WATER REPLENISHMENT DISTRICT TORRANCE GROUNDWATER DESALTER EXPANSION PROJECT

Response to Comments

Summaries of the comments WRD received during the review period for the Public Review Draft IS/MND are included in this section.

Commenter 1: Los Angeles County Sanitation Districts

Comment LACSD-1

LACSD noted that the project will require a new sewer connection approximately one mile from the proposed sewer location at the A.K. Warren Water Resources Facility.

Response to LACSD-1

Prior to project implementation, WRD will coordinate with LACSD to confirm the appropriate location for the sewer connection. Construction of the new sewer connection would be subject to methods and mitigation measures identified in the IS/MND for pipeline installation.

Comment LACSD-2

The comment notes that the Savage Canyon Landfill may not be the appropriate landfill for disposing of soils. Also, the comment notes that the project will disturb utilities and service systems that do not belong to the Districts.

Response to LACSD-2

In response to the comment, the reference to Savage Canyon Landfill has been removed. Wastewater generated at the construction sites would be conveyed to the A.K. Warren Water Resources facility or other nearby wastewater treatment facility. As described in Section *XIX, Utilities and Service Systems* in the IS/MND, WRD would implement Mitigation Measure UTIL-1, which would require an underground utilities search and coordination with utility providers operating within proposed construction impact areas during the design phase and prior to construction of the pipelines.

Comment LACSD-3

The comment states that the project will also impact the Districts' existing/proposed facilities. The Districts cannot permit construction until WRD submits project plans and specifications that incorporate Districts' facilities.

Response to LACSD-3

WRD design and specifications will accommodate District 5 facilities requirements. WRD will submit the plans and specifications to LACSD for approval prior to final design and construction.

Comment LACSD-4

The comment states that WRD will also need to request approval to build within the Districts' sewerage facilities.

Response to LACSD-4

Prior to construction within the Districts' facilities, WRD will obtain necessary approvals from LACSD.

Comment LACSD-5

The comment states that WRD will need to contact the Districts' Industrial Waste Section to reach a determination on the need for an amendment to a Districts' permit for Industrial Wastewater Discharge.

Response to LACSD-5

As noted on page 1-18 of the IS/MND, WRD will consult with the Districts to ensure that the Industrial Waste Discharge Permit sufficiently covers the new waste stream. WRD will apply for an amendment to the existing permit if required.

Commenter 2: Friends of Cabrillo Aquarium

Comment FCA-1

FCA suggests a collaboration with WRD on the implementation of regional educational programs similar to the establishment of the Albert Robles Center for Water Recycling and Environmental Learning.

Response to FCA-1

Thank you for your suggestion. The proposed project does not currently include an education center component similar to the Albert Robles Center. However, WRD will continue to invest in education programming with community partners.

Commenter 3: California Department of Transportation

Comment Caltrans-1

The comment concurs with Mitigation Measure TRA-1 and recommends the implementation of channelizing devices preceded by warning signs.

Response to Caltrans-1

As described in Mitigation Measure TRA-1, WRD will provide all signage, striping, delineated detours, flagging operations, and any other devices that will be used during project construction to guide motorists, bicyclists, and pedestrians safely through the construction area and allow for adequate access and circulation.

Comment Caltrans-2

The comment highlights notable elements of Mitigation Measure TRA-1 and suggests WRD collaborate on a plan to relocate bus stops/bus routes to prevent impacts on the established transit service.

Response to Caltrans-2

As described in Mitigation Measure TRA-1, WRD will develop circulation and detour plans if necessary to minimize impacts to local street circulation. It further states that WRD will coordinate with cities of Torrance, Los Angeles, Carson, and Los Angeles County at least 30 days prior to construction of pipelines within roadways or rights-of way that coincide with public transit routes to determine whether construction of the proposed project would affect bus stop locations or otherwise disrupt public transit routes. A plan shall be developed to relocate bus stops or reroute buses to avoid disruption of transit service.

Comment Caltrans-3

The comment notes that, per Mitigation Measure TRA-2, WRD will be required to develop and implement a Parking and Staging plan to reduce transportation impacts related to the increase in trips to the project site.

Response to Caltrans-3

Comment noted. Mitigation Measure TRA-2 requires the implementation of a Parking and Staging Plan.

Comment Caltrans-4

The comment states that the use of oversized transport vehicles used to transport construction equipment and/or materials requires a permit and suggests WRD submit a construction traffic control plan.

Response to Caltrans-4

the construction contractor will be responsible for ensuring compliance with all Caltrans traffic safety requirements for use of Caltrans roadways, including the oversized transport permit requirements.

Draft

WATER REPLENISHMENT DISTRICT TORRANCE GROUNDWATER DESALTER EXPANSION PROJECT

Initial Study/Mitigated Negative Declaration

Prepared for
Water Replenishment District of Southern California

October 2023

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Suite 1100
Los Angeles, CA 90017
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Draft

WATER REPLENISHMENT DISTRICT TORRANCE GROUNDWATER DESALTER EXPANSION PROJECT

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CHAPTER 1
Project Description

1.1 Introduction

The Water Replenishment District of Southern California (WRD) is responsible for managing and replenishing both the West Coast and Central groundwater basins in southwestern Los Angeles County. In the West Coast Basin, a significant plume of saline groundwater is contained in the Gage, Silverado, and Lower San Pedro aquifers. To remediate the trapped saline plume, WRD has initiated the Torrance Groundwater Desalter Expansion Project (proposed project), which will extract, convey, and treat the groundwater so that it can be used beneficially.

As the lead agency pursuant to the California Environmental Quality Act (CEQA), WRD has prepared this Initial Study-Mitigated Negative Declaration (ISMND) to evaluate potential environmental impacts of implementing the proposed project. WRD anticipates receiving federal funding opportunities for the project, including Title XVI/WaterSMART grants from the U.S. Bureau of Reclamation (USBR). As a result, this document has been prepared to include information USBR will need to comply with the National Environmental Policy Act (NEPA). This document follows the CEQA-Plus guidelines prepared by the California State Water Resources Control Board (SWRCB) to support federal funding approvals which is further discussed in Chapter 3, Federal Consistency Analysis.

This Draft ISMND has been organized into the following chapters:

- **Chapter 1: Introduction.** This chapter discusses the project description, purpose, and objectives.
- **Chapter 2: Environmental Checklist.** This chapter describes the environmental setting and identifies the environmental impacts of the Proposed Project for each of the following environmental topics: Visual/Aesthetics; Air Quality; Biological Resources; Cultural Resources; Energy; Geology, Soils, Seismicity, Topography, and Paleontology; Greenhouse Gas Emissions/Climate Change; Hazards and Hazardous Materials; Hydrology/Floodplain and Water Quality/Stormwater Runoff; Land Use and Land Use Planning; Noise and Vibration; Public Services; Parks and Recreation; Transportation and Circulation; Tribal Cultural Resources; Utilities and Service Systems; and Wildfire. Measures to avoid, minimize, and mitigate the impacts of the Proposed Project are presented for each environmental topic where potential significant impacts have been identified.
- **Chapter 3: Federal Consistency Analysis.** This chapter describes compliance with federal laws and relevant executive orders.
- **Chapter 4: Environmental Justice.** This chapter describes populations that may be impacted by the proposed project.
- **Appendices.** The appendices include materials and technical studies prepared to inform the project.

1.2 Project Location

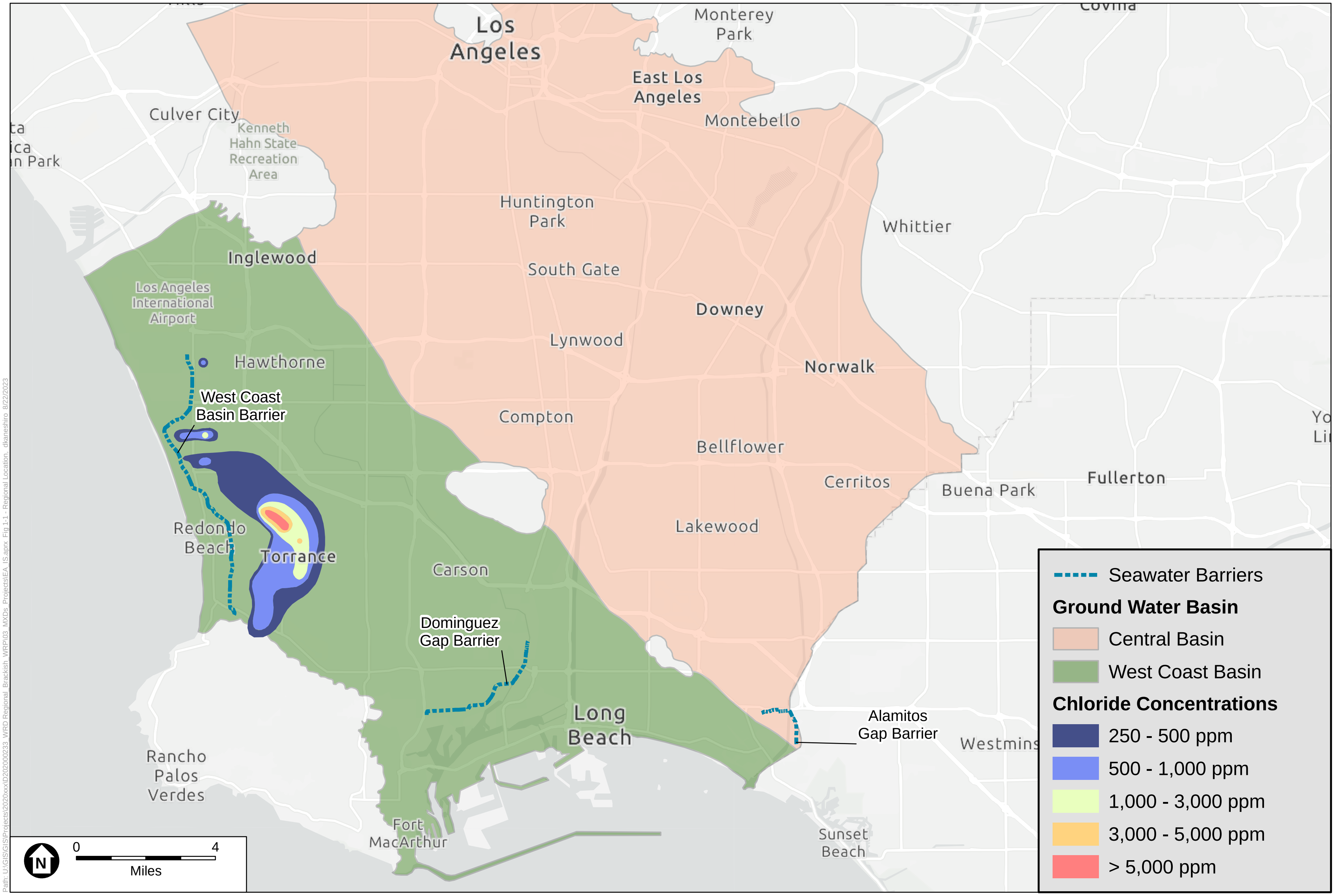
The proposed project is located within WRD's service area in southwestern Los Angeles County. The project is situated within the West Coast Basin and overlies the saline plume, shown on **Figure 1-1**. The proposed project infrastructure would be located within the cities of Torrance, Los Angeles, Carson, and portions of unincorporated Los Angeles County as shown on **Figure 1-2**.

1.3 Project Background

Historic over-pumping of groundwater in the early 1900s lowered groundwater levels in the West Coast Basin of Los Angeles County to below sea level. This resulted in saltwater intruding into the groundwater aquifers. As the seawater mixed with the freshwater aquifers, the groundwater became brackish, which means it is too salty to use for potable water. Between 1953 and 1992, 153 injection wells were installed along a span of 9.5 miles from Los Angeles International Airport (LAX) to the Palos Verdes Hills. This created the West Coast Basin Seawater Barrier project. The wells actively inject freshwater into the ground, thereby creating a water pressure barrier to keep seawater out of the inland aquifers and provides replenishment of the West Coast and Central groundwater basins. While the barrier system is successful in preventing subsequent seawater intrusion, it also resulted in the trapping of approximately 600,000 acre-feet (AF) of brackish groundwater with over 250 milligrams per liter (mg/L) chloride in the Gage, Silverado, and Lower San Pedro aquifers. WRD estimates the impact of the trapped brackish plume reflects a loss of approximately 30,000 acre-feet per year (AFY) of usable groundwater and 120,000 AF of otherwise available groundwater storage space within the West Coast Basin (Jacobs 2021).

WRD owns the Robert W. Goldsworthy Desalter (existing Desalter) which is the only facility that treats water pumped from the saline plume to potable water standards for use by the City of Torrance. The existing Desalter is currently operated and maintained by the City of Torrance operations staff. The facility has the capacity to desalinate up to 5,000 AFY of brackish groundwater, however it currently operates at a reduced capacity of 4,000 AFY. This is due to rapid fouling rates of the reverse osmosis membranes as a result of dissolved organic contaminants present in the brackish groundwater. The existing Desalter capacity is not sufficient to treat the entirety of the brackish plume in the West Coast Basin over a reasonable time frame, even if it were to operate at its maximum capacity of 5,000 AFY. WRD, as manager of the West Coast Basin, has undertaken studies and planning efforts, which are described below, to evaluate the feasibility of fully treating the saline plume and putting the treated water to beneficial use.

There was a previous facility, the Marvin-Brewer Desalter, that was owned and operated by West Basin Municipal Water District (WBMWD). The facility treated approximately 700 gallons per minute (gpm) from the Brewer Well located on-site from the early 1990s through the early 2000s. The desalter since has been decommissioned and subsequently demolished with the exception of the well. In 2023, WRD purchased the Brewer Well from WBMWD. A component of this project will be the construction of a pipeline to bring the water from the Brewer Well into the existing Desalter for treatment.

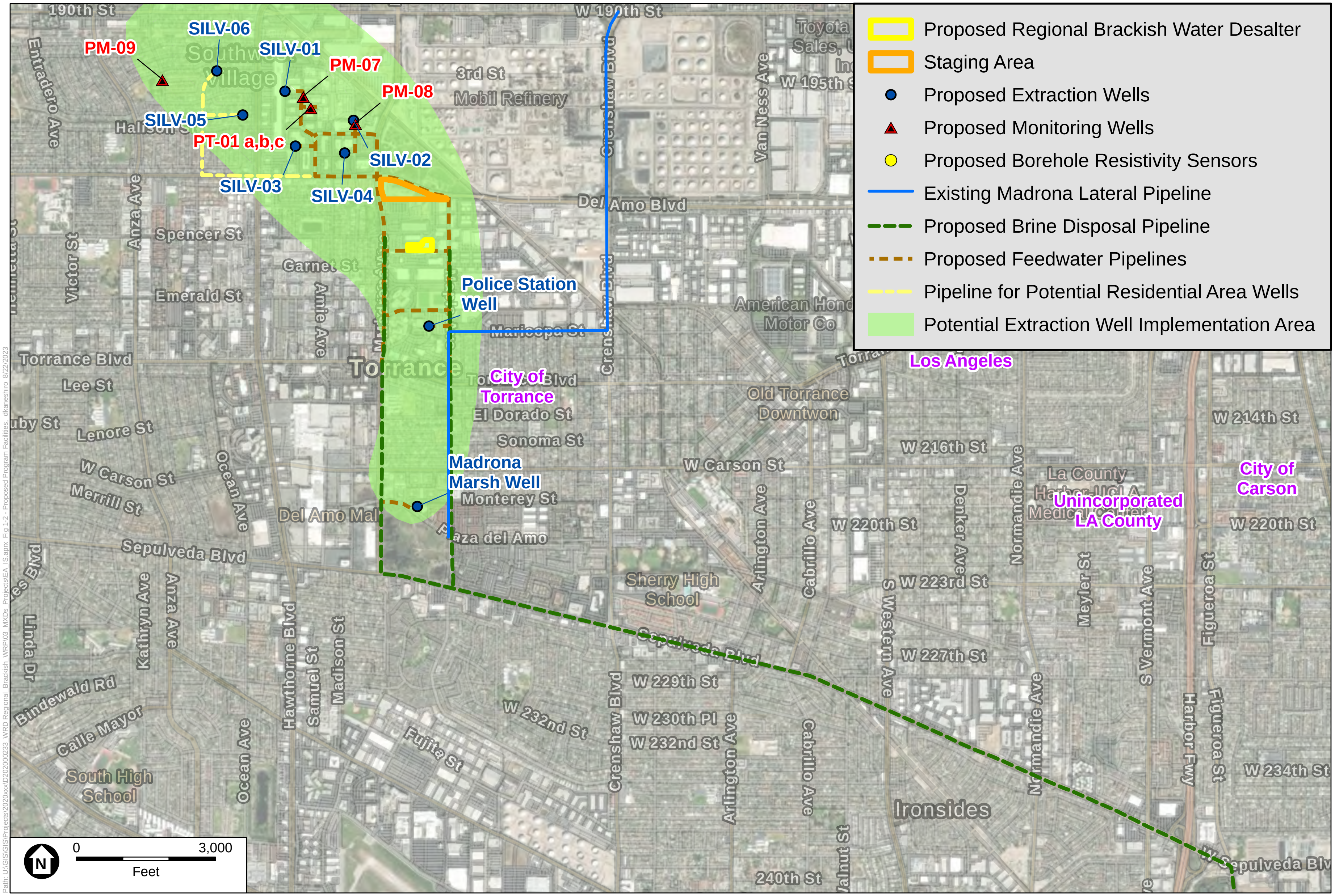


SOURCE: ESA, 2022

Water Replenishment District Torrance Groundwater Desalter Expansion Project

Figure 1-1
Regional Location

ESA



SOURCE: ESA, 2022

Water Replenishment District Torrance Groundwater Desalter Expansion Project

Figure 1-2
Proposed Program Facilities

ESA

In 2016, WRD prepared the *Groundwater Basins Master Plan (GBMP) Project I EIR*, which established a framework to enhance groundwater replenishment in the West Coast and Central Basins, increase the reliability of groundwater supplies, improve, and protect groundwater quality, and accommodate growing potable water demands. This long-range planning document provided a menu of options to be implemented over many years. One of the strategies identified in the GBMP was to remediate the saline groundwater plume in the Silverado Aquifer by constructing additional extraction wells and proposed project desalters. The GBMP indicated that extraction of the saline groundwater plume could increase groundwater extraction from the basin, depending on the decisions of pumpers to shift existing extraction to new desalter wells or to use these wells to increase pumping. Either way, the GBMP described this management strategy as altering the pumping patterns in the aquifers at the new desalter wells to extract and treat up to 15,000 AFY. This document has been prepared to be consistent with the GBMP Project EIR. Appropriate and relevant information within this document has been cited from the GBMP Project EIR.

In March 2021, WRD prepared the *Regional Brackish Water Reclamation Program Feasibility Study* (Jacobs 2021). The feasibility study provided an initial understanding of the approach needed to treat the historical saline plume for beneficial use by evaluating the following components: where to extract the plume water, where and how to treat the plume water, how to convey the treated potable water to the Project stakeholders, and how to manage the brine waste stream. The result of the feasibility study included various combinations of components that could be implemented to support the project, as well as a calculation of the cost of each combination. The feasibility study was prepared along with stakeholders who have expressed interest in either treating the saline plume or receiving treated water. Stakeholders include WRD, Los Angeles Department of Water and Power (LADWP), City of Torrance, City of Manhattan Beach, City of Lomita, Golden State Water Company (GSWC), California Water Service Company (Cal Water), and WBMWD. Currently, the City of Torrance is the only stakeholder that will receive product water from the proposed project.

Originally, the saline plume was estimated to encompass an area of approximately 600,000 AF for chloride concentrations above 250 milligrams per liter (mg/L). During preparation of the feasibility study, the stakeholder group agreed to increase the target groundwater chloride level for extraction and treatment from 250 to 500 mg/L, which represents the upper limit of California's secondary maximum contaminant level (MCL) for chloride, thereby reducing the saline plume volume targeted for treatment from 600,000 AF to 375,000 AF. The saline plume overlies an area of approximately 14 square miles.

In 2022, WRD initiated a water quality characterization study (*Notice of Exemption State Clearinghouse No. 2022070079*; July 2022*)*, which involves collecting subsurface hydrogeologic information using several investigative techniques, installing pilot test wells and monitoring wells to study transmissivity and water movement in the aquifer, establishing baseline raw water quality parameters, and installing and operating a pilot test of the likely treatment processes to be used for the proposed project. The objective of the study is to further refine the lateral and vertical extent of the brackish plume and appropriate well design, understand the chloride concentrations for design of the proposed desalter facility and to define and understand dissolved organic constituents and the treatment required to prevent unexpected reverse osmosis membrane fouling that allows the facility to maintain the design water treatment capacity.

The water quality characterization project started in 2022 with the first step being the design of three (3) pilot wells at varying depths to collect valuable special pumping data. In addition, three (3) nested monitoring wells are being drilled to monitor the aquifer around the pilot wells. The drilling of the wells was started in the first quarter of 2023 and is expected to be completed by the end of 2023. The treatment pilot test units comparing the operation of granular activated carbon and nanofiltration pretreatment ahead of reverse osmosis systems is anticipated to begin in the fourth quarter of 2023, and results from the testing will be incorporated into the design of the proposed project. The monitoring wells and the pilot test wells drilled as part of the water quality characterization study will be repurposed for use as monitoring wells for the proposed project. The treatment pilot equipment which is being leased for the project will be decommissioned and removed after the pilot test is complete.

1.4 Project Objectives

The primary objectives of the proposed project are to:

- Remediate southern portion of the 14-square-mile brackish groundwater plume, which provides an additional 5,000 to 7,100 acre-feet per year of drinking water to the community.
- Create a new drinking water supply for local water purveyors to advance their efforts toward imported water independence.
- Allow for new groundwater well construction where previously prohibitive.

1.5 Project Description

The proposed project aims to treat an additional 3,500 to 10,000 AFY of brackish groundwater over an approximate 30-year period. To do this, the proposed project involves approximately eight (8) extraction wells to extract 5,000 to 7,100 AFY of the saline groundwater plume from the aquifer. The extracted saline water will then be conveyed through pipelines to the existing City of Torrance Public Works Yard where it will be combined with water from the four (4) existing desalter wells and will be used as feedwater supplying the existing Desalter. The existing Desalter will be expanded within the Public Works Yard to include new autostrainers, a pretreatment system, and an expanded reverse osmosis system. After treatment, the potable water would be routed through the existing potable water connection to the City of Torrance distribution system and a future on-site connection to the California Water Services distribution system. Brine from the expanded facility will be initially conveyed through the existing brine pipeline to the Los Angeles County Sanitation District (LACSD) trunk sewer. In addition, two brine pipelines are to be constructed between the proposed Torrance Groundwater Desalter Expansion Project and the LACSD Joint Water Pollution Control Plant (JWPCP) outfall to dispose of the excess brine produced from the treatment process. Two pipelines are to be constructed in the same trench to allow for routine maintenance and descaling of the pipelines once they are in operation.

All of the product water would be routed to the City of Torrance distribution system from the new Torrance Groundwater Desalter; no water would be injected back into the basin. Remediating the brackish water plume will create additional available storage in the West Coast Basin. This new storage capacity would be available for use by WRD in the future to replenish recycled water and stormwater for use in dry years. The components of the proposed project are discussed below and shown on Figure 1-2.

1.5.1 Wells

Extraction Wells

The project would consist of installing approximately eight (8) new extraction wells at locations within Torrance to extract a brackish groundwater plume within a depth range between approximately 300 and 1,000 feet below ground surface (bgs). While preliminary well locations have been identified on **Figure 1-3**, final locations may change pending results of the water quality characterization study referenced in Section 1.3. The extraction wells would be installed in the northern and southern portions of the brackish plume (Figure 1-2 and Figure 1-3). The northern wells (SILV-01, -02, -03, -04, -05 and -06) would be installed north of the proposed expanded Torrance Groundwater Desalter facility. The southern wells would be installed near the existing WRD monitoring well locations: the Police Station Well and Madrona Marsh Well, also shown on Figure 1-2. The actual extraction well locations will be selected based on results of the plume characterization study and will target a minimum chloride concentration range of 1,000 to 3,000 parts per million (ppm) in groundwater.

The extraction rate for each well will be determined based on groundwater modeling results with a goal of maximizing chloride recovery while providing containment of the saline plume core, which may require pumping rates ranging from a few hundred to a few thousand gallons per minute (gpm). The wells will also cycle on and off as necessary depending on aquifer response. Additionally, the cycling of water will allow for blending groundwater from the other extraction wells to optimize the chloride concentration in the water conveyed to the treatment facility.

Anticipated well materials and equipment will include an approximate 16 to 18-inch diameter well casing and screen, a submersible pump with variable frequency drive (VFD) pump controller and a subsurface vault to house the well equipment. The well vaults will be installed in the roads with traffic rated access covers and drainage design to protect the wellhead equipment and instruments from any damage in the event water gets into the vaults. The well screen design and annular materials will be determined following review of the subsurface geologic materials encountered and geophysical logs. The well seal materials will be placed between each screen interval to ensure that water levels and water chemistry obtained from each piezometer are reflective of conditions within each specific aquifer zone. Each well and associated infrastructure will be contained within a well vault that will be reviewed and approved by the Department of Public Health and Division of Drinking Water (DDW). At the start-up of wells, blow-off infrastructure would be needed to flush initial water to the treatment plant where it is then pumped to nearby storm drainage.

SOURCE: ESA, 2022

Water Replenishment District Torrance Groundwater Desalter Expansion Project

Figure 1-3
Proposed Northern Wells and Pipelines

ESA

Monitoring Wells

Three (3) nested groundwater monitoring wells (PM-07, -08, -09) are being installed as part of the pilot study covered by the Notice of Exemption. The purpose of the wells is to monitor groundwater levels and groundwater quality in the vicinity of the proposed northern pilot wells and extraction wells. The nested monitoring wells will consist of approximately five (5), 2.5-inch diameter polyvinyl chloride (PVC) well casings installed in a single boring to a proposed total depth of 700 feet bgs. Pilot test wells (PT-01a, b, and c) installed as part of the water quality characterization study described in Section 1.3 will also be repurposed and used as additional monitoring wells during the project. The location of the potential monitoring wells is shown on Figure 1-2 and 1-3.

In addition to the new monitoring wells, the existing Police Station Well and Madrona Marsh Well will be used to monitor the southern extraction wells. The wellhead of each monitoring well and the pilot test wells at the ground surface will be completed with a hinged and locking well vault set in concrete, encompassing an area of approximately 2 feet by 4 feet.

1.5.2 Pipelines

The proposed project would require a series of underground pipelines to convey brackish water from the new extraction wells to the Torrance Groundwater Desalter, treated water to the City of Torrance, and brine waste. The pipelines are shown on Figure 1-2 and are further discussed in this section.

Feedwater Pipelines

A network of new and existing brackish feedwater pipelines would be required in the City of Torrance to convey extracted brackish water from new wells to the proposed expanded Torrance Groundwater Desalter facility. These new pipelines would be between 12 and 36 inches in diameter and would be constructed underground approximately 4 to 7 feet bgs along existing paved roadways. The pipeline material would be AWWA (American Water Works Association) specified PVC plastic pipe, HDPE (high density polyethylene) plastic pipe, cement mortar lined and coated ductile iron pipe (DIP), or cement mortar lined and coated steel pipe.

To connect to the northern extraction wells, proposed feedwater pipelines could take different routes along Del Amo Boulevard, Madrona Avenue, Maple Avenue, and surrounding streets as shown on Figure 1-3. There could be multiple wells feeding one large collector or alternatively, each well could have its own pipeline to allow for control of the water quality at the Torrance Groundwater Desalter. The feedwater pipelines will be placed underground a minimum of four feet from any drinking water pipelines in the same street alignments. This is required by the Department of Public Health to prevent cross contamination with drinking water. In addition, the pipe pressure for the feedwater pipelines will match the existing Desalter's incoming pressure and join the existing feedwater flows.

To connect to the southern extraction wells, a combination of proposed new pipelines, and repurposing of the existing Madrona Lateral Pipeline would be considered. The Madrona Lateral pipeline is to be acquired by WRD from WBMWD and would be used as shown on Figure 1-2. Final locations of feedwater pipelines may change if extraction well locations are modified but would be sited within the potential extraction well implementation area shown on Figure 1-2.

Product Water Pipelines

Product water pipelines will convey treated drinking water from the expanded Torrance Groundwater Desalter to local stakeholders. Currently, the City of Torrance is the only stakeholder that will receive product water from the proposed project. Product water from the desalter would be pumped through the existing pipeline into the City of Torrance distribution system. The new product water pipeline could connect to an existing California Water Services potable water main on-site to be wheeled to another location in the City of Torrance. New product water pipeline materials would be either AWWA specified PVC, HDPE, DIP, or steel. The pipe pressures will be matched to the stakeholder's system pressures with the use of pumps and/or pressure reducing stations as needed. Pipe sizes are to be determined and would range from 8-inch to 36-inch diameter.

Brine Disposal Pipelines

Brine Disposal Pipelines for the Torrance Groundwater Desalter Expansion will be a combination of the existing brine pipeline and two (2) new dedicated brine disposal pipelines constructed between the Torrance Groundwater Desalter and the LACSD JWPCP outfall located in Carson. Two brine pipes up to 12-inch diameter would be installed to keep velocity high in the pipelines to prevent scaling and to allow for periodic cleaning, pigging, and descaling of the pipelines. The new pipelines would be constructed of AWWA fusion bonded PVC or HDPE. The pipelines would be installed underground away from potable water lines and in accordance with DDW requirements. The brine pipeline would follow either Maple Avenue or Madrona Avenue south to Sepulveda Boulevard, where it would terminate at the LACSD JWPCP just east of South Figueroa Street as shown on Figure 1-2. The pipeline will connect directly to the existing JWPCP outfall pipeline. The existing desalter brine line to the 36-inch trunk sewer at Anza just north of Emerald will remain in use for the discharge of waste flows that cannot be discharged to the LACSD JWPCP outfall connection pipeline.

