verdes fault line. However, the proposed project involves installation of an underground pipeline through existing developed urban land primarily within public ROWs and the project is not anticipated to adversely affect soil stability or increase the potential for local or regional landslides, subsidence, liquefaction or collapse. As noted in the Safety Element of the Torrance General Plan (City of Torrance 2009a), the project site is located outside of any identified liquefaction hazard zone and is generally comprised of compact, flat urban land that is not at risk of landslide. Impacts would be less than significant.

LESS THAN SIGNIFICANT IMPACT

d. Would the project be located on expansive soil, as defined in Table 1-B of the Uniform Building Code, creating substantial risks to life or property?

According to the Geologic Map in the City of Torrance General Plan Update EIR, the project would be located on Young Alluvium and San Pedro Sand (City of Torrance 2009b). The portion of the project mostly north of Pacific Coast Highway would be located on Young Alluvium and the remaining portion would be located on San Pedro Sand. Young Alluvium consists of loamy clays and fine silty sands, characteristically having low density and subject to settlement under loading. San

Pedro Sand consists of dense sand and pebble gravel interlaid with sandy silt. Sand intervals within the profile have low potential for expansion while the silt intervals may be expansive.

The portion of the project site north of Pacific Coast Highway is currently within an expansive soil study zone with special foundation requirements, indicating that the area likely has high levels of expansive soils (City of Torrance n.d.). The City of Torrance has an identified Expansive Soil Study Zone generally bounded by Lomita Boulevard to the north, Hawthorne Boulevard on the east, Pacific Coast Highway to the south, and Anza Avenue and South High School on the west. The proposed project is a recycled water pipeline that would be mostly located underground primarily within existing public ROW and engineered to withstand expansive forces per the requirements of the California Building Code. The pump station would be located aboveground and would be within the expansive soil study zone. A geotechnical study is being conducted for the proposed project to identify the location of expansive soils within the project site. Implementation of the measures outlined within that study, once complete, and/or the mitigation measures listed below would be required to reduce potentially significant impacts from soil expansion to a less than significant level.

POTENTIALLY SIGNIFICANT UNLESS MITIGATION INCORPORATED

Mitigation Measures

The following mitigation measures would address the potentially significant impacts relating to the presence of expansive soils.

Mitigation Measure GEO-1a Infill Replacement

Where feasible, expansive soils encountered within the project site will be removed completely and replaced with non-expansive fill soils or other material to stabilize the surrounding soil structure.

Mitigation Measure GEO-1b Soil Stabilizers

For areas where infill replacement is not feasible, expansive soils will be treated with chemical soil stabilizers injected directly into the surrounding soil. This treatment will reduce the capillary "swelling" and "shrinking" actions of clay particles within the soil.

The project would comply with building code standards, and would be required to implement one or both of the above mitigation measures to reduce potential impacts from expansive soils to the maximum extent feasible. Should recommendations in the geotechnical study to address expansive soils be different than measures GEO-1 and GEO-2, those may also be implemented to address hazards from expansive soils if they are equally effective at reducing the risk of expansive soils to the project.

e. Would the project have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater?

The proposed project would not include septic-related waste. Therefore, no impact related to septic tanks or alternative wastewater disposal methods would occur.

NO IMPACT

3.7 Greenhouse Gas Emissions

	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less than Significant Impact	No Impact
Would the project have any of the following impacts?				
a. Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment	☐	☐	■	☐
b. Conflict with any applicable plan, policy, or regulation adopted to reduce the emissions of greenhouse gases	☐	☐	☐	■

Climate change is the observed increase in the average temperature of the earth's atmosphere and oceans along with other substantial changes in climate (such as wind patterns, precipitation, and storms) over an extended period. Climate change is the result of numerous, cumulative sources of greenhouse gases (GHG) that contribute to the "greenhouse effect," a natural occurrence that helps regulate the temperature of the planet. The majority of radiation from the sun hits the earth's surface and warms it. The surface in turn radiates heat back towards the atmosphere, known as infrared radiation. Gases and clouds in the atmosphere trap and prevent some of this heat from escaping into space and re-radiate it in all directions. This process is essential to support life on Earth because it warms the planet by approximately 60° Fahrenheit. Emissions from human activities since the beginning of the industrial revolution (approximately 250 years ago) are adding to the natural greenhouse effect by increasing the gases in the atmosphere that trap heat and contribute to an average increase in Earth's temperature.

GHGs occur naturally and from human activities. Human activities that produce GHGs include fossil fuel burning (e.g., coal, oil, and natural gas for heating and electricity, gasoline and diesel for transportation), methane generated by landfill wastes and raising livestock, deforestation activities, and some agricultural practices. GHGs produced by human activities include carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), hydrofluorocarbons (HFC), perfluorocarbons (PFC), and sulfur hexafluoride (SF_6). Since 1750, estimated concentrations of CO_2, CH4, and N_2O in the atmosphere have increased over by 36 percent, 148 percent, and 18 percent respectively, primarily due to human activity. Emissions of GHGs affect the atmosphere directly by changing its chemical composition. Changes to the land surface indirectly affect the atmosphere by changing the way in which the earth absorbs gases from the atmosphere. Potential impacts in California of global warming may include loss of snow pack, sea level rise, more extreme heat days per year, more high ozone days, more large forest fires, and more drought years (California Energy Commission [CEC] 2009).

In response to an increase in man-made GHG concentrations over the past 150 years, California has implemented Assembly Bill (AB) 32, the "California Global Warming Solutions Act of 2006." AB 32 requires achievement by 2020 of a statewide GHG emissions limit equivalent to 1990 emissions (essentially a 15 percent reduction below 2005 emission levels) and the adoption of rules and regulations to achieve the maximum technologically feasible and cost-effective GHG emissions

reductions. On September 8, 2016, the governor signed Senate Bill (SB) 32, which requires the California Air Resources Board to ensure that statewide GHG emissions are reduced to 40 percent below the 1990 level by 2030. While the State has adopted the AB 32 Scoping Plan and multiple regulations to achieve the AB 32 year 2020 target, there is no currently adopted State plan to meet post-2020 GHG reduction goals. The Association of Environmental Professionals' (AEP) Climate Change Committee published a white paper in 2015 recommending that CEQA analyses for most land use development projects may continue to rely on current adopted thresholds for the immediate future (AEP 2015).

The majority of individual projects do not generate sufficient GHG emissions to directly influence climate change. However, physical changes caused by a project can contribute incrementally to cumulative effects that are significant, even if individual changes resulting from a project are limited. The issue of climate change typically involves an analysis of whether a project's contribution towards an impact would be cumulatively considerable. "Cumulatively considerable" means that the incremental effects of an individual project are significant when viewed in connection with the effects of past projects, other current projects, and probable future projects (State CEQA Guidelines, Section 15064[h][1]).

In guidance provided by the SCAQMD's GHG CEQA Significance Threshold Working Group in September 2010, the SCAQMD considered a tiered approach to determine the significance of residential and commercial projects. The draft tiered approach is outlined in meeting minutes dated September 29, 2010.

Tier 1. If the project is exempt from further environmental analysis under existing statutory or categorical exemptions, there is a presumption of less than significant impacts with respect to climate change. If not, then the Tier 2 threshold should be considered.

Tier 2. Consists of determining whether or not the project is consistent with a GHG reduction plan that may be part of a local general plan, for example. The concept embodied in this tier is equivalent to the existing concept of consistency in CEQA Guidelines section 15064(h)(3), 15125(d) or 15152(a). Under this Tier, if the proposed project is consistent with the qualifying local GHG reduction plan, it is not significant for GHG emissions. If there is not an adopted plan, then a Tier 3 approach would be appropriate.

Tier 3. Establishes a screening significance threshold level to determine significance. The Working Group has provided a recommendation of 3,000 metric tons (MT) of CO_2e per year for mixed use projects.

Tier 4. Establishes a service population threshold to determine significance. The Working Group has provided a recommendation of 4.8 MT of CO_2e [carbon dioxide equivalent] per year for land use projects.

The Tier 3 threshold applies best to the proposed project, as WBMWD, City of Torrance, and the City of Palos Verdes Estates have not adopted GHG emissions reduction plans (Tier 2), nor is the project a high-density development whose impacts would be more appropriately quantified by a service population threshold (Tier 4). The Tier 3 SCAQMD threshold was designed to capture 90 percent of all emissions associated with projects in the SCAB and require implementation of mitigation so that a considerable amount of emissions from new projects would be reduced. According to the California Air Pollution Control Officers Association (CAPCOA; 2008) white paper, *CEQA & Climate Change*, a quantitative threshold based on a 90 percent market capture rate is generally consistent with AB 32 and Executive Order S-3-05, which set a statewide target of 80% below 1990 by 2050;

the underlying reasoning is that the amount of reductions required by captured projects may be adjusted over time to achieve target reductions for different time horizons (CAPCOA 2008) rather than the number of projects captured, as smaller projects provide fewer reductions. Projects with emissions below the SCAQMD threshold are not expected to require reductions for State mandates to be achieved.

Project construction would generate GHG emissions from the operation of heavy machinery for pipeline installation, as well as during construction of the pump station and water storage tank. The pump station would also generate GHG emissions by using electricity to operate the pump. The proposed GHG emissions were estimated using CalEEMod version 2016.3.1.

a. Would the project generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment?

Construction emissions are confined to a relatively short period of time in relation to the overall life of the proposed project, as the construction period is only projected to be five months. In accordance with the SCAQMD's recommendation, GHG emissions from project construction were amortized over a 30-year period and added to annual operational emissions to determine the project's total annual GHG emissions. As shown in Table 11, construction activities would generate 208 MT of CO_2e per year, which amortized over 30 years is 7 MT of CO_2e per year, and operation of the pump station would generate 3 MT of CO_2e per year. In total, the project would generate 10 MT of CO_2e per year, which well below the SCAQMD's recommended significance threshold of 3,000 MT per year of CO_2e. Therefore, impacts related to operational and construction GHG emissions would be less than significant.

Table 11 Estimated Construction GHG Emissions

Year	Emissions (CO_2e)
Total Construction Emissions	208 MT
Amortized Construction Emissions (over 30 Years)	7
Total Annual Operational Emissions	3 MT/year
Total Annual Emissions	10 MT/year
SCAQMD Recommended Threshold	3,000 MT/year
Exceed Threshold?	No

CO_2e: carbon dioxide equivalent; MT: metric tons; SCAQMD: South Coast Air Quality Management District
See Appendix A for CalEEMod results. Values are approximations and have been rounded.

LESS THAN SIGNIFICANT IMPACT

b. Would the project conflict with any applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of greenhouse gases?

As discussed, the SCAQMD does not currently have GHG emissions thresholds for land use projects where it is not the lead agency. WBMWD, City of Torrance and the City of Palos Verdes Estates do not currently have adopted GHG reduction plans or emissions thresholds. However, the City of

Torrance's 2008 Strategic Plan does establish city-wide goals to improve air quality by reducing carbon dioxide and greenhouse gas emissions (City of Torrance 2008). Further, the Strategic Plan includes water resources goals, such as expanding use of recycled water for landscaping, industry, business and other applicable uses. The proposed project would be consistent with these goals as it would directly extend current recycled water infrastructure to new end uses, and would also support the GHG reduction goals of the Strategic Plan by reducing potable groundwater demand, which reduces demand for groundwater extraction and associated energy use. Further, as described in item (a), the project would not exceed the SCAQMD's 3,000 MT per year CO_2e significance threshold. Therefore, the project would not conflict with any applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of greenhouse gases and no impact would occur.

NO IMPACT

3.8 Hazards and Hazardous Materials

	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less than Significant Impact	No Impact
Would the project have any of the following impacts?				
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 0.25 mile of an existing or proposed school	☐	■	☐	☐
d. Be located on a site that is included on a list of hazardous material 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 in an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard for people residing or working in the project area	☐	☐	☐	■
f. For a project near a private airstrip, would it result in a safety hazard for people residing or working in the project area	☐	☐	☐	■
g. Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan	☐	■	☐	☐

	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less than Significant Impact	No Impact
h. Expose people or structures to a significant risk of loss, injury, or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands	☐	■	☐	☐

An EDR records search was prepared for the project alignment and surrounding area. The EDR search was conducted for the project and included data for sites surrounding the property. Federal, State, and county lists were reviewed as part of the research effort in order to identify sites that generate, store, treat, or dispose of hazardous materials or sites for which a release or incident has occurred. In addition, the hazardous materials technical analysis included review of historical records, aerial photographs, and topographic maps. Known or suspected environmental conditions associated with the property include the following:

1 Project listing on the Leaking Underground Storage Tank (LUST) database (Palos Verdes Golf Club at 3301 Vía Campesina, Palos Verdes Estates, CA). The Historical Underground Storage Tank (UST) database lists two USTs as follows: one 1,000-gallon regular fuel tank and one 1,000-gallon diesel fuel tank. The LUST database indicates a gasoline release was reported during removal of the tanks in 1991. The site is listed as a "soil-only" affected site; however, analytical results were not available. The case is listed as closed in 1997. In addition, the locations of the USTs on the golf course site has not been determined based on the documents reviewed as of the date of publication.

2 **The potential presence of aerially deposited lead in soil beneath the project alignment.** Based on review of historical documents, the majority of the project site has been developed as paved roads since at least 1963 and portions have been developed as roads since at least 1928. Based on the use of parts of the site as roads, aerially deposited lead resulting from vehicle exhaust emissions may be present in shallow soil in the project area.

3 **Adjacent dry cleaner facilities.** Based on review of the EDR report, several adjacent dry cleaner sites may have contaminated soil or groundwater plumes located within 100 feet of the project site:

- Gaylord One Hour Cleaners at 4172 Pacific Coast Highway, Torrance, CA. The Historical Cleaner database lists Gaylord One Hour Cleaners as operating from 2005 through 2012.
- VIP Cleaners at 3881 Pacific Coast Highway, Torrance, CA. The Historical Cleaner database lists VIP Cleaners as operating from 2001 through 2008 and Swan Cleaners from 2011 through 2012.
- Windsor Cleaners at 3901 Pacific Coast Highway, Torrance, CA. The Historical Cleaner database lists Windsor Cleaners as operating from 2001 through 2012.
- Gaylord One Hour Cleaners at 4226 Pacific Coast Highway, Torrance, CA. City directories list Gaylord One Hour Cleaners as operating from 1975 through 1985.

4 Although no known documented releases associated with these adjacent dry cleaner sites were identified, if undocumented releases have occurred, there is the potential for contamination to be present beneath the project alignment.

5 Adjacent gasoline stations listed as release sites located at the intersection of Anza Avenue and Pacific Coast Highway. Three adjacent properties are listed as release sites in databases searched by EDR:

- Chevron SS #92770 at 4135 Pacific Coast Highway, Torrance, CA
- Exxon #7-2823/Mobil Service at 4202 Pacific Coast Highway, Torrance, CA
- ARCO #6158 at 4205 Pacific Coast Highway, Torrance, CA

6 Based on the proximity to the project alignment (adjacent), the two current and one former adjacent gasoline stations at the intersection of Anza Avenue and Pacific Coast Highway have the potential to impact the project.

7 **Historical adjacent Mobil Service Station (23121 Anza Avenue, Torrance, CA).** The UST database indicates one inactive UST at the site. City directories list Southwood Service Center in 1970. Although no known documented releases associated with this adjacent site were identified, if an undocumented release has occurred, there is potential for contamination to be present in the project alignment.

8 **Former adjacent oil well.** A review of the Department of Conservation, Division of Oil, Gas and Geothermal Resources Online Mapping System indicates that one dry-hole well is located approximately 30 feet north of the project alignment in the parking lot of Lago Seco Park (3920 235th Street in Torrance). Historically, diesel fuel was used as lubricant for drilling augers when drilling oil wells. Drilling oil wells may have included placement of an oil well sump adjacent to the well, resulting in the presence of crude oil or drilling fluids in soils in the vicinity of the well. Therefore, even though the oil well was not a producing well, petroleum hydrocarbon-impacted soil may be present in the vicinity of the former adjacent oil well.

Ground disturbing activities during construction, including trenching of subsurface materials along the proposed pipeline alignments, could result in a potential safety hazard because contaminants discussed above could be spread via dust particulates. Improper handling and disposal of contaminated soils could result in a health risk to workers at the project site.

Construction of the project would temporarily increase the transport, use, and disposal of materials used in construction that are generally regarded as hazardous. Limited quantities of miscellaneous hazardous substances, such as gasoline, diesel fuel, hydraulic fluids, and other similar materials would be brought onto work sites, used, and stored during construction.

Ground disturbance and transport, use, and disposal of hazardous materials would increase the potential for an accidental release of hazardous materials during construction, which could result in exposure of workers and the public to health hazards. Implementation of mitigation measures HAZ-1, HAZ-2, HAZ-3, and HAZ-4 would reduce the risk associated with hazardous materials used during construction such that this impact would be less than significant.

The operation of the project does not involve the storage or transport of hazardous materials. The risks associated with the transport, use, and storage of these materials during project operation would, therefore, be less than significant.

POTENTIALLY SIGNIFICANT UNLESS MITIGATION INCORPORATED

Mitigation Measures

The following mitigation measures would reduce impacts to a less than significant level.

Mitigation Measure HAZ-1: Hazardous Materials Management and Spill Prevention and Control Plan

Before construction begins, all construction contractors shall be required to develop and implement a Hazardous Materials Management and Spill Control Plan (HMMSCP) that includes project-specific contingency plan for hazardous materials and waste operations. The HMMSCP shall establish policies and procedures consistent with applicable codes and regulations, including but not limited to the California Building and Fire Codes, as well federal OSHA and Cal/OSHA regulations. The HMMSCP shall articulate hazardous materials handling practices to prevent their release into the Coastal Plain of Los Angeles–West Coast groundwater basin during construction of the project.

Mitigation Measure HAZ-2: Soil Sampling and Disposal

Prior to construction, a soil assessment shall be completed under the supervision of a professional geologist or professional engineer. If soil sampling indicates the presence of any contaminant in quantities not in compliance with applicable laws, the Regional Water Quality Control Board or the Department of Toxic Substances Control shall be contacted to determine proper disposal. Prior to the commencement of site construction and based on the results of the soil assessment, an assessment of air resource impacts and health impacts associated with excavation activities, including transportation impacts from the removal activities, shall be performed.

Mitigation Measure HAZ-3: Contaminated Soil Contingency Plan

The contractor shall develop and implement a Contaminated Soil Contingency Plan to handle treatment and/or disposal of contaminated soils. If contaminated soil is encountered during project construction, work shall halt and an assessment made to determine the extent of contamination. Treatment and/or disposal of contaminated soils shall be conducted in accordance with the Contingency Plan.

Mitigation Measure HAZ-4: Onsite Monitoring

During construction activities in the areas of suspect contamination, monitoring of dust and air quality shall be completed. Fugitive vapor emissions shall be monitored with the use of a PID or equivalent. If necessary, dust will be controlled by periodically spraying the work areas with water or other approved dust-control materials. If required by the permit, a particulate air monitor will be utilized to monitor dust. The meters shall be calibrated in accordance with their respective manufacturer specifications. During the soil excavation and loading activities, fugitive airborne emissions shall be monitored along the property boundary and at the interpreted down-wind perimeter of the site. If fugitive airborne emissions are measured at levels exceeding permit conditions, operations will cease until the dust the emissions reach an acceptable level.

c. Would the project emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within 0.25 mile of an existing or proposed school?

Three schools are located adjacent to the project site as follows:

- Valmonte Early Learning Academy located at 3801 Vía La Selva, Palos Verdes Estates, CA
- Riviera Elementary School located at 365 Paseo De Arena, Torrance, CA
- Richardson Middle School located at 23751 Nancylee Lane, Torrance, CA

In addition, two schools are located within 0.25 mile of the project as follows:

- South High School located at 4801 Pacific Coast Highway, Torrance, CA
- Catlib Middle School located at 4800 Calle Mayor, Torrance, CA

As described above under items a and b, construction activities would require the use of hazardous materials, which could result in accidental releases during their handling and storage. In addition, hazardous materials could be encountered during construction and excavation that could pose a threat to workers, the public, or the environment. Because of the possibility of accidental release, and the proximity to schools and other sensitive receptors, potential impacts would be considered significant. However, implementation of Mitigation Measures HAZ-1, HAZ-2, HAZ-3, and HAZ-4, would reduce the risk to schools, and the people present at them, during construction such that this impact would be reduced to a less than significant level.

POTENTIALLY SIGNIFICANT UNLESS MITIGATION INCORPORATED

d. Would the project be located on a site included on a list of hazardous material 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?

Government Code section 65962.5 requires the California Environmental Protection Agency to develop an updated Cortese List. The Department of Toxic Substance Control (DTSC) is responsible for a portion of the information contained in the Cortese List. Other State and local government agencies are required to provide additional hazardous material release information for the Cortese List (DTSC 2017). The following resources were checked on June 1, 2017 to provide hazardous material release information:

- SWRCB GeoTracker database (GeoTracker 2017)
- DTSC EnviroStor database (EnviroStor 2017)
- EDR records search (EDR 2017)

Palos Verdes Golf Club at 3301 Vía Campesina, Palos Verdes Estates, CA

The southern part of the project area is located on the PVGC. Two former USTs were located on the project alignment including one 1,000-gallon regular fuel tank and one 1,000-gallon diesel fuel tank. A gasoline release was reported during removal of the tanks in 1991. The site is listed as a "soil-only" case indicating that groundwater was not impacted. The case is listed as closed in 1997 (EDR 2017 EDR; GeoTracker 2017).

Other hazardous waste clean-up sites located adjacent to the project are listed in Table 12**.**

Table 12 Hazardous Waste Clean-up Sites Located Adjacent to the Proposed Project

Name	Address	Type of Site	Potential Contaminant of Concern	Clean-up Status	Date
Chevron #92770	4135 Pacific Coast Hwy, Torrance	LUST Cleanup Site	Gasoline	Completed- Case Closed	8/15/2007
Exxon #7-2823	4202 Pacific Coast Hwy, Torrance	LUST Cleanup Site	Gasoline	Completed- Case Closed	7/29/1997
ARCO #6158	4205 Pacific Coast Hwy, Torrance	LUST Cleanup Site	Gasoline	Completed- Case Closed	10/18/1991

Source: GeoTracker 2017, accessed June 1, 2017

Hazardous materials may be present in the soils that underlie the project area and could be encountered during construction and excavation that could pose a threat to workers, the public, or the environment. However, implementation of mitigation measure HAZ-1 would require a Hazardous Materials Management and Spill Control Plan, mitigation measures HAZ-2 and HAZ-3 would require a soil assessment and a Contaminated Soil Contingency Plan for proper disposal of contaminated soils, and mitigation measure HAZ-4 would require onsite monitoring during construction activities in suspect contaminated areas to protect onsite staff from fugitive airborne and vapor emissions. Therefore, this impact would be less than significant with implementation of the proposed mitigation measures.

POTENTIALLY SIGNIFICANT UNLESS MITIGATION INCORPORATED

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

The closest public airport to the project is Torrance Municipal Airport/Zamperini Field located at 3301 Airport Drive, Torrance, CA, approximately 0.5 mile east of the project alignment at its closest point. The nearest heliport is the Torrance Memorial Medical Center Helipad located approximately 0.5 mile east of the project alignment at 3300 Skypark Drive, Torrance, CA. The project is not located within the airport influence airport area (Los Angeles County Airport Land Use Commission 2003). Therefore, the project would have no impact related to safety hazards for people residing or working in the project area due to proximity to an airport.

NO IMPACT

f. For a project near a private airstrip, would it result in a safety hazard for people residing or working in the project area?

The project is not located near a private airstrip. Therefore, the project would have no impact related to safety hazards for people residing or working in the project area due to proximity to a private airport.

NO IMPACT

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

Construction of the proposed pipeline may require temporary lane or road closures that could impede emergency response. The Traffic Management Plan required in Mitigation Measure TRA-1 (see Section 3.16, Transportation/Traffic) would address any potential interference with emergency response and/or evacuation plans, and would reduce this impact such that it would be less than significant.

POTENTIALLY SIGNIFICANT UNLESS MITIGATION INCORPORATED

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

The project is located within the local responsibility area as designated by CalFire. The portion of the project located in Torrance, north of Torrance Utility Road, is not in a Very High Fire Hazard Severity Zone (CalFire 2011) and no people or structures would be exposed to significant risk of loss, injury, or death involving wildland fires. The portion of the project located in Palos Verdes Estates, south of Torrance Utility Road, is within the Very High Fire Hazard Severity Zone (CalFire 2011).

Two fire stations are located within one mile of the project:

- Los Angeles County Fire Station 2 located at 340 West Palos Verdes Drive, Palos Verdes Estates, CA, approximately one mile west of the project
- Torrance Fire Department Station 4 located at 5205 Calle Mayor, Torrance, CA, approximately 0.3 mile northwest of the project

During construction activities, the use of spark-producing construction machinery within or adjacent to areas of moderate fire hazard could potentially create hazardous fire conditions and expose people to wildfire risks. However, implementation of Mitigation Measure HAZ-5 would reduce the risk of loss, injury, or death associated with wildland fires such that this impact would be less than significant.

The operation of the project would not increase the population or introduce any project elements that would potentially increase the risk of loss, injury, or death associated with wildland fires. This impact would be less than significant.

POTENTIALLY SIGNIFICANT UNLESS MITIGATION INCORPORATED

Mitigation Measure

The following mitigation measure would reduce impacts to a less than significant level.

Mitigation Measure HAZ-5: Prevention of Fire Hazards

During construction of the project, staging areas, welding areas, or areas slated for construction shall be cleared of dried vegetation or other material that could ignite. Construction equipment that includes a spark arrestor shall be equipped in good working order. In addition, construction crews shall have a spotter during welding activities to look out for potentially dangerous situations, such as accidental sparks. Other construction equipment, including those with hot vehicle catalytic converters, shall be kept in good working order and used only within cleared construction zones.

The creation and maintenance of approved fire access to work areas shall be required in accordance with local Fire regulations. During construction of the project, contractors shall require vehicles and crews working at the project site to have access to functional fire extinguishers.

3.9 Hydrology and Water Quality

	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less than Significant Impact	No Impact
Would the project have any of the following impacts?				
a. Violate any water quality standards or waste discharge requirements	☐	☐	■	☐
b. Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering or the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level that would not support existing land uses or planned uses for which permits have been granted)	☐	☐	☐	■
c. Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner that would result in substantial erosion or siltation on- or off-site?	☐	☐	■	☐
d. Substantially alter the existing drainage pattern of the site or area, including the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner that would result in flooding on or offsite	☐	☐	■	☐
e. Create or contribute runoff water that would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff	☐	☐	■	☐
f. Otherwise substantially degrade water quality	☐	☐	■	☐
g. Place housing in a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary, Flood Insurance Rate Map, or other flood hazard delineation map	☐	☐	☐	■

	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less than Significant Impact	No Impact
h. Place structures in a 100-year flood hazard area that would impede or redirect flood flows	☐	☐	☐	■
i. Expose people or structures to a significant risk of loss, injury, or death involving flooding, including that occurring as a result of the failure of a levee or dam	☐	☐	☐	■
j. Result in inundation by seiche, tsunami, or mudflow	☐	☐	☐	■

The federal Clean Water Act establishes the framework for regulating discharges to Waters of the U.S. in order to protect their beneficial uses. The Porter-Cologne Water Quality Act regulates water quality within California and establishes the authority of the SWRCB and the nine RWQCBs. For storm water, development projects are required by the SWRCB to provide careful management and close monitoring of runoff during construction, including onsite erosion protection, sediment management and prevention of non-storm discharges. The SWRCB and RWQCBs issue National Pollution Discharge Elimination System (NPDES) permits to regulate specific discharges. The NPDES Municipal Separate Storm Sewer System permit requires that development projects provide ongoing treatment of stormwater within the site using low-impact development techniques and other mechanisms to address project runoff using specific design criteria. The NPDES Construction General Permit regulates stormwater discharges from construction sites that disturb more than one acre of land.

The project site overlies in the West Coast Groundwater Basin, which is bordered by the Central Basin to the east, the Pacific Ocean to the west, and the Santa Monica Basin to the north. Groundwater in the basin is replenished naturally by percolation from precipitation, subsurface inflows from the Central Basin, and by infiltration of surface inflows from the Los Angeles and San Gabriel Rivers (City of Torrance 2015). A majority of the basin is urbanized and substantially covered by paved surfaces, which inhibit groundwater percolation. The basin receives additional replenishment through artificial recharge from the Water Replenishment District's injection wells. Key production aquifers of the basin include the Gardena, Gage, Lynwood, and Silverado aquifers. The Silverado aquifer underlies most of the basin and is the most productive, yielding up to 90 percent of the groundwater extracted annually. Maximum groundwater depth within the aquifers is 2,000 feet, and total basin storage is estimated at approximately 6.5 million acre-feet. Due to overdraft conditions in the early 20th century, the basin was adjudicated in 1960 and continues to have a low safe yield based solely on natural replenishment sources. With the addition of artificial recharge activities, the adjudicated rights are approximately 64,500 acre-feet per year (City of Torrance 2015).

In addition to groundwater supplies, Torrance also receives water from imported supply purchased from the Metropolitan Water District of Southern California, water produced from the Goldsworthy Groundwater Desalter, and recycled water produced at West Basin's ELWRF in El Segundo.

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

f. Would the project otherwise substantially degrade water quality?

Excavation, grading, and construction activities associated with construction of the proposed project would result in soil disturbance that could cause water quality violations through potential erosion and subsequent sedimentation of receiving water bodies. The construction activities could also cause water quality violations in the event of an accidental fuel or hazardous materials leak or spill. If precautions are not taken to contain contaminants, construction activities could result in contaminated stormwater runoff that could enter nearby waterbodies. Construction activities resulting in ground disturbance of one acre or more are subject to the permitting requirements of the NPDES General Permit for Stormwater Discharges associated with Construction and Land Disturbance Activities (Construction General Permit Order No. 2009-0009-DWQ). The Construction General Permit requires the preparation and implementation of a SWPPP, which must be prepared before construction begins. The SWPPP includes specifications for BMPs implemented during project construction to minimize or prevent sediment or pollutants in stormwater runoff.

Project construction would follow the requirements of the Construction General Permit and the contractor would be required to implement the BMPs in the SWPPP to prevent construction pollution via stormwater and minimize erosion and sedimentation into waterways as a result of construction. Therefore, potential impacts associated with construction activities would be less than significant.

During operation of the project, the conveyance of recycled water would aid in providing recycled water to the PVGC as well as several other municipal uses, including Pacific Coast Highway medians, Richardson Middle School, Lago Seco Park, Los Arboles Park, and Riviera Elementary School. Recycled water delivered by the proposed project would meet applicable Title 22 standards for water quality, and uses would be compliant with Title 22 regulations and applicable recycled water permits. Title 22, Division 4, of the CCR regulates wastewater reclamation and recycling, and helps to protect public health associated with the use of recycled water. The Statewide General Permit for Landscape Irrigation establishes terms and conditions of discharge to ensure that the discharge does not unreasonably affect present and anticipated beneficial uses of groundwater and surface water (SWRCB 2009). Potential impacts associated with operation would therefore be less than significant.

LESS THAN SIGNIFICANT IMPACT

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

The proposed project would not require any groundwater withdrawals for water supply and is intended to have a beneficial effect on groundwater recharge, by facilitating the use of water presently treated at West Basin's ELWRF in El Segundo instead of using pumped groundwater resources. The ELWRF receives its source water from the City of Los Angeles's Hyperion Water Reclamation Plant, which supplies roughly 13 percent of its secondary effluent to the ELWRF. The Torrance Municipal Water Department (TMW) purchases recycled water produced at the ELWRF from WBMWD. According to TMW's 2015 Urban Water Management Plan (City of Torrance 2015), Torrance purchased 5,270 acre-feet of recycled water for 2015, with a five year average of 6,161 acre-feet. Though TMW has an adjudicated groundwater right of around 5,640 acre-feet per year

from the West Coast Groundwater Basin, groundwater production has only averaged 1,761 acre-feet for the past 5 years, accounting for 31 percent of the City's municipal water supply, due to lack of groundwater pumping facilities. As a result, the City relies on imported water (including recycled water purchases) for over 84 percent of its total water supply. The ELWRF has a current capacity of 40 million gallons per day (mgd), after being expanded in 2013 from its previous 30 mgd capacity. The proposed project would deliver roughly 210 acre-feet of recycled water per year to the PVGC, and an additional 15-30 acre-feet per year to other municipal users within the surrounding area. The existing ELWRF has sufficient production capacity to satisfy project demands. Therefore, there would be no change in groundwater pumping activities to meet existing supply needs and no impact would occur.

NO IMPACT

c. *Would the project substantially alter the existing drainage pattern of the site or area, including by altering the course of a stream or river, in a manner that would result in substantial erosion or siltation on or offsite?*

d. *Would the project substantially alter the existing drainage pattern of the site or area, including the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner that would result in flooding on or offsite?*

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

The proposed project would primarily consist of underground pipelines generally located within existing paved public ROW, with the exception of an approximately 800-foot segment that would be located within an existing unpaved utility road. Although construction activities would involve possible trenching and other pipeline installation methods that would disturb both paved and unpaved roadways within the project site, this disturbance would be temporary. After construction, the project area would be restored to its original condition and any drainage pattern would be the same as it was prior to project construction activities. Therefore, the project would not substantially alter the existing drainage pattern or the course of a stream or river, and would therefore not result in substantial erosion or siltation on or offsite.

Further, because the pipelines would be constructed underground within developed areas, they would not increase the rate or amount of surface runoff. The pump station and water storage tank would introduce a limited amount of new impermeable surface but not to extent that changes in runoff patterns or quantity would occur. Construction would be conducted in compliance with the State's Construction General Permit (Order No. 2009-0009-DWQ). Preparation of the SWPPP in accordance with the Construction General Permit would require erosion-control BMPs at the construction areas. Potential impacts would be less than significant.

LESS THAN SIGNIFICANT IMPACT

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

The proposed project would not construct housing; therefore it would have no impact related to placing housing within a 100-year flood zone.

NO IMPACT

h. Would the project place in a 100-year flood hazard area structures that would impede or redirect flood flows?

According to the Federal Emergency Management Agency (FEMA) Flood Insurance Rate Maps (FIRM), the project site is not located within a 100-year Flood Hazard Area (FEMA 2008). The project site is located in an area of minimal flood hazard (mapped as Zone X), outside of any 100-year flood plain (FEMA 2008). As the proposed pipelines would be located underground, they would not impede or redirect flows, nor expose people or structures to a significant risk of loss, injury or death involving flooding. The pump station and water storage tank would be aboveground, but similarly would not be of a size or scale that would impede or redirect stormwater. No impact would occur.

NO IMPACT

i. Would the project expose people or structures to a significant risk of loss, injury, or death involving flooding including that occurs as a result of the failure of a levee or dam?

The Mulholland Dam is located approximately 20 miles north of the project site. Failure of the dam could result in substantial flooding; however, the project does not include development of habitable structures, and no impacts related to exposure of people or structures to a significant risk due to failure of a levee or dam would occur as a result of the project.

NO IMPACT

j. Would the project result in inundation by seiche, tsunami, or mudflow?

The project site is not located within a Quadrangle of the California Department of Conservation Tsunami Inundation maps for southern California. The nearest mapped tsunami inundation areas are located approximately 4 miles south (Department of Conservation 2009). Due to distance from the ocean and lack of large water bodies within the project area, the project area is not subject to tsunamis or seiche. Further, the area is generally flat and would not be subject to inundation by mudflow. No impacts would occur.

NO IMPACT

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3.10 Land Use and Planning

	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less than Significant Impact	No Impact
Would the project have any of the following impacts?				
a. Physically divide an established community	☐	☐	☐	■
b. Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including but not limited to the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect	☐	☐	☐	■
c. Conflict with an applicable habitat conservation plan or natural community conservation plan	☐	☐	☐	■

a. Would the project physically divide an established community?

The proposed project includes the extension and installation of recycled water pipeline in a developed, primarily residential urban area. Staging would occur adjacent the proposed pipeline. The presence of construction-related equipment and workers would temporarily change the existing character of the vicinity to that of a construction zone but would not physically divide the existing community because local access would be maintained for businesses and residences along the proposed alignment to the extent practicable throughout construction of the proposed project. Driveways may be temporarily blocked by construction but will be managed per the City's traffic control standards, including notification requirements. After the proposed project is completed, all pipelines would be below ground, and there would be no barriers within the community and existing neighborhoods would not be divided. Therefore, the project would not displace or divide an established community and no impact would occur.

NO IMPACT

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

The proposed project would not conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project. The City of Torrance General Plan identifies objectives to increase and expand use of recycled water at public facilities, for irrigation, and for industrial use sites within the City (City of Torrance 2009c).As the proposed project would increase provision of recycled water for such uses within the city and the associated infrastructure would be largely

constructed underground within existing public ROWs, the project would not conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project. (Torrance 2009c). Recycled water would be available to existing users who currently use potable or raw water supplies and extension of the recycled water supply to several schools, parks and the PVGC would be consistent with the following City policies regarding provision of water supplies:

> **Policy CR.15.8**. Expand the use of recycled water at schools, parks, at City facilities, and other potential irrigation or industrial use sites.
>
> **Policy CR.15.9**. Identify opportunities for increased use of reclaimed water.
>
> Moreover, the project would help to implement the following policy related to upgraded infrastructure:
>
> **Policy CI.9.3**. Ensure that public infrastructure is upgraded and installed in a timely manner to meet usage requirements, maximize cost efficiency, and minimize construction impacts on the community.

The current City of Palos Verdes Estates General Plan does not identify any specific objectives, goals, or policies regarding water resources. However, construction activities for the proposed project would be consistent with the standards pertaining to water supply in Chapter 16.16 of the City Municipal Code. Therefore, there would be no conflicts with land use plans, policies, or regulations of the cities of Torrance and Palos Verdes Estates.

NO IMPACT

c. Would the project conflict with an applicable habitat conservation plan or natural community conservation plan?

As discussed in Section 3.4, Biological Resources, no habitat conservation plan applies to the project site. Therefore, the project would not conflict with the provisions of any applicable habitat conservation plan and no impacts would occur.

NO IMPACT

3.11 Mineral Resources

	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less than Significant Impact	No Impact
Would the project have any of the following impacts:				
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?

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?

According to the City of Torrance General Plan, the only area identified as having a high likelihood of significant mineral deposits is located south of Pacific Coast Highway and roughly east of Hawthorne Boulevard, approximately 0.63 miles southeast of the pipeline route. Although the project site would be located in an area designated as MRZ-3, where the significance of mineral deposits cannot be determined, construction of the recycled water pipeline would not alter or displace any mineral resource activities on or offsite (City of Torrance 2009c).

The City of Palos Verdes Estates General Plan currently does not contain any specific policies regarding mineral resources within the City. However, City Municipal Code Ordinance 8.44.030 states that mining and mineral extraction within the boundaries of the city is prohibited. As discussed previously, construction of the recycled water pipeline would not involve such activities. No impact would occur.

NO IMPACT

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3.12 Noise

	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less than Significant Impact	No Impact
Would the project result in any of the following impacts?				
a. Exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies	☐	■	☐	☐
b. Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels	☐	☐	■	☐
c. A substantial permanent increase in ambient noise levels above those existing prior to implementation of the project	☐	■	☐	☐
d. A substantial temporary or periodic increase in ambient noise levels in the project vicinity above those existing prior to implementation of the project	☐	■	☐	☐
e. For a project located in an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels	☐	☐	☐	■
f. For a project near a private airstrip, would it expose people residing or working in the project area to excessive noise	☐	☐	☐	■

General Noise Background

Noise is unwanted sound that disturbs human activity. Environmental noise levels typically fluctuate over time, and different types of noise descriptors are used to account for this variability. Noise level measurements include intensity, frequency, and duration, as well as time of occurrence. Noise level (or volume) is generally measured in decibels (dB) using the A-weighted sound pressure level (dBA). Because of the way the human ear interprets sound level, a sound must be about 10 dBA greater than the reference sound to be judged as twice as loud. In general, a 3-dBA change in community noise levels is noticeable, while 1 to 2 dBA changes are typically not perceived. Quiet suburban areas generally have noise levels in the range of 40 to 50 dBA, while arterial streets are in

the 50 to 60+ dBA range. Normal conversational levels are in the 60 to 65 dBA range, and ambient noise levels greater than 65 dBA can interrupt conversations.

Noise levels typically attenuate (or drop off) at a rate of 6 dBA per doubling of distance from point sources (such as construction equipment). Noise from lightly traveled roads typically attenuates at a rate of approximately 4.5 dBA per doubling of distance. Noise from heavily traveled roads typically attenuates at approximately 3 dBA per doubling of distance. Noise levels may also be reduced by the introduction of intervening structures. For example, a solid wall or berm that breaks the line-of-sight reduces noise levels by 5 to 10 dBA. Typical construction materials and techniques used for dwelling units in California generally provide a reduction of exterior-to-interior noise levels of about 30 dBA with closed windows (Federal Highway Administration [FHWA] 2006).

Project Site Setting

The project site is located in a developed, predominantly residential urban area surrounded by a high school, middle school, and an elementary school on the western side of the pipeline alignment, an open space park area and a second elementary school on the eastern side, and a golf course at the southern terminus. The nearest highway is Pacific Coast Highway (State Route 1), which crosses the alignment at Anza Avenue. Noise levels at the project site are typical of predominantly residential areas, primarily attributed to the generally free-flowing roadway traffic along Pacific Coast Highway, Palos Verdes Drive North, and Anza Avenue adjacent to the project site. The other surrounding residential roads near Lago Seco Park, the golf course, the middle school, and both elementary schools do not generate substantial noise levels within the project area. Traffic in these areas is fairly light and contained as these facilities only receive peak traffic one to two times per day in accordance with daily school schedules, and speed limits are restricted to 25 miles per hour within residential areas.

Seven 15-minute noise measurements were taken along the alignment of the proposed project primarily during the evening peak traffic hours between 4:00 p.m. and 6:00 p.m. on May 30, 2017. Two of these measurements were taken outside of this two-hour period in accordance with peak traffic conditions specific to the surrounding area. These included measurements taken near the Riviera Elementary School and near Lago Seco Park. The school measurement was taken at 3:29 p.m., as the school experiences peak traffic at the end of the school day schedule between 3:00 p.m. and 4:00 p.m. The park measurement was taken at 6:15 p.m. as public parks tend to experience evening usage after the peak evening rush hour period. Table 13 shows the recorded noise measurements and Figure 10 shows the locations of the measurements.

Figure 10 Noise Measurement Locations

Table 13 Noise Measurement Locations

Measurement Number	Measurement Location	Sample Times (p.m.)	Leq[4] [15] (dBA)[5]	Lmin (dBA)[6]	Lmax (dBA)[7]
1	Anza Avenue	4:05-4:20[3]	66.1	46.0	81.2
2	Lago Seco Park[1]	6:15-6:30	55.3	44.0	77.8
3	Pacific Coast Highway	5:28-5:43	68.3	54.1	76.8
4	Utility Access Road	4:55-5:10	54.9	41.8	62.5
5	Riviera Elementary School[2]	3:29-3:44	56.6	44.9	77.3
6	Palos Verdes Drive North	4:48-4:43	70.0	42.5	83.0
7	Palos Verdes Golf Club	4:05-4:20	50.7	40.4	72.0

[1] Measurement taken at 6:15 p.m.

[2] Measurement taken at 3:29 p.m.

[3] Noise measurement taken May 31, 2017

[4] The equivalent noise level (Leq) is defined as the single steady A-weighted level that is equivalent to the same amount of energy as that contained in the actual fluctuating levels over a period of time (essentially, the average noise level). For this measurement, the Leq was over a 15-minute period (Leq[15]).

[5] A-weighted decibel (dBA) is defined as a decibel (dB) adjusted to be consistent with human response.

[6] Lmin is the maximum sound level experienced within the recorded measurement with A-weighted frequency response.

[7] Lmax is the minimum sound level experienced within the recorded measurement with A-weighted frequency response.

Source: Rincon Consultants, field visit on May 30, 2017 using ANSI Type 2 Integrating sound level meter. See Appendix E for noise monitoring data.

Sensitive Receptors

Noise exposure goals for various types of land uses reflect the varying noise sensitivities associated with those uses. The City of Torrance General Plan Noise Element (City of Torrance 2009d) identifies particular land uses as sensitive to noise, including but not limited to residential areas, schools, and libraries. The City applies more stringent noise exposure guidelines to these land uses than to commercial or industrial uses that are not susceptible to certain impacts, such as sleep disturbance. The City of Palos Verdes Estates only identifies residential land uses as noise-sensitive receptors. Sensitive land uses generally should not be subjected to noise levels that would be considered intrusive in character.

The noise sensitive land uses nearest to project site are residences located around the entire alignment, as well Lago Seco Park, South High School, Richardson Middle School, Riviera Elementary School, and Valmonte Early Learning Academy.

Consistent with State law, the City of Torrance has adopted noise policies in its General Plan Noise Element (City of Torrance 2009d), as well as the City of Torrance's Noise Regulation Ordinance (City of Torrance 2017). The City of Palos Verdes Estates has adopted noise policies in both its General Plan (City of Palos Verdes Estates 1973) and Noise Regulation Ordinance (City of Palos Verdes Estates 2017). Both cities' noise ordinances identify noise standards for typical sources of noise, and include specific noise restrictions for sources of noise.

Regulatory Setting

City of Torrance

Section 46.7.2 of the Torrance Municipal Code designates sound regions with corresponding noise limits for properties within the city based land uses within each sound region. Region 1 includes the predominantly industrial areas in proximity to the oil refineries and industrial uses in the western city limits; Region 2 includes the general airport area and includes the commercial and industrial uses south of Lomita Boulevard and north of Pacific Coast Highway; Region 3 encompasses the residential neighborhoods south of Pacific Coast Highway and west of Hawthorne Boulevard; and Region 4 includes the remainder of the city, as identified in Figure N-5 of the Noise Element of the General Plan (City of Torrance 2009d). The project area would be located within Regions 3 and 4 per the Noise Ordinance.

The general Noise/Land Use Compatibility Guidelines in the City of Torrance General Plan Noise Element are shown in Table 14.

Table 14 Torrance Noise/Land Use Compatibility Guidelines

Property Receiving Noise		Maximum Noise Level Ldn[1] or CNEL[2], dB(A)[3]	
Type of Use	**Land Use Designations**	**Interior**	**Exterior**
Residential[6]	Low Density Residential Low Medium Density Residential Medium Density Residential	45	60/65[4]
	Medium High Density Residential	45	65/70[5]
	High Density Residential	45	70[5]
Commercial and Office	General Commercial Commercial Center	–	70
	Residential Office	50	70
Industrial	Business Park	55	75
	Light Industrial		
	Heavy Industrial		
Public and Medical Uses	Public/Quasi-Public/Open Space	50	65
	Hospital/Medical	50	70
Airport	Airport	–	70

Notes:
[1]The day-night average sound level (Ldn) is the average noise level experienced within a 24-hour period.
[2]Community Noise Equivalent Level (CNEL) is the 24 hour average noise level of all hourly Leq measurements with a 10 dB penalty added to the night-time levels between 10 p.m. and 7 a.m. and a 5 dB penalty added to the evening levels between 7 p.m. and 10 p.m. to reflect people's extra sensitivity to noise during the night and the evening.
[3]A-weighted decibel (dBA) is defined as a decibel (dB) adjusted to be consistent with human response.
[4] The normally acceptable standard is 60 db(A). The higher standard is acceptable subject to inclusion of noise-reduction features in project design and construction.
[5] Maximum exterior noise levels up to 70 dB CNEL are allowed for Multiple-Family Housing.
[6] Regarding aircraft-related noise, the maximum acceptable exposure for new residential development is 60 dB(A) CNEL.
Source: City of Torrance 2009d

Table 15 shows the allowable noise levels and corresponding times of day for each of the identified sound zones per the City Noise Ordinance.

Table 15 Stationary Noise Standards

Sound Region[1]	General Land Uses	Allowable Exterior Sound Level (dBA)[2]	
		7:00 a.m. to 10:00 p.m.	10:00 p.m. to 7:00 a.m.
I	Industrial	70	65
II	Airport, commercial, industrial	60	55
III	Residential	50	45
IV	Remainder of city	55	50

[1]The southern portion of the project site south of Pacific Coast Highway is in Region 3 while the northern portion is in Region 4.
[2]A-weighted decibel (dBA) is defined as a decibel (dB) adjusted to be consistent with human response.
Source: City of Torrance 2017

For construction work, the City of Torrance's Noise Ordinance limits the use of power construction tools or equipment for construction work adjacent to residential areas such that any such equipment can only operate between the hours of 7:30 a.m. to 6:00 p.m. Monday through Friday and 9:00 a.m. to 5:00 p.m. on Saturdays. Construction is prohibited on Sundays and holidays observed by Torrance City Hall. Construction occurring adjacent to commercial or industrial zoned properties or within an established redevelopment District, are exempted from these restrictions given a minimum 300 foot buffer from the closest residential property.

For temporary noise conditions, the Noise Ordinance allows adjustments to the accepted noise limits shown in Table 16.

Table 16 Noise Conditions Correction to the Limits (dB)

1	Noise contains a steady, audible tone, such as a whine, screech or hum	-5
2	Noise is a repetitive impulsive noise, such as hammering or riveting	-5
3	If the noise is not continuous, one of the following corrections to the limits shall be applied:	
A	Noise occurs less than 5 hours per day or less than 1 hour per night	+5
B	Noise occurs less than 90 minutes per day or less than 20 minutes per night	+10
C	Noise occurs less than 30 minutes per day or less than 6 minutes per night	+15
4	Noise occurs on Sunday morning (between 12:01 A.M. and 12:01 P.M. Sunday)	-5

Source: City of Torrance 2009d (General Plan Noise Element)

City of Palos Verdes Estates

At this time, the City of Palos Verdes Estates does not have adopted noise thresholds, and the City Municipal Code exempts public health and safety activities, including utility company maintenance and construction operations within public ROWs and on private property deemed necessary to serve the best interest of the public, from the Noise Ordinance.

Due to the cross-jurisdictional character of the proposed project, pipeline activities that occur within the City of Torrance city limits would be subject to the City Noise Ordinance as well as the policies of the City General Plan, while activities within the city limits of Palos Verdes Estates would be exempt from the City Noise Ordinance policies.

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

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

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

Operation of the pipeline would not perceptibly increase noise levels on the project site above existing conditions. Operation of the pump station would also not perceptibly increase onsite noise levels as the facility would be entirely encased within a building that would mitigate any generated noise. However, construction activities associated with the project would result in temporary and intermittent noise increases at sensitive receptors near construction activities. The project site is almost entirely surrounded by sensitive receptors that would largely be within 50 feet of where construction would occur. Construction of the project would involve the use of heavy equipment that could create occasional noise levels above Torrance regulations. Construction noise primarily arises from the use of equipment, such as excavators, compactors, trucks, and other machinery. Noise would also be introduced in the form of trucks transporting excavated material from the construction site to staging areas and/or disposal sites. Truck-transport would be used for any material that is not re-used onsite, for instance to backfill the trenches once the pipeline is in place. All of these noise sources would be intermittent and temporary, limited to the project's five-month construction period. Approximately 600 feet of a roadway would be disturbed at any one-time for construction activities, including excavation, pipe laying, and backfilling as construction continues along the alignment path. Residences near the disturbed areas would generally be exposed to construction activities for nine to 14 working days before the construction crew would progress to install the next section of pipeline.

The potential for a temporary construction noise impact is determined by the proximity of sensitive receptors to construction activities, estimated noise levels associated with construction equipment, the potential for construction noise to interfere with daytime and nighttime activities, and whether construction noise at nearby receptors would exceed local noise ordinance standards. Typical construction activities associated with pipeline installation (e.g. the use of earthmoving equipment) generate maximum noise levels (without noise controls) ranging from 70 dBA to 84 dBA at 50 feet from the source (FHWA 2006). Table 17 provides the typical noise levels for construction equipment that would likely be used for the project. As described in the noise setting above, the rate of attenuation (i.e., reduction) from point sources of noise is approximately 6 dBA for every doubling of distance.

Table 17 Typical Noise Levels Generated by Construction Equipment

Equipment	Typical Lmax (dBA)[1] 50 feet from the Source
Auger Drill Rig	84
Backhoe	84
Boring Jack Power Unit	83
Dump Truck	76
Flat Bed Truck	74
Front End Loader	79
Generator	81
Pickup Truck	75
Welder/Torch	74

Source: FHWA 2006

[1]A-weighted decibel (dBA) is defined as a decibel (dB) adjusted to be consistent with human response

The project would be almost entirely located within 50 feet of residential areas within the cities of Torrance and Palos Verdes Estates, and thereby would be surrounded by sensitive receptors along the majority of the alignment. It is possible that construction noise from pipeline installation could temporarily increase noise exposure to more than 60 dB in residential areas, which exceeds the stationary noise standards for Torrance. However, as construction activities would be generally limited to occur between 9:00 a.m. and 3:00 p.m., which is within the permitted weekday work hours of 7:30 a.m. to 6:00 p.m., noise generated from construction activities would be exempt from these regulations. As noted previously the City of Palos Verdes Estates does not currently have adopted noise standards and, further, exempts construction projects within public ROWs from compliance with City noise policies.

The rate of pipeline installation would limit the duration of pipeline construction along each 600-foot stretch to between 9 and 14 working days, reducing the length of exposure of any particular noise receptors to that period. Regardless of the existing regulatory framework, due to the range of equipment noise levels and the proximity to sensitive receptors, construction activities would temporarily subject sensitive receptors to a substantial temporary and periodic increase in noise during daytime hours. Therefore, noise impacts would be potentially significant.

The City of Torrance General Plan indicates that the preferred method for mitigating potential noise conflicts is controlling noise at the source. Therefore, mitigation measure NOI-1 focuses on the use of noise control practices to reduce construction noise levels to the maximum extent feasible and would apply to construction activities along the entirety of the project alignment, including construction of the pump station and water storage tank. Due to the temporary nature of construction activity, compliance with the maximum feasible construction noise reduction measures would ensure that, overall, temporary construction noise impacts would be reduced to a less than significant level.

POTENTIALLY SIGNIFICANT UNLESS MITIGATION IS INCORPORATED

Mitigation Measure

The following mitigation measure would reduce construction noise impacts to a less than significant level.

Mitigation Measure NOI-1: Implement Noise Control Measures during Construction

To reduce noise during construction, the contractor shall implement the following noise control measures:

1. **Equipment Staging Areas.** The contractor shall select equipment staging areas located as far as feasibly possible from sensitive receptors.
2. **Idling Prohibition and Enforcement**. Unnecessary idling of internal combustion engines shall be prohibited. In practice, this would mean turning off equipment if it would not be used for five or more minutes.
3. **Equipment Location, Mufflers, and Shielding.** The contractor shall locate stationary noise-generating construction equipment, such as air compressors and generators, as far as possible from homes and businesses. Pneumatic impact tools and equipment used at the construction site shall have intake and exhaust mufflers recommended by the manufacturers thereof, to meet relevant noise limitations. Provide impact noise producing equipment, i.e. jackhammers and pavement breaker(s), with noise attenuating shields, shrouds or portable barriers or enclosures, to reduce operating noise.
4. **Electrically-Powered Tools and Facilities.** Electrical power shall be used to run air compressors and similar power tools and to power any temporary equipment.
5. **Acoustical Shelters.** Noise-generating construction equipment operated outside of the 7:30 a.m. to 6:00 p.m. permitted operating hours shall be surrounded by temporary acoustical shelters, such as a sound barrier or sound blanket, to minimize noise impacts to surrounding sensitive receptors.
6. **Pre-Construction Notification.** Prior to construction, written notification to residents within 100 feet of the project segment(s) undergoing construction shall be provided, identifying the type, duration, and frequency of construction activities. Notification materials shall also identify a mechanism for residents to register complaints with United if construction related noise impacts should occur.

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

Vibration is a unique form of noise because its energy is carried through buildings, structures, and the ground, as compared to sound which is carried through the air. Thus, vibration is generally felt rather than heard. Some vibration effects can be caused by noise (e.g., the rattling of windows from passing trucks). This phenomenon is caused by the coupling of the acoustic energy at frequencies that are close to the resonant frequency of the material being vibrated. Typically, ground-borne vibration generated by man-made activities attenuates rapidly as distance from the source of the vibration increases. The ground motion caused by vibration is measured as particle velocity in inches per second and is measured in vibration decibels (VdB).

The vibration velocity level threshold of perception for humans is approximately 65 VdB. A vibration velocity of 75 VdB is the approximate dividing line between barely perceptible and distinctly

perceptible levels for many people. Most perceptible indoor vibration is caused by sources inside buildings such as the operation of mechanical equipment, movement of people, or the slamming of doors. Typical outdoor sources of perceptible ground-borne vibration are construction equipment, traffic on rough roads, and heavy duty vehicle traffic on roadways.

The Federal Railroad Administration provides guidelines for when vibration impacts may be significant:

- 72 VdB for residences and buildings where people normally sleep, including hotels
- 75 VdB for institutional land uses with primary daytime use, such as churches and schools
- 95 VdB for physical damage to extremely fragile historic buildings
- 100 VdB for physical damage to buildings

In addition to the groundborne vibration guidelines outlined above, the Federal Transit Administration (FTA) outlined human response to different levels of groundborne vibration. Vibration levels at 85 VdB and above are acceptable only if there are an infrequent number of events per day (FTA 2006). Construction-related vibration impacts would be less than significant for residential receptors if vibration levels are below the threshold of physical damage to buildings (95 VdB for extremely fragile historic buildings; 100 VdB other buildings) and if vibration events over 85 VdB would be infrequent with respect to the number of events per day. Further, vibration impacts would only be less than significant if they occur during the City's normally permitted hours of construction (7:30 a.m. to 6:00 p.m. Monday through Friday, 9:00 a.m. to 5:00 p.m. on Saturday).

Operation of the pipeline would not perceptibly increase groundborne vibration or groundborne noise on the project site above existing conditions. Construction of the project could potentially increase groundborne vibration on the project site, but any effects would be temporary. The project site is almost entirely surrounded by sensitive receptors that would largely be within 50 feet of where construction would occur. Table 18 shows typical vibration levels associated with standard construction equipment that could be used for the project.

Table 18 Typical Vibration Levels Generated by Construction Equipment

Equipment	Approximate VdB 50 feet from the Source
Vibratory Roller	94
Hoe Ram	87
Large Bulldozer	87
Caisson Drilling	87
Small Bulldozer	58
Loaded Trucks	86

VdB: vibration decibels

List not comprehensive of all equipment that would be used for the proposed project

Source: FHWA 2006

Based on the information presented in Table 18, residences at 50 feet from construction activities could be exposed to maximum vibration levels of approximately 83 VdB during construction.

As discussed above, 100 VdB is the general threshold where minor damage can occur in buildings. Because vibration levels would not reach 100 VdB, structural damage would not be expected to occur as a result of construction activities. Vibration levels during construction would exceed the FTA Guidelines' groundborne velocity level of 72 VdB at residences and buildings where people normally sleep. However, similar to discussion in item (a), construction activities would occur for only short durations as they move along the pipeline alignment and sensitive receptors near construction activities would experience only temporary increases in vibration levels. Further, as described in Section 2*, Project Description,* construction activities would generally be limited to between the hours of 9:00 a.m. and 3:00 p.m., which are outside of normal sleep hours. Any required nighttime construction would be limited to the commercial area near the intersection of Pacific Coast Highway and not in proximity to sensitive receptors for noise. Therefore, this impact would be less than significant.

LESS THAN SIGNIFICANT IMPACT

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

f. For a project within the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise?

The project site is located approximately 0.5 mile west of the nearest public airport Municipal Airport (Zamperini Field). However, the project site is not within the noise impact area for the airport (City of Torrance 2009d). The next nearest public airport is Hawthorne Municipal Airport, located approximately 7.3 miles north, and the project site is outside of its area of influence (City of Hawthorne 2014). No private airstrips are located in proximity to the project site.

NO IMPACT

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3.13 Population and Housing

	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less than Significant Impact	No Impact
Would the project result in any of the following impacts?				
a. Induce substantial population growth in an area, either directly (e.g., by proposing new homes and businesses) or indirectly (e.g., through extension of roads or other infrastructure)	☐	☐	☐	■
b. Displace substantial amounts of existing housing, necessitating the construction of replacement housing elsewhere	☐	☐	☐	■
c. Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere	☐	☐	☐	■

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

The proposed project would provide recycled water primarily to the PVGC. Provision of recycled water would not directly induce population growth as it would not produce additional water supply but, rather, would use recycled water to supplant a portion of raw and potable water use. The proposed project would not result in the construction of new homes or commercial/industrial uses, and would therefore not directly induce population growth in the service area.

In addition, though the project would help increase reliability and access to recycled water supplies, this would not indirectly support population growth. By extending an existing recycled water system to new customers in the cities of Torrance and Palos Verdes Estates, the water supplied by the proposed project would primarily be used to replace the current use of raw and potable water supplies for landscape irrigation. Therefore, no impact associated with indirect population growth would occur.

LESS THAN SIGNIFICANT IMPACT

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

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

The proposed recycled water pipelines would primarily be constructed within existing roadways and public ROW and would not displace any existing housing or people. No impacts would occur.

NO IMPACT

3.14 Public Services

	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less than Significant Impact	No Impact
Would the project result in any of the following impacts?				
a. Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, or the 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:				
1 Fire protection	☐	☐	☐	■
2 Police protection	☐	☐	☐	■
3 Schools	☐	☐	☐	■
4 Parks	☐	☐	☐	■
5 Other public facilities	☐	☐	☐	■

a.1-5 Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, or the 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 fire protection, police protection, schools, parks, and/or other public facilities?

The proposed project would not change existing demand for public services (e.g., fire and police protection, schools, parks, or libraries) because population growth would not result from construction of the proposed project (see Section 3.13, *Population and Housing)*. In addition, operation and maintenance of the proposed project facilities would not require new employees and therefore would not substantially increase the need for new staff from any of public protection services entities (e.g., police and fire). Because implementation of the proposed project would not change the demand for any public services, it would not require additional equipment or resources for those public service providers. The proposed project would have no impact to public services.

NO IMPACT

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3.15 Recreation

	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less than Significant Impact	No Impact
Would the project result in any of the following impacts?				
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?

The proposed project intends to deliver recycled water to a variety of WBMWD customers, including parks for landscape irrigation. As discussed in Section 3.13, *Population and Housing*, the proposed project would not directly or indirectly support population growth, and therefore, it would not 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 would occur.

NO IMPACT

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

The proposed project does not propose recreational facilities and would not require the construction or expansion of any recreational facilities. As such, no impacts would occur.

NO IMPACT

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3.16 Transportation

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

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

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

The proposed project would be constructed primarily within existing roadways and public ROWs within both Torrance and Palos Verdes Estates. Open trench and trenchless construction methods would be employed for the pipeline installation. The active construction area for all segments would be approximately 15 to 20 feet in width on either side for a total construction corridor of up to 30 to 40 feet, which would require limiting on-street parking and temporarily reducing traffic lane widths. Road closures are not anticipated to happen. However, if WBMWD is unsuccessful in obtaining certain easements, then a single lane road closure may be necessary along the street sections within the project site, including Anza Avenue, Vista Montana, Pso De Las Tortugas, Newton Street, and Palos Verdes Drive North. Any potential closures would be temporary and phased as construction progresses along the pipeline alignment.

Traffic impacts during project construction would be associated primarily with worker vehicles and haul trucks, and with lane reductions caused by construction activity in the roadways. The increased traffic could result in a reduction of roadway capacities due to slower movements and larger turning radii of the trucks compared to passenger vehicles. In addition, lane closures associated with pipeline construction would occur along streets and intersections during construction. Lane reductions could further reduce the roadway capacities, especially during peak hours and near school zones. For most pipeline segments, construction would use the open-trench method, and thus only a small segment would be closed at any one time during construction activities (construction of pipelines would proceed at a rate of 200 to 300 feet per day).

Anticipated construction-related vehicle trips include construction workers traveling to and from the project work areas, haul trucks (including for import and export of excavated materials, as needed), and other trucks associated with equipment and material deliveries. For the total project, the number of construction truck trips would average up to 10 to 15 round trips per day. Two crews may be working concurrently but in different areas when segment construction timeframes overlap.

The traffic generated by construction workers would be spread out within the project area and would vary depending on which segment is under construction. The trips associated with hauling of material offsite for disposal and delivery of equipment/material would occur throughout the day. Any construction-related traffic occurring between 7:00 a.m. and 9:00 a.m. or between 4:00 p.m. and 6:00 p.m. would coincide with peak hour traffic and could temporarily impede traffic and transit flow. Travel during these time frames would primarily consist of workers traveling to and from the proposed project area, because deliveries would likely occur throughout the day. Access to the construction area would vary depending on where the installation is occurring. The proposed pipeline would traverse primarily through residential areas as well as adjacent to Richardson Middle School and Riviera Elementary School. Construction may require temporary roadway closures near these uses (generally no greater than one day in duration). Given the short-term nature of construction and because impacts would move as work progresses (rather than one area being shut down for an extensive period), construction-related traffic impacts are not expected to be

substantial. However, to ensure appropriate traffic controls are implemented and impacts are less than significant, preparation and implementation of a Traffic Management Plan would be necessary. The Traffic Management Plan would require WBMWD and its construction contractor to address and mitigate impacts associated with the temporary closures of traffic lanes, parking lanes, or other public ROW within Torrance and Palos Verdes Estates, as necessary. Implementation of mitigation measure TRA-1 would ensure construction-related traffic impacts are reduced to a less-than-significant level.

Mitigation Measure

The following mitigation measure would reduce impacts to a less than significant level.

Mitigation Measure TRA-1: Develop and Implement Construction Staging and Traffic Management Plan

Prior to construction or the issuance of applicable permits, the contractor shall submit a Traffic Management Plan to the City of Torrance and the City of Palos Verdes Estates for review and approval. This plan shall:

1. Show the impact of various construction stages, including proposed lane closures, detours, staging areas, and routes of construction vehicles.
2. Describe traffic control measures that will be implemented to manage traffic and reduce potential traffic impacts in accordance with stipulations of the most recent version of the California Manual of Uniform Traffic Control Devices. Traffic control measures may include, but are not limited to, flag persons, warning signs, lights, barricades and cones to provide safe passage of vehicular (including cars and buses), bicycle and pedestrian traffic, and access by emergency responders.
3. Demonstrate the location of transit stops and transit and bicycle routes that would be temporarily impacted by construction activities, and shall recommend places to temporarily relocate transit stops and transit and bicycle routes, if necessary.
4. Require written notification of the timing, location, and duration of construction activities, and the location of lane closures or detours (if any) to all emergency service providers (fire, police, and ambulance) prior to road closure. Emergency service vehicles shall be given priority for access.

POTENTIALLY SIGNIFICANT UNLESS MITIGATION INCORPORATED

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

As discussed in Section 8, Hazards and Hazardous Materials, the project site is not located in the vicinity of any public or private airstrip or airport land use plan and does not involve any direct or indirect changes to air traffic patterns or frequency, runway alignments, or flight approach zones. The closest airport to the project site is the Torrance Municipal Airport – Zamperini Field, located approximately 0.5 mile east of the project site. The nearest heliport is the Torrance Memorial Medical Center Helipad located approximately 0.5 mile east of the project alignment. The nearest public airport is the Hawthorne Municipal Airport approximately 7.3 miles north of the project site. No impact would occur.

NO IMPACT

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

The proposed project would not create or substantially increase a traffic hazard due to a design feature. The proposed project may temporarily change the configuration of intersections and roadways within the project area, if lane closures are required during pipeline installation. Construction of the pipeline would occur at a rate of approximately 200 to 300 per day, limiting lane closures to the affected segment. Because lane closures could increase conflicts between vehicles, bicyclists, and pedestrians, potential impacts are considered significant and would require mitigation. As described in Chapter 2, Project Description, upon completion of construction activities, all intersections and roadways would be restored to pre-construction conditions. With the implementation of the Traffic Management Plan (mitigation measure TRA-1), such hazards caused by temporarily changed configurations would be reduced to a less-than significant level.

POTENTIALLY SIGNIFICANT UNLESS MITIGATION INCORPORATED

e. Would the project result in inadequate emergency access?

Lane closures and other potential traffic impacts caused by construction activities associated with the proposed project would have potential to impede emergency response to those areas, or to areas accessed via those routes. The Torrance Fire Department's Station Four would be located nearest to the project site approximately 0.34 miles north of Riviera Elementary School. No project components would be constructed in the area surrounding this station. Therefore, the station would not be directly affected by construction activities. Implementation of Mitigation Measure TRA-1, which requires development and implementation of a Traffic Management Plan, would include specific traffic control measures to address emergency access routes and notify emergency service providers of road closures and detours. With implementation of this mitigation measure, potential impacts to emergency access during construction would be reduced to less-than-significant levels.

POTENTIALLY SIGNIFICANT UNLESS MITIGATION INCORPORATED

f. Conflict with adopted policies, plans, or programs regarding public transit, bikeways, or pedestrian facilities, or otherwise substantially decrease the performance or safety of such facilities?

The proposed project involves construction and operation of recycled water infrastructure that would not conflict with adopted policies, plans, or programs regarding public transit, bicycle or pedestrian facilities. A majority of the pipeline would be installed within existing roadways, and a small section would be installed within a utility access road. As described above, construction-related impacts would be temporary and roadways would be restored to match the surrounding road type once construction is complete. No impact would occur.

NO IMPACT

3.17 Tribal Cultural Resources

	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less than Significant Impact	No Impact
Would the project cause a substantial adverse change in the significance of a tribal cultural resource, defined in a Public Resources Code section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is:				
a. Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code section 5020.1(k), or	☐	☐	☐	■
b. A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 2024.1. In applying the criteria set forth in subdivision (c) of Public Resources Code Section 5024.1, the lead agency shall consider the significant of the resource to a California Native American tribe.	☐	☐	☐	■

a., b. Would the project cause a substantial adverse change in the significance of a tribal cultural resource as defined in Public Resources Code 21074 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 Section 2024.1?

Tribal cultural resources are defined in PRC 21074 as sites, features, places, cultural landscapes, sacred places, and objects with cultural value to a California Native American tribe that are either:

- Included or determined to be eligible for inclusion in the California Register of Historical Resources
- Included in a local register of historical resources as defined in subdivision (k) of Section 5020.1

As part of the process of identifying cultural resources issues within or near the project site, Rincon contacted the NAHC to request a SLF search of the project site and a 0.5-mile radius around it. Rincon additionally contacted Native American groups and individuals provided by the NAHC

requesting information about cultural resources that may be within or could potentially be impacted by the project.

On June 13, 2017, Robert Dorame of the Gabrielino Tongva Indians of California Tribal Council contacted Rincon regarding the project. Mr. Dorame indicated that a cultural midden was located within the PVGC, and stated that he could provide documentation regarding its location. During this correspondence, Christopher Duran of Rincon informed Mr. Dorame that he would assist with scheduling a meeting with WBMWD should he wish to open AB 52 consultation. Mr. Dorame indicated that so long as the information conveyed to Mr. Duran was relayed to WBMWD, no consultation under AB 52 would be required. Mr. Duran informed WBMWD of Mr. Dorame's statements.

After numerous attempts to contact Mr. Dorame for further information regarding the location of the cultural midden, no response was received.

WBMWD performed formal AB 52 consultation, with the assistance of Rincon. On June 15, 2017, a conference call was held with WBMWD, Rincon, and the Gabrieleno Band of Mission Indians- Kizh Nation (Kizh). During this call, the Kizh indicated that the project site is highly sensitive, and that several prehistoric trade routes traversed the area. The Kizh also provided a map depicting all of the village sites in the area; none of which are located within the current project site but are located within the general vicinity. The Kizh additionally stated that any west facing slopes were considered sacred to their people and may have increased sensitivity as possible ceremonial locations. Additionally, the Kizh indicated that burials were common on trade routes as travelers would have been buried along the journey. WBMWD agreed to take the Kizh Nation's concerns under advisement during project planning.

No specific Tribal Cultural Resources were identified on the project site through consultation with WBMWD and consulted Native American groups. Thus, no impact would occur.

NO IMPACT

3.18 Utilities and Service Systems

	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less than Significant Impact	No Impact
Would the project result in any of the following impacts?				
a. Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board	☐	☐	■	☐
b. Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects	☐	☐	■	☐
c. Require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects	☐	☐	■	☐
d. Have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed	☐	☐	☐	■
e. Result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments	☐	☐	☐	■
f. Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs	☐	☐	■	☐
g. Comply with federal, state, and local statutes and regulations related to solid waste	☐	☐	■	☐

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

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

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

The proposed project would transmit approximately 240 AFY of recycled water generated at the ELWRF to the PVGC as well as to other municipal uses. Use of recycled water would comply with SWRCB's adopted General Waste Discharge Requirements (WDRs) for Landscape Irrigation Uses of Municipal Recycled Water (Recycled Water General Permit) (Order No. 2010-0108). Compliance with WDRs set forth in the Recycled Water General Permit would ensure the reasonable protection of surface water and groundwater within the project area (refer to Section 3.9, Hydrology and Water Quality). With implementation of the required WDRs, the proposed project would not exceed wastewater treatment requirements of the SWRCB. Impacts to surface water or groundwater quality would be less than significant.

The proposed project would increase total deliveries of recycled water to WBMWD customers. Given that the proposed project is designed to serve non-potable demands such as irrigation with currently available recycled water, and the proposed project itself includes expansion of infrastructure to meet those demands, there would not be inadequate capacity to serve the demands of the project area. The proposed project would not introduce a need for water or wastewater treatment, and potential impacts would be less than significant.

LESS THAN SIGNIFICANT IMPACT

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

The proposed project would not require or result in the construction of new stormwater drainage facilities or the expansion of existing facilities. No impact would occur.

NO IMPACT

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

The proposed project would require a temporary water supply during construction, for dust suppression. The source of water for this project is anticipated to be WBMWD's ELWRF in El Segundo. Torrance Municipal Water (TMW) purchases recycled water from the ELWRF, which receives its source water from secondary effluent from the City of Los Angeles' Hyperion Wastewater Treatment Plant. According to the City of Torrance's 2015 Urban Water Management Plan, recycled water has supplied approximately 24 percent of TMW's annual water demand and the City of Torrance intends to expand this provision to 30 percent. The intent of this project is to help achieve this goal by offsetting municipal groundwater demand for irrigation and landscaping uses in TMW's service territory. Extending recycled water supplies to additional existing uses, such

as the PVGC and nearby schools and parks, would help reduce demand on imported potable water supplies.

During operation of the proposed project, water would be conveyed from WBMWD's ELWRF. The ELWRF has been expanded several times to meet the increasing needs of the region and currently has the capacity to provide approximately 40 million mgd. In 2015, TMW recycled water purchases from WBMWD were approximately 4.7 mgd (City of Torrance 2015). The proposed project would convey approximately 240 AFY (0.21 mgd) to municipal water uses in Torrance and to the PVGC. The ELWRF has more than sufficient capacity to supply operation of the proposed project as well as temporary construction activities. Therefore, there would be no demand for additional water supplies to serve the project and there would be no increase in use of imported water or groundwater resources. There would be no adverse impacts associated with construction or operation of the proposed project.

NO IMPACT

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

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

Construction of the proposed project would generate solid waste in the form of soil during excavation and trenching activities. These materials would be re-used onsite or hauled offsite and disposed of in accordance with solid waste disposal regulations. Approximately 10,345 BCY of soil would be excavated and 11,380 LCY of this soil would be exported offsite and disposed. Approximately 11,145 LCY of soil would be imported from offsite sources. As described in Section 2.7, Construction Methods, of Chapter 2, Project Description, the construction spoil would be stockpiled in construction staging areas, until re-used onsite or transported to a solid waste disposal facility with sufficient capacity to accommodate the material. The nearest landfill is the Scholl Canyon Landfill approximately 25 miles north of the project site. The landfill has a maximum permitted capacity of 58,900,000 cubic yards and has a remaining capacity of 9,900,000 cubic yards as of 2011 (CalRecycle 2017). Therefore, the project would not result in significant impacts to a local landfill.

If any additional solid waste is generated (e.g. by products of roadway construction including asphalt and concrete), it would be disposed of in accordance with all applicable federal, State, and local statutes and regulations. Once constructed, operation and maintenance activities would not generate solid waste. For this reason, implementation of the proposed project would not exceed permitted capacity at local landfills. Potential impacts would be less than significant.

LESS THAN SIGNIFICANT IMPACT

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3.19 Mandatory Findings of Significance

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

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

As noted in Section 3.4, Biological Resources, the proposed project could have potential impacts to nesting birds. However, mitigation measure BIO-1 would mitigate potential project impacts to less than significant levels. As a result, the project would not have the potential to substantially reduce the habitat of fish and wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, eliminate a plant or animal community, or reduce the number or restrict the range of a rare or endangered plant or animal.

The project site does not contain any known archaeological or historical resources, however, based on Tribal consultation the area of the golf course may be sensitive for archaeological resources. In addition, there is a potential to uncover cultural resources during ground disturbing activities. Mitigation Measure CR-1 requires monitoring of ground disturbing activities within the golf course

and would ensure that should previously unknown cultural resources be discovered during construction, work would be halted and the find would be evaluated by a qualified archaeologist. As a result the proposed project would not eliminate an important example of major periods of California history or prehistory.

LESS THAN SIGNIFICANT IMPACT

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)?

As described in the discussion of environmental checklist Sections 3.1 through 3.19, with respect to all environmental issues, the proposed project would have no impact, a less than significant impact, or a less than significant impact with mitigation incorporated. The installation of the recycled water pipeline would have short-term, less than significant construction impacts related to aesthetics, air quality and GHGs, geology and soils, hydrology and water quality, and recreation. Some of the other resource areas (land use, mineral resources, population and housing, and public services) were determined to have no impact.

Impacts related to biological resources, cultural resources, tribal cultural resources, hazards and hazardous materials, and traffic would be specific to the project site and mitigation would be implemented to reduce impacts to a less than significant level; therefore, impacts to these resources areas would not contribute to any significant cumulative impacts related to these issues. In addition, the proposed project would not directly result in population growth; therefore, it would not contribute to cumulative increases in traffic or demand for utilities such as water, wastewater, and solid waste service.

The proposed project would have no adverse long-term environmental impacts and, therefore, would not contribute to cumulative environmental changes that may occur due to planned and pending development. Rather, the proposed improvements would enhance recycled water infrastructure in a manner that would reduce demand for such resources as potable-water. Consequently, the proposed project would not make a considerable contribution to any significant cumulative environmental impacts.

LESS THAN SIGNIFICANT IMPACT

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

In general, impacts to human beings are associated with air quality, hazards and hazardous materials, and noise impacts. As detailed in the preceding sections, the project would not result, either directly or indirectly, in adverse hazards related to air quality. Compliance with applicable rules and regulations and implementation of Mitigation Measure HAZ-1 and NOI-1 would reduce potential impacts on human beings to a less than significant level.

LESS THAN SIGNIFICANT IMPACT

Chapter 4: Federal Cross-Cutting Environmental Regulations Evaluation

This section describes the status of compliance with relevant federal laws, executive orders, and policies, and the consultation that has occurred to date or will occur in the near future. The topics are based in part on the SWRCB's Clean Water State Revolving Fund Program Federal Cross-cutting Environmental Regulations Evaluation Form for Environmental Review and Federal Coordination.

4.1 Federal Endangered Species Act

Section 7 of the federal Endangered Species Act requires federal agencies, in consultation with the Secretary of the Interior, to ensure that their actions do not jeopardize the continued existence of endangered or threatened species, or result in the destruction or adverse modification of the critical habitat of these species. Under Section 7, a project that could result in incidental take of a listed threatened or endangered species must consult with the U.S. Fish and Wildlife Service (USFWS) to obtain a Biological Opinion (BO). If the BO finds that the project could jeopardize the existence of a listed species ("jeopardy opinion"), the agency cannot authorize the project until it is modified to obtain a "nonjeopardy" opinion.

Section 3.4, *Biological Resources*, describes that the project site does not contain suitable habitat for any special status plant or wildlife species. While 15 special status plant species have been previously documented within a five-mile radius by the CNDDB, the project site does not contain suitable habitat for these species based on a variety of factors, including: the disturbance history of the site, lack of suitable soils, inappropriate hydrologic conditions, absence of appropriate vegetation communities, or being outside the elevation range of the species. The site was determined not to provide suitable habitat for any of the 16 special status wildlife species previously documented within a five-mile radius by the CNDDB. Accordingly, these species do not have the potential to occur within the project site. No special status plant or wildlife species were observed within the project area during the survey effort. The proposed project does not have the potential to result in direct or indirect impacts to special-status plant species.

The project site provides general nesting bird habitat, Mitigation Measure BIO-1 compliance with MBTA and CFGC requirements, would be required to reduce impacts to nesting birds to a less than significant level. Thus, the proposed project would not jeopardize any listed species and the lead agency would be in compliance with the federal Endangered Species Act.

4.2 National Historic Preservation Act (NHPA), Section 106

The purpose of the NHPA is to protect, preserve, rehabilitate, or restore significant historical, archeological, and cultural resources. Section 106 requires federal agencies to take into account effects on historic properties. Section 106 review involves a step-by-step procedure described in detail in the implementing regulations (36 CFR Part 800).

As described in Section 3.5, Cultural Resources, a cultural resource assessment for the proposed project was conducted. The analysis includes a Section 106 evaluation for the proposed project and

can be submitted as part of the consultation process with the State Historic Preservation Officer (SHPO). Concurrence by SHPO would ensure compliance with the NHPA. No cultural resources were identified within the project site during this study. Therefore, no impacts to historical resources under CEQA and no effects to historic properties under the NHPA for the proposed project are expected. However, the potential for unanticipated discoveries remains during project related activities (e.g., ground disturbing activities) which have the potential to significantly impact archaeological resources, paleontological resources and recovery of human remains. Therefore, mitigation measures CR-1 and CR-2 would be implemented to reduce any potential impacts to less than significant.

4.3 Clean Air Act

U.S. Congress adopted general conformity requirements as part of the Clean Air Act (CAA) Amendments in 1990 and the USEPA implemented those requirements in 1993 (Sec. 176 of the CAA (42 U.S.C. § 7506) and 40 CFR Part 93, Subpart B). General conformity requires that all federal actions "conform" with the State Implementation Plan as approved or promulgated by USEPA. The purpose of the general conformity program is to ensure that actions taken by the federal government do not undermine State or local efforts to achieve and maintain the national ambient air quality standards. Before a federal action is taken, it must be evaluated for conformity with the State Implementation Plan. All "reasonably foreseeable" emissions predicted to result from the action are taken into consideration. These include direct and indirect emissions, and must be identified as to location and quantity. If it is found that the action would create emissions above de minimis threshold levels specified in USEPA regulations (40 CFR § 93.153(b)), or if the activity is considered "regionally significant" because its emissions exceed 10 percent of an area's total emissions, the action cannot proceed unless mitigation measures are specified that would bring the proposed project into conformance.

As described in Section 3.3, *Air Quality*, the project area lies within the SCAB. The results of the air quality modeling showed that pollutant emissions would not exceed federal General Conformity de minimis thresholds (Appendix A). Accordingly, the lead agency would be in compliance with the CAA.

4.4 Coastal Zone Management Act

The Coastal Zone Management Act (CZMA), passed by Congress in 1972 and managed by the National Oceanic and Atmospheric Administration's (NOAA) Office of Ocean and Coastal Resource Management, is designed to balance completing land and water issues in coastal zones. It also aims to "preserve, protect, develop, and where possible, to restore or enhance the resources of the nation's coastal zone." Within California, the CZMA is administered by the Bay Conservation and Development Commission, the California Coastal Conservancy, and the California Coastal Commission.

No portion of the propose project is within the coastal zone. The project area is located approximately 1.3 miles east of the Pacific Coast. Therefore, the Coastal Zone Management Act does not apply to the proposed project.

4.5 Farmland Protection Policy Act

The Farmland Protection Policy Act (FPPA) requires a federal agency to consider the effects of its actions and programs on the nation's farmlands. The FPPA is intended to minimize the impact of federal programs with respect to the conversion of farmland to nonagricultural uses. It assures that, to the extent possible, federal programs are administered to be compatible with State, local, and private programs and policies to protect farmland.

As described in Section 3.2 Agriculture and Forestry Resources, the proposed project would be located within land not currently mapped by the Farmland Mapping and Monitoring Program (FMMP)(Department of Conservation 2014). Lands not mapped by the FMMP are considered non-agricultural and are not in proximity Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Department of Conservation 2014). Therefore, the proposed project would not adversely affect any farmland areas and the lead agency would be in compliance with the FPPA.

4.6 Executive Order (EO) 11988 – Floodplain Management

EO 11988 requires federal agencies to recognize the values of floodplains and to consider the public benefits from restoring and preserving floodplains.

As described in Section 3.9, Hydrology and Water Quality, the site is located in an area of minimal flood hazard and is not in proximity to a designated 100-year Flood Hazard Area. This is due to the project sites proximity to the Santa Clara River. The project site is located outside of any 100-year flood plain (FEMA 2008). Underground pipelines would be buried and would not increase flood hazards or interfere with floodplain management. As such, the lead agency would be in compliance with this EO.

4.7 Federal Migratory Bird Treaty Act, Bald and Golden Eagle Protection Act, and Executive Order 13168

The Migratory Bird Treaty Act and the Bald and Golden Eagle Protection Act prohibit the take of migratory birds (or any part, nest, or eggs of any such bird) and the take and commerce of eagles. EO 13168 requires that any project with federal involvement address impacts of federal actions on migratory birds.

As described in Section 3.4, Biological Resources, the proposed project would have less than significant impact on nesting birds with implementation of mitigation measure BIO-1 if construction cannot be avoided during nesting season. Thus, the lead agency would be in compliance with this EO.

4.8 Executive Order 11990 – Protection of Wetlands

Under EO 11990, federal agencies must avoid affecting wetlands unless it is determined that no practicable alternative is available.

As described in Section 3.4, Biological Resources, the project site does not support federally protected wetlands as defined by CWA Section 404 and therefore no impacts would occur. Thus, the lead agency would be in compliance with EO 11990.

4.9 Wild and Scenic Rivers Act

The Wild and Scenic Rivers Act was passed in 1968 to preserve and protect designated rivers for their natural, cultural, and recreational value.

There are no designated Wild and Scenic Rivers within the project area, nor will any designated rivers be adversely affected by the proposed project. As a result, the Wild and Scenic Rivers Act does not apply to the proposed project.

4.10 Safe Drinking Water Act – Source Water Protection

Section 1424(e) of the Safe Drinking Water Act established the USEPA's Sole Source Aquifer Program. This program protects communities from groundwater contamination from federally-funded projects.

Within USEPA's Region 9, which includes California, there are nine sole source aquifers. None of these sole source aquifers are located within the project area. Therefore, the Sole Source Aquifer Program does not apply to the proposed project, and the lead agency would be in compliance with Section 1424(e) of the Safe Drinking Water Act.

4.11 Executive Order on Trails for America in the 21st Century

The EO on Trails for America requires federal agencies to protect, connect, promote, and assist trails of all types throughout the United States. No trees would be affected along Palos Verdes Drive at the request of the City of Palos Verdes Estates. There may be disturbance and pedestrian detours as construction crosses this roadway, but disruption would be short-term and temporary.

The proposed alignment includes a portion of the Torrance Utility Road which is forms a portion of the Palos Verdes Estates "Boundary Trail". During construction, there would be disturbance and limitations on access to this portion (approximately 200 feet) of the Torrance Utility Road, which would be temporary and short term, but use of the remainder of the trail would be maintained. Following completion of construction in this location, the surface of the Torrance Utility Road would be returned to its current condition or better. As a result, no adverse effects on trails would occur and the lead agency is in compliance with this EO.

4.12 Executive Order 13007 – Indian Sacred Sites

Sacred sites are defined in Executive Order 13007 (May 24, 1996) as "any specific, discrete, narrowly delineated location on federal land that is identified by an Indian tribe, or Indian individual determined to be an appropriately authoritative representative of an Indian religion, as sacred by virtue of its established religious significance to, or ceremonial use by, an Indian religion; provided that the tribe or appropriately authoritative representative of an Indian religion has informed the agency of the existence of such a site."

The proposed project would not be located on or impact any federal lands and therefore would not affect any Indian sacred sites under this EO.

4.13 Magnuson-Stevens Fishery Conservation and Management Act

The Magnuson-Stevens Fishery Conservation and Management Act (Magnuson-Stevens Act) of 1976 as amended (16 U.S.C. § 1801 et seq.), is the primary act governing federal management of fisheries in federal waters, from the 3-nautical-mile state territorial sea limit to the outer limit of the U.S. Exclusive Economic Zone. It establishes exclusive U.S. management authority over all fishing within the Exclusive Economic Zone, all anadromous fish throughout their migratory range except when in a foreign nation's waters, and all fish on the continental shelf. The Act also requires federal agencies to consult with NMFS on actions that could damage Essential Fish Habitat (EFH), as defined in the 1996 Sustainable Fisheries Act (Public Law 104-297).

The proposed project would not be located in or impact any U.S. federal waters regulated under the Magnuson-Stevens Act. EFH includes those habitats that support the different life stages of each managed species. A single species may use many different habitats throughout its life to support breeding, spawning, nursery, feeding, and protection functions. EFH can consist of both the water column and the underlying surface (e.g., streambed) of a particular area. The project area is located primarily within existing roadways. As described in Section 3.4, Biological Resources, the project is not expected to have adverse effect on resident or migratory fish, wildlife species, or fish habitat in the project area.

4.14 Environmental Justice

This section describes the existing socioeconomic resources in the proposed project area and the regulatory setting pertaining to environmental justice-related issues. This section also evaluates the potential for the proposed project to disproportionately affect minority or low-income groups. The USEPA defines environmental justice as: "The fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies. Fair treatment means no group of people, including racial, ethnic, or economic groups should bear a disproportionate share of the negative environmental consequences resulting from industrial, municipal, and commercial operations or the execution of federal, State, local, and tribal programs and policies" (USEPA 2016).

Economic conditions in the proposed project area are generally better than national averages. According to 2015 American Community Survey (ACS) estimates, the median household income (MHI) of the City of Torrance from 2011-2015 ranged from $55,433 to $55,377 and the City of Palos Verdes Estates ranged from $159,038 to $174,500 (United States Census Bureau 2017a,b). The unemployment rate of the City of Torrance is 7 percent and the City of Palos Verdes Estates is 2.1 percent (United States Census Bureau 2017a,b).

Minority and Low Income Communities

According to CEQA and USEPA guidelines, a minority population is present in a study area if the minority population of the affected area exceeds 50 percent, or if the minority population percentage of the affected area is meaningfully greater than the minority population percentage in the general population or other appropriate unit of geographic analysis.

USEPA guidelines recommend that analysis of low-income communities consider U.S. Census Bureau's poverty level definitions, as well as applicable State and regional definitions of low-income and poverty communities. U.S. Census data define the poverty level based on income, household size, and number of minors. 2015 poverty levels range from $11,511 (one person household) to $53,155 (nine or more person household with one related minor). The most recent ACS data available indicates that 7 percent of the City of Torrance is below the poverty level and 3.6 percent of Palos Verdes Estates is below the poverty level (U.S. Census Bureau 2017c,d).

According to the U.S. Census Bureau, the median household income (MHI) for City of Torrance was $55,377 and Palos Verdes Estates was $175,500 in 2015 (U.S. Census Bureau 2017a,b). Communities with MHIs less than 80 percent of the California MHI are considered disadvantaged communities (DACs), according to the California Department of Water Resources (DWR) Integrated Regional Water Management Program. Detailed demographic information was analyzed using data from the U.S. Census Bureau's American Community Survey (ACS), which provides estimates of demographics based on annual surveys. Data from ACS is available on a Census block group level, and this finer scale is more accurate for project analyses. The statewide 2015 MHI was $61,818. A DAC would therefore be a community with an MHI of $49,454 or less. Therefore, according to DWR's definition on low income/disadvantaged communities, neither of the cities of Torrance or Palos Verdes Estates is considered low income/disadvantaged communities.

Conclusion

For the purposes of this analysis, an impact related to environmental justice would be significant if the proposed project would cause impacts to minority or low-income populations that are disproportionately high and adverse, either directly, indirectly, or cumulatively.

The placement of the proposed pipelines are strategic, intentionally located to provide recycled water to the PVGC as well as other WBMWD customers and users including Riviera Elementary School, Richardson Middle School, Lago Seco Park, Los Arboles Park, and Pacific Coast Highway medians. Although the construction of pipelines has the potential for short-term effects, the provision of recycled water to existing and future users would have the long-term benefit of providing a reliable water supply to maintain turf and landscaping in the project area.

Although construction would generate impacts (e.g., dust, traffic, and noise), such activities would be intermittent and temporary, and would cease upon completion of work activities. Where potential impacts could occur, mitigation measures have been identified to reduce such effects to less-than-significant levels. In addition, construction-related effects would occur predominantly within residential areas that do not contain minority/low-income communities. The proposed project would therefore not result in any disproportionately high impacts on minority or low income communities. Thus, no adverse environmental justice impacts would occur.

References

Bibliography

Association of Environmental Professionals. 2015. Beyond 2020: The Challenges of Greenhouse Gas Reduction Planning by Local Governments in California.

CalEPA. 2006. Climate Action Team Report to Governor Schwarzenegger and the Legislature. Accessed June 2017. http://climatechange.ca.gov/climate_action_team/reports/index.html#2006

CAL FIRE (California Department of Forestry and Fire Protection). September 2011. *Very High Fire Hazard Severity Zones in Local Responsibility Areas – Los Angeles County*.

California Air Pollution Control Officers Association (CAPCOA). 2008. CEQA and Climate Change: Addressing Climate Change through California Environmental Quality Act (CEQA). January 2008

California Energy Commission (CEC).2009. Environmental Health and Equity Impacts from Climate Change and Mitigation Policies in California: A Review of the Literature. March 2009

California Geological Survey (CGS). 1986. Earthquake Zones of Required Investigation – Torrance Quadrangle, Alquist-Priolo Earthquake Fault Zones. Accessed May 2017. (http://gmw.conservation.ca.gov/SHP/EZRIM/Maps/TORRANCE_EZRIM.pdf).

_____. 2007. Landslide Inventory Map of the Palos Verdes Peninsula, Los Angeles County, California. Accessed May 2017. ftp://ftp.consrv.ca.gov/pub/dmg/pubs/lsim/LSIM_PalosVerdes.pdf

_____. 2010. Fault Activity Map of California. Accessed May 2017. http://maps.conservation.ca.gov/cgs/fam

CalRecycle. 2017. Scholl Canyon Landfill (19-AA-0012). Accessed July 2017. http://www.calrecycle.ca.gov/SWFacilities/Directory/19-AA-0012/Detail/

Caltrans. 2011. California Scenic Highway Mapping System. Accessed May 2017. http://www.dot.ca.gov/hq/LandArch/16_livability/scenic_highways/index.htm

Department of Conservation. 2009. Tsunami Inundation Map for Emergency Planning: Torrance Quadrangle/ San Pedro Quadrangle. Accessed June 2017. http://www.conservation.ca.gov/cgs/geologic_hazards/Tsunami/Inundation_Maps/LosAngeles/Documents/Tsunami_Inundation_TorranceSanPedro_Quads_LosAngeles.pdf

_____. 2014. Orange County Important Farmland 2014. Accessed May 2017. ftp://ftp.consrv.ca.gov/pub/dlrp/FMMP/pdf/2014/ora14.pdf

_____. 2016. Los Angeles County Williamson Act FY 2015/2016. Accessed May 2017. ftp://ftp.consrv.ca.gov/pub/dlrp/wa/LA_15_16_WA.pdf

City off Torrance. 2008. 2008 Strategic Plan. Accessed June 2017. http://www.torranceca.gov/16594.htm

_____. 2009a. General Plan Safety Element. Accessed May 2017. http://www.torranceca.gov/PDF/4_Safety_Element.pdf

_____. 2009b. General Plan Update Draft EIR: Section 5 Geology and Soils. Accessed May 2017. http://www.torranceca.gov/pdf/gp_drafteir/Ch%2005-05%20GEO.pdf

_____. 2009c. General Plan Community Resources Element. Accessed May 2017. http://www.torranceca.gov/PDF/3_Community_Resources_Element.pdf

_____. 2009d. General Plan Noise Element. Accessed June 2017. http://www.torranceca.gov/PDF/5_Noise_Element.pdf

_____. 2015. Urban Water Management Plan. Accessed May 2017. https://wuedata.water.ca.gov/public/uwmp_attachments/9494046866/2015_UWMP_TORRANCE_FINAL.pdf

_____. 2017. Torrance Municipal Code. Accessed May 2017. http://www.codepublishing.com/CA/Torrance/

_____. n.d. Expansive Soil Foundation Map for Residential Construction. Accessed May 2017. https://www.torranceca.gov/PDF/ExpansiveSoils_colorhatch.pdf

City of Hawthorne. 2014. Hawthorne Municipal Airport Noise Compatibility Study. Accessed June 2017. http://hawthornenoise.airportstudy.com/report/

City of Palos Verdes Estates. 2017. Palos Verdes Estates Municipal Code. Accessed May 2017. http://www.codepublishing.com/CA/PalosVerdesEstates/

County of Los Angeles. 2013. Airport Land Use Commission. 13 May 2003. *Torrance Airport Influence Area*.

_____.2014 . Office of Emergency Management (OEM). 24 February 2014. *All-Hazard Mitigation Plan*.

_____.2017a. Fire Department. *Fire Station Locator*. Database accessed at: https://www.fire.lacounty.gov/. 1 June 2017.

_____. 2017b. Office of Emergency Management (OEM). *Emergency Preparedness and Response*. Database accessed at: http://publichealth.lacounty.gov/eprp/. 2 June 2017.

Department of Toxic Substances Control (DTSC). 2017. *EnviroStor Database*. Database accessed at: http://www.envirostor.dtsc.ca.gov/public/. Accessed June 2017.

Environmental Data Resources (EDR) report. Accessed May 2017.

Federal Emergency Management Agency (FEMA). 2008. Flood Insurance Rate Map # 06037C1940F. Accessed May 2017. http://map1.msc.fema.gov/idms/IntraView.cgi?ROT=0&O_X=11818&O_Y=5822&O_ZM=0.308936&O_SX=1600&O_SY=1026&O_DPI=400&O_TH=76150106&O_EN=76360992&O_PG=1&O_MP=1&CT=0&DI=0&WD=14408&HT=10358&JX=2125&JY=1086&MPT=0&MPS=0&ACT=4&KEY=76149750&ITEM=1&PICK_VIEW_CENTER.x=782.2200927734375&PICK_VIEW_CENTER.y=859.6600036621094

Federal Highway Administration (FHWA). 2006. FHWA Highway Construction Noise Handbook. (FHWAHEP-06-015; DOT-VNTSC-FHWA-06-02). Accessed June 2017. https://www.fhwa.dot.gov/environment/noise/construction_noise/handbook/handbook09.cfm

Federal Transit Administration (FTA). 2006. *Transit Noise and Vibration Impact Assessment*. Office of Planning and Environment. Accessed May 2017.

https://www.transit.dot.gov/sites/fta.dot.gov/files/docs/FTA_Noise_and_Vibration_Manual.pdf

National Park Service (NPS). 1983. Archaeology and Historic Preservation: Secretary of the Interior's Standards and Guidelines. Electronic document. Accessed June 2017. http://www.nps.gov/history/local-law-Arch_Standards.htm

Society of Vertebrate Paleontology (SVP). 2010. Standard Procedures for the Assessment and Mitigation of Adverse Impacts to Paleontological Resources. SVP Impact Mitigation Guidelines Revision Committee.

South Coast Air Quality Management District (SCAQMD).2008. Final Localized Significance Threshold Methodology. Accessed June 2017. http://www.aqmd.gov/docs/default-source/ceqa/handbook/localized-significance-thresholds/final-lst-methodology-document.pdf?sfvrsn=2

_____.2005. Sample Construction Scenarios for Projects Less than Five Acres in Size. Accessed June 2017. http://www.aqmd.gov/docs/default-source/ceqa/handbook/localized-significance-thresholds/final-sample-construction-scenario-report.pdf?sfvrsn=2

_____.2010. Greenhouse Gas CEQA Significance Threshold Stakeholder Working Group Meeting #15. September 28, 2010. Diamond Bar, CA.

_____.2015. SCAQMD Air Quality Significance Thresholds. Accessed June 2017. http://www.aqmd.gov/docs/default-source/ceqa/handbook/scaqmd-air-quality-significance-thresholds.pdf

_____. 2016. NAAQS/CAAQS and Attainment Status for South Coast Air Basin. Accessed June 2017. http://www.aqmd.gov/docs/default-source/clean-air-plans/air-quality-management-plans/naaqs-caaqs-feb2016.pdf?sfvrsn=2

State Water Resources Control Board (SWRCB). 2009. Water Quality Order No. 2009-0006-DWQ, General Waste Discharge Requirements for Landscape Irrigation Uses of Municipal Recycled Water(General Permit). Accessed May 2017. http://www.waterboards.ca.gov/water_issues/programs/water_recycling_policy/docs/wqo_2009_0006_general_permit.pdf.

_____. 2017. *GeoTracker Database*. Accessed June 2017. http://geotracker.waterboards.ca.gov/

Szromba, Meagan et al. 2017. Cultural and Paleontological Resources Technical Study for the Palos Verdes Recycled Water Pipeline Project. Rincon Consultants, Inc. Report on file, South Central Coastal Information Center, California State University, Fullerton.

United States Census Bureau. 2017a. 2011-2015 American Community Survey 5-year Estimates: Employment Status for Torrance city, California. Accessed June 2017. https://factfinder.census.gov/faces/nav/jsf/pages/searchresults.xhtml?refresh=t

_____.2017b. 2017b. 2011-2015 American Community Survey 5-year Estimates: Employment Status for Palos Verdes Estates city, California. Accessed June 2017. https://factfinder.census.gov/faces/nav/jsf/pages/searchresults.xhtml?refresh=t

_____.2017c. 2011-2015 American Community Survey 5-year Estimates: Selected Economic Characteristics for Torrance city, California. Accessed June 2017. https://factfinder.census.gov/faces/nav/jsf/pages/searchresults.xhtml?refresh=t

_____.2017d. 2011-2015 American Community Survey 5-year Estimates: Selected Economic Characteristics for Palos Verdes Estates city, California. Accessed June 2017. https://factfinder.census.gov/faces/nav/jsf/pages/searchresults.xhtml?refresh=t

U.S. Department of Agriculture. 2016. Natural Resources Conservation Service Web Soil Survey. Accessed May 2017. https://websoilsurvey.sc.egov.usda.gov/App/WebSoilSurvey.aspx

U.S. Environmental Protection Agency [USEPA). 2016. "Environmental Justice". https://www.epa.gov/environmentaljustice. Accessed June 2017.

_____.2017. De Minimis Emission Levels. Accessed June 2017. https://www.epa.gov/general-conformity/de-minimis-emission-levels

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Appendix A

CalEEMod

Palos Verdes Recycled Water Project

South Coast AQMD Air District, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
General Light Industry	2.40	1000sqft	0.06	2,400.00	0
Other Asphalt Surfaces	58.40	1000sqft	1.34	58,400.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	31
Climate Zone	8			**Operational Year**	2020
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	702.44	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - PD

Land Use - Parking proxy for pipeline disturbance area. GLI proxy for pump station

Construction Phase - Construction schedule per PD. Mobilization included in grading phase.

Off-road Equipment -

Off-road Equipment -

Off-road Equipment - Grading proxy for excavation. No graders would be used.

Off-road Equipment -

Trips and VMT - 20 cy trucks per PD. 2,254 one-way trips.

Grading - Grading phase proxy for excavation. No grading would occur.

Vehicle Trips - The pump station would be operated remotely with infrequent, annual maintenance trips

Vehicle Emission Factors -

Vehicle Emission Factors -

Vehicle Emission Factors -

Area Coating - Per SCAQMD Rule 1113 for 50g/L VOC

Energy Use - Total annual kwh/1,000 sf from PD. No natural gas usage.

Water And Wastewater - The project is water infrastructure and does not have water or wastewater demands.

Solid Waste - Water infrastructure project with no solid waste demands.

Construction Off-road Equipment Mitigation - Assumed compliance with Rule 403, as necessary.

Area Mitigation -

Fleet Mix -

Palos Verdes Recycled Water Project - South Coast AQMD Air District, Annual

Table Name	Column Name	Default Value	New Value
tblAreaCoating	Area_EF_Nonresidential_Exterior	100	50
tblAreaCoating	Area_EF_Nonresidential_Interior	100	50
tblAreaCoating	Area_EF_Parking	100	50
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	40	0
tblConstructionPhase	NumDays	200.00	65.00
tblConstructionPhase	NumDays	4.00	65.00
tblConstructionPhase	NumDays	10.00	21.00
tblEnergyUse	NT24E	3.83	0.19
tblEnergyUse	NT24NG	6.86	0.00
tblEnergyUse	T24E	1.71	0.19
tblEnergyUse	T24NG	14.11	0.00
tblGrading	MaterialExported	0.00	11,380.00
tblGrading	MaterialImported	0.00	11,145.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblProjectCharacteristics	OperationalYear	2018	2020
tblSolidWaste	SolidWasteGenerationRate	2.98	0.00
tblTripsAndVMT	HaulingTripNumber	2,816.00	2,254.00
tblVehicleTrips	ST_TR	1.32	0.00
tblVehicleTrips	SU_TR	0.68	0.00
tblVehicleTrips	WD_TR	6.97	0.00
tblWater	IndoorWaterUseRate	555,000.00	0.00

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2018	0.1501	1.4605	0.8489	2.2600e-003	0.1820	0.0627	0.2447	0.0901	0.0593	0.1495	0.0000	206.8876	206.8876	0.0315	0.0000	207.6753
Maximum	**0.1501**	**1.4605**	**0.8489**	**2.2600e-003**	**0.1820**	**0.0627**	**0.2447**	**0.0901**	**0.0593**	**0.1495**	**0.0000**	**206.8876**	**206.8876**	**0.0315**	**0.0000**	**207.6753**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2018	0.1501	1.4605	0.8489	2.2600e-003	0.1006	0.0627	0.1633	0.0456	0.0593	0.1050	0.0000	206.8875	206.8875	0.0315	0.0000	207.6751
Maximum	**0.1501**	**1.4605**	**0.8489**	**2.2600e-003**	**0.1006**	**0.0627**	**0.1633**	**0.0456**	**0.0593**	**0.1050**	**0.0000**	**206.8875**	**206.8875**	**0.0315**	**0.0000**	**207.6751**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**44.73**	**0.00**	**33.27**	**49.36**	**0.00**	**29.77**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Palos Verdes Recycled Water Project - South Coast AQMD Air District, Annual

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	1-1-2018	3-31-2018	0.7710	0.7710
2	4-1-2018	6-30-2018	0.6957	0.6957
3	7-1-2018	9-30-2018	0.1260	0.1260
		Highest	0.7710	0.7710

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.0135	1.0000e-005	7.8000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	1.5100e-003	1.5100e-003	0.0000	0.0000	1.6100e-003
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.6458	2.6458	1.1000e-004	2.0000e-005	2.6553
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Waste						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Water						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0135**	**1.0000e-005**	**7.8000e-004**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**2.6473**	**2.6473**	**1.1000e-004**	**2.0000e-005**	**2.6569**

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.0135	1.0000e-005	7.8000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	1.5100e-003	1.5100e-003	0.0000	0.0000	1.6100e-003
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.6458	2.6458	1.1000e-004	2.0000e-005	2.6553
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Waste						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Water						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0135**	**1.0000e-005**	**7.8000e-004**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**2.6473**	**2.6473**	**1.1000e-004**	**2.0000e-005**	**2.6569**

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

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Grading	Grading	1/1/2018	3/30/2018	5	65	
2	Building Construction	Building Construction	3/31/2018	6/29/2018	5	65	
3	Paving	Paving	6/30/2018	7/30/2018	5	21	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 1.34

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

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Grading	Graders	0	6.00	187	0.41
Grading	Rubber Tired Dozers	1	6.00	247	0.40
Grading	Tractors/Loaders/Backhoes	1	7.00	97	0.37
Building Construction	Cranes	1	6.00	231	0.29
Building Construction	Forklifts	1	6.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	1	6.00	97	0.37
Building Construction	Welders	3	8.00	46	0.45
Paving	Cement and Mortar Mixers	1	6.00	9	0.56
Paving	Pavers	1	6.00	130	0.42
Paving	Paving Equipment	1	8.00	132	0.36
Paving	Rollers	1	7.00	80	0.38
Paving	Tractors/Loaders/Backhoes	1	8.00	97	0.37

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Grading	2	5.00	0.00	2,254.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	7	26.00	10.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving	5	13.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

3.2 Grading - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.1481	0.0000	0.1481	0.0809	0.0000	0.0809	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0360	0.3809	0.1731	3.0000e-004		0.0202	0.0202		0.0186	0.0186	0.0000	27.0897	27.0897	8.4300e-003	0.0000	27.3005
Total	**0.0360**	**0.3809**	**0.1731**	**3.0000e-004**	**0.1481**	**0.0202**	**0.1682**	**0.0809**	**0.0186**	**0.0995**	**0.0000**	**27.0897**	**27.0897**	**8.4300e-003**	**0.0000**	**27.3005**

3.2 Grading - 2018

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	9.8900e-003	0.3582	0.0666	8.9000e-004	0.0194	1.3500e-003	0.0207	5.3200e-003	1.2900e-003	6.6100e-003	0.0000	86.9376	86.9376	6.1100e-003	0.0000	87.0905
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	8.6000e-004	7.1000e-004	7.5800e-003	2.0000e-005	1.7800e-003	1.0000e-005	1.8000e-003	4.7000e-004	1.0000e-005	4.9000e-004	0.0000	1.7103	1.7103	6.0000e-005	0.0000	1.7118
Total	**0.0108**	**0.3589**	**0.0742**	**9.1000e-004**	**0.0212**	**1.3600e-003**	**0.0225**	**5.7900e-003**	**1.3000e-003**	**7.1000e-003**	**0.0000**	**88.6480**	**88.6480**	**6.1700e-003**	**0.0000**	**88.8022**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0666	0.0000	0.0666	0.0364	0.0000	0.0364	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0360	0.3809	0.1731	3.0000e-004		0.0202	0.0202		0.0186	0.0186	0.0000	27.0897	27.0897	8.4300e-003	0.0000	27.3005
Total	**0.0360**	**0.3809**	**0.1731**	**3.0000e-004**	**0.0666**	**0.0202**	**0.0868**	**0.0364**	**0.0186**	**0.0550**	**0.0000**	**27.0897**	**27.0897**	**8.4300e-003**	**0.0000**	**27.3005**

3.2 Grading - 2018

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	9.8900e-003	0.3582	0.0666	8.9000e-004	0.0194	1.3500e-003	0.0207	5.3200e-003	1.2900e-003	6.6100e-003	0.0000	86.9376	86.9376	6.1100e-003	0.0000	87.0905
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	8.6000e-004	7.1000e-004	7.5800e-003	2.0000e-005	1.7800e-003	1.0000e-005	1.8000e-003	4.7000e-004	1.0000e-005	4.9000e-004	0.0000	1.7103	1.7103	6.0000e-005	0.0000	1.7118
Total	**0.0108**	**0.3589**	**0.0742**	**9.1000e-004**	**0.0212**	**1.3600e-003**	**0.0225**	**5.7900e-003**	**1.3000e-003**	**7.1000e-003**	**0.0000**	**88.6480**	**88.6480**	**6.1700e-003**	**0.0000**	**88.8022**

3.3 Building Construction - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0842	0.5664	0.4510	7.2000e-004		0.0344	0.0344		0.0332	0.0332	0.0000	59.8763	59.8763	0.0121	0.0000	60.1776
Total	**0.0842**	**0.5664**	**0.4510**	**7.2000e-004**		**0.0344**	**0.0344**		**0.0332**	**0.0332**	**0.0000**	**59.8763**	**59.8763**	**0.0121**	**0.0000**	**60.1776**

3.3 Building Construction - 2018

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	1.4100e-003	0.0402	0.0104	8.0000e-005	2.0500e-003	2.9000e-004	2.3400e-003	5.9000e-004	2.8000e-004	8.7000e-004	0.0000	8.1180	8.1180	5.8000e-004	0.0000	8.1324
Worker	4.4900e-003	3.6700e-003	0.0394	1.0000e-004	9.2700e-003	8.0000e-005	9.3500e-003	2.4600e-003	7.0000e-005	2.5300e-003	0.0000	8.8937	8.8937	3.0000e-004	0.0000	8.9012
Total	**5.9000e-003**	**0.0439**	**0.0498**	**1.8000e-004**	**0.0113**	**3.7000e-004**	**0.0117**	**3.0500e-003**	**3.5000e-004**	**3.4000e-003**	**0.0000**	**17.0116**	**17.0116**	**8.8000e-004**	**0.0000**	**17.0337**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0842	0.5664	0.4510	7.2000e-004		0.0344	0.0344		0.0332	0.0332	0.0000	59.8762	59.8762	0.0121	0.0000	60.1775
Total	**0.0842**	**0.5664**	**0.4510**	**7.2000e-004**		**0.0344**	**0.0344**		**0.0332**	**0.0332**	**0.0000**	**59.8762**	**59.8762**	**0.0121**	**0.0000**	**60.1775**

3.3 Building Construction - 2018

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	1.4100e-003	0.0402	0.0104	8.0000e-005	2.0500e-003	2.9000e-004	2.3400e-003	5.9000e-004	2.8000e-004	8.7000e-004	0.0000	8.1180	8.1180	5.8000e-004	0.0000	8.1324
Worker	4.4900e-003	3.6700e-003	0.0394	1.0000e-004	9.2700e-003	8.0000e-005	9.3500e-003	2.4600e-003	7.0000e-005	2.5300e-003	0.0000	8.8937	8.8937	3.0000e-004	0.0000	8.9012
Total	**5.9000e-003**	**0.0439**	**0.0498**	**1.8000e-004**	**0.0113**	**3.7000e-004**	**0.0117**	**3.0500e-003**	**3.5000e-004**	**3.4000e-003**	**0.0000**	**17.0116**	**17.0116**	**8.8000e-004**	**0.0000**	**17.0337**

3.4 Paving - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0107	0.1098	0.0944	1.4000e-004		6.4000e-003	6.4000e-003		5.9000e-003	5.9000e-003	0.0000	12.8254	12.8254	3.9200e-003	0.0000	12.9233
Paving	1.7600e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0125**	**0.1098**	**0.0944**	**1.4000e-004**		**6.4000e-003**	**6.4000e-003**		**5.9000e-003**	**5.9000e-003**	**0.0000**	**12.8254**	**12.8254**	**3.9200e-003**	**0.0000**	**12.9233**

3.4 Paving - 2018

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	7.3000e-004	5.9000e-004	6.3700e-003	2.0000e-005	1.5000e-003	1.0000e-005	1.5100e-003	4.0000e-004	1.0000e-005	4.1000e-004	0.0000	1.4367	1.4367	5.0000e-005	0.0000	1.4379
Total	**7.3000e-004**	**5.9000e-004**	**6.3700e-003**	**2.0000e-005**	**1.5000e-003**	**1.0000e-005**	**1.5100e-003**	**4.0000e-004**	**1.0000e-005**	**4.1000e-004**	**0.0000**	**1.4367**	**1.4367**	**5.0000e-005**	**0.0000**	**1.4379**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0107	0.1098	0.0944	1.4000e-004		6.4000e-003	6.4000e-003		5.9000e-003	5.9000e-003	0.0000	12.8254	12.8254	3.9200e-003	0.0000	12.9233
Paving	1.7600e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0125**	**0.1098**	**0.0944**	**1.4000e-004**		**6.4000e-003**	**6.4000e-003**		**5.9000e-003**	**5.9000e-003**	**0.0000**	**12.8254**	**12.8254**	**3.9200e-003**	**0.0000**	**12.9233**

3.4 Paving - 2018

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	7.3000e-004	5.9000e-004	6.3700e-003	2.0000e-005	1.5000e-003	1.0000e-005	1.5100e-003	4.0000e-004	1.0000e-005	4.1000e-004	0.0000	1.4367	1.4367	5.0000e-005	0.0000	1.4379
Total	**7.3000e-004**	**5.9000e-004**	**6.3700e-003**	**2.0000e-005**	**1.5000e-003**	**1.0000e-005**	**1.5100e-003**	**4.0000e-004**	**1.0000e-005**	**4.1000e-004**	**0.0000**	**1.4367**	**1.4367**	**5.0000e-005**	**0.0000**	**1.4379**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

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

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
General Light Industry	0.00	0.00	0.00		
Other Asphalt Surfaces	0.00	0.00	0.00		
Total	0.00	0.00	0.00		

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
General Light Industry	16.60	8.40	6.90	59.00	28.00	13.00	92	5	3
Other Asphalt Surfaces	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
General Light Industry	0.547828	0.043645	0.199892	0.122290	0.016774	0.005862	0.020637	0.032653	0.002037	0.001944	0.004777	0.000705	0.000956
Other Asphalt Surfaces	0.547828	0.043645	0.199892	0.122290	0.016774	0.005862	0.020637	0.032653	0.002037	0.001944	0.004777	0.000705	0.000956

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	2.6458	2.6458	1.1000e-004	2.0000e-005	2.6553
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	2.6458	2.6458	1.1000e-004	2.0000e-005	2.6553
NaturalGas Mitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Unmitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

5.2 Energy by Land Use - NaturalGas

Unmitigated

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

Mitigated

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

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
General Light Industry	8304	2.6458	1.1000e-004	2.0000e-005	2.6553
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Total		**2.6458**	**1.1000e-004**	**2.0000e-005**	**2.6553**

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
General Light Industry	8304	2.6458	1.1000e-004	2.0000e-005	2.6553
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Total		**2.6458**	**1.1000e-004**	**2.0000e-005**	**2.6553**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.0135	1.0000e-005	7.8000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	1.5100e-003	1.5100e-003	0.0000	0.0000	1.6100e-003
Unmitigated	0.0135	1.0000e-005	7.8000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	1.5100e-003	1.5100e-003	0.0000	0.0000	1.6100e-003

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	9.6000e-004					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.0125					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	7.0000e-005	1.0000e-005	7.8000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	1.5100e-003	1.5100e-003	0.0000	0.0000	1.6100e-003
Total	**0.0135**	**1.0000e-005**	**7.8000e-004**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**1.5100e-003**	**1.5100e-003**	**0.0000**	**0.0000**	**1.6100e-003**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	9.6000e-004					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.0125					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	7.0000e-005	1.0000e-005	7.8000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	1.5100e-003	1.5100e-003	0.0000	0.0000	1.6100e-003
Total	**0.0135**	**1.0000e-005**	**7.8000e-004**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**1.5100e-003**	**1.5100e-003**	**0.0000**	**0.0000**	**1.6100e-003**

7.0 Water Detail

7.1 Mitigation Measures Water

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

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
General Light Industry	0 / 0	0.0000	0.0000	0.0000	0.0000
Other Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
General Light Industry	0 / 0	0.0000	0.0000	0.0000	0.0000
Other Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

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

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
General Light Industry	0	0.0000	0.0000	0.0000	0.0000
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
General Light Industry	0	0.0000	0.0000	0.0000	0.0000
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

9.0 Operational Offroad

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

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

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

Boilers

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

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

Palos Verdes Recycled Water Project

South Coast AQMD Air District, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
General Light Industry	2.40	1000sqft	0.06	2,400.00	0
Other Asphalt Surfaces	58.40	1000sqft	1.34	58,400.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	31
Climate Zone	8			**Operational Year**	2020
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	702.44	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - PD

Land Use - Parking proxy for pipeline disturbance area. GLI proxy for pump station

Construction Phase - Construction schedule per PD. Mobilization included in grading phase.