1.5.3 Torrance Groundwater Desalter

The proposed treatment facilities would be located within the existing City of Torrance Public Works Yard as an expansion to the to the existing Desalter, which is operated by the City of Torrance. Portions of the public works yard are intended to be incorporated into the facility in parallel with a new desalter. While exact structures have not been identified, useable space has been earmarked on the already disturbed project site. New structures could be as tall as 50 feet and could extend up to 25 feet bgs.

Brackish groundwater would be pumped from the new and existing extraction wells to the treatment facility and treated by a combination of chemical and physical separation processes to reduce saline concentrations. Due to the particulates, organics, fouling constituents, and saline concentration of the plume, the system will require prefiltration, followed by a pretreatment process and a reverse osmosis (RO) treatment process. The prefilters will be selected to remove particulate from the wells. The pretreatment will be Nanofiltration (NF) or Granular activated carbon (GAC) for organics and foulant removal. The treatment process to reduce salinity will be the RO system. Two site layouts included as **Figure 1-4a** and **Figure 1-4b** have been prepared to show pretreatment and RO layout options. The pretreatment process will be selected to reduce

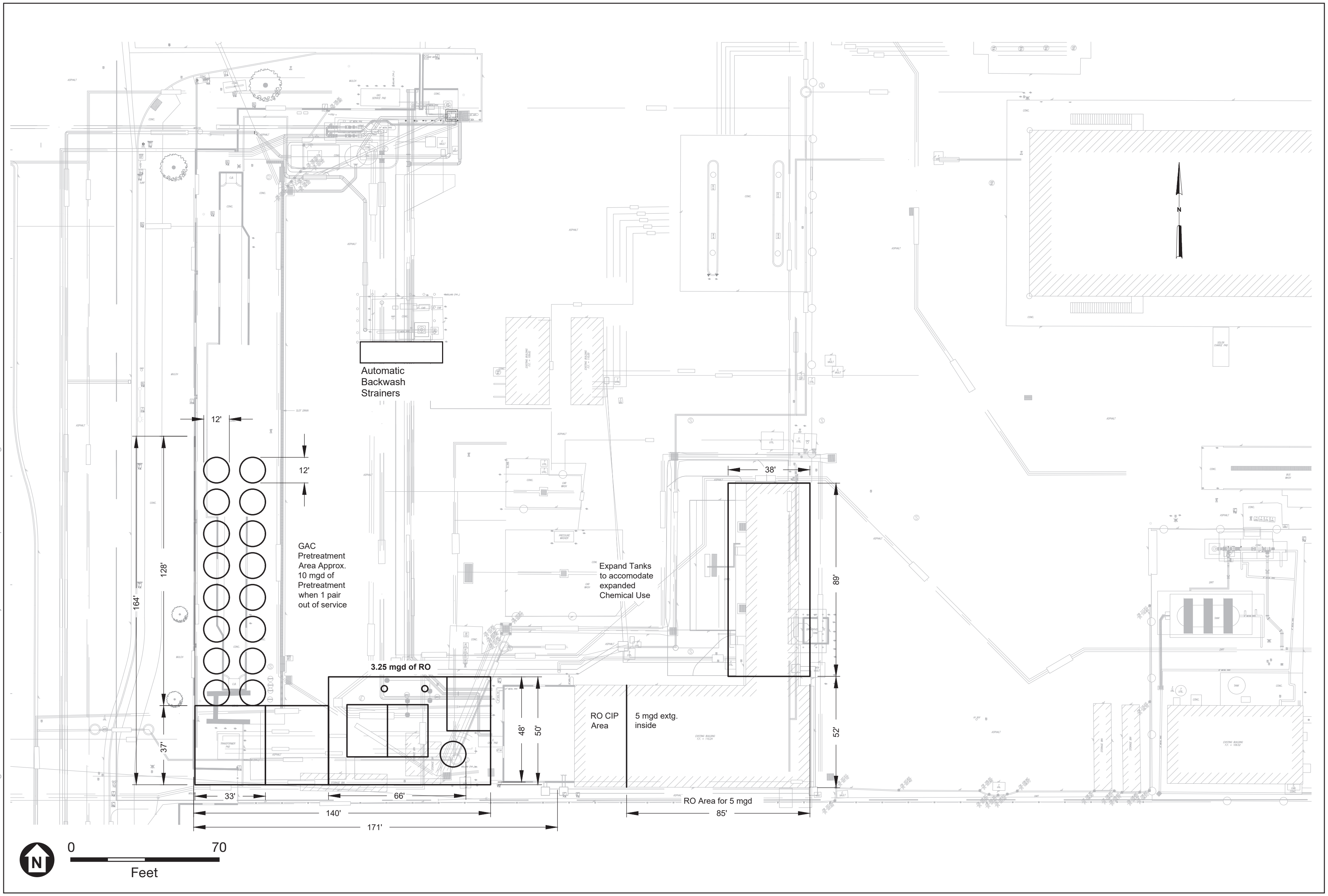
RO membrane fouling and allow the system to achieve the highest water recovery rate possible. The treatment processes are summarized below. WRD is currently pilot testing pretreatment and treatment processes for use at the Torrance Groundwater Desalter.

The first steps in the treatment process will be the automatic backwashing strainers followed by cartridge filters for particulate in the wells. The automatic backwashing strainers filter the water with 10-micron wiremesh strainers. The strainers periodically backwash based on time or differential pressure and will waste approximately 1.5 percent of the feed flow to the storm drain pump station. The Cartridge Filters will filter the raw water further to as low as one micron with pleated, depth wound, or melt blown polypropylene filter media and do not have a waste flow. They do, however, require change outs of the cartridges approximately one time per month to as long as 6 months depending on the well water quality.

Following prefiltration is the second step in the treatment process for removal of constituents and contaminants that foul the downstream RO process. Nanofiltration (NF) is a membrane separation process that is similar to RO, however it does not remove salt to the same level as RO. It is designed to remove larger particles, metal ions, larger molecular weight chemical compounds, color, and large chain organics by filtration and solution diffusion. It does, however, allow a majority if not all of the monovalent salts like sodium chloride to pass through the membranes. The NF process therefore operates at higher water recovery and therefore, wastes less water through the membrane separation process. The NF operates at recovery rates of 90 percent or higher.

An alternative treatment process to NF is Granular Activated Carbon (GAC) filtration which is another technology designed for removing certain chemicals and organics from water. GAC filters are made from raw organic materials such as coconut shells or bituminous coal. Heat is added to activate the surface area of the carbon allowing it to have absorptive properties to enhance removal. As water moves through the filters, the activated carbon removes certain chemicals by trapping them in the GAC media. GAC is a potential alternative to NF and is being pilot tested to verify its capability to remove the foulants prior to RO. The benefit of GAC is that in some instances, the media can be very effective at removal for long periods of time reducing the need for GAC replacement making it more cost effective. It has a higher water recovery rate than NF and therefore wastes less water. The actual cost of operation must be verified with the pilot testing and initial bench tests on water from existing WRD wells showed it did not perform well in comparison to NF.

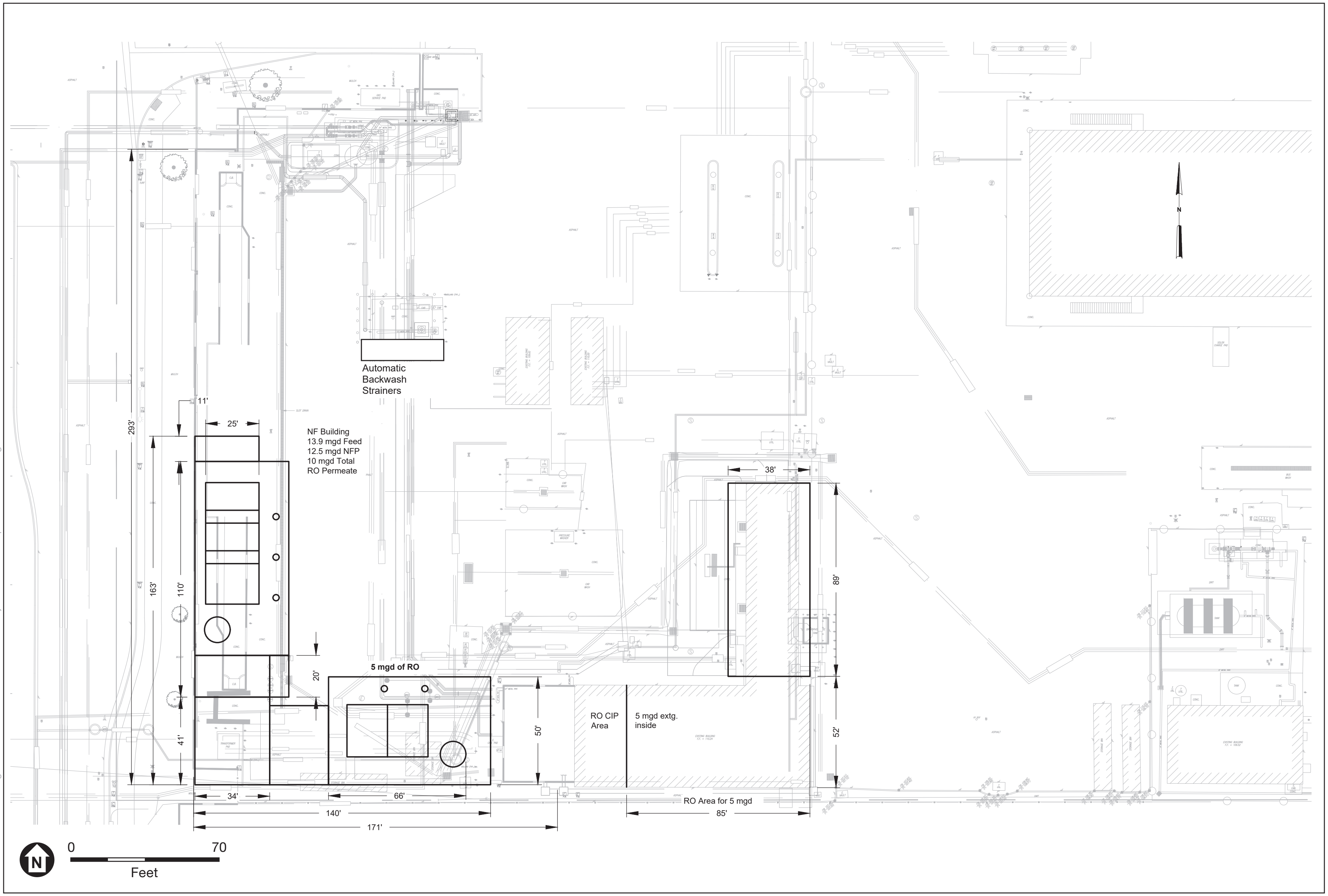
The third treatment process that is the heart of removing the salt from the water is the Reverse Osmosis (RO) system. RO is a pressure-driven salt separation process that uses a semipermeable membrane to separate salt from water using osmotic principles. RO allows water to pass through membranes while rejecting small molecular weight dissolved solutes such as sodium chloride salts and organic materials. Because of the high mineral rejection rate, reverse osmosis-treated water requires the addition of minerals after the filtration process for stabilization and to mitigate the risk of corrosion in the downstream distribution system. The RO process has been used in brackish water desalination for many years. The RO process typically operates around 80 to 85 percent water recovery and concentrates the salts that are rejected by the membranes into a concentrate stream that is 15 to 20 percent of the raw water feed. The concentration of salts is therefore on the order of 5 to 6.7 times the salt in the feed.



SOURCE: Hazen, 2022

Water Replenishment District Torrance Groundwater Desalter Expansion Project

Figure 1-4a
Treatment Facility Layout with GAC Pretreatment



SOURCE: Hazen, 2022

Water Replenishment District Torrance Groundwater Desalter Expansion Project

Figure 1-4b
Treatment Facility Layout with Nanofiltration Pretreatment

ESA

The additional treatment equipment and facilities to be installed at the Torrance Groundwater Desalter include:

- Control room
- Laboratory
- Telecommunications and server room
- Electrical room
- Prefilters
- Pretreatment Building for NF or slab and canopy for GAC systems
- New NF Clean in Place and flushing systems
- RO feed tank and pump station
- Odor control system
- New RO Building with new RO equipment
- New RO Clean in Place and flushing systems
- Expanded chemical storage for sulfuric acid
- Expanded chemical storage for antiscalant
- Expanded chemical storage for chlorine
- Expanded chemical storage for ammonia
- New 150,000-gallon subsurface water storage tank and pump station
- New Decarbonator Air stripping unit
- Expanded chemical feed system for sodium hydroxide
- Expanded chemical feed system for zinc orthophosphate
- Expanded chemical feed system for fluoride
- Ancillary facilities (such as restrooms and showers and storage rooms)

1.6 Project Implementation

1.6.1 Construction Activities

As described above, new treatment facilities, pipelines, groundwater monitoring wells and extraction wells would be installed within the WRD service area. Construction activities would involve both General Contractor construction as well as some specialty construction.

General Contracting Construction Activities:

- Construction of well head infrastructure and pumps
- Construction of pipelines
- Construction of water infrastructure
- Construction of water treatment systems
- Construction of buildings

The work involves some specialty construction by specialized contractors including:

- Drilling of additional wells
- Micro tunnelling and boring for pipelines at potential railroad and Cal Trans crossings
- Electrical construction to install medium voltage equipment.

The following provides a general overview of construction equipment, materials, and methods.

Wells

Construction of extraction and monitoring wells would include site preparation, mobilization of equipment to the well site, borehole drilling, water quality testing, installation of the well casing, installing annular well materials and well seals, and a cement sanitary seal. At each well site, initial construction activities would involve the drilling of a pilot hole using direct rotary drilling methods for a duration of approximately 2 weeks (24 hours per day). Bentonite and water would be used during the drilling activities using a recirculating system with an enclosed tank to contain the bentonite drilling fluid. After drilling the borehole to total depth, the borehole will be reamed to facilitate the installation of the well casing, and annular well materials consisting of sand filter pack, wells seals, and a cement-based sanitary seal. Well development will be performed following well installation activities using a combination of surging, bailing and pumping methods. Well construction would be completed by installing a permanent test pump in each of the wells that would be connected to new underground pipelines. Water discharged during the test project would be discharged to the sewer or storm drain. Construction equipment would include but not be limited to excavators, pickup trucks, forklifts, delivery truck, drill rigs, vacuum trucks, frac containment tanks, roll-off containers, mud containment/shaker trailer, and cranes. Temporary overhead nighttime lighting would be installed during the well drilling period.

Wells would be constructed sequentially such that one well is under construction at any given time. Two to six workers would be required during various phases of well installation.

Pipelines

Construction of proposed pipelines would involve trenching using a conventional cut and cover technique, as well as trenchless construction techniques where necessary to avoid sensitive land features or roadway intersections. Trenching would be braced using a trench box or speed shoring. The active work area would extend 5 to 10 feet to one side of the trench and 20 to 30 feet to the other side, allowing for access by trucks and loaders. The minimum construction ROW is typically 25 feet. Trench depth could be 7 to 10 feet bgs. The construction corridor would be wide enough to accommodate the trench and to allow for staging areas and vehicle access. The length of an open trench would not exceed 100 feet at any time, and on average 50 to 100 feet of pipeline would be installed per day. Trenchless construction techniques would involve horizontal directional drilling from receiving pits.

Dewatering may be required depending on location. Pipelines would be installed primarily within existing roadway rights-of-way to the extent feasible. The trenching technique would include saw cutting of the pavement where applicable, trench excavation, pipe installation, backfill operations, and re-surfacing to the original condition.

Trenches would be backfilled at the end of each workday or temporarily closed by covering them with steel trench plates. The construction equipment needed for pipeline installations includes pavement saws, jack hammers, air compressors, excavators, front-end loaders, dump trucks, pickup trucks, backhoes, forklifts, delivery trucks, asphalt trucks, compactors, paving machines, and rollers. Three to eight workers would be required during various phases of pipeline installation. Removed pavement, soil, and materials would be hauled off-site and disposed of in accordance with applicable state and local regulations. Imported backfill and paving materials would be delivered to the construction site or to stockpiles at staging areas. Once pipelines are installed, the disturbed area would be restored to pre-construction conditions.

Construction would occur in a linear fashion and is anticipated to be contained within one lane of traffic. Open trench construction activities would move progressively as pipelines are installed and trenches are refilled, with an expectation of occurring in one location for no more than 2 months. Tunneling installation methods may occur for longer durations in fixed locations (6 months) as tunnel pits are used to install long segments of pipe. Traffic control would be necessary during pipeline construction within rights-of-way. Typically, five to eight workers would be required for traffic control during pipeline installation. Equipment necessary for traffic control includes changeable message signs, delineators, arrow boards, and K-Rails. The traffic control plan for each pipeline project would be coordinated with the applicable jurisdictions, including cities of Torrance, Los Angeles, Carson; unincorporated portions of Los Angeles County; and the California Department of Transportation (Caltrans).

Torrance Groundwater Desalter

Upgrades to treatment facilities could involve site preparation and clearing, excavation, grading, facility erection and painting, and site restoration. Subsurface activity at the Torrance Groundwater Desalter would include soil excavation for the 150,000-gallon subsurface water storage tank and pipeline connections which would extend approximately 25 feet bgs. Surface modifications would include concrete foundation pouring to accommodate structures and equipment. Above-grade activity would involve pipeline connections, engineered structural framing, and the installation of equipment. The construction equipment needed for treatment facility upgrades includes pickup trucks, forklifts, water trucks, backhoes, jack hammers, compactors, front-end loaders, dozers, generators, air compressors, manlifts, cranes, delivery trucks, dump trucks, concrete trucks, asphalt trucks, paving machines, and rollers and pile-driving equipment. On average, four to seven workers would be required at a time during various phases of construction. During certain construction phases where multiple activities could be occurring on-site, there could be a peak of up to 29 workers at the project site. Excavated soils would be reused on-site to the extent feasible and otherwise disposed off-site. Concrete would be required for construction of foundations and pads.

Staging Areas

Staging areas for the Torrance Groundwater Desalter Expansion Treatment facility would be located within the Torrance Public Works Yard property boundaries. Off-site construction staging areas may also be needed, and would be used for pipe lay-down, soil stockpiling, and equipment storage. A potential off-site staging area would be located at the southeast corner of Del Amo Boulevard and Madrona Avenue on a parcel owned by the City of Torrance as identified on Figure 1-2.

Construction Schedule

Construction of the project is expected to be completed in four concurrent contracts: 1) Desalter Treatment plant; 2) Brine pipeline; 3) Raw/Product water pipeline; and 4) Wells. Desalter Treatment plant construction duration is expected to be 22 months beginning in July 2024. Construction of the brine pipeline and raw/product water pipeline would overlap and are expected to take 14 months beginning in January of 2025. The construction duration of the wells is expected to be 16 months beginning in January of 2025. In summary, construction of all the project features would begin in July 2024 and be completed in December 2026, for a total duration of 29 months.

1.6.2 Operation and Maintenance

Typical water treatment facilities and infrastructure used to supply potable water to the community require trained and certified operators, instrumentation technicians and mechanics. As noted previously, operation and maintenance of the Torrance Groundwater Desalter Expansion will be handled by the City of Torrance similar to what was done for the existing Desalter. The facility being larger and having more systems to operate means there will be more operators and mechanics to maintain the facilities.

Operation of the extraction wells and pipelines would not require daily staffing but rather require only periodic operations inspection and regular maintenance. It is expected that each well would be visited at least once per week to verify operations and equipment maintenance.

Operation of the proposed treatment facilities would require approximately three (3) to five (-5) new dedicated operations and maintenance staff that would commute daily to and from the site. This includes operators, instrumentation and controls technicians, and maintenance staff.

Operation of the proposed treatment facilities would involve on-site chemical use and storage. Chemicals would be stored in a chemical storage building in aboveground tanks in a dedicated containment area with secondary containment areas to confine accidental spills and prevent exposure to the environment. The containment areas would be sized to accommodate storage tank volumes and sprinkler system operations to prevent accidental spills. Operation of the proposed treatment facilities would require periodic chemical and material deliveries depending on capacities. Operations staff will support and oversee deliveries of chemicals and materials to operate the facility.

1.7 Permits and Approvals

Potential regulatory agencies that may have approval authority over various project components are identified in **Table 1-1.**

TABLE 1-1
REGULATORY AUTHORIZATIONS

Agency	Type of Approval	Needed for
State Water Resources Control Board/Division of Drinking Water	Public Water System Approval	Permit to operate a new or modified public water system approval.
	Approval for Alternative to Separation Requirements	Separation of new water mains and non-potable pipelines
Proposed project Water Quality Control Board	Low Threat Discharge NPDES	Storm drain discharge
	Construction General Permit/SWPPP	Construction over an acre
	NPDES for Brine to Outfall	Brine discharge to ocean outfall downstream of JWPCP.
Los Angeles County Sanitation District	Consistency with Industrial Waste (IWW) Discharge Permit	Brine discharge to existing sewer (revise prior permit)
	Agreement for connection to LACSD Outfall	Brine discharge to existing ocean outfall.
California Department of Transportation	Encroachment Permit	In-street work within Hawthorne Boulevard (SR 107) and crossing State highways in the project area
SCE	Electrical Improvements electrical agreement	Medium Voltage Electrical service
BNSF Railway	Utility Crossing and Encroachment Permit	Brine line crossings
City of Torrance	Encroachment Permit	In-street work
City of Carson	Encroachment Permit	In-street work
City of Los Angeles	Encroachment Permit	In-street work
Los Angeles County	Encroachment Permit	In-street work

1.8 References

Jacobs, 2021. Regional Brackish Water Reclamation Program Feasibility Study. Prepared March 26, 2021. Prepared for WRD.

CHAPTER 2
Environmental Checklist

2.1 Project Details

1. **Project Title:** Water Replenishment District Torrance Groundwater Desalter Expansion Project
2. **Lead Agency Name and Address:** Water Replenishment District
4040 Paramount Blvd
Lakewood, CA 90712
3. **Contact Person and Phone Number:** Mario Bautista, Engineer
4. **Project Location:** Cities Torrance, Carson, and Los Angeles
5. **Project Sponsor's Name and Address:** Water Replenishment District
4040 Paramount Blvd
Lakewood, CA 90712
6. **General Plan Designation(s):** Business Park, Low Density Residential, Public/Quasi-Public/Open Space
7. **Zoning:** Heavy Manufacturing, single Family Residential, Public Use/Open Area, Planned Development/ Public Use
8. **Description of Project:** Refer to Chapter 1, *Project Description*, above.
9. **Surrounding Land Uses and Setting.** (Briefly describe the project's surroundings.)

The Project site is located in Torrance, Los Angeles, Carson, and portions of unincorporated Los Angeles County. The site is surrounded by commercial buildings, open space, and low-density residential buildings. For additional information, refer to Chapter 1, *Project Description*.

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

Note: Conducting consultation early in the CEQA process allows tribal governments, lead agencies, and project proponents to discuss the level of environmental review, identify and address potential adverse impacts to tribal cultural resources, and reduce the potential for delay and conflict in the environmental review process. (See Public Resources Code section 21080.3.2.) Information may also be available from the California Native American Heritage Commission's Sacred Lands File per Public Resources Code section 5097.96 and the California Historical Resources Information System administered by the California Office of Historic Preservation. Please also note that Public Resources Code section 21082.3(c) contains provisions specific to confidentiality.

Yes, under Assembly Bill 52 (AB 52), on behalf of WRD, ESA contacted the NAHC on March 6, 2023, in request of a search of the NAHC's Sacred Lands File (SLF) and a list of representatives from California Native American Tribes who may have interest in the proposed project. In support of required Native American consultation for the proposed project pursuant to PRC § 21080.3, on March 28, 2023, WRD sent a letter to Andrew Salas, Chairperson of the Gabrieleno Band of Mission Indians-Kizh Nation (GBMI), providing information on the proposed project and requesting that the GBMI notify WRD if they would like to consult pursuant to PRC § 21080.3.

On March 31, 2023, GBMI sent an email, with attached letter, to WRD in response to WRD's initial proposed project notification letter to GBMI. The attached letter stated that the proposed project is within the GBMI ancestral territory and that GBMI would like to consult with WRD, pursuant to PRC § 21080.3, on the proposed project. WRD responded to GBMI's request by email on April 4, 2023, thanking the Tribe for their response and requesting GBMI's availability for a call to discuss the proposed project. The same day, WRD sent an invitation to GBMI for a call on June 6, 2023, to discuss the proposed project. On June 6, 2023, Andrew Salas, and Matt Teutimez, of GBMI, Mario Bautista and Esther Rojas, of WRD, and Robin Hoffman, of ESA, had a call to discuss the proposed project and the Tribe's concerns regarding potential project impacts on cultural resources and tribal cultural resources. On the call, GBMI conveyed that previous disturbance does not mean lower potential for tribal cultural resources, since significance of tribal cultural resources is not tied to level of disturbance necessarily and, thus, GBMI requests construction monitoring because of the area's traditional use for salt and oil gathering and known human remains at the nearby refinery. GBMI expressed not needing to monitor construction if WRD could provide data showing that only non-native soils are present; WRD stated that likely the desalter is the only area where this may be possible. GBMI stated that they would provide WRD with standard mitigation measures for consideration/incorporation into the CEQA document as well as maps showing sensitivity of tribal cultural resources with respect to the proposed project area. On June 22, 2023, GBMI sent an email to WRD that provided background on why GBMI believes the proposed project area to have a high sensitivity for tribal cultural resources, in addition to proposed tribal cultural resources-related mitigation measures for inclusion in the CEQA document. The background included maps, ethnographic literature, and associated Tribal interpretations. GBMI pointed out the following: a documented village was near the proposed project area; the proposed project area was within a rancho; the proposed project area is near a railroad, which were often based on indigenous travel routes; documented trade routes were near the proposed project area; and natural waterways are in and in the vicinity of the proposed project area. In the email, GBMI reiterated their request for monitoring of proposed project-related ground-disturbing activities, as well as a request to adopt the following proposed tribal cultural resources-related mitigation measures into the CEQA document: Tribal construction monitoring; unanticipated discovery protocol for tribal cultural resources; and unanticipated discovery protocol for human remains. To date, GBMI has not specifically stated that a known tribal cultural resource may be affected/impacted by the proposed project.

2.2 Environmental Factors Potentially Affected

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

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

DETERMINATION: (To be completed by the Lead Agency)

On the basis of this initial study:

☐ I find that the proposed project COULD NOT have a significant effect on the environment, and a NEGATIVE DECLARATION will be prepared.

☒ I find that although the proposed project could have a significant effect on the environment, there will not be a significant effect in this case because revisions in the project have been made by or agreed to by the project proponent. A MITIGATED NEGATIVE DECLARATION will be prepared.

☐ I find that the proposed project MAY have a significant effect on the environment, and an ENVIRONMENTAL IMPACT REPORT is required.

☐ I find that the proposed project MAY have a "potentially significant impact" or "potentially significant unless mitigated" impact on the environment, but at least one effect 1) has been adequately analyzed in an earlier document pursuant to applicable legal standards, and 2) has been addressed by mitigation measures based on the earlier analysis as described on attached sheets. An ENVIRONMENTAL IMPACT REPORT is required, but it must analyze only the effects that remain to be addressed.

☐ I find that although the proposed project could have a significant effect on the environment, because all potentially significant effects (a) have been analyzed adequately in an earlier 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	10-18-2023 Date
Signature	Date

2.3 Environmental Checklist

I. Aesthetics

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

Discussion

a) **Less than Significant Impact.** The topography of Torrance creates scenic vistas throughout the city, including views of the distant San Gabriel Mountains and the Pacific Ocean (City of Torrance 2010). The city of Carson is characterized by urban environments, and as a result, scenic vistas are mostly limited to open space, vacant natural areas, and parks (City of Carson 2022). There are several scenic vistas located around the city of Los Angeles including the San Gabriel and Santa Susana Mountains to the north, the Santa Monica Mountains that extend across the middle of the city, the Palos Verdes Hills and Pacific Ocean to the south and west, and views of the Los Angeles River throughout the city (City of Los Angeles 2001). The nearest scenic vista to the project area is the Pacific Ocean, located approximately 2.1 miles to the southwest.

Construction

Construction of the proposed treatment facilities would occur over a 30-month period within the existing City of Torrance Public Works Yard and would be intermittently visible from certain viewpoints. Construction activities would include the use of earth-moving equipment, large cranes, concrete trucks, and other construction vehicles. Additionally, soil and demolition debris would be stockpiled and equipment and building materials would be staged at various locations throughout the treatment facilities site. The duration and intensity of construction would vary with each phase. Although construction-related activities would be visible from nearby residences, Delthorne Park, and Madrona Avenue, it would not block views of the Pacific Ocean or affect other scenic vistas due to distance and location within an urban setting. In addition, construction activities at the treatment facilities site would be temporary and would cease upon completion. Therefore, construction impacts would be less than significant.

Proposed pipeline construction activities would involve trenching, tunneling, and installation of the pipelines. Construction of the proposed pipelines would include the use of construction equipment and staging of equipment and materials that would be visible from adjacent roadways and nearby residences; however, it would not block views of the Pacific Ocean or affect other scenic vistas due to distance and location within an urban setting. Additionally, the presence of construction equipment and materials would occur in segments along a pipeline alignment and would remain in any one location for only a few weeks as trenches are opened, pipelines are installed, and trenches repaved. While temporary construction activities would be visible from certain viewpoints, none of the equipment or activities would block views of scenic vistas. As a result, construction impacts would be less than significant.

Similar to proposed pipeline construction, site disturbance and the presence of construction equipment and materials during construction of the groundwater monitoring and extraction wells would be visible from certain viewpoints, including adjacent roadways and nearby residences. However, given the urban setting of the potential groundwater monitoring and extraction well sites and the temporary nature of construction, impacts would be less than significant.

Operation

The proposed treatment facilities would not block views of the Pacific Ocean or affect other scenic vistas due to distance and location within an urban setting. However, residents of homes located west of the treatment facilities site across Madrona Avenue, motorists and pedestrians traveling along Madrona Avenue, and recreational users at Delthorne Park would have views of the treatment facilities. These views would be limited to the upper portion of the facilities as the existing City of Torrance Public Works Yard is enclosed with a brick wall. In addition, the new treatment facilities would be as tall as 50 feet, which would be similar in height and character to the existing facilities within the City of Torrance Public Works Yard. Therefore, operation of the treatment facilities would not obstruct scenic vistas and impacts would be less than significant.

Once constructed, the proposed pipelines would be located underground and would not be visible. As a result, they would not adversely affect views or scenic vistas. No operational impacts would occur.

It is anticipated that the proposed project would install 3 groundwater monitoring wells, 1 pilot well, and approximately eight extraction wells adjacent to roadways and other development. The majority of the proposed wells would be underground structures; however, equipment for the proposed extraction wells, including pump house enclosures, would be aboveground. While the equipment would be visible from public vantage points, it would not exceed the scale and massing of other structures in the vicinity or block views of scenic vistas due to distance and location within an urban setting. As such, operational impacts would be less than significant.

b) **No Impact.** There are no officially designated state scenic highways in the vicinity of the project area. The nearest designated state highway is along State Route (SR) 91, approximately 26.4 miles east of the project area, and the nearest eligible state scenic highway is along SR 1, approximately 8.1 miles southeast of the project area (California Department of Transportation [Caltrans] 2018). Therefore, proposed project construction activities and operation of project components would have no impact to scenic resources within a state scenic highway.

c) **Less than Significant with Mitigation Incorporated.**

Construction

Construction of the proposed treatment facilities would involve demolition of existing infrastructure as well as excavation, staging, and construction of the facilities. Staging and construction areas would be located on site and could be visible to viewers in surrounding areas, including residents of homes located west of the treatment facilities site across Madrona Avenue, motorists and pedestrians traveling along Madrona Avenue, and recreational users at Delthorne Park. However, these views would be limited as the existing City of Torrance Public Works Yard is enclosed with a brick wall. After the anticipated construction period, construction equipment and debris would be removed. Construction of the treatment facilities would not conflict with the Heavy Manufacturing zoning of the site or existing scenic quality. Therefore, construction impacts would be less than significant.

Construction activities associated with the proposed pipelines, groundwater monitoring wells, extraction wells, and borehole resistivity sensors would require the use of construction equipment and storage of materials on site as well as potentially off site in a staging area located at the southeast corner of Del Amo Boulevard and Madrona Avenue. As such, contrasting features would be introduced into the visual landscape that could affect the visual character or quality of the project sites and/or their surroundings. Contrasting features would include excavated areas, stockpiled soils, and other materials generated and stored on site and within the potential off-site staging area during construction. However, adverse effects to visual character associated with proposed pipeline, groundwater monitoring well, and extraction well, construction would be temporary and would be less than significant.

Operation

During operation, the upper portion of the new treatment facilities would be visible from select areas of Madrona Avenue, Delthorne Park, and from homes located west of the treatment facilities site across Madrona Avenue. However, these treatment facilities would be similar in height and character to the existing facilities within the City of Torrance Public Works Yard and would not conflict with applicable zoning and regulations governing the scenic quality of sites within the Heavy Manufacturing Zone. Therefore, operation of the new treatment facilities would not substantially alter the existing visual character of the site or surroundings. Operational impacts would be less than significant.

Once constructed, the proposed pipelines would be installed underground within public rights-of-way and would have no impact on visual character or quality of the surrounding areas.

The proposed groundwater monitoring and extraction wells would be located within developed and urban areas and could be installed adjacent to residences, schools, commercial, or industrial facilities with a variety of building styles. The majority of the proposed wells would be underground structures; however, equipment for the proposed extraction wells, may be aboveground. As a result, proposed aboveground equipment could contrast with the existing visual character or quality of the project area. To ensure that aboveground facilities would not introduce contrasting elements into the visual landscape that would negatively affect visual character or quality, implementation of **Mitigation Measure AES-1** would ensure that all aboveground facilities are designed to be compatible with surrounding buildings. With implementation of Mitigation Measure AES-1, operational impacts to visual character would be reduced to a less than significant level.

AES-1: Aboveground structures shall be designed to be consistent with the aesthetic qualities of existing structures in the vicinity to minimize contrasting features.

d) **Less than Significant with Mitigation Incorporated.**

Construction

The project area includes Madrona Avenue, Maple Avenue, Sepulveda Boulevard, Civic Center Drive, Plaza del Amo, Del Amo Boulevard, Prairie Avenue, Challenger Street, Pioneer Avenue, Mariner Avenue, and Voyager Street, which contain cars and streetlights that emit light and glare during the day and night. Construction equipment and building materials for the proposed treatment facilities may introduce a new, temporary source of glare during daytime hours. In addition, certain tasks may require nighttime construction, which would introduce a new light source at night. However, these impacts would be less than significant as they would be localized and temporary, occurring only during construction hours and when nighttime construction is necessary.

Construction of the proposed pipelines would not require lighting for daytime construction activities; therefore, construction activities would not introduce new sources of substantial light or glare in the project area. Furthermore, construction would occur between Monday through Friday, within the hours of 7:00 a.m. and 6:00 p.m. During fall and winter months when darkness occurs before 6:00 p.m., there is a potential for construction to require nighttime lighting that could introduce a new source of light or glare into the project area. Implementation of **Mitigation Measure AES-2** would require all daytime or nighttime construction lighting to be shielded and pointed away from surrounding light-sensitive land uses. As a result, construction associated with the proposed pipelines would be less than significant with mitigation incorporated.

Construction of the proposed groundwater monitoring and extraction wells would require 24-hour drilling and, as such, daytime and/or nighttime construction lighting would be used. This lighting could create a new source of substantial light or glare which would adversely affect daytime or nighttime views in the project area. With implementation of Mitigation Measure AES-2, construction lighting would be shielded and directed away from surrounding light-sensitive land uses. Temporary impacts associated with light and glare during construction activities would be reduced to a less than significant level with implementation of mitigation measures.

Operation

The proposed treatment facilities would require exterior daytime and nighttime lighting for operational and security purposes. The treatment facilities could also create glare depending on the kinds of paint and coating, windows, or other features used for the buildings. This lighting and reflective surfacing could create a new source of substantial light or glare which would adversely affect daytime or nighttime views in the project area. Implementation of **Mitigation Measure AES-3** would require any permanent exterior lighting on buildings/structures to be shielded and directed downward to avoid light intrusion onto surrounding land uses. **Mitigation Measure AES-4** would ensure that aboveground facilities would be designed to minimize glare or reflection. As a result, impacts associated with light and glare during operation of the proposed treatment facilities would be reduced to a less than significant level with implementation of mitigation measures.

Proposed pipelines, groundwater monitoring wells, and borehole resistivity sensors would be installed underground and would not create a new source of light and glare. No operational impacts would occur.

Similar to the proposed treatment facilities, aboveground equipment for the proposed extraction wells, may require new exterior daytime and nighttime lighting for operational and security purposes. Aboveground equipment could also create glare depending on the kinds of paint and coating or other features used. This lighting and reflective surfacing could create a new source of substantial light or glare which would adversely affect daytime or nighttime views in the project area. Implementation of Mitigation Measures AES-3 and AES-4 would be required to ensure that project lighting would be shielded and directed downward and aboveground equipment would be designed to minimize glare or reflection. As a result, impacts associated with light and glare during operation activities would be reduced to a less than significant level with implementation of mitigation measures.

Mitigation Measure

AES-2: Lighting used during daytime or nighttime construction shall be shielded and pointed away from surrounding light-sensitive land uses.

AES-3: All new permanent exterior lighting associated with proposed project components shall be shielded and directed downward to avoid any light spill onto neighboring lands or into nighttime skies.

AES-4: All proposed aboveground facilities shall be designed to include non-glare exterior materials and coatings to minimize glare or reflection.

References

California Department of Transportation (Caltrans), 2018. California State Scenic Highway System Map, Available at: https://dot.ca.gov/projects/design/lap-landscape-architecture-and-community-livability/lap-liv-i-scenic-highways. Accessed February 27, 2023.

City of Carson, 2022. Carson 2040 General Plan Update Draft Environmental Impact Report. September 2022. Available online at: https://ci.carson.ca.us/communitydevelopment/generalplan.aspx. Accessed February 27, 2023.

City of Los Angeles, 2001. General Plan Conservation Element. Adopted September 2001.

City of Torrance, 2010. City of Torrance General Plan: Community Resources Element. Adopted April 6, 2010.

II. Agriculture and Forestry Resources

Issues (and Supporting Information Sources):	*Potentially Significant Impact*	*Less Than Significant with Mitigation Incorporated*	*Less Than Significant Impact*	*No Impact*
II. AGRICULTURE AND FORESTRY RESOURCES — In determining whether impacts to agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997) prepared by the California Dept. of Conservation as an optional model to use in assessing impacts on agriculture and farmland. In determining whether impacts to forest resources, including timberland, are significant environmental effects, lead agencies may refer to information compiled by the California Department of Forestry and Fire Protection regarding the state's inventory of forest land, including the Forest and Range Assessment Project and the Forest Legacy Assessment project; and forest carbon measurement methodology provided in Forest Protocols adopted by the California Air Resources Board. Would the project:				
a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Project of the California Resources Agency, to non-agricultural use?	☐	☐	☐	☒
b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?	☐	☐	☐	☒
c) Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g)), timberland (as defined by Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104(g))?	☐	☐	☐	☒
d) Result in the loss of forest land or conversion of forest land to non-forest use?	☐	☐	☐	☒
e) Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use or conversion of forest land to non-forest use?	☐	☐	☐	☒

Discussion

a,b) **No Impact.** According to the California Department of Conservation's Farmland Mapping and Monitoring Project the project site and surrounding areas are designated as Urban and Built-Up Land (DOC 2017) and the project site would not be located on land covered by a Williamson Act contract (DOC 2016). The city of Torrance Property Zoning Map further defines the zones for the proposed project site as Heavy Manufacturing District (M2), Single Family Residential (R1), Planned Development (PD), Public Use (PU), and Open Area (P1) (COT 2022). The City of Torrance Property Zoning Map does not designate the project site as farmland. The proposed project site does not include farmland and would not convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance to non-agricultural use. No impact would occur.

c) **No Impact.** The proposed projects do not overlap with forest lands. There is no land designated or zoned as Forest or Timberland within the project area. Therefore, no impacts regarding zoning or rezoning of forest or timberlands would occur.

d) **No Impact.** The proposed project does not overlap with forest lands. There is no land designated or zoned as Forest within the project areas. Therefore, no impacts regarding the loss of forest land or conversion of forest land to non-forest use would occur.

e) **No Impact.** As discussed above, the project site is not located on land designated as Prime Farmland, Unique Farmland, Farmland of Statewide Importance, timberland, or forest land. Therefore, implementation of the proposed project would not convert farmland or forest land, and no impact would occur.

References

DOC (California Department of Conservation), 2016. Los Angeles County Williamson Act Fiscal Year 2015/2016. Available at: https://planning.lacity.org/eir/HollywoodCenter/Deir/ELDP/(E)%20Initial%20Study/Initial%20Study/Attachment%20B%20References/California%20Department%20of%20Conservation%20Williamson%20Map%202016.pdf. Accessed March 1, 2023.

DOC, 2017. Los Angeles County Important Farmland 2016, Published July 2017. Available at: https://maps.conservation.ca.gov/DLRP/CIFF/. Accessed March 1, 2023.

City of Torrance (COT), 2022. Property Zoning Map. Available at: https://www.torranceca.gov/home/showpublisheddocument/78857/638055129495170000. Accessed February 23, 2023.

III. Air Quality

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

Discussion

a) **Less Than Significant Impact.** The project site is located within the 6,745-square-mile South Coast Air Basin (SCAB). Air quality planning for the SCAB is under the jurisdiction of the South Coast Air Quality Management District (SCAQMD). The SCAQMD has adopted a series of Air Quality Management Plans (AQMP) to meet the California Ambient Air Quality Standards (CAAQS) and National Ambient Air Quality Standards (NAAQS) for criteria air pollutants. The SCAQMD is required, pursuant to the Clean Air Act (CAA), to reduce emissions of criteria pollutants for which the SCAB is in non-attainment of the NAAQS (i.e., ozone [O_3] and fine particulate matter [PM2.5]).

The SCAQMD and California Air Resources Board (CARB) have adopted the *2022 Air Quality Management Plan* (2022 AQMP), which incorporates scientific and technological information and planning assumptions, regarding air quality and proposed project growth projections from the Southern California Association of Governments (SCAG), and emission inventory methodologies for various source categories (SCAQMD 2022). The key undertaking of the 2022 AQMP is to provide a proposed project roadmap to help the SCAB achieve the United States Environmental Protection Agency (USEPA's) NAAQS 2015 8-hour ozone standard (70 parts per billion). The SCAQMD expects reduction in basin-wide ozone emissions to be achieved through implementation of new and advanced control technologies as well as improvement of existing technologies.

The 2022 AQMP was prepared to accommodate growth, reduce the high levels of pollutants within the areas under the jurisdiction of SCAQMD, return clean air to the region, and minimize the impact on the economy. Projects that are consistent with the assumptions used in the 2022 AQMP do not interfere with attainment because the growth is included in the projections utilized in the formulation of the 2022 AQMP. Thus, projects, uses, and activities that are consistent with the applicable growth projections and control strategies used in the development of the 2022 AQMP would not jeopardize attainment of the air quality levels identified in the 2022 AQMP, even if it would individually exceed the SCAQMD's numeric indicators.

The following analysis addresses the Project's consistency with applicable SCAQMD 2022 AQMP and SCAG *2020–2045 Proposed project Transportation Plan/Sustainable Communities Strategy* (2020-2045 RTP/SCS) policies, inclusive of regulatory compliance (SCAG 2020a). In accordance with SCAQMD's CEQA Handbook, the following criteria are required to be addressed to determine the Project's consistency with applicable SCAQMD and SCAG policies.

- Criterion 1: Will the Project result in any of the following:
  - An increase in the frequency or severity of existing air quality violations; or
  - Cause or contribute to new air quality violations; or
  - Delay timely attainment of air quality standards or the interim emission reductions specified in the AQMP.
- Criterion 2: Will the Project exceed the assumptions utilized in preparing the AQMP?

Criterion 1 – Air Quality Violations and Attainment of Standards

Under Criterion 1, localized concentrations of NO_2 as NO_X, CO, PM10, and PM2.5 have been analyzed for the Project. SO_2 emissions would be negligible during construction and long-term operations and, therefore, would not have the potential to cause or effect a violation of the SO_2 ambient air quality standard. Since VOCs are not a criteria pollutant, there is no ambient standard or localized threshold for VOCs. However, due to the role VOCs play in ozone formation, it is classified as a precursor pollutant, and only a proposed project emissions threshold has been established.

The Project's NO_X, CO, PM10, and PM2.5 emissions during construction and operations were analyzed: (1) to ascertain potential effects on localized concentrations; and (2) to determine if there is a potential for such emissions to cause or affect a violation of the ambient air quality standards for NO_2, CO, PM10, and PM2.5.

As shown in **Table 2-1** the increases in localized emissions of NO_2, CO, PM10, and PM2.5 during construction would not exceed the SCAQMD-recommended localized significance thresholds at sensitive receptors in proximity to the Project Site. In addition, the Project would not include localized emission sources during operations and would not exceed the SCAQMD-recommended proposed project thresholds at sensitive receptors in proximity to the project site; refer to **Table 2-4**

The Project would not introduce any substantial stationary sources of emissions; therefore, CO is the appropriate benchmark pollutant for assessing local area air quality impacts from post-construction motor vehicle operations (SCAQMD 1993). As indicated below, no intersections would result in a CO hotspot in excess of the ambient air quality standards, and impacts would be less than significant. Therefore, the Project would not increase the frequency or severity of an existing CO violation or cause or contribute to new CO violations.

Therefore, in response to Criterion 1, the Project would not increase the frequency or severity of an existing violation or cause or contribute to new violations for ozone. Impacts regarding the timely attainment of air quality standards or interim emission reductions specified in the 2022 AQMP and impacts would be less than significant.

Criterion 2 – Air Quality Management Plan Consistency

The Project is located within the SCAB, which is under the jurisdiction of the SCAQMD. As such, SCAQMD's 2022 AQMP is the applicable air quality plan for the Project. With respect to the second criterion for determining consistency with the 2022 AQMP growth assumptions, the projections in the 2022 AQMP for achieving air quality goals are based on assumptions in SCAG's 2020-2045 RTP/SCS regarding population, housing, and growth trends. Determining whether or not a project exceeds the assumptions reflected in the 2022 AQMP involves the evaluation of consistency with applicable population, housing, and employment growth projections and appropriate incorporation of the 2022 AQMP control measures. The following discussion provides an analysis with respect to these criteria.

The 2022 AQMP relies on emissions forecasts based on the demographic and economic growth projections provided by SCAG's 2020-2045 RTP/SCS in devising its control strategies for reducing NO_X emissions to meet the 2015 8-hour NAAQS standards (SCAQMD 2022). SCAG is charged by California law to prepare and approve "the portions of each AQMP that addresses transportation control measures, land use, and growth projections." The SCAQMD recommends that, when determining whether a project is consistent with the current AQMP, the lead agency assess whether the project would directly obstruct implementation of the plan by impeding the SCAQMD's efforts to achieve attainment with respect to any criteria pollutant for which it is currently not in attainment of the NAAQS and CAAQS (e.g., ozone, PM10, and PM2.5) and whether it is consistent with the demographic and economic assumptions (typically land use related, such as employment and population/residential units) upon which the plan is based (SCAQMD 1993). Projects whose growth is included in the projections used in the formulation of the 2022 AQMP are considered to be consistent with the plan and not to interfere with its attainment.

Control Strategies

Construction and operation of the Project would comply with applicable required fleet rules and control strategies to reduce on-road truck emissions (i.e., 13 CCR, Section 2025 [CARB Truck and Bus regulation]), and other applicable SCAQMD rules specified and incorporated in the 2022 AQMP, such as Rule 403 for controlling fugitive dust and Rule 1113 for controlling VOC emissions. Projects, uses, and activities that are consistent with the applicable growth projections and control strategies used in the development of the 2022 AQMP would not jeopardize attainment of the air quality levels identified in the 2022 AQMP even if their emissions exceed the SCAQMD's thresholds of significance.

As discussed below, compliance with the applicable required fleet rules and control strategies and requirements would render it consistent with, and meet or exceed, the AQMP requirements for control strategies intended to reduce emissions from construction equipment and activities. Additionally, the proposed Project would incorporate PDF AQ-1, which includes the use of USEPA Tier 4 Final off-road diesel construction equipment during construction activities tied to the construction of the wells. Incorporation of PDF AQ-1 would further reduce exhaust air emissions, consistent with the goals of the 2022 AQMP. Compliance with these features and requirements would be consistent with and meets or exceeds the 2022 AQMP requirements for control strategies intended to reduce emissions from construction equipment and activities.

Thus, the project's construction-related and operations-related criteria pollutant emissions would not cause the SCAB criteria pollutant emissions to worsen so as to impede the SCAQMD's efforts to achieve attainment with respect to any criteria pollutant for which it is currently not in attainment of the NAAQS and CAAQS (e.g., ozone, PM10, and PM2.5) or to cause the SCAB to deteriorate from its current attainment status with respect to any other criteria pollutant emissions.

Growth Projections

The Project would generate short-term construction jobs, but these jobs would not necessarily bring new construction workers or their families into the region, since construction workers are typically drawn from an existing proposed project pool who travel among construction sites within the region. Construction workers are not typically brought from other regions to work on developments such as the Project. Moreover, these jobs would be relatively small in number and temporary in nature. Therefore, the Project's construction jobs would not conflict with the long-term employment or population projections upon which the 2022 AQMP is based.

The Proposed Project would result in three to five new employees to be stationed at the desalter buildings. The SCAG 2020-2045 growth forecasts estimates that the City of Torrance will undergo an employment growth of 126,600 in 2016 to 133,800 in 2045, or a total employment growth of 7,200 (SCAG 2020b). The Project's anticipated employment growth of five would be approximately 0.07 percent of the forecasted growth in the City of Torrance by SCAG. The Project would not include any residential dwelling units. Therefore, the Project growth projections would be consistent with SCAG's 2020-2045 RTP/SCS goals and emission projections in the 2022 AQMP. Impacts would be less than significant.

b) **Less Than Significant Impact.** As indicated above, the project site is located within the SCAB. State and federal air quality standards are exceeded in many parts of the SCAB for O_3 and PM2.5, including those monitoring stations nearest to the project area. The project would contribute to local and proposed project air pollutant emissions during construction (short-term or temporary). However, based on the following analysis, construction, with incorporated mitigation measures, and operation of the project would result in less than significant impacts relative to the daily significance thresholds for criteria air pollutant emissions established by the SCAQMD for construction and operational phases.

Daily proposed project construction and operational source project criteria pollutant emissions (VOC, NO_X, carbon monoxide [CO], sulfur dioxide [SO_2], respirable particulate matter [PM10], and PM2.5) were estimated using the California Emissions Estimator Model, Version 2022.1, which is a statewide emissions computer model designed to provide a uniform platform for government agencies, land use planners, and environmental professionals to quantify potential criteria pollutant emissions from a projects. The model incorporates emission factors from the CARB 2017 OFFROAD model and the on-road vehicle EMission FACtor model (EMFAC2021) model and is considered to be an accurate and comprehensive tool for quantifying air quality impacts from projects throughout California and is recommended by the SCAQMD.

Construction

Construction activities associated with the project would generate temporary and short-term emissions of VOC, NO_X, CO, SO_2, PM10, and PM2.5. Construction related emissions are expected from the asphalt removal, grading, and trenching, building construction and paving activities, and from construction worker commutes.

Construction of the project is expected to be completed in four concurrent contracts: 1) Wells; 2) Desalter Treatment plant; 3) Brine pipeline; and 4) Raw/Product water pipeline. The construction duration of the wells is expected to be 16 months beginning in January of 2025. Desalter Treatment plant construction duration is expected to be 22 months beginning in November of 2023. Construction of the brine pipeline and raw/product water pipeline would overlap and are expected to take 14 months beginning in January of 2025. There would be three separate construction crews for the construction of the brine pipeline and the raw/product water pipeline. Construction of all the project features would begin in November 2023 and be completed in March 2026, for a total duration of 29 months.

If project construction commences later than the anticipated start date, air quality impacts would be less than those analyzed herein, because a more energy-efficient and cleaner burning construction equipment fleet mix would be expected in the future, pursuant to State regulations that require construction equipment fleet operators to phase-in less polluting heavy-duty equipment. The construction equipment fleet modeled was provided by the applicant for each of the four concurrent construction contracts discussed above. A detailed summary of construction equipment assumptions by phase is provided in the modeling files in **Appendix A**.

The estimated unmitigated maximum daily construction emissions are summarized on **Table 2-1**, *Unmitigated Maximum Daily Proposed project Construction Emissions*. Under the maximum evaluated scenario, unmitigated emissions resulting from the project construction would not exceed the criteria pollutant threshold established by the SCAQMD.

TABLE 2-1
UNMITIGATED MAXIMUM DAILY PROPOSED PROJECT CONSTRUCTION EMISSIONS (POUNDS PER DAY)[a]

Source	VOC	NO_X	CO	SO_2	PM10[b]	PM2.5[b]
Construction Year						
Year 1	0.97	7.56	8.94	0.01	1.58	0.88
Year 2	2.63	22.2	25.3	0.04	1.94	1.04
Year 3	7.98	63.1	71.8	0.16	5.13	2.98
Year 4	5.55	31.0	41.3	0.08	3.3	1.45
Maximum Daily Emissions	**7.98**	**63.1**	**71.8**	**0.16**	**5.13**	**2.98**
SCAQMD Numeric Indicators	**75**	**100**	**550**	**150**	**150**	**55**
Exceeds Thresholds?	No	No	No	No	No	No

[a] Totals may not add up exactly due to rounding in the modeling calculations.
[b] Emissions include fugitive dust control measures consistent with SCAQMD Rule 403.
SOURCE: Table compiled by ESA, 2023

Although the proposed Project's daily proposed project construction emissions would not exceed the SCAQMD thresholds, the proposed Project would incorporate Project Design Feature (PDF) AQ-1 to reduce diesel exhaust particulate matter (DPM) emissions during the well construction activities. This is discussed in greater detail in the localized health risk impacts discussion below. Implementation of PDF AQ-1 would require equipment used during the well construction activities that are greater than 50 horsepower to meet Tier 4 Final stringent emission standards, which would drastically reduce NOx and PM exhaust emissions but result in slightly higher CO emissions. The estimated mitigated maximum daily construction emissions are summarized in **Table 2-2**, *Unmitigated with PDF AQ-1 Maximum Daily Proposed project Construction Emissions*. As shown in Table 3-2, the Project's maximum daily proposed project construction emissions would be reduced further.

TABLE 2-2
UNMITIGATED WITH PDF AQ-1 MAXIMUM DAILY PROPOSED PROJECT CONSTRUCTION EMISSIONS (POUNDS PER DAY)[a]

Source	VOC[b]	NO_X[b]	CO[b]	SO_2[b]	PM10[b]	PM2.5[b]
Construction Year						
Year 1	0.97	7.56	8.94	0.01	0.71	0.39
Year 2	2.63	22.2	25.3	0.04	1.94	1.04
Year 3	7.98	49.6	71.8	0.16	4.32	2.1
Year 4	5.55	30.3	41.3	0.08	3.227	1.43
Maximum Daily Emissions	**7.98**	**49.6**	**71.8**	**0.16**	**4.32**	**2.1**
SCAQMD Numeric Indicators	**75**	**100**	**550**	**150**	**150**	**55**
Exceeds Thresholds?	No	No	No	No	No	No

[a] Totals may not add up exactly due to rounding in the modeling calculations.
[b] Emissions include fugitive dust control measures consistent with SCAQMD Rule 403, as well Tier 4 Final equipment during the construction of the wells, consistent with PDF AQ-1.
SOURCE: Table compiled by ESA, 2023

Operations

The project would involve the operations of desalter buildings to help treat the saline groundwater extracted from the Gage, Silverado, and Lower San Pedro Aquifers. The project would require three to five full-time employees to be present at the desalter buildings, which would result in mobile source emissions. In addition, the project would have area source emissions from architectural coating re-application and occasional landscaping equipment usage. **Table 2-3**, *Maximum Daily Proposed Project Operational Emissions*, highlights the project's operational emissions. As shown in Table 3-3, the project would not exceed the SCAQMD proposed project operational mass emission thresholds and impacts would be less than significant.

TABLE 2-3
MAXIMUM DAILY PROPOSED PROJECT OPERATIONAL EMISSIONS (POUNDS PER DAY)[a]

Source	VOC	NO_X	CO	SO_2	PM10	PM2.5
Mobile Sources	**0.03**	**0.03**	**0.29**	**<0.01**	**0.03**	**<0.01**
Area Sources	0.54	0.01	0.76	<0.01	<0.01	<0.01
Energy Sources	0.00	0.00	0.00	0.00	0.00	0.00
Maximum Daily Emissions	**0.58**	**0.04**	**1.05**	**<0.01**	**0.03**	**0.01**
SCAQMD Numeric Indicators	**55**	**55**	**550**	**150**	**150**	**55**
Exceeds Thresholds?	No	No	No	No	No	No

[a] Totals may not add up exactly due to rounding in the modeling calculations.
SOURCE: Table compiled by ESA, 2023

Proposed project Cumulative Impacts

The SCAB is currently in extreme non-attainment for the O_3 and PM2.5 NAAQS and CAAQS and non-attainment for the PM10 CAAQS.[1] A significant impact may occur if a project were to add a cumulatively considerable contribution of a federal or State non-attainment pollutant. Because the SCAB is currently in nonattainment for O_3, PM10 and PM2.5, related projects could cause ambient concentrations to exceed an air quality standard or contribute to an existing or projected air quality exceedance. Cumulative impacts to air quality are evaluated under two sets of thresholds for CEQA and the SCAQMD. In particular, CEQA Guidelines Sections 15064(h)(3) provides guidance in determining the significance of cumulative impacts. Specifically, Section 15064(h)(3) states in part that:

> *"A lead agency may determine that a project's incremental contribution to a cumulative effect is not cumulatively considerable if the project will comply with the requirements in a previously approved plan or mitigation project which provides specific requirements that will avoid or substantially lessen the cumulative problem (e.g., water quality control plan, air quality plan, integrated waste management plan) within the geographic area in which the project is located. Such plans or*

1 The Los Angeles County portion of the SCAB is also non-attainment for the lead NAAQS; however, this was due to lead emissions from a battery recycling facility that is no longer in operation. The project would not result in lead emissions to the environment; therefore, lead impacts from the project would not occur.

> *projects must be specified in law or adopted by the public agency with jurisdiction over the affected resources through a public review process to implement, interpret, or make specific the law enforced or administered by the public agency…"*

For purposes of the cumulative air quality analysis with respect to CEQA Guidelines Section 15064(h)(3), the project's incremental contribution to cumulative air quality impacts is determined based on compliance with the SCAQMD adopted AQMP. The AQMP includes demographic growth forecasts for various socioeconomic categories (e.g., population, housing, employment), developed by SCAG for their Proposed project Transportation Plan (RTP). As discussed above, the project would be consistent with the AQMP.

The SCAQMD CEQA Air Quality Handbook states that "[f]rom an air quality perspective, the impact of a project is determined by examining the types and levels of emissions generated by the project and its impact on factors that affect air quality. As such, projects should be evaluated in terms of air pollution thresholds established by the District" (SCAQMD 1993). The SCAQMD has provided guidance on an acceptable approach to addressing the cumulative impacts issue for air quality. The SCAQMD "uses the same significance thresholds for project specific and cumulative impacts… projects that exceed the project-specific significance thresholds are considered by the SCAQMD to be cumulatively considerable. This is the reason project-specific and cumulative significance thresholds are the same. Conversely, projects that do not exceed the project-specific thresholds are not considered to be cumulatively significant" (SCAQMD 2003a).