Off-road Equipment -

Off-road Equipment -

Off-road Equipment - Grading proxy for excavation. No graders would be used.

Off-road Equipment -

Trips and VMT - 20 cy trucks per PD. 2,254 one-way trips.

Grading - Grading phase proxy for excavation. No grading would occur.

Vehicle Trips - The pump station would be operated remotely with infrequent, annual maintenance trips

Vehicle Emission Factors -

Vehicle Emission Factors -

Vehicle Emission Factors -

Area Coating - Per SCAQMD Rule 1113 for 50g/L VOC

Energy Use - Total annual kwh/1,000 sf from PD. No natural gas usage.

Water And Wastewater - The project is water infrastructure and does not have water or wastewater demands.

Solid Waste - Water infrastructure project with no solid waste demands.

Construction Off-road Equipment Mitigation - Assumed compliance with Rule 403, as necessary.

Area Mitigation -

Fleet Mix -

Palos Verdes Recycled Water Project - South Coast AQMD Air District, Summer

Table Name	Column Name	Default Value	New Value
tblAreaCoating	Area_EF_Nonresidential_Exterior	100	50
tblAreaCoating	Area_EF_Nonresidential_Interior	100	50
tblAreaCoating	Area_EF_Parking	100	50
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	40	0
tblConstructionPhase	NumDays	200.00	65.00
tblConstructionPhase	NumDays	4.00	65.00
tblConstructionPhase	NumDays	10.00	21.00
tblEnergyUse	NT24E	3.83	0.19
tblEnergyUse	NT24NG	6.86	0.00
tblEnergyUse	T24E	1.71	0.19
tblEnergyUse	T24NG	14.11	0.00
tblGrading	MaterialExported	0.00	11,380.00
tblGrading	MaterialImported	0.00	11,145.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblProjectCharacteristics	OperationalYear	2018	2020
tblSolidWaste	SolidWasteGenerationRate	2.98	0.00
tblTripsAndVMT	HaulingTripNumber	2,816.00	2,254.00
tblVehicleTrips	ST_TR	1.32	0.00
tblVehicleTrips	SU_TR	0.68	0.00
tblVehicleTrips	WD_TR	6.97	0.00
tblWater	IndoorWaterUseRate	555,000.00	0.00

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2018	2.7745	22.4173	15.4830	0.0373	5.2176	1.0692	5.8801	2.6695	1.0322	3.2805	0.0000	3,950.8474	3,950.8474	0.4913	0.0000	3,963.1304
Maximum	**2.7745**	**22.4173**	**15.4830**	**0.0373**	**5.2176**	**1.0692**	**5.8801**	**2.6695**	**1.0322**	**3.2805**	**0.0000**	**3,950.8474**	**3,950.8474**	**0.4913**	**0.0000**	**3,963.1304**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2018	2.7745	22.4173	15.4830	0.0373	2.7120	1.0692	3.3744	1.3008	1.0322	1.9117	0.0000	3,950.8474	3,950.8474	0.4913	0.0000	3,963.1304
Maximum	**2.7745**	**22.4173**	**15.4830**	**0.0373**	**2.7120**	**1.0692**	**3.3744**	**1.3008**	**1.0322**	**1.9117**	**0.0000**	**3,950.8474**	**3,950.8474**	**0.4913**	**0.0000**	**3,963.1304**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**48.02**	**0.00**	**42.61**	**51.27**	**0.00**	**41.72**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.0741	6.0000e-005	6.2500e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005		0.0133	0.0133	4.0000e-005		0.0142
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0741**	**6.0000e-005**	**6.2500e-003**	**0.0000**	**0.0000**	**2.0000e-005**	**2.0000e-005**	**0.0000**	**2.0000e-005**	**2.0000e-005**		**0.0133**	**0.0133**	**4.0000e-005**	**0.0000**	**0.0142**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.0741	6.0000e-005	6.2500e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005		0.0133	0.0133	4.0000e-005		0.0142
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0741**	**6.0000e-005**	**6.2500e-003**	**0.0000**	**0.0000**	**2.0000e-005**	**2.0000e-005**	**0.0000**	**2.0000e-005**	**2.0000e-005**		**0.0133**	**0.0133**	**4.0000e-005**	**0.0000**	**0.0142**

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

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Grading	Grading	1/1/2018	3/30/2018	5	65	
2	Building Construction	Building Construction	3/31/2018	6/29/2018	5	65	
3	Paving	Paving	6/30/2018	7/30/2018	5	21	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 1.34

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

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Grading	Graders	0	6.00	187	0.41
Grading	Rubber Tired Dozers	1	6.00	247	0.40
Grading	Tractors/Loaders/Backhoes	1	7.00	97	0.37
Building Construction	Cranes	1	6.00	231	0.29
Building Construction	Forklifts	1	6.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	1	6.00	97	0.37
Building Construction	Welders	3	8.00	46	0.45
Paving	Cement and Mortar Mixers	1	6.00	9	0.56
Paving	Pavers	1	6.00	130	0.42
Paving	Paving Equipment	1	8.00	132	0.36
Paving	Rollers	1	7.00	80	0.38
Paving	Tractors/Loaders/Backhoes	1	8.00	97	0.37

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Grading	2	5.00	0.00	2,254.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	7	26.00	10.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving	5	13.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

3.2 Grading - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					4.5558	0.0000	4.5558	2.4886	0.0000	2.4886			0.0000			0.0000
Off-Road	1.1074	11.7210	5.3270	9.1200e-003		0.6209	0.6209		0.5713	0.5713		918.8090	918.8090	0.2860		925.9599
Total	**1.1074**	**11.7210**	**5.3270**	**9.1200e-003**	**4.5558**	**0.6209**	**5.1767**	**2.4886**	**0.5713**	**3.0599**		**918.8090**	**918.8090**	**0.2860**		**925.9599**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.3007	10.6770	1.9772	0.0276	0.6060	0.0411	0.6470	0.1661	0.0393	0.2054		2,971.0709	2,971.0709	0.2032		2,976.1510
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0269	0.0193	0.2509	6.1000e-004	0.0559	4.5000e-004	0.0563	0.0148	4.1000e-004	0.0152		60.9676	60.9676	2.0800e-003		61.0196
Total	**0.3276**	**10.6963**	**2.2280**	**0.0282**	**0.6619**	**0.0415**	**0.7034**	**0.1809**	**0.0397**	**0.2206**		**3,032.0385**	**3,032.0385**	**0.2053**		**3,037.1705**

3.2 Grading - 2018

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					2.0501	0.0000	2.0501	1.1199	0.0000	1.1199			0.0000			0.0000
Off-Road	1.1074	11.7210	5.3270	9.1200e-003		0.6209	0.6209		0.5713	0.5713	0.0000	918.8090	918.8090	0.2860		925.9599
Total	**1.1074**	**11.7210**	**5.3270**	**9.1200e-003**	**2.0501**	**0.6209**	**2.6710**	**1.1199**	**0.5713**	**1.6911**	**0.0000**	**918.8090**	**918.8090**	**0.2860**		**925.9599**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.3007	10.6770	1.9772	0.0276	0.6060	0.0411	0.6470	0.1661	0.0393	0.2054		2,971.0709	2,971.0709	0.2032		2,976.1510
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0269	0.0193	0.2509	6.1000e-004	0.0559	4.5000e-004	0.0563	0.0148	4.1000e-004	0.0152		60.9676	60.9676	2.0800e-003		61.0196
Total	**0.3276**	**10.6963**	**2.2280**	**0.0282**	**0.6619**	**0.0415**	**0.7034**	**0.1809**	**0.0397**	**0.2206**		**3,032.0385**	**3,032.0385**	**0.2053**		**3,037.1705**

3.3 Building Construction - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.5919	17.4280	13.8766	0.0220		1.0580	1.0580		1.0216	1.0216		2,030.8389	2,030.8389	0.4088		2,041.0596
Total	**2.5919**	**17.4280**	**13.8766**	**0.0220**		**1.0580**	**1.0580**		**1.0216**	**1.0216**		**2,030.8389**	**2,030.8389**	**0.4088**		**2,041.0596**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0426	1.2118	0.3018	2.6200e-003	0.0640	8.8500e-003	0.0729	0.0184	8.4700e-003	0.0269		278.6580	278.6580	0.0190		279.1322
Worker	0.1401	0.1004	1.3046	3.1900e-003	0.2906	2.3200e-003	0.2929	0.0771	2.1400e-003	0.0792		317.0314	317.0314	0.0108		317.3017
Total	**0.1826**	**1.3123**	**1.6064**	**5.8100e-003**	**0.3546**	**0.0112**	**0.3658**	**0.0955**	**0.0106**	**0.1061**		**595.6895**	**595.6895**	**0.0298**		**596.4339**

3.3 Building Construction - 2018

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.5919	17.4280	13.8766	0.0220		1.0580	1.0580		1.0216	1.0216	0.0000	2,030.8389	2,030.8389	0.4088		2,041.0596
Total	**2.5919**	**17.4280**	**13.8766**	**0.0220**		**1.0580**	**1.0580**		**1.0216**	**1.0216**	**0.0000**	**2,030.8389**	**2,030.8389**	**0.4088**		**2,041.0596**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0426	1.2118	0.3018	2.6200e-003	0.0640	8.8500e-003	0.0729	0.0184	8.4700e-003	0.0269		278.6580	278.6580	0.0190		279.1322
Worker	0.1401	0.1004	1.3046	3.1900e-003	0.2906	2.3200e-003	0.2929	0.0771	2.1400e-003	0.0792		317.0314	317.0314	0.0108		317.3017
Total	**0.1826**	**1.3123**	**1.6064**	**5.8100e-003**	**0.3546**	**0.0112**	**0.3658**	**0.0955**	**0.0106**	**0.1061**		**595.6895**	**595.6895**	**0.0298**		**596.4339**

3.4 Paving - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.0182	10.4525	8.9926	0.0135		0.6097	0.6097		0.5618	0.5618		1,346.4360	1,346.4360	0.4113		1,356.7186
Paving	0.1672					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.1854**	**10.4525**	**8.9926**	**0.0135**		**0.6097**	**0.6097**		**0.5618**	**0.5618**		**1,346.4360**	**1,346.4360**	**0.4113**		**1,356.7186**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0701	0.0502	0.6523	1.5900e-003	0.1453	1.1600e-003	0.1465	0.0385	1.0700e-003	0.0396		158.5157	158.5157	5.4100e-003		158.6508
Total	**0.0701**	**0.0502**	**0.6523**	**1.5900e-003**	**0.1453**	**1.1600e-003**	**0.1465**	**0.0385**	**1.0700e-003**	**0.0396**		**158.5157**	**158.5157**	**5.4100e-003**		**158.6508**

3.4 Paving - 2018

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.0182	10.4525	8.9926	0.0135		0.6097	0.6097		0.5618	0.5618	0.0000	1,346.4360	1,346.4360	0.4113		1,356.7186
Paving	0.1672					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.1854**	**10.4525**	**8.9926**	**0.0135**		**0.6097**	**0.6097**		**0.5618**	**0.5618**	**0.0000**	**1,346.4360**	**1,346.4360**	**0.4113**		**1,356.7186**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0701	0.0502	0.6523	1.5900e-003	0.1453	1.1600e-003	0.1465	0.0385	1.0700e-003	0.0396		158.5157	158.5157	5.4100e-003		158.6508
Total	**0.0701**	**0.0502**	**0.6523**	**1.5900e-003**	**0.1453**	**1.1600e-003**	**0.1465**	**0.0385**	**1.0700e-003**	**0.0396**		**158.5157**	**158.5157**	**5.4100e-003**		**158.6508**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

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

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
General Light Industry	0.00	0.00	0.00		
Other Asphalt Surfaces	0.00	0.00	0.00		
Total	0.00	0.00	0.00		

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
General Light Industry	16.60	8.40	6.90	59.00	28.00	13.00	92	5	3
Other Asphalt Surfaces	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
General Light Industry	0.547828	0.043645	0.199892	0.122290	0.016774	0.005862	0.020637	0.032653	0.002037	0.001944	0.004777	0.000705	0.000956
Other Asphalt Surfaces	0.547828	0.043645	0.199892	0.122290	0.016774	0.005862	0.020637	0.032653	0.002037	0.001944	0.004777	0.000705	0.000956

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

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

5.2 Energy by Land Use - NaturalGas

Unmitigated

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

Mitigated

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

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.0741	6.0000e-005	6.2500e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005		0.0133	0.0133	4.0000e-005		0.0142
Unmitigated	0.0741	6.0000e-005	6.2500e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005		0.0133	0.0133	4.0000e-005		0.0142

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	5.2700e-003					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.0682					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	5.9000e-004	6.0000e-005	6.2500e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005		0.0133	0.0133	4.0000e-005		0.0142
Total	**0.0741**	**6.0000e-005**	**6.2500e-003**	**0.0000**		**2.0000e-005**	**2.0000e-005**		**2.0000e-005**	**2.0000e-005**		**0.0133**	**0.0133**	**4.0000e-005**		**0.0142**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	5.2700e-003					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.0682					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	5.9000e-004	6.0000e-005	6.2500e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005		0.0133	0.0133	4.0000e-005		0.0142
Total	**0.0741**	**6.0000e-005**	**6.2500e-003**	**0.0000**		**2.0000e-005**	**2.0000e-005**		**2.0000e-005**	**2.0000e-005**		**0.0133**	**0.0133**	**4.0000e-005**		**0.0142**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

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

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

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

Boilers

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

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

Palos Verdes Recycled Water Project

South Coast AQMD Air District, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
General Light Industry	2.40	1000sqft	0.06	2,400.00	0
Other Asphalt Surfaces	58.40	1000sqft	1.34	58,400.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	31
Climate Zone	8			**Operational Year**	2020
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	702.44	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - PD

Land Use - Parking proxy for pipeline disturbance area. GLI proxy for pump station

Construction Phase - Construction schedule per PD. Mobilization included in grading phase.

Off-road Equipment -

Off-road Equipment -

Off-road Equipment - Grading proxy for excavation. No graders would be used.

Off-road Equipment -

Trips and VMT - 20 cy trucks per PD. 2,254 one-way trips.

Grading - Grading phase proxy for excavation. No grading would occur.

Vehicle Trips - The pump station would be operated remotely with infrequent, annual maintenance trips

Vehicle Emission Factors -

Vehicle Emission Factors -

Vehicle Emission Factors -

Area Coating - Per SCAQMD Rule 1113 for 50g/L VOC

Energy Use - Total annual kwh/1,000 sf from PD. No natural gas usage.

Water And Wastewater - The project is water infrastructure and does not have water or wastewater demands.

Solid Waste - Water infrastructure project with no solid waste demands.

Construction Off-road Equipment Mitigation - Assumed compliance with Rule 403, as necessary.

Area Mitigation -

Fleet Mix -

Palos Verdes Recycled Water Project - South Coast AQMD Air District, Winter

Table Name	Column Name	Default Value	New Value
tblAreaCoating	Area_EF_Nonresidential_Exterior	100	50
tblAreaCoating	Area_EF_Nonresidential_Interior	100	50
tblAreaCoating	Area_EF_Parking	100	50
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	40	0
tblConstructionPhase	NumDays	200.00	65.00
tblConstructionPhase	NumDays	4.00	65.00
tblConstructionPhase	NumDays	10.00	21.00
tblEnergyUse	NT24E	3.83	0.19
tblEnergyUse	NT24NG	6.86	0.00
tblEnergyUse	T24E	1.71	0.19
tblEnergyUse	T24NG	14.11	0.00
tblGrading	MaterialExported	0.00	11,380.00
tblGrading	MaterialImported	0.00	11,145.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblProjectCharacteristics	OperationalYear	2018	2020
tblSolidWaste	SolidWasteGenerationRate	2.98	0.00
tblTripsAndVMT	HaulingTripNumber	2,816.00	2,254.00
tblVehicleTrips	ST_TR	1.32	0.00
tblVehicleTrips	SU_TR	0.68	0.00
tblVehicleTrips	WD_TR	6.97	0.00
tblWater	IndoorWaterUseRate	555,000.00	0.00

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2018	2.7886	22.5682	15.3923	0.0368	5.2176	1.0693	5.8809	2.6695	1.0323	3.2812	0.0000	3,893.6192	3,893.6192	0.5006	0.0000	3,906.1334
Maximum	**2.7886**	**22.5682**	**15.3923**	**0.0368**	**5.2176**	**1.0693**	**5.8809**	**2.6695**	**1.0323**	**3.2812**	**0.0000**	**3,893.6192**	**3,893.6192**	**0.5006**	**0.0000**	**3,906.1334**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2018	2.7886	22.5682	15.3923	0.0368	2.7120	1.0693	3.3752	1.3008	1.0323	1.9125	0.0000	3,893.6192	3,893.6192	0.5006	0.0000	3,906.1334
Maximum	**2.7886**	**22.5682**	**15.3923**	**0.0368**	**2.7120**	**1.0693**	**3.3752**	**1.3008**	**1.0323**	**1.9125**	**0.0000**	**3,893.6192**	**3,893.6192**	**0.5006**	**0.0000**	**3,906.1334**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**48.02**	**0.00**	**42.61**	**51.27**	**0.00**	**41.71**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.0741	6.0000e-005	6.2500e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005		0.0133	0.0133	4.0000e-005		0.0142
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0741**	**6.0000e-005**	**6.2500e-003**	**0.0000**	**0.0000**	**2.0000e-005**	**2.0000e-005**	**0.0000**	**2.0000e-005**	**2.0000e-005**		**0.0133**	**0.0133**	**4.0000e-005**	**0.0000**	**0.0142**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.0741	6.0000e-005	6.2500e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005		0.0133	0.0133	4.0000e-005		0.0142
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0741**	**6.0000e-005**	**6.2500e-003**	**0.0000**	**0.0000**	**2.0000e-005**	**2.0000e-005**	**0.0000**	**2.0000e-005**	**2.0000e-005**		**0.0133**	**0.0133**	**4.0000e-005**	**0.0000**	**0.0142**

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

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Grading	Grading	1/1/2018	3/30/2018	5	65	
2	Building Construction	Building Construction	3/31/2018	6/29/2018	5	65	
3	Paving	Paving	6/30/2018	7/30/2018	5	21	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 1.34

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

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Grading	Graders	0	6.00	187	0.41
Grading	Rubber Tired Dozers	1	6.00	247	0.40
Grading	Tractors/Loaders/Backhoes	1	7.00	97	0.37
Building Construction	Cranes	1	6.00	231	0.29
Building Construction	Forklifts	1	6.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	1	6.00	97	0.37
Building Construction	Welders	3	8.00	46	0.45
Paving	Cement and Mortar Mixers	1	6.00	9	0.56
Paving	Pavers	1	6.00	130	0.42
Paving	Paving Equipment	1	8.00	132	0.36
Paving	Rollers	1	7.00	80	0.38
Paving	Tractors/Loaders/Backhoes	1	8.00	97	0.37

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Grading	2	5.00	0.00	2,254.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	7	26.00	10.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving	5	13.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

3.2 Grading - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					4.5558	0.0000	4.5558	2.4886	0.0000	2.4886			0.0000			0.0000
Off-Road	1.1074	11.7210	5.3270	9.1200e-003		0.6209	0.6209		0.5713	0.5713		918.8090	918.8090	0.2860		925.9599
Total	**1.1074**	**11.7210**	**5.3270**	**9.1200e-003**	**4.5558**	**0.6209**	**5.1767**	**2.4886**	**0.5713**	**3.0599**		**918.8090**	**918.8090**	**0.2860**		**925.9599**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.3096	10.8261	2.1442	0.0271	0.6060	0.0419	0.6478	0.1661	0.0400	0.2061		2,917.7762	2,917.7762	0.2126		2,923.0908
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0293	0.0212	0.2271	5.7000e-004	0.0559	4.5000e-004	0.0563	0.0148	4.1000e-004	0.0152		57.0340	57.0340	1.9500e-003		57.0826
Total	**0.3389**	**10.8473**	**2.3713**	**0.0276**	**0.6619**	**0.0423**	**0.7042**	**0.1809**	**0.0405**	**0.2213**		**2,974.8102**	**2,974.8102**	**0.2145**		**2,980.1734**

3.2 Grading - 2018

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					2.0501	0.0000	2.0501	1.1199	0.0000	1.1199			0.0000			0.0000
Off-Road	1.1074	11.7210	5.3270	9.1200e-003		0.6209	0.6209		0.5713	0.5713	0.0000	918.8090	918.8090	0.2860		925.9599
Total	**1.1074**	**11.7210**	**5.3270**	**9.1200e-003**	**2.0501**	**0.6209**	**2.6710**	**1.1199**	**0.5713**	**1.6911**	**0.0000**	**918.8090**	**918.8090**	**0.2860**		**925.9599**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.3096	10.8261	2.1442	0.0271	0.6060	0.0419	0.6478	0.1661	0.0400	0.2061		2,917.7762	2,917.7762	0.2126		2,923.0908
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0293	0.0212	0.2271	5.7000e-004	0.0559	4.5000e-004	0.0563	0.0148	4.1000e-004	0.0152		57.0340	57.0340	1.9500e-003		57.0826
Total	**0.3389**	**10.8473**	**2.3713**	**0.0276**	**0.6619**	**0.0423**	**0.7042**	**0.1809**	**0.0405**	**0.2213**		**2,974.8102**	**2,974.8102**	**0.2145**		**2,980.1734**

3.3 Building Construction - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.5919	17.4280	13.8766	0.0220		1.0580	1.0580		1.0216	1.0216		2,030.8389	2,030.8389	0.4088		2,041.0596
Total	**2.5919**	**17.4280**	**13.8766**	**0.0220**		**1.0580**	**1.0580**		**1.0216**	**1.0216**		**2,030.8389**	**2,030.8389**	**0.4088**		**2,041.0596**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0444	1.2139	0.3350	2.5400e-003	0.0640	8.9900e-003	0.0730	0.0184	8.6000e-003	0.0270		270.7564	270.7564	0.0204		271.2658
Worker	0.1523	0.1100	1.1807	2.9800e-003	0.2906	2.3200e-003	0.2929	0.0771	2.1400e-003	0.0792		296.5766	296.5766	0.0101		296.8296
Total	**0.1967**	**1.3239**	**1.5157**	**5.5200e-003**	**0.3546**	**0.0113**	**0.3659**	**0.0955**	**0.0107**	**0.1062**		**567.3330**	**567.3330**	**0.0305**		**568.0954**

3.3 Building Construction - 2018

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.5919	17.4280	13.8766	0.0220		1.0580	1.0580		1.0216	1.0216	0.0000	2,030.8389	2,030.8389	0.4088		2,041.0596
Total	**2.5919**	**17.4280**	**13.8766**	**0.0220**		**1.0580**	**1.0580**		**1.0216**	**1.0216**	**0.0000**	**2,030.8389**	**2,030.8389**	**0.4088**		**2,041.0596**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0444	1.2139	0.3350	2.5400e-003	0.0640	8.9900e-003	0.0730	0.0184	8.6000e-003	0.0270		270.7564	270.7564	0.0204		271.2658
Worker	0.1523	0.1100	1.1807	2.9800e-003	0.2906	2.3200e-003	0.2929	0.0771	2.1400e-003	0.0792		296.5766	296.5766	0.0101		296.8296
Total	**0.1967**	**1.3239**	**1.5157**	**5.5200e-003**	**0.3546**	**0.0113**	**0.3659**	**0.0955**	**0.0107**	**0.1062**		**567.3330**	**567.3330**	**0.0305**		**568.0954**

3.4 Paving - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.0182	10.4525	8.9926	0.0135		0.6097	0.6097		0.5618	0.5618		1,346.4360	1,346.4360	0.4113		1,356.7186
Paving	0.1672					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.1854**	**10.4525**	**8.9926**	**0.0135**		**0.6097**	**0.6097**		**0.5618**	**0.5618**		**1,346.4360**	**1,346.4360**	**0.4113**		**1,356.7186**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0762	0.0550	0.5903	1.4900e-003	0.1453	1.1600e-003	0.1465	0.0385	1.0700e-003	0.0396		148.2883	148.2883	5.0600e-003		148.4148
Total	**0.0762**	**0.0550**	**0.5903**	**1.4900e-003**	**0.1453**	**1.1600e-003**	**0.1465**	**0.0385**	**1.0700e-003**	**0.0396**		**148.2883**	**148.2883**	**5.0600e-003**		**148.4148**

3.4 Paving - 2018

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.0182	10.4525	8.9926	0.0135		0.6097	0.6097		0.5618	0.5618	0.0000	1,346.4360	1,346.4360	0.4113		1,356.7186
Paving	0.1672					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.1854**	**10.4525**	**8.9926**	**0.0135**		**0.6097**	**0.6097**		**0.5618**	**0.5618**	**0.0000**	**1,346.4360**	**1,346.4360**	**0.4113**		**1,356.7186**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0762	0.0550	0.5903	1.4900e-003	0.1453	1.1600e-003	0.1465	0.0385	1.0700e-003	0.0396		148.2883	148.2883	5.0600e-003		148.4148
Total	**0.0762**	**0.0550**	**0.5903**	**1.4900e-003**	**0.1453**	**1.1600e-003**	**0.1465**	**0.0385**	**1.0700e-003**	**0.0396**		**148.2883**	**148.2883**	**5.0600e-003**		**148.4148**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

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

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
General Light Industry	0.00	0.00	0.00		
Other Asphalt Surfaces	0.00	0.00	0.00		
Total	0.00	0.00	0.00		

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
General Light Industry	16.60	8.40	6.90	59.00	28.00	13.00	92	5	3
Other Asphalt Surfaces	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
General Light Industry	0.547828	0.043645	0.199892	0.122290	0.016774	0.005862	0.020637	0.032653	0.002037	0.001944	0.004777	0.000705	0.000956
Other Asphalt Surfaces	0.547828	0.043645	0.199892	0.122290	0.016774	0.005862	0.020637	0.032653	0.002037	0.001944	0.004777	0.000705	0.000956

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

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

5.2 Energy by Land Use - NaturalGas

Unmitigated

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

Mitigated

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

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.0741	6.0000e-005	6.2500e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005		0.0133	0.0133	4.0000e-005		0.0142
Unmitigated	0.0741	6.0000e-005	6.2500e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005		0.0133	0.0133	4.0000e-005		0.0142

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	5.2700e-003					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.0682					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	5.9000e-004	6.0000e-005	6.2500e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005		0.0133	0.0133	4.0000e-005		0.0142
Total	**0.0741**	**6.0000e-005**	**6.2500e-003**	**0.0000**		**2.0000e-005**	**2.0000e-005**		**2.0000e-005**	**2.0000e-005**		**0.0133**	**0.0133**	**4.0000e-005**		**0.0142**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	5.2700e-003					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.0682					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	5.9000e-004	6.0000e-005	6.2500e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005		0.0133	0.0133	4.0000e-005		0.0142
Total	**0.0741**	**6.0000e-005**	**6.2500e-003**	**0.0000**		**2.0000e-005**	**2.0000e-005**		**2.0000e-005**	**2.0000e-005**		**0.0133**	**0.0133**	**4.0000e-005**		**0.0142**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

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

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

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

Boilers

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

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

Appendix B

Biological Resources Assessment

Palos Verdes Recycled Water Pipeline Project

Biological Resources Assessment

prepared for
West Basin Municipal Water District
17140 S Avalon Blvd #210,
Carson, California 90746

prepared by
Rincon Consultants, Inc.
250 East 1st Street, Suite 301
Los Angeles, California 90012

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Environmental Scientists Planners Engineers
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September 2017

Palos Verdes Recycled Water Pipeline Project

Biological Resources Assessment

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Rincon Consultants, Inc.

2017 *Final Biological Resources Assessment, Palos Verdes Recycled Water Pipeline Project.* Rincon Project No. 16-03707. June.

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Executive Summary

This Biological Resources Assessment evaluates the proposed Palos Verdes Recycled Water Pipeline Project located in the Cities of Torrance and Palos Verdes Estates, California. The study area is generally located within the Palos Verdes Peninsula on the border between the City of Torrance and the City of Palos Verdes Estates, straddling Pacific Coast Highway (Hwy 1).

The West Basin Municipal Water District (WBMWD) in conjunction with the City of Palos Verdes Estates (Palos Verdes Estates), the City of Torrance (Torrance), and the Palos Verdes Golf Club propose to provide recycled water from the existing Anza Lateral to the Palos Verdes Golf Course, including a number of other recycled water users along the pipeline route. Ten years ago, the golf course invested in construction of dual distribution system (purple pipe) to allow for use of recycled water for golf course irrigation to increase the sustainability of the facility and provide a reliable, long-term source of water for recreational use. The proposed Palos Verdes Recycled Water Pipeline Project (project) would facilitate this goal by constructing an additional approximately 20,000 (including customer laterals) linear feet of recycled water pipeline from the intersection of Anza Avenue and Calle Mayor in Torrance to the Palos Verdes Golf Course.

The project would serve the Palos Verdes Golf Course with about 210 acre-feet per year (AFY) of recycled water. In addition, the project would serve other sites along the alignment including Pacific Coast Highway medians, Richardson Middle School, Lago Seco Park, Los Arboles Park and Riviera Elementary School. These connections would constitute an additional provision of 15 to 30 AFY.

The project begins at an existing recycled water pipeline at the intersection of Anza Avenue and Calle Mayor in Torrance and extends to the Palos Verdes Golf Course. In addition to the project pipelines, a new 100 horsepower booster pump station, to be constructed in Lago Seco Park, will be required to pump the recycled water from the connection to the existing system to the Palos Verdes Golf Course and other users and a new aboveground storage tank at the terminus in the Palos Verdes Golf Course may be required. At this time, two locations are being considered for the pump station in Lago Seco Park. Both locations are included in this evaluation. With the exception of approximately 800 feet of pipeline located in the Torrance Utility Road, which will require an easement, and the pump station, all other pipeline alignments for the project will be located in existing roadways or right-of-ways and are to range from 4 to 10 inches in diameter. Installation of the pipelines is likely to involve open trench excavations of approximately 4 feet wide and 6 feet deep, though these dimensions are subject to change. Jack and bore (trenchless) operations may be employed where trench construction is not feasible, such as at the intersection of Anza Avenue and Pacific Coast Highway. Ground disturbance involved within this method would include pit excavations of 15 to 20 feet wide and up to 25 to 30 feet long on each side of PCH.

The study area is surrounded by intensely developed and densely populated areas. Naturally occurring vegetation is sparse and limited to weedy growth and landscaping with some native trees. The study area is expected to support common plant and wildlife species that are typical in an urban southern California environment. The proposed project activities have very low potential to result in direct and/or indirect adverse impacts to special-status or otherwise special flora and fauna, with the monarch butterfly (*Danaus plexippus*) identified as the most likely special status species to be encountered.

1 Introduction

This report documents the findings of a biological resources assessment (BRA) conducted by Rincon Consultants, Inc. (Rincon) for the Palos Verdes Recycled Water Pipeline Project. The project is proposed to extend from an existing recycled water line in the City of Torrance, and supply the Palos Verdes Estates Golf Course with an additional water source for landscape irrigation. Additional recycled water customers could include Pacific Coast Highway medians, Richardson Middle School, Lago Seco Park, Los Arboles Park and Riviera Elementary School, as well as for aquifer replenishment. The project footprint includes the proposed pipeline alignment, pump station, recycled water storage tank, onsite storage and construction staging zones. The purpose of this report is to document the existing conditions within the project footprint and to evaluate the potential for impacts to special-status biological resources in accordance with the California Environmental Quality Act (CEQA) review process.

Special-status biological resources evaluated in this report include special-status natural communities, plants, and wildlife, jurisdictional waters, wildlife movement, and protected trees occurring or having the potential to occur within the project site.

1.1 Project Location

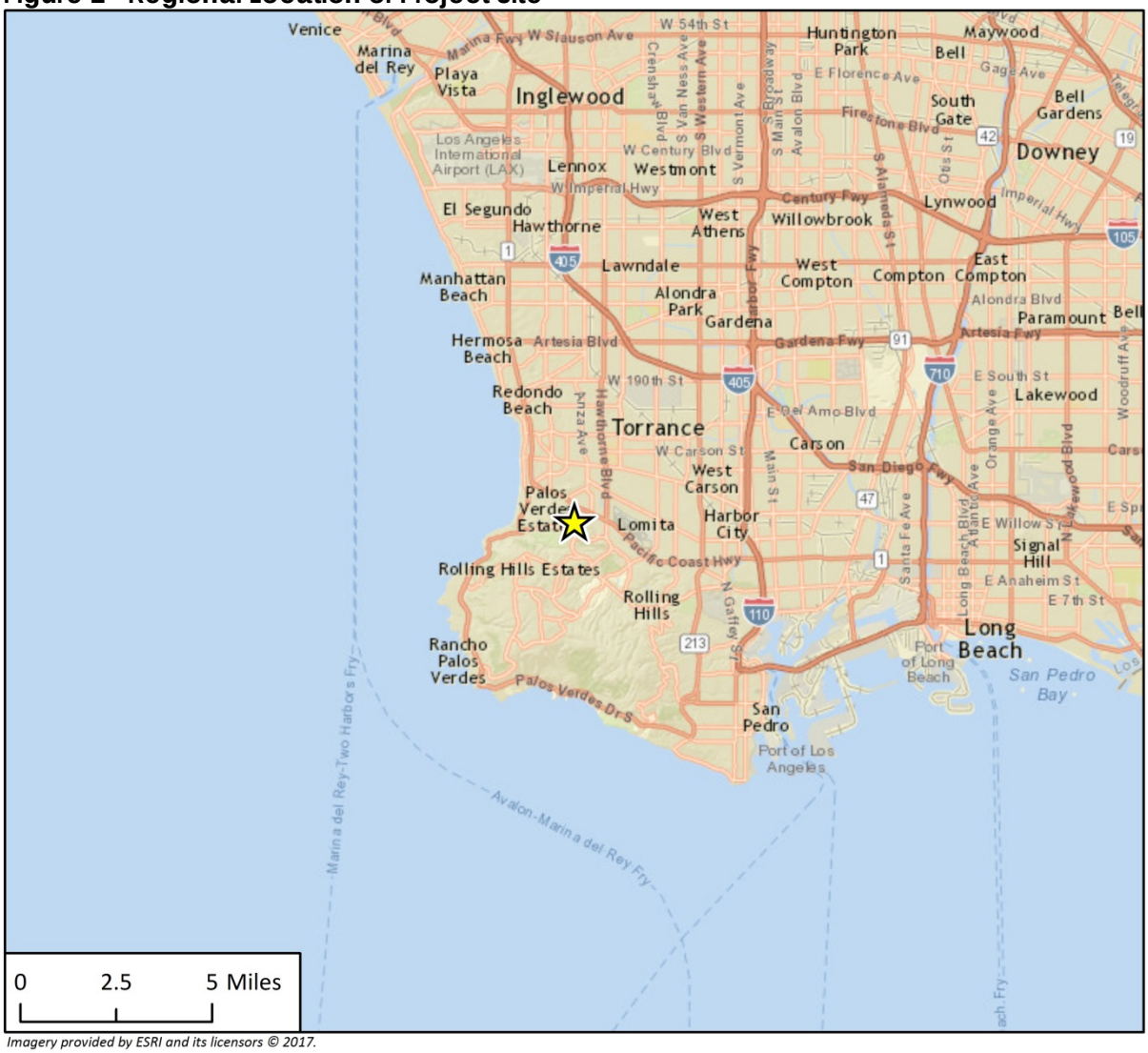
The project is located in the southern portion of the City of Torrance and the northern portion of the City of Palos Verdes Estates, in Los Angeles County, California, within an unsectioned portion of Township 4 South, Range 14 West, San Bernardino base and meridian, as depicted in the *Torrance, California* U.S. Geological Survey (USGS) 7.5-minute topographic quadrangle (Figure 1). Torrance and Palos Verdes Estates are surrounded by the cities of West Carson, Lomita, and Rolling Hills Estates on the east, Redondo Beach and the Pacific Ocean on the west, Lawndale and Gardena to the north and Rancho Palos Verdes to the south. Approximately one third of the project alignment is located north of Pacific Coast Highway and the other two thirds located south of the highway (Figure 2).

The project would be located primarily within existing paved roads and rights-of-way (ROW) in residential, commercial, and open space areas. The pipeline infrastructure for the project would be located in existing paved roads and ROW in residential, commercial, and open space areas; in one location at the Torrance Utility Road approximately 800 feet of pipeline would be located in an easement to be obtained as part of this project. The pump station would be located in Lago Seco Park. Recycled water storage would be located at Palos Verdes Golf Course.

1.2 Proposed Project

The expanded recycled water system network would provide recycled water from Hyperion Wastewater Treatment Plant. The project would extend from the existing Anza Lateral approximately 16,000 feet from a point of connection at the intersection of Anza Avenue and Calle Mayor in Torrance to the Palos Verdes Golf Course in Palos Verdes Estates. The extension may include additional laterals to deliver recycled water to other customers, including Pacific Highway Coast medians, Richardson Middle School, Lago Seco Park, Los Arboles Park and Riviera Elementary School.

Figure 1 Regional Location of Project Site



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Project Location

N

ISMNDFig 1 Regional Location

Figure 2 Project Alignment

2 Methodology

The BRA for the project consisted of a review of relevant literature followed by a field reconnaissance survey. The potential presence of special-status species is based on a literature review and a field survey designed to assess habitat suitability and presence of target species. The findings and opinions conveyed in this report are based on this methodology.

2.1 Regulatory Overview

Regulated or sensitive resources studied and analyzed herein include special-status plant and wildlife species, nesting birds and raptors, sensitive plant communities, jurisdictional waters and wetlands, wildlife movement, and locally protected resources, such as protected trees.

West Basin Municipal Water District is the lead agency for this project under the California Environmental Quality Act (CEQA). This project may also involve the use of funds provided by the federal government and would need to meet CEQA-Plus regulatory standards. The State Water Resources Control Board (SWRCB) would have the responsibility for CEQA-Plus review which applies federal standards to the CEQA process.

2.1.1 Federal and State Environmental Statutes

For the purpose of this report, potential impacts to biological resources were analyzed based on the following statutes:

- California Environmental Quality Act (CEQA)
- Federal Endangered Species Act (ESA)
- California Endangered Species Act (CESA)
- Federal Clean Water Act (CWA)
- California Fish and Game Code (CFGC)
- Migratory Bird Treaty Act (MBTA)
- Bald and Golden Eagle Protection Act
- Porter-Cologne Water Quality Control Act

2.1.2 Guidelines for Determining CEQA Significance

The following threshold criteria, as defined by the CEQA Guidelines Appendix G Initial Study Checklist, were used to evaluate potential environmental effects. Based on these criteria, the proposed project would have a significant effect on biological resources if it would:

a) *Have substantial adverse effects, 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, and regulations or by the California Department of Fish and Wildlife or US Fish and Wildlife Service.*

c) Have a substantial adverse effect on federally protected wetlands as defined by Section404 of the Clean Water Act (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.

2.2 Literature Review

Prior to the field survey, Rincon conducted a literature review to characterize the nature and extent of biological resources on and adjacent to the site. The review included an evaluation of current and historical aerial photographs of the site (Google Earth 2017), regional and site-specific topographic maps (*Torrance, Redondo Beach,* and *San Pedro* USGS 7.5-minute topographic quadrangles), geologic maps, climate data, and other available background data, information, and previously prepared reports. The following reports or documents were reviewed:

- *Biological Resources Assessment - Palos Verdes Golf Club Water Diversion Project City of Palos Verdes Estates, California.* Prepared Palos Verdes Golf Club by Rincon Consultants, May 2015 (Project No. 15-01422)
- *City of Palos Verdes Estates Municipal Code*
- *City of Torrance Municipal Code*

The California Natural Diversity Data Base (CNDDB; California Department of Fish and Wildlife [CDFW] 2017a), Biogeographic Information and Observation System (BIOS; CDFW 2017b), United States Fish and Wildlife Service (USFWS) Threatened and Endangered Species Active Critical Habitat Environmental Conservation Online System (ECOS) (USFWS 2017a) and Information for Planning and Consulting Environmental Conservation System (USFWS 2017b) were reviewed to determine if any special-status wildlife, plant, or vegetation communities were previously recorded on-site. The *National Wetlands Inventory* (NWI) (USFWS 2017c) was reviewed to determine if any wetland and/or non-wetland waters had been previously documented and mapped on or in the vicinity of the project site. Other resources included the California Native Plant Society (CNPS) Online Inventory of Rare, Threatened, and Endangered Plants of California (CNPS 2017), CDFW *Special Animals List* (CDFW 2017b), and CDFW *Special Vascular Plants, Bryophytes, and Lichens List* (CDFW 2017c).

2.3 Field Reconnaissance Survey

Rincon biologist Richard Stolpe conducted a field reconnaissance survey on June 1, 2017, between the hours of 0815 and 1500. The survey area included the project alignment and a 50-foot buffer. For the purposes of this report, the alignment and the buffer are referred to collectively as the "survey area". The purpose of the survey was to document existing biological conditions within and immediately adjacent to the project alignment, including plant and wildlife species, vegetation communities, jurisdictional waters and wetlands, and the potential for presence of special-status

species and/or habitats. The biologist conducted the survey on foot except for some portions of the survey area that were uninterrupted hardscape and could be verified as such from the survey vehicle, and photos capturing the onsite conditions during the survey are available in Appendix A. Where portions of the project alignment or buffer were inaccessible (e.g., steep slopes or tall trees), the biologist visually inspected those areas with binoculars (10 x 40). Weather conditions during the survey included an average temperature of 67 degrees Fahrenheit, winds of 0-5 miles per hour in the morning and 5-10 miles per hour in the afternoon, and misty, overcast (100% cover) skies.

2.3.1 Vegetation Classification

Vegetation communities observed within the study area were primarily dominated by those species associated with urbanized areas. All accessible non-hardscape portions of the survey area were covered on foot. Inaccessible areas were mapped using binoculars and aerial photography interpretation. Vegetation classification was based on the classification systems provided in *Preliminary Descriptions of the Terrestrial Communities of California* (Holland 1986) and *A Manual of California Vegetation, Second Edition* (Sawyer et al. 2009). Modifications to the community classifications were made by Rincon as appropriate based on the field conditions.

2.3.2 Flora

All plant species observed in the survey area were noted, and plants that could not be identified in the field were collected and identified later using taxonomic keys. The reconnaissance survey included a directed search for special-status plants that would have been apparent at the time of the survey. Floral nomenclature for native and non-native plants follows Baldwin et al. (2012) as updated by The Jepson Online Interchange.

2.3.3 Fauna

Animal species observed directly or detected from calls, tracks, scat, nests, or other sign were documented. The detection of wildlife species was limited by seasonal and temporal factors. The survey was conducted during the late spring; therefore, potentially occurring spring or winter migrants may not have been observed. Because the survey was performed during the day, identification of nocturnal animals was limited to sign if present onsite. Zoological nomenclature for birds is in accordance with the American Ornithologists' Union Checklist (2017); for mammals, Wilson and Reeder (2005); and for amphibians and reptiles, Stebbins (2003).

2.3.4 Jurisdictional Aquatic Resources

The reconnaissance-level field survey also evaluated the survey area for the presence of potentially jurisdictional aquatic features. The reconnaissance survey was based solely on visual inspection of the project area and a formal jurisdictional delineation of waters and wetlands was not conducted.

3 Environmental Setting

3.1 Topography and Soils

The project alignment is located along the interior of the Palos Verdes Peninsula, a hilly landform that extends out into the ocean west of the City of Long Beach. The surface topography of the project alignment is variable, from relatively flat on the north side of the project alignment (in Torrance, north of Newton Street), to an area distinguished by hills, canyons, and mesas (approaching and within the City of Palos Verdes Estates). Relatively flat areas exist within the previously developed portions of the project site. The USGS *Torrance, California* quadrangle indicates that elevations of the property range from approximately 70 feet Above Mean Sea Level (AMSL) at the northeastern extent of the project alignment (at Anza Ave and 234 St.) to 500 feet AMSL in the southwest extent of the project alignment (along Via Campesina). Undeveloped property within the project survey area consists primarily of patches of weedy grasses and trees. These patches of softscape are located primarily in the hilly portions of the alignment with cut-slopes between residential streets or neighborhoods, just north of and within the City of Palos Verdes Estates.

Based on the most recent soil survey (USDA 2017), the study area contains the seven mapped soil types listed below:

- Urban land-Abaft-Marina complex, 0 to 15 percent slopes
- Urban land-Anthraltic Xerorthents, loamy substratum-Grommet complex, 0 to 5 percent slopes
- Urban land-Aquic Xerorthents, fine substratum-Cropley complex, 0 to 5 percent slopes
- Urban land-Dapplegray-Filiorum complex, 5 to 15 percent slopes
- Urban land-Dapplegray-Oceanaire complex, 10 to 35 percent slopes
- Urban land-Windfetch-Typic Haploxerolls complex, 0 to 2 percent slopes
- Pits and Quarries

The soils found along the alignment are urban land, developed soil types of various complexes.

The Abaft and Marina soil series consist of soils that formed from deposits of mixed rock sources influenced by Aeolian processes. These soils are typically found in coastal dune environments. In general these soils are excessively well-drained. Abaft soils are used for wildlife habitat, recreation, and building site development. Vegetation is low shrubs and annual grasses. Marina soils are used mostly for rangeland. Some areas used for irrigated alfalfa and special crops. Vegetation is chamise, flattop buckwheat, black sagebrush, small live oak trees, annual grasses, and forbs.

The Grommet soil series consists of well-drained alluvium from mixed sedimentary sources that are typically found in alluvial fans along coastal plains. Grommet series soil is used for cultivation of fruit/vegetable crops and urban residential or commercial development.

Cropley, soil series consist of soils that formed in alluvium from mixed rock sources, mostly sandstone and shale. Cropley soils are moderately-well and well-drained. This soil type is typically found in alluvial fans, floodplains, and small basins. This soil is used for irrigated row and truck

crops, irrigated and dry pasture, apricots, prunes and for urban development. Vegetation in uncultivated or undeveloped areas is annual grasses and forbs with some scattered live oak.

The Dapplegray series consists of well-drained soils that formed in human-transported materials on engineered hillslopes and terraces of weathered calcareous shale bedrock and other calcareous sedimentary rocks. Dapplegray soils are typically found in the coastal hills, foothills, and low mountains of the southern California mountains. Dapplegray soils are used for residential neighborhoods in urban areas. Vegetation is ornamental plants, succulents and lawns.

The Filiorum series consists of well-drained soils that formed in weathered calcareous shale. Filiorum soils are found on marine terraces. Vegetation includes annual grasses, sagebrush, forbs, oak tree, and various ornamental plants in residential areas.

The Oceanaire series consists of well-drained soils that formed in material weathered from calcareous shale or limestone. The Oceanaire soils are found on side-slopes of hills and low mountains. Oceanaire soils are used for recreation, wildlife corridors, and rangeland. Vegetation is annual oats and grasses or California sagebrush.

The Windfetch series consists of well-drained soils that formed in a thin, discontinuous layer of human-transported materials derived from alluvium and other mixed rock sources. Windfetch soils are found on uplifted alluvium and marine terraces. Windfetch soils are in high density urban residential and recreational areas. Vegetation is mostly non-native and ornamental.

Anthraltic Xerorthents are young, well-drained soils developed in human transported material lacking subsoil development. Aquic Xerothents are oxygen-depleted soil and subsoil horizons due to saturated conditions (USDA 2017).

3.2 Land Cover and Vegetation

All proposed alignment sections are within previously developed paved areas and public rights-of-way (streets) with the exception of a few unpaved easements or public parks / recreation areas. Easements for utilities or transportation that also function as public trails include the Torrance Utility Road and the Palos Verdes Drive road median (Figure 2). Public Parks or recreation areas include Lago Seco Park, Walteria Park, Los Arboles Park, and the Palos Verdes Golf Club course.

One vegetation community or land cover type, Urban/Developed Lands, was identified along the project survey area. Urban/Developed Lands may support both native and non-native plant species of various story heights (e.g., herbaceous, shrubs, trees), and are typically characterized by ornamental species, landscape or design plantings, and/or disturbed, contoured, or manufactured land.

3.2.1 Urban/Developed Lands (12000)

Urban/Developed lands include areas that have been constructed upon or otherwise physically altered to an extent that native vegetation is no longer supported or only exists in very small remnant patches. Typically, Urban/Developed lands are characterized by permanent or semi-permanent structures, pavement or hardscape, and landscaped areas that require irrigation. Also included are areas that have been physically disturbed (by previous human activity) and are no longer recognizable as a native or naturalized vegetation association, but continue to retain a soil

substrate. Urban/Developed lands may also contain important stands of native or non-native trees within the developed or altered landscape, such as street trees, residential shade trees, privacy or windbreak trees, and trail/easement or median landscape trees.

Specifically, areas identified as hardscape Urban/Developed lands along the project survey area include the structures, paved roads, and associated property landscaping. Landscaping may incorporate both native and non-native species including, but not limited to: kikuyu grass (*Pennisetum clandestinum*), annual bluegrass (*Poa annua*), bentgrass, (*Agrostis* spp.), pampas grass (*Cortadaria jubata*), willow (*Salix* spp.), Canary Island date palm (*Phoenix canariensis*), Mexican fan palm (*Washingtonia robusta*), myoporum (*Myoporum laetum*), New Zealand Christmas tree (*Metrosideros excelsa*), Peruvian pepper tree (*Schinus molle*), cherry (*Prunus* sp.), cedar (*Calocedrus* sp.), tree of heaven (*Ailanthus altissima*) western sycamore (*Platanus racemosa*), various eucalyptus (*Eucalyptus* spp.), various pines (*Pinus* spp.), various oaks including coast live oak, holly oak, and others (*Quercus agrifolia, Q. ilex, Quercus* spp.).

Important stands of trees on Urban/Developed Lands along the project survey area include the eucalyptus street trees along the Palos Verdes Golf Club course margin, the Palos Verdes Drive median, Torrance Utility Road trail/easement, and the Valmonte trail/easement. Mixed ornamental trees of the Urban/Development Lands include the open cut slopes along the western side of Via Las Vegas south of the Torrance Utility Road trail/easement, and north and south of Vista Montana, south of Vista Largo. The cut slopes also contain small to very small bottom story patches of non-native, weedy, grassland species mixed with ice plant (*Carpobrotus edulis*) and other ornamentals. Species of this type observed include wild oats (*Avena* spp.), filarees (*Erodium* spp.), Russian thistle (*Salsola tragus*), telegraph weed (*Heterotheca grandiflora*), and sow-thistle (*Sonchus oleraceus*).

3.3 General Wildlife

The study area and surrounding areas provide habitat suitable for wildlife species that commonly occur in southern California urban and suburban areas. Avian species observed/detected on or adjacent to the study area include California towhee (*Melozone crissalis*), wrentit (*Chamaea fasciata*), mourning dove (*Zenaida macroura*), American crow (*Corvus brachyrhynchos*), red-tailed hawk (*Buteo jamaicensis*), acorn woodpecker (*Melanerpes formicivorus*), Anna's hummingbird (*Calypte anna*), bushtit (*Psaltriparus minimus*), house wren (*Troglodytes aedon*), house sparrow (*Passer domesticus*), northern mockingbird (*Mimus polyglottos*), house finch (*Haemorhous mexicanus*), cliff swallow (*Petrochelidon pyrrhonota*), song sparrow (*Melospiza melodia*), black-headed grosbeak (*Pheucticus melanocephalus*), yellow warbler (*Dendroica petechial*), and a kingbird (*Tyrannus sp.*).

Mammalian species observed/detected include the cottontail rabbit (*Sylvilagus* sp.) and California ground squirrel (*Otospermophilus beecheyi*). Reptilian species observed include the western fence lizard (*Sceloporus occidentalis*) and alligator lizard (*Elgaria multicarinata*). Insects observed include western tiger swallow tail (*Papilio rutulus*), monarch butterfly (*Danaus plexippus*), mourning cloak butterfly (*Nymphalis antiopa*), cabbage white butterfly (*Pieris rapae*) and orb weavers (Family Araneidae). No permanent aquatic resources are present in the study area, and no fish or amphibians species were observed during the field survey.

4 Special-Status Biological Resources

This section discusses special-status biological resources observed within the study area during the field survey, and evaluates the potential for the study area to support other special-status resources based on existing conditions. Local, State, and Federal agencies regulate special-status resources and require an assessment of their presence or potential presence to be conducted onsite prior to the approval of any proposed development on a property. Assessments for the potential occurrence of special-status species are based upon known ranges, habitat preferences for the species, species occurrence records from the CNDDB, species occurrence records from other sites in the vicinity of the development boundary, and previous reports from the general project area. The potential for each special-status species to occur in the project study area was evaluated according to the following criteria:

- **Not Expected.** Habitat on and adjacent to the alignment is clearly unsuitable for the species requirements (foraging, breeding, cover, substrate, elevation, hydrology, plant community, site history, disturbance regime)
- **Low Potential.** Few of the habitat components meeting the species requirements are present, and/or the majority of habitat on and adjacent to the alignment is unsuitable or of very poor quality. The species is not likely to be found in the study area
- **Moderate Potential.** Some of the habitat components meeting the species requirements are present, and/or only some of the habitat on or adjacent to the alignment is unsuitable. The species has a moderate probability of being found in the study area
- **High Potential.** All of the habitat components meeting the species requirements are present and/or most of the habitat on or adjacent to the alignment is highly suitable. The species has a high probability of being found in the study area
- **Present.** Species was observed in the study area or has been recorded (e.g., CNDDB, other reports) on the alignment within the last five years

For the purpose of this report, special-status species are those plants and animals listed, proposed for listing, or candidates for listing as Threatened or Endangered by the USFWS and National Marine Fisheries Service (NMFS) under the ESA; those listed or candidates for listing as Rare, Threatened, or Endangered by the CDFW under the CESA or Native Plant Protection Act; those recognized as Species of Special Concern (SSC) by the CDFW; and plants occurring on lists 1 and 2 of the CNPS California Rare Plant Rank (CRPR) system, per the following definitions:

- **List 1A** = Plants presumed extinct in California
- **List 1B.1** = Rare or endangered in California and elsewhere; seriously endangered in California (over 80% of occurrences threatened/high degree and immediacy of threat)
- **List 1B.2** = Rare or endangered in California and elsewhere; fairly endangered in California (20-80% occurrences threatened)
- **List 1B.3** = Rare or endangered in California and elsewhere, not very endangered in California (<20% of occurrences threatened or no current threats known)
- **List 2** = Rare, threatened or endangered in California, but more common elsewhere

In addition, special-status species are ranked globally (G) and subnationally (S) 1 through 3 based on NatureServe's (2010) methodologies:

- **G1 or S1**. Critically Imperiled Globally or State-wide
- **G2 or S2**. Imperiled Globally or State-wide
- **G3 or S3**. Vulnerable to extirpation or extinction Globally or State-wide

Plant communities are also considered special-status biological resources if they have limited distributions, have high value for sensitive wildlife, contain special-status species, or are particularly susceptible to disturbance. The CDFW ranks special-status communities as “threatened” or “very threatened” and keeps records of their occurrences in CNDDB.

Appendix B provides the species name, status, and habitat requirements for all special-status species with potential to occur within the project vicinity (five-mile radius), based on the database queries performed for the project. A determination of their potential to occur within the project study area is also discussed. Figure 3 shows the locations of important habitats and potential sensitive species known to occur within the vicinity of the project.

4.1 Special-Status Plant and Wildlife Species

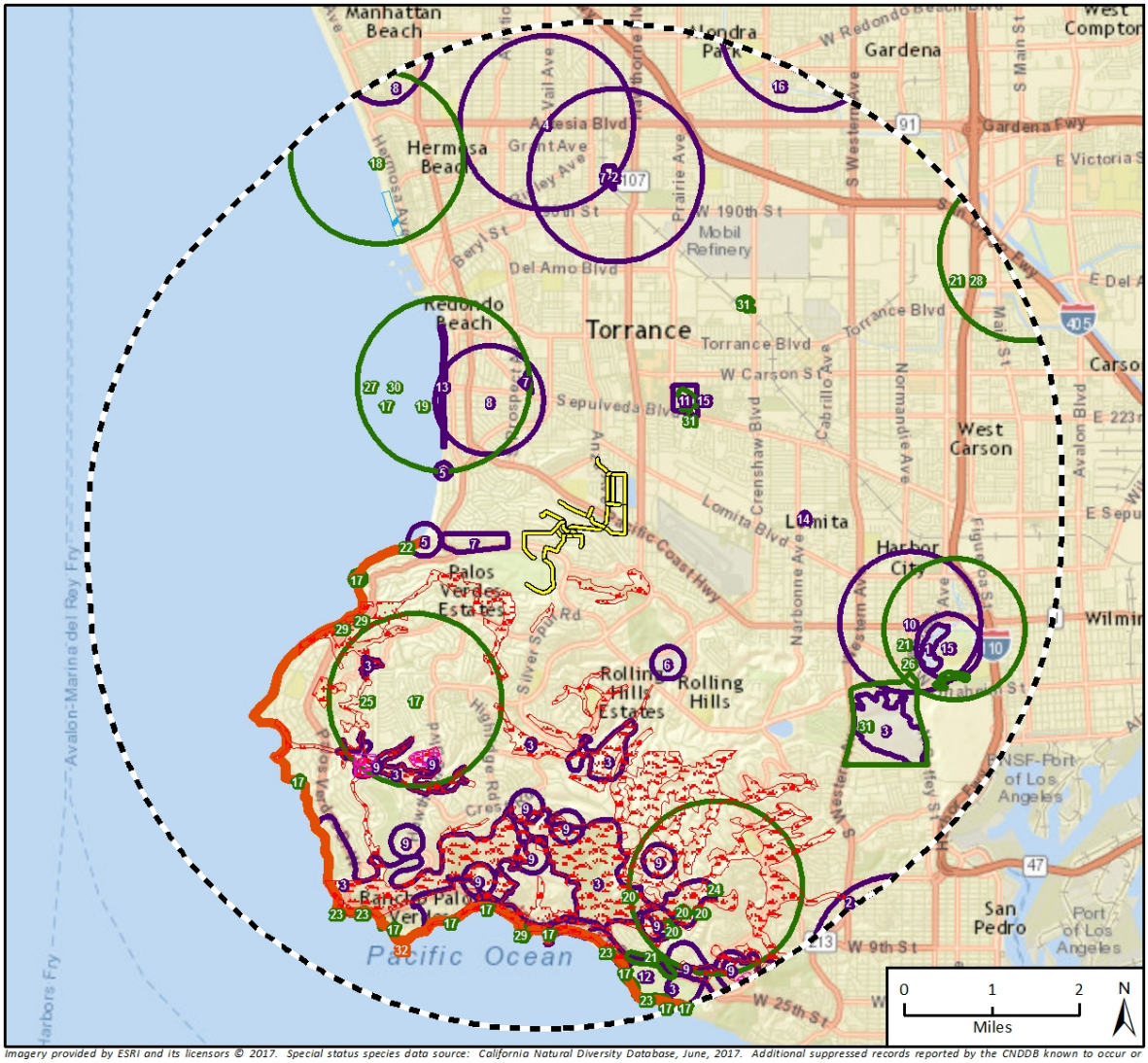
Special-Status Plants

The CNDDB documents 15 special-status plant species within a five-mile radius of the project alignment (Figure 3). Special-status plant species typically have very specific habitat requirements which may include, but are not limited to, vegetation communities, elevation levels, and topography. During the field assessment, no special-status plant species were observed or otherwise detected. However, there are numerous eucalyptus trees in the project study area, which are mentioned here only because they could be used by overwintering populations of monarch butterfly. Due to the lack of suitable required habitat and the human disturbances within the project study area, the species with a potential to occur are those associated with small patches of grassland habitat in the understories of trees. There are no species with a high or moderate potential to occur in the project study area; however, Coulter's saltbush (*Atriplex coulteri*), southern tarplant (*Centromadia parryi* ssp. *australis*), mesa horkelia (*Horkelia cuneata* var. *puberula*), Coulter's goldfields (*Lasthenia glabrata* ssp. *coulteri*), and San Bernardino aster (*Symphyotrichum defoliatum*) have a low potential to occur within the project study area. None of those have occurrence records existing on or adjacent to the project alignment.