As the project is not part of an ongoing regulatory project, the SCAQMD also recommends that project-specific air quality impacts be used to determine the potential cumulative impacts to proposed project air quality. As discussed above, peak daily emissions of construction-related pollutants would not exceed SCAQMD proposed project significance thresholds. Additionally, with implementation of PDF AQ-1, construction emissions would be further reduced. Operational emissions would not exceed the SCAQMD proposed project significance thresholds and operational impacts would be less than significant. By applying SCAQMD's cumulative air quality impact methodology, implementation of the project would not result in an addition of criteria pollutants such that cumulative impacts would occur, in conjunction with related projects in the region.

Project Design Feature

PDF AQ-1 The project will utilize off-road diesel-powered construction equipment that meets or exceeds the CARB and USEPA Tier 4 off-road emissions standards for equipment rated at 50 horsepower or greater during all construction activities tied to the proposed eight (8) extraction wells. Such equipment will be outfitted with Best Available Control Technology (BACT) devices including a CARB certified Level 3 Diesel Particulate Filter or equivalent. These requirements shall be included in applicable bid documents and successful contractor(s) must demonstrate the ability to supply such equipment. A copy of each unit's certified tier specification or model year specification and CARB or SCAQMD operating permit (if applicable) shall be available upon request at the time of mobilization of each applicable unit of equipment.

c) **Less Than Significant.** The localized effects from the on-site portion of the emissions are evaluated at air-quality sensitive receptor locations potentially impacted by the project according to the SCAQMD's *Localized Significance Threshold Methodology*, which relies on on-site mass emission rate screening tables and project-specific dispersion modeling typically for daily site disturbances greater than five acres per day, as appropriate (SCAQMD 2008). The localized significance thresholds are applicable to emissions of NO_X, CO, PM10, and PM2.5. For NO_X and CO, the thresholds are based on the ambient air quality standards. For PM10 and PM2.5, the thresholds are based on requirements in SCAQMD Rule 403 (Fugitive Dust) for construction and Rule 1303 (New Source Review Requirements) for operations.

The SCAQMD has established conservative screening criteria that can be used to determine the maximum allowable daily emissions that would satisfy the localized significance thresholds and therefore not cause or contribute to an exceedance of the applicable ambient air quality standards without project-specific dispersion modeling. The LST screening criteria depend on: (1) the source receptor area in which the project is located; (2) the total daily acres disturbed per 8-hour day during construction; and (3) the distance between the project site and the nearest sensitive receptor (e.g., residences, schools, hospitals). Specifically, the LST screening criterions were developed for a total of 38 Source Receptor Areas (SRA), with thresholds for 1-acre, 2-acre, 5-acre of disturbance per day and receptor distances of 25-meters, 50-meters, 100-meters, 200-meters, and 500 meters (SCAQMD 2008).

For the project, the SRA for the LST thresholds is the Southwest Los Angeles County Coastal monitoring station (SRA 3). The nearest sensitive receptors would be residential uses located within 55 feet of the proposed brine and raw water/product water pipeline construction. Based off the Project's construction equipment list, the Project would grade up to 858 acres during the installation of the brine and raw water/product water pipeline construction, over a period of approximately 286 days. Thus, the Project would disturb up to three acres per day during construction (SCAQMD 2010). To provide for a conservative analysis, the 2-acre LST screening criteria in SRA 3 with a sensitive receptor distance of 25 meters (82 feet) were used. It should be noted that the SCAQMD's LST thresholds are only applicable to on-site emissions.

Construction

Table 2-4, *Maximum Daily Localized Construction Emissions*, identifies the localized impacts at the nearest receptor, assumed to be within 55 feet of the construction of the proposed project brine and raw water/product water pipelines during the demolition and grading phases. In addition, construction of two of the eight wells would be located within 65 feet of sensitive receptors and would overlap the pipeline construction phase. The emissions shown in Table 4 include the implementation of PDF AQ-1, discussed above, as well as SCAQMD Rule 403. As shown in Table 3-4, the localized emissions during the Project's construction phase with the highest soil disturbance per day would not exceed the screening criteria at nearby sensitive receptors. Therefore, localized impacts would be less than significant.

TABLE 2-4
MAXIMUM DAILY LOCALIZED CONSTRUCTION EMISSIONS (POUNDS PER DAY)[a]

Source	NO_X	CO	PM10[b]	PM2.5 [b]
Pipeline Demolition (Demolition)	11.2	20.8	1.0	0.4
Pipeline Construction – Installation of Pipelines (Grading)	20.0	22.4	1.4	0.8
Borehole Drilling (Grading)	7.56	18.3	0.2	0.2
Maximum Daily Emissions	**27.6**	**40.7**	**1.6**	**1.0**
SCAQMD Numeric Indicators[c]	**131**	**967**	**8.0**	**5.0**
Exceeds Thresholds?	No	No	No	No

[a] Totals may not add up exactly due to rounding in the modeling calculations. Only on-site emissions are analyzed, consistent with LST guidance.
[b] Emissions include fugitive dust control measures consistent with SCAQMD Rule 403.
[c] Based on SCAQMD lowest screening criteria for SRA 3 at 25 meters for a 1-acre site.

SOURCE: Table compiled by ESA, 2023

Operations

According to SCAQMD LST methodology, LSTs would apply to the operational phase of a project, if the project includes stationary sources, or attracts mobile sources that may spend prolonged periods queuing and idling at the site (e.g., warehouse or transfer facilities). As the project is a brackish water desalter building with wells and pipelines, no new stationary emission sources are anticipated and there would be no mobile source queuing/idling[2]. Overall, given the small scale of operational trips (10 trips per day), localized project operational-source emissions would not exceed applicable SCAQMD localized thresholds of significance and operational impacts would be less than significant.

CO "Hot Spot" Analysis

A CO hotspot is an area of localized CO pollution that is caused by severe vehicle congestion on major roadways, typically near intersections. Projects may worsen air quality if they increase the percentage of vehicles in cold start modes by two percent or more; significantly increase traffic volumes (e.g., by five percent or more) over existing volumes; or worsen traffic flow, defined for signalized intersections as increasing average delay at intersections operating at Level of Service (LOS) E or F or causing an intersection that would operate at LOS D or better without the project, to operate at LOS E or F. While construction-related traffic on the local roadways would occur during construction, the net increase of construction worker vehicle trips to the existing daily traffic volumes on the local roadways would be small and would not result in CO hotspots. Additionally, the construction-related vehicle trips would only occur in the short-term and would cease once construction activities have been completed for each pipeline reach. During operation, only minimal emissions would be generated from vehicle trips from the three to five on-site employees. The project is not expected to cause

2 Future emergency generators or other stationary emission sources located onsite, if deemed necessary, would have to comply with all SCAQMD regulations and permitting requirement prior to installation and operations.

any additional vehicle or truck trips other than these employee trips. Therefore, CO hotspot impacts would be less than significant.

Toxic Air Contaminants

Concentrations of toxic air contaminants (TACs) are also used as indicators of ambient air quality conditions. A TAC is defined as an air pollutant that may cause or contribute to an increase in mortality or in serious illness, or that may pose a hazard to human health. TACs are usually present in minute quantities in the ambient air; however, their high toxicity or health risk may pose a threat to public health even at low concentrations.

Construction

Temporary TAC emissions associated with DPM emissions from heavy construction equipment would occur during construction activities and may have the potential to cause a health risk impact. According to Office of Environmental health Hazard Assessment (OEHHA 2015) and the SCAQMD's Health Risk Assessment Guidance for Analyzing Cancer Risks from Mobile Source Diesel Idling Emissions for CEQA Air Quality Analysis, health effects from TACs are described in terms of individual cancer risk based on a lifetime (i.e., 30-year) resident exposure duration (SCAQMD 2003b). As discussed above, the proposed project would be constructed over a 29-month period.

The project would be consistent with the applicable 2022 AQMP requirements for control strategies intended to reduce emissions from construction equipment and activities. The Project would comply with regulatory control measures including the CARB Air Toxics Control Measure that limits diesel powered equipment and vehicle idling to no more than 5 minutes at a location, and the CARB In-Use Off-Road Diesel Vehicle Regulation that requires fleets to retire, replace, or repower of older, dirtier engines with newer emission-controlled models; compliance with these would minimize emissions of TACs during construction.

SCAQMD recommends that construction health risk assessments be conducted for substantial sources of DPM emissions (e.g., earth-moving construction activities) in proximity to sensitive receptors and has provided guidance for analyzing mobile source diesel emissions. The highest DPM emissions would occur during the well and pipeline construction phases. Furthermore, these phases would be located near sensitive receptors.

In total, the project would construct eight new wells, with two of these wells located near sensitive receptors. The construction of these wells would involve the drilling of a pilot hole using direct rotary drilling methods for a duration of approximately two weeks (24 hours per day), and an additional six weeks for the other construction components. In order to limit any potential health risk impacts during the construction of these wells, the proposed project would be required to incorporate PDF AQ-1. Incorporation of PDF AQ-1 would reduce DPM exhaust emissions during the borehole drilling phase by at least 70 percent. As shown in Table 2-4, the borehole drilling DPM emissions would be significantly below the LST thresholds. Additionally, the short-term duration of the borehole drilling (two weeks) and remaining well construction (six weeks) for a single well would not expose sensitive receptors to a substantial pollutant emissions duration[3]. Thus, construction of the wells would not result in a health risk impact.

As discussed above, the construction of the brine and raw water/product pipelines would exposure sensitive receptors within 25 feet to DPM emissions. It is anticipated that an average of 50 to 100 feet of pipeline would be installed per day. As such, within 10 to 20 days, sensitive receptors that were exposed to DPM emissions during the pipeline construction would be located 500 to 1,000 feet away from the construction equipment emitting these DPM emissions[4]. CARB noted in its *2005 Land Use Handbook* (CARB Handbook) that at a distance of 1,000 feet, DPM emissions are reduced by approximately 80 percent due to a drop-off in pollutant concentrations (CARB 2005). Thus, with the short exposure durations for individual receptors from the average of 50 to 100 feet of pipeline installed per day, construction health risk impacts would be less than significant.

In conclusion, construction activities would not expose sensitive receptors to substantial toxic air contaminant concentrations and construction-related health impacts would be less than significant with mitigation.

Operations

The SCAQMD recommends that operational health risk assessments be conducted for substantial sources of operational DPM (e.g., truck stops and warehouse distribution facilities that generate more than 100 trucks per day or more than 40 trucks with operating transport refrigeration units) and has provided guidance for analyzing mobile source diesel emissions (SCAQMD 2003). The project does not consist of any of these land uses. Therefore, Project operations would not be considered a substantial source of diesel particulates.

Other sources of hazardous TAC emissions include industrial manufacturing processes and automotive repair facilities. The Project would not include any of these potential sources, although minimal emissions may result from the use of consumer products (e.g., aerosol sprays). With respect to the use of consumer products and architectural coatings, the office uses associated with the Project would be expected to generate minimal emissions from these sources. Furthermore, future emergency generators or other stationary TAC emission sources located on-site, if deemed necessary, would have to comply with all SCAQMD regulations and permitting requirement prior to installation and operations. Thus, operation of the Project would not expose sensitive receptors to substantial toxic air contaminant concentrations and operational impacts would be less than significant.

Mitigation Measures

None.

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[3] The Office of Environmental Health Hazard Assessment (OEHHA) does not recommend assessing cancer risk impacts for projects lasting less than two months, due to the uncertainty in assessing cancer risk from very short-term exposure durations (OEHHA 2015).

[4] Ibid.

d) **Less Than Significant Impact.** Potential sources that may emit odors during construction activities include construction equipment exhaust, the application of asphalt, and the use of architectural coatings and solvents. According to the SCAQMD CEQA Air Quality Handbook, construction equipment is not a typical source of odors. SCAQMD Rule 1108 and Rule 1108.1 limit the VOC content of asphalt, which would minimize odor emissions from paving activities. Further, construction odor emissions would be temporary, short-term, and intermittent in nature and would cease upon completion of construction. Through adherence with mandatory compliance with SCAQMD Rules, no construction activities or materials are proposed which would create objectionable odors.

According to the SCAQMD CEQA Air Quality Handbook, land uses associated with odor complaints typically include agricultural uses, wastewater treatment plants, food processing plants, chemical plants, composting operations, refineries, landfills, dairies, and fiberglass molding facilities. The project does not have any uses matching any of the listed categories. The Project would be required to comply with SCAQMD Rule 463 – Organic Liquid Storage for all chemicals stored on-site in above ground storage tanks, as well as SCAQMD Rule 402. Therefore, the project would not generate odors affecting a substantial number of people and odor impacts would be less than significant.

General Conformity Determination

Under Section 176(c)(1) of the federal CAA, federal agencies that “engage in, support in any way or provide financial assistance for, license or permit, or approve any activity”[5] must demonstrate that such actions do not interfere with state and local plans to bring an area into attainment with the NAAQS. Los Angeles County is designated extreme non-attainment for the federal 8-hour ozone NAAQS, attainment-maintenance for the federal CO and PM10 standards, and non-attainment serious for federal PM2.5 standards. The project by which a federal agency determines that its action would not obstruct or conflict with air quality attainment plans is called "General Conformity.” The implementing regulations for General Conformity are found in 40 CFR 93(B).[6]

Under the General Conformity regulations, both the direct and indirect emissions associated with a federal action must be evaluated. Direct emissions are defined as:

> *Those emissions of a criteria pollutant or its precursors that are caused or initiated by the federal action and originate in a nonattainment or maintenance area and occur at the same time and place as the action and are reasonably foreseeable.*[7]

5 42 USC 7506(c).

6 General conformity regulations were amended effective July 6, 2010. (75 FR 17254 (April 5, 2010)).

7 40 CFR 93.152 (as revised April 5, 2010, effective July 6, 2010; 75 FR 17273).

Indirect emissions are defined as:

> *Those emissions of a criteria pollutant or its precursors:*
>
> 1. *That are caused or initiated by the federal action and originate in the same nonattainment or maintenance area, but occur at a different time or place as the action;*
> 2. *That are reasonably foreseeable;*
> 3. *That the agency can practically control; and*
> 4. *For which the agency has continuing project responsibility.*[8]

For purposes of this definition, even if a federal licensing, rulemaking, or other approving action is a required initial step for a subsequent activity that causes emissions, such initial steps do not mean that a federal agency can practically control any resulting emissions.[9]

When describing the 2010 revisions to the definition of indirect emissions, USEPA offered the following explanation:

> *EPA is revising the definition for indirect emissions to clarify that only indirect emissions originating in a nonattainment or maintenance area need to be analyzed for conformity with the applicable SIP. In addition, EPA is revising the definition of "indirect emissions" to clarify what is meant by "the agency can practically control" and "for which the agency has continuing project responsibility."*

This clarification represents USEPA's long standing position that Congress did not intend for conformity to apply to "cases where although licensing or approving action is a required initial step for a subsequent activity that causes emissions, the agency has no control over that subsequent activity, either because there is no continuing project responsibility or ability to practically control."[10]

The General Conformity regulations incorporate a stepwise process, beginning with an applicability analysis. According to USEPA guidance, before any approval is given for a federal action to go forward, the regulating federal agency must apply the applicability requirements found at 40 CFR 93.153(b) to the federal action to evaluate whether, on a pollutant-by-pollutant basis, a determination of General Conformity is required (USEPA 2004). The guidance states that the applicability analysis can be (but is not required to be) completed concurrently with the NEPA analysis. If the regulating federal agency determines that the General Conformity regulations do not apply to the federal action, no further analysis or documentation is required. If the General Conformity regulations do apply to the federal action, the regulating federal agency must next conduct a conformity evaluation in accordance with the criteria and procedures in the implementing

8 40 CFR 93.152 (as revised April 5, 2010, effective July 6, 2010; 75 FR 17273).
9 40 CFR 93.152 (as revised April 5, 2010, effective July 6, 2010; 75 FR 17273).
10 75 FR 17260 (April 5, 2010).

regulations, publish a draft determination of General Conformity for public review, and then publish the final determination of General Conformity.

A conformity determination is required for each criteria pollutant or precursor where the total of direct emissions of the criteria pollutant or precursor in a federal non-attainment or maintenance area would equal or exceed specified annual emission rates, referred to as "de minimis" thresholds." These de minimis thresholds are provided in 40 CFR 93.153(b)(1) and (2). For ozone precursor emissions, the de minimis thresholds depend on the severity of the non-attainment classification. In an extreme ozone non-attainment area, the de minimis thresholds are 10 tons per year for both NO_X and VOC. In a federal ozone attainment maintenance area, the de minimis thresholds are 100 tons per year for both CO and PM10. In a federal serious non-attainment area, the de minimis threshold is 70 tons per year for PM2.5. Effective June 13, 2012, the USEPA classified the South SCAB as extreme non-attainment for the 1997 ozone standard. Again in 2012, the USEPA designated the SCAB as extreme non-attainment for the 2008 ozone standard. The SCAB is also attainment-maintenance for the federal CO and PM10 standards. and serious non-attainment for the federal PM2.5 standards. Thus, based on the present attainment status of the SCAB, a federal action will conform to the SIP if its annual emissions remain below 10 tons of VOC or NO_X, 100 tons of CO or PM10, and 70 tons of PM2.5. PM2.5 annual emissions include direct emissions, $NO_{x,}$ and VOC per *de minimis* guidelines.

The General Conformity regulations require that a General Conformity determination analyze the following emissions scenarios: (1) the attainment year specified in the SIP, or if the SIP does not specify an attainment year, the latest attainment year possible under the Act; or (2) the last year for which emissions are projected in the maintenance plan; (3) the year during which the total of direct and indirect emissions from the action is expected to be the greatest on an annual basis; and (4) any year for which the applicable SIP specifies an emissions budget (40 CFR 93.159(d), as amended, effective July 6, 2010).

Annual emissions during construction and operations were compared to the General Conformity *de minimis* levels for NAAQS non-attainment areas (see **Table 2-5**); refer to Appendix A for air quality modeling inputs and results. Annual construction and operational emissions of VOC, CO, NO_x, PM10, and PM2.5 would be significantly below applicable General Conformity thresholds and thus in conformance with the SIPs and 2022 AQMP. Therefore, no further conformity analysis is required for any of the pollutants because their emissions would be less than the conformity thresholds and no significant adverse effect from the project would occur.

TABLE 2-5
GENERAL CONFORMITY ANALYSIS – SUMMARY OF EMISSIONS BY YEAR

	Emissions (Tons/Year)				
Source	**VOC**	**CO**	**NOx**	**PM10**	**PM2.5**
Construction Emissions					
Construction Year 1	0.1	0.19	0.10	0.01	<0.01
Construction Year 2	0.04	1.48	0.43	0.06	0.02
Construction Year 3	0.29	8.76	2.22	0.34	0.10
Construction Year 4	0.08	0.87	0.23	0.04	0.01
Maximum Yearly Emissions	**0.29**	**8.76**	**2.22**	**0.34**	**0.10**
de minimis Thresholds	10	100	10	100	70
Amount Over/(Under)	(9.71)	(91.24)	(7.78)	(99.66)	(69.9)
Operational Emissions					
Mobile Source	0.1	0.05	0.01	<0.01	<0.01
Area Source	0.09	0.1	<0.01	<0.01	<0.01
Total Operational Emissions	**0.1**	**0.15**	**0.01**	**<0.01**	**<0.01**
de minimis Thresholds	10	100	10	100	70
Amount Over/(Under)	(9.9)	(9.85)	(9.99)	(99.99)	(69.99)

SOURCE: Table compiled by ESA, 2023

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IV. Biological Resources

Issues (and Supporting Information Sources):	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
IV. BIOLOGICAL RESOURCES — Would the project:				
a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or proposed project plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?	☐	☒	☐	☐
b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or proposed project plans, policies, regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?	☐	☐	☐	☒
c) Have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?	☐	☐	☐	☒
d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?	☐	☐	☐	☒
e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	☐	☒	☐	☐
f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, proposed project, or state habitat conservation plan?	☐	☐	☐	☒

Discussion

a) **Less Than Significant with Mitigation Incorporated**. A total of three federally and/or state-listed plant species were considered. The Proposed Action was preliminarily determined to have "no effect" on these species. Although suitable habitat for listed plant species and 18 special-status plant species identified in local or proposed project plans or policies were noted as having the potential to occur within Madrona Marsh, it is not a part of the Proposed Action. A total of 10 federally listed (or candidate) species were considered in this report. The Proposed Action was determined to have "no effect" on five species and was determined that it "may effect" four bird species due to suitable habitat being present in areas adjacent to the proposed pipeline alignment: least Bell's vireo, coastal California gnatcatcher, southwestern willow flycatcher, and western, yellow-billed cuckoo. In addition, it was determined that the Proposed Action "may effect" the monarch butterfly. However, **BIO-1 through BIO-3** are identified below to avoid impacts to nesting birds and raptors and the monarch butterfly.

Suitable habitat for wandering skipper and western spadefoot is restricted to the Madrona Marsh and sumps, which are not anticipated to be directly impacted; however, potential indirect impacts from noise and vibration caused by adjacent pipeline construction activities may affect spadefoot toad. In addition, Southern California legless lizard and coast horned lizard may forage and breed within annual grasses and forb habitat present within the staging area and other areas of the survey area. Crotch Bumble Bee may be present in marginally suitable open grassland habitat within the survey area. Limited suitable microhabitat for Crotch Bumble Bee including native plant species and nectar resources is only present within Madrona Marsh. The Proposed Action may result in a direct impact to these species through the killing of an individual or the removal of a nest during construction activities. Implementation of **BIO-4 and BIO-5** would reduce impacts below significance.

The bank swallow, tricolored blackbird, yellow rail, and silver-haired bat may forage and/or breed within the annual grasses and forbs and other sensitive natural communities present within the survey area. The Proposed Action may result in both direct and indirect impacts to these species through the removal of an active nest or roost or the disruption of breeding/nesting or roosting behavior, such as copulation, nest building or incubation during construction activities. Implementation of **BIO-2 and BIO-6** would reduce impacts below significance.

The Proposed Project area may result in both direct and indirect impacts to nesting migratory birds that may utilize the survey area for foraging and/or nesting. Ground disturbance, noise, lighting, and vegetation clearing activities during nesting season may disrupt breeding/nesting behavior, such as copulation, nest building or incubation, or result in the removal of an active nest. Implementation of **BIO-2** would mitigate impacts below a level of significance.

Critical habitat is not present within the survey area. Given that areas designated as critical habitat for coastal California gnatcatcher and western snowy plover were both more than a mile away from the survey area, the Proposed Project would not impact critical habitat for either species.

BIO-1: General Avoidance and Minimization Measures:

- Prior to the commencement of construction activities, construction personnel should check under stationary equipment to ensure no wildlife species are present, particularly when working around the perimeter of the Madrona Marsh.
- All trash should be collected daily and taken off-site for proper disposal.
- Prior to project implementation, a Workers Environmental Awareness Program (WEAP) should be prepared and presented to construction crews regarding the potential for nesting birds and other special-status wildlife species to occur on-site during construction activities. The WEAP training should concentrate on the proper identification of sensitive resources while in the field, suggested strategies in avoiding impact to sensitive resources, and proper reporting methods for field crews if sensitive resources are observed during construction activities.
- Erosion control measures (e.g., silt fencing, straw wattles) should be implemented within the project site to prevent sediment/contaminants from continuing off-site.

- Drip pans should be placed underneath all mechanical machinery that will be staged within or adjacent to the project site.
- Re-fueling of equipment should be conducted within designated staging areas.

BIO-2: Nesting Birds/Raptors and Special-status Birds: Project activities could negatively impact nesting birds that are protected under the FESA, CESA, MBTA, and/or FGC, such as least Bell's vireo, coastal California gnatcatcher, southwestern willow flycatcher, and western, yellow-billed cuckoo. Therefore, the following measure is recommended to avoid impacts to nesting birds and raptors:

If work activities occur within the avian nesting season (defined as January 15 through September 15), a qualified biologist should conduct a nesting bird and raptor survey within 3 days prior to ground disturbance, to identify any active nests within 500 feet of suitable nesting habitat. If an active nest is found, the nest should be avoided, and a suitable buffer zone delineated in the field where no impacts would occur until the chicks have fledged the nest, as determined by a qualified biologist. Construction avoidance buffers are generally 300 feet for non-listed passerines and 500 feet for listed avian species (i.e., least Bell's vireo) and raptors; however, avoidance buffers may be reduced for non-listed species at the discretion of the biologist, depending on the location of the nest and species tolerance to human presence and construction-related noises and vibrations.

BIO-3: Monarch Butterfly: Prior to the start of construction activities, a qualified biologist shall conduct pre-construction surveys for monarch butterfly, within 100 feet of construction activities near host plant communities (including mature eucalyptus and pines trees). The pre-construction surveys shall be conducted 7 days prior to the start of construction activities. If this species is present or determined to be within 100 feet of construction areas, construction best management practices (BMPs) will be implemented and incorporation of information about the species will be incorporated into the WEAP training to avoid potential impacts to the species. BMPs shall include limiting construction vehicle speeds to 15 miles per hour when operating within 100 feet of the habitat areas, fencing habitat areas using temporary silt fencing, and cleaning up all trash and debris daily. In coordination with the CDFW, additional avoidance measures may be required that include establishing a buffer around the species host plants, large trees, and on-site monitoring dependent on distance from the work area. Construction personnel will be instructed to not directly harm any butterflies on-site by halting activities until individuals can move to off-site areas or contact a qualified biologist to move the species out of harm's way.

BIO-4: Crotch's Bumble Bee: A qualified biologist will conduct presence/absence surveys for the species at the appropriate time of year prior to the start of construction activities. If a nest is in an area that would be affected by construction activities, an avoidance buffer will be implemented, or the nest will be relocated to a suitable area that would not be affected by construction activities. Prior to any decision related to creating a buffer or relocating a nest, a qualified biologist will consult with CDFW, and rely on the best available science at that time to inform the decision (including communicating with experts, if appropriate). Such updated science related to relocation could include, but would not be limited to, information pertaining to delaying relocation as long as possible so that queens have a chance to emerge, relocating within their existing home range so nectar sources are familiar, relocating in the evening when bees are resting, and keeping the nest upright and level so not to spill nectar pots which are critical resources for the bees. A brief technical memorandum documenting the survey results will be submitted to CDFW.

BIO-5: Coast Horned Lizard, Southern California Legless Lizard and Western Spadefoot Toad: To avoid potential impacts to these special-status ground-dwelling species, the following measure is recommended: A qualified biologist shall conduct a pre-construction clearance survey throughout areas with suitable habitat within the staging area, including a 100-foot buffer, for the coast horned lizard, southern California legless lizard and western spadefoot toad. If any of these species are observed during the survey, a qualified biologist should relocate the individual to suitable habitat at least 100 feet from the project site. Trapping and relocation methods should be conducted in consultation with CDFW.

BIO-6: Special-Status Bats: The following are recommended to avoid or minimize potential impacts to special-status bats:

- Prior to commencement of construction activities, within or outside of the maternity roosting season, a qualified biologist shall conduct a pre-construction clearance survey throughout areas within the project site that have the potential to provide suitable bat roosting habitat to determine if western red bats, or any other special-status bat species, are roosting on-site. If bats are determined to be using trees specifically for roosting, the biologist will determine whether a day roost (non-breeding) or maternity roost (lactating females and dependent young) is present.
- If a day roost is determined to be present, the biologist shall ensure that direct mortality to roosting individuals will not occur. In general, disturbances to day roosts as a result of noise or other indirect impact is not generally considered significant, as it would not cause direct mortality of individuals and would not be expected to reduce populations to below self-sustaining levels. If removal of any trees supporting a day roost would occur, the biologist will ensure that all roosting individuals disperse from the location prior to removal of the vegetation to prevent direct mortality.
- If a maternity roost is observed, the biologist will determine whether construction activities are likely to disturb breeding activities. If it is determined that the vegetation supporting the roost must be removed or activities are expected to disturb the breeding activities, a Bat Exclusion Plan shall be prepared in consultation with CDFW. At a minimum, the plan shall include avoidance and minimization measures to reduce potential impacts to breeding bats during construction activities and prescribed methods to safely and humanely evict bats from the roost in order to minimize any potential impacts.
- With implementation of the mitigation measures described above, potential significant impacts related to species identified as a candidate, sensitive, or special status species in local or proposed project plans, policies, or regulations, or by the CDFW or USFWS would be reduced to a less-than-significant level.

b) **No Impact:** Aquatic resources detected within the survey area included three vernal pools consisting of 0.33 acres and seven other aquatic resources consisting of 4.33 acres. The other aquatic resources within the survey area consisted of the marsh within the Madrona Marsh Preserve; a small, designed drainage that bisects the Delthorne Park, which appears to be ephemeral in nature (i.e., conveying flow immediately following precipitation or watering events) and appears to carry surface water flow from adjacent lawn; a concrete-lined drainage that occurs near the intersection of Talisman Street and Halison Street, which runs in an east-west direction and also appears to be ephemeral in nature, which appears to originate from Entradero Park, east of the survey area; and four sumps (Del Amo Sump, Florwood Avenue and El Dorado Street Sump, Amie Sump, and Pioneer Sump). These aquatic resources support wetlands or other aquatic habitat that may be regulated by the CDFW, RWQCB, and/or USACE. Based on the location of proposed project components, the Proposed Project is not expected to impact riparian habitats or other aquatic resources.