Special-Status Wildlife

The CNDDB documents 16 special-status wildlife species within a five-mile radius of the project alignment (Figure 3). Special-status wildlife species typically have very specific habitat requirements which may include, but are not limited to, vegetation communities, elevation levels and topography, and availability of primary constituent elements (i.e., space for individual and population growth, breeding, foraging, and shelter). During the field assessment, only one special-status wildlife species, the monarch butterfly, was observed or otherwise detected. Due to the lack of suitable required habitat and the human disturbances within the project study area, the species with a potential to occur are those that are accustomed to or can avoid (e.g., fly above or remain within the few remaining softscape patches outside) the urban hardscape. Accordingly, there are winged special-status species with potential to occur within the project study area.

Figure 3 Sensitive Elements and Federally Designated Critical Habitats as Reported by CNDDB



Imagery provided by ESRI and its licensors © 2017. Special status species data source: California Natural Diversity Database, June, 2017. Additional suppressed records reported by the CNDDB known to occur or potentially occur within this search radius include: El Segundo flower-loving fly, Palos Verdes blue butterfly. For more information please contact the Department of Fish and Game. Critical habitat data source: U.S. Fish and Wildlife Service, May, 2017. Final critical habitat acquired via the USFWS Critical Habitat Portal. It is only a general representation of the data and does not include all designated critical habitat. Contact USFWS for more specific data.

Project Location
5-Mile Buffer

CNDDB

Animals
Plants
Natural Communities

Critical Habitat

Coastal California gnatcatcher
Palos Verdes blue butterfly
Western snowy plover

1 - California least tern
2 - coast horned lizard
3 - coastal California gnatcatcher
4 - Crotch bumble bee
5 - El Segundo blue butterfly
6 - Mohave tui chub
7 - monarch - California overwintering population
8 - Pacific pocket mouse
9 - Palos Verdes blue butterfly
10 - pocketed free-tailed bat
11 - Riverside fairy shrimp
12 - San Diego desert woodrat
13 - sandy beach tiger beetle
14 - silvery legless lizard
15 - tricolored blackbird
16 - western mastiff bat
17 - aphanisma
18 - beach spectaclepod
19 - Brand's star phacelia
20 - Catalina crossosoma
21 - Coulter's goldfields
22 - Coulter's saltbush
23 - island green dudleya
24 - Lyon's pentachaeta
25 - mesa horkelia
26 - mud nama
27 - Parish's brittlescale
28 - San Bernardino aster
29 - Santa Catalina Island desert-thorn
30 - south coast saltscale
31 - southern tarplant
32 - Southern Coastal Bluff Scrub

BRAFig 4 CNDDB

The monarch butterfly would have been considered to have a high potential to occur even before it was observed during the field reconnaissance since there is an overwintering population in a eucalyptus grove on the west side of the Palos Verdes Golf Club course and individual eucalyptus trees line the area streets. There were three observations of monarch butterfly during the field reconnaissance survey, an hour apart, at approximately the same location. The first two observations of a monarch were on the north side of the intersection of Torrance Utility Road and Via Las Vegas, and the second observation was an hour later on the south side of the intersection. It is unknown whether it was the same butterfly or multiples. Nevertheless, monarch should be considered present in the project study area. Individual monarchs are not unusual in California and are a commonly sighted species. What monarchs need in order to support species migration are dense isolated groves of eucalyptus that offer protection from wind, weather, and a variety of disturbances.

Other winged species such as pocketed free-tailed bat (*Nyctinomops femorosaccus*), western mastiff bat (*Eumops perotis californicus*), Palos Verdes blue butterfly (*Glaucopsyche lygdamus palosverdes*), and crotch bumble bee (*Bombus crotchii*) have a low potential to occur within the project side of the Palos Verdes Golf Club. The pocketed free-tailed bat prefers rocky desert cliffs or outcrops near water in arid environments, and is uncommon in California. The western mastiff bat prefers rocky cliffs, outcrops, tall buildings, or tunnels for roosting, and is more common in California than the pocketed free-tailed bat. None of these bat species nor the Palos Verdes blue butterfly have distinct occurrence records existing on or adjacent to the project alignment.

The CNDDB maps a large rectangle, representing the USGS *Torrance* Quadrangle, around some suppressed occurrence locations of Palos Verdes blue butterfly, which extends therefore over the project study area. It is believed that these suppressed locations are along the southern extent of the map and not in the vicinity of the project study area.

Additionally, the project study area occurs within 0.2 mile of an area identified as an overwintering roost for monarch butterflies. While not currently a federally or state-listed species, monarch butterflies are under review as a candidate species for protection under the ESA (USFWS 2016). Although the roosting area does not overlay the project alignment, a critical element of the roosting area is a grove of eucalyptus trees. Individual and patched of eucalyptus trees also occur within the project alignment study area.

Nesting Birds

Under the provisions of the MBTA, it is unlawful “by any means or manner to pursue, hunt, take, capture (or) kill” any migratory birds except as permitted by regulations issued by the USFWS. The term “take” is defined by the USFWS regulation to mean to “pursue, hunt, shoot, wound, kill, trap, capture or collect” any migratory bird or any part, nest, or egg of any migratory bird covered by the conventions, or to attempt those activities. In addition, the CFCG extends protection to non-migratory birds identified as resident game birds (CFGC Section 3500) and any birds in the orders Falconiformes or Strigiformes (birds-of-prey) (CFGC Section 3503.5). Habitat is present within the project study area that has the potential to support protected nesting birds.

4.2 Special-Status Vegetation or Habitat Communities

Plant communities are also considered sensitive biological resources if they have limited distributions, have high wildlife value, include sensitive species, or are particularly susceptible to disturbance. CDFW ranks sensitive communities as "threatened" or "very threatened" and keeps

records of their occurrences in CNDDB. Similar to special-status plant and wildlife species, vegetation alliances are ranked 1 through 5 based on NatureServe's (2010) methodology, with those alliances ranked globally (G) or statewide (S) as 1 through 3 considered sensitive.

The CNDDB documents one special-status vegetation or habitat community within a five-mile radius of the project alignment (Figure 3). The vegetation community identified is southern coastal bluff scrub and it typically occupies suitable bluff faces and adjacent areas along the coastline. The project alignment is more than a mile from the ocean at its closest point, and no southern coastal bluff scrub habitat was identified in the project study area.

4.3 Jurisdictional Aquatic Resources

In the City of Torrance, the project study area occurs within the San Pedro watershed (4411.020), and within the City of Palos Verdes Estates the study area occurs within the Lower Santa Monica Bay watershed (4404.700). No wetlands are mapped in the project study area; however there are wetlands mapped adjacent to it at opposite ends of the project alignment (USFWS 2017c). East of Ocean Avenue and across the street from Lago Seco Park is Walteria Lake, a large water retention basin that it mapped as a freshwater pond characterized as a semi-permanently flooded, excavated water feature with an unconsolidated bottom lacking a tidal or wave-formed shoreline (PUBFx). Around the margins and slightly upslope of this (PUBFx) feature is a connected but somewhat drier, thin wetland area characterized as a temporarily flooded, excavated feature with emergent and persistent vegetation (PEM1Ax). Adjacent to the southern end of the alignment are a pair of water ponds near the middle of the Palos Verdes Golf Club course that are mapped as wetland features. These features are characterized as permanently flooded, excavated water features with an unconsolidated bottom lacking a tidal or wave-formed shoreline (PUBHx). No jurisdictional drainage features were observed in the project study area.

4.4 Wildlife Movement

The project study area is capable of providing movement pathways for highly mobile species accustomed to the urban and suburban environment such as small mammals like coyote (*Canis latrans*) and raccoon (*Procyon lotor*), various rodents, and some bird species. However, due to the location of the study area (Palos Verdes Peninsula), the surrounding land uses (residential and business development, transportation thoroughfares, and parks and recreation facilities), and the apparent human influences on areas of softscape (trails), wildlife movement within or through the study area is most likely limited to migratory birds and local species. The project study area is not located within an identified connectivity linkage Linkage (CDFW 2017d).

4.5 Resources Protected by Local Policies and Ordinances

As regulatory documents, the City of Palos Verdes Estates Municipal Code (PVEMC) and Torrance Municipal Code both provide a layer of environmental protection (either directly or indirectly) to lands located on their respective city's public property. Official tree, shrub and plant regulations for the City of Palos Verdes Estates are adopted and established by Chapter 12 of the PVEMC. For the City of Torrance, tree, shrub and plant regulations are adopted and established by Division 9, Chapter 3, Article 6 of the Municipal Code.

Additionally, within the City of Torrance, street tree impacts would be regulated by the City of Torrance Street Tree Master Plan and Street Trees policy, and removal of a City-owned tree would be regulated by the City of Torrance Tree Trimming and Removal permit process. Segments occurring within the City of Palos Verdes Estates would be subject to the City of Palos Verdes Estates Street Trees Ordinance (PVEMC Title 12, CH.12.16.010-12.16.120). Impacts to trees that meet the requirements of these local policies require a permit to be obtained prior to trimming or removal.

4.6 Conservation Plans

The project study area is not covered by any Habitat Conservation Plans, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan.

5 Impact Analysis and Recommended Actions

This section discusses the possible adverse impacts to biological resources that may occur from implementation of the proposed project. The proposed project activities would have the potential to result in direct and/or indirect adverse effects to special-status plant and wildlife species and potential nesting bird habitat. Accordingly, additional recommended avoidance, minimization, and mitigation measures are presented below.

5.1 Special-Status Plants and Wildlife Species

Special-Status Plants

As discussed in Section 4.1, although 15 special-status plant species are tracked within a five-mile radius of the project site, no special-status plant species have been recorded within or adjacent to the project site. Given the disturbed or developed nature of the project study area, the potential for special-status species to occur there is very low. This determination is based on the project alignment occurring completely within previously disturbed, urbanized, and developed areas of the cities of Torrance and Palos Verdes Estates. Although the project study area contains some elements of suitable grassland habitat for the previously identified special status species to occupy, the prior development, disturbance, non-natural soil types, and limited habitat area make it unlikely that these species would be present. Therefore, the potential for impacts to special status plants is less than significant.

Special-Status Wildlife

As discussed in Section 4.1, 16 special-status wildlife species were determined to exist within a five-mile radius of the project site. During the field assessment, only one special-status wildlife species, the monarch butterfly, was observed or otherwise detected.

The presence of monarchs (and eucalyptus) in California, is not unusual and does not automatically indicate significance in the project study area. What is more important to the species is having areas within which it can overwinter and support migration, such as the dense and isolated eucalyptus groves located at the west end of the Palos Verdes Golf Club course. Groves such as those offer protection from wind, weather, and a variety of disturbances whereas individual eucalyptus street trees do not. The grove of eucalyptus supporting monarch migration and overwintering is 0.2 mile west of the project study area at its closest. The project will not affect the monarch-supporting groves of eucalyptus west of the project alignment.

The free-tailed bat, western mastiff bat, Palos Verdes blue butterfly, and crotch bumble bee were all identified as having low potential to occur in the project study area. However, the preferred habitat of the free-tailed bat and western mastiff bats (which includes rocky outcrops and cliffs), crotch bumble bee (broad grasslands), and Palos Verdes blue butterfly (coastal sage scrub) are not present. Moreover, given the disturbed or developed nature of the project study area, potential for special-status species to occur there is very low. This determination is based on the project alignment occurring completely within previously disturbed, urbanized, and developed areas of the cities of

Torrance and Palos Verdes Estates. Although the project study area may contain small elements of suitable habitat for the previously identified special status species to occupy, the prior development, disturbance, and limited habitat area make it unlikely that these species would be present. Therefore, the potential for impacts to special status wildlife is less than significant.

Nesting Birds

The project study area contains natural vegetation and other structures that provide suitable habitat for raptors and nesting birds. The proposed project could adversely affect raptors and nesting birds if construction occurs while they are present on or adjacent to the alignment through direct mortality or abandonment of nests. The loss of a nest due to construction activities would be a violation of California Fish and Game Code (CFGC) Section 3503, 3503.5, 3513 and 3800, and the Migratory Bird Treaty Act (MBTA).

- To avoid impacts to nesting birds, project-related activities should occur outside of the bird breeding season (February 1 to August 31) to the extent practicable. If construction must occur within the bird breeding season, then no more than one week prior to initiation of ground disturbance and/or vegetation removal, a nesting bird and raptor pre-construction survey should be conducted by a qualified biologist within the disturbance footprint plus a 300-foot buffer (500-foot for raptors), where feasible, with inaccessible areas (i.e., private lands) surveyed by binoculars. If the proposed project is phased, a subsequent pre-construction nesting bird and raptor survey may be required prior to each phase of construction within the project study area.
- Pre-construction nesting bird and raptor surveys should be conducted during the time of day when birds are active and should be of sufficient duration to reliably conclude presence/absence of nesting birds and raptors onsite and within the designated vicinity. A report of the nesting bird and raptor survey results, if applicable, should be submitted to the lead agency for review and approval prior to ground and/or vegetation disturbance activities.
- If nests are found, an appropriate avoidance buffer ranging in size from 25 to 50 feet for song birds, and up to 250 feet for raptors depending upon the species and the proposed work activity, should be determined and demarcated by a qualified biologist with bright orange construction fencing or other suitable flagging. All construction personnel shall be notified as to the existence of the buffer zone and to avoid entering the buffer zone during the nesting season. Active nests should be monitored at a minimum of once per week until it has been determined that the nest is no longer being used by either the young or adults. No ground disturbance should occur within this buffer until the qualified biologist confirms that the breeding/nesting is completed and all the young have fledged the nest. If project activities must occur within the buffer, they should be conducted at the discretion of the qualified biologist.

If no nesting birds are observed during pre-construction surveys, no further actions would be necessary. No special-status species should be removed without obtaining the appropriate permits, and no “take” (injury, death, harassment, change of behavior, or loss of habitat) of California gnatcatcher will be permitted under any circumstances. Implementation of these recommended measures would avoid and/or minimize potential impacts to nesting birds.

5.2 Special-Status Vegetation or Habitat Communities

As noted in Section 4.2, no special-status vegetation or habitat communities were identified in the project study area. Therefore, no impacts to special-status vegetation or habitat communities are expected.

5.3 Jurisdictional Aquatic Resources

As noted in Section 4.3, no jurisdictional aquatic resources were identified in the project study area. Therefore, no impacts to jurisdictional aquatic resources are expected.

5.4 Wildlife Movement

As noted in Section 4.4, no established wildlife corridors have been identified within the project study area. Therefore, no impacts to wildlife movement are expected.

5.5 Resources Protected by Local Policies and Ordinances

As previously mentioned in Section 4.5, street tree impacts would be regulated by the city within which they occur (i.e., Torrance or Palos Verdes Estates). Impacts to trees that meet the requirements of these cities' municipal codes and local policies require a permit to be obtained prior to trimming or removal.

The City of Torrance tree policy allows property owners to have the City tree adjacent to their property trimmed or removed by a private contractor through a permit process. There is no charge for the City permit; however, property owners are responsible for contacting a licensed City-approved tree contractor, and for all costs associated with the work. Maintenance practices detrimental to trees, such as topping and over pruning, are not condoned by the City.

Applications for trim and removal permits may be obtained at the City of Torrance Public Works Department or the Permit Center. Applications for Removal Permits must be mailed or delivered to the City Treasure's Office along with a check for $250.00 per tree to be removed. The $250.00 per tree is a deposit that will be refunded to the property owner when the replacement tree(s) have been inspected. Permits will be issued upon verification of property ownership.

The City of Torrance street tree policy establishes special designated areas in the City where street trees have created an ambiance and image for Torrance and should be protected and conserved. These Street Tree Special Designated Areas are exempt from this permit process. There are no Street Tree Special Designated Areas within or immediately adjacent to the project alignment.

The City would consider removing a City tree under certain circumstances:

- Rotting of interior or roots/disease/insect infestation
- Curb/sidewalk/street repairs (based on individual assessments by an inspector)
- Structural damage (must be determined that damage was caused by a City tree)

The City does not remove City trees for sewer damage, concrete damage, or views.

The City of Palos Verdes Estates' Street Trees Ordinance prohibits tree trimming, injury, or removal without written permit from the Public Works Director. In the event that trees need to be planted, the Ordinance states that the City Parklands Committee will prepare a list of trees that can be selected from for planting, the specific location of the planting, and the size (typically 15-gallon) of the planting. Trees with an existing planting plan shall remain until natural causes or approval by the Parklands Committee permits removal, and newly planted trees shall be accompanied by a planting plan which will be first approved by the Parklands Committee.

5.6 Conservation Plans

As previously mentioned in Section 4.6, the project study area is not located in an area covered by any Habitat Conservation Plans, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan. Therefore, no impacts to project activities from conservation plans are expected.

6 Limitations, Assumptions, and Use Reliance

This Biological Resources Assessment has been performed in accordance with professionally accepted biological investigation practices conducted at this time and in this geographic area. The biological investigation is limited by the scope of work performed. Biological surveys for the presence or absence of certain taxa have been conducted as part of this assessment but were not performed during a particular blooming period, nesting period, or particular portion of the season when positive identification would be expected if present, and therefore, cannot be considered definitive. The biological surveys are limited also by the environmental conditions present at the time of the surveys. In addition, general biological (or protocol) surveys do not guarantee that the organisms are not present and will not be discovered in the future within the site. In particular, mobile wildlife species could occupy the site on a transient basis, or re-establish populations in the future. Our field studies were based on current industry practices, which change over time and may not be applicable in the future.

No other guarantees or warranties, expressed or implied, are provided. The findings and opinions conveyed in this report are based on findings derived from site reconnaissance, jurisdictional areas, review of CNDDB RareFind, and specified historical and literature sources. Standard data sources relied upon during the completion of this report, such as the CNDDB, may vary with regard to accuracy and completeness. In particular, the CNDDB is compiled from research and observations reported to CDFW that may or may not have been the result of comprehensive or site-specific field surveys. Although Rincon believes the data sources are reasonably reliable, Rincon cannot and does not guarantee the authenticity or reliability of the data sources it has used. Additionally, pursuant to our contract, the data sources reviewed included only those that are practically reviewable without the need for extraordinary research and analysis.

7 References

American Ornithologists' Union (AOU) and Cooper Ornithological Society. 2017. *Check-list of North American Birds*. Available at: http://www.aou.org/checklist/north.

Baldwin B. G., Goldman, D. H., Keil D. J., Patterson R., Rosatti T. J. (editors). 2012. The Jepson Manual: Vascular Plants of California, Second Edition, Thoroughly Revised and Expanded. Updated by The Jepson Online Interchange University of California Press. 2014. Berkeley, California. Available at: https://content.ucpress.edu/downloads/12114/jepsondigital2web.pdf.

California Department of Fish and Wildlife (CDFW). 2017a. California Natural Diversity Database, RareFind 5 (V 5.53.31). Available at: https://www.wildlife.ca.gov/Data/CNDDB/Maps-and-Data. Accessed: 25 May).

California Department of Fish and Wildlife. 2017b. Special Animals List. Biogeographic Data Branch, California Natural Diversity Database. Available at: https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=109406&inline. Accessed: 25 May.

California Department of Fish and Wildlife. 2017c. Special Vascular Plants, Bryophytes, and Lichens List. Biogeographic Data Branch, California Natural Diversity Database. Available at: https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=109383&inline. Accessed: 25 May.

California Department of Fish and Wildlife. 2017d. California Essential Habitat Connectivity Project. BIOS Habitat Connectivity Viewer. Subscription version 5.53.31. Biogeographic Data Branch, California Natural Diversity Database. Available at: https://map.dfg.ca.gov/bios/?bookmark=649. Accessed: 12 June 2017.

California Native Plant Society (CNPS). 2017. Rare Plant Program Inventory of Rare and Endangered Plants. *O*nline edition, v8-03. Query of the Torrance and Redondo Beach USGS Quads. Available at: http://www.rareplants.cnps.org/result.html?adv=t&quad=3311873:3311874. Accessed: 10 June.

Google Earth. 2017. Search of project location for the following years: 1994, 1999, 2002-09, 2011-17. Available at: http://earth.google.com/

Holland, Robert F. 1986. Preliminary Descriptions of the Terrestrial Natural Communities of California. California Department of Fish and Wildlife, Nongame Heritage Program. Available at: https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=7673. Accessed: 26 May 2017.

Sawyer, J.O., T. Keeler-Wolf, and J.M. Evens. 2009. A Manual of California Vegetation, Second Edition. California Native Plant Society, Sacramento.

Stebbins, Robert C. 2003. *Western Reptiles and Amphibians*, *Third Edition*. Peterson Field Guides. Houghton Mifflin Company, 514 pages.

United States Department of Agricultural. 2017. Natural Resources Conservation Service Web Soil Survey. Available at: https://websoilsurvey.nrcs.usda.gov/app/WebSoilSurvey.aspx. Accessed: 7 June.

United States Fish and Wildlife Service. 2016. Available at: Special Status Assessment: *Monarch Butterfly*. https://www.fws.gov/savethemonarch/pdfs/MonarchSSAFactSheet.pdf. 15 September. Accessed: 14 June 2017.

United States Fish and Wildlife Service. 2017a. Threatened and Endangered Species Active Critical Habitat Environmental Conservation Online System mapping tool. Search of project site. Available at: https://fws.maps.arcgis.com/home/webmap/viewer.html?webmap=9d8de5e265ad4fe09893cf75b8dbfb77. Accessed: 7 June.

United States Fish and Wildlife Service. 2017b. Information for Planning and Consultation (IPAC) Environmental Conservation System. Search of project site. Available at: https://ecos.fws.gov/ipac/location/T5OODYNSOFBNZIAUFHE77DOWXE/resources. Accessed: 7 June.

United States Fish and Wildlife Service. 2017c. National Wetlands Inventory – V2 Wetland Mapping Tool. Search of project site and vicinity. Available at: https://www.fws.gov/wetlands/Data/Mapper.html. Accessed: 12 June.

Wilson, D.E. and Reeder, D.M. 2005. *Mammal Species of the World. A Taxonomic and Geographic Reference* (3rd edition), Johns Hopkins University Press, 2,142 pp. Available at: http://www.departments.bucknell.edu/biology/resources/msw3/browse.asp.

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Appendix A

Site Photographs

Photograph 1. View south of typical project alignment streetscape, looking down Anza Avenue from 234th Street. Urban/Developed land cover type that includes pavement, structures, and ornamental trees and landscaping.

Photograph 2. View west towards 238th Street, of proposed Pump Station location of south of Lago Seco Park.

Photograph 3. Panoramic view southeast of Intersection of Anza Avenue (left to middle) and Pacific Coast Highway (right to left). Broad Urban/Developed hardscape with minimal landscaping.

Photograph 4. Panoramic view north across Vista Montana, looking at a cut-slope on the north side of the street that is also one of the larger open vegetation areas along the alignment. Vegetation cover is a mix of non-native grasses such as wildoats and bromes, invasive ornamentals such as iceplant, and various native and non-native trees, but primarily oak species. The alignment of the trees appears manufactured (likely for initial slope stabilization) and the slope appears to recently mowed. Behind the photographer, the slope drops sharply down-elevation to the next group of houses, and that cut-slope consists of nearly identical species of vegetation.

Photograph 5. View east along Torrance Utility Road from its intersection with Via Colusa. The utility road is characterized by a wide hardpacked, unpaved dirt trail lined with ornamental trees, shrubs, and plants. This road/trail is heavily used for recreation.

Photograph 6. View south-southwest of western slope along Via Las Vegas south of Torrance Utility Road. A cut-slope containing an interesting variety of planted ornamental trees, shrubs, plants, and grasses.

Photograph 7. View south-southeast of intersection of Paseo Del Campo (left to right) and Via Navajo (left) towards the golf course. Tall eucalyptus line both sides of the street.

Photograph 8. View north-northeast of intersection of Paseo Del Campo (left to right) and Via Navajo (middle) from the golf course.

Photograph 9. View east along Paseo Del Campo where it passes around the golf course on the right hand side of the photo. Eucalyptus, pepper, oak, and other street trees are visible.

Photograph 10. View west-northwest along Paseo Del Campo where it passes around the golf course on the left hand side of the photo. Eucalyptus, pepper, jacaranda and other street trees are visible.

Appendix B

Special-Status Species Known to Occur in the Vicinity of the Project

Special-Status Species with Potential to Occur in the Study Area

Scientific Name	Common Name	Status Fed / State ESA CRPR G-Rank / S-Rank	Habitat Preference/Requirements	Potential for Occurrence / Basis for Determination
Plants				
Aphanisma blitoides	Aphanisma	--/ -- 1B.2 G3/S3	Annual herb. Blooms Mar-Jun. Coastal bluff scrub, coastal dunes, coastal scrub. On bluffs and slopes near the ocean in sandy or clay soils. In steep decline on the islands and the mainland. 1-305m (3-1000ft).	**No Potential.** Coastal bluff, coastal dune not present on site. Coastal sage scrub not present.
Atriplex pacifica	South coast saltscale	--/ -- 1B.2 G3G4/S2	Annual herb. Blooms Mar-Oct. Coastal scrub, coastal bluff scrub, playas, chenopod scrub. Alkali soils. 1-500m (3-1640ft).	**No Potential**. Coastal bluff, akalai soils, nor coastal sage scrub present on site.
Atriplex parishii	Parish's brittlescale	--/ -- 1B.1 G1G2/S1	Annual herb. Blooms Jun-Oct. Alkali meadows, vernal pools, chenopod scrub, playas. Usually on drying alkali flats with fine soils. 25-1900m (80-6235ft).	**No Potential**. Habitat requirements for this species not present on site.
Atriplex coulteri	Coulter's saltbush	-- / -- 1B.2 G2 / S2	Perennial herb. Blooms Mar-Oct. Coastal bluff scrub, coastal dunes, coastal scrub, valley and foothill grassland. Ocean bluffs, ridge tops, as well as alkaline low places. 10-440m (30-1445ft).	**Low Potential.** Grassland areas of habitat highly disturbed with non-native species.
Centromadia parryi ssp. *australis*	Southern tarplant	--/ -- 1B.1 G3T2/S2	Annual herb. Blooms May-Nov. Marshes and swamps (margins), valley and foothill grassland. Often in disturbed sites near the coast at marsh edges; also in alkaline soils sometimes with saltgrass. Sometimes on vernal pool margins. 0-425m (0-1395ft).	**Low Potential.** Grassland areas of habitat highly disturbed with non-native species.
Crossosoma californicum	Catalina crossosoma	--/ -- 1B.2 G2/S2	Perennial deciduous shrub. Blooms Feb-May. Chaparral, coastal scrub. On rocky sea bluffs, wooded canyons, and dry, open sunny spots on rocky clay. 0-500m (0-1640ft).	**No Potential.** Coastal sage scrub not present. Only CNDDB record on California mainland is within the Portuguese Bend Nature Preserve.
Dithyrea maritima	Beach spectaclepod	--/ ST 1B.1 G2/S2.1	Perennial rhizomatous herb. Blooms Mar-May. Coastal dunes, coastal scrub. Formerly more widespread in coastal habitats in So. Calif. Sea shores, on sand dunes, and sandy places near the shore. 3-50m (10-165ft).	**No Potential.** Coastal dune not present on site. Coastal sage scrub not present.
Dudleya virens ssp. *insularis*	Island green dudleya	--/ -- 1B.2 G2?T2/S2.2	Perennial herb. Blooms Apr-Jun. Coastal bluff scrub, coastal scrub. Rocky soils. 5-300m (15-985ft).	**No Potential.** Coastal bluff not present on site. Coastal sage scrub not present.

Scientific Name	Common Name	Status Fed / State ESA CRPR G-Rank / S-Rank	Habitat Preference/Requirements	Potential for Occurrence / Basis for Determination
Horkelia cuneata var. *puberula*	Mesa horkelia	-- / -- 1B.1 G4T1 / S1	Perennial herb. Blooms Feb-Sept. Chaparral, cismontane woodland, coastal scrub. Sandy or gravelly sites. 70-810m (230-2655ft).	**Low Potential.** Habitat requirements for this species generally not present on site.
Lasthenia glabrata ssp. *coulteri*	Coulter's goldfields	--/ -- 1B.1 G4T3/S2.1	Annual herb. Blooms Feb-Jun. Coastal salt marshes, playas, valley and foothill grassland, vernal pools. Usually found on alkaline soils in playas, sinks, and grasslands. 1-1400m (3-4595ft).	**Low Potential.** Grassland areas of habitat highly disturbed with non-native species.
Lycium brevipes var. *hassei*	Santa Catalina Island desert-thorn	--/ -- 1B.1 G1Q/S1	Perennial deciduous shrub. Blooms in June. Coastal bluff scrub, coastal scrub. Coastal bluffs and slopes. 10-300m (30-985ft).	**No Potential.** Coastal bluff scrub not present on site. Coastal sage scrub not present.
Nama stenocarpum	Mud nama	-- / -- 2B.2 G4G5 / S1S2	Annual/perennial herb. Blooms Jan-Jul. Marshes and swamps. Lake shores, river banks, intermittently wet areas. 5-500m (15-1640ft).	**No Potential**. Habitat requirements for this species not present on site.
Pentachaeta lyonii	Lyon's pentachaeta	FE/ SE 1B.1 G2/S2	Annual herb. Blooms Mar-Aug. Chaparral, valley and foothill grassland, coastal scrub. Edges of clearing in chaparral, usually at the ecotone between grassland and chaparral or edges of firebreaks. 30-630m (100-2065ft).	**No Potential.** Grassland areas of habitat highly disturbed with non-native species.
Phacelia stellaris	Brand's star phacelia	--/-- 1B.1 G1/S1	Annual herb. Blooms Mar-June. Coastal sage scrub, coastal dunes. Open areas. 0-360m (0-1180ft).	**No Potential.** Coastal dune and coastal sage scrub not present on site.
Symphyotrichum defoliatum	San Bernardino aster	-- / -- 1B.2 G2 / S2	Perennial rhizomatous herb. Blooms Jul-Nov. Meadows and seeps, marshes and swamps, coastal scrub, cismontane woodland, lower montane coniferous forest, grassland. Vernally mesic grassland or near ditches, streams and springs; disturbed areas. 2-2040m (6-6695ft).	**Low Potential.** Grassland areas of habitat highly disturbed with non-native species.
Invertebrates				
Bombus crotchii	Crotch bumble bee	-- / -- -- G3G4 / S1S2	Inhabits California open grasslands, scrubland habitats, and adjacent foothills.	**Low Potential.** Habitat requirements for this species generally not present on site.

Scientific Name	Common Name	Status Fed / State ESA CRPR G-Rank / S-Rank	Habitat Preference/Requirements	Potential for Occurrence / Basis for Determination
Cicindela hirticollis gravida	Sandy beach tiger beetle	-- / -- -- G5T2 / S1	Inhabits areas adjacent to non-brackish water along the coast of California from San Francisco Bay to northern Mexico. Clean, dry, light-colored sand in the upper zone. Subterranean larvae prefer moist sans not affected by wave action.	**No Potential.** Habitat requirements for this species not present on site.
Danaus plexippus	Monarch butterfly	-- / -- -- G5 / S3	Winter roost sites extend along the coast from northern Mendocino to Baja California, Mexico. Roosts located in wind-protected tree groves (eucalyptus, Monterey pine, cypress), with nectar and water sources nearby.	**Present.** Eucalyptus woodland with water source (natural creek and man-made golf course features) present. Observed in survey area during field reconnaissance.
Euphilotes battoides allyni	El Segundo blue butterfly	FE / -- -- G5T1 / S1	Restricted to remnant coastal dune habitat in Southern California. Hostplant is *Eriogonum parvifolium*; larvae feed only on the flowers and seeds; used by adults as major nectar source.	**No Potential.** Habitat requirements (dunes) and host plant for this species not present on site.
Glaucopsyche lygdamus palosverdesensis	Palos Verdes blue butterfly	FE / -- -- G5T1 / S1	Restricted to the cool, fog-shrouded, seaward side of Palos Verdes Hills, Los Angeles County. Host plant is *Astragulus trichopodus* var. *lonchus* (locoweed).	**Low Potential.** Some host plants present at the west end of the Palos Verdes Golf Club course.
Streptocephalus wootoni	Riverside fairy shrimp	FE / -- -- G1 / S1	Endemic to W RIV, ORA and SDG counties in areas of tectonic swales/earth slump basins in grassland and coastal sage scrub. Inhabit seasonally astatic pools filled by winter/spring rains. Hatch in warm water later in the season.	**No Potential.** Habitat requirements for this species not present on site.
Fish				
Siphateles bicolor mohavensis	Mohave tui chub	FE / SE SSC G4T1 / S1	Endemic to the Mojave River basin, adapted to alkaline, mineralized waters. Needs deep pools, ponds, or slough areas with vegetation for spawning.	**No Potential.** Habitat requirements for this species not present on site.
Reptiles				
Anniella pulchra pulchra	Silvery legless lizard	-- / -- SSC G3G4T3T4Q / S3	Sandy or loose loamy soils under sparse vegetation. Soil moisture is essential. they prefer soils with a high moisture content.	**No Potential.** Habitat requirements for this species not present on site.
Phrynosoma blainvillii	Coast horned lizard (=Blainvilli's)	-- / -- SSC G3G4 / S3S4	Frequents a wide variety of habitats, most common in lowlands along sandy washes with scattered low bushes. Open areas for sunning, bushes for cover, patches of loose soil for burial, and abundant supply of ants and other insects.	**No Potential.** Habitat requirements for this species not present on site. Believed extirpated from Torrance Quad.

Scientific Name	Common Name	Status Fed / State ESA CRPR G-Rank / S-Rank	Habitat Preference/Requirements	Potential for Occurrence / Basis for Determination
Birds				
Agelaius tricolor	Tricolored blackbird	SSC G2G3 / S2	Highly colonial species, most numerous in Central Valley and vicinity. Largely endemic to California. Requires open water, protected nesting substrate, and foraging area with insect prey within a few km of the colony.	**No Potential.** Open water habitat requirements for this species not present on site.
Polioptila californica californica	Coastal California gnatcatcher	FT / -- SSC G3T2 / S2	Obligate, permanent resident of coastal sage scrub below 2500 ft. in Southern California. Low, coastal sage scrub in arid washes, on mesas and slopes. Not all areas classified as coastal sage scrub are occupied.	**No Potential.** Coastal sage scrub habitat not present on site.
Sterna antillarum browni	California least tern	FE / SE FP G4T2T3Q / S2	Nests along the coast from San Francisco Bay south to northern Baja California. Colonial breeder on bare or sparsely vegetated, flat substrates: sand beaches, alkali flats, landfills, or paved areas.	**No Potential.** Habitat requirements for this species not present on site.
Mammals				
Eumops perotis californicus	Western mastiff bat	-- / -- SSC G5T4 / S3S4	Many open, semi-arid to arid habitats, including conifer and deciduous woodlands, coastal scrub, grasslands, chaparral, etc. Roosts in crevices in cliff faces, high buildings, trees and tunnels.	**Low Potential.** Widespread throughout southern California, but no CNDDB occurrences in Torrance, Redondo Beach, or San Pedro USGS Quads.
Neotoma lepida intermedia	San Diego desert woodrat	-- / -- SSC G5T3? / S3?	Coastal scrub of Southern California from San Diego County to San Luis Obispo County. Moderate to dense canopies preferred. They are particulary abundant in rock outcrops and rocky cliffs and slopes.	**No Potential.** Habitat requirements for this species not present on site. No CNDDB occurrences in Torrance USGS Quad.
Nyctinomops femorosaccus	Pocketed free-tailed bat	-- / -- SSC G4 / S2S3	Variety of arid areas in Southern California; pine-juniper woodlands, desert scrub, palm oasis, desert wash, desert riparian, etc. Rocky areas with high cliffs.	**Low Potential.** One CNDDB occurrence in Torrance from 1985.
Perognathus longimembris pacificus	Pacific pocket mouse	FE / -- SSC G5T1 / S1	Inhabits the narrow coastal plains from the Mexican border north to El Segundo, Los Angeles Co. Seems to prefer soils of fine alluvial sands near the ocean, but much remains to be learned.	**No Potential.** Habitat requirements for this species not present on site. Believed to be extirpated from Torrance USGS Quad.

Appendix C

Cultural Resources Technical Report

Palos Verdes Recycled Water Pipeline Project

Cultural Resources Technical Study

prepared for
West Basin Municipal Water District
17140 S Avalon Blvd #210
Carson, California 90746

prepared by
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September 2017

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This report prepared on 50 percent recycled paper with 50 percent post-consumer content.

Please cite this report as follows:

Rincon Consultants, Inc.
Szromba, Meagan, Susan Zamudio-Gurrola, Christopher Duran, and Steven Treffers

2017 *Cultural Resources Technical Study for the Palos Verdes Recycled Water Pipeline Project*. Report on file, South Central Coastal Information Center, California State University, Fullerton.

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Executive Summary

Rincon Consultants, Inc. (Rincon) was retained by KEH & Associates (KEH) on behalf of the West Basin Municipal Water District (WBMWD) to conduct a cultural resources technical study for the Palos Verdes Recycled Water Pipeline Project (project) in the cities of Torrance and Palos Verdes Estates in Los Angeles County, California. This report presents the results of a cultural resources records search, Native American outreach, local historic group consultation, and field survey.

The project proposes delivering recycled water from the existing Anza Lateral pipeline in the City of Torrance to the Palos Verdes Golf Club in the City of Palos Verdes Estates. This cultural resources technical study has been completed in accordance with the requirements for a California Environmental Quality Act (CEQA)-Plus investigation, which includes an evaluation of project impacts under CEQA and Section 106 of the National Historic Preservation Act (NHPA) in the case that a federal nexus (i.e., federal funding and/or permitting) is established during the course of the project.

The cultural resources records search, Native American outreach efforts and field survey identified no known prehistoric or historic resources in the area of potential effects (APE). Local historic group consultation with the Palos Verdes Homes Association and Art Jury indicated that there may be potential historical resources within the city of Palos Verdes Estates that are near the APE. However these features are not officially recorded as historic resources and will not be impacted by the project. The project alignment will enter Los Arboles Park (Rocketship Park) in the City of Torrance. Los Arboles Park contains "The Rocketship" playground structure, considered a local landmark by the Torrance Historical Society, but which is not formally recorded as a historic resource. The proposed pipeline would not be constructed near the playground structure. The pipeline would also be constructed completely underground in the vicinity of Los Arboles Park and the landscaping and pavement repaired in kind. In addition, the pipeline and a water storage tank would be constructed within the Palos Verdes Golf Club property. Thus, the Palos Verdes Golf Club was surveyed, recorded, evaluated, and found ineligible for the National Register of Historic Places (NRHP) and California Register of Historic Resources (CRHR). Therefore, Rincon recommends a finding of ***no historic properties affected*** under the NHPA, and a ***less than significant impact to historical resources with mitigation incorporated***, under CEQA.

During consultation, California Native American Tribes indicated that the Palos Verdes Peninsula is considered to be generally sensitive for cultural resources. Although the project site has been previously disturbed and no evidence of cultural resources was found during the investigation cultural resources monitoring is recommended for ground disturbing activities within the Palos Verdes Golf Club based on Tribal concerns. The project will connect to and cross existing utilities and previously disturbed soils in each location of the project site indicating that much of the APE has been previously disturbed by existing utilities and development; however, the Palos Verdes Golf Club may be less disturbed than the other portions of the project alignment. Therefore, it is recommended that cultural resources monitoring occur for ground disturbing activities within the golf course property boundary. Rincon also recommends that a Worker Environmental Awareness Program (WEAP) be developed to inform construction crews of the potential cultural resources concerns in the area. These mitigation measures are discussed in greater detail below. Compliance

with these measures would reduce potentially significant impacts under CEQA to less than significant levels.

Retain a Qualified Archaeologist

The project applicant shall retain a qualified archaeologist, defined as an archaeologist who meets the Secretary of the Interior's Professional Qualifications Standards for archaeology (NPS 1983), to carry out all mitigation measures related to archaeological and historic resources and supervise archaeological monitoring of the Palos Verdes Golf Club. This archaeologist shall work with WBMWD and local Native American representatives to develop formal protocols for managing cultural resources.

Worker Environmental Awareness Program (WEAP)

The qualified archaeologist shall prepare a WEAP to address cultural resources issues anticipated at the project site. The WEAP will include information on the laws and regulations that protect cultural resources, the penalties for a disregard of those laws and regulations, the types of cultural resources that may be present at the project site, procedures to be followed if cultural resources are unexpectedly uncovered during construction, and contact information for qualified archaeologists to be notified in the case of unanticipated discoveries. The WEAP will be provided electronically as a PowerPoint file.

Cultural Resources Monitoring

Certain areas of the project site are considered by local tribes to be sensitive for cultural resources. Therefore, cultural resources monitoring should occur by an archaeologist and a local culturally affiliated Native American representative for ground disturbing work in the Palos Verdes Golf Club property, where previous disturbances have been less extensive than other areas of the project site. This monitoring should occur under the direction of a qualified archaeologist. If, during the course of monitoring, the qualified archaeologist determines that ground disturbing activities will have no potential to disturb cultural resources, monitoring may be reduced or eliminated at the discretion of West Basin Municipal Water District, under advisement from the qualified archaeologist and consultation with local tribes. If cultural resources are found or believed to be present in the remaining areas of the project site outside of the Palos Verdes Golf Club, a local culturally affiliated Native American representative will be contacted for consultation. Should cultural resources be identified outside of the Palos Verdes Golf Club during ground disturbing activities, cultural resources monitoring may be expanded at the discretion of the West Basin Municipal Water District under advisement from the qualified archaeologist and consultation with local tribes. At this time, monitoring is recommended for ground disturbing activities within the Palos Verdes Golf Club only.

The following measures are recommended in case of unanticipated discoveries of cultural resources and/or human remains.

Unanticipated Discovery of Cultural Resources

If cultural resources are encountered during ground-disturbing activities, work in the immediate area should be halted and an archaeologist meeting the Secretary of the Interior's Professional

Qualifications Standards for archaeology (NPS 1983) should be contacted immediately to evaluate the find. If necessary, the evaluation may require preparation of a treatment plan and archaeological testing for the NRHP/CRHR eligibility. If the discovery proves to be significant under the NHPA and/or CEQA, as determined by the archaeologist, and cannot be avoided by the project, additional work such as data recovery excavation and Native American consultation may be warranted to mitigate any significant impacts to historical resources.

Unanticipated Discovery of Human Remains

The discovery of human remains is always a possibility during ground-disturbing activities. If human remains are found, State of California Health and Safety Code Section 7050.5 states that no further disturbance shall occur until the County Coroner has made a determination of origin and disposition pursuant to Public Resources Code Section 5097.98. In the event of an unanticipated discovery of human remains, the County Coroner must be notified immediately. If the human remains are determined to be prehistoric, the Coroner will notify the NAHC, which will determine and notify a most likely descendant (MLD). The MLD shall complete the inspection of the site within 48 hours of notification to provide recommendations for the treatment of the identified remains.

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1 Introduction

Rincon Consultants, Inc. (Rincon) was retained by KEH & Associates (KEH) to conduct a cultural resources technical study on behalf of the West Basin Municipal Water District (WBMWD) for the Palos Verdes Recycled Water Pipeline Project (project) in the cities of Torrance and Palos Verdes Estates in Los Angeles County, California. This study included a cultural resources records search, Native American outreach, local historic group consultation, field survey, and preparation of this technical report. This cultural resources study has been completed in accordance with the requirements for a California Environmental Quality Act (CEQA)-Plus investigation, which requires an evaluation of project impacts under CEQA and Section 106 of the National Historic Preservation Act (NHPA) in the case that a federal nexus (i.e., federal funding and/or permitting) is established during course of the project.

1.1 Project Description

The project proposes delivering recycled water from the existing Anza Lateral pipeline in the City of Torrance to the Palos Verdes Golf Club in the City of Palos Verdes Estates. The project proposes to connect to the existing recycled water pipeline at the intersection of Anza Avenue and Calle Mayor in Torrance, to deliver recycled water to the golf course, and to provide recycled water to other potential recycled water users along the alignment. The majority of pipeline is proposed to be located in existing roadways or rights-of-way and range from 4 to 10 inches in diameter. The project will additionally include alignments within the Torrance Utility Road, Lago Seco Park, and the Palos Verdes Golf Club. An above ground pump station will be constructed in either the southwest or northwest corners of Lago Seco Park, and a water storage facility would be located in the southern portion of the Palos Verdes Golf Club. Installation of the pipelines is likely to involve open trench excavation. Jack and bore (trenchless) operations may be employed where trench construction is not feasible, such as at the intersection of Anza Avenue and Pacific Coast Highway. Ground disturbance involved in this method would include pit excavations of 15 to 20 feet wide and up to 25 to 30 feet long.

1.2 Area of Potential Effects

The area of potential effects (APE) of an undertaking is defined in 36 Code of Federal Regulations (CFR) 800.16(d) as the “geographic area or areas within which an undertaking may directly or indirectly cause changes in the character or use of historic properties if any such property exists.” For the purposes of the current project, the APE consists of the project footprint, which includes the proposed pipeline alignment, possible pump station locations, golf course site improvements (onsite storage) and construction staging zones. Additionally, the APE must be considered as a three-dimensional space. This includes any ground disturbance associated with the project, including trenching for pipeline installation, jacking and receiving pits for trenchless pipeline construction and excavation for pump station construction. The APE for the current undertaking is therefore limited to the direct project footprint, which includes a length of approximately 4 miles, a width of approximately 20 feet for the pipeline and 100 feet for the pump station to accommodate trenching, construction staging, and temporary spoils storage, and a depth of up to 20 feet,

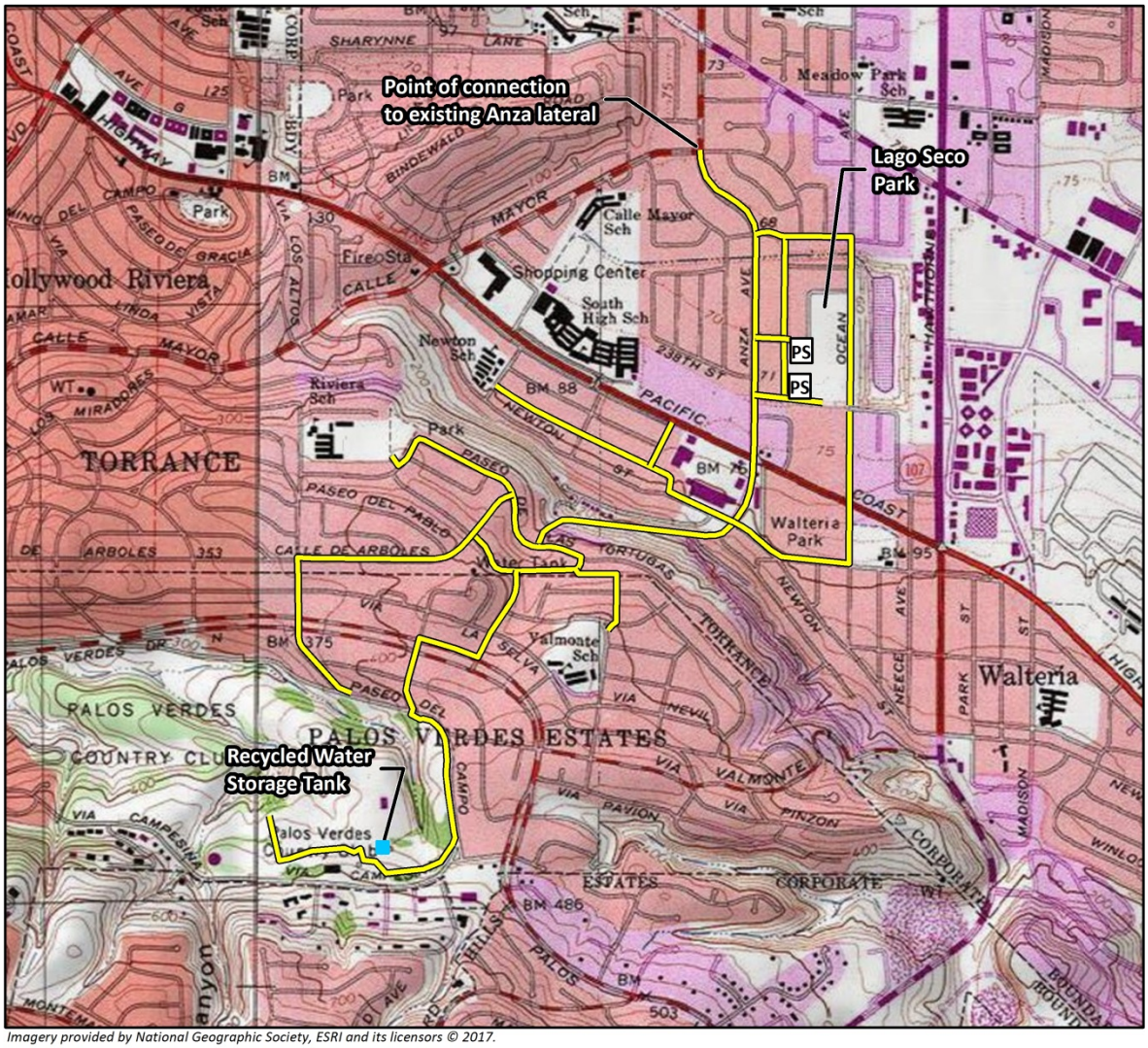
consistent with the depth required for pump station excavation. The APE will be returned to preconstruction conditions after the completion of construction.

The APE is located on Township 4S, Range 14W, Sections 20, 21, 28, and 29 of the United States Geological Survey *Torrance, CA* 7.5-minute topographic quadrangles (Figure 1) in the cities of Torrance and Rancho Palos Verdes, Los Angeles County, California (Figure 2).

1.3 Personnel

Rincon Associate Archaeologist Meagan Szromba, M.A., Registered Professional Archaeologist (RPA) performed the cultural resources records search, Native American outreach, field survey, and is the primary author of this report. Rincon Architectural Historian Susan Zamudio-Gurrola, M.H.P., performed the local historic group consultation and is a contributing author of this report. Rincon Architectural Historian Steven Treffers, M.H.P., assisted with research and is a contributing author of this report. Rincon Archaeological Resources Program Manager and Principal Investigator Christopher Duran, M.A., RPA, served as the principal investigator for this project. Mr. Duran meets and exceeds the Secretary of the Interior's Professional Qualifications Standards for historic or prehistoric archaeology (NPS 1983). Rincon Geographic Information Systems (GIS) Analyst Allysen Valencia prepared the maps found in this report, and Rincon Associate Environmental Scientist Ariel Namm, M.S., and Meagan Szromba acquired the photographs included in this document. Rincon Technical Editor Chris Jackson edited the content of this document, and Rincon Principal Jennifer Haddow, Ph.D., and Rincon Senior Principal Duane Vander Pluym, D.Env., reviewed this report for quality control.

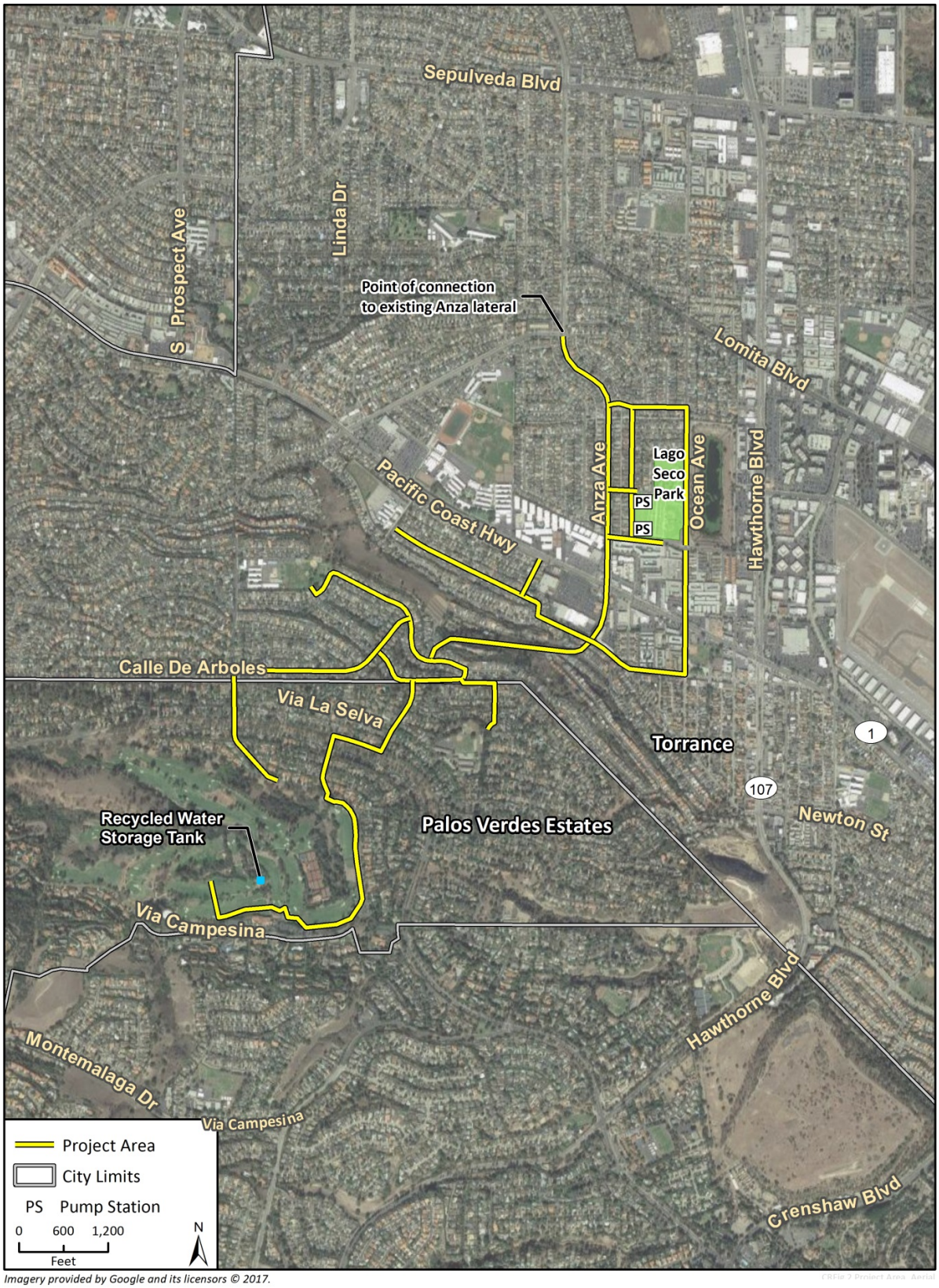
Figure 1 Area of Potential Effects



Imagery provided by National Geographic Society, ESRI and its licensors © 2017. Torrance Quadrangle. T04S R14W S20,21,28,29. The topographic representation depicted in this map may not portray all of the features currently found in the vicinity today and/or features depicted in this map may have changed since the original

CRFig 1 APE

Figure 2 Project Area



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2 Regulatory Setting

This section includes a discussion of the applicable state and local laws, ordinances, regulations, and standards governing cultural resources that should be adhered to before and during implementation of the proposed project.

2.1 CEQA-Plus Studies

A CEQA-Plus study includes compliance with both state and federal regulations in the case that a federal nexus is established during the course of project execution. A federal nexus may be established with the requirement of federal funding and/or permitting. Compliance with both regulations allows the lead agency to apply the results of this technical study to both levels of regulation should a nexus be established at a later time.

2.2 Federal Regulations

The proposed project is assumed subject to Section 106 of the NHPA. The definition of a federal undertaking in 36 CFR 800.16(y) includes projects requiring a federal permit, license, or approval. Cultural resources are considered during federal undertakings chiefly under Section 106 of the NHPA of 1966 (as amended) through one of its implementing regulations, 36 CFR 800 (Protection of Historic Properties), as well as the National Environmental Policy Act. Properties of traditional, religious, and cultural importance to Native Americans are considered under Section 101 (d)(6)(A) of the NHPA, and Section 106 36 CFR 800.3-800.10. Other federal laws include the Archaeological Data Preservation Act of 1974, the American Indian Religious Freedom Act of 1978, the Archaeological Resources Protection Act of 1979, and the Native American Graves Protection and Repatriation Act of 1989, among others.

Section 106 of the NHPA (16 United States Code [USC] 470f) requires federal agencies to take into account the effects of their undertakings on any district, site, building, structure, or object that is included in or eligible for inclusion in the National Register of Historic Places (NRHP) and to afford the Advisory Council on Historic Preservation a reasonable opportunity to comment on such undertakings (36 CFR 800.1). Under Section 106, the significance of any adversely affected historic property is assessed and mitigation measures are proposed to reduce any impacts to an acceptable level. Historic properties are those significant cultural resources that are listed in or are eligible for listing in the NRHP per the criteria listed below (36 CFR 60.4):

The quality of significance in American, state, and local history, architecture, archaeology, engineering, and culture is present in districts, sites, buildings, structures, and objects that possess integrity of location, design, setting, materials, workmanship, feeling, and association and meet one or more of the following criteria:

a. Are associated with events that have made a significant contribution to the broad patterns of our history
b. Are associated with the lives of persons significant in our past

c. Embody the distinctive characteristics of a type, period, or method of installation, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction
d. Have yielded, or may be likely to yield, information important in prehistory or history

2.3 State Regulations

CEQA requires a lead agency, in this case WBMWD, to determine whether a project may have a significant effect on historical resources (Public Resources Code [PRC], Section 21084.1) or tribal cultural resources (PRC Section 21074[a][1][A]-[B]). A historical resource is a resource listed, or determined to be eligible for listing in the California Register of Historical Resources (CRHR); a resource included in a local register of historical resources; or an object, building, structure, site, area, place, record, or manuscript that a lead agency determines to be *historically significant* (State CEQA Guidelines, Section 15064.5[a][1-3]).