The Populus fremontii - Fraxinus velutina - Salix gooddingii woodland alliance and the Platanus racemosa - Quercus agrifolia association (including the disturbed California sycamore – coast live oak association) have a state rank of S3 and therefore meet the criteria for a CDFW sensitive natural community. Both communities are located within the Madrona Marsh Preserve, which (although part of the Proposed Project Area) is not expected to be directly impacted as part of the final Project Area. Therefore, the Proposed Project is not expected to impact riparian habitats or other sensitive natural communities.

c) **No Impact:** Aquatic resources detected within the survey area included three vernal pools consisting of 0.33 acres and seven other aquatic resources consisting of 4.33 acres. The other aquatic resources within the survey area consisted of the marsh within the Madrona Marsh Preserve; a small, designed drainage that bisects the Delthorne Park, which appears to be ephemeral in nature (i.e., conveying flow immediately following precipitation or watering events) and appears to carry surface water flow from adjacent lawn; a concrete-lined drainage that occurs near the intersection of Talisman Street and Halison Street, which runs in an east-west direction and also appears to be ephemeral in nature, which appears to originate from Entradero Park, east of the survey area; and four sumps (Del Amo Sump, Florwood Avenue and El Dorado Street Sump, Amie Sump, and Pioneer Sump). These aquatic resources support wetlands or other aquatic habitat that may be regulated by the CDFW, RWQCB, and/or USACE. Based on the location of proposed project components, the Proposed Project is not expected to impact state or federally protected wetlands or other aquatic resources.

d) **No Impact:** While wildlife may use patches of open space to forage and breed and, to some extent, for local and proposed project movement, the survey area is heavily developed and does not link large areas of contiguous, intact habitat together and is thus not expected to function as an important migration corridor. Therefore, the Proposed Project would have no impacts on 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) **Less Than Significant with Mitigation Incorporated**: No formal tree inventory was collected; however, potential impacts are discussed below based on the current preliminary Proposed Project Area.

City of Torrance: The proposed brine disposal pipeline alignment occurs perpendicular to Carson Street along Maple Avenue; therefore, this alignment is expected to be in concurrence with the City of Torrance General Plan Objective CR. 18.1. The proposed brine disposal pipeline alignment and the proposed feedwater pipelines alignment also occur perpendicular to Torrance Boulevard; however, the alignment occurs directly on the road right of way and the Proposed Project is not expected to impact adjacent trees occurring within the intersection of Madrona Avenue and Torrance Boulevard, or Madrona Avenue and Torrance Boulevard. Therefore, this alignment is also expected to be compliant with the City of Torrance General Plan Objective CR. 18.1.

The current proposed feedwater pipeline alignment that occurs along Plaza del Amo appears to occur within the center divider and crosses a patch of landscaped lawn as the alignment turns north toward the Madrona Marsh Well. Both areas contain a landscaped lawn understory and sycamore trees. In addition, two segments of the proposed brine disposal pipeline that occur along Sepulveda Boulevard, one east of Crenshaw Boulevard to Orange Avenue and the other east of Border Avenue to Konde Street, occur under the center dividers, which have planted tree saplings. Implementation of **BIO-7A** would mitigate impacts below a level of significance.

City of Los Angeles: A small section of the proposed brine disposal pipeline alignment falls within the city of Los Angeles boundaries, along Sepulveda Boulevard and between Western Avenue and S Normandie Avenue. While no protected tree species listed in the city of Los Angeles Tree Protection Ordinance were detected within this segment of the alignment, implementation of **BIO-7B** would mitigate impacts below a level of significance.

City of Carson: A small section of the proposed brine disposal pipeline alignment falls within the city of Carson boundaries, along Sepulveda Boulevard and between Harbor Freeway and Figueroa Street, which is adjacent to Bixby Marshland (approximately 65 feet away from the parking lot entrance). The pipeline segment that occurs within the city of Carson contains six mature ornamental parkway trees that occur directly where the current alignment is proposed in the center divider. Implementation of **BIO-7C** would mitigate impacts below a level of significance.

BIO-7: Tree Protection Measures:

BIO-7A: City of Torrance: If any specimen trees within the city of Torrance are to be impacted by the Proposed Project, a certified arborist will prepare a Tree Removal Plan assessing each tree, including consideration of alternatives to tree removal, as well as any proposed tree replacement, and submit the plan to the City for approval.

BIO-7B: City of Los Angeles: For any portion of the proposed brine disposal pipeline occurring within the city of Los Angeles, all existing protected trees and shrubs and relocation and replacement trees and shrubs specified by the Advisory Agency in accordance with Sections 17.02, 17.05, 17.06, 17.51 and 17.52 of this Code shall be indicated on a plot plan attached to the building permit issued pursuant to this Code. In addition, the trees or shrubs shall be identified and described by map and documentation as required by the Advisory Agency.

BIO-7C: City of Carson: If any parkway trees within the city of Carson are to be impacted by the Proposed Project, a certified arborist will prepare a Tree Removal Plan assessing each tree, including consideration of alternatives to tree removal, as well as any proposed tree replacement, and submit the plan to the City for approval.

With implementation of the mitigation measures described above, potential significant conflicts with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance, would be reduced to a less-than-significant level.

f) **No Impact**: The project site does not fall within the boundaries of a federal Habitat Conservation Plan, a state Natural Community Conservation Plan, or other approved local, proposed project, or state habitat conservation plan. Therefore, development of the Project Site will not conflict with a Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, proposed project, or state habitat conservation plan.

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V. Cultural Resources

Issues (and Supporting Information Sources):	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
V. CULTURAL RESOURCES — Would the project:				
a) Cause a substantial adverse change in the significance of a historical resource pursuant to §15064.5?	☐	☐	☐	☒
b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5?	☐	☐	☒	☐
c) Disturb any human remains, including those interred outside of dedicated cemeteries?	☐	☐	☒	☐

Discussion

For the purposes of this analysis, the CEQA Area of Potential Effects (APE) is defined as both the horizontal and vertical maximum extents of potential direct impacts of the proposed project on cultural resources. This area encompasses the footprint of proposed project actions, including staging and access areas. The APE encompasses approximately 76.0 acres, consisting of: the proposed pipeline alignments, with a 25-foot buffer; the proposed well locations, with 50-foot buffers; the Proposed Project location; and the proposed off-site staging area. The APE extends vertically to the maximum depth of the proposed project's ground-disturbing activities. Because of the nature of the Proposed Project and its minimal potential for indirect impacts, a single APE has been defined to account for impacts on archaeological and architectural resources. The same APE applies to human remains.

Records Searches

In February 2023, ESA staff requested that staff of the South Central Coastal Information Center (SCCIC), the official California Historical Resources Information System (CHRIS) repository for the APE and vicinity, conduct a records search for the APE and areas within 0.25 mile. ESA staff requested an additional records search from the SCCIC in July 2023 for the areas between 0.25 and 0.5 mile of the APE; combined, these areas covered by the records searches is considered the Search Area.

The SCCIC has record of nine previously recorded cultural resources mapped within the 0.5-mile Search Area; none of these resources are mapped in or adjacent to the APE. The SCCIC has records of 11 previous cultural resources studies that have covered some portions of the APE.

Native American Correspondence

In March 2023, on behalf of WRD, ESA contacted the California NAHC, in request of a search of the NAHC's SLF and a list of representatives from California Native American Tribes (Tribes) who may have interest in the proposed project. The NAHC response stated that the SLF has no record of any sacred sites in the APE or vicinity, and also provided a list of nine contacts representing seven Tribes.

In support of required Native American consultation for the proposed project pursuant to PRC § 21080.3, on March 28, 2023, WRD sent a letter to Andrew Salas, Chairperson of the GBMI, providing information on the proposed project and requesting that the GBMI notify WRD if they would like to consult pursuant to PRC § 21080.3.

On March 31, 2023, GBMI sent an email, with attached letter, to WRD in response to WRD's initial proposed project notification letter to GBMI. The attached letter stated that the proposed project is within the GBMI ancestral territory and that GBMI would like to consult with WRD, pursuant to PRC § 21080.3, on the proposed project. WRD responded to GBMI's request by email on April 4, 2023, thanking the Tribe for their response and requesting GBMI's availability for a call to discuss the proposed project. The same day, WRD sent an invitation to GBMI for a call on June 6, 2023, to discuss the proposed project. On June 6, 2023, Andrew Salas, and Matt Teutimez, of GBMI, Mario Bautista and Esther Rojas, of WRD, and Robin Hoffman, of ESA, had a call to discuss the proposed project and the Tribe's concerns regarding potential project impacts on cultural resources and tribal cultural resources. On the call, GBMI conveyed that previous disturbance does not mean lower potential for tribal cultural resources, since significance of tribal cultural resources is not tied to level of disturbance necessarily and, thus, GBMI requests construction monitoring because of the area's traditional use for salt and oil gathering and known human remains at the nearby refinery. GBMI expressed not needing to monitor construction if WRD could provide data showing that only non-native soils are present; WRD stated that likely the desalter is the only area where this may be possible. GBMI stated that they would provide WRD with standard mitigation measures for consideration/incorporation into the CEQA document as well as maps showing sensitivity of tribal cultural resources with respect to the APE. On June 22, 2023, GBMI sent an email to WRD that provided background on why GBMI believes the APE to have a high sensitivity for tribal cultural resources, in addition to proposed tribal cultural resources-related mitigation measures for inclusion in the CEQA document. The background included maps, ethnographic literature, and associated Tribal interpretations. GBMI pointed out the following: a documented village was near the APE; the APE was within a rancho; the APE is near a railroad, which were often based on indigenous travel routes; documented trade routes were near the APE; and natural waterways are in and in the vicinity of the APE. In the email, GBMI reiterated their request for monitoring of proposed project-related ground-disturbing activities, as well as a request to adopt the following proposed tribal cultural resources-related mitigation measures into the CEQA document: Tribal construction monitoring; unanticipated discovery protocol for tribal cultural resources; and unanticipated discovery protocol for human remains. To date, GBMI has not specifically stated that a known tribal cultural resource may be affected/impacted by the proposed project.

On July 18, 2023, in an effort to seek additional input from Tribes regarding potential project-related concerns over impacts on cultural resources, WRD sent letters to all the Tribes provided in the NAHC reply, except GBMI (who had previously been contacted). The letters provided information on the proposed project and requested that the Tribes notify WRD if they had any concerns regarding potential project-related impacts on cultural resources. To date, WRD has not received any replies from the recipients of these letters.

On-Site Survey

On April 20, 2023, ESA conducted a pedestrian archaeological surface survey of the APE. Intensive pedestrian methods were used during the survey for the well location portions of the APE, consisting of walking the ground surface in parallel transects no greater than 10 meters apart and inspecting the ground surface for evidence of archaeological material. Reconnaissance methods were used for the pipeline portions of the APE, as these are all within existing paved streets; these methods consisted of visually inspecting the areas, often from adjacent areas, to verify ground conditions. The portions of the APE where the staging area and desalter are proposed were not surveyed due to restricted access.

On March 15, 2023, ESA conducted a reconnaissance-level architectural survey of the APE. The survey consisted of inspecting architectural resources 45 years of age or older that had been identified in the APE and immediate vicinity through review of modern and historic maps, aerial photographs, including a survey of the surrounding land of the proposed well sites. Resource recordation methods were the same as those used during the archaeological pedestrian survey.

No archaeological resources were identified in the APE during the survey. No potential historic districts were identified in the APE or immediate vicinity as a result of the survey. One previously unrecorded architectural resource, La Romería Park, was identified in the APE.

Summary of Resources Identified

Through background research, Native American correspondence, and on-site surveys conducted for the proposed project, one cultural resource, La Romería Park (an architectural resources), was identified in the APE.

La Romería Park

Within the northwest portion of the APE, La Romería Park is a 6.6-acre public park in Torrance, California, west of Inglewood Avenue, east of Anza Avenue, south of Narrot Street, and north of Darien Street. The park is bordered by tract housing on all sides and contains a small surface parking lot in its southeast corner. The park is generally rectangular in shape and features a short asphalt walkway that connects Inglewood and Anza Avenues. The park contains a softball diamond in its northeast corner and a basketball court and tennis court in its southeast corner, adjacent to Darien Street; these courts feature lighting for evening use. The park also has a community building constructed of former portable classroom buildings in the park’s southeast portion, along with a children’s play area and horseshoe courts. Many of the houses bordering the park contain small staircases in their backyards that lead to the open green space. The park contains a large number of mature trees both along the walking path and scattered throughout grassy areas.

ESA evaluated the eligibility of La Romería Park for listing in the California Register of Historical Resources (California Register), recommending it not eligible for the California Register. Therefore, La Romería Park does not appear to qualify as an historical resource, for CEQA purposes.

Architectural resources that may qualify as historical resources, according to *CEQA Guidelines* § 15064.5 are addressed under impact discussion a, below, while archaeological resources, including archaeological resources that are potentially historical resources according to *CEQA Guidelines* § 15064.5, are addressed under impact discussion b.

a) **No Impact**. One architectural resource, La Romería Park, was identified in the APE through background research and on-site surveys for the proposed project. La Romería Park was evaluated as not eligible for the California Register and, therefore, does not qualify as an historical resource, as defined in *CEQA Guidelines* § 15064.5. As a result, there is no substantial evidence of the presence in the APE of any historical resources, as defined in *CEQA Guidelines* § 15064.5, and the proposed project would result in **no impact** on historical resources.

b) **Less Than Significant**. No archaeological resources have been identified in the APE. Therefore, no known archaeological resources that may qualify as historical resources (as defined in *CEQA Guidelines* § 15064.5) or unique archaeological resources (as defined in PRC § 21083.2[g]) are present in the APE. As a result, there is no substantial evidence of the presence in the APE of any archaeological resources, as defined in *CEQA Guidelines* § 15064.5. Therefore, the proposed project is not expected to impact any archaeological resource, pursuant to *CEQA Guidelines* § 15064.5.

Although there is no substantial evidence that archaeological resources are present in the APE, the proposed project would involve ground-disturbing activities that may extend into undisturbed soil. Such activities could unearth, expose, or disturb subsurface archaeological resources that have not been identified on the surface. If such resources were found to qualify as archaeological resources, pursuant to *CEQA Guidelines* § 15064.5, impacts of the proposed project on archaeological resources would be potentially significant. Such potentially significant impacts would be reduced to less-than-significant by proposed project compliance with PRC § 21083.2(i). As a result, the proposed project would result in a **less-than-significant impact** on archaeological resources.

c) **Less Than Significant**. No human remains have been identified in the APE through archival research, field surveys, or Native American consultation. Also, the land use designations for the APE do not include cemetery uses, and no known human remains exist within the APE. As a result, there is no substantial evidence of the presence in the APE of any human remains, and the proposed project is not anticipated to disturb any human remains.

However, because the proposed project would involve ground-disturbing activities, it is possible that such actions could unearth, expose, or disturb previously unknown human remains. In the event that human remains were discovered during proposed project construction activities, impacts on the human remains resulting from the proposed project would be significant if those remains were disturbed or damaged. Such potentially significant impacts would be reduced to a less-than-significant level by proposed project compliance with PRC § 21083.2(i), 5097.98, and 5097.99, California Government Code § 27460 *et seq.* and 27491, and California Health and Safety Code (HSC) § 7050.5. As a result, the proposed project would result in a **less-than-significant impact** on human remains.

References

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VI. Energy

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

Discussion

a) **Less than Significant Impact.** The project would consume energy during construction activities primarily from on- and off-road vehicle fuel consumption in the form of diesel and gasoline. The analysis below includes the project's energy requirements and energy use efficiencies by fuel type for each stage of the project (construction and operations). However, operations energy consumption would be minimal as the project is an infrastructure project that involves pipeline replacement and does not include net new stationary sources. The project would require periodic maintenance activities which would involve trucks or vehicles per month, as well as three to five daily on-site employees.

Construction

The project would consume energy during construction activities, primarily from on- and off-road vehicle fuel consumption in the form of diesel and gasoline, necessary to implement the project. The analysis below includes the project's energy requirements and energy use efficiencies by fuel type for each stage of the project.

The estimated fuel usage for off-road equipment is based on the number and type of equipment that would be used during construction activities, hour usage estimates, the total duration of construction activities, and hourly equipment fuel consumption factors from the CARB 2017 OFFROAD model and CalEEMod, which was used in the project's air quality analysis. On-road vehicles would include trucks to haul material to and from the project site, vendor trucks to deliver supplies necessary for project construction, and fuel used for employee commute trips. Therefore, the project is not projected to consume electricity. Construction activities, including the construction of wells, pipelines, and desalter building, are not anticipated to use natural gas. **Table 2-6** summarizes the project's total and yearly fuel consumption from construction activities.

TABLE 2-6
SUMMARY OF FUEL CONSUMPTION DURING PROJECT CONSTRUCTION

Fuel Type	Quantity (gallons)
Gasoline	
On-Road Construction Equipment	11,505
Total Gasoline	**11,505**
Diesel	
On-Road Construction Equipment	20,098
Off-Road Construction Equipment	126,179
Total Diesel	**146,276**
Project Length	**2.4 years**
Annual Average Gasoline Use	**4,794**
Annual Average Diesel Use	**60,949**
SOURCE: Table compiled by ESA, 2023	

The petroleum-based fuel use summary provided above in Table 2-6 represents the amount of transportation energy that could potentially be consumed during project construction of the four project features, based on a conservative set of assumptions, provided in Appendix A. As shown, on- and off-road vehicles would consume an estimated 11,505 gallons of gasoline and approximately 146,276 gallons of diesel fuel throughout the project's construction. For comparison purposes, the fuel usage during project construction would represent approximately 0.0004 percent of the 2020 annual on-road gasoline-related energy consumption and 0.031 percent of the 2021 annual diesel fuel-related energy consumption in Los Angeles County, as shown in Appendix A (CEC 2022).

Construction of the Project would utilize fuel-efficient equipment consistent with State and federal regulations, such as fuel efficiency regulations in accordance with the CARB Pavley Phase II standards, the anti-idling regulation in accordance with Section 2485 in 13 CCR, and fuel requirements in accordance with 17 CCR Section 93115. The Project would benefit from fuel and automotive manufacturers' compliance with CAFE standards, which would result in more efficient use of transportation fuels (lower consumption). As such, the project would indirectly comply with regulatory measures to reduce the inefficient, wasteful, and unnecessary consumption of energy, such as petroleum-based transportation fuels. While these regulations are intended to reduce construction emissions, compliance with the anti-idling and emissions regulations discussed above would also result in fuel savings from the use of more fuel-efficient engines.

Based on the analysis above, construction would utilize energy only for necessary on-site activities and to transport construction materials and demolition debris to and from the project site. As discussed above, idling restrictions and the use of cleaner, energy-efficient equipment and fuels would result in less fuel combustion and energy consumption, and thus minimize the project's construction-related energy use. Therefore, construction of the project would not result in the wasteful, inefficient, and unnecessary consumption of energy.

Operations

As stated above, operational energy consumption would be minimal as the project is an infrastructure project that involves extraction wells, pipelines, and desalter buildings. Energy would be consumed during Project operations related to water usage, solid waste disposal, and vehicle trips. **Table 2-7,** *Project Operational Energy Usage*, shows the Project's energy demand from electricity, gasoline, and diesel.

TABLE 2-7
PROJECT OPERATIONAL ELECTRICITY USAGE

Energy Type	Annual Quantity[a,b]
Electricity	
Project	
Building Energy	168 MWh
Water extraction, treatment, and conveyance	35,395 MWh
Total Electricity	**35,563 MWh**
Transportation	
Project	
Gasoline	1,138 gallons
Diesel	372 gallons

NOTES: MWh = megawatt-hours; cf = cubic feet;
a Detailed calculations are provided in Appendix A of this Draft EIR.
b Totals may not add up due to rounding of decimals.
SOURCE: Table compiled by ESA, 2023.

For the 2021–2022 fiscal year, SCE had an annual electric sale to customers of approximately 84,218 GWh (SCE 2022). The bulk of the project's energy consumption would be for the extraction of brackish water, the treatment, and the conveyance of the brine and raw/product water. The Project represents approximately 0.04 percent of the SCE network sales for 2021–2022. Furthermore, the equipment used for this process would have to follow all energy efficiency regulatory requirements. Thus, the project would not greatly increase electrical demand within the project vicinity and would not result in a wasteful, inefficient, and unnecessary consumption of energy.

As shown in Table 2-7, the project would result in a total gasoline fuel consumption of 1,138 annually and total diesel fuel consumption of 372 annually. This fuel demand represents 0.000004 percent of the total gasoline fuel sold in Los Angeles County and 0.00008 percent of the total diesel fuel sold in Los Angeles County (CEC 2022). Furthermore, the project would benefit from fuel and automotive manufacturers' compliance with CAFE standards, which would result in more efficient use of transportation fuels (lower consumption). Project-related vehicle trips would also indirectly benefit from Pavley Standards, which are designed to reduce vehicle GHG emissions by mandating increasingly stringent emissions standards on new vehicles but would also result in fuel savings from more efficient engines in addition to compliance with CAFE standards. This minor increase in gasoline and diesel fuel demand due to daily employee trips (3-5 employees) would not result in a wasteful, inefficient, and unnecessary consumption of energy.

b) **Less than Significant Impact.** The City of Torrance adopted its Energy Efficiency Climate Action Plan (EECAP) in December of 2015, with the goal of improving energy efficiency and reducing GHG emissions within the City of Torrance. The project would be consistent with Goal 2: Increase Energy Efficiency in Municipal Buildings of the EECAP. Specifically, the project would be consistent with Measure 2.5 – adopt a procurement policy for energy efficient equipment and Measure 2.8 – Retrofit Water Pump Equipment. The project would not have any infrastructure with energy demand outside of the City of Torrance. Furthermore, as discussed above, construction and operation of the project would not result in a substantial increase in demand for electricity or transportation fuels compared to the energy demand within the project area. Therefore, the project would not conflict with or obstruct a state or local plan for renewable energy or energy efficiency. Thus, the impacts would be less than significant.

References

California Energy Commission. 2022. *2010-2021 CEC-A15 Results and Analysis*. Available: https://www.energy.ca.gov/media/3874. Accessed May 2023.

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VII. Geology and Soils

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

Discussion

a.i) **No Impact.** The proposed project is not located within an Alquist-Priolo Earthquake Fault Zone (California Geological Survey [CGS] 1986). The nearest potentially active fault is the Palos Verdes Fault Zone which is located approximately 2 miles southwest of the proposed project (CGS 2022). Therefore, the proposed project facilities would be located in an area where the potential for surface fault rupture is negligible. No impact would occur.

a.ii) **Less than Significant Impact.** As with all of Southern California, the proposed project is located in a seismically active region with active faults. A major earthquake associated with these faults could result in moderate to severe ground shaking in the project area and would be a potential hazard. Damage to the proposed underground pipelines, wells, and treatment facilities could be expected as a result of ground shaking during a seismic event. WRD will utilize AWW-specified pipeline material including PVC, HDPE plastic pipe, DIP (ductile iron) pipe or steel pipe. DIP pipe is particularly suitable for withstanding seismic activity and may be implemented in areas where shallow cover or resistance to ground movement is required in order to avoid damage to the proposed pipeline. In addition, the proposed project would be required to be constructed in accordance with the current California Building Code (CBS) and Uniform Building Code (UBC), which establish minimum earthquake standards and safety codes intended to protect public safety and regulate the design and construction of all buildings and structures. With adherence to all applicable regulations, and the use of earthquake resistant pipe, impacts resulting from seismic ground shaking at the project area would be less than significant.

a.iii) **No Impact.** According to the maps prepared by CGS in accordance the Seismic Hazards Mapping Act and the County of Los Angeles Seismic and Geotechnical Hazards Zone Policy Map, the project area is not located within a liquefaction zone (CGS 1999; County of Los Angeles 2021). With conformance with the CBC and standard engineering and construction practices, the proposed project would not expose people or structures to substantial adverse effects involving seismic ground-related failure, including liquefaction. Therefore, ground-related failure impacts would not occur.

a.iv) **No Impact.** The CGS Seismic Hazard Zone maps and the County of Los Angeles Seismic and Geotechnical Hazards Zone Policy Map do not designate the project area as within an earthquake-induced landslide zone (CGS 1999). The project area is flat and not located within the vicinity of slopes. The proposed project includes implementation of treatment facilities, wells, and underground pipelines and thus, no people would be exposed to potential landslide hazards. No impact would occur.

b) **Less than Significant Impact.** During construction, the proposed project would involve drilling, trenching, site clearing, excavation, grading, and stockpiling of soils. These types of construction activities have the potential to disturb and expose native soils to erosion by heavy rain, winds, or other storm events. Construction sites with overall footprints exceeding one acre would be required to comply with the *NPDES General Permit for Discharges of Storm Water Runoff Associated with Construction and Land Disturbance Activities* (Order 2009-0009-DWQ, NPDES No. CAS000002; as amended by Orders 2010-0014-DWQ and 2012-006-DWQ) (Construction General Permit). A project specific Storm Water Pollution Prevention Plan (SWPPP) would be prepared in compliance with the Construction General Permit. The SWPPP would identify erosion control and sediment control best management practices (BMPs) that would be implemented to minimize the occurrence of soil erosion or loss of topsoil from construction work sites. If anticipated disturbance is less than one acre, the Construction General Permit would not apply to the facility construction. Instead, the facility would be required to comply with minimum BMPs as specified by Los Angeles County MS4 Permit (RWQCB Order No. R4-2012-0175). Once operational, the proposed facilities would not require activities that would result in topsoil disturbance or erosion, and no stockpiles would remain within the project area. Therefore, impacts associated with erosion of soils would be less than significant.

c) **Less than Significant Impact.** Non-seismically-induced geologic hazards such as landslides, lateral spreading, settlement, and slope failure can be caused by unstable soils. As discussed above under Impact VII. Geology and Soils (a.iv), the proposed project would be implemented in an area with flat terrain that is not within an area susceptible to landslide hazards. No impacts related to landslide risk are anticipated.

According to the U.S. Geological Survey (USGS), southern parts of Los Angeles Basin that have historically been used for oil extraction and groundwater pumping have had various degrees of land subsidence. The proposed brine disposal pipeline, specifically the portion that would be installed along Sepulveda Boulevard between S. Western Avenue and the City of Carson, is located in an area where historic subsidence has been documented (USGS 2023). While subsidence has not been documented in other parts of the project area, the localized soil characteristics would vary at each specific construction site. As such, it should be assumed that ground disturbing activities required for all facilities and possible dewatering activities during installation of proposed pipelines would have the potential to impact stability of geologic units and soils underlying the proposed project sites. Prior to construction, standard practices require the preparation of site-specific geotechnical investigations and incorporation of structural recommendations into facility designs to reduce the potential for unstable geological units and soil hazards to impact the proposed facilities. Furthermore, the project would be subject to compliance with the CBC and would implement construction BMPs to ensure significant impacts to expansive and collapsible soils would not occur.

One of the purposes of the proposed project is to extract brackish groundwater over a 30-year period. Historically, subsidence has been detected in localized areas as a result of oil and gas production and was not related to groundwater pumping in the West Coast and Central groundwater basins. Water levels in both basins are well above historical lows measured in the late 1950s. This is due to the formation of the Water Replenishment District. Subsidence is not expected as the groundwater basins are continuously replenished to accommodate the adjudicated pumping rights and maintain water levels above the historical lows measured in the 1950s. The proposed groundwater extractions would be managed on a proposed project level with the groundwater budgets established consistent with the West Coast Basin adjudication. The increased amount of groundwater pumping would be minimal on a proposed project basis, and consistent with legal requirements. Therefore, impacts would be less than significant.

d) **Less than Significant Impact.** Due to the urbanized/developed nature of the project area, it is assumed that soils throughout the project area consist of disturbed fill or similar materials that show minor change with moisture variation, and thus would not typically exhibit expansive soil characteristics. Therefore, the proposed facilities would most likely be located in areas of low soil expansion potential. However, as discussed above for Impact VII. Geology and Soils (c), the specific soil properties of a site can vary on a small scale and may include undetermined areas that exhibit expansive properties. The presence of expansive soils at construction sites could decrease the structural stability of the proposed facilities, which could result in structural or operational failure of these facilities and/or threaten the health and safety of on-site workers. Project facilities would be designed in accordance with the recommendations of a site-specific geotechnical investigation as required by the CBC and local codes and would implement construction BMPs to ensure significant impacts to expansive soils would not occur. In addition, proposed pipelines and associated infrastructure would be constructed using AWWA standards. Operation of the proposed facilities would not include involve activities that would result in substantial wetting of soils. Therefore, impacts would be less than significant.

e) **No Impact.** The proposed Project would not include the construction or operation of septic tanks or alternative water disposal systems. No impact would occur.

f) **Less than significant impact.** The proposed project would occur entirely within public rights-of-way or public recreational facilities within the City of Torrance and is not anticipated to result in a serious or major disturbance to paleontological resources.

References

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VIII. Greenhouse Gas Emissions

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

Discussion

a) **Less than Significant Impact.** Global climate change refers to changes in average climatic conditions on Earth as a whole, including changes in temperature, wind patterns, precipitation, and storms. Historical records indicate that global climate changes have occurred in the past due to natural phenomena; however, current data increasingly indicate that the current global conditions differ from past climate changes in rate and magnitude. Global climate change attributable to anthropogenic (human) greenhouse gas (GHG) emissions is currently one of the most important and widely debated scientific, economic, and political issues in the United States and the world. The Intergovernmental Panel on Climate Change (IPCC), in its *Fifth Assessment Report, Summary for Policy Makers*, stated that, "it is *extremely likely* that more than half of the observed increase in global average surface temperature from 1951 to 2010 was caused by the anthropogenic increase in greenhouse gas concentrations and other anthropogenic forcings together (IPCC 2014)."

GHGs are those compounds in the Earth's atmosphere which play a critical role in determining temperature near the Earth's surface. More specifically, these gases allow high-frequency shortwave solar radiation to enter the Earth's atmosphere but retain the low-frequency infrared energy, which is radiated back from the Earth towards space, resulting in a warming of the atmosphere. Not all GHGs possess the same ability to induce climate change; as a result.

The State defines GHGs as carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), sulfur hexafluoride (SF_6), perfluorocarbons (PFCs), and hydrofluorocarbons (HFCs). Because different GHGs have different global warming potentials (GWPs) and CO_2 is the most common reference gas for climate change, GHG emissions are often quantified and reported as CO_2 equivalents (CO_2e). For example, CH_4 has a GWP of 25 (over a 100-year period); therefore, one metric ton (MT) of CH_4 is equivalent to 25 MT of CO_2 equivalents ($MTCO_2e$). The GWP ratios used in domestic and international GHG emission inventories are available from the IPCC and are published in the Fourth Assessment Report (AR4) (IPCC 2007). By applying the GWP ratios, project-related CO_2e emissions can be tabulated in units of $MTCO_2e$ per year. Large emission sources are reported in million metric tons (MMT) of CO_2e.