A resource shall be considered *historically significant* if it meets any 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 to our past
3) Embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of an important creative individual, or possesses high artistic values
4) Has yielded, or may be likely to yield, information important in prehistory or history

In addition, 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 resources cannot be left undisturbed, mitigation measures are required (PRC Section 21083.2[a], [b]).

PRC Section 21083.2(g) defines a *unique archaeological resource* as an 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

2.3.1.1 Assembly Bill 52

As of July 1, 2015, California Assembly Bill 52 (AB 52) was enacted and expands CEQA by defining a new resource category called *tribal cultural resources* (TCRs). AB 52 establishes that "a project with an effect that may cause a substantial adverse change in the significance of a TCR is a project that may have a significant effect on the environment" (PRC Section 21084.2). It further states that the lead agency shall establish measures to avoid impacts that would alter the significant characteristics of a TCR, when feasible (PRC Section 21084.3).

PRC Section 21074(a)(1)(A) and (B) defines TCRs as “sites, features, places, cultural landscapes, sacred places, and objects with cultural value to a California Native American tribe” and meets either of the following criteria:

1) 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)
2) A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1. In applying these criteria, the lead agency shall consider the significance of the resource to a California Native American tribe

AB 52 also establishes a formal consultation process for California tribes regarding TCRs. The consultation process must be completed before a CEQA document can be certified. Under AB 52, lead agencies are required to “begin consultation with a California Native American tribe that is traditionally and culturally affiliated with the geographic area of the proposed project.” Native American tribes to be included in the process are those that have requested notice of projects proposed within the jurisdiction of the lead agency.

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3 Setting

3.1 Cultural Setting

3.1.1 Prehistoric Setting

During the twentieth century, many archaeologists developed chronological sequences to explain prehistoric cultural changes in all or portions of Southern California (c.f., Moratto 1984; Jones and Klar 2007). Wallace (1955, 1978) devised a prehistoric chronology for the Southern California coastal region based on early studies and focused on data synthesis that included four horizons: Early Man, Milling Stone, Intermediate, and Late Prehistoric. Though initially lacking the chronological precision of absolute dates (Moratto 1984), Wallace's (1955) synthesis has been modified and improved using thousands of radiocarbon dates obtained by Southern California researchers over recent decades (Koerper and Drover 1983; Mason and Peterson 1994; Koerper et al. 2002; Byrd and Raab 2007). The prehistoric chronological sequence for Southern California presented below is a composite based on Wallace (1955) and Warren (1968) as well as later studies, including Koerper and Drover (1983).

3.1.1.1 Early Man Horizon (ca. 10,000–6,000 B.C.)

Numerous pre-8,000 B.C. sites have been identified along the mainland coast and Channel Islands of Southern California (c.f., Moratto 1984; Erlandson 1991; Rick et al. 2001; Johnson et al. 2002; Jones and Klar 2007). The Arlington Springs site on Santa Rosa Island produced human femurs dated to approximately 13,000 years ago (Johnson et al. 2002; Arnold et al. 2004). On nearby San Miguel Island, human occupation at Daisy Cave (CA-SMI-261) has been dated to nearly 13,000 years ago and included basketry greater than 12,000 years old, the earliest recorded on the Pacific Coast (Arnold et al. 2004).

Although few Clovis or Folsom style fluted points have been found in Southern California (e.g., Erlandson et al. 1987; Dillon 2002), Early Man Horizon sites are generally associated with a greater emphasis on hunting than later horizons. Recent data indicate that the Early Man economy was a diverse mixture of hunting and gathering, including a significant focus on aquatic resources in coastal areas (e.g., Jones et al. 2002) and on inland Pleistocene lakeshores (Moratto 1984). A warm and dry 3,000-year period called the Altithermal began around 6,000 B.C. The conditions of the Altithermal are likely responsible for the change in human subsistence patterns at this time, including a greater emphasis on plant foods and small game.

3.1.1.2 Milling Stone Horizon (6,000–3,000 B.C.)

Wallace (1955:219) defined the Milling Stone Horizon as "marked by extensive use of milling stones and mullers, a general lack of well-made projectile points, and burials with rock cairns." The dominance of such artifact types indicate a subsistence strategy oriented around collecting plant foods and small animals. A broad spectrum of food resources were consumed including small and large terrestrial mammals, sea mammals, birds, shellfish and other littoral and estuarine species, near-shore fishes, yucca, agave, and seeds and other plant products (Kowta 1969; Reinman 1964). Variability in artifact collections over time and from the coast to inland sites indicates that Milling

Stone Horizon subsistence strategies adapted to environmental conditions (Byrd and Raab 2007). Lithic artifacts associated with Milling Stone Horizon sites are dominated by locally available tool stone and, in addition to ground stone tools (e.g., manos and metates), chopping, scraping, and cutting tools are very common. Kowta (1969) attributes the presence of numerous scraper-plane tools in Milling Stone Horizon collections to the processing of agave or yucca for food or fiber. The mortar and pestle, associated with acorns or other foods processed through pounding, were first used during the Milling Stone Horizon and increased dramatically in later periods (Wallace 1955, 1978; Warren 1968).

Two types of artifacts that are considered diagnostic of the Milling Stone period are the cogged stone and discoidal, most of which have been found in sites dating between 4,000 and 1,000 B.C. (Moratto 1984), though possibly as far back as 5,500 B.C. (Couch et al. 2009). The cogged stone is a ground stone object that has gear-like teeth on the perimeter and is produced from a variety of materials. The function of cogged stones is unknown, but many scholars have postulated ritualistic or ceremonial uses (c.f., Eberhart 1961; Dixon 1968). Similar to cogged stones, discoidals are found in the archaeological record subsequent to the introduction of the cogged stone. Cogged stones and discoidals were often purposefully buried, or "cached." Cogged stones have been collected in Los Angeles County though their distribution appears to center on the Santa Ana River basin (Eberhart 1961).

3.1.1.3 Intermediate Horizon (3,000 B.C.–A.D. 500)

Wallace's Intermediate Horizon dates from approximately 3,000 B.C.-A.D. 500 and is characterized by a shift toward a hunting and maritime subsistence strategy, as well as greater use of plant foods. During the Intermediate Horizon, a noticeable trend occurred toward greater adaptation to local resources including a broad variety of fish, land mammal, and sea mammal remains along the coast. Tool kits for hunting, fishing, and processing food and materials reflect this increased diversity, with flake scrapers, drills, various projectile points, and shell fishhooks being manufactured.

Mortars and pestles became more common during this transitional period, gradually replacing manos and metates as the dominant milling equipment. Many archaeologists believe this change in milling stones signals a change from the processing and consuming of hard seed resources to the increasing reliance on acorn (e.g., Glassow et al. 1988; True 1993). Mortuary practices during the Intermediate Horizon typically included fully flexed burials oriented toward the north or west (Warren 1968).

3.1.1.4 Later Prehistoric Horizon (A.D. 500–Historic Contact)

During Wallace's (1955, 1978) Late Prehistoric Horizon, the diversity of plant food resources and land and sea mammal hunting increased even further than during the Intermediate Horizon. More classes of artifacts were observed during this period and high quality exotic lithic materials were used for small, finely worked projectile points associated with the bow and arrow. Steatite containers were made for cooking and storage and an increased use of asphalt for waterproofing is noted. More artistic artifacts were recovered from Late Prehistoric sites and cremation became a common mortuary custom. Larger, more permanent villages supported an increased population size and social structure (Wallace 1955).

Warren (1968) attributes this dramatic change in material culture, burial practices, and subsistence focus to the westward migration of desert people he called the Takic, or Numic, Tradition in Los Angeles, Orange, and western Riverside counties. This Takic Tradition was formerly referred to as

the “Shoshonean wedge” (Warren 1968), but this nomenclature is no longer used to avoid confusion with ethnohistoric and modern Shoshonean groups (Heizer 1978; Shipley 1978).

3.1.2 Ethnographic Context

The APE is located in the traditional territory of the Native American group known as the Gabrielino. The name Gabrielino was applied by the Spanish to those natives that were attached to Mission San Gabriel (Bean and Smith 1978). Today, most contemporary Gabrielino prefer to identify themselves as Tongva, a term that will be used throughout the remainder of this section (King 1994).

Tongva territory included the Los Angeles basin and southern Channel Islands as well as the coast from Aliso Creek in the south to Topanga Creek in the north. Their territory encompassed several biotic zones, including Coastal Marsh, Coastal Strand, Prairie, Chaparral, Oak Woodland, and Pine Forest (Bean and Smith 1978).

The Tongva language belongs to the Takic branch of the Uto-Aztecan language family, which can be traced to the Great Basin region (Mithun 2004). This language family includes dialects spoken by the nearby Juaneño and Luiseño, but is considerably different from those of the Chumash people living to the north and the Diegueño (including the Kumeyaay) people living to the south.

Tongva society was organized along patrilineal non-localized clans, a common Takic pattern. Each clan had a ceremonial leader and contained several lineages. The Tongva established large permanent villages and smaller satellite camps throughout their territory. Recent ethnohistoric work (O’Neil 2002) suggests a total tribal population of nearly 10,000, considerably more than earlier estimates of around 5,000 people (Bean and Smith 1978:540).

Tongva subsistence was oriented around acorns supplemented by the roots, leaves, seeds, and fruits of a wide variety of plants. Meat sources included large and small mammals, freshwater and saltwater fish, shellfish, birds, reptiles, and insects. (Kroeber 1925; Bean and Smith 1978; McCawley 1996; Langenwalter et al. 2001). The Tongva employed a wide variety of tools and implements to gather and hunt food. The digging stick, used to extract roots and tubers, was frequently noted by early European explorers (Rawls 1984). Other tools included the bow and arrow, traps, nets, blinds, throwing sticks and slings, spears, harpoons, and hooks. Like the Chumash, the Tongva made oceangoing plank canoes (known as a ti’at) capable of holding six to 14 people and used for fishing, travel, and trade between the mainland and the Channel Islands. Tule reed canoes were employed for near-shore fishing (Blackburn 1963; McCawley 1996).

Chinigchinich, the last in a series of heroic mythological figures, was central to Tongva religious life at the time of Spanish contact (Kroeber 1925). The belief in *Chinigchinich* was spreading south among other Takic-speaking groups at the same time the Spanish were establishing Christian missions. Elements of Chinigchinich beliefs suggest it was a syncretic mixture of Christianity and native religious practices (McCawley 1996).

Prior to European contact, deceased Tongva were either buried or cremated, with burial more common on the Channel Islands and the adjacent mainland coast and cremation on the remainder of the coast and in the interior (Harrington 1942; McCawley 1996). After pressure from Spanish missionaries, cremation essentially ceased during the post-contact period (McCawley 1996).

Engva or Engovangna (CA-LAN-1872/H), a known ethnographic village site near the APE, is located adjacent to what was the Old Salt Lake near the coast of Redondo Beach (McCawley 1996). Engva,

or “Place of the Salt,” was an important resource-procurement and processing site for the Gabrielino. Excavations at the site recovered several artifact types including core tools, hammerstones, pestles, mortar fragments, flake tools, convex-based projectile points, tarring pebbles, a carved steatite object, bone tools, partial fish hooks, fish-hook blanks, shell beads, flakes, fire-affected rock, shellfish fragments, and freshwater turtle shells. Based on excavations conducted prior to the destruction of the site in 1984, the site was posited to be a temporary camp used solely for the procurement of salt (Wallace 1984). The site has since been destroyed by the construction of an apartment complex, road expansion, and expansion of the Redondo Beach Generating Station.

3.1.3 History

The post-contact history of California is generally divided into three time spans: the Spanish period (1769–1822), the Mexican period (1822–1848), and the American period (1848–present). Each of these periods is briefly described below.

3.1.3.1 Spanish Period (1769–1822)

Spanish exploration of California began when Juan Rodriguez Cabrillo led the first European expedition into the region in 1542. For more than 200 years after his initial expedition, Spanish, Portuguese, British, and Russian explorers sailed the California coast and made limited inland expeditions, but they did not establish permanent settlements (Bean 1968; Rolle 2003). In 1769, Gaspar de Portolá and Franciscan Father Junipero Serra established the first Spanish settlement in what was then known as Alta (upper) California at Mission San Diego de Alcalá. This was the first of 21 missions erected by the Spanish between 1769 and 1823. It was during this time that initial Spanish settlement of the project vicinity began. Mission San Gabriel was first founded in 1771. It was the fourth mission to be established in California, and is located approximately 25 miles northeast of the APE (California Missions Foundation N.d.).

In 1775 the mission was moved approximately three miles to its present location to improve conditions for planting and cultivating crops. Mission San Gabriel became one of the most productive and affluent missions in Alta California, providing support for surrounding missions (California Missions Foundation N.d.). At its peak in 1817, the mission population reached 1,701 people (Bodkin 1910).

3.1.3.2 Mexican Period (1822–1848)

The Mexican Period commenced when news of the success of the Mexican War of Independence (1810-1821) against the Spanish crown reached California in 1822. This period saw the privatization of mission lands in California with the passage of the Secularization Act of 1833. This act federalized mission lands and enabled Mexican governors in California to distribute former mission lands to individuals in the form of land grants. Successive Mexican governors made approximately 700 land grants between 1833 and 1846, putting most of the state’s lands into private ownership for the first time (Shumway 2007). After secularization, the San Gabriel Mission and its grounds deteriorated and the Native American population eventually dispersed (Bodkin 1910).

The Mexican Period for the Los Angeles County region ended in early January 1847. Mexican forces fought and lost to combined United States Army and Navy forces in the Battle of the San Gabriel River on January 8 and in the Battle of La Mesa on January 9 (Nevin 1978). On January 10, leaders of the pueblo of Los Angeles surrendered peacefully after Mexican General Jose Maria Flores withdrew his forces. Shortly thereafter, newly appointed Mexican Military Commander of California Andrés

Pico surrendered all of Alta California to United States Army Lieutenant Colonel John C. Fremont in the Treaty of Cahuenga (Nevin 1978).

3.1.3.3 American Period (1848–Present)

The American Period officially began with the signing of the Treaty of Guadalupe Hidalgo in 1848, in which the United States agreed to pay Mexico $15 million for conquered territory including California, Nevada, Utah, and parts of Colorado, Arizona, New Mexico, and Wyoming. Settlement of the Los Angeles region increased dramatically in the early American Period.

The discovery of gold in northern California in 1848 led to the California Gold Rush, though the first California gold was previously discovered in Placerita Canyon in 1842 (Workman 1935; Guinn 1977). By 1853, the population of California exceeded 300,000. Thousands of settlers and immigrants continued to immigrate to the state, particularly after the completion of the First Transcontinental Railroad in 1869. The United States Congress in 1854 agreed to let San Pedro become an official port of entry. By the 1880s, the railroads had established networks from the port and throughout the county of Los Angeles, resulting in fast and affordable shipment of goods, as well as a means to transport new residents to the booming region (Dumke 1944). New residents included many health-seekers drawn to the area by the fabled Southern California climate in the 1870s to 1880s.

3.1.3.4 Palos Verdes Estates

Palos Verdes Estates' original residents were the Tongva, who subsided on the rich resources found in the area. Upon Spanish contact, the Tongva were directed to build missions and forts across this region as part of the "Sacred Expedition" led by Father Junipero Serra and Captain Gaspar de Portolá. The Tongva then became known as Gabrielenos, named after Mission San Gabriel (The Torrance Historical Society N.d.). In 1785 the Spanish crown granted one of its soldiers, Juan Jose Dominguez, use of approximately 75,000 acres to settle on and utilize for grazing. Known as Rancho San Pedro, the property included what is today the Palos Verdes Peninsula. In 1809, the executor of Dominguez's will granted permission to Jose Dolores Sepulveda to utilize a portion of the rancho for grazing, and although contested by family members, this approximately 32,000-acre area became Rancho de los Palos Verdes (Phillips 2010).

In 1882 Jotham Bixby acquired approximately 17,000 acres of Rancho de los Palos Verdes. His son George took charge of the property in the following decade, and the ranch land was used to raise cattle, horses, and for farming. In the early twentieth century Japanese families leased area land for farming (Phillips 2010).

In 1913 Frank A. Vanderlip, a New York financer, along with other wealthy associates, purchased the majority of the peninsula which comprised approximately 16,000 acres. Vanderlip enlisted the famed landscape architecture firm of the Olmsted Brothers to lead this effort and develop an affluent residential community. The Olmsteds were known nation-wide for their city planning projects, which specialized in parks, boulevards, subdivisions, cemeteries, college campuses, and private pleasure grounds (City of Palos Verdes Estates 2017; Philips 2010). Palos Verdes was one of the firm's largest projects, comprised of a landscape of luxury homes, parkland, resorts, golf courses, a country club, curvilinear roads, trails and parkways (The Cultural Landscape Foundation 2001-2016).

The onset of World War I and financial difficulties resulted in a scaled down version of the original project, and the community was named Palos Verdes Estates (City of Palos Verdes Estates 2017;

Philips 2010). The new town developed primarily between 1923 and 1929, the year of the great stock market crash. As early as 1923, an Art Jury was established, and deed restrictions were put in place, to ensure the high character and quality of the community, and to provide it future protection. Today, the organization is known as the Palos Verdes Homes Association and Art Jury (Phillips 2010; Palos Verdes Homes Association 2017).

The city was incorporated in 1939, and is considered the oldest city on the Palos Verdes Peninsula. Since its development, the city has earned international recognition for its scenic beauty and amenities (City of Palos Verdes Estates 2017).

3.1.3.5 Torrance

Like Palos Verdes Estates, the first inhabitants of the Torrance area were the Tongva people, and the land which the city occupies was part of Juan Jose Dominguez's Rancho San Pedro in the 18th century. A portion of the land is still supported by the Dominguez family today. In 1910, Jared Sidney Torrance bought 3,522-acres from the Dominguez family intending to build a "workingman's paradise," a model industrial city between Los Angeles and San Pedro. Torrance hired Modern architect Irving Gill and the landscape architecture firm of the Olmsted Brothers to develop the town plan. Torrance envisioned a city of modern and affordable, single-family homes that provided workers with satisfying housing conditions and encouraged strong family values. However, in spite of the early enthusiasm for the project, it took several years for the basic elements of the Olmsted plan to be realized, partially due to the outbreak of World War I. Only ten of the hundred workers' homes that Irving Gill designed appear to have been completed (The Torrance Historical Society N.d.; Masters 2012; Treffers 2014).

Torrance enticed major industrial companies and the railroad to relocate to the area. The city was incorporated in 1921 and through gradual annexation, grew to its present-day size of 21 square miles. The city experienced substantial growth post-World War II (The Torrance Historical Society N.d.).

4 Background Research

4.1 Cultural Resources Records Search

On March 29, 2017, Rincon Associate Archaeologist Meagan Szromba performed a search of the California Historical Resources Information System (CHRIS) at the South Central Coastal Information Center (SCCIC) located at California State University, Fullerton. The search was conducted to identify all previously recorded cultural resources and previously conducted cultural resources work within the APE and a 0.5-mile radius around it. The CHRIS search included a review of the NRHP, the CRHR, the California Points of Historical Interest list, the California Historical Landmarks list, the Archaeological Determinations of Eligibility list, and the California State Historic Resources Inventory list (Appendix A).

4.1.1 Previously Recorded Cultural Resources

The SCCIC records search identified two previously recorded cultural resources within a 0.5-mile radius of the APE. These resources are listed in Table 1.

Table 1 Previously Recorded Cultural Resources within a 0.5-mile Radius of the APE

Primary Number	Trinomial	Resource Type	Description	Recorder(s) and Year(s)	NRHP/CRHR Status	Relationship to APE
P-19-190325	N/A	Historic building	Plaza Mayor Shopping Center Clock Tower	K.A. Crawford 2012	Not eligible	Outside
P-19-190645	N/A	Historic building	Days Inn Hotel Complex	K.A. Crawford 2013	Not eligible	Outside

Source: South Central Coastal Information Center, March 2017

4.1.2 Previously Conducted Cultural Resources Studies

The SCCIC records search additionally identified nine previously conducted cultural resources studies within a 0.5-mile radius of the APE. Three of these studies included a portion of the APE, but did not identify any new cultural resources in the APE. These studies are listed in Table 2.

Table 2 Previously Conducted Cultural Resources Studies within a 0.5-mile Radius of the APE

Report Number	Author(s)	Year	Title	Relationship to APE
LA-03021	Wells, Helen Fairman	1994	*Cultural Resources Investigation for Proposed Palos Verdes Golf Project, Palos Verdes Estates, California*	Outside
LA-03165	McKenna, Jeanette A. and Tamara L. Farris	1995	*A Phase I Cultural Resources Investigation of the Proposed Butcher Mountain Project Area Tentative Tract No. 51753, City of Torrance, Los Angeles County, California*	Outside

Report Number	Author(s)	Year	Title	Relationship to APE
LA-05580	Getchel, Barbie Stevenson and John E. Atwood	2000	*Cultural Resources Survey of a 1.5-Acre Property Located at 3456 Via Campesina in the City of Rancho Palos Verdes, Los Angeles County, California*	Outside
LA-09630	Garcia, Kyle	2008	*Results of the Cultural Resource Assessment for the Southern California Edison Replacement of Deteriorated Pole No. 944182E; Los Angeles County, California; WO: 6044-4800 8-4820*	Outside
LA-10333	McKenna, Jeanette M.	2009	*A Brief Historic Context Statement Prepared for the General Plan Update: The City of Torrance, Los Angeles County, California*	Within
LA-10567	Hogan, Michael, Bai "Tom" Tang, Josh Smallwood, Laura Hensley Shaker and Casey Tibbitt	2005	*Identification and Evaluation of Historic Properties – West Basin Municipal Water District Harbor – South Bay Water Recycling Project Proposed Project Laterals*	Within
LA-10794	McKenna, Jeanette	2010	*Archaeological Survey Report: The City of Rolling Hills Estates Type II Bike Lanes on Palos Verdes Drive North, Between Crenshaw Blvd. and the West City Boundary, Los Angeles County, California*	Outside
LA-11150	Maxwell, Pamela	2003	*West Basin Municipal Water District Harbor/ South Bay Water Recycling Project*	Within
LA-13018	Bonner, Diane F., Carrie D. Wills and Kathleen A. Crawford	2014	*Cultural Resources Records Search and Site Visit Results for T-Mobile West, LLC Candidate I.A02194A (LA 194 I.A-194-10), 4111 Pacific Coast Highway, Torrance, Los Angeles County, California*	Outside

Source: South Central Coastal Information Center, 2017

4.2 Additional Background Research

A review of the City of Torrance General Plan revealed that a potential historic resource, "The Rocketship" playground structure, is located at the north end of Los Arboles (Rocketship) Park, a portion of which is within the project APE. "The Rocketship" playground structure is considered a local landmark by the Torrance Historical Society, but is not formally recorded as a historic resource.

4.3 Native American Outreach

As part of the process of identifying cultural resources within or near the APE, Rincon Associate Archaeologist Meagan Szromba contacted the Native American Heritage Commission (NAHC) on

April 28, 2017 to request a review of the Sacred Lands File (SLF). The NAHC responded on May 2, 2017 stating that the SLF search was returned with negative results. Ms. Szromba prepared and mailed letters to Native American contacts on May 2, 2017 requesting information regarding any Native American cultural resources within or immediately adjacent to the APE (Appendix B).

Rincon followed up with Native American contacts via telephone on May 24, 2017. On this day, Chairperson Anthony Morales of the Gabrieleno/Tongva San Gabriel Band of Mission Indians spoke to Ms. Szromba and stated that the project area is considered to be culturally and spiritually sensitive, and recommended spot checking and Native American involvement during project construction and development. Ms. Szromba additionally spoke with Andrew Salas, Chairperson of the Gabrieleno Band of Mission Indians-Kizh Nation who recommended both archaeological and Native American monitoring for all project related ground disturbing activities as the Palos Verdes Peninsula is considered to be highly sensitive and was known to be utilized as an important prehistoric trade locality between the Channel Islands and the mainland. Mr. Salas additionally emailed Ms. Szromba a letter on June 1, 2017 requesting that any subsequent information should be obtained through WBMWD, with whom they are formally consulting with under AB 52.

Mr. Robert Dorame, Cultural Resources Chair of the Gabrielino Tongva Indians of California Tribal Council, also requested monitoring of project related ground disturbances, to be performed specifically by his tribe, as families from his organization are known to be from the Palos Verdes area. Mr. Dorame indicated that a cultural midden was located within the Palos Verdes Golf Club associated with the Gabrielino Tongva Indians of California, of which Mr. Dorame stated he could provide documentation for. After numerous attempts to obtain this information, Rincon did not receive a response from Mr. Dorame regarding the location of this midden site.

As of July 2017, Rincon has not received any additional responses from Native Americans expressing concern for cultural resources within or near the APE. Rincon is aware that WBMWD is performing AB 52 consultation with interested California Native American tribes as a separate effort.

4.4 Local Historic Group Consultation

On April 28, 2017, Rincon Architectural Historian Susan Zamudio-Gurrola sent letters to the City of Palos Verdes Estates Planning and Building Director, the City of Torrance Community Development Department, the Palos Verdes Historical Society, and the Torrance Historical Society and Museum to request input on potential or known historic resources within the APE or vicinity (Appendix C).

Rincon followed up with the four organizations via email and telephone messages on May 15, 2017. A representative of the Torrance Historical Society and Museum who answered the phone stated that various historical society members would be reviewing the project information provided to them. No further comments were provided by the Torrance Historical Society and Museum.

On May 19, 2017, Vicki Mack of the Palos Verdes Historical Society responded that as far as they can determine, the project has no known visible historical impact. However, she asked if any artifacts are uncovered such as old wooden water pipe, that the historical society be notified.

On May 25, 2017, follow-up calls were made to the Torrance Historical Society, Elizabeth Corpuz at the City of Palos Verdes, and Carolyn Chun at the City of Torrance Community Development Department. A copy of the outreach letter and map were re-sent to Carolyn Chun per her request. Ms. Corpuz responded via email that there are no known historical resources located in the project

area (see Appendix C). She also stated she forwarded the outreach letter and map to Kim Robinson of the Palos Verdes Homes Association and Art Jury, and the City's Planning and Public Works Directors. Ms. Robinson requested a more detailed map, thus, Rincon emailed her a different map showing the proposed project on a United States Geological Survey topographic map, rather than aerial photography. On May 28 and 29, 2017, Ms. Robinson requested, via email, more detailed identifying information for the properties adjacent to the project alignment. Architectural Historian Shannon Carmack left a message for Ms. Robinson to discuss.

Also on May 31, 2017, Carolyn Chun, Planner with the City of Torrance, responded via email to request more detailed information on the streets affected by the project. A list of the affected streets within the City of Torrance was emailed to Ms. Chun.

On June 2, 2017, Kim Robinson of the Palos Verdes Homes Association and Art Jury emailed Rincon a letter listing four 1920s residential properties within the city of Palos Verdes Estates that the organization has identified as potentially historic, as well as photos of the residences. They include: 3621, 3805 and 3825 Paseo del Campo, and 3301 Via Campesina. Rincon Architectural Historian Shannon Carmack also had a phone conversation with Ms. Robinson on June 8, 2017 during which Ms. Robinson expressed concern that proposed project may include work within Olmsted-designed streets, and concern that the path of the proposed project would pass close to the clubhouse building at the Palos Verdes Golf Club, which is also considered a potential historic resource.

5 Field Methods

5.1 Cultural Resources Survey

Rincon Associate Archaeologist Meagan Szromba conducted a cultural resources field survey of the APE on May 9, 2017. A windshield survey was performed of the majority of the APE, as the pipeline alignment is along roadways throughout previously developed residential neighborhoods and the pump station location is in a park. The entire length of this portion of the alignment was driven to ensure that any segments requiring a pedestrian survey were considered. No exposed native ground surface exists inside this portion of the alignment. Exposed ground surface is present within the portion of the alignment along Torrance Utility Road. Visibility during the survey along the Torrance Utility Road was moderate, at approximately 60 percent, due to imported wood mulch that covered part of the ground surface.

On June 26, 2017, Rincon Archaeological Resources Program Manager and Principal Investigator Christopher Duran additionally performed a field survey of the area of the Palos Verdes Golf Club that would be affected by project development. Survey of the Palos Verdes Golf Club included a hybrid windshield and pedestrian survey. A windshield survey was conducted along portions of the golf course where ground visibility was minimal (e.g., concrete paths and grass fairways). The proposed location of the water tank did display exposed soils where a pedestrian survey was possible and executed. No native soils were apparent during the survey of the Palos Verdes Golf Club.

All exposed ground surfaces were inspected for artifacts (e.g., flaked stone tools, tool-making debris, stone milling tools, ceramics, fire-affected rock), ecofacts (marine shell and bone), soil discoloration that might indicate the presence of a cultural midden, soil depressions, and features indicative of the former presence of structures or buildings (e.g., standing exterior walls, postholes, foundations) or historic debris (e.g., metal, glass, ceramics). Ground disturbances such as animal burrows and drainages were also visually inspected. A Global Positioning System was used to maintain locational accuracy throughout the windshield and pedestrian portions of the survey.

Because the project proposes to construct a water storage facility in the southern portion of the Palos Verdes Golf Club, the property was recorded on Department of Parks and Recreation 523 series forms (provided in Appendix D) and was evaluated for listing in the NRHP and CRHR.

“The Rocketship” playground structure, a steel, rocketship-themed climbing structure and slide from circa 1960, was identified at the north end of Los Arboles (Rocketship) Park. It is considered a local landmark by the Torrance Historical Society, but does not appear to have been formally recorded as a historic resource. This property was not recorded as part of the current survey as the project does not propose any above-ground elements within the park property.

6 Findings

As a result of the background research and intensive-level cultural resources survey, one historic-era built environment resource, the Palos Verdes Golf Club, was identified and recorded. The property was recorded on California Department of Parks and Recreation (DPR) 523 Series forms and evaluated for listing in the NRHP and CRHR to determine if it qualifies as a historic property under Section 106 of the NHPA or a historical resource under CEQA. The complete set of DPR 523 Series forms for the property can be found in Appendix D of this report.

6.1 Palos Verdes Golf Club

6.1.1 Property Description

Initially developed in 1924, the Palos Verdes Golf Club is a semi-private golf club that consists of a par 71, 18-hole golf course, a clubhouse, and other ancillary buildings. The golf course is situated on a slightly hilly, approximately 213-acre property located on the Palos Verdes Peninsula (City of Palos Verdes Estates 2017) and is surrounded on all sides by residential neighborhoods. The golf course occupies the majority of the site which is characterized by large open areas of grass fairways, teeing grounds, putting greens, bunkers, and water hazards. The site also features many clusters of mature trees and ocean views, as well as barrancas and creeks (Palos Verdes Golf Club 2015a).

The Mediterranean-style clubhouse, located at the southern end of the property, is a one and two-story building with an irregular plan. Portions of the original clubhouse building, which was completed in 1924, are detected amongst numerous alterations and additions. The building is clad with smooth stucco and has various gabled roofs clad with red barrel tile (Figure 3). The southern façade features several entrances: a short tower near the west end of the building features arched, wooden, double doors with iron hardware. They are surrounded by a portico with smooth doric columns supporting the entablature, above which is a juliet balcony flanked by volutes. The third story of the tower, which is octagonal and features additional juliet balconies, is topped by a metal finial. Beyond a stuccoed wall centered on the façade is the original entrance of the building, the door of which was set within a three-part blind arcade. Near the east end of the façade is a third entrance. Recessed under an arched entry porch, it features contemporary wooden double doors each with rectangular glazing over two panels. A fabric awning spans cross the top of the arch. A wheelchair-accessible ramp is located east of this entrance. Additional fenestration includes wooden double doors, and non-original casement windows with deep sills.

Figure 3: Clubhouse southern façade, view to northwest (Source: Palos Verdes Golf Club)

The north elevation overlooking the golf course to the north has the appearance of three distinct building wings (Figure 4). The west wing features large expanses of non-original windows with wide muntins at the top story and an arcade of similar windows below; both wrap around to the west elevation. The central wing is comprised of a lower story loggia with square piers resting on a stuccoed wall with an iron railing; the upper story is an open-air patio lined with short, square piers and an iron railing. A staircase with an iron railing leads from the centered patio to the first-story arcade of the east wing, which wraps around to the east elevation. Non-original windows span across the second story of the east wing, and also wrap around to the east elevation. Between the east wing and the south building mass is a gap where an original staircase remains visible; however, the steps are clad with non-original tiles. The west elevation displays varied massing pertaining to the different components of the building. Non-original doors, windows, railing, and a patio covered with saltillo-like tiles were observed.

Figure 4: Palos Verdes Golf Club: and north elevation of clubhouse, view to south.

Northeast of the clubhouse is the Pro Shop building, which according to historic aerials was built between 1980 and 1994 (Figure 5). It is a one-story, cross-gabled building with an L-shaped footprint. The portion of the building which projects to the north facing the golf course is primarily composed of fenestration, including large single panes within wood framing, and single, wooden, paneled entry doors. The building features overhanging eaves, exposed curved rafter tails, and a barrel tile roof. Entry doors to the restrooms on the east elevation are screened by walls with a decorative circular hole pattern.

Figure 5: Pro Shop building, north elevation, view to southwest.

To the east of the Pro Shop is the Café, a one-story building with a rectangular footprint, that was constructed in the 1960s based on historic aerials (Figure 6). It features a gabled roof with overhanging eaves and exposed rafter tails, barrel tile, and stucco cladding. The wall surfaces of the north, east and west elevations are composed primarily of glazing with wide mullions. The primary entry on the north elevation is a single wooden door with two panels below a single square glass pane.

Figure 6: Café, north elevation, view to southwest.

Additional accessory buildings on the property include: a one-story pump house building built of concrete block with a shed roof, a one-story cart maintenance building also built of concrete block with a gabled red tile roof and two garage doors, and a one-story restroom building near hole 15 which has a gabled red tile roof, stuccoed walls, wooden rafter tails, and wood in the gable face.

At the eastern end of the property is a complex of tennis courts and buildings operated by the Palos Verdes Tennis Club. Additional fairways are located east and south of the tennis courts. The remainder of the property is occupied by the 18-hole golf course, which is composed of fairways, tees, putting greens, bunkers, water hazards, paved paths and wooden bridges crossing over barrancas. The fairways generally radiate out to the northwest, and are separated by the natural hills and linear clusters of trees. A hill at the northwest end of the property appears to be higher in elevation than the remainder of the golf course, and appears to contain hiking trails unrelated to the course.

6.1.1.1 Property History

Initially developed in 1924, the Palos Verdes Golf Club golf course was designed by William P. "Billy" Bell and George C. Thomas, and the landscape architecture firm of the Olmsted brothers. Bell and Thomas, whose endeavors included both solo and team work, were prolific golf course architects who were responsible for some of southern California's best known golf courses, such as the Bel Air Country Club, Riviera Country Club, and the Ojai Valley Inn (Palos Verdes Golf Club 2015b; Gnerre 2009; Megowan et. al. 2014). The Olmsted brothers were prominent landscape architects and sons of Frederick Law Olmsted, designer of New York's Central Park (Gnerre 2009). Originally 6,018 yards long, the golf course featured 18 holes, 13 of which had ocean views, a design feature that is considered a hallmark of George C. Thomas (Palos Verdes Golf Club 2015b). In designing the landscaping, the firm of the Olmsted brothers worked with the site's natural vegetation and utilized existing eucalyptus trees to frame the fairways.

Figure 7: Golf course and clubhouse, view to southwest, 1927 (Source: Palos Verdes Digital Archives)

In addition to the golf course, development of the Palos Verdes Golf Club also included a clubhouse building that was designed by architect and planner, Clarence E. Howard. Some of Howard's other notable projects included the Chicago City Plan in the early 1900s, the Panama-Pacific International Exposition in 1915, and designing the reflecting pool for the Lincoln Memorial in Washington D.C. in 1917 (*The Post-Standard* 1975). The clubhouse, constructed at a cost of $60,000, was built in a Mediterranean-Revival style, which was popular at the time and consistent with the architectural image for the Palos Verdes community. Typical of the style, the building featured white stucco cladding, a medium-pitch, cross-gabled roof and barrel tiles (Figure 8).

Figure 8: Golf course and clubhouse's north elevation, view to southwest, 1930 (Source: Palos Verdes Digital Archives)

The Palos Verdes Golf Club was part of the larger development of Palos Verdes Estates, which began in the 1920s. In one of their largest and most complex projects, the Olmsted brothers were contracted to develop a design that would transform the vast acreage on the peninsula into a community of luxury homes, resorts, golf courses, parkland, and commercial districts (The Cultural Landscape Foundation 2001-2016).

The golf club and La Venta Inn were early amenities developed to promote the community and encourage lot sales (Megowan et. al. 2014). The golf course was an attractive amenity during this period, which saw an increased popularity in the game of golf, resulting in a surge in development of courses across the country. The number of courses in America grew from less than 750 in 1916 to nearly 6,000 in 1930 (Western New York Public Broadcasting Assoc. and Michael C. Trimboli 2012). Membership to the golf club was originally open to all residents of the area, but by 1927 that changed, due to plans by outsiders to form groups of investors to purchase property for the purpose of gaining access to the golf club. Subsequently, the Palos Verdes Homes Association (PVHA) decided to limit membership to one family per parcel of property.

Shortly after opening, the immediate popularity of the Palos Verdes Golf Club resulted in the need to enlarge the clubhouse and an addition that extended the building by 60' was completed by 1925 (Gnerre 2009). The western elevation that originally featured a gable-wall chimney and two single doors was replaced by a wing that featured large expanses of windows and French doors, a portion

of which was deemed the “Ladies’ Sun Parlor” (Palos Verdes Library District Digital Archives, var.) (Figure 9).

Figure 9: Clubhouse southern façade, view to northeast, 1926 (Source: Palos Verdes Digital Archives)

The PVHA transferred the golf course property to the City of Palos Verdes Estates in 1940 (*The Palos Verdes News* 1940). The golf club became a well-known retreat for the wealthy, and was utilized for filming movies, such as the 1950 movie “Follow the Sun” starring Glenn Ford (Gnerre 2009). Between 1963 and 1978 various tennis courts and a tennis clubhouse were developed between the 8th and 13th holes, and just north of the 10th hole. The installation of the tennis courts resulted in the removal of mature trees and the slight reconfiguration of the 10th hole fairway.

Since this time, a number of other the course and its facilities have also undergone a number of other alterations. A review of historic aerial photographs and other available information indicates that the golf course has experienced a number of changes from its original design, including: the relocation of the teeing grounds for the 3rd, 14th, and 15th holes, resulting in a change of the total course length from 6,018 yards to 6,430 yards; the relocation of the 16th hole green and realignment of its fairway following the installation of a large dirt “island” to the south; the addition of a new water feature along the north side of the 7th hole fairway; the installation of paved pathways that intersect many of the fairways; and the removal and installation of new bunkers throughout the course. In addition, a large number of the original trees removed to open vistas to the ocean (NETR Online, var.; Gnerre 2009; Deegan 2014; Fagan, n.d.). These alterations have affected the original design, feeling, and association of the golf course as designed by Bell and Thomas and landscaping as designed by the Olmsted brothers.

In addition, the clubhouse underwent an $11,000,000 interior and exterior renovation in 2007 that substantially altered its original design. The clubhouse was expanded with a 8,600 sq. ft. addition which constructed a lower level on the building, and provided space for a new grand banquet room (Palos Verdes Golf Club 2015c). The building is now almost unrecognizable from its original appearance; the alterations undertaken have resulted in changing the main entrance on the street-facing south elevation, replacement of many if not all of the original windows, the introduction of

various architectural elements that are not original to the building's design, and a dramatic increase in the size and mass of the building. The window-filled ladies' sun parlor is no longer a prominent feature of the façade; an elaborate tower with classical elements such as columns, volutes, finial, and juliet balconies has been constructed on the façade; the original entry within the blind arcade has been obscured by a wall; many of the original window openings have been changed, and original windows and shutters have been replaced with much larger windows (Palos Verdes Golf Club 2015a; City of Palos Verdes Estates 2017; NETR Online, var.). A large amount of landscaping surrounding the clubhouse was also removed during the expansion/ remodel conducted in 2006-2007. While landscaping has been replaced, it has been scaled back compared to what previously existed (NETR Online, var.). As a result of these changes, the clubhouse building no longer retains integrity of design, materials or workmanship.

6.1.1.2 Historic Evaluation

The Palos Verdes Golf Club does not appear eligible for listing in the NRHP or the CRHR due to an overall lack of integrity. Although the property was designed by noted golf course designers William P. Bell and George C. Thomas, with contributions by the Olmsted brothers and architect Clarence E. Howard, it has been substantially altered since it was originally built as part of the larger Palos Verdes Estates development in the 1920s. As described above, the relocation of teeing grounds and greens, reconfiguration and alteration of fairways, and installation of new water features and facilities within the golf course have affected the design of the course as designed in the 1920s. In addition, the extensive alteration of the clubhouse has left the building nearly unrecognizable from its original design, and has further affected the integrity of property as a whole. As a result of these changes, the Palos Verdes Golf Club does not retain sufficient integrity to convey any potential significant associations and does not appear listing in the NRHP or CRHR.

7 Conclusions

The cultural resources records search, Native American outreach efforts, and field survey identified no prehistoric or historic resources within the APE. Local historic group consultation revealed potential historic resources identified by the Palos Verdes Homes Association and Art Jury, including buildings and streets within the city, although these are not formally recorded as historic resources. The project alignment would also enter Los Arboles (Rocketship) Park which contains "The Rocketship" playground structure, considered a local landmark by the Torrance Historical Society but which is not formally recorded as a historic resource. The proposed pipeline is not intended to be constructed near the playground structure. The pipeline would be constructed completely underground, and the landscaping and pavement repaired in kind. Additionally, the pump station would be located above ground in the existing Lago Seco Park. Excavation will be required for the pump station to connect to existing subsurface utilities (i.e. pipelines); however, the area is previously developed and no cultural resources were identified within or adjacent to the park as a result of the cultural resources records search and Native American outreach efforts. In addition, the pipeline and a water storage tank would be constructed within the Palos Verdes Golf Club property. As detailed above, the property is recommended ineligible for listing in the NRHP or CRHR due to various alterations and diminished integrity, and is not considered a historic property under Section 106 of the NHPA or a historical resource under CEQA. Thus, the proposed project would not have any direct effects or impacts to cultural resources. The project area has been highly developed and ground disturbances are to be confined to existing roadways and previously disturbed areas. Furthermore, no prehistoric archaeological resources have been identified within the APE or project vicinity as a result of the records search and outreach. Therefore, Rincon recommends a finding of ***no historic properties affected*** under NHPA ***and a less than significant impact to historical resources with mitigation incorporated*** under CEQA.

During consultation, California Native American Tribes indicated that the Palos Verdes Peninsula is considered to be generally sensitive for cultural resources. Although the project site has been previously disturbed and no evidence of cultural resources was found during the investigation, cultural resources monitoring is recommended for ground disturbing activities within the Palos Verdes Golf Club based on Tribal concerns. The project will access, connect to and cross existing utilities and previously disturbed soils in each location of the project site indicating that much of the APE has been previously disturbed by existing utilities and development; however, the Palos Verdes Golf Club may be less disturbed than the other pipeline corridors. Therefore, Rincon recommends that cultural resources monitoring occur within the golf course property boundary. Rincon also recommends that a Worker Environmental Awareness Program (WEAP) be developed to inform construction crews of the potential cultural resources concerns in the area. These mitigation measures are discussed in greater detail below. Compliance with these measures would reduce potentially significant impacts under CEQA to less than significant levels.

Retain a Qualified Archaeologist

The project applicant shall retain a qualified archaeologist, defined as an archaeologist who meets the Secretary of the Interior's Professional Qualifications Standards for archaeology (NPS 1983), to carry out all mitigation measures related to archaeological and historic resources. This archaeologist

shall work with WBMWD and local Native American representatives to develop formal protocols for managing cultural resources for monitoring within the Palos Verdes Golf Club only. The qualified archaeologist should:

- Prepare the WEAP training
- Manage/oversee the cultural resources monitoring
- Evaluate any unanticipated discoveries

These aforementioned measures are discussed in greater detail below.

Worker Environmental Awareness Program (WEAP)

The qualified archaeologist shall prepare a WEAP to address cultural resources issues anticipated at the project site. The WEAP will include information on the laws and regulations that protect cultural resources, the penalties for a disregard of those laws and regulations, the types of cultural resources that may be present at the project site, procedures to be followed if cultural resources are unexpectedly uncovered during construction, and contact information for qualified archaeologists to be notified in the case of unanticipated discoveries. The WEAP will be provided electronically as a PowerPoint file.

Cultural Resources Monitoring

Certain areas of the project site are considered by local tribes to be sensitive for cultural resources. Therefore, cultural resources monitoring should occur by an archaeologist and a local culturally affiliated Native American representative for ground disturbing work in the Palos Verdes Golf Club where previous disturbances have been less extensive than other areas of the project site. This monitoring should occur under the direction of a qualified archaeologist. If, during the course of monitoring, the qualified archaeologist determines that ground disturbing activities will have no potential to disturb cultural resources, monitoring may be reduced or eliminated at the discretion of West Basin Municipal Water District. If cultural resources are found or believed to be present in the remaining areas of the project site outside of the Palos Verdes Golf Club, a local culturally affiliated Native American representative will be contacted for consultation. Should cultural resources be identified outside of the Palos Verdes Golf Club during ground disturbing activities, cultural resources monitoring may be expanded at the discretion of the lead agency under advisement from the qualified archaeologist and consultation with local tribes.

The following measures are recommended in case of unanticipated discoveries of cultural resources and/or human remains.

Unanticipated Discovery of Cultural Resources

If cultural resources are encountered during ground-disturbing activities, work in the immediate area should be halted and an archaeologist meeting the Secretary of the Interior's Professional Qualifications Standards for archaeology (NPS 1983) should be contacted immediately to evaluate the find. If necessary, the evaluation may require preparation of a treatment plan and archaeological testing for the NRHP/CRHR eligibility. If the discovery proves to be significant under the NHPA and/or CEQA and cannot be avoided by the project, additional work such as data recovery

excavation and Native American consultation may be warranted to mitigate any significant impacts to historical resources.

Unanticipated Discovery of Human Remains

The discovery of human remains is always a possibility during ground-disturbing activities. If human remains are found, State of California Health and Safety Code Section 7050.5 states that no further disturbance shall occur until the County Coroner has made a determination of origin and disposition pursuant to Public Resources Code Section 5097.98. In the event of an unanticipated discovery of human remains, the County Coroner must be notified immediately. If the human remains are determined to be prehistoric, the Coroner will notify the NAHC, which will determine and notify a most likely descendant (MLD). The MLD shall complete the inspection of the site within 48 hours of notification to provide recommendations for the treatment of the identified remains.

8 References

Arnold, Jeanne E., Michael R. Walsh, and Sandra E. Hollimon

2004 The Archaeology of California. Journal of Archaeological Research 12(1).

Bean, Lowell John and Charles R. Smith

1978 Gabrielino *in* California. Volume 8: Handbook of North American Indians. Robert F. Heizer, ed. and William C. Sturtevant, general ed. Pp. 539-549. Washington D.C.: Smithsonian Institution Scholarly Press.

Bean, Walton

1968 California: An Interpretive History. McGraw-Hill Book Company, New York.

Blackburn, Thomas

1933 Ethnohistoric Descriptions of Gabrielino Material Culture. Annual Report, Archaeological Survey. Report on file, University of California, Los Angeles.

Bodkin, John J.

1910 San Gabriel Mission. Los Angeles, California: J.J. Bodkin Publishing Company.

Byrd, Brian F. and L. Mark Raab

2007 Prehistory of the Southern Bight: Models for a New Millennium *in* California Prehistory. T.L. Jones and K.A. Klar, eds. Pp. 215-228. New York, New York: Altamira Press.

California Missions Foundation

N.d. History of Mission San Gabriel Arcangel. Electronic document, online at http://californiamissionsfoundation.org/mission-san-gabriel/, accessed May 2, 2017.

City of Palos Verdes Estates

2017 History of PVE. Electronic document, online at http://www.pvestates.org/community/city-history, accessed May 24, 2017.

City of Palos Verdes Estates

2017 “Palos Verdes Golf Club”. Electronic document. Accessed July 19, 2017 at http://www.pvestates.org/services/recreation/city-clubs-concessions/palos-verdes-golf-club

Couch, Jeffrey S., Joanne S. Couch and Nancy Anastasia Wiley

2009 Saved by the Well: The Keystone Cache at CA-ORA-83, the Cogged Stone Site. Proceedings of the Society for California Archaeology 21:147-156.

Deegan, Jason Scott

2014 May "Palos Verdes Golf Club near Los Angeles is an afternoon delight for guest", Golf Advisor, 22, 2014. Electronic document. Accessed July 21, 2017 at

http://www.golfadvisor.com/articles/palos-verdes-golf-club-california-14533.htm

Dillon, Brian D.

2002 California Paleo-Indians: Lack of Evidence, or Evidence of a Lack? *in* Essays in California Archaeology: A Memorial to Franklin Fenenga. W. J. Wallace and F. A. Riddell, eds. Pp. 110–128. Paper number 60. Berkeley, California: Contributions of the University of California Archaeological Research Facility.

Dixon, Keith A.

1968 Cogged Stones and Other Ceremonial Cache Artifacts in Stratigraphic Context at ORA-58, a Site in the Lower Santa Ana River Drainage, Orange County. Pacific Coast Archaeological Society Quarterly 4(3):57-65.

Dumke, Glenn S.

1944 The Boom of the Eighties in Southern California. Sixth printing, 1991. San Marino, California: Huntington Library Publications.

Eberhart, Hal

1961 The Cogged Stones of Southern California. American Antiquity 26(3):361-370.

Erlandson, Jon M.

1991 Early Maritime Adaptations on the Northern Channel Islands *in* Hunter-Gatherers of Early Holocene Coastal California. Volume 1: Perspectives in California Archaeology. J. M. Erlandson and R. Colten, eds. Pp. 101-111. Los Angeles, California: Costen Institute of Archaeology Press.

Erlandson, Jon M., Theodore Cooley, and Richard Carrico

1987 A Fluted Projectile Point Fragment from the Southern California Coast: Chronology and Context at CA-SBA-1951. Journal of California and Great Basin Anthropology 9:120–128.

Fagan, Bob

N.d. "Palos Verdes Golf Club – A Genuine Southern California Gem", The A Position. Accessed July 20,

2017 at http://theaposition.com/robertfagan/golf/courses-and-travel/11315/palos-verdes-golf- club-a-genuine-southern-california-gem

Glassow, Michael A, L. Wilcoxen, and J. M. Erlandson

1988 Cultural and Environmental Change during the Early Period of Santa Barbara Channel Prehistory *in* The Archaeology of Prehistoric Coastlines. G. Bailey and J. Parkington, eds. Pp. 64–77. Cambridge, England: Cambridge University Press.

Gnerre, Sam

2009 "Palos Verdes Golf Club", *The Daily Breeze*, December 9, 2009. Electronic document. Accessed July 19, 2017 at http://blogs.dailybreeze.com/history/2009/12/09/palos-verdes-golf-club/

Guinn, J.M.

1977 Gold! Gold! Gold! from San Francisquito! *in* Los Angeles Biography of a City. John Caughey and LaRee Caughey, eds. Berkeley, California: University of California, Berkeley Press.

Harrington

1942 Cultural Element Distributions: XIX Central California Coast. University of California Anthropological Records 7(1):1-42.

Johnson, J.R., T.W. Stafford, Jr., H.O. Ajie, and D.P. Morris

2002 Arlington Springs Revisited *in* Proceedings of the Fifth California Islands Symposium. D. Browne, K. Mitchell, and H. Chaney, eds. Pp. 541–545. Santa Barbara, California: USDI Minerals Management Service and the Santa Barbara Museum of Natural History.

Jones, Terry L. and Kathryn A. Klar

2007 California Prehistory: Colonization, Culture, and Complexity. Berkeley, California: AltaMira Press.

Jones, Terry L., Richard T. Fitzgerald, Douglas J. Kennett, Charles Miksicek, John L. Fagan, John Sharp, and Jon M. Erlandson

2002 The Cross Creek Site and Its Implications for New World Colonization. American Antiquity 67:213–230.

King, Chester

1994 Native American Placenames in the Santa Monica Mountains National Recreational Area, Agoura Hills. Topanga Anthropological Consultants. Report on file, Topanga Anthropological Consultants, Topanga, California.

Koerper, Henry C. and Christopher E. Drover

1983 Chronology Building for Coastal Orange County: The Case from CA-ORA-119-A. Pacific Coast Archaeological Society Quarterly 19(2):1–34.

Koerper, Henry C., Roger D. Mason, and Mark L. Peterson

2002 Complexity, Demography, and Change in Late Holocene Orange County *in* Catalysts to Complexity: Late Holocene Societies of the California Coast. Volume 6: Perspectives in California Archaeology. Jon M. Erlandson and Terry L. Jones, eds. Pp. 63–81. Los Angeles, California: Costen Institute of Archaeology Press.

Kowta, Makoto

1969 The Sayles Complex, A Late Milling Stone Assemblage from the Cajon Pass and the Ecological Implications of its Scraper Planes. University of California, Berkeley Publications in Anthropology 6:35–69.

Kroeber, Alfred J.

1925 Handbook of the Indians of California. Unabridged reprint 1976. New York, New York: Dover Publications, Inc.

Langenwalter, Paul E. II, Mathew A. Boxt, Lawrence M. Boxt, M.D., and Theodore T. Miller, M.D.

2001 A Sea Otter (Enhydra lutris) Femur with Embedded Projectile Point Fragment from a Late Prehistoric Camp Site in Long Beach, California. Pacific Coast Archaeological Society Quarterly 37(1).

Mason, Roger D. and Mark L. Peterson

1994 Newport Coast Archaeological Project: Newport Coast Settlement Systems–Analysis and Discussion, Volume 1, Part 1 of 2. The Keith Companies. Report on file, South Central Coastal Information Center, California State University, Fullerton.

Masters, Nathan

2012 "Torrance at 100: the South Bay City's Origins as a Model Industrial Town", KCETLink. Electronic document, online at https://www.kcet.org/shows/lost-la/torrance-at-100-the-south-bay-citys-origins-as-a-model-industrial-town. Accessed June 10, 2017.

McCawley, William

1996 The First Angelinos: The Gabrielino Indians of Los Angeles. Banning, California: Malki Museum, Press.

Megowan, Bruce L. and Maureen D. Megowan

2014 Historic Tales from Palos Verdes and the South Bay. The History Press, Charleston, South Carolina.

Mithun, Marianne

2004 The Languages of Native North America. Cambridge, Massachusetts: Cambridge University Press.

Moratto, Michael

1984 California Archaeology. Orlando, Florida: Academic Press, Inc.

National Park Service (NPS)

1983 Archaeology and Historic Preservation: Secretary of the Interior's Standards and Guidelines. Electronic document, online at http://www.nps.gov/history/local-law-Arch_Standards.htm, accessed December 6, 2011.

NETR Online

Various Historic aerial photographs. Accessed July 19, 2017 at historicaerials.com

Nevin, David

1978 The Mexican War. Alexandria, Virginia: Time-Life Books, Inc.

O'Neil, Stephen

2002 The Acjachemen in the Franciscan Mission System: Demographic Collapse and Social Change. Master's thesis, Department of Anthropology, California State University, Fullerton.

Palos Verdes Homes Association

2017 History. Electronic document, online at http://pvha.org/history/, accessed June 14, 2017.

Palos Verdes Golf Club

2015a "History". Electronic document. Accessed July 19, 2017 at http://www.pvgc.com/history

2015b "Course Description". Electronic document. Accessed July 19, 2017 at http://www.pvgc.com/course-description

2015c "The Clubhouse". Electronic document. Accessed July 19, 2017 at http://www.pvgc.com/clubhouse

Palos Verdes Library District Digital Archives

Various Historic photographs of the Palos Verdes Golf Club. Accessed July 19, 2017 at http://www.palosverdeshistory.org/

Palos Verdes Tennis Club

2013 "Club History". Electronic document. Accessed July 20, 2017 at http://www.pvtennisclub.com/history.html

Phillips, John

2010 Images of America: Palos Verdes Estates. Arcadia Publishing, Charleston, South Carolina.

Rawls, James J.

1984 Indians of California: The Changing Image. Norman, Oklahoma: University of Oklahoma Press.

Reinman, Fred M.

1964 Maritime Adaptations on San Nicolas Island, California. University of California Archaeological Survey Annual Report 1963–1964:47–80.

Rick, Torben C., Jon M. Erlandson, and René Vellanoweth

2001 Paleocoastal Marine Fishing on the Pacific Coast of the Americas: Perspectives from Daisy Cave, California. American Antiquity 66:595–613.

Rolle, Andrew

2003 California: A History. Wheeling, Illinois: Harlan Davidson, Inc.

Shipley, William F.

1978 Native Languages of California *in* California. Volume 8: Handbook of North American Indians. Robert F. Heizer, ed. and William C. Sturtevant, general ed. Pp. 80-90. Washington, D.C.: Smithsonian Institution Scholarly Press.

Shumway, Burgess McK.

2007 California Ranchos: Patented Private Land Grants Listed by County. Rockville, Maryland: Borgo Press.

The Cultural Landscape Foundation

2001 Palos Verdes. Electronic document, online at https://tclf.org/landscapes/palos-verdes, accessed June 9, 2017.

The Palos Verdes News

1940 July "Palos Verdes Golf Course Enjoys Widespread Acclaim", October 25, 1940, p. 18. Accessed 24, 2017 at the California Digital Newspaper Collection, https://cdnc.ucr.edu/cgi-bin/cdnc

The Torrance Historical Society

N.d. A Brief History of Torrance: From Hunter-Gatherer Lands to Dense Urbanization. Electronic document, online at http://www.torrancehistoricalsociety.org/research/, accessed May 2, 2017.

Treffers, Steven

2014 The Rise and Fall of One Architect's Modern Torrance Utopia. Curbed Los Angeles. Electronic document, online at https://la.curbed.com/2014/2/6/10146920/the-rise-and-fall-of-one-architects-modernist-torrance-utopia, accessed June 12, 2017.

True, Delbert L.

1993 Bedrock Milling Elements as Indicators of Subsistence and Settlement Patterns in Northern San Diego County, California. Pacific Coast Archaeological Society Quarterly 29(2):1–26.

Wallace, William J.

1955 A Suggested Chronology for Southern California Coastal Archaeology. Southwestern Journal of Anthropology 11(3):214-230.

1978 Post-Pleistocene Archaeology, 9000 to 2000 B.C. *in* California. Volume 8: Handbook of North American Indians. Robert F. Heizer, ed. and William C. Sturtevant, general ed. Pp. 25-36. Washington, D.C.: Smithsonian Institution Scholarly Press.

1984 Prehistoric Cultural Development in the South Bay District, Los Angeles County, California. Master's thesis, Department of Anthropology, University of California, Fullerton.

Warren, Claude N.

1968 Cultural Tradition and Ecological Adaptation on the Southern California Coast *in* Archaic Prehistory in the Western United States. C. Irwin-Williams, ed. Eastern New Mexico University Contributions in Anthropology 1(3):1–14.

Western New York Public Broadcasting Association and Michael C. Trimboli

2012 "The Golden Age of Golf Course Architecture in America", PBS.org. Accessed July 24, 2017 at http://www.pbs.org/wned/golfs-grand-design/learn-more/golden-age-golf-course-architecture-america/

Workman, Boyle

1935 The City that Grew. Los Angeles, California: Southland Publication Company.

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Appendix A

Cultural Resources Records Search Results

CHRIS Information Center Records Search Data Sheet

Project Name: West Basin MWD Palos Verdes Lateral

Project Number: #16-03707 Date: 3/29/17

Information Center: SCCIC

Search Radius: Half Mile: ✓ One Mile: _____ Other: _____

USGS Quadrangle: Redondo Beach, Torrance

Public Land Survey System (PLSS): Township: 4S Range: 14W Section: 16, 17, 20, 21, 28-30, 32, 33

County: ~~Ventura~~ Los Angeles

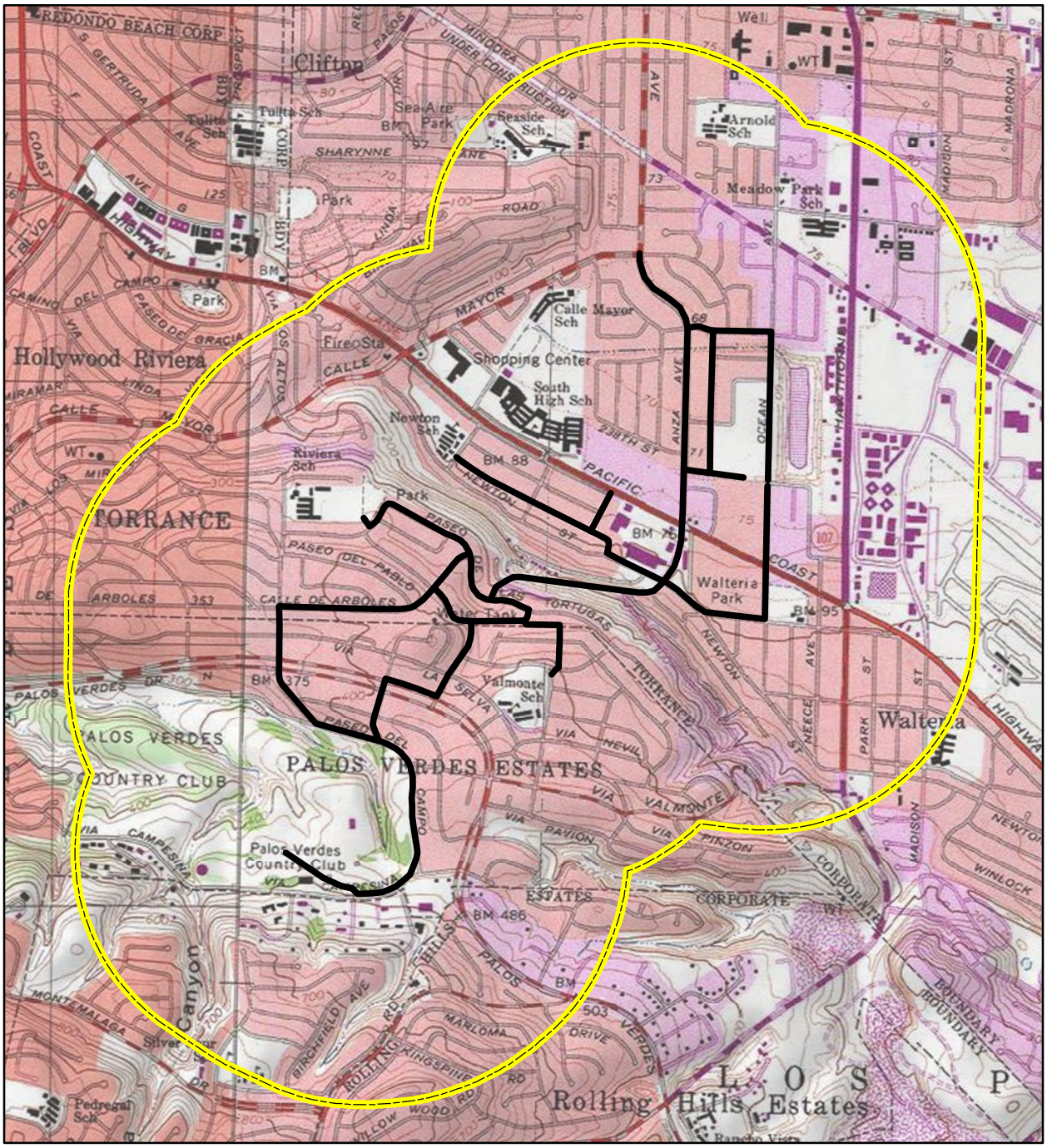
Previously Recorded Sites: 2

Previous Studies: 9

National Register of Historic Places:	Copies:	Y	~~N~~
California Register of Historical Resources:	Copies:	Y	~~N~~
California Points of Historical Interest:	Copies:	Y	~~N~~
California Historical Landmarks List:	Copies:	Y	~~N~~
Archaeological Determinations of Eligibility:	Copies:	Y	~~N~~
California Historical Resources Inventory:	Copies:	Y	~~N~~

Historic Maps: Torrance 1941; San Pedro Hills 1928, 1932; Redondo 1896, 1944

Notes:



Imagery provided by National Geographic Society, ESRI and its licensors © 2017. Redondo Beach & Torrance Quadrangles. T04S R14W S16,17,20,21,28-30,32,33. The topographic representation depicted in this map may not portray all of the features currently found in the vicinity today and/or features depicted in this map may have changed since the original topographic map was assembled.

Project Boundary

Half-Mile Buffer

N

0 1,000 2,000 Feet

0 250 500 Meters

1:24,000

Records Search Map

Record Search Resources Proximity Sheet

Project Name: West Basin MWD Palos Verdes Lateral

	Resource Number	Within Project Site	Adjacent to Project Site	Outside of Project Site
1.	190645			✓
2.	190325			✓

Resource List

West Basin MWD Palos Verdes Lateral

Primary No.	Trinomial	Other IDs	Type	Age	Attribute codes	Recorded by	Reports
P-19-190325		Resource Name - Plaza Mayor Shopping Center; Other - T-Mobile West LLC LA03371A/SM371 Plaza Mayor S.C.	Building	Historic	HP06 (1-3 story commercial building)	2012 (K.A. Crawford, Michael Brandman Associates)	LA-12312
P-19-190645		Resource Name - Days Inn Hotel; Other - T-Mobile West LLC LA02194A/LA-194-10	Building	Historic	HP05 (Hotel/motel)	2013 (K.A. Crawford, Michael Brandman Associates)	LA-12462, LA-13018

rincon

Record Search Report Proximity Sheet

Project Name: West Basin MWD Palos Verdes Lateral

	Report Number	Within Project Site	Adjacent to Project Site	Outside of Project Site
1.	LA - 13018			✓
2.	10794			✓
3.	3165			✓
4.	9630			✓
5.	3021			✓
6.	10333	✓		
7.	5580			✓
8.	10567, 11150	✓		
9.				

Report List

West Basin MWD Palos Verdes Lateral

Report No.	Other IDs	Year	Author(s)	Title	Affiliation	Resources
LA-03021		1994	Wells, Helen Fairman	Cultural Resources Investigation for Proposed Palos Verdes Golf Project, Palos Verdes Estates, California	Consulting Archaeologist	
LA-03165		1995	McKenna, Jeanette A. and Tamara L. Farris	A Phase I Cultural Resources Investigation of the Proposed Butcher Mountain Project Area Tentative Tract No. 51753, City of Torrance, Los Angeles County, California	McKenna et al.	
LA-05580		2000	Getchel, Barbie Stevenson and John E. Atwood	Cultural Resources Survey of a 1.5 Acre Property Located at 3456 Via Campesina in the City of Rancho Palos Verdes, Los Angeles County, California	Pacific Archaeological Sciences Team, CSUF	19-180700, 19-180712
LA-09630		2008	Garcia, Kyle	Results of the Cultural Resource Assessment for the Southern California Edison Replacement of Deteriorated Pole No. 944182E; Los Angeles County, California; WO: 6044-4800 8-4820	PCR Services Corporation	
LA-10333		2009	McKenna, Jeanette M.	A Brief Historic Context Statement Prepared for the General Plan Update: The City of Torrance, Los Angeles County, California	McKenna et al.	19-000100, 19-000110, 19-000127, 19-000137, 19-000138, 19-000191, 19-000276, 19-000277, 19-000278, 19-000279, 19-000280, 19-000281, 19-000344, 19-002378
LA-10567		2005	Hogan, Michael, Bai "Tom" Tang, Josh Smallwood, Laura Hensley Shaker, and Casey Tibbitt	Identification and Evaluation of Historic Properties - West Basin Municipal Water District Harbor- South Bay Water Recycling Project Proposed Project Laterals	CRM Tech	
LA-10794		2010	McKenna, Jeanette	Archaeological Survey Report: The City of Rolling Hills Estates Type II Bike Lanes On Palos Verdes Drive North, Between Crenshaw Blvd. and the West City Boundary, Los Angeles County, California.	McKenna et al.	
LA-11150		2003	Maxwell, Pamela	West Basin Municipal Water District Harbor/ South Bay Water Recycling Project	U.S. Army Corps of Engineers	19-000094, 19-000098, 19-000103, 19-000140, 19-000276, 19-000277, 19-000278, 19-000279, 19-000280, 19-000281, 19-000282, 19-000389, 19-000390, 19-000709, 19-000794, 19-000822, 19-000844, 19-000845, 19-000847, 19-000848, 19-000999, 19-001735

Report List

West Basin MWD Palos Verdes Lateral

Report No.	Other IDs	Year	Author(s)	Title	Affiliation	Resources
LA-13018		2014	Bonner, Diane F., Carrie D. Wills, and Kathleen A. Crawford	Cultural Resources Records Search and Site VIsit Results for T-Moblle West, LLC Candidate l.A02194A (LA194 l.A-194-10), 4111 Pacific Coast Highway, Torrance, Los Angeles County, California	Environmental Assessment Specialists, Inc.	19-190645

Appendix B

Native American Outreach

Rincon Consultants, Inc.
180 North Ashwood Avenue
Ventura, California 93003

805 644 4455 OFFICE AND FAX

info@rinconconsultants.com
www.rinconconsultants.com

April 28, 2017
Project No: 16-03707

Native American Heritage Commission
1550 Harbor Boulevard, Suite 100
West Sacramento, CA 95691
Via email: nahc@nahc.ca.gov

Subject: Sacred Lands File Search and Native American Contact List for the Palos Verdes Lateral Project, Los Angeles County, California

Dear NAHC:

Rincon Consultants, Inc. (Rincon) has been retained to conduct a cultural resources study for the Palos Verdes Lateral Project (project) for the West Basin Municipal Water District in Los Angeles County. Rincon understands the project to involve providing recycled water from the existing Anza Lateral waterline to the Palos Verdes Golf Course. This route is proposed to be within existing roadways.

As part of this effort, Rincon will contact any Native American tribal organizations or individuals who may have knowledge of cultural resources existing within the project area. The project boundary is depicted on Township 4 South, Range 14 West, Sections 16, 17, 20, 21, 28-30, 32, 33 of the U.S. Geological Survey *Redondo Beach and Torrance, CA* 7.5-minute topographic quadrangles. The Records Search Map (attached) includes a 0.5-mile buffer.

Thank you for your assistance with Rincon's efforts to address any possible Native American concerns that may arise from the proposed project. If you have any questions or need additional information, please contact me by phone at 805 644 4455 extension 165, or by email at mszromba@rinconconsultants.com.

Sincerely,

Rincon Consultants, Inc.

Meagan Szromba, M.A., RPA
Associate Archaeologist

Rincon Consultants, Inc.
180 North Ashwood Avenue
Ventura, California 93003

805 644 4455 OFFICE AND FAX

info@rinconconsultants.com
www.rinconconsultants.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 Title: Palos Verdes Lateral Project

County: Los Angeles County

USGS Quadrangle Name: *Redondo Beach and Torrance*

Township: 4S **Range:** 14W **Sections:** 16, 17, 20, 21, 28-30, 32, 33

Contact Person: Meagan Szromba

Company/Firm/Agency: Rincon Consultants, Inc.

Street Address: 180 N Ashwood Ave

City: Ventura **Zip**: 93003

Phone: (805) 644 4455 **Email:** mszromba@rinconconsultants.com

☒ AB 52 consultation list

Project Description: Rincon understands the project to involve providing recycled water from the existing Anza Lateral waterline to the Palos Verdes Golf Course. This route is proposed to be within existing roadways.

STATE OF CALIFORNIA Edmund G. Brown, Jr., Governor

NATIVE AMERICAN HERITAGE COMMISSION
Environmental and Cultural Department
1550 Harbor Blvd., Suite 100
West Sacramento, CA 95691
(916) 373-3710

May 2, 2017

Meagan Szromba
Rincon Consultants, Inc.

Sent by E-mail: mszromba@rinconconsultants.com

RE: Proposed Palos Verdes Lateral Project, Community of Palos Verdes Estates; Redondo Beach and Torrance USGS Quadrangles, Los Angeles County, California

Dear Ms. Szromba:

A record search of the Native American Heritage Commission (NAHC) *Sacred Lands File* was completed for the area of potential project effect (APE) referenced above with negative results. Please note that the absence of specific site information in the *Sacred Lands File* does not indicate the absence of Native American cultural resources in any APE.

Attached is a list of tribes culturally affiliated to the project area. I suggest you contact all of the listed Tribes. If they cannot supply information, they might recommend others with specific knowledge. The list should provide a starting place to locate areas of potential adverse impact within the APE. By contacting all those on the list, your organization will be better able to respond to claims of failure to consult. If a response has not been received within two weeks of notification, the NAHC requests that you follow-up with a telephone call to ensure that the project information has been received.

If you receive notification of change of addresses and phone numbers from any of these individuals or groups, please notify me. With your assistance we are able to assure that our lists contain current information. If you have any questions or need additional information, please contact via email: gayle.totton@nahc.ca.gov.

Sincerely,

Gayle Totton, M.A., PhD.
Associate Governmental Program Analyst

Native American Contact List
May 2, 2017
Los Angeles County

Gabrieleno/Tongva San Gabriel Band of Mission Indians
Anthony Morales, Chairperson
P.O. Box 693 Gabrielino Tongva
San Gabriel , CA 91778
GTTribalcouncil@aol.com
(626) 483-3564 Cell

(626) 286-1262 Fax

Gabrielino /Tongva Nation
Sandonne Goad, Chairperson
106 1/2 Judge John Aiso St., #231 Gabrielino Tongva
Los Angeles , CA 90012
sgoad@gabrielino-tongva.com
(951) 807-0479

Gabrielino Tongva Indians of California Tribal Council
Robert F. Dorame, Tribal Chair/Cultural Resources
P.O. Box 490 Gabrielino Tongva
Bellflower , CA 90707
gtongva@gmail.com
(562) 761-6417 Voice/Fax

Gabrielino-Tongva Tribe
Linda Candelaria, Co-Chairperson
1999 Avenue of the Stars, Suite 1100 Gabrielino
Los Angeles , CA 90067
(626) 676-1184 Cell

Gabrieleno Band of Mission Indians - Kizh Nation
Andrew Salas, Chairperson
P.O. Box 393 Gabrielino
Covina , CA 91723
gabrielenoindians@yahoo.com
(626) 926-4131

This list is current only as of the date of this document and is based on the information available to the Commission on the date it was produced.

Distribution of this list does not relieve any person or agency of statutory responsibility as defined in Public Resources Code Sections 21080.3.1 Section 7050.5 of the Health and Safety Code, Section 5097.94 of the Public Resources Code and Section 5097.98 of the Public Resources Code.

This list is only applicable for contacting local Native Americans with regard to cultural resources for the proposed Palos Verdes Lateral Project, Los Angeles County

Rincon Consultants, Inc.
180 North Ashwood Avenue
Ventura, California 93003

805 644 4455 OFFICE AND FAX

info@rinconconsultants.com
www.rinconconsultants.com

*The following letter was sent to the individuals listed in the Native American Contact Table

May 2, 2017

Contact information

Subject: Cultural Resources Study for the Palos Verdes Lateral Project
Cities of Torrance and Palos Verdes, Los Angeles County, California

Dear Contact:

Rincon Consultants, Inc. (Rincon) has been retained to conduct a cultural resources study for the Palos Verdes Lateral Project (project) in the cities of Torrance and Palos Verdes in Los Angeles County, California. Rincon understands the project to involve providing recycled water from the existing Anza Lateral waterline to the Palos Verdes Golf Course. This route is proposed to be within existing roadways.

This letter serves to inquire about your knowledge of potential cultural resources within the vicinity that may be impacted by project development. Rincon contacted the Native American Heritage Commission to request a Sacred Lands File search of the project area that was returned with negative results. However, we are aware that this does not negate the possibility of cultural resources existing within the area. A Records Search Map which includes a 0.5-mile buffer is enclosed with this letter for your reference.

If you have knowledge of cultural resources that may exist within or near the project area, please contact me at (805) 644 4455 extension 165, or at mszromba@rinconconsultants.com. Thank you for your assistance.

Sincerely,

Rincon Consultants, Inc.

Meagan Szromba, M.A., RPA
Associate Archaeologist

Rincon Consultants, Inc.
180 North Ashwood Avenue
Ventura, California 93003

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Native American Contact Table
Palos Verdes Recycled Water Pipeline Project

Native American Contact	Tribal Affiliation	Mailing Address	Email Address	Phone Number	Contact Attempt	Follow Up	Results
Anthony Morales, Chairperson	Gabrielen o/Tongva San Gabriel Band of Mission Indians	P.O. Box 693, San Gabriel, CA 91778	GTTribalco uncil@aol. com	(626)48 3-3564	Letter sent May 2, 2017	Phone call placed on May 24, 2017	Mr. Morales stated that the area is culturally and spiritually sensitive, and recommended spot checking or Native American involvement during project implementation.
Sandonne Goad, Chairperson	Gabrielino /Tongva Nation	106 ½ Judge John Aiso Street, #231, Los Angeles, CA 90012	sgoad@ga brielino-tongva.co m	(951)80 7-0479	Letter sent May 2, 2017	Phone call placed on May 24, 2017	Did not receive a response.
Robert F. Dorame, Tribal Chair/Cultur al Resources	Gabrielino Tongva Indians of California Tribal Council	P.O. Box 490, Bellflower, CA 90707	gtongva@ gmail.com	(562)76 1-6417	Letter sent May 2, 2017	Phone call placed on May 24, 2017	Mr. Dorame stated that due to the cultural sensitivity of the area, the project will require monitoring by his Tribe for all ground disturbances associated with project development.
Linda Candelaria, Co-Chairperson	Gabrielino -Tongva Tribe	1999 Avenue of the Stars, Suite 1100, Los Angeles, CA 90067	N/A	(626)67 6-1184	Letter sent May 2, 2017	Phone call placed on May 24, 2017	Left a voicemail.
Andrew Salas, Chairperson	Gabrielen o Band of Mission Indians-Kizh Nation	P.O. Box 393, Covina, CA 91723	gabrieleno indians@y ahoo.com	(626)92 6-4131	Letter sent May 2, 2017	Phone call placed on May 24, 2017	Mr. Salas recommended both archaeological and Native American monitoring for the project, as the project area is highly sensitive for cultural activity due to its use as a trading hub in prehistory. Mr. Salas additionally emailed Rincon a letter on June 1, 2017 requesting that any subsequent information should be obtained through West Basin, with whom they are consulting with under AB 52.

Source: Native American Heritage Commission (NAHC) Response 2017

Appendix C

Local Historic Group Consultation

Table 4

Historic Groups Consulted

Local Group/Government Contact	Rincon Coordination Efforts	Response to Coordination Efforts
Sheri Repp-Loadsman Planning and Building Director City of Palos Verdes Estates 340 Palos Verdes Dr. West Palos Verdes Estates, CA 90274 310-378-0383	**4/28/17:** Letter sent via U.S. Mail **5/15/17:** Follow up call made: left message at 310-378-0383, the main contact number for the Planning and Building Dept. Lauren called back and recommended I email planner Elizabeth; sent her an email with a copy of the consult letter/map to ecorpuz@pvestates.org **5/25/17**: Follow up call: left message for Elizabeth Corpuz.	**5/25/17:** Elizabeth emailed back that there are no known historical resources located in the project area. She forwarded my og. email to the City's Planning Director and PW Director, and the Palos Verdes Homes Assoc & Art Jury.
Palos Verde Homes Association & Art Jury Kimberly Robinson 320 Palos Verdes Drive West Palos Verdes Estates, CA 90274 310-373-6721 kim@pvha.org	**5/30/17:** Rincon left a message for Kim to discuss; have not heard back as of 5/31/17. 6/8/17: Shannon Carmack of Rincon Consultants spoke with Kim and was informed that the PVHAAJ provides design review for planning/development projects within the city. Kim also stated her concern about the proposed project passing close to the Palos Verdes Golf Course clubhouse, and affecting Olmsted-designed streets.	**5/25/17:** Kim from the PVHAAJ requested a more detailed map; Rincon sent her a USGS topo version. 5/28-5/29/2017: Kim requested more detailed identifying info for the properties adjacent to the project pathways. **6/2/17:** Kim emailed a letter (and photos) listing four 1920s residential properties that the PVHAAJ identified as significant: 3621 Paseo del Campo, 3805 Paseo del Campo, 3825 Paseo del Campo, 3301 Via Campesina.

Local Group/Government Contact	Rincon Coordination Efforts	Response to Coordination Efforts
City of Torrance Community Development Dept. 3031 Torrance Boulevard Torrance, CA 90503 310.618.2550 cchun@torranceca.gov	**4/28/17:** Letter sent via U.S. Mail **5/15/17:** Follow up call made: was transferred to and left message for Carolyn. **5/25/17:** Follow up call: talked to Caroline. She had no knowledge of the project; the letter and map were emailed to her. **6/1/17:** A list of the affected streets within the City of Torrance was emailed to Ms. Chun.	**5/31/17:** Carolyn Chun, planner with the City of Torrance, emailed to request more detailed information on the streets affected by the project. **6/15/17:** Carolyn Chun responded via email that she recommended referring to the City General Plan's Cultural Resources section for more information, and she recommended Rincon conduct a CHRIS records search at CSU Fullerton.
Palos Verdes Historical Society P.O. Box 3295 Palos Verdes Penin., CA 90274 membership@palosverdeshistoricalsociety.org	**4/28/17:** Letter sent via U.S. Mail **5/15/17:** Follow up email sent to membership@palosverdeshistoricalsociety.org	**5/19/17:** Vicki Mack, V.P. of the Palos Verdes Historical Society, responded that as far as they can determine, the project has no known visible historical impact. However, she ask that they be contacted if any artifacts are uncovered such as old wooden water pipes because they would be interested in them for their exhibit collection.
Torrance Historical Society & Museum 1345 Post Avenue Torrance, CA 90501 (310) 328-5392	**4/28/17:** Letter sent via U.S. Mail **5/15/17:** Follow up call made: spoke with a representative who stated that 5 persons associated with the historical society will be reviewing the project info on 5/17/17. She asked if we had contacted the city. I replied that Rincon had sent the same consultation letter to the cities of PV Estates and Torrance, but had not heard back from either yet. **5/25/17:** Follow up call: left message at 310-328-5392.	No further action required.

From:	Elizabeth Corpuz
To:	Susan Zamudio-Gurrola
Cc:	Sheri Repp; Ken Rukavina; Kim Robinson
Subject:	RE: Palos Verdes Lateral Project, historic group consultation
Date:	Thursday, May 25, 2017 4:54:51 PM
Attachments:	image001.png image003.png image004.png

Hi Susan,

The only registered historical building in PVE is the Malaga Cove Library, which is not located in the project area. There are other buildings that we would classify as having local historical significance to the City, like the Neighborhood Church (also not located in the project area), but they are not registered.

I have copied the Planning Director, Sheri Repp-Loadsman and Public Works Director, Ken Rukavina to this email if they have any additional thoughts. I have also copied Kim Robinson, the Palos Verdes Homes Association Manager to this email if she has any additional thoughts/comments.

Thank you,

Elizabeth Corpuz
Planner
City of Palos Verdes Estates
340 Palos Verdes Drive West
Palos Verdes Estates, CA 90274
310-378-0383 x2218

From: Susan Zamudio-Gurrola [mailto:szgurrola@rinconconsultants.com]
Sent: Friday, May 19, 2017 11:40 AM
To: Elizabeth Corpuz <ecorpuz@pvestates.org>
Subject: FW: Palos Verdes Lateral Project, historic group consultation

Good morning Elizabeth,

I realized that I omitted the project location map in the attachment of my previous email to you. It is now attached, for your reference.

Thank you,

Susan Zamudio-Gurrola
Architectural Historian/Project Manager

Rincon Consultants, Inc.
805-644-4455 ext. 76
310-592-0815 mobile

www.rinconconsultants.com
Environmental Scientists Planners Engineers

From: Susan Zamudio-Gurrola
Sent: Monday, May 15, 2017 1:24 PM
To: 'ecorpuz@pvestates.org'
Subject: Palos Verdes Lateral Project, historic group consultation

Good afternoon, Elizabeth,

I am writing as a follow-up to verify that the Planning & Building Dept. has received a letter that was sent as part of historic group consultation required by Section 106 of the National Historic Preservation Act.

The letter was addressed to the Planning & Building Director; however, I called earlier today to ask for a contact person knowledgeable in historic resources, and it was recommended that I email you.

Please see the attached copy of the letter and map for additional information regarding the proposed development project. We would appreciate you contacting us if you have any concerns or comments regarding potential cultural/historical resources in the project area or vicinity.

Thanks for your time,

Susan Zamudio-Gurrola
Architectural Historian/Project Manager

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Environmental Scientists Planners Engineers

Rincon Consultants, Inc.
180 North Ashwood Avenue
Ventura, California 93003

805 644 4455 OFFICE AND FAX

info@rinconconsultants.com
www.rinconconsultants.com

April 28, 2017

Sheri Repp-Loadsman
Planning and Building Director
City of Palos Verdes Estates
340 Palos Verdes Dr. West
Palos Verdes Estates, CA 90274

RE: Palos Verdes Lateral Project, Los Angeles County, California

Ms. Repp-Loadsman,

Rincon Consultants, Inc. (Rincon) has been retained to conduct a cultural resources study for the Palos Verdes Lateral Project (project) in Los Angeles County, a joint project of the West Basin Municipal Water District, the City of Palos Verdes Estates, the City of Torrance, and the Palos Verdes Golf Course. Rincon understands the project involves creating a pump station, and water lines to provide recycled water from the existing Anza Lateral waterline to the Palos Verdes Golf Course. The route is proposed to be within existing roadways. The project is subject to the National Environmental Policy Act and Section 106 of the National Historic Preservation Act (Section 106).

The purpose of this letter is to request your input on potential or known historic resources or other cultural resources in the project area or vicinity. In conformance with Section 106, we are in the initial phase, "identify[ing] historic properties potentially affected by the undertaking" (36 Code of Federal Regulations Part 880.1 a). Rincon is currently working in the study area to identify any cultural resource issues for the proposed project. However, it is acknowledged that some areas and properties may contain values not readily apparent and would appreciate any such information you can provide.

Please send notification in writing to the above address or szgurrola@rinconconsultants.com, or contact us by telephone at 805-644-4455 ext. 76, if you have information on potential or identified historical resources in the project study area. If a response is not received, follow up phone calls will be made to ensure receipt of the letter to establish whether your organization has information germane to the project. Thank you for your assistance.

Sincerely,

Susan Zamudio-Gurrola
Architectural Historian

Enclosure: Project Location Map

Rincon Consultants, Inc.
180 North Ashwood Avenue
Ventura, California 93003

805 644 4455 OFFICE AND FAX

info@rinconconsultants.com
www.rinconconsultants.com

April 28, 2017

City of Torrance
Community Development Dept.
3031 Torrance Boulevard
Torrance, CA 90503

RE: Palos Verdes Lateral Project, Los Angeles County, California

To Whom it May Concern:

Rincon Consultants, Inc. (Rincon) has been retained to conduct a cultural resources study for the Palos Verdes Lateral Project (project) in Los Angeles County, a joint project of the West Basin Municipal Water District, the City of Palos Verdes Estates, the City of Torrance, and the Palos Verdes Golf Course. Rincon understands the project involves creating a pump station, and water lines to provide recycled water from the existing Anza Lateral waterline to the Palos Verdes Golf Course. The route is proposed to be within existing roadways. The project is subject to the National Environmental Policy Act and Section 106 of the National Historic Preservation Act (Section 106).

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Sincerely,

Susan Zamudio-Gurrola
Architectural Historian

Enclosure: Project Location Map

Rincon Consultants, Inc.
180 North Ashwood Avenue
Ventura, California 93003

805 644 4455 OFFICE AND FAX

info@rinconconsultants.com
www.rinconconsultants.com

April 28, 2017

Palos Verdes Historical Society
P.O. Box 3295
Palos Verdes Penin., CA 90274

RE: Palos Verdes Lateral Project, Los Angeles County, California

To Whom it May Concern:

Rincon Consultants, Inc. (Rincon) has been retained to conduct a cultural resources study for the Palos Verdes Lateral Project (project) in Los Angeles County, a joint project of the West Basin Municipal Water District, the City of Palos Verdes Estates, the City of Torrance, and the Palos Verdes Golf Course. Rincon understands the project involves creating a pump station, and water lines to provide recycled water from the existing Anza Lateral waterline to the Palos Verdes Golf Course. The route is proposed to be within existing roadways. The project is subject to the National Environmental Policy Act and Section 106 of the National Historic Preservation Act (Section 106).

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Sincerely,

Susan Zamudio-Gurrola
Architectural Historian

Enclosure: Project Location Map

Rincon Consultants, Inc.
180 North Ashwood Avenue
Ventura, California 93003

805 644 4455 OFFICE AND FAX

info@rinconconsultants.com
www.rinconconsultants.com

April 28, 2017

Torrance Historical Society & Museum
1345 Post Avenue
Torrance, CA 90501

RE: Palos Verdes Lateral Project, Los Angeles County, California

To Whom it May Concern:

Rincon Consultants, Inc. (Rincon) has been retained to conduct a cultural resources study for the Palos Verdes Lateral Project (project) in Los Angeles County, a joint project of the West Basin Municipal Water District, the City of Palos Verdes Estates, the City of Torrance, and the Palos Verdes Golf Course. Rincon understands the project involves creating a pump station, and water lines to provide recycled water from the existing Anza Lateral waterline to the Palos Verdes Golf Course. The route is proposed to be within existing roadways. The project is subject to the National Environmental Policy Act and Section 106 of the National Historic Preservation Act (Section 106).

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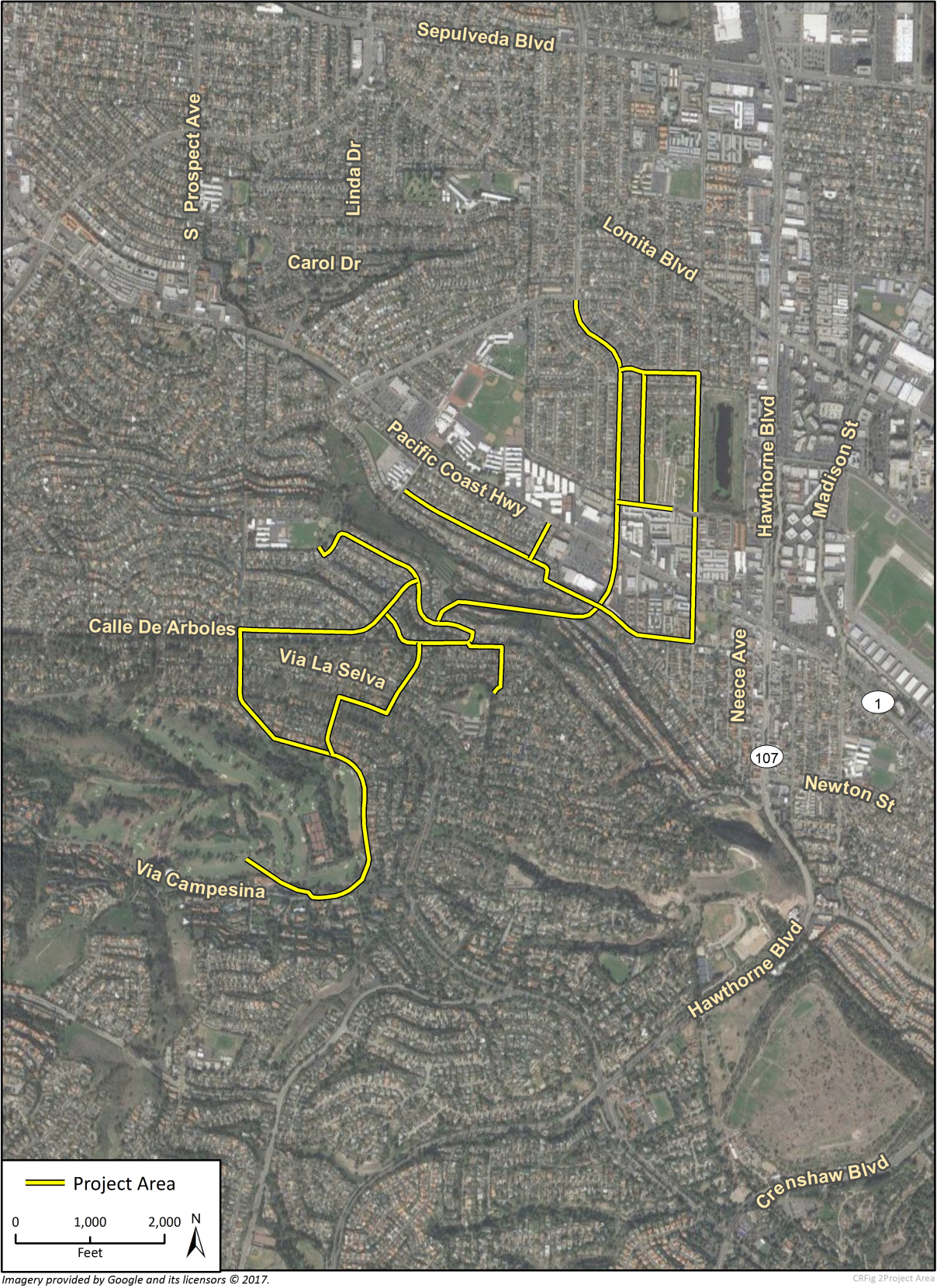
Sincerely,

Susan Zamudio-Gurrola
Architectural Historian

Enclosure: Project Location Map



Appendix D

Resource Records

State of California — The Resources Agency
DEPARTMENT OF PARKS AND RECREATION
PRIMARY RECORD

Primary #
HRI #
Trinomial
NRHP Status Code 6Z

Other Listings
Review Code | Reviewer | Date

***Resource Name or #:** Palos Verdes Golf Club and Clubhouse

P1. Other Identifier: 3301 Via Campesina

***P2. Location:** ☐ **Not for Publication** ☒**Unrestricted** ***a. County:** Los Angeles

and (P2b and P2c or P2d. Attach a Location Map as necessary.)

***b. USGS 7.5' Quad:** *Torrance* and *Redondo Beach* **Date:** 1982 **T** 4S; **R** 14W; **¼ of ¼ of Sec** ; S.B. **B.M.**

c. Address: 3301 Via Campesina City: Palos Verdes Estates Zip: 90274

d. UTM: Zone: ; mE/ mN (G.P.S.)

e. Other Locational Data: (e.g., parcel #, directions to resource, elevation, etc., as appropriate) Elevation: APN 7538-026-902

***P3a. Description:** (Describe resource and its major elements. Include design, materials, condition, alterations, size, setting, and boundaries)

Initially developed in 1924, the Palos Verdes Golf Club is a semi-private golf club that consists of a par 71, 18-hole golf course, a clubhouse, and other ancillary buildings. The golf course is situated on a slightly hilly, approximately 213-acre property located on the Palos Verdes Peninsula (City of Palos Verdes Estates 2017) and is surrounded on all sides by residential neighborhoods. The golf course occupies the majority of the site which is characterized by large open areas of grass fairways, teeing grounds, putting greens, bunkers, and water hazards. The site also features many clusters of mature trees and ocean views, as well as barrancas and creeks (Palos Verdes Golf Club 2015a).

The Mediterranean-style clubhouse, located at the southern end of the property, is a one and two-story building with an irregular plan. Portions of the original clubhouse building, which was completed in 1924, are detected amongst numerous alterations and additions. The building is clad with smooth stucco and has various gabled roofs clad with red barrel tile. The southern façade features several entrances: a short tower near the west end of the building features arched, wooden, double doors with iron hardware. They are surrounded by a portico with smooth doric columns supporting the entablature, above which is a juliet balcony flanked by volutes. The third story of the tower, which is octagonal and features additional juliet balconies, is topped by a metal finial. Beyond a stuccoed wall centered on the façade is the original entrance of the building, the door of which was set within a three-part blind arcade. Near the east end of the façade is a third entrance. Recessed under an arched entry porch, it features contemporary wooden double doors each with rectangular glazing over two panels. A green fabric awning spans cross the top of the arch. A wheelchair-accessible ramp is located east of this entrance. Additional fenestration includes wooden double doors, and non-original casement windows with deep sills. See continuation sheet, p. 4.

***P3b. Resource Attributes:** HP13. Community center/social hall; HP29. Landscape architecture; HP31. Urban open space

***P4. Resources Present:** ☒Building ☐Structure ☐Object ☐Site ☐District ☐Element of District ☐Other (Isolates, etc.)

P5b. Description of Photo:
North façade facing SW, 6/26/2017.

***P6. Date Constructed/Age and Sources:** ☒Historic
☐Prehistoric ☐Both
1924, Palos Verdes Library District Digital Archives

***P7. Owner and Address:**
City of Palos Verdes Estates
3301 Via Campesina
Palos Verdes Estates, CA 90274

***P8. Recorded by:**
S. Zamudio-Gurrola and S. Treffers
Rincon Consultants, Inc.
180 N. Ashwood Ave.
Ventura, CA 93003

***P9. Date Recorded:** 7/19/2017

***P10. Survey Type:** Intensive

***P11. Report Citation:** Szomba, M., Brudvik, K., Duran, C., Zamudio-Gurrola, S. and Treffers, S. 2017. Palos Verdes Recycled Water Pipeline Project Cultural and Paleontological Resources Technical Study. Rincon Consultants Project No. 16-03707.

***Attachments:** ☐NONE ☒Location Map ☐Sketch Map ☒Continuation Sheet ☒Building, Structure, and Object Record ☐Archaeological Record ☐District Record ☐Linear Feature Record ☐Milling Station Record ☐Rock Art Record ☐Artifact Record ☐Photograph Record ☐ Other (List):

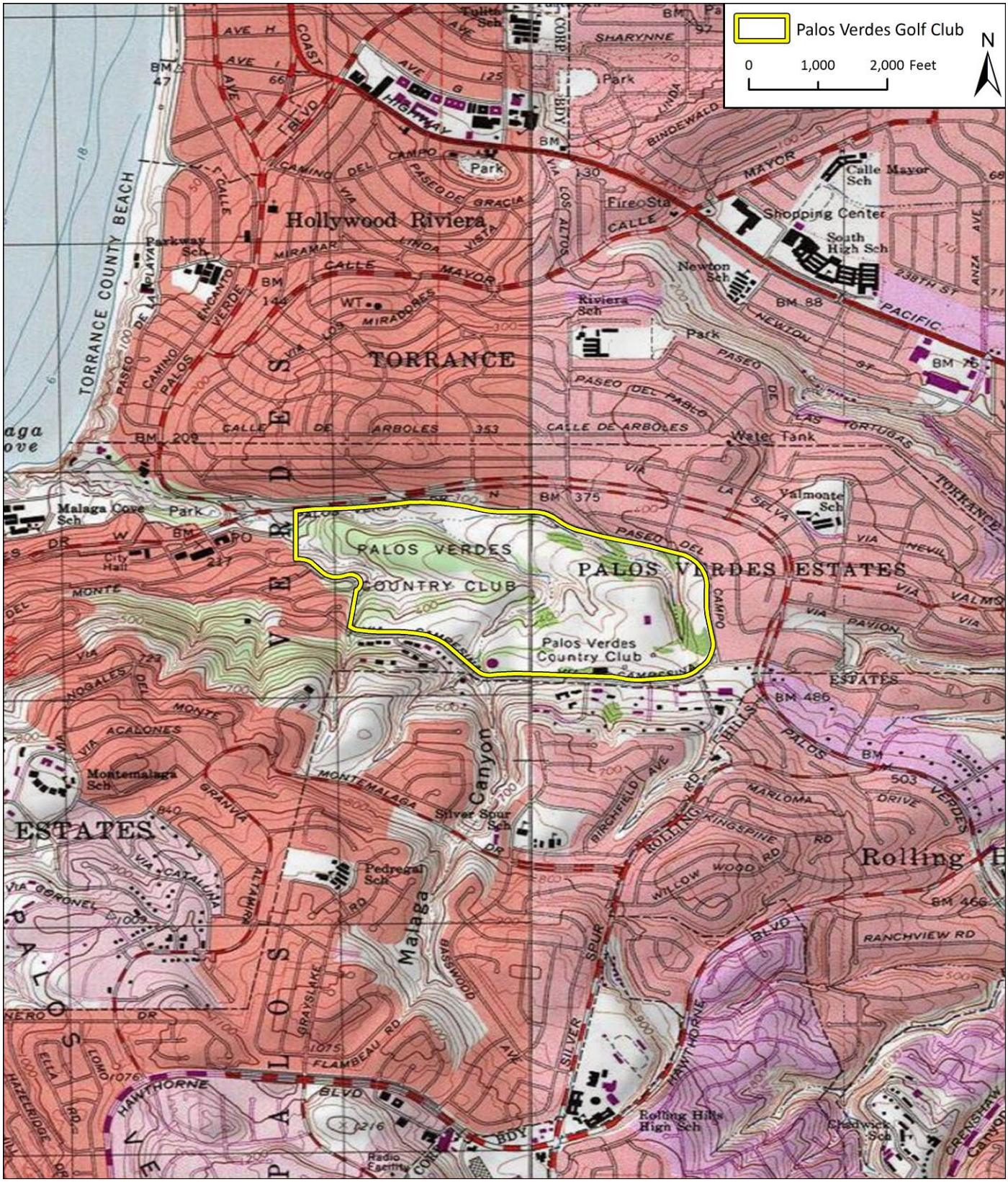
State of California — The Resources Agency
DEPARTMENT OF PARKS AND RECREATION

LOCATION MAP

Primary #
HRI#
Trinomial

***Resource Name or #:** 3301 Via Campesina

***Map Name:** USGS *Torrance* and *Redondo Beach* quadrangles ***Scale:** 1:24,000 ***Date of Map:** 1982



BUILDING, STRUCTURE, AND OBJECT RECORD

***NRHP Status Code** 6Z

***Resource Name or #** (Assigned by recorder) 3301 Via Campesina

B1. Historic Name: Palos Verdes Golf Club (PVGC)
B2. Common Name: Palos Verdes Golf Club (PVGC)
B3. Original Use: Golf course and clubhouse B4. Present Use: Golf course and clubhouse
***B5. Architectural Style:** Mediterranean Revival
***B6. Construction History:** (Construction date, alterations, and date of alterations)
Golf course and clubhouse originally completed in 1924; building was extended 60 feet and ladies' sun parlor were completed in 1925; five tennis courts and pro shop developed at east end of site in 1963; additional tennis courts were developed in 1965, 1971, and 1978; tennis clubhouse completed by 1970; PVGC Pro Shop building constructed between 1980 and 1994; Café constructed ca. 1960s; remodeling of PVGC clubhouse main dining room and Fern Room in 1997; addition of 8,600 sq. ft. and remodel completed in 2007; revamping of golf course (installing new grass, re-contouring and creating new greens, re-shaping bunkers, increasing course length, removing numerous trees) completed in 2013 (Gnerre 2009; Palos Verdes Tennis Club 2013; NETR Online, var.; Palos Verdes Golf Club 2015).

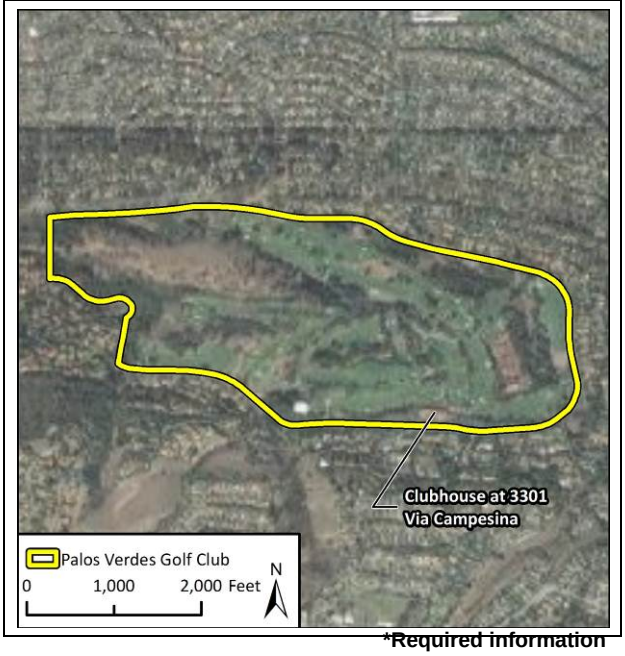
***B7. Moved?** ☒No ☐Yes ☐Unknown **Date:** **Original Location:**
***B8. Related Features:**

B9a. Architect: William P. "Billy" Bell and George C. Thomas; Clarence E. Howard; the Olmsted Brothers; b. Builder: Unknown
***B10. Significance: Theme:** **Area:**
Period of Significance: **Property Type:** **Applicable Criteria:**

Initially developed in 1924, the Palos Verdes Golf Club golf course (PVGC) was designed by William P. "Billy" Bell and George C. Thomas, and the landscape architecture firm of the Olmsted brothers. Bell and Thomas, whose endeavors included both solo and team work, were prolific golf course architects who were responsible for some of southern California's best known golf courses, such as the Bel Air Country Club, Riviera Country Club, and the Ojai Valley Inn (Palos Verdes Golf Club 2015b; Gnerre 2009; Megowan et. al. 2014). The Olmsted brothers were prominent landscape architects and sons of Frederick Law Olmsted, designer of New York's Central Park (Gnerre 2009). Originally 6,018 yards long, the golf course featured 18 holes, 13 of which had ocean views, a design feature that is considered a hallmark of George C. Thomas (Palos Verdes Golf Club 2015b). In designing the landscaping, the firm of the Olmsted brothers worked with the site's natural vegetation and utilized existing large eucalyptus trees to frame the fairways.

In addition to the golf course, development of the PVGC also included a clubhouse building that was designed by architect and planner, Clarence E. Howard. Some of Howard's other notable projects included the Chicago City Plan in the early 1900s, the Panama-Pacific International Exposition in 1915, and designing the reflecting pool for the Lincoln Memorial in Washington D.C. in 1917 (*The Post-Standard* 1975). The clubhouse, constructed at a cost of $60,000, was built in a Mediterranean-Revival style, which was popular at the time and consistent with the architectural image for the Palos Verdes community. Typical of the style, the building featured white stucco cladding, a medium-pitch, cross-gabled roof and barrel tiles.

The PVGC was part of the larger development of Palos Verdes Estates, which began in the 1920s. In one of their largest and most complex projects, the Olmsted brothers were contracted to develop a design that would transform the vast acreage on the peninsula into a community of luxury homes, resorts, golf courses, parkland, and commercial districts (The Cultural Landscape Foundation 2001-2016).
. See continuation sheet, p. 4.



B11. Additional Resource Attributes: (List attributes and codes)
***B12. References:** See continuation sheet, p. 4.
B13. Remarks:
***B14. Evaluator:** S. Zamudio-Gurrola and S. Treffers

(This space reserved for official comments.)

***Recorded by:** S. Zamudio-Gurrola and S. Treffers ***Date:** July 20, 2017 ☒ Continuation ☐ Update

P3a. Description, continued…

The north elevation overlooking the golf course to the north has the appearance of three distinct building wings. The west wing features large expanses of non-original windows with wide muntins at the top story and an arcade of similar windows below; both wrap around to the west elevation. The central wing is comprised of a lower story loggia with square piers resting on a stuccoed wall with an iron railing; the upper story is an open-air patio lined with short, square piers and an iron railing. A staircase with an iron railing leads from the centered patio to the first-story arcade of the east wing, which wraps around to the east elevation. Non-original windows span across the second story of the east wing, and also wrap around to the east elevation. Between the east wing and the south building mass is a gap where an original staircase remains visible; however, the steps are clad with non-original tiles. The west elevation displays varied massing pertaining to the different components of the building. Non-original doors, windows, railing, and a patio covered with saltillo-like tiles were observed.

Northeast of the clubhouse is the Pro Shop building, which according to historic aerial photographs was built between 1980 and 1994. It is a one-story, cross-gabled building with an L-shaped footprint, The portion of the building which projects to the north facing the golf course is primarily composed of fenestration, including large single panes within wood framing, and single, wooden, paneled entry doors. The building features overhanging eaves, exposed curved rafter tails, and a barrel tile roof. Entry doors to the restrooms on the east elevation are protected by decorative screening walls containing a circular hole pattern.

To the east of the Pro Shop is the Café, a one-story building with a rectangular footprint, that was constructed in the 1960s based on historic aerials. It features a gabled roof with overhanging eaves and exposed rafter tails, barrel tile, and stucco cladding. The wall surfaces of the north, east and west elevations are composed primarily of glazing with wide mullions. The primary entry on the north elevation is a single wooden door with two panels below a single square glass pane.

Additional accessory buildings on the property include: a one-story pump house building built of concrete block with a shed roof, a one-story cart maintenance building also built of concrete block with a gabled red tile roof and two garage doors, and a one-story restroom building near hole 15 which has a gabled red tile roof, stuccoed walls, wooden rafter tails, and wood in the gable face.

Further east, beyond a fairway and bunkers, is a complex of tennis courts and buildings operated by the Palos Verdes Tennis Club. Additional fairways are located east and south of the tennis courts. The remainder of the property is occupied by the 18-hole golf course, which is composed of fairways, tees, putting greens, bunkers, water hazards, paved paths and wooden bridges crossing over barrancas. The fairways generally radiate out to the northwest, and are separated by the natural hills and linear clusters of trees. A hill at the northwest end of the property appears to be higher in elevation than the remainder of the golf course, and appears to contain hiking trails unrelated to the course.

B10. Significance, continued…

The golf club and La Venta Inn were early amenities developed to promote the community and encourage lot sales (Megowan et. al. 2014).The golf course was an attractive amenity during this period, which saw an increased popularity in the game of golf, resulting in a surge in development of courses across the country. The number of courses in America grew from less than 750 in 1916 to nearly 6,000 in 1930 (Western New York Public Broadcasting Assoc. and Michael C. Trimboli 2012). Membership to the golf club was originally open to all residents of the area, but by 1927 that changed, due to plans by outsiders to form groups of investors to purchase property for the purpose of gaining access to the golf club. Subsequently, the Palos Verdes Homes Association (PVHA) decided to limit membership to one family per parcel of property.

Shortly after opening, the immediate popularity of the PVGC resulted in the need to enlarge the clubhouse and an addition that extended the building by 60′ was completed by 1925(Gnerre 2009). The western elevation that originally featured a gable-wall chimney and two single doors was replaced by a wing that featured large expanses of windows and French doors, a portion of which was deemed the "Ladies' Sun Parlor" (Palos Verdes Library District Digital Archives, var.).

The PVHA transferred the golf course property to the City of Palos Verdes Estates in 1940 (The Palos Verdes News 1940). The golf club became a well-known retreat for the wealthy, and was utilized for filming movies, such as the 1950 movie "Follow the Sun" starring Glenn Ford (Gnerre 2009).Between 1963 and 1978 various tennis courts and a tennis clubhouse were developed between the 8th and 13th holes, and just north of the 10th hole. The installation of the tennis courts resulted in the removal of mature trees and the slight reconfiguration of the 10th hole fairway.

Since this time, a number of other the course and its facilities have also undergone a number of other alterations.

See continuation sheet, p. 5.

B10. Significance, continued…

A review of historic aerial photographs and other available information indicates that the golf course has experienced a number of changes from its original design, including: the relocation of the teeing grounds for the 3rd, 14th, and 15th holes, resulting in a change of the total course length from 6,018 yards to 6,430 yards; the relocation of the 16th hole green and realignment of its fairway following the installation of a large dirt "island" to the south; the addition of a new water feature along the north side of the 7th hole fairway; the installation of paved pathways that intersect many of the fairways; and the removal and installation of new bunkers throughout the course. In addition, a large number of the original trees removed to open vistas to the ocean (NETR Online, var.; Gnerre 2009; Deegan 2014; Fagan, n.d.). These alterations have affected the original design, feeling, and association of the golf course as designed by Bell and Thomas and landscaping as designed by the Olmsted brothers.

In addition, the clubhouse underwent an $11,000,000 interior and exterior renovation in 2007 that substantially altered its original design. The clubhouse was expanded with a 8,600 sq. ft. addition which constructed a lower level on the building, and provided space for a new grand banquet room (Palos Verdes Golf Club 2015c). The building is now almost unrecognizable from its original appearance; the alterations undertaken have resulted in changing the main entrance on the street-facing south elevation, replacement of many if not all of the original windows, the introduction of various architectural elements that are not original to the building's design, and a dramatic increase in the size and mass of the building. The window-filled ladies' sun parlor is no longer a prominent feature of the façade; an elaborate tower with classical elements such as columns, volutes, finial, and juliet balconies has been constructed on the façade; the original entry within the blind arcade has been obscured by a wall; many of the original window openings have been changed, and original windows and shutters have been replaced with much larger windows (Palos Verdes Golf Club 2015a; City of Palos Verdes Estates 2017; NETR Online, var.). A large amount of landscaping surrounding the clubhouse was also removed during the expansion/remodel conducted in 2006-2007. While landscaping has been replaced, it has been scaled back compared to what previously existed (NETR Online, var.). As a result of these changes, the clubhouse building no longer retains integrity of design, materials or workmanship.

The PVGC does not appear eligible for listing in the National Register of Historic Places (NRHP) or the California Register of Historical Resources (CRHR) due to an overall lack of integrity. Although the property was designed by noted golf course designers William P. Bell and George C. Thomas, with contributions by the Olmsted brothers and architect Clarence E. Howard, it has been substantially altered since it was originally built as part of the larger Palos Verdes Estates development in the 1920s. As described above, the relocation of teeing grounds and greens, reconfiguration and alteration of fairways, and installation of new water features and facilities within the golf course have affected the design of the course as designed in the 1920s. In addition, the extensive alteration of the clubhouse has left the building nearly unrecognizable from its original design, and has further affected the integrity of property as a whole. As a result of these changes, the PVGC does not retain sufficient integrity to convey any potential significant associations and does not appear listing in the NRHP or CRHR.

B12. References, continued…

City of Palos Verdes Estates. 2017. "Palos Verdes Golf Club". Accessed July 19, 2017 at http://www.pvestates.org/services/recreation/city-clubs-concessions/palos-verdes-golf-club

Deegan, Jason Scott. 2014. "Palos Verdes Golf Club near Los Angeles is an afternoon delight for guest", Golf Advisor. May 22, 2014. Accessed July 21, 2017 at http://www.golfadvisor.com/articles/palos-verdes-golf-club-california-14533.htm

Gnerre, Sam 2009. "Palos Verdes Golf Club", *The Daily Breeze*, December 9, 2009. Accessed July 19, 2017 at http://blogs.dailybreeze.com/history/2009/12/09/palos-verdes-golf-club/

Fagan, Bob. N.d. "Palos Verdes Golf Club – A Genuine Southern California Gem", The A Position. Accessed July 20, 2017 at http://theaposition.com/robertfagan/golf/courses-and-travel/11315/palos-verdes-golf-club-a-genuine-southern-california-gem

Megowan, Bruce L. and Maureen D. 2014. *Historic tales from Palos Verdes and the South Bay*. The History Press, Charleston, S.C.

NETR Online. Various. Historic aerial photographs. Accessed July 19, 2017 at historicaerials.com

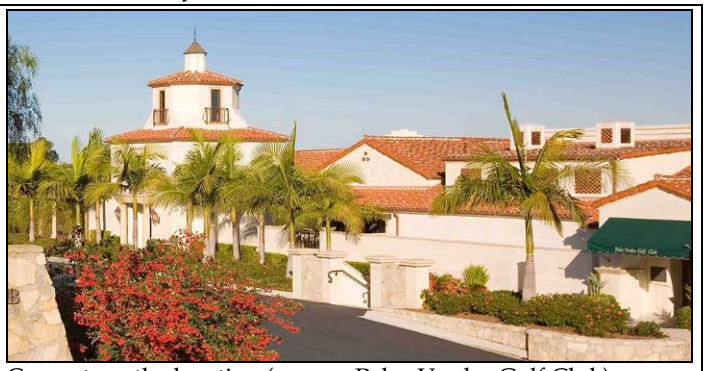
Palos Verdes Golf Club 2015a. "History". Electronic document. Accessed July 19, 2017 at http://www.pvgc.com/history

Palos Verdes Golf Club 2015b. "Course Description". Accessed July 19, 2017 at http://www.pvgc.com/course-description

Palos Verdes Golf Club 2015c. "The Clubhouse". Electronic document. Accessed July 19, 2017 at http://www.pvgc.com/clubhouse

Palos Verdes Library District Digital Archives. Various. Accessed July 19, 2017 at http://www.palosverdeshistory.org/

Clubhouse south elevation, 1926 (Palos Verdes Digital Archives)



Current south elevation (source: Palos Verdes Golf Club)

Clubhouse north elevation, 1930 (Palos Verdes Digital Archives)

Clubhouse, north elevation, June 26, 2017.

Golf course, view towards north.

B12. References, continued…

Palos Verdes Tennis Club 2013. "Club History". Accessed July 20, 2017 at http://www.pvtennisclub.com/history.html

The Cultural Landscape Foundation. 2001-2016. "Palos Verdes". Electronic document. Accessed June 10, 2017 at https://tclf.org/landscapes/palos-verdes

The Palos Verdes News. 1940. "Palos Verdes Golf Course Enjoys Widespread Acclaim", October 25, 1940, p.18. Accessed through the California Digital Newspaper Collection, https://cdnc.ucr.edu/cgi-bin/cdnc

Western New York Public Broadcasting Assoc. and Michael C. Trimboli. 2012. "The Golden Age of Golf Course Architecture in America", PBS.org. Accessed July 24, 2017 at http://www.pbs.org/wned/golfs-grand-design/learn-more/golden-age-golf-course-architecture-america/

Appendix D

Paleontological Resources Letter Report

Rincon Consultants, Inc.