The California Air Resources Board (CARB) compiles the State's GHG emissions inventory. The most updated inventory is referred to as the 2022 edition, which reports the State's GHG emissions inventory from calendar year 2020. Based on the 2020 GHG inventory data (i.e., the latest year for which data are available from CARB), California emitted 369.2 million metric tons of CO_2e ($MMTCO_2e$) including emissions resulting from imported electrical power (CARB 2022). Between April 2010 and July 2020, the population of California grew by an annualized rate of 0.64 percent to a total of 39.8 million (Department of Finance 2020). In addition, the carbon intensity of California's economy (the amount of carbon pollution per million dollars of gross domestic product [GDP]) is declining. From 2000 to 2020, the carbon intensity of California's economy decreased by 49 percent while the GDP increased by 56 percent (CARB 2022). According to CARB, as of 2016, statewide GHG emissions dropped below the 2020 GHG limit (431 $MMTCO_2e$) and have remained below the limit since that time.

Thresholds

Impacts of GHGs are borne globally, as opposed to localized air quality effects of criteria air pollutants and toxic air contaminants. The quantity of GHGs that it takes to result in climate change is not precisely known; however, it is clear that the quantity is enormous, and no single project would measurably contribute to a noticeable incremental change in the global average temperature, or to global, local, or microclimates. From the standpoint of CEQA, GHG impacts to global climate change are inherently cumulative.

The Lead Agency, WRD, has not adopted a numeric threshold of significance for GHG emissions that would be applicable to this project. In December 2008, the SCAQMD adopted a 10,000 $MTCO_2e$ per year significance threshold for industrial facilities for projects in which the SCAQMD is the lead agency. Although SCAQMD has not formally adopted a significance threshold for GHG emissions generated by a project for which SCAQMD is not the lead agency, or a uniform methodology for analyzing impacts related to GHG emissions on global climate change, in the absence of any industry-wide accepted standards applicable to this project, the SCAQMD's significance threshold of 10,000 $MTCO_2e$ per year for industrial projects is the most relevant GHG significance threshold and is used as a benchmark for the project. It should be noted that the SCAQMD's significance threshold of 10,000 $MTCO_2e$ per year for industrial projects is intended for long-term operational GHG emissions. The SCAQMD has developed guidance for the determination of the significance of GHG construction emissions that recommends that total emissions from construction be amortized over an assumed project lifetime of 30 years and added to operational emissions and then compared to the threshold (SCAQMD 2008).

The justification for the threshold is provided in SCAQMD's Interim CEQA GHG Significance Threshold for Stationary Sources, Rules, and Plans ("SCAQMD Interim GHG Threshold") (SCAQMD 2008). The SCAQMD Interim GHG Threshold identifies a screening threshold to determine whether additional analysis is required. As stated by the SCAQMD:

> *"…the…screening level for stationary sources is based on an emission capture rate of 90 percent for all new or modified projects…the policy objective of [SCAQMD's] recommended interim GHG significance threshold proposal is to achieve an emission capture rate of 90 percent of all new or modified stationary source projects. A GHG significance threshold based on a 90 percent emission capture rate may be more appropriate to address the long-term adverse impacts associated with global climate change because most projects will be required to implement GHG reduction measures. Further, a 90 percent emission capture rate sets the emission threshold low enough to capture a substantial fraction of future stationary source projects that will be constructed to accommodate future statewide population and economic growth, while setting the emission threshold high enough to exclude small projects that will in aggregate contribute a relatively small fraction of the cumulative statewide GHG emissions. This assertion is based on the fact that [SCAQMD] staff estimates that these GHG emissions would account for slightly less than one percent of future 2050 statewide GHG emissions target (85 [MMTCO$_2$e per year]). In addition, these small projects may be subject to future applicable GHG control regulations that would further reduce their overall future contribution to the statewide GHG inventory. Finally, these small sources are already subject to [Best Available Control Technology (BACT)] for criteria pollutants and are more likely to be single-permit facilities, so they are more likely to have few opportunities readily available to reduce GHG emissions from other parts of their facility."*

Thus, based on guidance from the SCAQMD, if an industrial project would emit GHGs less than 10,000 MTCO$_2$e per year, the project would not be considered a substantial GHG emitter and GHG emission impact would be less than significant, requiring no additional analysis and no mitigation.

CEQA Guidelines 15064.4 (b)(1) states that a lead agency may use a model or methodology to quantify GHGs associated with a project. The latest version of CalEEMod (version 2022.1) and CalEEMod methodology have been used for this project to estimate the project's GHG emission impacts.

Construction

Construction activities associated with the project would result in emissions of CO_2 and to a lesser extent CH_4 and N_2O. Construction-period GHG emissions were quantified based on the same construction schedule and activities provided in Chapter 1, *Project Description*, and the equipment list provided by the Applicant. To amortize the emissions over the life of the project, the SCAQMD recommends calculating the total GHG emissions attributable to construction activities, dividing it by the 30-year project life, and then adding that number to a project's annual operational-phase GHG emissions. As such, construction emissions were amortized over a 30-year period and added to the Project's operational emissions. Project construction emissions are shown in **Table 2-8**, *Unmitigated Construction Greenhouse Emissions*.

TABLE 2-8
UNMITIGATED CONSTRUCTION GREENHOUSE GAS EMISSIONS
(METRIC TONS CO_2E)

Source	$MTCO_2e$
Construction Year 1	33
Construction Year 2	240
Construction Year 3	1,571
Construction Year 4	157
Total GHG Emissions	**2,001**
Amortized GHG Emissions (30 years)	**67**

SOURCE: Table compiled by ESA, 2023

Operations

Operational activities associated with the project would result in GHG emissions from the extraction, treatment, and conveyance of brackish water, as well mobile sources, and energy demand. Project operational emissions and the amortized construction emissions are shown in **Table 2-9**, *Unmitigated Operational Greenhouse Emissions*. As highlighted in Table 2-9, the highest GHG emission source during operations is the necessary energy demand for the extraction, treatment, and conveyance of the brackish water as part of the project. This emission source category accounts for 98 percent of the project's total GHG emissions. However, even with this large energy demand for the extraction, treatment, and conveyance of the project's water, the project would be below the SCAQMD industrial threshold of 10,000 $MTCO_2$ per year. In addition, as these GHG emissions come from electricity consumption tied to the extraction, treatment, and conveyance of water, the Project would have reduced GHG emissions each year as the State complies with the Senate Bill 100 goal of having 100 percent renewable energy by 2045. Therefore, GHG emission impacts would be less than significant.

TABLE 2-9
UNMITIGATED GREENHOUSE GAS EMISSIONS (METRIC TONS CO_2E)

Source	$MTCO_2e$
Amortized Construction	67
Mobile Sources	11.6
Energy Demand	26.5
Waste Sources	6.8
Refrigeration	0.8
Brackish Water – extraction, treatment, and conveyance	6,129
Total GHG Emissions	**6,242**
SCAQMD Industrial Threshold	**10,000**
Exceeds Threshold?	**No**

SOURCE: Table compiled by ESA, 2023

b) **Less than Significant Impact.** As discussed above, the GHG emissions generated by the project would not exceed the SCAQMD's recommended threshold of 10,000 $MTCO_2e$ per year for industrial projects. The primary source of GHG emissions generated by project implementation would occur during construction, which would be short-term and temporary in nature. The project would utilize contractors that follow regulations including the USEPA Heavy Duty Vehicle Greenhouse Gas Regulation, the CARB anti-idling Air Toxics Control Measure that limits heavy-duty diesel motor vehicle idling, and the State's low carbon fuel standard regulation. While the idling measure was adopted for the purpose of reducing diesel particulate matter emissions and reducing health risk impacts, the measure has co-benefits of minimizing GHG emissions from unnecessary truck idling. The project would not conflict with these GHG reducing measures and regulations.

The operation of the project would generate minor amounts of GHG emissions from vehicles for periodic maintenance and the three to five daily employees. These mobile source emissions would only add trace amounts of GHG emissions annually and would have no impact on the implementation of the SCAG 2020-2045 RTP/SCS to reduce GHG emissions from vehicle travel. The project would generate the most GHG emission from the electricity demand related to the extraction, treatment, and conveyance of water, as shown in Table 2-9. However, consistent with State regulations and SB 100, the carbon intensity of the electricity used would diminish in future years and be completely carbon neutral by 2045.

The City of Torrance released its *Climate Action Plan* in 2017 (2017 CAP). The 2017 CAP includes voluntary strategies that would help the City of Torrance achieve the GHG reduction goals with AB 32, as well as the State's goal of 80 percent below 1990 GHG levels by 2050. The 2017 CAP is a not a qualified GHG reduction plan for CEQA tiering. The project would be consistent with the applicable water infrastructure related goal from the City of Torrance 2017 Climate Action Plan (2017 CAP). Specifically, the project would be consistent with Goal EE: E – Increase Energy Efficiency Through Water Efficiency, by extracting, treating, and conveying brackish water from a local source to the City of Torrance (City of Torrance 2017).

In November of 2022, CARB released *its 2022 Scoping Plan for Achieving Carbon Neutrality* (2022 Scoping Plan). This 2022 Scoping Plan lays out the sector-by-sector roadmap for California to achieve carbon neutrality by 2045 or earlier by outlining a technologically feasible, cost-effective, and equity-focused path to achieve the state's climate target. The key sectors outlined in the 2022 Scoping Plan are transportation, electricity grid, manufacturing and buildings, CO2 removal and capture, short-lived climate pollutants, and natural and working lands (CARB 2022b). As a water infrastructure project, the project would not conflict with any goals listed in the key sectors of the 2022 Scoping Plan. The project would use electricity that is consistent with SB 100 (100 percent renewable by 2045) and would help the State achieve its climate neutrality goal by 2045.

For these reasons, the implementation of the proposed project would not generate GHG emissions that would exceed the SCAQMD industrial threshold and hinder the State's ability to achieve the State's GHG reduction goals listed in the 2022 Scoping Plan. Additionally, the project would not conflict with these future regulations, as promulgated by the USEPA, CARB, California Energy Commission (CEC), and would be consistent with the applicable voluntary measures from the 2017 CAP. As a result, this impact would be less than significant.

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IX. Hazards and Hazardous Materials

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

Discussion

a, b) **Less than Significant Impact.** Construction of the proposed project facilities would temporarily require the transport, use, and disposal of hazardous materials including gasoline, diesel fuel, hydraulic fluids, paint, and other similarly related materials. In addition, construction activities would require the use of heavy equipment that would contain oil, gasoline, or other fluids, and would be stored on and transported to the various project sites during the construction period. Accidental release of these materials could occur during routine transport, disposal, or use, and could potentially injure construction workers, contaminate soil, and/or affect nearby groundwater or surface water bodies. Impacts associated with accidental release, although localized, could potentially create a significant hazard to the public or the environment. Cal/OSHA regulations provide for the proper labeling, storage, and handling of hazardous materials to reduce the potential harmful health effects that could result from worker exposure to hazardous materials. If not effectively managed; however, accidental release of these substances could expose construction workers, degrade soils, or become entrained in stormwater runoff, resulting in adverse effects on the public or the environment. WRD is required to comply with all relevant and applicable federal, state, and local laws and regulations that pertain to the transport, storage, use, and disposal of hazardous materials and waste during construction of proposed facilities. Compliance with all NPDES Construction General Permit requirements including the preparation and implementation of a SWPPP and associated BMPs would minimize the potential for mishandling and/or the release of hazardous materials during construction.

As described in Section 1.6.2, the use of maintenance equipment and worker vehicles transporting workers to the facilities' sites would require periodic transport and use of fuels and chemicals. The number of new staff would be minimal compared with baseline staff numbers and would not present a substantial increase in workers to the site. While substantial amounts of hazardous materials are not anticipated to be used during operation and maintenance of most project facilities, the proposed treatment facilities would also involve on-site chemical use and storage. Chemicals would be stored in a chemical storage building in aboveground tanks in a dedicated containment area with secondary containment areas to confine accidental spills and prevent exposure to the environment.

All chemicals and equipment containing hazardous materials would be stored in accordance with applicable regulations that ensure safety. Prior to operation of the expanded facility, WRD would be required to revise their current hazardous materials business plan (HMBP) for the new operations to describe procedures and protocols for the safe storage, handling, transport, and disposal of hazardous materials in accordance with modified operations at the facility. The revised HMBP would be submitted to the City of Torrance Fire Department, the Participating Agency responsible for implementing hazardous materials projects of the Los Angeles Certified Unified Project Agency (CUPA), for their review and approval. In addition, WMWD would be required to obtain a hazardous waste generator identification number from the DTSC prior to generating any hazardous waste. Therefore, compliance with all applicable federal and state regulations would ensure that impacts associated with the handling, storage, transportation, and disposal of hazardous materials during operations would be less than significant.

c) **Less than Significant Impact with Mitigation**. As final locations of the wells and feedwater pipelines may change pending results of the water quality characterization study referenced in Section 1.3, there is the potential for the proposed facilities to be located in proximity to any of existing schools in the project vicinity. Schools in the City of Torrance that may be within 0.25-mile of the preliminary well sites and pipeline routes include South Bay Junior Academy (4400 Del Amo Boulevard), Madrona Middle School (21364 Madrona Avenue), Fern Elementary School (1314 Fern Avenue), Children's Place Montessori School (1215 Crenshaw Boulevard), and Torrance Elementary School (2125 Lincoln Avenue). No schools are within 0.25-mile of the desalter upgrade site.

Construction of the proposed project would require equipment that uses petroleum oil or other fuels considered hazardous materials. Construction work would be limited to approximately two weeks near each school for well installations, and 3 to 6 months near each school for installation of pipeline segments. Construction equipment would be contained within a designated work area and equipment would be stored within designated staging areas overnight. Vehicle fueling would be limited to designated fueling areas outfitted with secondary containment measures in case of spill. **Mitigation Measure HAZ-1** would require WRD and its construction contractor to designate fueling areas away from school sites.

Operation of the proposed projects would consist of facilities designed to extract, store, transport, and treat water and substantial staff would not be required for periodic maintenance activities. No hazardous materials would be emitted or managed within 0.25 miles of a school.

As discussed for Impact IX (a,b) above, WRD is required to comply with all relevant and applicable federal, state, and local laws and regulations that pertain to the release of hazardous materials and hazardous waste emissions during construction and operation of the proposed facilities. Therefore, due to the short duration of construction activities, and with adherence to applicable BMPs, and federal, state, and local regulations, the proposed project would have a less than significant impact related to handling hazardous materials within one-quarter mile of a school with implementation of Mitigation Measure HAZ-1.

HAZ-1: WRD or its construction contractor shall not fuel vehicles or store fuel or other chemicals within 1,000 feet of an existing school site.

d) **Less than Significant Impact.** A records search on the State Water Resources Control Board (SWRCB) GeoTracker and California Department of Toxic Substances Control (DTSC) EnviroStor databases identified hazardous materials sites located in the project area. These properties are businesses with hazardous waste generator permits, or former hazardous materials sites that have been remediated to the satisfaction of local, State, and federal regular agencies, and thus would not pose a threat to people or the environment.

Two properties within the proposed northern well and pipeline implementation area (refer to Figure 1-3) are listed for the presence of residual contaminants in underlying shallow perched aquifers and subsurface soils at levels that pose a threat to the public or the environment. Historic uses at these sites included operation of a polyethylene and ethylene glycol (anti-freeze) manufacturing facility approximately 17 acres in size (Former Union Carbide Corporation Torrance Facility, 19500 Mariner Avenue, Torrance, CA), and an associated steam processing plant (Hager Pacific Property located at 19500 Hawthorne Boulevard, Torrance, CA). Residual contaminants identified during past investigations include arsenic, lead, polynuclear hydrocarbons, and volatile organic compounds. The Former Union Carbide Corporation Torrance Facility Property is “active” and has been subject to ongoing remediation and monitoring since the year 1996. The Hager Pacific Property has been listed as “certified operation & maintenance – land use restrictions only” as of 2017 (DTSC 2023a; DTSC 2023b).

e) **No Impact**. The nearest airport to the project area is the Torrance Municipal Airport, which is located 1.3-miles south of the project area. No Airport Land Use Compatibility

Plan (ALUC) has been adopted for this airport (County of Los Angeles 2023). However, there is risk for construction workers and maintenance employees working in the vicinity of an airport. There are safeguards required by law to minimize the potential for and the effects from an accident if it occurs. Specifically, the Federal Aviation Administration's (FAA) airport design standards establish land use related guidelines to protect people and property on the ground by requiring the establishment of "safety zones" to keep areas surrounding the runway approach clear of habitable structures. The proposed project would construct wells, pipelines, and treatment facilities in an urbanized area and would not include habitable structures. In addition, the proposed project would not include tall structures that could violate local ordinance requirements or interfere with airport safety measures as the proposed pipelines within two miles of the airport would be contained underground after construction and all impact areas would be returned to pre-project conditions. Therefore, the proposed project would result in a less than significant impact due to a safety hazard to people residing or working in the project area.

f) **Less than Significant Impact with Mitigation**. The City of Torrance Office of Emergency Services' (OEM) Local Hazard Mitigation Plan (2017) includes information providing guidance to the public regarding what to do if an emergency or disaster were to occur. The Local Hazard Mitigation Plan identifies major freeways and surface streets in the project area that would serve as evacuation routes during emergency situations. These potential evacuation routes include I-405, I-110, SR-91, Hawthorne Boulevard, Crenshaw Boulevard, Western Avenue, Sepulveda Boulevard, 190th Street. and Artesia Boulevard (City of Torrance OEM 2017).

Construction

Construction of the proposed pipelines would be installed within right-of-ways and could temporarily require partial road closures (full road closures are not anticipated) or delays in vicinity of the designated evacuation routes. Thus, construction of the project could interfere with emergency response or evacuation planning in the project area. The Traffic Control Plan required by **Mitigation Measure TRA-1** would provide traffic control, flagging, and signage, and would provide measures to minimize lane closures, and require WRD to notify local emergency responders of any planned lane closures prior to project construction. Additionally, **Mitigation Measure TRA-2** would require WRD to develop and implement a Parking and Staging plan to further reduce any potential delays to emergency response related to the expected increase in vehicular trips to/from the Torrance Groundwater Desalter Expansion Project site. As a result, impacts associated with construction of the proposed facilities would be less than significant with implementation of mitigation measures.

Operation

The majority of the proposed project facilities, such as extraction wells and pipelines, would not require daily staffing but rather require only periodic maintenance. Operation of the proposed treatment facilities would require three to five new dedicated staff that would commute daily to and from the site. Due to the limited amount of vehicle trips associated with operation and maintenance of the proposed pipelines, wells, and treatment facilities, it is reasonable to assume these trips would not contribute substantially to roadway congestion that could interfere with emergency response or emergency evacuation. As a result, impacts would be less than significant.

g) **No Impact**. The proposed project would be located within a highly urbanized area and would continue to be served by the Los Angeles Fire Department, the Los Angeles County Fire Department, and the Torrance Fire Department. According to the California Department of Forestry and Fire Protection (CAL FIRE), the proposed project would not be located within a Very High Fire Hazard Severity Zone (CAL FIRE 2011). Therefore, the proposed project would not expose people or structures to a significant risk of loss, injury, or death involving wildland fires, and no impact would occur.

References

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X. Hydrology and Water Quality

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

Discussion

a) **Less than Significant Impact.**

Construction

Construction of the proposed wells, pipelines, and Torrance Groundwater Desalter Expansion Project treatment facilities would involve ground-disturbing activities such as soil excavation and stockpiling, drilling, and trenching. These activities have the potential to expose site soils to erosion and mobilize sediments in stormwater. Additionally, the proposed projects would require the use of heavy equipment and construction-related chemicals, such as fuels, oils, grease, solvents, and paints that would be stored in limited quantities on-site. In the absence of proper controls, these construction activities could result in accidental discharge of potentially harmful materials that could adversely affect water quality and/or result in violation of water quality standards.

Because the proposed projects would be implemented incrementally over time, there would not be a single construction discharge permitting process. Instead, as construction of each project is initiated, individual construction discharge permits would be acquired.

As discussed above for Impact VII. Geology and Soils (b), where the anticipated total disturbance for a facility would be greater than one acre, WRD would be required to acquire coverage under the statewide Construction General Permit to comply with Section 102 of the federal Clean Water Act that would include a SWPPP with BMPs to control erosion, sedimentation, and hazardous materials release from construction sites into surface waters. If anticipated disturbance is less than one acre, the facility would be required to comply with minimum BMPs as specified by Los Angeles County MS4 Permit (RWQCB Order No. R4-2012-0175). Through compliance with the NPDES Construction General Permit or MS4 requirements, including the preparation and implementation of a SWPPP and BMPs, potential violations of water quality standards and/or waste discharge requirements would be minimized.

During construction of the proposed pipelines, shallow groundwater may be encountered and could potentially interfere with construction activities. If groundwater dewatering is determined to be necessary during construction, compliance with a Los Angeles RWQCB Groundwater Dewatering General Permit would be required. Dewatering typically involves the extraction of shallow groundwater and subsequent discharge into nearby storm drains or other receiving bodies, in order to facilitate the construction of underground facilities, such as structural building foundations for treatment plant facilities. Compliance with the conditions of this permit would ensure that dewatering discharges would not elevate pollutant concentrations beyond existing water quality limitations, or otherwise affect beneficial use of receiving waters. Therefore, impacts associated with construction of all proposed facilities would be less than significant.

Operation

The proposed Torrance Groundwater Desalter Expansion Project would be located within the existing City of Torrance Public Works Yard footprint. The presence of new facilities at the proposed desalter site may increase impervious surfaces that could increase stormwater runoff if uncontrolled. The proposed treatment facilities would be subject to the General Industrial Stormwater Permit that requires facility designs to include structural controls to protect stormwater runoff quality. Additionally, based on WRD standard practice, all rainwater that falls on the facility would be collected into the facility stormwater system and routed into the treatment system, such that no surface water flows from the facility to the surrounding area. Thus, the potential impacts to runoff water associated with the proposed desalter site are considered less than significant.

In addition to stormwater discharges, expanding treatment capacity at the new Torrance Groundwater Desalter Expansion Project would result in increased discharge to the local sewer system via the proposed brine disposal pipeline. Sewer system discharges would consist of the waste stream that does not pass through the RO process into the potable water system; thus, the discharges would have a high salt concentration. Discharges to the local sewer system pass flow into the Joint Water Pollution Control Plant (JWPCP) operated by the Los Angeles County Sanitation District (LACSD). Because the proposed project collection and treatment system discharges to the Pacific Ocean, high salt concentrations would not have considerable effects with regard to waste discharge requirements of the Sanitation Districts.

Depending on the final location of the proposed extraction wells, the proposed product water pipelines and feedwater pipelines may be implemented in the same street alignments. The proposed pipelines would be implemented in accordance with RWQCB Division of Drinking Water (DDW) regulations contained in Title 22 of the California Code of Regulations (CCR) to ensure that no cross contamination of drinking water occurs during operation. Furthermore, groundwater that is extracted, treated, and conveyed via the proposed wells/pipelines would be evaluated to verify the water meets drinking water standards prior to introduction into the distribution system. Therefore, through compliance with existing regulations, impacts to water quality would be less than significant.

b) **No Impact.** The proposed project would remediate approximately 5,000 to 7,100 acre-feet per year of the saline plume. Extraction of the groundwater, which is currently not usable due to its high salt content, would create additional groundwater storage capacity in the West Coast Basin and allow for storage of surplus water in dry years. Additionally, the proposed project would allow for beneficial reuse of remediated water, thereby contributing to a locally sustainable groundwater supply and eliminating dependence on imported water. Therefore, the proposed project would represent a beneficial impact to groundwater supplies.

c.i–civ) **Less than Significant Impact.**

Construction

The proposed project would be implemented in a highly urbanized area and would not alter the course of a stream or river. However, implementation of proposed projects could alter existing drainage patterns at each project site in other ways. The construction of proposed facilities would require activities such as excavation, drilling, trenching, and tunneling, which would temporarily alter each site’s existing ground surface and drainage patterns. Compliance with the Construction General Permit, SWPPP, or Los Angeles County MS4 Permit, as described previously, would require the implementation of BMPs that manage overland runoff from construction sites and establish permanent drainage pathways to stabilized outlets. With implementation of such BMPs and compliance with conditions of required permits governing storm water runoff from construction sites, potential on-site and off-site flooding impacts would be reduced to less than significant levels and discharges from construction sites would not exceed the capacity of existing storm water drainage systems. Erosion or siltation from construction sites also would be minimized to less than significant levels.

Operation

Once operational, the presence of new facilities at each project site and changes in the extent of permeable or impermeable surfaces could alter the direction and volume of overland flows during both wet and dry periods. As discussed previously, the proposed treatment facilities would be subject to the General Industrial Stormwater Permit and all rainwater that falls on the facility would be collected into the facility stormwater system and routed into the treatment system. Ground surfaces at the pipeline alignments would be returned to existing conditions following construction. The small footprint of proposed wells would not be able to substantially alter drainage patterns and would not result in erosion, sedimentation, flooding, exceeding drainage system capacities, or impeding or redirecting flood flows. Finally, the well heads would be required to comply with the Los Angeles County MS4 permit. This would include designing the facilities to not exceed the capacity of the stormwater drainage system. Therefore, impacts related to erosion, siltation, or flooding are considered less than significant.

d) **Less than Significant Impact.** The project area is not susceptible to seiche hazards and is not mapped within a tsunami hazard area (DOC 2023). The majority of the project facilities are not located within a flood hazard zone. However, near the existing Madrona Marsh Well (refer to Figure 1-2), a small area east of the Del Amo Mall in the City of Torrance is designated as a 100-year and 500-year flood hazard zone (Los Angeles County Department of Proposed project Planning 2023). Only the brine disposal and feedwater pipeline alignments which may be implemented in this area would have the potential to be located in this flood hazard area and have the potential to be inundated by flooding.

Construction

In the event of flooding due to floods or seiches, pollutants and sediment could be released from the construction sites, potentially degrading surface water quality in nearby surface water bodies. As discussed previously, the proposed projects would be required to comply with the Construction General Permit, including SWPPPs and BMPs, and local stormwater ordinances. Through compliance with existing regulations, impacts associated with the release of pollutants during flooding would be less than significant.

Operation

Once constructed, the pipelines would be located underground and therefore not subject to damage from flooding or seiches. The wells would also be located underground and therefore not subject to damage from flooding. Any aboveground facilities that are installed along proposed pipelines in the flood hazard area (e.g., pumps or pressure reducing stations) could be inundated due to flooding. However, these facilities would consist of small footprints unlikely to significantly affect flood flow patterns. Therefore, the impact relative to flooding would be less than significant.

Less than Significant Impact. As discussed previously, the proposed project would comply with the existing regulations regulating water quality in the project area such as the Construction General Permit, the Groundwater Dewatering General Permit, and/or the Los Angeles County MS4 and would include BMPs to minimize impacts to water quality. Therefore, the proposed project would not obstruct or conflict with the implementation of the RWQCB's Water Quality Control Plan for the Los Angeles Region (Basin Plan).

The proposed project represents an effort to create a locally sustainable groundwater supply that will eliminate dependence on imported water and accelerate the remediation of a plume of brackish groundwater. The proposed project would be consistent with the goals and strategies included in the *Groundwater Basins Master Plan* (GBMP) and the GBMP Project EIR, which established a framework to enhance groundwater replenishment in the West Coast and Central Basins, increase the reliability of groundwater supplies, improve and protect groundwater quality, and accommodate growing potable water demands (Refer to Section 1.3, *Project Background*). Furthermore, sustainable groundwater management within the Central Basin is regulated under the court-administered adjudications and overseen by the court-appointed watermasters. The adjudication rules under which the basin operates is similar to and achieves the same effect as a Sustainable Groundwater Management Plan because the overall adjudication goal is the sustainable management of groundwater supplies. Therefore, the basins are not required to establish sustainable groundwater management agencies and not required to prepare and implement sustainable groundwater management plans under the Sustainable Groundwater Management Act. Therefore, relative to Sustainable Groundwater Management Plans, there would be no impact.

d) **No Impact.** The proposed project would remediate approximately 375,000 AF of the contaminated saline plume in the Lower San Pedro, Silverado, and Gage aquifers. Extraction of the groundwater, which is currently not usable due to its high salt content, would create additional groundwater storage capacity in the West Coast Basin and allow for storage and treatment of surplus water in dry years. Therefore, the proposed project would represent a beneficial impact to water quality.

References

California Department of Conservation (DOC), 2023. CGS Information Warehouse. Los Angeles County Tsunami Hazard Areas Map. Available online at: https://www.conservation.ca.gov/cgs/tsunami/maps/los-angeles, accessed April 3, 2023.

Los Angeles County Department of Proposed project Planning. GIS-NET Public. Available online at: https://planning.lacounty.gov/gisnet, accessed April 3, 2023.