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June 23, 2017
Rincon Project No. 16-03707

Uzi Daniel
Environmental Compliance Supervisor
West Basin Municipal Water District
Via email: uzid@westbasin.org

Subject: **Paleontological Resources Assessment for the Palos Verdes Recycled Water Pipeline Project, Los Angeles County, California**

Dear Ms. Daniel:

Rincon Consultants, Inc. (Rincon) has conducted a paleontological resources assessment of the proposed Palos Verdes Recycled Water Pipeline Project (project) in the cities of Torrance and Palos Verdes Estates, Los Angeles County. The goal of the assessment is to identify the geologic units that may be impacted by development from the proposed project, determine the paleontological sensitivity of geologic units within the proposed project area, assess potential for impacts to paleontological resources from development of the proposed project, and recommend mitigation measures to avoid or mitigate impacts to scientifically significant paleontological resources, as necessary.

This paleontological resources assessment consisted of a fossil locality record search at the Natural History Museum of Los Angeles County (LACM), review of online fossil collections databases (specifically that of the University of California Museum of Paleontology [UCMP]), review of existing geologic maps, and a review of primary literature regarding fossiliferous geologic units within the proposed project vicinity and region. Figures are included in Attachment A. This paleontological resources assessment includes the proposed project, including alternative alignments under consideration as of May 2017.

This paleontological assessment has been prepared to support environmental review under the California Environmental Quality Act (CEQA) and a forthcoming Initial Study-Mitigated Negative Declaration (IS-MND) for the project. Rincon understands that the West Basin Municipal Water District (WBMWD) is the lead agency for the project.

Project Description

The project proposes delivering recycled water from the existing Anza Lateral pipeline in the City of Torrance to the Palos Verdes Golf Course (PVGC) in the City of Palos Verdes Estates. It may also deliver recycled water to a number of users along the pipeline alignment. The project begins at an existing recycled water pipeline at the intersection of Anza Avenue and Calle Mayor in Torrance and extends to the PVGC. In addition to the project pipelines, a new 100 horsepower booster pump station, to be constructed in Lago Seco Park, will be required to pump the recycled water from the connection to the existing system to the PVGC and other users and a new aboveground storage tank at the terminus in the PVGC may be required. At this time, two locations are being considered for the pump station in Lago

Seco Park. Both locations are included in this evaluation. With the exception of approximately 800 feet of pipeline located in the Torrance Utility Road, which will require an easement, and the pump station, all other pipeline alignments for the project will be located in existing roadways or right-of-ways and are to range from 4 to 10 inches in diameter. Installation of the pipelines is likely to involve open trench excavations of approximately 4 feet wide and 6 feet deep, though these dimensions are subject to change. Jack and bore (trenchless) operations may be employed where trench construction is not feasible, such as at the intersection of Anza Avenue and Pacific Coast Highway. Ground disturbance involved within this method would include pit excavations of 15 to 20 feet wide and up to 25 to 30 feet long on each side of PCH. The project area lies within the United States Geological Survey (USGS) *Torrance*, 7.5-minute topographic quadrangle (Figure 1).

Regulatory Setting

Federal Laws and Regulations

A variety of federal statutes specifically address paleontological resources. They generally become applicable if the project involves: 1) a federal agency license, permit, approval, or funding, and/or 2) crosses federal lands. Since federal funding for this proposed project may become available, the following laws and regulations may apply.

Archaeological and Paleontological Salvage

Statute 23 United States Code (U.S.C.) 305 amends the Antiquities Act of 1906. Specifically, it states:

> "Funds authorized to be appropriated to carry out this title to the extent approved as necessary, by the highway department of any State, may be used for archaeological and paleontological salvage in that state in compliance with the Act entitled "An Act for the Preservation of American Antiquities," approved June 8, 1906 (PL 59-209; 16 USC 431-433), and State laws where applicable."

This statute allows funding for mitigation of paleontological resources recovered pursuant to federal aid highway projects, provided that "excavated objects and information are to be used for public purposes without private gain to any individual or organization" (Federal Register [FR] 46[19]:9570). The project crosses Pacific Coast Highway, which was built in part through federal funding, and therefore this statute may be applicable.

National Environmental Policy Act of 1969

The National Environmental Policy Act (U.S.C., section 4321 *et seq*.; 40 Code of Federal Regulations, section 1502.25), as amended, directs federal agencies to "Preserve important historic, cultural, and natural aspects of our national heritage (Section 101[b] [4])."

State Laws and Regulations

The following are California state regulations with respect to paleontological resources.

California Environmental Quality Act

CEQA (Chapter 1, section 21002) states that:

> "It is the policy of the state that public agencies should not approve projects as proposed if there are feasible alternatives or feasible mitigation measures available which would substantially lessen the significant environmental effects of such projects, and that the procedures required by this division are intended to assist public agencies in systematically identifying both the significant effects of proposed projects and the feasible alternatives or feasible mitigation measures which will avoid or substantially lessen such significant effects."

Public Resources Code Section 5097.5

Section 5097.5 of the California Public Resources Code (PRC) states:

> "No person shall knowingly and willfully excavate upon, or remove, destroy, injure or deface any historic or prehistoric ruins, burial grounds, archaeological or vertebrate paleontological site, including fossilized footprints, inscriptions made by human agency, or any other archaeological, paleontological or historical feature, situated on public lands, except with the express permission of the public agency having jurisdiction over such lands. Violation of this section is a misdemeanor."

As used in this PRC section, "public lands" means lands owned by, or under the jurisdiction of, the State, or any city, county, district, authority, or public corporation, or any agency thereof. Consequently, local agencies are required to comply with PRC 5097.5 for their own activities, including construction and maintenance, as well as for permit actions (e.g., encroachment permits) undertaken by others.

Geologic Setting

The project area lies in the Peninsular Ranges Geomorphic Province, one of 11 such provinces in the state (California Geological Survey [CGS] 2002). California's geomorphic provinces are naturally defined regions that have a distinct landscape or landform. The Peninsular Ranges province is characterized by its northwest trending valleys and faults that branch from the San Andreas Fault (CGS 2002). The Peninsular Ranges comprise rocks that range in age from the Paleozoic to the Quaternary, with the majority of rocks being Jurassic to Cretaceous. The project is located on the rectangular southwestern block of the Los Angeles Basin where mostly Miocene to Recent-aged marine sedimentary rocks rest on top of crystalline basement rocks (Dibblee et al. 1999; Roffers and Bedrossian 2010; Saucedo et al. 2007, 2016; Yerkes et al. 1965).

The project crosses Miocene to Holocene, predominantly marine, sediments (Figure 2). These sediments, in which project related construction activities will occur, comprise eight (8) mapped units (Dibblee et al. 1999): Quaternary (Holocene) alluvium (Qa); Quaternary (Holocene) alluvium, elevated (Qae); Quaternary (Holocene to Pleistocene) older dune and drift sand (Qos); Quaternary (Holocene to Pleistocene) older alluvium (Qoa); Quaternary (Holocene to Pleistocene) elevated marine terrace remnants (t); Quaternary (Pleistocene) San Pedro Sand (Qsp); Tertiary (Miocene) Malaga Mudstone (Tmg); and Tertiary (Miocene) Monterey Formation, [Valmonte Diatomite Member (Tmv) and Alta Mira Shale Member (Tma)].

Methods

Rincon evaluated the paleontological sensitivity of the geologic units crossed by the project pipelines, pump station and storage tank based on the paleontological locality search and review of existing information in the primary literature on known fossils within those geologic units. Rincon submitted a

request to the LACM for a list of known fossil localities from the project site and immediate vicinity (i.e. localities recorded on the USGS *Torrance*, 7.5-minute topographic quadrangle), and reviewed geologic maps and primary literature including: Agenbroad (1998, 2003); Applegate (1964); Bell et al. (2004); CGS (2002); Conrad and Ehlig (1987); Dibblee et al. (1999); Gray et al. (2013); Hoffmann et al. (1927); Jefferson (1985, 1991); Kennedy 1975; Maguire and Holroyd (2016); Merriam (1911); Mills (2013); Reynolds et al. (1991); Roffers and Bedrossian (2010); Saucedo et al. (2007, 2016); Savage et al. (1954); Scott and Cox (2008); Springer et al. (2009); Tomiya et al. (2011); Wilkerson et al. (2011); Winters (1954); Woodring et al. (1946); and Yerkes et al. (1965).

Rincon assigned paleontological sensitivity to each geologic unit within the project site. The potential for impacts to significant paleontological resources is based on the potential for ground disturbance to directly impact paleontologically sensitive geologic units. The paleontological sensitivity of each geologic unit is assigned based on the guidelines outlined by the Society of Vertebrate Paleontology (SVP) as discussed below.

Paleontological Sensitivity

The SVP broadly defines significant paleontological resources as (as fossils or assemblages of fossils that are unique, unusual, rare, diagnostically important, or are common but have the potential to provide valuable scientific information for evaluating evolutionary patterns and processes, or which could improve our understanding of paleochronology, paleoecology, paleophylogeography, or depositional histories. New or unique specimens can provide new insights into evolutionary history; however, additional specimens of even well represented lineages can be equally important for studying evolutionary pattern and process, evolutionary rates, and paleophylogeography. Even unidentifiable material can provide useful data for dating geologic units if radiocarbon dating is possible. As such, common fossils (especially vertebrates) may be scientifically important, and are therefore considered highly significant. (SVP 2010, page 11)

The SVP (2010) describes sedimentary rock units as having high, low, undetermined, or no potential for containing significant nonrenewable paleontological resources. This criterion is based on rock units within which vertebrate or significant invertebrate fossils have been determined by previous studies to be present or likely to be present. Significant paleontological resources are fossils or assemblages of fossils, which are unique, unusual, rare, diagnostically, or stratigraphically important, and those which add to an existing body of knowledge in specific areas, stratigraphically, taxonomically, or regionally (Reynolds 1990). While these standards were specifically written to protect vertebrate paleontological resources, all fields of paleontology have adopted these guidelines. Rincon has evaluated the paleontological sensitivity of the proposed project site according to the following SVP (2010) categories:

I. **High Potential.** Rock units from which vertebrate or significant invertebrate, plant, or trace fossils have been recovered are considered to have a high potential for containing additional significant paleontological resources. Rocks units classified as having high potential for producing paleontological resources include, but are not limited to, sedimentary formations and some volcaniclastic formations (e. g., ashes or tephras), and some low-grade metamorphic rocks which contain significant paleontological resources anywhere within their geographical extent, and sedimentary rock units temporally or lithologically suitable for the preservation of fossils (e. g., middle Holocene and older, fine-grained fluvial sandstones, argillaceous and carbonate-rich paleosols, cross-bedded point bar sandstones, fine-grained marine sandstones, etc.). Paleontological potential consists of both (a) the potential for yielding abundant or significant vertebrate fossils or for yielding a few significant fossils, large or small, vertebrate, invertebrate, plant, or trace fossils and (b) the importance of recovered evidence for new and significant

taxonomic, phylogenetic, paleoecologic, taphonomic, biochronologic, or stratigraphic data. Rock units which contain potentially datable organic remains older than late Holocene, including deposits associated with animal nests or middens, and rock units which may contain new vertebrate deposits, traces, or trackways are also classified as having high potential.

II. **Undetermined Potential.** Rock units for which little information is available concerning their paleontological content, geologic age, and depositional environment are considered to have undetermined potential. Further study is necessary to determine if these rock units have high or low potential to contain significant paleontological resources. A field survey by a qualified professional paleontologist (see "definitions" section in this document) to specifically determine the paleontological resource potential of these rock units is required before a paleontological resource impact mitigation program can be developed. In cases where no subsurface data are available, paleontological potential can sometimes be determined by strategically located excavations into subsurface stratigraphy.

III. **Low Potential.** Reports in the paleontological literature or field surveys by a qualified professional paleontologist may allow determination that some rock units have low potential for yielding significant fossils. Such rock units will be poorly represented by fossil specimens in institutional collections, or based on general scientific consensus only preserve fossils in rare circumstances and the presence of fossils is the exception not the rule, e. g. basalt flows or Recent colluvium. Rock units with low potential typically will not require impact mitigation measures to protect fossils.

IV. **No Potential.** Some rock units have no potential to contain significant paleontological resources, for instance high-grade metamorphic rocks (such as gneisses and schists) and plutonic igneous rocks (such as granites and diorites). Rock units with no potential require no protection nor impact mitigation measures relative to paleontological resources.

Results

Records Search Results

The LACM paleontological collections do not include any known fossils localities from within the project site. However, there are six known localities from Pleistocene deposits (older alluvium and the San Pedro Sand) and six known localities from the Miocene Monterey Formation (two from the Valmonte Diatomite Member and four from the Altamira Shale Member) that occur within close proximity of the project site.

The Pleistocene fossils localities occur roughly: 1) to southeast of the proposed project area west of Hawthorne Boulevard and south of Via Valmonte; 2) south of Winlock Road; and 3) between Palos Verdes Drive West and Palos Verdes Boulevard, and produced mastodon, whales, dolphin, bison, saber-toothed cat and shark.

The Monterey Formation localities occurred roughly southeast of the proposed project area, and produced marine vertebrates including bonito shark (*Isurus hastalis*), extinct giant white shark, (*Carcharocles megalodon*), jack fish (*Pseudoseriola*), tuna (*Tunita octavia*), mackerel (*Auxis),* grouper (*Lompoquia culveri*), snake mackerel (*Thyrsocles*), pipefish (*Syngnathus avus*), viperfish (*Chauliodus*), smelt (Bathylagidae), herrings (*Xyne grex*), *Ganolytes cameo* and *Etringus scintillans*, and sperm whale (*Scaldicetus*).

Paleontological Sensitivity of Mapped Units

The project crosses eight (8) geologic units mapped at the surface that range in age from Holocene to Miocene (Figure 1; Dibblee et al. 1999). Early Holocene to Miocene units are known to contain scientifically significant paleontological resources throughout the greater Los Angeles area. Paleontological sensitivities provided here are derived from literature and online database review, including a formal locality search at the Natural History Museum of Los Angeles County (LACM). Paleontological sensitivities within the project are shown in Figure 2.

Quaternary Alluvium (Qa) (Holocene)

Holocene alluvium in the project area is concentrated in valley and flood plains and comprises mostly loamy clay, with some fine sand near the Palos Verdes Hills (Dibblee et al. 1999). These sediments are likely too young at the surface to contain significant fossils and so would have a low sensitivity. However, Holocene alluvium is only broadly time-constrained in this region and so may become older at relatively shallow, but unknown depths. If the sediments become early Holocene to late Pleistocene in age, they may contain fossils and would thus be considered to have high paleontological sensitivity.

Quaternary Alluvium, Elevated (Qae) (Holocene)

Holocene, elevated alluvium in the project area is very similar to the Holocene alluvium just described, but is slightly elevated and locally dissected (Dibblee et al. 1999). Again, these sediments are likely too young at the surface to contain significant fossils and so would have a low sensitivity. However, elevated alluvium may become older at relatively shallow, but unknown depths. If the sediments become early Holocene to late Pleistocene in age, they may contain fossils and would thus be considered to have high paleontological sensitivity.

Quaternary Older Dune and Drift Sand (Qos) (Holocene to Pleistocene)

Older, stabilized dune and drift sand is mostly unconsolidated fine-grained sand (Dibblee et al. 1999). According to the LACM (Attachment B), older Quaternary dune sands “typically do not contain significant vertebrate fossils in the uppermost layers, but at relatively shallow [depths] in this vicinity they usually are underlain by older sedimentary deposits that may well contain significant fossil vertebrate remains.” Because of this assessment, these sediments are considered to have high paleontological sensitivity.

Quaternary Older Alluvium (Qoa) (Holocene to Pleistocene)

Older alluvium in the project area includes nonmarine terrace deposits comprising sandy loam and loamy clay, sand and pebble gravel, and the Palos Verdes Sand of Woodring et al. (1946). Terrestrial mammal fossils have been reported from these deposits in the Palos Verdes Hills, including saber-toothed cat, ground sloth, horse, camel, bison, mammoth, and shark (LACM: Attachment B; Woodring et al. 1946). In addition, these sediments are similar to other Pleistocene alluvial and terrace deposits within the state that have a record of abundant and diverse vertebrate fauna throughout California (Agenbroad 1998, 2003; Bell et al. 2004; Gray et al. 2013; Hoffmann et al. 1927; Jefferson 1985, 1991; Maguire and Holroyd 2016; Merriam 1911; Mills 2013; Reynolds et al. 1991; Savage et al. 1954; Scott and Cox 2008; Springer et al. 2009; Tomiya et al. 2011; Wilkerson et al. 2011; Winters 1954). Holocene and Plesitocene older alluvium is considered to have high paleontological sensitivity.

Quaternary Elevated Marine Terrace Remnants (t) (Holocene to Pleistocene)

These marine terrace sediments occur within the Palos Verdes Hills with little or no (terrestrial) alluvial cover. Marine Pleistocene terrace deposits have a record of abundant and diverse vertebrate fauna throughout California (Macias et al. 2014), and are assigned a high paleontological sensitivity.

San Pedro Sand (Qsp) (Pleistocene)

The San Pedro Sand is a middle Pleistocene non-marine to shallow marine, weakly indurated, sand and pebble gravel that is massive to locally cross-bedded. The San Pedro Sand has yielded a diverse fauna of nearshore marine invertebrates (e.g., crabs, snails, bivalves, and echinoids [Woodring et al. 1946; Kennedy 1975) and marine and terrestrial vertebrates (e.g., sharks, bony fish, amphibians, reptiles, birds, whales, antelopes, mammoth, dire wolves, rodents, and bison [Woodring et al. 1946; Kennedy 1975). The San Pedro Sand, therefore, has a high paleontological sensitivity.

Malaga Mudstone (Tmg) (Miocene)

The Malaga Mudstone is a deep marine sandstone and mudstone with diatomaceous lenses and limestone concretions (Dibblee et al. 1999). The Malaga Mudstone has produced microfossils (foraminifera and radiolaria). Deep marine depositional settings have been known to preserve vertebrate fossils; however, the Malaga has no record of vertebrates. The Malaga Mudstone is considered to have low paleontological sensitivity.

Monterey Formation (Tmv and Tma)] (Miocene)

The Valmonte Diatomite Member (Tmv) of the Monterey Formation is a soft, white, punky, laminated diatomaceous shale and mudstone that is relatively thick (up to 125 meters) in places (Dibblee et al. 1999). The Valmonte Member has produced numerous marine vertebrate fossils, including sharks (*Carcharocles megalodon* and *Isurus hastalis*), jack fish (*Pseudoseriola*), tuna (*Tunita octavia*), mackerel (*Auxis*), grouper (*Lompoquia culveri*), snake mackerel (*Thyroscles*), pipefish (*Sygnathus avus*), viperfish (*Chauliodus*), smelt, herrings (*Xyne grex*, *Ganolytes cameo*, and *Etringus scintillans*), and sperm whale (*Scaldicetus*) (Applegate 1964; LACM collections). The Alta Mira Shale Member of the Monterey Formation is a thin-bedded siliceous and phosphatic shale with limestone and siltstone interbeds that are locally organic and diatomaceous (Dibblee et al. 1999). The Alta Mira Shale "produces some of the best articulated middle Miocene marine vertebrate fossils known" (LACM collections). The Alta Mira Shale includes primitive baleen whales, shark (*Isurus*), turbot (*Pleuronichtys*), and mackerel (*Zaphlegulus venturaensis*). The Monterey Formation is considered to have a high paleontological sensitivity.

Impact Analysis and Recommended Mitigation

Early Holocene to Miocene units are known to contain scientifically significant paleontological resources throughout the greater Los Angeles area and from undisturbed sediments similar to those found within the project. The potential for uncovering significant paleontological resources is high in seven of the eight mapped units (excludes the Malaga Mudstone) during project related activities (e.g., ground disturbing activities). Each of these units has the potential to produce fossils and should be considered to have high paleontological sensitivity, according to the standards of the SVP (2010). Five of these sensitive units have the potential to produce fossils at any depth, including very near or at the surface [older dune and drift sand (Qos); older alluvium (Qoa); elevated marine terrace remnants (t); the San Pedro Sand (Qsp); and the Monterey Formation [Valmonte Diatomite Member (Tmv) and Alta Mira

Shale Member (Tma)]. Quaternary alluvium (Qa) and elevated alluvium (Qae) are generally too young to preserve fossil resources at the surface; however, these sediments will increase in age with depth and therefore may preserve fossil resources in the subsurface at variable depths, typically greater than five feet.

Proposed project ground disturbance is expected to occur within the top six feet of the surface associated with pipeline trenching and jack and bore (trenchless) activities. Ground disturbance has the potential to impact previously undisturbed geologic units with high paleontological sensitivity. Disturbance of paleontologically sensitive units could result in significant impacts to paleontological resources. To address the possibility that fossils are exposed during project construction activities, the following measures are recommended in undisturbed sediments of high paleontological sensitivity to reduce potential impacts to paleontological resources to less than significant:

Paleontological Worker Environmental Awareness Program

Prior to the start of construction, Qualified Professional Paleontologist (as defined by SVP [2010] standards) or his or her designee shall conduct training for construction personnel regarding the appearance of fossils and the procedures for notifying paleontological staff should fossils be discovered by construction staff. The Worker Environmental Awareness Program shall be fulfilled at the time of a preconstruction meeting, which a qualified paleontologist shall attend.

Paleontological Monitoring

Ground disturbing construction activities (including grading, trenching, and other excavations) effecting previously undisturbed bedrock sediments in areas mapped as high paleontological sensitivity or high at shallow depth should be monitored on a full-time basis by a by the Qualified Professional Paleontologist or by qualified paleontological monitor under their direction. A qualified paleontological monitor is defined as an individual who has experience with collection and salvage of paleontological resources (SVP 2010). The duration and timing of the monitoring will be determined by the Qualified Professional Paleontologist. If the Qualified Professional Paleontologist determines that full-time monitoring is no longer warranted, he or she may recommend that monitoring be reduced to periodic spot-checking or cease entirely. Monitoring would be reinstated if any new or unforeseen deeper ground disturbances are required and reduction or suspension would need to be reconsidered by the project paleontologist. Ground disturbing activity that occurs in previously disturbed sediments would not require paleontological monitoring, regardless of the geologic mapping.

Fossil Discovery

In the event of a fossil discovery by construction personnel or paleontological monitors, all work in the immediate vicinity of the find shall cease and a qualified paleontologist, if not already onsite, shall be contacted to evaluate the find before restarting work in the area. If it is determined that the fossil(s) is(are) scientifically significant, the qualified paleontologist shall complete the following actions to mitigate impacts to significant fossil resources.

Salvage of Fossils

If significant fossils are discovered, the project paleontologist or paleontological monitor should recover them. Typically fossils can be safely salvaged quickly by a single paleontologist and not disrupt construction activity. In some cases larger fossils (such as complete skeletons or large mammal fossils) require more extensive excavation and longer salvage periods. In this case the paleontologist should

have the authority to temporarily direct, divert, or halt construction activity to ensure that the fossil(s) can be removed in a safe and timely manner.

Preparation and Curation of Recovered Fossils

Once salvaged, significant fossils should be identified to the lowest possible taxonomic level, prepared to a curation-ready condition, and curated in a scientific institution with a permanent paleontological collection (such as the Natural History Museum of Los Angeles County), along with all pertinent field notes, photos, data, and maps. Fossils of undetermined significance at the time of collection may also warrant curation at the discretion of the project paleontologist.

Final Paleontological Mitigation Report

Upon completion of ground disturbing activity (and curation of fossils if necessary) the Qualified Professional Paleontologist should prepare a final mitigation and monitoring report outlining the results of the mitigation and monitoring program. The report should include discussion of the location, duration, and methods of the monitoring, stratigraphic sections, any recovered fossils and their scientific significance, and where fossils were curated.

If you have any questions regarding this Paleontological Resources Assessment, please contact Dr. David Daitch at (381) 333-0310 ext. 352 or Dr. Jennifer Haddow at (805) 644 4455 ext. 44.

Sincerely,
Rincon Consultants, Inc.

Kyle Brudvik, M.A.
Associate Paleontologist

David Daitch, Ph.D.
Senior Paleontologist/Program Manager

Jennifer Haddow, Ph.D.
Principal

Attachment
Attachment A: Geologic Map and Paleontological Sensitivity Map Figures

References

Agenbroad, L.D. 1998. *Pygmy (Dwarf) mammoths of the Channel Islands of California.* Mammoth Site of Hot Springs, SD, Inc.

-----. 2003. *New localities, chronology, and comparisons for the pygmy mammoth (Mammuthus exilis).* In J. Reumer (ed.): Advances in Mammoth Research, Proceedings of the 2nd International Mammoth Conference, Rotterdam, the Netherlands. DEINSEA 9:1-16.

Applegate, S.P. 1964. A shark tail from the Miocene of Palos Verdes Hills, California. Bulletin of Southern California Academy of Science 63:42-43.

Bell, C.J., E.L. Lundelius, Jr., A.D. Barnosky, R.W. Graham, E.H. Lindsay, D.R. Ruez, Jr., H.A. Semken, Jr., S.D. Webb, and R.J. Zakrzewski. 2004. *The Blancan, Irvingtonian, and Rancholabrean Mammal Ages*. In Woodburne, M.O. (ed.) Late Cretaceous and Cenozoic Mammals of North America: Biostratigraphy and Geochronology. Columbia University Press, New York, pp. 232-314.

California Geological Survey (CGS). 2002. California Geomorphic Provinces, Note 36.

Dibblee, T.W., H.E. Ehrenspeck, P.L. Ehlig, W.L. and Bartlett. 1999. Geologic map of the Palos Verdes Peninsula and vicinity, Redondo Beach, Torrance, and San Pedro quadrangles, Los Angeles County, California. Dibblee Geological Foundation, Dibblee Foundation Map DF-70, scale 1:24,000.

Jefferson, G.T. 1985. Review of the Late Pleistocene avifauna from Lake Manix, central Mojave Desert, California. *Contributions in Science, Natural History Museum of Los Angeles County*, 362:1-13.

Jefferson, G.T. 1991. A catalogue of late Quaternary vertebrates from California. Part two, mammals. *Natural History Museum of Los Angeles County Technical Report*, 7:1-129.

Kennedy, G.L. 1975. Paleontologic record of areas adjacent to the Los Angeles and Long Beach harbors, Los Angeles County, California. Alan Hancock Foundation, Los Angeles, California.

Macias, M.K., E.B. Kitao, and R.S. Gray. 2014. New Pleistocene megafauna localities in Santa Barbara County, California: Paleontological reconnaissance of the marine terrace deposits at Vandenberg Air Force Base. Paper presented at the Pacific Section AAPG/SEG/SEPM Joint Technical Conference, Bakersfield, CA (April 29, 2014).

Maguire, K.C. and P.A. Holroyd. 2016. Pleistocene vertebrates of Silicon Valley (Santa Clara County, California). *PaleoBios* 33(1):1-14.

Merriam, J.C. 1911. *The Fauna of Rancho La Brea; Part I: Occurrence.* Memoirs of the University of California, 1(2):197-213.

Mills, W. 2013. California Marine Terraces, California Coastal Commission. Editor's Note, Ore-Cutts Journal of the Orcutt Mineral Society, Vol. XLVV(12).

Reynolds, R.E. 1990. Paleontologic Mitigation Program, Cajon Pass Truck Escape Ramp, Cajon Summit, San Bernardino County, California. Caltrans, District 8, San Bernardino.

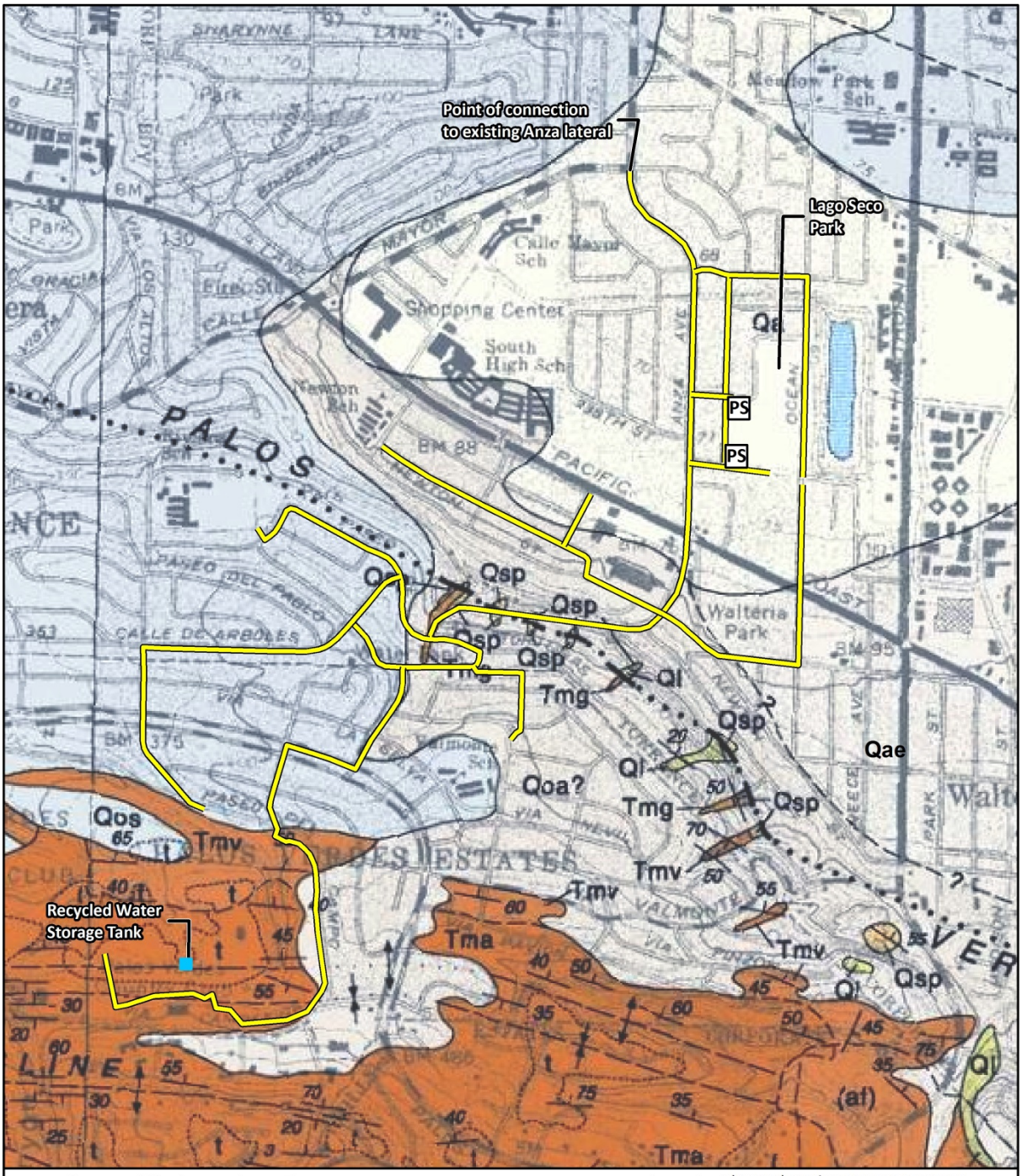
Woodring, W.P., M.N. Bramlette, and W.S. Kew. 1946. Geology and paleontology of Palos Verdes Hills, California. United States Geological Survey Professional Paper 207.

Yerkes, R.F., T.H. McCulloh, J.E. Schoellhamer, and J.G. Vedder. 1965. Geology of the Los Angeles Basin California-an introduction: geology of the eastern Los Angeles Basin southern California. U.S. Geological Survey Professional Paper 420-A.

Attachment A

Geologic Map and Paleontological Sensitivity Map Figures

Figure 1 Geologic Map



Imagery provided by Dibblee et al., 1999.

Fig X Geologic Map

Figure 2 Paleontological Sensitivity Map

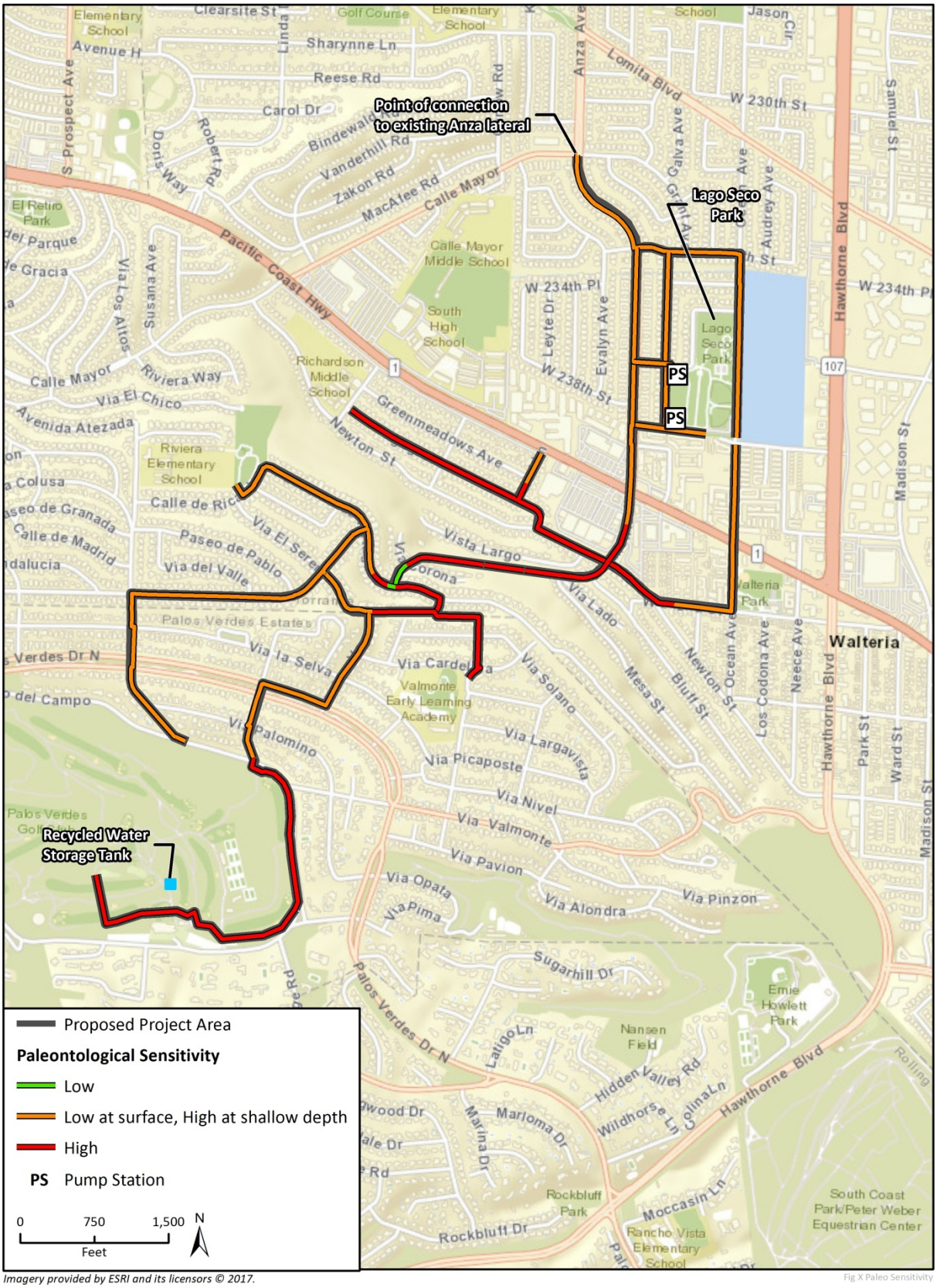


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Fig X Paleo Sensitivity

Appendix E

Noise Measurement Data Sheets

AMBIENT NOISE SURVEY DATA SHEET

Project: West Basin WMD Job Number: 16-03702
Date: 5/30/17
Operator: Vanessa V.

Station: 5	Begin: 3:29
Measurement No. 1	Finish: 3:44
Wind: ____ mph	Direction: ____
Temperature: ____	
Cloud Cover Class	
Daytime ☐ 1 - Overcast >80%	
☐ 2 - Light 20-80%	
☑ 3 - Sunny <20%	
Nighttime ☐ 4 - Clear <50%	
☐ 5 - Overcast >50%	
Primary Noise Source: Paseo traffic, rec. park noise	
Distance: ____	
Secondary Noise Sources: parents getting kids, vehicle idling,	
Notes: engine start-ups, rec.	
Traffic *LDA/T*: 30	
MDT: 0	
HDT: 0	
Leq: 56.6	L(10): ____
Lmin: 44.9	L(33): ____
Lmax: 77.3	L(50): ____
Peak: ____	L(90): ____
Calibration Start: 94 dB	
End: 94 dB	
Response: ☐ Slow ☑ Fast ☐ Peak ☐ Impulse	
Weighting: ☑ A ☐ B ☐ C ☐ Linear	
Octave Filter: ☐ NA ☐ ____ Hz	

Station: 7	Begin: 4:05
Measurement No. 2	Finish: 4:20
Wind: ____ mph	Direction: ____
Temperature: ____	
Cloud Cover Class	
Daytime ☐ 1 - Overcast >80%	
☐ 2 - Light 20-80%	
☑ 3 - Sunny <20%	
Nighttime ☐ 4 - Clear <50%	
☐ 5 - Overcast >50%	
Primary Noise Source: Pasco traffic	
Distance: ____	
Secondary Noise Sources: birds	
Notes: residential area	
Traffic *LDA/T*: 8	
MDT: 0	
HDT: 0	
Leq: 50.7	L(10): ____
Lmin: 40.4	L(33): ____
Lmax: 72.0	L(50): ____
Peak: ____	L(90): ____
Calibration Start: 94 dB	
End: 94 dB	
Response: ☐ Slow ☑ Fast ☐ Peak ☐ Impulse	
Weighting: ☑ A ☐ B ☐ C ☐ Linear	
Octave Filter: ☐ NA ☐ ____ Hz	

Note: Provide Sketch of Location on Back.

AMBIENT NOISE SURVEY DATA SHEET

Project: West Basin WMD Job Number: 16-03707
Date: 5/30/17
Operator: Vanessa V.

Station: 6	Begin: 4:28
Measurement No. 3	Finish: 4:43
Wind: ____ mph	Direction: ____
Temperature: ____	
Cloud Cover Class	
Daytime ☐ 1 - Overcast >80%	
☐ 2 - Light 20-80%	
☑ 3 - Sunny <20%	
Nighttime ☐ 4 - Clear <50%	
☐ 5 - Overcast >50%	
Primary Noise Source: Palos Verdes Dr. N	
Distance: ____	
Secondary Noise Sources: birds	
Notes: road w/ median	
Traffic *LDA/T*: 216	
MDT: 1	
HDT: 0	
Leq: 70.0	L(10): ____
Lmin: 42.5	L(33): ____
Lmax: 83.0	L(50): ____
Peak: ____	L(90): ____
Calibration Start: 94 dB	
End: 94 dB	
Response: ☐ Slow ☑ Fast ☐ Peak ☐ Impulse	
Weighting: ☑ A ☐ B ☐ C ☐ Linear	
Octave Filter: ☐ NA ☐ ____ Hz	

Station: 4	Begin: 4:55
Measurement No. 4	Finish: ____
Wind: ____ mph	Direction: ____
Temperature: ____	
Cloud Cover Class	
Daytime ☐ 1 - Overcast >80%	
☐ 2 - Light 20-80%	
☐ 3 - Sunny <20%	
Nighttime ☐ 4 - Clear <50%	
☐ 5 - Overcast >50%	
Primary Noise Source: ____	
Distance: ____	
Secondary Noise Sources: ____	
Notes: leaf blower / lawnmower 6 houses down private drive	
Traffic *LDA/T*: 0	
MDT: 0	
HDT: 0	
Leq: 54.9	L(10): ____
Lmin: 41.8	L(33): ____
Lmax: 62.5	L(50): ____
Peak: ____	L(90): ____
Calibration Start: 94 dB	
End: 94 dB	
Response: ☐ Slow ☑ Fast ☐ Peak ☐ Impulse	
Weighting: ☑ A ☐ B ☐ C ☐ Linear	
Octave Filter: ☐ NA ☐ ____ Hz	

Note: Provide Sketch of Location on Back.

AMBIENT NOISE SURVEY DATA SHEET

Project: West Basin WMD Job Number: 16-03707
Date: 5/30/17
Operator: Vanessa V.

Measurement that didn't record !!!

< This is actually Location 1

Station: 3	Begin: 5:28
Measurement No. 5	Finish: 5:43
Wind: ____ mph	Direction: ____
Temperature: ____	
Cloud Cover Class	
Daytime ☐ 1 - Overcast >80%	
☐ 2 - Light 20-80%	
☑ 3 - Sunny <20%	
Nighttime ☐ 4 - Clear <50%	
☐ 5 - Overcast >50%	
Primary Noise Source: PCH traffic	
Distance: ____	
Secondary Noise Sources: ____	
Notes: highway, mostly non-stop traffic	
Traffic *LDA/T*: 597	
MDT: 1	
HDT: 2	
Leq: 68.3	L(10): ____
Lmin: 54.1	L(33): ____
Lmax: 76.8	L(50): ____
Peak: ____	L(90): ____
Calibration Start: 94 dB	
End: 94 dB	
Response: ☐ Slow ☑ Fast ☐ Peak ☐ Impulse	
Weighting: ☑ A ☐ B ☐ C ☐ Linear	
Octave Filter: ☐ NA ☐ ____ Hz	

Station: 2	Begin: 5:51
Measurement No. 6	Finish: 6:05
Wind: ____ mph	Direction: ____
Temperature: ____	
Cloud Cover Class	
Daytime ☐ 1 - Overcast >80%	
☑ 2 - Light 20-80%	
☐ 3 - Sunny <20%	
Nighttime ☐ 4 - Clear <50%	
☐ 5 - Overcast >50%	
Primary Noise Source: Anza traffic	
Distance: ____	
Secondary Noise Sources: ____	
Notes: median - 4 lanes in all	
Traffic *LDA/T*: 279	
MDT: 0	
HDT: 0	
Leq: 65.7	L(10): ____
Lmin: 48.4	L(33): ____
Lmax: 81.9	L(50): ____
Peak: ____	L(90): ____
Calibration Start: 94 dB	
End: 94 dB	
Response: ☐ Slow ☑ Fast ☐ Peak ☐ Impulse	
Weighting: ☑ A ☐ B ☐ C ☐ Linear	
Octave Filter: ☐ NA ☐ ____ Hz	

Note: Provide Sketch of Location on Back.

AMBIENT NOISE SURVEY DATA SHEET

Project: West Basin WMD Job Number: 16-03707
Date: 5/30/17
Operator: Vanessa V.

This is actually Location 2 >

Station: 1	Begin : 6:15
Measurement No. 7	Finish: 6:30
Wind: _____ mph	Direction: _____
Temperature: _____	

Cloud Cover Class

Daytime
- [x] 1 - Overcast >80%
- [ ] 2 - Light 20-80%
- [ ] 3 - Sunny <20%

Nighttime
- [ ] 4 - Clear <50%
- [ ] 5 - Overcast >50%

Primary Noise Source: light park noise
Distance: _____

Secondary Noise Sources: _____

Notes: Lago Seco Park

Traffic *LDA/T*: 3

MDT: 0
HDT: 0

Leq:	55.3	L(10):	_____
Lmin:	44.0	L(33):	_____
Lmax:	77.8	L(50):	_____
Peak:	_____	L(90):	_____

Calibration Start: 94 dB End: 94 dB

Response:
- [ ] Slow
- [x] Fast
- [ ] Peak
- [ ] Impulse

Weighting:
- [x] A
- [ ] B
- [ ] C
- [ ] Linear

Octave Filter:
- [ ] NA
- [ ] _____ Hz

Station: _____	Begin : _____
Measurement No. _____	Finish: _____
Wind: _____ mph	Direction: _____
Temperature: _____	

Cloud Cover Class

Daytime
- [ ] 1 - Overcast >80%
- [ ] 2 - Light 20-80%
- [ ] 3 - Sunny <20%

Nighttime
- [ ] 4 - Clear <50%
- [ ] 5 - Overcast >50%

Primary Noise Source: _____
Distance: _____

Secondary Noise Sources: _____

Notes: _____

Traffic *LDA/T*: _____

MDT: _____
HDT: _____

Leq:	_____	L(10):	_____
Lmin:	_____	L(33):	_____
Lmax:	_____	L(50):	_____
Peak:	_____	L(90):	_____

Calibration Start: _____ dB End: _____ dB

Response:
- [ ] Slow
- [ ] Fast
- [ ] Peak
- [ ] Impulse

Weighting:
- [ ] A
- [ ] B
- [ ] C
- [ ] Linear

Octave Filter:
- [ ] NA
- [ ] _____ Hz

Note: Provide Sketch of Location on Back.

AMBIENT NOISE SURVEY DATA SHEET

Project: West Basin WMD Job Number: 16-03707

Date: 5/31/17

Operator: Vanessa V.

this is re-do of Location 2 since previous take didn't record

This is actually Location 1 >

Station: 2	Begin : 4:05
Measurement No. ____	Finish: 4:20
Wind: ____ mph	Direction: ____
Temperature: ____	
Cloud Cover Class	
Daytime ☑ 1 - Overcast >80%	
☐ 2 - Light 20-80%	
☐ 3 - Sunny <20%	
Nighttime ☐ 4 - Clear <50%	
☐ 5 - Overcast >50%	
Primary Noise Source: Anza traffic	
Distance: ____	
Secondary Noise Sources: ____	
Notes: median w/ 4 lanes in all	
Traffic *LDA/T*: 304	
MDT: 3	
HDT: 0	
Leq: 66.1	L(10): ____
Lmin: 46.0	L(33): ____
Lmax: 81.2	L(50): ____
Peak: ____	L(90): ____
Calibration Start: 94 dB	
End: 94 dB	
Response: ☐ Slow ☑ Fast ☐ Peak ☐ Impulse	
Weighting: ☑ A ☐ B ☐ C ☐ Linear	
Octave Filter: ☐ NA ☐ ____ Hz	

Station: ____	Begin : ____
Measurement No. ____	Finish: ____
Wind: ____ mph	Direction: ____
Temperature: ____	
Cloud Cover Class	
Daytime ☐ 1 - Overcast >80%	
☐ 2 - Light 20-80%	
☐ 3 - Sunny <20%	
Nighttime ☐ 4 - Clear <50%	
☐ 5 - Overcast >50%	
Primary Noise Source: ____	
Distance: ____	
Secondary Noise Sources: ____	
Notes: ____	
Traffic *LDA/T*: ____	
MDT: ____	
HDT: ____	
Leq: ____	L(10): ____
Lmin: ____	L(33): ____
Lmax: ____	L(50): ____
Peak: ____	L(90): ____
Calibration Start: ____ dB	
End: ____ dB	
Response: ☐ Slow ☐ Fast ☐ Peak ☐ Impulse	
Weighting: ☐ A ☐ B ☐ C ☐ Linear	
Octave Filter: ☐ NA ☐ ____ Hz	

Note: Provide Sketch of Location on Back.

- Freq Weight : A
- Time Weight : FAST
- Level Range : 40-100
- Max dB : 81.2 - 2017/05/31 16:11:52
- Level Range : 40-100
- SEL : 95.6
- Leq : 66.1
-

No.s	Date Time	(dB)
1	2017/05/31 16:04:15	67.4
2	2017/05/31 16:04:18	67.4
3	2017/05/31 16:04:21	63.9
4	2017/05/31 16:04:24	62.3
5	2017/05/31 16:04:27	60.4
6	2017/05/31 16:04:30	54.8
7	2017/05/31 16:04:33	53.6
8	2017/05/31 16:04:36	53.0
9	2017/05/31 16:04:39	54.0
10	2017/05/31 16:04:42	56.8
11	2017/05/31 16:04:45	52.8
12	2017/05/31 16:04:48	54.6
13	2017/05/31 16:04:51	59.8
14	2017/05/31 16:04:54	58.1
15	2017/05/31 16:04:57	56.5
16	2017/05/31 16:05:00	55.3
17	2017/05/31 16:05:03	67.2
18	2017/05/31 16:05:06	58.1
19	2017/05/31 16:05:09	71.2
20	2017/05/31 16:05:12	63.6
21	2017/05/31 16:05:15	63.8
22	2017/05/31 16:05:18	67.8
23	2017/05/31 16:05:21	60.1
24	2017/05/31 16:05:24	60.4
25	2017/05/31 16:05:27	69.4
26	2017/05/31 16:05:30	66.1
27	2017/05/31 16:05:33	60.5
28	2017/05/31 16:05:36	62.7
29	2017/05/31 16:05:39	67.7
30	2017/05/31 16:05:42	65.3
31	2017/05/31 16:05:45	62.1
32	2017/05/31 16:05:48	69.2
33	2017/05/31 16:05:51	63.3
34	2017/05/31 16:05:54	60.8
35	2017/05/31 16:05:57	56.8
36	2017/05/31 16:06:00	55.9
37	2017/05/31 16:06:03	65.3
38	2017/05/31 16:06:06	64.5
39	2017/05/31 16:06:09	66.1
40	2017/05/31 16:06:12	59.1
41	2017/05/31 16:06:15	56.7
42	2017/05/31 16:06:18	72.2
43	2017/05/31 16:06:21	68.1
44	2017/05/31 16:06:24	71.7
45	2017/05/31 16:06:27	58.1
46	2017/05/31 16:06:30	55.0
47	2017/05/31 16:06:33	65.3
48	2017/05/31 16:06:36	61.2
49	2017/05/31 16:06:39	56.9
50	2017/05/31 16:06:42	60.3
51	2017/05/31 16:06:45	59.3
52	2017/05/31 16:06:48	66.5
53	2017/05/31 16:06:51	63.6
54	2017/05/31 16:06:54	59.9
55	2017/05/31 16:06:57	62.9
56	2017/05/31 16:07:00	72.3
57	2017/05/31 16:07:03	62.8
58	2017/05/31 16:07:06	58.9
59	2017/05/31 16:07:09	58.5
60	2017/05/31 16:07:12	57.0
61	2017/05/31 16:07:15	74.5
62	2017/05/31 16:07:18	62.8
63	2017/05/31 16:07:21	61.4
64	2017/05/31 16:07:24	59.9
65	2017/05/31 16:07:27	62.9
66	2017/05/31 16:07:30	60.6
67	2017/05/31 16:07:33	57.1
68	2017/05/31 16:07:36	52.2
69	2017/05/31 16:07:39	52.6
70	2017/05/31 16:07:42	51.3
71	2017/05/31 16:07:45	51.8
72	2017/05/31 16:07:48	55.6
73	2017/05/31 16:07:51	69.6
74	2017/05/31 16:07:54	54.9
75	2017/05/31 16:07:57	53.3
76	2017/05/31 16:08:00	62.3
77	2017/05/31 16:08:03	60.8
78	2017/05/31 16:08:06	63.7
79	2017/05/31 16:08:09	62.3
80	2017/05/31 16:08:12	65.3
81	2017/05/31 16:08:15	62.1
82	2017/05/31 16:08:18	59.8
83	2017/05/31 16:08:21	56.9
84	2017/05/31 16:08:24	59.1
85	2017/05/31 16:08:27	68.0

86	2017/05/31	16:08:30	62.5
87	2017/05/31	16:08:33	61.6
88	2017/05/31	16:08:36	61.4
89	2017/05/31	16:08:39	76.7
90	2017/05/31	16:08:42	61.6
91	2017/05/31	16:08:45	65.8
92	2017/05/31	16:08:48	61.4
93	2017/05/31	16:08:51	62.6
94	2017/05/31	16:08:54	60.4
95	2017/05/31	16:08:57	80.0
96	2017/05/31	16:09:00	65.5
97	2017/05/31	16:09:03	60.7
98	2017/05/31	16:09:06	64.0
99	2017/05/31	16:09:09	59.0
100	2017/05/31	16:09:12	62.7
101	2017/05/31	16:09:15	62.3
102	2017/05/31	16:09:18	71.0
103	2017/05/31	16:09:21	62.2
104	2017/05/31	16:09:24	54.8
105	2017/05/31	16:09:27	54.0
106	2017/05/31	16:09:30	50.8
107	2017/05/31	16:09:33	52.3
108	2017/05/31	16:09:36	51.3
109	2017/05/31	16:09:39	53.0
110	2017/05/31	16:09:42	57.0
111	2017/05/31	16:09:45	50.1
112	2017/05/31	16:09:48	47.5
113	2017/05/31	16:09:51	52.1
114	2017/05/31	16:09:54	59.8
115	2017/05/31	16:09:57	71.8
116	2017/05/31	16:10:00	62.8
117	2017/05/31	16:10:03	58.9
118	2017/05/31	16:10:06	58.7
119	2017/05/31	16:10:09	71.3
120	2017/05/31	16:10:12	71.3
121	2017/05/31	16:10:15	61.9
122	2017/05/31	16:10:18	61.2
123	2017/05/31	16:10:21	56.0
124	2017/05/31	16:10:24	58.1
125	2017/05/31	16:10:27	68.4
126	2017/05/31	16:10:30	60.3
127	2017/05/31	16:10:33	63.1
128	2017/05/31	16:10:36	62.6
129	2017/05/31	16:10:39	65.6
130	2017/05/31	16:10:42	61.3
131	2017/05/31	16:10:45	62.8
132	2017/05/31	16:10:48	62.6
133	2017/05/31	16:10:51	66.7
134	2017/05/31	16:10:54	72.2
135	2017/05/31	16:10:57	69.1
136	2017/05/31	16:11:00	64.0
137	2017/05/31	16:11:03	60.6
138	2017/05/31	16:11:06	72.6
139	2017/05/31	16:11:09	73.0
140	2017/05/31	16:11:12	71.2
141	2017/05/31	16:11:15	66.2
142	2017/05/31	16:11:18	61.9
143	2017/05/31	16:11:21	63.7
144	2017/05/31	16:11:24	69.1
145	2017/05/31	16:11:27	67.7
146	2017/05/31	16:11:30	68.7
147	2017/05/31	16:11:33	61.5
148	2017/05/31	16:11:36	70.6
149	2017/05/31	16:11:39	77.9
150	2017/05/31	16:11:42	65.4
151	2017/05/31	16:11:45	69.5
152	2017/05/31	16:11:48	63.2
153	2017/05/31	16:11:51	72.7
154	2017/05/31	16:11:54	75.0
155	2017/05/31	16:11:57	65.5
156	2017/05/31	16:12:00	62.0
157	2017/05/31	16:12:03	74.9
158	2017/05/31	16:12:06	61.4
159	2017/05/31	16:12:09	58.7
160	2017/05/31	16:12:12	58.8
161	2017/05/31	16:12:15	54.8
162	2017/05/31	16:12:18	54.8
163	2017/05/31	16:12:21	59.5
164	2017/05/31	16:12:24	58.7
165	2017/05/31	16:12:27	58.4
166	2017/05/31	16:12:30	55.6
167	2017/05/31	16:12:33	50.6
168	2017/05/31	16:12:36	51.2
169	2017/05/31	16:12:39	54.8
170	2017/05/31	16:12:42	65.4
171	2017/05/31	16:12:45	57.1
172	2017/05/31	16:12:48	62.0
173	2017/05/31	16:12:51	64.9
174	2017/05/31	16:12:54	63.9
175	2017/05/31	16:12:57	61.0
176	2017/05/31	16:13:00	62.3
177	2017/05/31	16:13:03	65.8
178	2017/05/31	16:13:06	60.4
179	2017/05/31	16:13:09	61.3
180	2017/05/31	16:13:12	68.6
181	2017/05/31	16:13:15	62.6
182	2017/05/31	16:13:18	59.5
183	2017/05/31	16:13:21	58.8
184	2017/05/31	16:13:24	57.1

185	2017/05/31 16:13:27	58.2
186	2017/05/31 16:13:30	59.5
187	2017/05/31 16:13:33	57.5
188	2017/05/31 16:13:36	67.4
189	2017/05/31 16:13:39	62.5
190	2017/05/31 16:13:42	70.6
191	2017/05/31 16:13:45	60.0
192	2017/05/31 16:13:48	63.7
193	2017/05/31 16:13:51	66.3
194	2017/05/31 16:13:54	69.9
195	2017/05/31 16:13:57	72.5
196	2017/05/31 16:14:00	62.9
197	2017/05/31 16:14:03	60.0
198	2017/05/31 16:14:06	56.1
199	2017/05/31 16:14:09	56.2
200	2017/05/31 16:14:12	66.5
201	2017/05/31 16:14:15	63.0
202	2017/05/31 16:14:18	57.1
203	2017/05/31 16:14:21	64.6
204	2017/05/31 16:14:24	71.4
205	2017/05/31 16:14:27	57.7
206	2017/05/31 16:14:30	58.3
207	2017/05/31 16:14:33	58.4
208	2017/05/31 16:14:36	53.9
209	2017/05/31 16:14:39	49.8
210	2017/05/31 16:14:42	48.8
211	2017/05/31 16:14:45	50.3
212	2017/05/31 16:14:48	49.2
213	2017/05/31 16:14:51	51.9
214	2017/05/31 16:14:54	62.1
215	2017/05/31 16:14:57	60.5
216	2017/05/31 16:15:00	77.3
217	2017/05/31 16:15:03	66.3
218	2017/05/31 16:15:06	68.9
219	2017/05/31 16:15:09	67.0
220	2017/05/31 16:15:12	57.6
221	2017/05/31 16:15:15	56.8
222	2017/05/31 16:15:18	58.9
223	2017/05/31 16:15:21	59.8
224	2017/05/31 16:15:24	61.5
225	2017/05/31 16:15:27	58.6
226	2017/05/31 16:15:30	57.4
227	2017/05/31 16:15:33	55.0
228	2017/05/31 16:15:36	59.5
229	2017/05/31 16:15:39	70.3
230	2017/05/31 16:15:42	58.9
231	2017/05/31 16:15:45	56.7
232	2017/05/31 16:15:48	67.8
233	2017/05/31 16:15:51	59.0
234	2017/05/31 16:15:54	58.0
235	2017/05/31 16:15:57	69.1
236	2017/05/31 16:16:00	58.1
237	2017/05/31 16:16:03	55.5
238	2017/05/31 16:16:06	65.7
239	2017/05/31 16:16:09	60.8
240	2017/05/31 16:16:12	62.4
241	2017/05/31 16:16:15	70.3
242	2017/05/31 16:16:18	63.4
243	2017/05/31 16:16:21	61.1
244	2017/05/31 16:16:24	61.8
245	2017/05/31 16:16:27	67.2
246	2017/05/31 16:16:30	70.0
247	2017/05/31 16:16:33	59.6
248	2017/05/31 16:16:36	59.8
249	2017/05/31 16:16:39	60.5
250	2017/05/31 16:16:42	70.1
251	2017/05/31 16:16:45	64.0
252	2017/05/31 16:16:48	57.0
253	2017/05/31 16:16:51	54.0
254	2017/05/31 16:16:54	53.7
255	2017/05/31 16:16:57	52.3
256	2017/05/31 16:17:00	58.6
257	2017/05/31 16:17:03	69.0
258	2017/05/31 16:17:06	60.5
259	2017/05/31 16:17:09	62.3
260	2017/05/31 16:17:12	62.9
261	2017/05/31 16:17:15	66.7
262	2017/05/31 16:17:18	68.6
263	2017/05/31 16:17:21	69.5
264	2017/05/31 16:17:24	69.7
265	2017/05/31 16:17:27	67.4
266	2017/05/31 16:17:30	63.6
267	2017/05/31 16:17:33	60.5
268	2017/05/31 16:17:36	57.0
269	2017/05/31 16:17:39	56.3
270	2017/05/31 16:17:42	69.1
271	2017/05/31 16:17:45	56.8
272	2017/05/31 16:17:48	54.1
273	2017/05/31 16:17:51	65.5
274	2017/05/31 16:17:54	57.9
275	2017/05/31 16:17:57	58.3
276	2017/05/31 16:18:00	74.2
277	2017/05/31 16:18:03	65.1
278	2017/05/31 16:18:06	56.8
279	2017/05/31 16:18:09	61.9
280	2017/05/31 16:18:12	63.4
281	2017/05/31 16:18:15	60.4
282	2017/05/31 16:18:18	69.2
283	2017/05/31 16:18:21	68.0