XI. Land Use and Planning

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

Discussion

a) **No Impact.** The physical division of an established community typically refers to the construction of a linear feature, such as a highway or railroad, or removal of a means of access, such as a road or bridge that would impact mobility within or between existing communities. The proposed facilities associated with the project are not aboveground linear features that would create a barrier or physically divide an established community. Although the proposed pipelines are linear features, they would be installed underground or along existing paved roadways and as such would not permanently divide an established community. Proposed facilities such as extraction wells, monitoring wells, and borehole resistivity sensors would be located adjacent to public right-of-ways; however, there are no features of these other proposed facilities that would create a barrier within public roadways or physically divide an established community. Further, the new treatment facilities to be installed at the new Torrance Groundwater Desalter Expansion Project would be confined within the existing City of Torrance Public Works Yard. As a result, no impact would occur.

b) **Less than significant.** Land uses within the project area are under the jurisdiction of the City of Torrance. The proposed pipelines would be constructed mostly underground within or along public rights-of-way and would not conflict with any applicable land use plan, policies, or regulations. According to the City of Torrance 2009 General Plan, four of the extraction wells (SILV-01, -02, -03, -04), three of the pilot test wells (PT-01 a, b, c), three of the monitoring wells, (PM-07, PM-08, and PM-09), and a portion of the proposed project would be located on land designated as Business Park (I-BP), and land zoned as Heavy Manufacturing District (M2). Two extraction wells (Police Station Well and Madrona Marsh Well) would be located on land designated as Public/Quasi-Public/Open Space (PUB), and land zoned as Public Use/Open Area (PU/P1) and Planned Development/Public Use (PD/PU) respectively. One monitoring well (PM-09) and a portion of the Proposed project would be located on land designated as Public/Quasi-Public/Open Space (PUB) but would be located on land zoned as Public Use (PU) and Heavy Manufacturing District (M2) respectively (COT 2005; COT 2022a; COT 2022b). Per Government Code Section 53091(d), building ordinances of local cities or counties do not apply to the location or construction of facilities for the projection, generation, storage, treatment, or transmission of water or wastewater. Any proposed new treatment facilities, wells, pipelines, or sensors would not be subject to a conditional use permit or general plan amendment. As a result, there would be no conflict with the City or County land use plan, policy, or regulation. Therefore, impacts would be less than significant.

References

City of Torrance (COT), 2005. Figure LU-1 General Plan Land Use Policy. Available at: https://www.torranceca.gov/home/showpublisheddocument/2734/636302127561130000. Accessed February 21, 2023.

COT, 2022a. City of Torrance Property Zoning Map. Available at: https://www.torranceca.gov/home/showpublisheddocument/78857/638055129495170000. Accessed March 1, 2023.

COT, 2022b. Torrance Municipal Code. Available at: https://www.codepublishing.com/CA/Torrance/#!/Torrance09/Torrance09.html. Accessed March 1, 2023.

XII. Mineral Resources

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

Discussion

a) **No Impact.** According to the City of Torrance General Plan Community Resources Element, the project facilities would be located in an area that is classified as MRZ-3 (COT 2010). The MRZ-3 classification applies to areas that are known to contain mineral deposits but require more data to determine significance. According to the USGS Mineral Resources Data System, the project area is not identified as a known mineral resource area and does not have a history of mineral extraction uses (USGS 2022). The proposed project would not involve the extraction of mineral resources. Therefore, the proposed project would not result in the loss of availability of a known mineral resource, and no impact would occur.

b) **No Impact.** According to the California Department of Conservation, the project site is located within the San Gabriel Production-Consumption Region. The project site is not delineated on the Mineral Land Classification map or any land use plan for mineral resource recovery (DOC 2010). Lands classified as MRZ-2 are located over a mile south of the project area. None of the project components would be within close proximity to the lands that contain these mineral resources. The project site would not be used for mineral extraction and is not known as a locally important resource recovery site. Further, the proposed project facilities would involve superficial excavation to install utilities and would not result in the loss of a known mineral resources. Therefore, no impact would occur.

References

City of Torrance (COT), 2010. City of Torrance 2009 General Plan: Community Resources Element. Available at: https://www.torranceca.gov/home/showdocument?id=2722. Accessed February 24, 2023.

Department of Conservation (DOC), 2010. San Gabriel Valley P-C Region Showing MRZ-2 Areas and Active Mine Operations. Available at: https://maps.conservation.ca.gov/cgs/informationwarehouse/mlc/. Accessed February 27, 2023.

United States Geological Survey (USGS), 2022. Mineral Resources Data System. Available at: https://mrdata.usgs.gov/mrds/map-graded.html#place-picker. Accessed February 24, 2023.

XIII. Noise

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

Environmental Setting

Sound can be described as the mechanical energy of a vibrating object transmitted by pressure waves through a liquid or gaseous medium (e.g., air). Noise is defined as unwanted sound (i.e., loud, unexpected, or annoying sound). Acoustics is defined as the physics of sound. In acoustics, the fundamental scientific model consists of a sound (or noise) source, a receiver, and the propagation path between the two. The loudness of the noise source and obstructions or atmospheric factors affecting the propagation path to the receiver determines the sound level and characteristics of the noise perceived by the receiver. Acoustics addresses primarily the propagation and control of sound.

Sound, traveling in the form of waves from a source, exerts a sound pressure level (referred to as sound level) that is measured in decibels (dB), which is the standard unit of sound amplitude measurement. The dB scale is a logarithmic scale (i.e., not linear) that describes the physical intensity of the pressure vibrations that make up any sound, with 0 dB corresponding to the threshold of human hearing and 120 to 140 dB corresponding to the threshold of pain. In a non-controlled environment, a change in sound level of 3 dB is considered “just perceptible,” a change in sound level of 5 dB is considered “clearly noticeable,” and a change in 10 dB is perceived as a doubling of sound volume (Caltrans 2013). Pressure waves traveling through air exert a force registered by the human ear as sound.

The typical human ear is not equally sensitive to all frequencies of the audible sound spectrum. As a consequence, when assessing potential noise impacts, sound is measured using an electronic filter that deemphasizes the frequencies below 1,000 hertz (Hz) and above 5,000 Hz in a manner corresponding to the human ear’s decreased sensitivity to extremely low and extremely high frequencies. This method of frequency weighting is referred to as A-weighting and is expressed in units of A-weighted decibels (dBA). A-weighting follows an international standard methodology of frequency de-emphasis and is typically applied to community noise measurements.

An individual's noise exposure is a measure of noise over a period of time, whereas a noise level is a measure of noise at a given instant in time. Community noise varies continuously over a period of time with respect to the contributing sound sources of the community noise environment. Community noise is primarily the product of distant noise sources, which constitute a stable background noise exposure, with the individual contributors unidentifiable. The background noise level changes throughout a typical day, but does so gradually, corresponding with the addition and subtraction of distant noise sources such as traffic. What makes community noise variable throughout a day, besides the slowly changing background noise, is the addition of short-duration, single-event noise sources (e.g., aircraft flyovers, motor vehicles, sirens), which are readily identifiable to the individual. These successive additions of sound to the community noise environment change the community noise level from instant to instant, requiring the measurement of noise exposure over a period of time to legitimately characterize a community noise environment and evaluate cumulative noise impacts.

The time-varying characteristic of environmental noise over specified periods of time is described using statistical noise descriptors in terms of a single numerical value, expressed as dBA. The most frequently used noise descriptors are summarized below:

Leq: The Leq, or equivalent sound level, is used to describe the noise level over a specified period of time, typically 1-hour, i.e., Leq(1), expressed as Leq. The Leq may also be referred to as the "average" sound level.

Lmax: The maximum, instantaneous noise level.

Lmin: The minimum, instantaneous noise level.

Lx: The noise level exceeded for specified percentage (x) over a specified time period; i.e., L50 and L90 represent the noise levels that are exceeded 50 and 90 percent of the time specified, respectively.

Ldn: The Ldn is the average noise level over a 24-hour period, including an addition of 10 dBA to the measured hourly noise levels between the hours of 10:00 P.M. to 7:00 A.M. to account nighttime noise sensitivity. Ldn is also termed the day-night average noise level or DNL,

CNEL: Community Noise Equivalent Level (CNEL), is the average noise level over a 24-hour period that includes an addition of 5 dBA to the measured hourly noise levels between the evening hours of 7:00 P.M. to 10:00 P.M., and an addition of 10 dBA to the measured hourly noise levels between the nighttime hours of 10:00 P.M. to 7:00 A.M. to account for noise sensitivity during the evening and nighttime hours, respectively.

As discussed in Chapter 1, *Project Description,* the proposed project is located within WRD's service area in southwestern Los Angeles County. The proposed project infrastructure would be located within the cities of Torrance, Los Angeles, Carson, and portions of unincorporated Los Angeles County. A brief discussion of pertinent noise regulations at the State and local levels are provided below.

State of California Government Code Section 53091

Per Government Code Section 53091, building ordinances of local cities or counties do not apply to the location or construction of facilities for the projection, generation, storage, treatment, or transmission of water or wastewater. Specifically, Section 53091 states (California Legislative Information 2003):

> (d) *Building ordinances of a county or city shall not apply to the location or construction of facilities for the production, generation, storage, treatment, or transmission of water, wastewater, or electrical energy by a local agency.*
>
> (e) *Zoning ordinances of a county or city shall not apply to the location or construction of facilities for the production, generation, storage, treatment, or transmission of water.*

City of Torrance Municipal Code

The City of Torrance has established noise standards to control unnecessary, excessive, and annoying noise. The standards are codified in Division 4, Chapter 6 (Noise Regulation) of the City of Torrance Municipal Code (TMC). Construction noise is governed by Section 46.3.1 (Construction of Buildings and Projects) of the Municipal Code, which prohibits the use of construction tools, equipment, or the performance of any outside construction or repair work on buildings, structures, or projects in or adjacent to a residential area involving the creation of noise beyond 50 dBA as measured at property lines, except for between the hours of 7:30 A.M. to 6:00 P.M., Monday through Friday, 9:00 A.M. to 5:00 P.M., Saturday and no time on Sundays or holidays.

In addition, the Noise Regulation of the City of Torrance Municipal code states that heavy construction equipment such as pile drivers, mechanical shovels, derricks, hoists, pneumatic hammers, compressors, or similar devices shall not be operated at any time, within or adjacent to a residential area, without first obtaining from the Community Development Director permission to do so. Such request for permission shall include a list and type of equipment to be used, the requested hours and locations of its use, and the applicant shall be required to show that the selection of equipment and construction techniques has been based on minimization of noise within the limitations of such equipment as is commercially available or combinations of such equipment and auxiliary sound barriers. Such permission to operate heavy construction equipment will be revoked if operation of such equipment is not in accordance with approval.

The Municipal Code also outlines non-construction noise standards that are not to be exceeded. The City has been divided up into four different regions each with their own noise standard. The proposed project would be subject to 50 dBA during daytime hours and 45 dBA during nighttime hours for non-construction noise sources. In addition, if the noise contains a steady, audible tone, such as a whine, screech, or hum, the noise standard shall be corrected with a reduction of 5 dB. The same correction applies to noise is a repetitive and impulsive, such as hammering or riveting.

City of Carson Municipal Code

The City of Carson Municipal Code (CMC) article 5, Chapter 5, details the City's approach to noise control and standards. CMC Section 5500 states the City's intent to adopt the Los Angeles

County Municipal Code (LACMC) Noise Control Ordinance (Title 12, Chapter 12.08) as the CMC's own noise control ordinance with key amendments. LACMC Section 12.08.390(B) sets standards for acceptable exterior noise levels. The standards are intended to protect the community from excessive noise levels that have the potential to: (i) interfere with sleep, communication, relaxation, and enjoyment of property; (ii) contribute to hearing impairment; and (iii) adversely affect the value of property.

CMC Article 5, Chapter 5, Section 5502, provides a list of amendments added to the LACMC for application in the City of Carson. Section 5502 amends CMC Chapter 12.08, Part 4, to address noise standards for construction activities with nearby residential land uses. Short term construction operations of 20 days or less is permitted Monday through Saturday from 7:00 A.M. to 8:00 P.M. given construction does not exceed 75 dBA in single-family residential areas and 80 dBA in multi-family residential areas. Long term construction (defined as more than 21 days of scheduled work) is permitted Monday through Saturday from 7:00 A.M. to 8:00 P.M. given construction does not exceed 65 dBA in single-family residential areas, 70 dBA in multi-family residential areas, and 70 dBA in semi-residential/commercial areas. Section 5502(h) lists amendments to the LACMC for procedures for obtaining a variance from the requirements of CMC Article 5, Chapter 5, which may be granted by the Planning Commission for a period not to exceed two years, subject to such terms, conditions and requirements as may be reasonable under the circumstances.

City of Los Angeles Municipal Code

The City of Los Angeles Noise Regulations are provided in Chapter XI of the Los Angeles Municipal Code (LAMC). LAMC Section 111.02 provides procedures and criteria for the measurement of the sound level of "offending" noise sources. In accordance with the LAMC, a noise source that causes a noise level increase of five dBA over the existing average ambient noise level as measured at an adjacent property line creates a noise violation. This standard applies to radios, television sets, air conditioning, refrigeration, heating, pumping, and filtering equipment, powered equipment intended for repetitive use in residential areas, and motor vehicles driven on-site. To account for people's increased tolerance for short-duration noise events, the Noise Regulations provide a 5 dBA allowance for a noise source that causes noise lasting more than 5 but less than 15 minutes in any one-hour period, and an additional 5 dBA allowance (for a total of 10 dBA) for a noise source that causes noise lasting 5 minutes or less in any one-hour period (Los Angeles Municipal Code, Chapter XI, Article I, Section 111.02).

LAMC Section 112.05 sets a maximum noise level for construction equipment of 75 dBA at a distance of 50 feet when operated within 500 feet of a residential zone. Compliance with this standard shall not apply where compliance therewith is technically infeasible.[11] LAMC Section 41.40 prohibits construction between the hours of 9:00 P.M. and 7:00 A.M. Monday through Friday, 6:00 P.M. and 8:00 A.M. on Saturday, and at any time on Sunday (i.e., construction is allowed Monday through Friday between 7:00 A.M. to 9:00 P.M.; and Saturdays and National Holidays between 8:00 A.M. to 6:00 P.M.). In general, the City's Department of Building and

[11] In accordance with the City of Los Angeles Noise Ordinance, "technically feasible" means that the established noise limitations can be complied with at a project site, with the use of mufflers, shields, sound barriers, and/or other noise reduction devices or techniques employed during the operation of equipment.

Safety enforces Noise Ordinance provisions relative to equipment and the Los Angeles Police Department (LAPD) enforces provisions relative to noise generated by people.

For non-construction noise sources, LAMC Section 91.1207.14.2 prohibits interior noise levels attributable to exterior sources from exceeding 45 dBA in any habitable room. The noise metric shall be either the day-night average sound level (Ldn) or the CNEL, consistent with the noise element of the local general plan.

County of Los Angeles Noise Ordinance

The County of Los Angeles Noise Restrictions are provided in Chapter 12.08, Noise Control of the Los Angeles County Code of Ordinances (LACC). Chapter 12.08 provides procedures and criteria for the measurement of the sound level of "offending" noise sources.

LACC Section 12.08.440 prohibits construction between the hours of 7:00 P.M. and 7:00 A.M. and at any time on Sundays or holidays, if it creates a noise disturbance across a residential or commercial real-property line. **Table 2-10,** *Los Angeles County Permissible Construction Equipment Noise at Receptor***,** outlines the maximum noise levels permissible by construction equipment at affected buildings depending on land use. These noise thresholds pertain to two timeframes: daytime hours from 7:00 A.M. to 8:00 P.M. daily (except Sundays and holidays) and nighttime hours from 8:00 P.M. to 7:00 A.M. daily (or all-day Sundays and holidays).

TABLE 2-10
LOS ANGELES COUNTY PERMISSIBLE CONSTRUCTION EQUIPMENT NOISE AT RECEPTOR

Equipment Type	Receptor Type	Daytime Hours	Nighttime Hours
Mobile	Single-family Residential	75	60
Short-term operation (less than 10 days)	Multi-family Residential	80	64
	Semi-residential/Commercial	85	70
	Business Structures	85	85
Stationary	Single-family Residential	60	50
Long-term operation (more than 10 days)	Multi-family Residential	65	55
	Semi-residential/Commercial	70	60

SOURCE: Los Angeles County Code, Section 12.08.440.

The County Noise Ordinance Section 12.08.350 provides a presumed perception threshold of 0.01 in/sec RMS; however, this applies to groundborne vibrations from long-term operational activities, such as surface traffic, and not to short-term activities such as construction. Therefore, the 0.01 in/sec RMS vibration criteria is used in connection with the proposed project's operation-related vibration impacts and does not apply to construction-related vibration impacts. The vibration level of 0.01 in/sec RMS is equivalent to 0.04 in/sec PPV.

Los Angeles County Airport Land Use Commission Comprehensive Land Use Plan

In Los Angeles County, the Proposed project Planning Commission has the responsibility for acting as the Airport Land Use Commission and for coordinating the airport planning of public agencies within the county. The Airport Land Use Commission coordinates planning for the areas surrounding public use airports. The Comprehensive Land Use Plan provides for the orderly expansion of Los Angeles County's public use airports and the area surrounding them. It is intended to provide for the adoption of land use measures that will minimize the public's exposure to excessive noise and safety hazards. In formulating the Comprehensive Land Use Plan, the Los Angeles County Airport Land Use Commission has established provisions for safety, noise insulation, and the regulation of building height within areas adjacent to each of the public airports in the County.

Discussion

a) **Less Than Significant Impact with Mitigation.** Noise is defined as unwanted sound; however, not all unwanted sound rises to the level of a potentially significant noise impact. To differentiate unwanted sound from potentially significant noise impacts, the City of Torrance, the City of Carson, the City of Los Angeles, and the County of Los Angeles have established noise regulations. The following analysis evaluates potential noise impacts at noise-sensitive land uses in each jurisdiction resulting from construction and operation of the proposed project.

On-Site Construction Activities

Noise from on-site construction activities would be generated by the use of equipment involved during various stages of construction: asphalt removal, grading, and trenching, building construction, and paving activities. The noise levels generated by construction equipment would vary depending on factors such as the type and number of equipment, the specific model (horsepower rating), the construction activities being performed, and the maintenance condition of the equipment. Individual pieces of construction equipment anticipated to be used during project construction could produce maximum noise levels of 78 dBA to 85 dBA Lmax at a reference distance of 50 feet from the noise source, as shown in **Table 2-11**, *Construction Equipment and Estimated Noise Levels*. These maximum noise levels would occur when equipment is operating under full power conditions. The estimated usage factor for the equipment is also shown in Table 2-11. The usage factors are based on the Federal Highway Administration (FHWA) Roadway Construction Noise Model User's Guide (FHWA 2006).

TABLE 2-11
CONSTRUCTION EQUIPMENT AND ESTIMATED NOISE LEVELS

Source	Estimated Usage Factor (%)	Reference Noise Level at 50 feet (dBA Lmax)
Air Compressor	50%	78
Aerial Lift	20%	85
Bore/Drill Rig	20%	85
Concrete Saw	20%	90
Concrete Mixer Truck	40%	85
Compactor	20%	80
Crane	40%	81
Dump Truck	40%	84
Excavator	40%	85
Forklift	10%	75
Generator Set	50%	82
Grader	40%	85
Jackhammer	20%	85
Paver	50%	85
Paving Equipment	50%	85
Pump	50%	77
Roller	20%	85
Rubber Tired Dozer	40%	82
Scraper	40%	85
Tractor/Loader/Backhoe	25%	80
Vacuum Street Sweeper	10%	80
Welder	40%	73

SOURCE: FHWA 2006

To characterize construction-period noise levels, the hourly Leq noise level associated with each construction phase is estimated based on the quantity, type, and usage factors for each type of equipment used during each construction phase and are typically attributable to multiple pieces of equipment operating simultaneously. Over the course of a construction day, the highest noise levels would be generated when multiple pieces of construction equipment are operated concurrently.

Construction of proposed project is expected to be completed in four concurrent contracts: 1) Extraction Wells; 2) Desalter Treatment plant; 3) Brine pipeline; and 4) Raw/Product water pipeline. The construction duration of the extraction wells is expected to be 16 months beginning in January of 2025. Desalter Treatment plant construction duration is expected to be 22 months beginning in November of 2023. Construction of the brine pipeline and raw/product water pipeline would overlap and are expected to take 14 months beginning in January of 2025. Three separate crews will be working concurrently during the construction of the brine pipeline and the raw/product water pipeline. Construction of all the proposed project features would begin in November 2023 and be completed in March 2026, for a total duration of 29 months.

Construction and operations of the extraction wells and desalter treatment plant would only occur within the City of Torrance. Construction of the brine and raw/product water pipeline would occur within the City of Torrance, City of Carson, City of Los Angeles, and the County of Los Angeles.

The estimated noise levels at noise sensitive receptors were calculated using the FHWA's RCNM methodology and were based on a maximum concurrent operation of construction equipment, which is considered a worst-case evaluation because the proposed project would typically use fewer equipment simultaneously, and as such would generate lower noise levels. See **Appendix B** for the noise calculation worksheets. The nearest sensitive receptors to the construction areas would be residential uses for two of the proposed eight extraction wells within the City of Torrance, and residential uses located near the proposed brine and raw/product water pipelines within the within the City of Torrance, City of Carson, City of Los Angeles, and the County of Los Angeles.

Extraction Wells (City of Torrance)

The proposed project would construct up to eight extraction wells. Two of these wells would potentially be located near sensitive receptors, with the remaining six located in an area characterized with industrial development within the City of Torrance. The construction of these wells would involve the drilling of a pilot hole using direct rotary drilling methods for a duration of approximately two weeks (24 hours per day), and an additional six weeks for the other construction components. **Table 2-12**, *Unmitigated Maximum Construction Noise Levels at Sensitive Receptors (Extraction Wells)*, shows the estimated maximum construction noise levels that would occur at the nearest off-site sensitive uses during a peak day of well construction.

TABLE 2-12
ESTIMATED CONSTRUCTION NOISE LEVELS AT EXISTING OFF-SITE SENSITIVE RECEPTORS (WELLS)

Extraction Well	Construction Phases	Distance between Nearest Receptor and Construction Site, feet	Estimated Construction Noise Levels at Noise Sensitive Receptor by Construction Phase,[a] Hourly Leq (dBA)
Unmitigated Noise Levels			
SILV 05 (subject to standards in TMC Section 46.3.1)	Demolition	25 feet	95.6
	Well Casing		90.6
	Borehole Drilling/Well Grouting (24 hours)		**83.0**
	Well Development/Misc.		92.2
	Well Finishing		91.1
	Significance Threshold (applies outside of the allowed hours in TMC Section 46.3.1)		**50**
	Exceed the thresholds?		**Yes**

Extraction Well	Construction Phases	Distance between Nearest Receptor and Construction Site, feet	Estimated Construction Noise Levels at Noise Sensitive Receptor by Construction Phase,[a] Hourly Leq (dBA)
SILV 06 (subject to standards in TMC Section 46.3.1)[c]	Demolition	25 feet	94.6
	Well Casing		90.6
	Borehole Drilling/Well Grouting (24 hours)		**83.0**
	Well Development/Misc.		92.2
	Well Finishing		91.1
	Significance Threshold (applies outside of the allowed hours in TMC Section 46.3.1)		**50**
	Exceed the thresholds?		**Yes**
SILV 01	Demolition	715 feet	66.5
	Well Casing		61.4
	Borehole Drilling/Well Grouting (24 hours)		53.9
	Well Development/Misc.		63.1
	Well Finishing		62.0
	Significance Threshold		**N/A**
	Exceed the thresholds?		**No**
SILV 03	Demolition	930 feet	64.0
	Well Casing		59.2
	Borehole Drilling/Well Grouting (24 hours)		51.6
	Well Development/Misc.		60.8
	Well Finishing		59.7
	Significance Threshold		**N/A**
	Exceed the thresholds?		**No**
Mitigated Noise Levels			
SILV 05 (subject to standards in TMC Section 46.3.1)	Borehole Drilling/Well Grouting (24 hours)	25 feet	49.0
	Significance Threshold		**50**
	Exceed the thresholds?		**No**
SILV 06 (subject to standards in TMC Section 46.3.1)	Borehole Drilling/Well Grouting (24 hours)	25 feet	49.0
	Significance Threshold		**50**
	Exceed the thresholds?		**No**

a Estimated construction noise levels represent the worst-case condition when noise generators are located closest to the receptors.
b Noise levels shown here included the noise attenuation effect by the incorporation of Mitigation Measures NOI-1 through NOI-3, which would require a noise enclosure/barrier that achieves a minimum of 30 dBA reduction in noise at the nearest receptor.
c Section 46.3.1 of the City of Torrance Municipal Code applies to the operation of power construction tools, equipment, or the performance of any outside construction or repair work on buildings, structures, or projects in or adjacent to a residential area and exempts construction occurring during 7:30 A.M. to 6:00 P.M., Monday through Friday, 9:00 A.M. to 5:00 P.M., Saturday and no time on Sundays or holidays from the noise standard of 50 dB. The 50 dB standard applies to construction activities in or adjacent to a residential area and outside of the specified times. Only the Borehole Drilling/Well Grouting phase would occur outside of the allowable construction hours.

SOURCE: ESA, 2023, Appendix B.

As shown in Table 2-12, the unmitigated noise levels from the borehole drilling/well grouting construction phase of the two extraction wells that would be potentially located in or adjacent to residential areas (i.e., SILV 05 and SILV 06) in the City of Torrance would range from 83.0 to 95.6 dBA Leq. As discussed above, TMC Section 46.3.1 prohibits the use of construction tools, equipment, or the performance of any outside construction or repair work on buildings, structures, or projects in or adjacent to a residential area involving the creation of noise beyond 50 dBA as measured at property lines, except for between the hours of 7:30 A.M. to 6:00 P.M., Monday through Friday, 9:00 A.M. to 5:00 P.M., Saturday and no time on Sundays or holidays. Therefore, construction of the proposed project extraction wells in or adjacent to a residential area (i.e., SILV 05 and SILV 06) between the hours of 7:30 A.M. to 6:00 P.M., Monday through Friday, 9:00 A.M. to 5:00 P.M., Saturday would not exceed the applicable standards. However, because well construction activities in or adjacent to a residential area (i.e., SILV 05 and SILV 06) would occur for up to 24 hours in day, noise levels would exceed the applicable 50 dBA standard for construction noise outside of the specified hours in TMC Section 46.3.1 (i.e., evening and nighttime hours and on Sundays or holidays). Therefore, mitigation measures would be required for construction in or adjacent to a residential area (i.e., SILV 05 and SILV 06) occurring outside of the specified hours in TMC Section 46.3.1. Construction activities associated with the extraction wells that could occur outside of the specified hours in TMC Section 46.3.1 would only include borehole drilling and well grouting activities; therefore, the mitigation measures would apply to these construction activities.

The remaining six extraction wells would be constructed in an area characterized with industrial uses, business, and institutional uses, or within open space areas and not in or adjacent to residential areas. According to the City of Torrance 2009 General Plan, four of the extraction wells (SILV-01, -02, -03, -04) would be located on land designated as Business Park (I-BP), and land zoned as Heavy Manufacturing District (M2). Two extraction wells (Police Station Well and Madrona Marsh Well) would be located on land designated as Public/Quasi-Public/Open Space (PUB), and land zoned as Public Use/Open Area (PU/P1) and Planned Development/Public Use (PD/PU) respectively. The two wells out of these six that that would be closest to sensitive receptors are SILV 01, located approximately 715 feet to the east of the nearest sensitive receptor, and SILV 03, located approximately 930 feet to the east of the nearest sensitive receptor. The remaining four wells would be at distances greater than 930 feet from sensitive receptors. Construction of these six extraction wells would not occur in or adjacent to a residential area and, thus, would not exceed applicable standards set forth in TMC Section 46.3.1 and no mitigation would be required.

Mitigation measures to the reduce construction noise from the two extraction wells that would be potentially located in or adjacent to residential areas (i.e., SILV 05 and SILV 06) for construction activities that would occur outside of the specified hours in TMC Section 46.3.1 (i.e., borehole drilling and well grouting activities) include Mitigation Measures **NOI-1 through NOI-3**. Incorporation of Mitigation Measures NOI-1 through NOI-3 would require a noise enclosure/barrier that achieves a minimum of 34 dBA reduction in noise at the nearest receptor. Furthermore, prior to the issuance of the grading permit, the Applicant will need to receive permission from the Community Development Director in order to operate heavy-duty construction equipment such as bore drill rigs and pneumatic hammers. As shown in Table 2-12, the mitigated construction noise levels would not exceed the 50 dBA thresholds during the borehole drilling/well grouting phase. All other construction phases would occur within the allowable construction hours listed in Municipal Code Chapter 6 Section 46.3.1. Therefore, impacts would be less than significant with mitigation.

The borehole drilling/well grouting construction phase of the six wells in the industrial area would also have to comply with Mitigation Measures NOI-1 through NOI-3 and would be consistent Municipal Code Chapter 6 Section 46.3.1; refer to Table 2-12.

Torrance Groundwater Desalter Expansion Project (City of Torrance)

The proposed project would be located on land designated as Business Park (I-BP) and Public/Quasi-Public/Open Space (PUB), and land zoned as Heavy Manufacturing District (M2) and Public Use (PU) and Heavy Manufacturing District (M2). Construction of the Torrance Groundwater Desalter Expansion Project would not require construction outside of the specified hours in TMC Section 46.3.1. Furthermore, the nearest sensitive receptor to the construction of the proposed Torrance Groundwater Desalter Expansion Project would be approximately 590 feet to the west, which would result in substantial noise attenuation from distance. Therefore, construction of the proposed project would not exceed applicable standards set forth in TMC Section 46.3.1 and no mitigation would be required.

Brine and Raw/Product Water Pipelines (Cities of Torrance, Carson, Los Angeles, and unincorporated Los Angeles County)

Construction of the proposed brine, and raw/product water pipelines would occur primarily within existing roadway rights-of-way to the extent feasible within the City of Torrance, City of Carson, City of Los Angeles, and unincorporated Los Angeles County. Construction of these pipelines would involve three separate construction crews working concurrently in different areas. As such, there is the potential for a construction crew to be working on portions of the pipeline alignment within the City of Carson, the City of Torrance, City of Los Angeles, and unincorporated Los Angeles County at the same time. It is anticipated that an average of 50 to 100 feet of pipeline would be installed per day. Thus, after 10 days of pipeline construction, a noise-sensitive receptor would be located as far as 500 to 1,000 feet away from the pipeline construction activities and equipment, which would result in substantial noise attenuation from distance. Therefore, the construction and installation of the proposed pipelines would expose noise sensitive receptors to short-term construction noise impacts (less than 10 days). Furthermore, construction of the proposed brine, and raw/product water pipelines would not occur outside of the allowable construction hours within each jurisdiction.