284	2017/05/31	16:18:24	60.5
285	2017/05/31	16:18:27	56.3
286	2017/05/31	16:18:30	55.2
287	2017/05/31	16:18:33	55.6
288	2017/05/31	16:18:36	54.3
289	2017/05/31	16:18:39	56.2
290	2017/05/31	16:18:42	67.0
291	2017/05/31	16:18:45	62.4
292	2017/05/31	16:18:48	59.0
293	2017/05/31	16:18:51	57.7
294	2017/05/31	16:18:54	52.7
295	2017/05/31	16:18:57	54.4
296	2017/05/31	16:19:00	67.9
297	2017/05/31	16:19:03	72.6
298	2017/05/31	16:19:06	60.1
299	2017/05/31	16:19:09	65.0
300	2017/05/31	16:19:12	69.4

- Freq Weight : A
- Time Weight : FAST
- Level Range : 40-100
- Max dB : 77.8 - 2017/05/30 18:17:21
- Level Range : 40-100
- SEL : 84.8
- Leq : 55.3
-

No.s	Date Time	(dB)
1	2017/05/30 18:14:17	49.8
2	2017/05/30 18:14:20	50.1
3	2017/05/30 18:14:23	48.7
4	2017/05/30 18:14:26	49.1
5	2017/05/30 18:14:29	49.4
6	2017/05/30 18:14:32	48.6
7	2017/05/30 18:14:35	49.9
8	2017/05/30 18:14:38	48.5
9	2017/05/30 18:14:41	49.3
10	2017/05/30 18:14:44	51.2
11	2017/05/30 18:14:47	51.4
12	2017/05/30 18:14:50	51.5
13	2017/05/30 18:14:53	48.9
14	2017/05/30 18:14:56	49.0
15	2017/05/30 18:14:59	47.8
16	2017/05/30 18:15:02	48.6
17	2017/05/30 18:15:05	47.6
18	2017/05/30 18:15:08	47.8
19	2017/05/30 18:15:11	48.4
20	2017/05/30 18:15:14	47.5
21	2017/05/30 18:15:17	48.0
22	2017/05/30 18:15:20	48.4
23	2017/05/30 18:15:23	52.9
24	2017/05/30 18:15:26	47.2
25	2017/05/30 18:15:29	51.9
26	2017/05/30 18:15:32	53.9
27	2017/05/30 18:15:35	51.6
28	2017/05/30 18:15:38	50.1
29	2017/05/30 18:15:41	51.1
30	2017/05/30 18:15:44	51.1
31	2017/05/30 18:15:47	53.2
32	2017/05/30 18:15:50	54.5
33	2017/05/30 18:15:53	53.6
34	2017/05/30 18:15:56	53.8
35	2017/05/30 18:15:59	63.7
36	2017/05/30 18:16:02	58.9
37	2017/05/30 18:16:05	57.9
38	2017/05/30 18:16:08	60.1
39	2017/05/30 18:16:11	55.4
40	2017/05/30 18:16:14	57.7
41	2017/05/30 18:16:17	59.5
42	2017/05/30 18:16:20	58.9
43	2017/05/30 18:16:23	57.6
44	2017/05/30 18:16:26	58.8
45	2017/05/30 18:16:29	58.1
46	2017/05/30 18:16:32	58.5
47	2017/05/30 18:16:35	57.8
48	2017/05/30 18:16:38	57.8
49	2017/05/30 18:16:41	57.8
50	2017/05/30 18:16:44	58.5
51	2017/05/30 18:16:47	57.8
52	2017/05/30 18:16:50	58.0
53	2017/05/30 18:16:53	58.4
54	2017/05/30 18:16:56	60.0
55	2017/05/30 18:16:59	58.0
56	2017/05/30 18:17:02	56.9
57	2017/05/30 18:17:05	57.5
58	2017/05/30 18:17:08	57.1
59	2017/05/30 18:17:11	58.1
60	2017/05/30 18:17:14	62.0
61	2017/05/30 18:17:17	71.2
62	2017/05/30 18:17:20	73.8
63	2017/05/30 18:17:23	56.6
64	2017/05/30 18:17:26	69.8
65	2017/05/30 18:17:29	57.6
66	2017/05/30 18:17:32	48.9
67	2017/05/30 18:17:35	49.4
68	2017/05/30 18:17:38	50.2
69	2017/05/30 18:17:41	49.3
70	2017/05/30 18:17:44	51.6
71	2017/05/30 18:17:47	60.7
72	2017/05/30 18:17:50	50.0
73	2017/05/30 18:17:53	50.9
74	2017/05/30 18:17:56	47.6
75	2017/05/30 18:17:59	45.9
76	2017/05/30 18:18:02	45.2
77	2017/05/30 18:18:05	46.8
78	2017/05/30 18:18:08	47.7
79	2017/05/30 18:18:11	45.7
80	2017/05/30 18:18:14	46.8
81	2017/05/30 18:18:17	44.5
82	2017/05/30 18:18:20	45.3
83	2017/05/30 18:18:23	45.1
84	2017/05/30 18:18:26	45.3
85	2017/05/30 18:18:29	47.0

86	2017/05/30	18:18:32	46.2
87	2017/05/30	18:18:35	48.4
88	2017/05/30	18:18:38	46.9
89	2017/05/30	18:18:41	45.5
90	2017/05/30	18:18:44	47.1
91	2017/05/30	18:18:47	47.0
92	2017/05/30	18:18:50	48.0
93	2017/05/30	18:18:53	46.7
94	2017/05/30	18:18:56	48.7
95	2017/05/30	18:18:59	49.3
96	2017/05/30	18:19:02	48.2
97	2017/05/30	18:19:05	49.3
98	2017/05/30	18:19:08	48.1
99	2017/05/30	18:19:11	48.1
100	2017/05/30	18:19:14	49.5
101	2017/05/30	18:19:17	47.8
102	2017/05/30	18:19:20	47.2
103	2017/05/30	18:19:23	48.0
104	2017/05/30	18:19:26	48.6
105	2017/05/30	18:19:29	46.4
106	2017/05/30	18:19:32	47.5
107	2017/05/30	18:19:35	46.0
108	2017/05/30	18:19:38	46.9
109	2017/05/30	18:19:41	46.5
110	2017/05/30	18:19:44	47.2
111	2017/05/30	18:19:47	47.2
112	2017/05/30	18:19:50	47.7
113	2017/05/30	18:19:53	52.3
114	2017/05/30	18:19:56	46.8
115	2017/05/30	18:19:59	53.8
116	2017/05/30	18:20:02	52.5
117	2017/05/30	18:20:05	49.1
118	2017/05/30	18:20:08	54.2
119	2017/05/30	18:20:11	55.4
120	2017/05/30	18:20:14	50.3
121	2017/05/30	18:20:17	52.5
122	2017/05/30	18:20:20	47.5
123	2017/05/30	18:20:23	46.8
124	2017/05/30	18:20:26	47.7
125	2017/05/30	18:20:29	49.1
126	2017/05/30	18:20:32	50.8
127	2017/05/30	18:20:35	49.6
128	2017/05/30	18:20:38	48.7
129	2017/05/30	18:20:41	48.5
130	2017/05/30	18:20:44	47.9
131	2017/05/30	18:20:47	48.6
132	2017/05/30	18:20:50	49.2
133	2017/05/30	18:20:53	47.9
134	2017/05/30	18:20:56	47.7
135	2017/05/30	18:20:59	47.3
136	2017/05/30	18:21:02	48.5
137	2017/05/30	18:21:05	46.8
138	2017/05/30	18:21:08	46.9
139	2017/05/30	18:21:11	47.4
140	2017/05/30	18:21:14	47.5
141	2017/05/30	18:21:17	46.4
142	2017/05/30	18:21:20	46.9
143	2017/05/30	18:21:23	48.3
144	2017/05/30	18:21:26	46.4
145	2017/05/30	18:21:29	45.5
146	2017/05/30	18:21:32	46.8
147	2017/05/30	18:21:35	46.7
148	2017/05/30	18:21:38	48.2
149	2017/05/30	18:21:41	49.5
150	2017/05/30	18:21:44	51.7
151	2017/05/30	18:21:47	51.8
152	2017/05/30	18:21:50	60.4
153	2017/05/30	18:21:53	53.0
154	2017/05/30	18:21:56	48.6
155	2017/05/30	18:21:59	49.5
156	2017/05/30	18:22:02	48.3
157	2017/05/30	18:22:05	47.3
158	2017/05/30	18:22:08	48.2
159	2017/05/30	18:22:11	47.1
160	2017/05/30	18:22:14	45.7
161	2017/05/30	18:22:17	46.0
162	2017/05/30	18:22:20	46.2
163	2017/05/30	18:22:23	48.1
164	2017/05/30	18:22:26	46.2
165	2017/05/30	18:22:29	45.3
166	2017/05/30	18:22:32	45.8
167	2017/05/30	18:22:35	46.3
168	2017/05/30	18:22:38	47.2
169	2017/05/30	18:22:41	46.1
170	2017/05/30	18:22:44	45.8
171	2017/05/30	18:22:47	47.0
172	2017/05/30	18:22:50	47.1
173	2017/05/30	18:22:53	48.3
174	2017/05/30	18:22:56	48.1
175	2017/05/30	18:22:59	48.7
176	2017/05/30	18:23:02	50.1
177	2017/05/30	18:23:05	49.5
178	2017/05/30	18:23:08	51.6
179	2017/05/30	18:23:11	52.4
180	2017/05/30	18:23:14	66.2
181	2017/05/30	18:23:17	59.9
182	2017/05/30	18:23:20	50.9
183	2017/05/30	18:23:23	50.1
184	2017/05/30	18:23:26	48.6

185	2017/05/30	18:23:29	47.1
186	2017/05/30	18:23:32	51.7
187	2017/05/30	18:23:35	50.1
188	2017/05/30	18:23:38	52.1
189	2017/05/30	18:23:41	56.0
190	2017/05/30	18:23:44	52.7
191	2017/05/30	18:23:47	48.5
192	2017/05/30	18:23:50	49.5
193	2017/05/30	18:23:53	50.7
194	2017/05/30	18:23:56	48.8
195	2017/05/30	18:23:59	47.6
196	2017/05/30	18:24:02	48.9
197	2017/05/30	18:24:05	49.8
198	2017/05/30	18:24:08	46.9
199	2017/05/30	18:24:11	46.6
200	2017/05/30	18:24:14	45.8
201	2017/05/30	18:24:17	47.2
202	2017/05/30	18:24:20	47.0
203	2017/05/30	18:24:23	48.0
204	2017/05/30	18:24:26	47.9
205	2017/05/30	18:24:29	47.3
206	2017/05/30	18:24:32	47.9
207	2017/05/30	18:24:35	48.4
208	2017/05/30	18:24:38	50.4
209	2017/05/30	18:24:41	49.2
210	2017/05/30	18:24:44	48.8
211	2017/05/30	18:24:47	49.8
212	2017/05/30	18:24:50	48.8
213	2017/05/30	18:24:53	48.2
214	2017/05/30	18:24:56	47.1
215	2017/05/30	18:24:59	49.9
216	2017/05/30	18:25:02	49.3
217	2017/05/30	18:25:05	49.8
218	2017/05/30	18:25:08	48.2
219	2017/05/30	18:25:11	47.3
220	2017/05/30	18:25:14	47.8
221	2017/05/30	18:25:17	47.1
222	2017/05/30	18:25:20	52.1
223	2017/05/30	18:25:23	48.2
224	2017/05/30	18:25:26	47.6
225	2017/05/30	18:25:29	48.1
226	2017/05/30	18:25:32	47.1
227	2017/05/30	18:25:35	49.1
228	2017/05/30	18:25:38	47.2
229	2017/05/30	18:25:41	46.8
230	2017/05/30	18:25:44	47.1
231	2017/05/30	18:25:47	59.3
232	2017/05/30	18:25:50	53.7
233	2017/05/30	18:25:53	54.0
234	2017/05/30	18:25:56	53.4
235	2017/05/30	18:25:59	53.5
236	2017/05/30	18:26:02	52.0
237	2017/05/30	18:26:05	52.8
238	2017/05/30	18:26:08	52.4
239	2017/05/30	18:26:11	51.7
240	2017/05/30	18:26:14	49.5
241	2017/05/30	18:26:17	50.3
242	2017/05/30	18:26:20	51.0
243	2017/05/30	18:26:23	51.0
244	2017/05/30	18:26:26	51.1
245	2017/05/30	18:26:29	51.3
246	2017/05/30	18:26:32	51.0
247	2017/05/30	18:26:35	48.7
248	2017/05/30	18:26:38	48.9
249	2017/05/30	18:26:41	49.3
250	2017/05/30	18:26:44	48.3
251	2017/05/30	18:26:47	48.8
252	2017/05/30	18:26:50	48.9
253	2017/05/30	18:26:53	48.6
254	2017/05/30	18:26:56	48.0
255	2017/05/30	18:26:59	49.1
256	2017/05/30	18:27:02	47.2
257	2017/05/30	18:27:05	48.7
258	2017/05/30	18:27:08	48.5
259	2017/05/30	18:27:11	48.6
260	2017/05/30	18:27:14	46.5
261	2017/05/30	18:27:17	51.2
262	2017/05/30	18:27:20	47.9
263	2017/05/30	18:27:23	49.3
264	2017/05/30	18:27:26	50.8
265	2017/05/30	18:27:29	50.8
266	2017/05/30	18:27:32	49.4
267	2017/05/30	18:27:35	50.1
268	2017/05/30	18:27:38	50.3
269	2017/05/30	18:27:41	50.1
270	2017/05/30	18:27:44	49.9
271	2017/05/30	18:27:47	48.5
272	2017/05/30	18:27:50	47.6
273	2017/05/30	18:27:53	48.3
274	2017/05/30	18:27:56	47.3
275	2017/05/30	18:27:59	47.9
276	2017/05/30	18:28:02	49.2
277	2017/05/30	18:28:05	47.4
278	2017/05/30	18:28:08	48.5
279	2017/05/30	18:28:11	49.5
280	2017/05/30	18:28:14	46.4
281	2017/05/30	18:28:17	48.6
282	2017/05/30	18:28:20	50.0
283	2017/05/30	18:28:23	49.9

284	2017/05/30	18:28:26	48.6
285	2017/05/30	18:28:29	49.5
286	2017/05/30	18:28:32	47.4
287	2017/05/30	18:28:35	47.7
288	2017/05/30	18:28:38	47.4
289	2017/05/30	18:28:41	46.7
290	2017/05/30	18:28:44	47.1
291	2017/05/30	18:28:47	49.0
292	2017/05/30	18:28:50	51.7
293	2017/05/30	18:28:53	55.4
294	2017/05/30	18:28:56	54.3
295	2017/05/30	18:28:59	54.6
296	2017/05/30	18:29:02	57.8
297	2017/05/30	18:29:05	57.9
298	2017/05/30	18:29:08	57.1
299	2017/05/30	18:29:11	67.0
300	2017/05/30	18:29:14	64.7

- Freq Weight : A
- Time Weight : FAST
- Level Range : 40-100
- Max dB : 76.8 - 2017/05/30 17:33:20
- Level Range : 40-100
- SEL : 97.8
- Leq : 68.3
-

No.s	Date Time	(dB)
1	2017/05/30 17:26:58	69.2
2	2017/05/30 17:27:01	66.6
3	2017/05/30 17:27:04	65.3
4	2017/05/30 17:27:07	65.3
5	2017/05/30 17:27:10	66.1
6	2017/05/30 17:27:13	63.8
7	2017/05/30 17:27:16	64.6
8	2017/05/30 17:27:19	64.7
9	2017/05/30 17:27:22	67.5
10	2017/05/30 17:27:25	64.1
11	2017/05/30 17:27:28	66.7
12	2017/05/30 17:27:31	69.4
13	2017/05/30 17:27:34	72.5
14	2017/05/30 17:27:37	70.5
15	2017/05/30 17:27:40	68.5
16	2017/05/30 17:27:43	66.4
17	2017/05/30 17:27:46	70.0
18	2017/05/30 17:27:49	64.8
19	2017/05/30 17:27:52	57.7
20	2017/05/30 17:27:55	65.9
21	2017/05/30 17:27:58	69.0
22	2017/05/30 17:28:01	66.5
23	2017/05/30 17:28:04	64.5
24	2017/05/30 17:28:07	62.3
25	2017/05/30 17:28:10	67.9
26	2017/05/30 17:28:13	68.2
27	2017/05/30 17:28:16	66.0
28	2017/05/30 17:28:19	65.1
29	2017/05/30 17:28:22	67.9
30	2017/05/30 17:28:25	69.0
31	2017/05/30 17:28:28	68.3
32	2017/05/30 17:28:31	71.3
33	2017/05/30 17:28:34	71.2
34	2017/05/30 17:28:37	67.0
35	2017/05/30 17:28:40	70.1
36	2017/05/30 17:28:43	68.6
37	2017/05/30 17:28:46	64.5
38	2017/05/30 17:28:49	67.9
39	2017/05/30 17:28:52	68.4
40	2017/05/30 17:28:55	66.9
41	2017/05/30 17:28:58	66.2
42	2017/05/30 17:29:01	68.4
43	2017/05/30 17:29:04	68.3
44	2017/05/30 17:29:07	64.2
45	2017/05/30 17:29:10	63.1
46	2017/05/30 17:29:13	60.2
47	2017/05/30 17:29:16	56.0
48	2017/05/30 17:29:19	56.8
49	2017/05/30 17:29:22	62.8
50	2017/05/30 17:29:25	67.0
51	2017/05/30 17:29:28	66.4
52	2017/05/30 17:29:31	65.0
53	2017/05/30 17:29:34	64.2
54	2017/05/30 17:29:37	62.5
55	2017/05/30 17:29:40	65.5
56	2017/05/30 17:29:43	69.4
57	2017/05/30 17:29:46	69.1
58	2017/05/30 17:29:49	71.4
59	2017/05/30 17:29:52	70.0
60	2017/05/30 17:29:55	69.2
61	2017/05/30 17:29:58	70.8
62	2017/05/30 17:30:01	69.4
63	2017/05/30 17:30:04	69.0
64	2017/05/30 17:30:07	69.5
65	2017/05/30 17:30:10	67.9
66	2017/05/30 17:30:13	67.5
67	2017/05/30 17:30:16	69.9
68	2017/05/30 17:30:19	70.0
69	2017/05/30 17:30:22	67.3
70	2017/05/30 17:30:25	66.1
71	2017/05/30 17:30:28	64.2
72	2017/05/30 17:30:31	69.4
73	2017/05/30 17:30:34	68.4
74	2017/05/30 17:30:37	68.3
75	2017/05/30 17:30:40	68.1
76	2017/05/30 17:30:43	68.7
77	2017/05/30 17:30:46	70.5
78	2017/05/30 17:30:49	68.7
79	2017/05/30 17:30:52	62.0
80	2017/05/30 17:30:55	61.1
81	2017/05/30 17:30:58	59.6
82	2017/05/30 17:31:01	66.4
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84	2017/05/30 17:31:07	68.2
85	2017/05/30 17:31:10	71.5

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87	2017/05/30	17:31:16	69.8
88	2017/05/30	17:31:19	69.0
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91	2017/05/30	17:31:28	65.6
92	2017/05/30	17:31:31	65.5
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94	2017/05/30	17:31:37	65.9
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154	2017/05/30	17:34:37	72.0
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165	2017/05/30	17:35:10	65.8
166	2017/05/30	17:35:13	65.6
167	2017/05/30	17:35:16	65.4
168	2017/05/30	17:35:19	67.2
169	2017/05/30	17:35:22	68.0
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171	2017/05/30	17:35:28	68.2
172	2017/05/30	17:35:31	66.1
173	2017/05/30	17:35:34	74.5
174	2017/05/30	17:35:37	68.9
175	2017/05/30	17:35:40	69.8
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193	2017/05/30 17:36:34	64.7
194	2017/05/30 17:36:37	67.6
195	2017/05/30 17:36:40	70.3
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222	2017/05/30 17:38:01	55.3
223	2017/05/30 17:38:04	58.3
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273	2017/05/30 17:40:34	71.2
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281	2017/05/30 17:40:58	74.6
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295	2017/05/30	17:41:40	74.4
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299	2017/05/30	17:41:52	70.0
300	2017/05/30	17:41:55	66.6

- Freq Weight : A
- Time Weight : FAST
- Level Range : 40-100
- Max dB : 62.5 - 2017/05/30 17:10:43
- Level Range : 40-100
- SEL : 84.4
- Leq : 54.9
-

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3	2017/05/30 16:56:57	52.2
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5	2017/05/30 16:57:03	54.1
6	2017/05/30 16:57:06	50.4
7	2017/05/30 16:57:09	54.4
8	2017/05/30 16:57:12	52.9
9	2017/05/30 16:57:15	54.5
10	2017/05/30 16:57:18	54.2
11	2017/05/30 16:57:21	51.2
12	2017/05/30 16:57:24	48.4
13	2017/05/30 16:57:27	47.6
14	2017/05/30 16:57:30	48.3
15	2017/05/30 16:57:33	47.7
16	2017/05/30 16:57:36	48.4
17	2017/05/30 16:57:39	49.6
18	2017/05/30 16:57:42	50.0
19	2017/05/30 16:57:45	49.8
20	2017/05/30 16:57:48	49.0
21	2017/05/30 16:57:51	50.5
22	2017/05/30 16:57:54	49.7
23	2017/05/30 16:57:57	51.1
24	2017/05/30 16:58:00	50.7
25	2017/05/30 16:58:03	48.8
26	2017/05/30 16:58:06	48.3
27	2017/05/30 16:58:09	50.8
28	2017/05/30 16:58:12	50.3
29	2017/05/30 16:58:15	52.6
30	2017/05/30 16:58:18	53.6
31	2017/05/30 16:58:21	54.8
32	2017/05/30 16:58:24	48.0
33	2017/05/30 16:58:27	47.5
34	2017/05/30 16:58:30	48.3
35	2017/05/30 16:58:33	47.2
36	2017/05/30 16:58:36	47.0
37	2017/05/30 16:58:39	51.1
38	2017/05/30 16:58:42	52.1
39	2017/05/30 16:58:45	50.6
40	2017/05/30 16:58:48	50.5
41	2017/05/30 16:58:51	53.6
42	2017/05/30 16:58:54	53.5
43	2017/05/30 16:58:57	51.7
44	2017/05/30 16:59:00	52.7
45	2017/05/30 16:59:03	51.3
46	2017/05/30 16:59:06	51.6
47	2017/05/30 16:59:09	54.0
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51	2017/05/30 16:59:21	55.1
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53	2017/05/30 16:59:27	53.0
54	2017/05/30 16:59:30	53.7
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56	2017/05/30 16:59:36	53.6
57	2017/05/30 16:59:39	52.5
58	2017/05/30 16:59:42	52.9
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60	2017/05/30 16:59:48	53.9
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63	2017/05/30 16:59:57	60.0
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67	2017/05/30 17:00:09	54.0
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69	2017/05/30 17:00:15	54.4
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83	2017/05/30 17:00:57	54.9
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221	2017/05/30 17:07:51	55.8
222	2017/05/30 17:07:54	56.9
223	2017/05/30 17:07:57	59.2
224	2017/05/30 17:08:00	58.2
225	2017/05/30 17:08:03	55.4
226	2017/05/30 17:08:06	53.2
227	2017/05/30 17:08:09	45.2
228	2017/05/30 17:08:12	48.1
229	2017/05/30 17:08:15	51.0
230	2017/05/30 17:08:18	51.0
231	2017/05/30 17:08:21	49.1
232	2017/05/30 17:08:24	54.8
233	2017/05/30 17:08:27	54.8
234	2017/05/30 17:08:30	56.7
235	2017/05/30 17:08:33	56.1
236	2017/05/30 17:08:36	56.4
237	2017/05/30 17:08:39	58.0
238	2017/05/30 17:08:42	56.9
239	2017/05/30 17:08:45	55.0
240	2017/05/30 17:08:48	53.2
241	2017/05/30 17:08:51	45.6
242	2017/05/30 17:08:54	53.1
243	2017/05/30 17:08:57	52.4
244	2017/05/30 17:09:00	51.8
245	2017/05/30 17:09:03	53.2
246	2017/05/30 17:09:06	53.3
247	2017/05/30 17:09:09	56.9
248	2017/05/30 17:09:12	54.2
249	2017/05/30 17:09:15	54.4
250	2017/05/30 17:09:18	55.0
251	2017/05/30 17:09:21	57.4
252	2017/05/30 17:09:24	60.7
253	2017/05/30 17:09:27	61.0
254	2017/05/30 17:09:30	60.8
255	2017/05/30 17:09:33	59.2
256	2017/05/30 17:09:36	59.3
257	2017/05/30 17:09:39	56.2
258	2017/05/30 17:09:42	57.5
259	2017/05/30 17:09:45	55.9
260	2017/05/30 17:09:48	52.6
261	2017/05/30 17:09:51	54.8
262	2017/05/30 17:09:54	54.1
263	2017/05/30 17:09:57	55.0
264	2017/05/30 17:10:00	54.3
265	2017/05/30 17:10:03	54.7
266	2017/05/30 17:10:06	55.4
267	2017/05/30 17:10:09	56.4
268	2017/05/30 17:10:12	56.7
269	2017/05/30 17:10:15	57.7
270	2017/05/30 17:10:18	59.5
271	2017/05/30 17:10:21	58.0
272	2017/05/30 17:10:24	59.8
273	2017/05/30 17:10:27	61.8
274	2017/05/30 17:10:30	61.5
275	2017/05/30 17:10:33	59.7
276	2017/05/30 17:10:36	60.1
277	2017/05/30 17:10:39	61.3
278	2017/05/30 17:10:42	60.9
279	2017/05/30 17:10:45	58.2
280	2017/05/30 17:10:48	55.8
281	2017/05/30 17:10:51	58.7
282	2017/05/30 17:10:54	59.5
283	2017/05/30 17:10:57	57.3

284	2017/05/30	17:11:00	58.3
285	2017/05/30	17:11:03	57.3
286	2017/05/30	17:11:06	56.9
287	2017/05/30	17:11:09	55.0
288	2017/05/30	17:11:12	56.8
289	2017/05/30	17:11:15	60.9
290	2017/05/30	17:11:18	60.5
291	2017/05/30	17:11:21	60.0
292	2017/05/30	17:11:24	59.3
293	2017/05/30	17:11:27	53.6
294	2017/05/30	17:11:30	55.4
295	2017/05/30	17:11:33	53.5
296	2017/05/30	17:11:36	56.1
297	2017/05/30	17:11:39	48.6
298	2017/05/30	17:11:42	44.7
299	2017/05/30	17:11:45	43.0
300	2017/05/30	17:11:48	43.6

- Freq Weight : A
- Time Weight : FAST
- Level Range : 40-100
- Max dB : 77.3 - 2017/05/30 15:29:54
- Level Range : 40-100
- SEL : 86.1
- Leq : 56.6
-

No.s	Date Time	(dB)
1	2017/05/30 15:28:59	53.4
2	2017/05/30 15:29:02	58.0
3	2017/05/30 15:29:05	56.7
4	2017/05/30 15:29:08	57.5
5	2017/05/30 15:29:11	55.8
6	2017/05/30 15:29:14	55.5
7	2017/05/30 15:29:17	59.1
8	2017/05/30 15:29:20	58.3
9	2017/05/30 15:29:23	55.7
10	2017/05/30 15:29:26	63.4
11	2017/05/30 15:29:29	60.1
12	2017/05/30 15:29:32	56.5
13	2017/05/30 15:29:35	57.7
14	2017/05/30 15:29:38	54.5
15	2017/05/30 15:29:41	62.7
16	2017/05/30 15:29:44	54.8
17	2017/05/30 15:29:47	55.3
18	2017/05/30 15:29:50	55.2
19	2017/05/30 15:29:53	55.8
20	2017/05/30 15:29:56	57.1
21	2017/05/30 15:29:59	54.2
22	2017/05/30 15:30:02	49.5
23	2017/05/30 15:30:05	51.8
24	2017/05/30 15:30:08	52.9
25	2017/05/30 15:30:11	53.9
26	2017/05/30 15:30:14	57.3
27	2017/05/30 15:30:17	58.1
28	2017/05/30 15:30:20	52.1
29	2017/05/30 15:30:23	48.1
30	2017/05/30 15:30:26	52.2
31	2017/05/30 15:30:29	53.4
32	2017/05/30 15:30:32	52.0
33	2017/05/30 15:30:35	54.6
34	2017/05/30 15:30:38	57.1
35	2017/05/30 15:30:41	52.5
36	2017/05/30 15:30:44	54.2
37	2017/05/30 15:30:47	54.0
38	2017/05/30 15:30:50	59.4
39	2017/05/30 15:30:53	60.3
40	2017/05/30 15:30:56	55.9
41	2017/05/30 15:30:59	56.5
42	2017/05/30 15:31:02	57.5
43	2017/05/30 15:31:05	58.4
44	2017/05/30 15:31:08	65.1
45	2017/05/30 15:31:11	58.4
46	2017/05/30 15:31:14	58.4
47	2017/05/30 15:31:17	53.1
48	2017/05/30 15:31:20	50.5
49	2017/05/30 15:31:23	57.7
50	2017/05/30 15:31:26	56.0
51	2017/05/30 15:31:29	58.5
52	2017/05/30 15:31:32	58.8
53	2017/05/30 15:31:35	57.9
54	2017/05/30 15:31:38	54.0
55	2017/05/30 15:31:41	55.5
56	2017/05/30 15:31:44	63.7
57	2017/05/30 15:31:47	50.6
58	2017/05/30 15:31:50	52.8
59	2017/05/30 15:31:53	54.9
60	2017/05/30 15:31:56	61.4
61	2017/05/30 15:31:59	58.1
62	2017/05/30 15:32:02	53.9
63	2017/05/30 15:32:05	55.2
64	2017/05/30 15:32:08	59.8
65	2017/05/30 15:32:11	52.7
66	2017/05/30 15:32:14	54.3
67	2017/05/30 15:32:17	56.2
68	2017/05/30 15:32:20	59.1
69	2017/05/30 15:32:23	57.5
70	2017/05/30 15:32:26	53.1
71	2017/05/30 15:32:29	50.9
72	2017/05/30 15:32:32	51.2
73	2017/05/30 15:32:35	48.0
74	2017/05/30 15:32:38	49.0
75	2017/05/30 15:32:41	47.6
76	2017/05/30 15:32:44	48.2
77	2017/05/30 15:32:47	51.7
78	2017/05/30 15:32:50	55.1
79	2017/05/30 15:32:53	50.3
80	2017/05/30 15:32:56	56.7
81	2017/05/30 15:32:59	58.3
82	2017/05/30 15:33:02	57.2
83	2017/05/30 15:33:05	62.9
84	2017/05/30 15:33:08	59.8
85	2017/05/30 15:33:11	59.2

86	2017/05/30 15:33:14	58.4
87	2017/05/30 15:33:17	60.7
88	2017/05/30 15:33:20	53.2
89	2017/05/30 15:33:23	57.1
90	2017/05/30 15:33:26	51.9
91	2017/05/30 15:33:29	52.0
92	2017/05/30 15:33:32	56.7
93	2017/05/30 15:33:35	51.1
94	2017/05/30 15:33:38	49.1
95	2017/05/30 15:33:41	50.1
96	2017/05/30 15:33:44	49.3
97	2017/05/30 15:33:47	54.0
98	2017/05/30 15:33:50	51.2
99	2017/05/30 15:33:53	54.3
100	2017/05/30 15:33:56	49.6
101	2017/05/30 15:33:59	57.2
102	2017/05/30 15:34:02	50.6
103	2017/05/30 15:34:05	54.7
104	2017/05/30 15:34:08	57.3
105	2017/05/30 15:34:11	61.7
106	2017/05/30 15:34:14	50.3
107	2017/05/30 15:34:17	54.6
108	2017/05/30 15:34:20	52.1
109	2017/05/30 15:34:23	51.2
110	2017/05/30 15:34:26	51.7
111	2017/05/30 15:34:29	57.1
112	2017/05/30 15:34:32	52.5
113	2017/05/30 15:34:35	58.3
114	2017/05/30 15:34:38	53.6
115	2017/05/30 15:34:41	50.2
116	2017/05/30 15:34:44	49.9
117	2017/05/30 15:34:47	54.3
118	2017/05/30 15:34:50	59.6
119	2017/05/30 15:34:53	54.4
120	2017/05/30 15:34:56	49.1
121	2017/05/30 15:34:59	50.1
122	2017/05/30 15:35:02	52.1
123	2017/05/30 15:35:05	56.8
124	2017/05/30 15:35:08	50.1
125	2017/05/30 15:35:11	49.5
126	2017/05/30 15:35:14	48.8
127	2017/05/30 15:35:17	59.7
128	2017/05/30 15:35:20	49.9
129	2017/05/30 15:35:23	56.0
130	2017/05/30 15:35:26	57.6
131	2017/05/30 15:35:29	50.8
132	2017/05/30 15:35:32	53.4
133	2017/05/30 15:35:35	54.0
134	2017/05/30 15:35:38	57.0
135	2017/05/30 15:35:41	50.7
136	2017/05/30 15:35:44	51.3
137	2017/05/30 15:35:47	58.5
138	2017/05/30 15:35:50	53.7
139	2017/05/30 15:35:53	62.3
140	2017/05/30 15:35:56	55.0
141	2017/05/30 15:35:59	53.8
142	2017/05/30 15:36:02	66.5
143	2017/05/30 15:36:05	56.3
144	2017/05/30 15:36:08	50.6
145	2017/05/30 15:36:11	54.1
146	2017/05/30 15:36:14	49.7
147	2017/05/30 15:36:17	50.0
148	2017/05/30 15:36:20	51.5
149	2017/05/30 15:36:23	53.5
150	2017/05/30 15:36:26	56.5
151	2017/05/30 15:36:29	52.4
152	2017/05/30 15:36:32	52.7
153	2017/05/30 15:36:35	50.0
154	2017/05/30 15:36:38	50.5
155	2017/05/30 15:36:41	52.7
156	2017/05/30 15:36:44	52.7
157	2017/05/30 15:36:47	51.2
158	2017/05/30 15:36:50	58.3
159	2017/05/30 15:36:53	53.9
160	2017/05/30 15:36:56	59.1
161	2017/05/30 15:36:59	56.5
162	2017/05/30 15:37:02	56.9
163	2017/05/30 15:37:05	52.8
164	2017/05/30 15:37:08	66.5
165	2017/05/30 15:37:11	55.4
166	2017/05/30 15:37:14	48.9
167	2017/05/30 15:37:17	49.1
168	2017/05/30 15:37:20	49.5
169	2017/05/30 15:37:23	50.4
170	2017/05/30 15:37:26	50.3
171	2017/05/30 15:37:29	55.1
172	2017/05/30 15:37:32	67.7
173	2017/05/30 15:37:35	53.6
174	2017/05/30 15:37:38	50.3
175	2017/05/30 15:37:41	50.0
176	2017/05/30 15:37:44	52.2
177	2017/05/30 15:37:47	50.3
178	2017/05/30 15:37:50	49.1
179	2017/05/30 15:37:53	52.0
180	2017/05/30 15:37:56	53.1
181	2017/05/30 15:37:59	52.4
182	2017/05/30 15:38:02	53.3
183	2017/05/30 15:38:05	59.5
184	2017/05/30 15:38:08	54.2

185	2017/05/30 15:38:11	52.1
186	2017/05/30 15:38:14	52.9
187	2017/05/30 15:38:17	52.7
188	2017/05/30 15:38:20	53.6
189	2017/05/30 15:38:23	52.3
190	2017/05/30 15:38:26	53.1
191	2017/05/30 15:38:29	53.4
192	2017/05/30 15:38:32	55.1
193	2017/05/30 15:38:35	55.0
194	2017/05/30 15:38:38	53.5
195	2017/05/30 15:38:41	54.4
196	2017/05/30 15:38:44	55.0
197	2017/05/30 15:38:47	54.1
198	2017/05/30 15:38:50	54.0
199	2017/05/30 15:38:53	54.6
200	2017/05/30 15:38:56	56.2
201	2017/05/30 15:38:59	54.8
202	2017/05/30 15:39:02	58.1
203	2017/05/30 15:39:05	56.9
204	2017/05/30 15:39:08	61.1
205	2017/05/30 15:39:11	52.5
206	2017/05/30 15:39:14	51.9
207	2017/05/30 15:39:17	53.1
208	2017/05/30 15:39:20	60.3
209	2017/05/30 15:39:23	66.7
210	2017/05/30 15:39:26	58.3
211	2017/05/30 15:39:29	67.2
212	2017/05/30 15:39:32	63.8
213	2017/05/30 15:39:35	60.1
214	2017/05/30 15:39:38	51.9
215	2017/05/30 15:39:41	51.1
216	2017/05/30 15:39:44	47.8
217	2017/05/30 15:39:47	50.1
218	2017/05/30 15:39:50	50.3
219	2017/05/30 15:39:53	49.0
220	2017/05/30 15:39:56	48.4
221	2017/05/30 15:39:59	48.8
222	2017/05/30 15:40:02	50.2
223	2017/05/30 15:40:05	54.4
224	2017/05/30 15:40:08	54.6
225	2017/05/30 15:40:11	55.3
226	2017/05/30 15:40:14	51.1
227	2017/05/30 15:40:17	58.5
228	2017/05/30 15:40:20	59.9
229	2017/05/30 15:40:23	57.7
230	2017/05/30 15:40:26	56.3
231	2017/05/30 15:40:29	58.3
232	2017/05/30 15:40:32	52.9
233	2017/05/30 15:40:35	55.0
234	2017/05/30 15:40:38	54.0
235	2017/05/30 15:40:41	51.9
236	2017/05/30 15:40:44	52.3
237	2017/05/30 15:40:47	55.5
238	2017/05/30 15:40:50	51.0
239	2017/05/30 15:40:53	49.8
240	2017/05/30 15:40:56	52.0
241	2017/05/30 15:40:59	52.6
242	2017/05/30 15:41:02	54.7
243	2017/05/30 15:41:05	60.3
244	2017/05/30 15:41:08	55.5
245	2017/05/30 15:41:11	55.0
246	2017/05/30 15:41:14	55.2
247	2017/05/30 15:41:17	54.8
248	2017/05/30 15:41:20	59.7
249	2017/05/30 15:41:23	57.3
250	2017/05/30 15:41:26	54.9
251	2017/05/30 15:41:29	49.4
252	2017/05/30 15:41:32	52.8
253	2017/05/30 15:41:35	47.0
254	2017/05/30 15:41:38	47.1
255	2017/05/30 15:41:41	52.0
256	2017/05/30 15:41:44	55.5
257	2017/05/30 15:41:47	62.4
258	2017/05/30 15:41:50	57.0
259	2017/05/30 15:41:53	53.7
260	2017/05/30 15:41:56	53.7
261	2017/05/30 15:41:59	61.4
262	2017/05/30 15:42:02	56.8
263	2017/05/30 15:42:05	51.4
264	2017/05/30 15:42:08	54.8
265	2017/05/30 15:42:11	54.2
266	2017/05/30 15:42:14	52.6
267	2017/05/30 15:42:17	49.5
268	2017/05/30 15:42:20	50.1
269	2017/05/30 15:42:23	51.0
270	2017/05/30 15:42:26	53.5
271	2017/05/30 15:42:29	50.7
272	2017/05/30 15:42:32	58.2
273	2017/05/30 15:42:35	54.6
274	2017/05/30 15:42:38	54.5
275	2017/05/30 15:42:41	54.0
276	2017/05/30 15:42:44	56.1
277	2017/05/30 15:42:47	61.2
278	2017/05/30 15:42:50	53.6
279	2017/05/30 15:42:53	51.6
280	2017/05/30 15:42:56	53.0
281	2017/05/30 15:42:59	54.5
282	2017/05/30 15:43:02	53.8
283	2017/05/30 15:43:05	52.0

284	2017/05/30	15:43:08	48.9
285	2017/05/30	15:43:11	50.0
286	2017/05/30	15:43:14	50.8
287	2017/05/30	15:43:17	50.7
288	2017/05/30	15:43:20	48.8
289	2017/05/30	15:43:23	47.7
290	2017/05/30	15:43:26	49.6
291	2017/05/30	15:43:29	52.1
292	2017/05/30	15:43:32	54.1
293	2017/05/30	15:43:35	63.4
294	2017/05/30	15:43:38	57.7
295	2017/05/30	15:43:41	51.0
296	2017/05/30	15:43:44	48.7
297	2017/05/30	15:43:47	56.2
298	2017/05/30	15:43:50	50.7
299	2017/05/30	15:43:53	49.6
300	2017/05/30	15:43:56	56.0

- Freq Weight : A
- Time Weight : FAST
- Level Range : 40-100
- Max dB : 83.0 - 2017/05/30 16:37:58
- Level Range : 40-100
- SEL : 99.5
- Leq : 70.0
-

No.s	Date Time	(dB)
1	2017/05/30 16:27:04	76.2
2	2017/05/30 16:27:07	58.3
3	2017/05/30 16:27:10	56.4
4	2017/05/30 16:27:13	56.1
5	2017/05/30 16:27:16	63.4
6	2017/05/30 16:27:19	62.9
7	2017/05/30 16:27:22	55.8
8	2017/05/30 16:27:25	70.0
9	2017/05/30 16:27:28	59.5
10	2017/05/30 16:27:31	52.9
11	2017/05/30 16:27:34	50.7
12	2017/05/30 16:27:37	54.5
13	2017/05/30 16:27:40	57.4
14	2017/05/30 16:27:43	73.3
15	2017/05/30 16:27:46	61.6
16	2017/05/30 16:27:49	52.8
17	2017/05/30 16:27:52	51.2
18	2017/05/30 16:27:55	55.7
19	2017/05/30 16:27:58	66.7
20	2017/05/30 16:28:01	71.8
21	2017/05/30 16:28:04	58.4
22	2017/05/30 16:28:07	55.0
23	2017/05/30 16:28:10	61.3
24	2017/05/30 16:28:13	64.8
25	2017/05/30 16:28:16	62.4
26	2017/05/30 16:28:19	73.8
27	2017/05/30 16:28:22	57.1
28	2017/05/30 16:28:25	61.7
29	2017/05/30 16:28:28	70.6
30	2017/05/30 16:28:31	60.6
31	2017/05/30 16:28:34	54.6
32	2017/05/30 16:28:37	51.9
33	2017/05/30 16:28:40	53.7
34	2017/05/30 16:28:43	54.8
35	2017/05/30 16:28:46	57.6
36	2017/05/30 16:28:49	55.2
37	2017/05/30 16:28:52	53.7
38	2017/05/30 16:28:55	64.4
39	2017/05/30 16:28:58	65.1
40	2017/05/30 16:29:01	69.2
41	2017/05/30 16:29:04	62.6
42	2017/05/30 16:29:07	53.0
43	2017/05/30 16:29:10	50.7
44	2017/05/30 16:29:13	49.0
45	2017/05/30 16:29:16	48.5
46	2017/05/30 16:29:19	54.3
47	2017/05/30 16:29:22	73.2
48	2017/05/30 16:29:25	61.6
49	2017/05/30 16:29:28	71.4
50	2017/05/30 16:29:31	55.2
51	2017/05/30 16:29:34	68.0
52	2017/05/30 16:29:37	58.1
53	2017/05/30 16:29:40	70.2
54	2017/05/30 16:29:43	75.4
55	2017/05/30 16:29:46	75.7
56	2017/05/30 16:29:49	75.0
57	2017/05/30 16:29:52	59.1
58	2017/05/30 16:29:55	73.0
59	2017/05/30 16:29:58	58.1
60	2017/05/30 16:30:01	54.6
61	2017/05/30 16:30:04	53.5
62	2017/05/30 16:30:07	54.5
63	2017/05/30 16:30:10	67.4
64	2017/05/30 16:30:13	62.8
65	2017/05/30 16:30:16	64.4
66	2017/05/30 16:30:19	54.9
67	2017/05/30 16:30:22	60.6
68	2017/05/30 16:30:25	69.2
69	2017/05/30 16:30:28	61.6
70	2017/05/30 16:30:31	55.1
71	2017/05/30 16:30:34	79.0
72	2017/05/30 16:30:37	79.6
73	2017/05/30 16:30:40	57.7
74	2017/05/30 16:30:43	53.3
75	2017/05/30 16:30:46	62.8
76	2017/05/30 16:30:49	61.0
77	2017/05/30 16:30:52	73.8
78	2017/05/30 16:30:55	53.2
79	2017/05/30 16:30:58	51.1
80	2017/05/30 16:31:01	58.6
81	2017/05/30 16:31:04	75.9
82	2017/05/30 16:31:07	70.4
83	2017/05/30 16:31:10	60.9
84	2017/05/30 16:31:13	71.4
85	2017/05/30 16:31:16	74.7

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87	2017/05/30	16:31:22	64.0
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89	2017/05/30	16:31:28	59.7
90	2017/05/30	16:31:31	71.8
91	2017/05/30	16:31:34	55.4
92	2017/05/30	16:31:37	62.7
93	2017/05/30	16:31:40	73.4
94	2017/05/30	16:31:43	58.4
95	2017/05/30	16:31:46	64.0
96	2017/05/30	16:31:49	63.7
97	2017/05/30	16:31:52	54.9
98	2017/05/30	16:31:55	61.8
99	2017/05/30	16:31:58	74.7
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116	2017/05/30	16:32:49	56.2
117	2017/05/30	16:32:52	66.6
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124	2017/05/30	16:33:13	73.0
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126	2017/05/30	16:33:19	81.4
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131	2017/05/30	16:33:34	65.2
132	2017/05/30	16:33:37	65.5
133	2017/05/30	16:33:40	74.5
134	2017/05/30	16:33:43	55.1
135	2017/05/30	16:33:46	56.6
136	2017/05/30	16:33:49	75.3
137	2017/05/30	16:33:52	59.4
138	2017/05/30	16:33:55	77.3
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141	2017/05/30	16:34:04	48.8
142	2017/05/30	16:34:07	48.6
143	2017/05/30	16:34:10	45.2
144	2017/05/30	16:34:13	43.0
145	2017/05/30	16:34:16	43.1
146	2017/05/30	16:34:19	46.3
147	2017/05/30	16:34:22	48.7
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152	2017/05/30	16:34:37	76.4
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154	2017/05/30	16:34:43	65.9
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156	2017/05/30	16:34:49	60.3
157	2017/05/30	16:34:52	75.5
158	2017/05/30	16:34:55	57.8
159	2017/05/30	16:34:58	74.6
160	2017/05/30	16:35:01	59.5
161	2017/05/30	16:35:04	56.6
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163	2017/05/30	16:35:10	73.7
164	2017/05/30	16:35:13	70.3
165	2017/05/30	16:35:16	61.9
166	2017/05/30	16:35:19	66.0
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169	2017/05/30	16:35:28	50.8
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172	2017/05/30	16:35:37	61.6
173	2017/05/30	16:35:40	61.8
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175	2017/05/30	16:35:46	49.0
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179	2017/05/30	16:35:58	57.2
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182	2017/05/30	16:36:07	46.6
183	2017/05/30	16:36:10	45.0
184	2017/05/30	16:36:13	44.3

185	2017/05/30 16:36:16	44.7
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187	2017/05/30 16:36:22	49.6
188	2017/05/30 16:36:25	51.5
189	2017/05/30 16:36:28	53.7
190	2017/05/30 16:36:31	56.2
191	2017/05/30 16:36:34	55.3
192	2017/05/30 16:36:37	55.5
193	2017/05/30 16:36:40	56.0
194	2017/05/30 16:36:43	61.4
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199	2017/05/30 16:36:58	72.9
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201	2017/05/30 16:37:04	53.9
202	2017/05/30 16:37:07	55.8
203	2017/05/30 16:37:10	59.7
204	2017/05/30 16:37:13	64.7
205	2017/05/30 16:37:16	69.5
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207	2017/05/30 16:37:22	72.6
208	2017/05/30 16:37:25	57.6
209	2017/05/30 16:37:28	52.7
210	2017/05/30 16:37:31	53.8
211	2017/05/30 16:37:34	65.3
212	2017/05/30 16:37:37	61.3
213	2017/05/30 16:37:40	54.8
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215	2017/05/30 16:37:46	72.0
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217	2017/05/30 16:37:52	75.9
218	2017/05/30 16:37:55	79.9
219	2017/05/30 16:37:58	59.8
220	2017/05/30 16:38:01	54.8
221	2017/05/30 16:38:04	53.5
222	2017/05/30 16:38:07	57.2
223	2017/05/30 16:38:10	69.7
224	2017/05/30 16:38:13	56.3
225	2017/05/30 16:38:16	51.2
226	2017/05/30 16:38:19	48.6
227	2017/05/30 16:38:22	50.0
228	2017/05/30 16:38:25	52.8
229	2017/05/30 16:38:28	54.5
230	2017/05/30 16:38:31	55.3
231	2017/05/30 16:38:34	65.3
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233	2017/05/30 16:38:40	63.7
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235	2017/05/30 16:38:46	74.3
236	2017/05/30 16:38:49	60.4
237	2017/05/30 16:38:52	54.9
238	2017/05/30 16:38:55	56.0
239	2017/05/30 16:38:58	63.0
240	2017/05/30 16:39:01	74.0
241	2017/05/30 16:39:04	74.3
242	2017/05/30 16:39:07	57.6
243	2017/05/30 16:39:10	54.5
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246	2017/05/30 16:39:19	76.3
247	2017/05/30 16:39:22	76.2
248	2017/05/30 16:39:25	64.3
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250	2017/05/30 16:39:31	75.5
251	2017/05/30 16:39:34	54.9
252	2017/05/30 16:39:37	50.1
253	2017/05/30 16:39:40	52.5
254	2017/05/30 16:39:43	54.5
255	2017/05/30 16:39:46	55.1
256	2017/05/30 16:39:49	54.8
257	2017/05/30 16:39:52	51.8
258	2017/05/30 16:39:55	59.6
259	2017/05/30 16:39:58	80.0
260	2017/05/30 16:40:01	58.3
261	2017/05/30 16:40:04	56.9
262	2017/05/30 16:40:07	56.3
263	2017/05/30 16:40:10	54.1
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265	2017/05/30 16:40:16	60.1
266	2017/05/30 16:40:19	77.2
267	2017/05/30 16:40:22	55.0
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269	2017/05/30 16:40:28	62.9
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274	2017/05/30 16:40:43	57.6
275	2017/05/30 16:40:46	76.1
276	2017/05/30 16:40:49	66.6
277	2017/05/30 16:40:52	57.3
278	2017/05/30 16:40:55	56.3
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280	2017/05/30 16:41:01	57.9
281	2017/05/30 16:41:04	62.4
282	2017/05/30 16:41:07	66.3
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289	2017/05/30	16:41:28	62.8
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293	2017/05/30	16:41:40	74.6
294	2017/05/30	16:41:43	75.9
295	2017/05/30	16:41:46	69.5
296	2017/05/30	16:41:49	59.4
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299	2017/05/30	16:41:58	70.7
300	2017/05/30	16:42:01	60.3

- Freq Weight : A
- Time Weight : FAST
- Level Range : 40-100
- Max dB : 72.0 - 2017/05/30 16:13:42
- Level Range : 40-100
- SEL : 80.2
- Leq : 50.7
-

No.s	Date Time	(dB)
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3	2017/05/30 16:05:03	46.2
4	2017/05/30 16:05:06	45.5
5	2017/05/30 16:05:09	45.1
6	2017/05/30 16:05:12	45.4
7	2017/05/30 16:05:15	47.9
8	2017/05/30 16:05:18	45.5
9	2017/05/30 16:05:21	44.3
10	2017/05/30 16:05:24	44.0
11	2017/05/30 16:05:27	46.8
12	2017/05/30 16:05:30	48.0
13	2017/05/30 16:05:33	45.0
14	2017/05/30 16:05:36	44.0
15	2017/05/30 16:05:39	44.1
16	2017/05/30 16:05:42	44.5
17	2017/05/30 16:05:45	45.2
18	2017/05/30 16:05:48	44.9
19	2017/05/30 16:05:51	45.2
20	2017/05/30 16:05:54	46.1
21	2017/05/30 16:05:57	47.9
22	2017/05/30 16:06:00	44.6
23	2017/05/30 16:06:03	43.0
24	2017/05/30 16:06:06	45.4
25	2017/05/30 16:06:09	48.8
26	2017/05/30 16:06:12	51.1
27	2017/05/30 16:06:15	55.9
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30	2017/05/30 16:06:24	63.4
31	2017/05/30 16:06:27	56.7
32	2017/05/30 16:06:30	49.6
33	2017/05/30 16:06:33	52.5
34	2017/05/30 16:06:36	59.5
35	2017/05/30 16:06:39	48.2
36	2017/05/30 16:06:42	53.6
37	2017/05/30 16:06:45	49.9
38	2017/05/30 16:06:48	48.6
39	2017/05/30 16:06:51	46.6
40	2017/05/30 16:06:54	45.3
41	2017/05/30 16:06:57	45.7
42	2017/05/30 16:07:00	45.1
43	2017/05/30 16:07:03	47.6
44	2017/05/30 16:07:06	46.0
45	2017/05/30 16:07:09	45.9
46	2017/05/30 16:07:12	45.9
47	2017/05/30 16:07:15	47.5
48	2017/05/30 16:07:18	45.0
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51	2017/05/30 16:07:27	55.6
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53	2017/05/30 16:07:33	57.7
54	2017/05/30 16:07:36	58.5
55	2017/05/30 16:07:39	55.2
56	2017/05/30 16:07:42	49.6
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197	2017/05/30	16:14:45	45.9
198	2017/05/30	16:14:48	44.1
199	2017/05/30	16:14:51	45.8
200	2017/05/30	16:14:54	42.6
201	2017/05/30	16:14:57	44.7
202	2017/05/30	16:15:00	42.7
203	2017/05/30	16:15:03	43.3
204	2017/05/30	16:15:06	44.8
205	2017/05/30	16:15:09	44.1
206	2017/05/30	16:15:12	44.9
207	2017/05/30	16:15:15	45.1
208	2017/05/30	16:15:18	43.9
209	2017/05/30	16:15:21	45.2
210	2017/05/30	16:15:24	45.5
211	2017/05/30	16:15:27	45.8
212	2017/05/30	16:15:30	45.8
213	2017/05/30	16:15:33	52.9
214	2017/05/30	16:15:36	52.5
215	2017/05/30	16:15:39	55.9
216	2017/05/30	16:15:42	58.9
217	2017/05/30	16:15:45	50.9
218	2017/05/30	16:15:48	52.5
219	2017/05/30	16:15:51	54.1
220	2017/05/30	16:15:54	47.8
221	2017/05/30	16:15:57	53.8
222	2017/05/30	16:16:00	53.1
223	2017/05/30	16:16:03	48.5
224	2017/05/30	16:16:06	54.9
225	2017/05/30	16:16:09	49.4
226	2017/05/30	16:16:12	55.4
227	2017/05/30	16:16:15	55.2
228	2017/05/30	16:16:18	50.0
229	2017/05/30	16:16:21	49.3
230	2017/05/30	16:16:24	51.1
231	2017/05/30	16:16:27	47.3
232	2017/05/30	16:16:30	54.5
233	2017/05/30	16:16:33	49.8
234	2017/05/30	16:16:36	51.5
235	2017/05/30	16:16:39	48.6
236	2017/05/30	16:16:42	49.0
237	2017/05/30	16:16:45	51.2
238	2017/05/30	16:16:48	52.6
239	2017/05/30	16:16:51	57.1
240	2017/05/30	16:16:54	63.8
241	2017/05/30	16:16:57	56.4
242	2017/05/30	16:17:00	48.2
243	2017/05/30	16:17:03	55.7
244	2017/05/30	16:17:06	53.1
245	2017/05/30	16:17:09	49.9
246	2017/05/30	16:17:12	46.4
247	2017/05/30	16:17:15	51.6
248	2017/05/30	16:17:18	48.0
249	2017/05/30	16:17:21	50.1
250	2017/05/30	16:17:24	47.5
251	2017/05/30	16:17:27	45.6
252	2017/05/30	16:17:30	45.5
253	2017/05/30	16:17:33	46.5
254	2017/05/30	16:17:36	44.4
255	2017/05/30	16:17:39	44.3
256	2017/05/30	16:17:42	44.4
257	2017/05/30	16:17:45	43.5
258	2017/05/30	16:17:48	44.3
259	2017/05/30	16:17:51	44.2
260	2017/05/30	16:17:54	45.5
261	2017/05/30	16:17:57	44.1
262	2017/05/30	16:18:00	44.0
263	2017/05/30	16:18:03	44.1
264	2017/05/30	16:18:06	44.4
265	2017/05/30	16:18:09	45.8
266	2017/05/30	16:18:12	44.5
267	2017/05/30	16:18:15	49.7
268	2017/05/30	16:18:18	46.5
269	2017/05/30	16:18:21	44.3
270	2017/05/30	16:18:24	47.3
271	2017/05/30	16:18:27	45.8
272	2017/05/30	16:18:30	43.3
273	2017/05/30	16:18:33	45.0
274	2017/05/30	16:18:36	43.7
275	2017/05/30	16:18:39	42.3
276	2017/05/30	16:18:42	43.3
277	2017/05/30	16:18:45	44.3
278	2017/05/30	16:18:48	42.2
279	2017/05/30	16:18:51	44.7
280	2017/05/30	16:18:54	44.3
281	2017/05/30	16:18:57	46.8
282	2017/05/30	16:19:00	47.6
283	2017/05/30	16:19:03	54.8

284	2017/05/30	16:19:06	61.6
285	2017/05/30	16:19:09	54.2
286	2017/05/30	16:19:12	52.5
287	2017/05/30	16:19:15	46.9
288	2017/05/30	16:19:18	45.1
289	2017/05/30	16:19:21	44.0
290	2017/05/30	16:19:24	48.0
291	2017/05/30	16:19:27	46.5
292	2017/05/30	16:19:30	42.6
293	2017/05/30	16:19:33	41.6
294	2017/05/30	16:19:36	42.0
295	2017/05/30	16:19:39	41.9
296	2017/05/30	16:19:42	41.8
297	2017/05/30	16:19:45	45.4
298	2017/05/30	16:19:48	44.7
299	2017/05/30	16:19:51	45.8
300	2017/05/30	16:19:54	42.5