Table 2-13, *Estimated Construction Noise Levels at Existing Off-Site Sensitive Receptors (Pipeline)*, provides the estimated unmitigated and mitigated construction noise levels for sensitive receptors within the City of Torrance, City of Carson, City of Los Angeles, and unincorporated Los Angeles County. As the construction of the pipeline would stretch over 10 miles, multiple sensitive receptors would be located within the above jurisdictions along the pipeline alignment. As shown in Table 2-13, the unmitigated construction noise levels from the pipeline construction and installation would exceed the construction noise standards for the City of Los Angeles and unincorporated Los Angeles County and mitigation measures would be required. Pipeline construction and installation would comply with the allowable construction hours and applicable standards of the City of Torrance and would result in a less than significant impact.[12] Pipeline construction and installation would comply with the allowable construction hours and applicable standards of the City of Carson and would result in a less than significant impact.

TABLE 2-13
ESTIMATED CONSTRUCTION NOISE LEVELS AT EXISTING OFF-SITE SENSITIVE RECEPTORS (PIPELINE)

Noise Sensitive Receptor	Construction Phases	Distance between Nearest Receptor and Construction Site, feet	Estimated Construction Noise Levels at Noise Sensitive Receptor by Construction Phase, [a] Hourly Leq (dBA)
Unmitigated Noise Levels			
Receptor – City of Torrance	Demolition	25 feet	94.2
	Trenching		91.4
	Pipe installation		91.4
	Paving		91.8
	Maximum Overlapping Phases		**96.3**
	City of Torrance Threshold		**N/A**
	Exceeds thresholds?		**No**
Receptor – City of Carson	Demolition	500 feet	68.2
	Trenching		65.4
	Pipe installation		65.4
	Paving		65.8
	Maximum Overlapping Phases		**70.3**
	City of Carson Threshold		**75**
	Exceeds thresholds?		**No**
Receptor – City of Los Angeles	Demolition	50 feet (LAMC Section 112.05)	88.2
	Trenching		85.4
	Pipe installation		85.4
	Paving		85.8
	Maximum Overlapping Phases		**90.3**
	City of Los Angeles Threshold		**75**
	Exceeds thresholds?		**Yes**

12 Section 46.3.1 of the City of Torrance Municipal Code applies to the operation of power construction tools, equipment, or the performance of any outside construction or repair work on buildings, structures, or projects in or adjacent to a residential area and exempts construction occurring during 7:30 A.M. to 6:00 P.M., Monday through Friday, 9:00 A.M. to 5:00 P.M., Saturday and no time on Sundays or holidays from the noise standard of 50 dB. The 50 dB standard applies to construction activities in or adjacent to a residential area and outside of the specified times.

Noise Sensitive Receptor	Construction Phases	Distance between Nearest Receptor and Construction Site, feet	Estimated Construction Noise Levels at Noise Sensitive Receptor by Construction Phase, [a] Hourly Leq (dBA)
Receptor –unincorporated county of Los Angeles	Demolition	50 feet	88.2
	Trenching		85.4
	Pipe installation		85.4
	Paving		85.8
	Maximum Overlapping Phases		**90.3**
	Los Angeles County Threshold		**75**
	Exceeds thresholds?		**Yes**
Mitigated Noise Levels			
Receptor – City of Los Angeles	Demolition	50 feet (LAMC Section 112.05)	72.2
	Trenching		69.4
	Pipe installation		69.4
	Paving		69.8
	Maximum Overlapping Phases		**74.3**
	City of Los Angeles Threshold		**75**
	Exceeds thresholds?		**No**
Receptor –unincorporated county of Los Angeles	Demolition	50 feet	72.1
	Trenching		69.4
	Pipe installation		70.2
	Paving		69.8
	Maximum Overlapping Phases		74.6
	Los Angeles County Threshold		**75**
	Exceeds thresholds?		**No**

[a] Estimated construction noise levels represent the worst-case condition when noise generators are located closest to the receptors.
[b] Noise levels shown here included the noise attenuation effect by the incorporation of Mitigation Measures NOI-1 through NOI-3, which would require a noise enclosure/barrier that achieves a minimum of 30 dBA reduction in noise at the nearest receptor.
SOURCE: ESA, 2023, Appendix B.

In order to mitigate the construction noise impacts within the City of Los Angeles and unincorporated Los Angeles County, the proposed project would implement **Mitigation Measures NOI-1 through NOI-3**. Incorporation of Mitigation Measures NOI-1 through NOI-3 would require a noise barrier that achieves a minimum of 16 dBA reduction in noise at the nearest receptor. As shown in Table 2-13, with incorporation of Mitigation Measures NOI-1 through NOI-3, the construction noise levels within the City of Los Angeles and unincorporated Los Angeles County would not exceed the applicable construction noise thresholds within each jurisdiction. Thus, with incorporation of mitigation, construction noise impacts due to the installation of the proposed pipelines would be less than significant.

Off-Site Construction Activities

On-road trucks would be used to transport materials to and from the construction areas. These trucks would go through residential areas for the construction of extraction wells, pipelines, and desalter buildings. However, the number of trucks would range from 2 to 16 per day. The temporary addition of a minimal number of trucks per day during construction activities would not contribute to an audible increase in noise levels above the existing noise levels. A doubling of traffic volumes on a roadway is required to increase traffic noise levels by three dBA, which is a barely perceptible change. Since the minimal number of trips (2 to 16) would not cause a doubling of traffic volumes, the off-site construction traffic noise impacts would be less than significant.

Operations

As the proposed project is an infrastructure project that involves wells, pipelines, and a desalter building in an industrial area, operation of the proposed project would not result in a substantial increase in operational noise levels. The proposed project would require periodic maintenance activities which would involve trucks or vehicles per month travelling to different pipeline segments and a total of three to five on-site employees. However, given the sporadic usage of maintenance vehicles and the small number of on-site employees (three to five), the distance to the nearest residential sensitive receptor (750 feet) project operation would not result in an audible increase in noise levels. As such, operation of the proposed project would result in a less than significant impact.

NOI-1: Heavy Construction Equipment Activities near residential areas within the City of Torrance. Prior to the issuance of a grading permit for proposed project construction activities within the City of Torrance, the Applicant shall request permission from the Community Development Director at the City of Torrance to operate heavy construction equipment such as pile drivers, mechanical shovels, derricks, hoists, pneumatic hammers, compressors, or similar devices (as applicable to construction of the proposed project) in or adjacent to a residential area within the City of Torrance. This request shall include a list and the type of equipment to be used, the requested hours and locations of its use, and the Applicant shall be required to show that the selection of equipment and construction techniques has been based on minimization of noise within the limitations of such equipment as is commercially available or combinations of such equipment and auxiliary sound barriers. Such permission to operate heavy construction equipment will be revoked if operation of such equipment is not in accordance with approval conditions.

NOI-2: Temporary Construction Noise Barriers. For construction of the proposed project extraction wells in or adjacent to a residential area (i.e., SILV 05 and SILV 06) before 7:30 A.M. and after 6:00 P.M., Monday through Friday, and before 9:00 A.M. and after 5:00 P.M., Saturdays, or anytime on Sundays or holidays, temporary construction noise barriers shall be used to enclose the noise-generating construction equipment during borehole drilling and well grouting activities. Such noise barriers shall have a minimum height of 15 feet above ground, or higher, as necessary, to block the direct line-of-sight between the on-site noise-generating construction equipment and off-site noise-sensitive receptors. Temporary barriers shall include acoustical blankets with appropriate sound transmission class (STC) rating and noise reduction coefficient (NRC) capable of achieving a performance standard of 50 dBA at the property line of the nearest residential receptors (a reduction of approximately 34 dBA in borehole drilling and well grouting construction noise from an unmitigated noise level of 83 dBA).

For construction of the proposed project brine, and raw/product water pipelines within the City of Los Angeles and unincorporated Los Angeles County, mobile construction noise barriers shall have a minimum height of eight feet above ground, or higher, as necessary, to block the direct line-of-sight between the on-site noise-generating construction equipment and off-site noise-sensitive receptors. Temporary barriers shall have an appropriate sound transmission class (STC) rating and noise reduction coefficient (NRC) capable of achieving a performance standard of 75 dBA at the property line of the nearest residential receptors (a reduction of approximately 16 dBA in pipeline construction noise from an unmitigated noise level of 90.3 dBA).

NOI-3: Construction Equipment Noise Control. Prior to issuance of grading permits, the proposed project applicant shall incorporate the following measures as a note on the grading plan cover sheet:

- Construction equipment, fixed or mobile, shall be equipped with properly operating and maintained noise mufflers consistent with manufacturers' standards and capable of reducing equipment noise levels by a minimum of three dBA.
- Construction staging areas shall be located at the greatest distance feasible from off-site sensitive uses during Project construction.
- The proposed project contractor(s) shall place all stationary construction equipment so that emitted noise is directed away from sensitive receptors nearest the proposed project site, whenever feasible.

b) **Less than significant**. The proposed project improvements would be constructed using typical construction techniques. As such, it is anticipated that the equipment to be used during construction would not expose persons to or generate excessive groundborne vibration. Post-construction on-site activities would be limited to employee mobile trips and maintenance trips that would not generate excessive groundborne vibration.

Groundborne vibration is primarily generated from the use of construction equipment and from heavy-duty vehicle traffic and trains. Groundborne vibration propagates from the source through the ground to adjacent buildings by surface waves. Vibration energy dissipates as it travels through the ground, causing the vibration amplitude to decrease with distance away from the source. Vibration in buildings is typically perceived as rattling of windows, shaking of loose items, or the motion of building surfaces. The vibration of building surfaces also can be radiated as sound and heard as a low-frequency rumbling noise, known as groundborne noise. Vibration levels for potential structural damage is described in terms of the peak particle velocity (PPV) measured in inches per second (in/sec). Road vehicles rarely create enough groundborne vibration amplitude to be perceptible to humans unless the receiver is in immediate proximity to the source, or the road surface is poorly maintained and has potholes or bumps.

Human sensitivity to vibration varies by frequency and by receiver. People are more sensitive to low-frequency vibration. Human annoyance also is related to the number and duration of events; the more events or the greater the duration, the more annoying it becomes. Groundborne vibration related to human annoyance is related to root mean square (rms) velocity levels and expressed as velocity in decibels (VdB).

The City of Torrance, the City of Carson, City of Los Angeles, and County of Los Angeles do not address construction-related vibration in their respective municipal code or general plan noise elements. The City of Torrance, the City of Carson, and City of Los Angeles do not address operational-related vibration in their respective municipal code or general plan noise elements. The County of Los Angeles has adopted a vibration standard in County Noise Ordinance Section 12.08.350 of 0.01 in/sec RMS vibration criteria for operation-related vibration.

With respect to groundborne vibration from construction activities, the California Department of Transportation (Caltrans) has adopted guidance to limit groundborne vibration based on the age and/or condition of the structures that are located in close proximity to construction activity. With respect to residential and commercial structures, the Caltrans technical publication, *Transportation and Construction Vibration Guidance Manual* (April 2020), provides a vibration damage potential criterion for continuous/frequent intermittent vibration sources of 0.5 in/sec PPV for newer residential structures and modern industrial/commercial buildings and 0.3 in/sec PPV for older residential structures (Caltrans 2020). The guidance also provides a 0.04 in/sec PPV as the criteria for "distinctly perceptible" human response for continuous/frequent intermittent vibration sources (Caltrans 2020).

Construction

According to the Federal Transit Administration (FTA), ground vibrations from construction activities very rarely reach the level that can damage structures. An exception is the case of old, fragile buildings of historical significance where special care must be taken to avoid damage (FTA 2018). The construction activities that typically generate the most severe vibrations are blasting and impact pile driving, which would not be utilized for the proposed project. The proposed project would utilize construction equipment such as vibratory rollers, large bulldozers, and jackhammers, which would generate groundborne vibration during excavation and foundation activities. Based on the vibration data by the FTA, for the above listed equipment, vibratory rollers would generate the highest vibration levels with typical vibration velocities of approximately 0.210 in/sec PPV at 25 feet from the source of activity, 0.074in/sec PPV at 50 feet distance, and 0.026 in/sec PPV at 100 feet distance.

The nearest residential buildings to the proposed project construction areas would be residential structures near the two extraction wells that would be potentially located in or adjacent to residential areas (i.e., SILV 05 and SILV 06) in the City of Torrance and residential structures along the proposed brine, and raw/product water pipeline alignments. Accounting for typical residential structure setbacks, vibration-generating equipment could be used at a distance of approximately 40 feet or greater. At a distance of approximately 40 feet, typical vibration velocities from a vibratory roller would be approximately 0.10 in/sec PPV, which would not exceed the structural damage criteria of 0.5 in/sec PPV for newer residential structures and modern industrial/commercial buildings and 0.3 in/sec PPV for older residential structures.

The closest modern industrial/commercial building to the proposed project construction area would be in the vicinity of the proposed Torrance Groundwater Desalter Expansion

Project building, located approximately 25 feet to the south. At a distance of approximately 25 feet from the Desalter building construction area, typical vibration velocities from a vibratory roller would be approximately 0.21 in/sec PPV, which would not exceed the structural damage criteria of 0.5 in/sec PPV for newer residential structures and modern industrial/ commercial buildings. Based on this assessment, construction vibration impacts would be less than significant.

Vibration levels would exceed the 0.04 in/sec PPV criteria for “distinctly perceptible” human response for continuous/frequent intermittent vibration sources. However, the vibratory roller would not be used outside of the allowable construction hours in each jurisdictions’ respective construction noise ordinances. For the two extraction wells that would be potentially located in or adjacent to residential areas (i.e., SILV 05 and SILV 06) in the City of Torrance, a drill rig would be used outside of the allowable City of Torrance construction hours. At a distance of approximately 40 feet, typical vibration velocities from a drill rig would be approximately 0.04 in/sec PPV. Additionally, construction of the proposed pipelines would advance at least 50 feet per day and thus, receptors would only be exposed to the distinctly perceptible vibration (greater than 0.04 in/sec PPV) for more than single day. Thus, impacts would be less than significant.

Operations

As discussed above, groundborne vibration is primarily generated from the use of construction equipment and from heavy-duty vehicle traffic and trains. The operations of the proposed project would not include heavy-duty vehicle traffic or trains that would produce groundborne vibration. Therefore, there would not be any operational groundborne vibration impacts.

c) **No Impact.** The desalter building with on-site employees would be located 2.3 miles north from the Torrance Municipal Airport and 6.7 miles south from Los Angeles International Airport (LAX). The proposed project would not include any residential uses or dwelling units and would be more than two miles away from the nearest airport. Therefore, the proposed project would not result in an exposure of noise-sensitive uses to excessive noise levels from such uses. A less than significant impact would occur.

References

California Department of Transportation. 2013. *Technical Noise Supplement to the Traffic Noise Analysis Protocol*. September. Available: https://dot.ca.gov/-/media/dot-media/projects/environmental-analysis/documents/env/tens-sep2013-a11y.pdf. Accessed May 2023.

California Department of Transportation. 2020. *Transportation and Construction Vibration Guidance Manual*. April. Available: https://dot.ca.gov/-/media/dot-media/projects/environmental-analysis/documents/env/tcvgm-apr2020-a11y.pdf. Accessed May 2023.

Federal Highway Administration. 2006. *Roadway Construction Noise Model – RCNM and User Guide*. January. Available: https://www.fhwa.dot.gov/environment/noise/construction_noise/rcnm/rcnm.pdf. Accessed May 2023.

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XIV. Population and Housing

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

Discussion

a) **Less than Significant Impact.**

Construction

The proposed project consists of the construction of new treatment facilities, pipelines, groundwater monitoring wells, extraction wells, and borehole resistivity sensors. The proposed project would not directly induce substantial population growth in the project area through the construction of new homes and businesses. The proposed project would require construction workers, which would generate a temporary increase in employment within the project area. At the peak of construction activities when the construction of components could overlap, up to approximately 29 workers would be distributed across the project area for construction of project facilities. However, construction employment within the project area is not anticipated to generate population growth within the region, as the need for workers would be accommodated within the existing and future labor market in the Los Angeles metropolitan area, which is highly dense and supports a diversity of construction firms and construction workers. For these reasons, construction employment would not induce substantial population growth in the area, and construction impacts would be less than significant.

Operation

The project is located in Los Angeles County, which is expected to undergo an increase in 639,000 jobs between 2016 and 2045, for a total of 5,382,000 jobs (SCAG 2020). Operation of the pipelines, groundwater monitoring wells, extraction wells, and borehole resistivity sensors would not require daily staffing but rather require only periodic maintenance and monitoring. Operations associated with the new treatment facilities would require three to five new employees, which would account for less than 0.01 percent of the employment growth anticipated between 2016 and 2045 in Los Angeles County. As such, the number of employees generated under the project would be minimal and would be within employment growth projections for Los Angeles County.

Because the proposed project would be located in the densely populated Los Angeles metropolitan area, it is anticipated that the jobs at the treatment facilities would be filled by County residents. In the unlikely event that, new employees were to relocate to the county or Los Angeles region upon obtaining a job at the treatment facilities, the potential population growth would be minor and would not exceed population projections for Los Angeles County. For these reasons, the proposed project facilities would not induce substantial population growth, and operational impacts would be less than significant.

b) **Less than Significant Impact.**

Construction

The proposed project consists of the construction of new treatment facilities, pipelines, groundwater monitoring wells, extraction wells, and borehole resistivity sensors. Construction of the treatment facilities within the City of Torrance Public Works Yard would not displace any existing housing units and would not necessitate the construction of replacement housing elsewhere. Construction of the pipelines would occur primarily within public rights-of-way and would have no direct impact on existing homes or residents. The groundwater monitoring wells, extraction wells, and borehole resistivity sensors would be constructed in high-density urban, commercial, or industrial areas; roads; or public rights-of-way. Although these project facilities would be centrally located within densely populated areas of the WRD service area, there is a potential for structures to be sited on private parcels that could require demolition of existing housing. Nevertheless, the number of housing units that would potentially need to be demolished would not result in the displacement of substantial numbers of people, such that would necessitate the construction of replacement housing elsewhere. Construction impacts would be less than significant.

Operation

Once constructed, the proposed project would not result in any operational impacts related to the displacement of housing or people. If required, any demolition of existing structures needed to construct the groundwater monitoring wells, extraction wells, and borehole resistivity sensors would already be completed prior to operation. As a result, operation of the proposed project would not result in the displacement of substantial numbers of people or housing that would necessitate the construction of replacement housing elsewhere. No operational impacts would occur.

References

Southern California Association of Governments (SCAG), 2020. Demographics and Growth Forecast. September 3, 2020. Available at: https://scag.ca.gov/read-plan-adopted-final-connect-socal-2020. Accessed February 23, 2023.

XV. Public Services

Issues (and Supporting Information Sources):	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
XV. PUBLIC SERVICES —				
a) Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the following public services:				
i) Fire protection?	☐	☐	☒	☐
ii) Police protection?	☐	☐	☒	☐
iii) Schools?	☐	☐	☒	☐
iv) Parks?	☐	☐	☒	☐
v) Other public facilities?	☐	☐	☒	☐

Discussion

a.i–ii) **Less than Significant Impact.** The Torrance Fire Department provides fire protection services to the City of Torrance, Los Angeles Fire Department provides fire protection services to the City of Los Angeles, and the Los Angeles County Fire Department provides fire protection services to the City of Carson and the portions of unincorporated Los Angeles County within the project area. Police services are provided by the Torrance Police Department, Los Angeles Police Department, and the Los Angeles County Sheriff's Department.

Construction

Construction of the proposed treatment facilities, pipelines, groundwater monitoring wells, extraction wells, and borehole resistivity sensors would involve a temporary increase in employees. At the peak of construction activities when the construction of components could overlap, up to approximately 29 workers would be distributed across the project area for construction of project facilities. However, employment opportunities associated with the construction activities are assumed to be filled by the local workforce and would not result in increased housing demand, which would in turn not result in need for new fire or police protection services. Proposed project construction could interfere with emergency response or evacuation plans as ground disturbing activities within public rights-of-way throughout the project area would be required for installation of the proposed pipelines and ground disturbing activities within public rights-of-way throughout the project area may be required for installation of the proposed groundwater monitoring wells, extraction wells, and borehole resistivity sensors. Proposed construction could result in full or partial lane closures for the duration of a proposed component, affecting traffic flows and emergency response routes. Implementation of **Mitigation Measures TRA-2 and TRA-3** listed in *Transportation* in Section 2.3 would ensure there would be no interference with emergency response and evacuation plans.

The mitigation measures would ensure that all public roads remain passable to emergency service vehicles during construction or clearly delineate alternate detour routes, if needed. In addition, the mitigation measures would require emergency personnel to be notified in advance of the proposed project schedule and any road closures, including planned detour routes. Therefore, with implementation of Mitigation Measures TRA-2 and TRA-3, construction impacts would be less than significant.

Operation

No new full-time employees would be required to operate the project's proposed pipelines, groundwater monitoring wells, extraction wells, or borehole resistivity sensors. As these project components would not result in the permanent increase in residences or population, no increase in the need for new fire or police protection facilities would occur.

The proposed treatment facilities would be located within the existing City of Torrance Public Works Yard and would require three to five new employees during operation. The nearest fire station to the proposed treatment facilities is Torrance Fire Department Station 5 (3940 Del Amo Boulevard), located approximately 0.8 mile to the northwest. Operation of the treatment facilities would include the storage of various chemicals on site for groundwater treatment. However, these chemicals would be used and stored in accordance with regulatory requirements. Therefore, operation of the treatment facilities is not expected to result in an increased or changed need for fire protection or hazard services. The Torrance Police Department would be responsible for crime prevention, law enforcement, and apprehension of suspected violators at the site where the new treatment facilities are proposed. The nearest police station to the proposed treatment facilities is Torrance Police Department (3300 Civic Center Drive North), located approximately 0.3 mile to the south. In the event of police-related issues, the Torrance Police Department would respond to the proposed treatment facilities site. The operation of the treatment facilities would not cause a significant increase in activity around the site or in the population around the site, and thus is not expected to result in an increased or changed need for police protection services. As such, new or altered fire or police protection facilities would not be needed for the operation of the treatment facilities. Operational impacts would be less than significant.

a.iii–v) **Less than Significant Impact.** Multiple school districts, parks, hospitals, and government facilities in the cities of Torrance, Los Angeles, Carson, and portions of unincorporated Los Angeles County serve the project area.

Construction

The proposed project includes construction of new treatment facilities at the existing City of Torrance Public Works Yard and pipelines, groundwater monitoring wells, extraction wells, and borehole resistivity sensors throughout the project area. The proposed project does not propose any new housing units or a substantial increase in new employment opportunities within the region. Each phase of construction would require a varied and intermittent labor force, with each phase considered temporary. As such, there would be no need for additional school services or park facilities that would otherwise be required to accommodate an increase in local population during the construction phase. As a result, construction of new or expanded school facilities, parks, or other public facilities would not occur and would therefore not cause significant environmental impacts. Impacts would be less than significant.

Operation

No new full-time employees would be required to operate the project's proposed pipelines, groundwater monitoring wells, extraction wells, or borehole resistivity sensors. Because these project components would not result in the permanent increase in residences or population, no new or altered school facilities, parks, or other public facilities would be required. Further, operational activities associated with these project components would not substantially degrade existing schools, parks, or other public facilities. As a result, no operational impacts associated with these project components would occur.

Madrona Middle School, the nearest school to the proposed treatment facilities, is located in the city of Torrance under the jurisdiction of the Torrance Unified School District. Operations associated with the new treatment facilities would require three to five new employees. As a conservative assumption, the three to five new employees could result in the demand for three to five new housing units in the city of Torrance that could generate school-age children. However, this potential increase in students would be considered nominal and would not require construction of new or expanded school facilities in order to maintain acceptable performance objectives. As such, operational impacts to schools would be less than significant.

The nearest park to the proposed treatment facilities is Delthorne Park, located approximately 527 feet to the northwest across Madrona Avenue in the city of Torrance. As stated above, three to five new employees would be generated by the proposed treatment facilities and could result in a demand for three to five new housing units in the city of Torrance. This increase in population and employment would be considered nominal and is not anticipated to substantially increase the demand for or use for parks or other public facilities in the area. As such, construction of new or expanded parks or other public facilities would not be required. Therefore, operational impacts to parks and other public facilities would be less than significant.

XVI. Recreation

Issues (and Supporting Information Sources):	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
XVI. RECREATION —				
a) Would the project increase the use of existing neighborhood and proposed project 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?	☐	☐	☒	☐

Discussion

a) **Less than Significant Impact.**

Construction

Construction efforts associated with the proposed treatment facilities would occur within the footprint of the existing City of Torrance Public Works Yard and would not impact nearby recreation facilities. During construction, a maximum of 29 workers would be required for all phases, which would not substantially increase population or add a substantial strain on neighborhood and proposed project park facilities. The proposed pipelines, borehole resistivity sensors, and a majority of the proposed groundwater monitoring and extraction wells would be located underground; however, portions of the wells could be aboveground. Although the exact location of the groundwater monitoring and extraction wells have not been confirmed, these facilities would be located in high-density urban, commercial, or industrial areas; roads; or public rights-of-way. While unlikely, construction of the proposed pipelines, groundwater monitoring wells, extraction wells, and borehole resistivity sensors could occur on or near recreational facilities and could temporarily limit the usage of such parks, thereby potentially temporarily increasing the use at adjacent parks. Such temporary limits on access to parks and recreational resources may create increased demand for other parks and recreational resources within the project area. However, these impacts would be temporary in nature, and recreation resources would be returned to their existing condition after completion of construction. In addition, the proposed project would not include construction of additional housing units or create a substantial increase in employment opportunities within the region. Therefore, construction of the proposed project would not result in substantial physical deterioration of any park facility, and impacts would be less than significant.

Operation

Operation of the proposed treatment facilities would require three to five new employees, which would not substantially increase population in the project area or contribute to a substantial strain on neighborhood and proposed project park facilities. Once constructed, the proposed pipelines, groundwater monitoring wells, extraction wells, and borehole resistivity sensors would not include new housing that could lead to an associated increase in existing recreational facilities. Therefore, operation of the proposed project would not result in substantial physical deterioration of any park facility, and impacts would be less than significant.

b) **Less than Significant Impact.**

Construction

The proposed pipelines, groundwater monitoring wells, extraction wells, and borehole resistivity sensors would not include the construction or expansion of recreational facilities. Construction efforts associated with the proposed treatment facilities would occur within the footprint of the existing City of Torrance Public Works Yard and would not impact nearby recreation facilities. During construction, a maximum of 29 workers would be required for the treatment facilities, which would not substantially increase population or add a substantial strain on neighborhood and proposed project park facilities.

Operation

The proposed treatment facilities site does not include recreational facilities, nor would it include the construction or expansion of recreational facilities under the proposed project. In addition, the proposed pipelines, groundwater monitoring wells, extraction wells, and borehole resistivity sensors would not include the construction or expansion of recreational facilities. Therefore, impacts would be less than significant.

XVII. Transportation

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

Discussion

a) **Less than Significant Impact with Mitigation Incorporated.**

Construction

Construction of the proposed wells, pipelines, and treatment facility upgrades is expected to occur concurrently between the year 2025 through the end of 2027 and would generate vehicle trips associated with both construction worker commutes and material and equipment hauling. The number and type of equipment and worker vehicles required for construction would depend on the facility type. The number of equipment /vehicles required during construction would range from 11 to 16 types of equipment/vehicles, with multiple vehicles of the same type. The total number of worker vehicles would range anywhere from two to fifteen vehicles for each phase of the Project. These increases in trips per day on local and proposed project roadways could affect roadway capacity and circulation; slower movements and larger turning radii of construction trucks compared to passenger vehicles could also lessen roadway capacities. Additionally, because a substantial portion of the proposed pipelines would be installed within right-of-ways and could temporarily require partial road closures (full road closures are not anticipated) or delays. As such, construction of pipelines would have the potential to impede traffic flow, disrupt existing bus routes within the project area, and/or result in bikeway and sidewalk closures in the project area. The Traffic Control Plan required by **Mitigation Measure TRA-1,** would provide traffic control, flagging, and signage, and would provide measures to minimize lane closures. Additionally, **Mitigation Measure TRA-2** would require WRD to develop and implement a Parking and Staging plan to further reduce any potential transportation impacts related to the expected increase in vehicular trips to/from the Torrance Groundwater Desalter Expansion Project site. As a result, impacts associated with construction of the proposed facilities would be less than significant with implementation of mitigation measures.

Operation

As discussed in Chapter 1, *Project Description,* operation of most proposed facilities, such as extraction wells and pipelines, would not require daily staffing but rather require only periodic maintenance. Operation of the proposed treatment facilities would require three to five new dedicated staff that would commute daily to and from the site. Impacts to the existing circulation system, including public transit and bicycles, associated with operation of the proposed facilities are considered less than significant.

TRA-1: For projects such as pipelines that may affect traffic flow along existing roadways, WRD shall require that contractors prepare a construction Traffic Control Plan that includes the following elements:

- Show all signage, striping, delineated detours, flagging operations, and any other devices that will be used during project construction to guide motorists, bicyclists, and pedestrians safely through the construction area and allow for adequate access and circulation.
- Develop circulation and detour plans if necessary to minimize impacts to local street circulation. For roadways requiring lane closures that would result in a single open lane, maintain alternate one-way traffic flow, and utilize flagger-controls.
- Avoid peak travel periods where possible when implementing partial road closures.
- Coordinate with cities of Torrance, Los Angeles, Carson, and Los Angeles County at least 30 days prior to construction of pipelines within roadways or rights-of way that coincide with public transit routes to determine whether construction of the proposed project would affect bus stop locations or otherwise disrupt public transit routes. A plan shall be developed to relocate bus stops or reroute buses to avoid disruption of transit service.
- Consult with nearby school districts at least one month prior to construction to coordinate bus stop relocations (if necessary), alternative busing routes, and other circulation provisions to reduce potential interruption of student transit services.
- The Traffic Control Plan shall be prepared to ensure that emergency access will not be restricted. WRD shall also notify local emergency responders of any planned partial or full lane closures required for project construction. Emergency responders include fire departments, police departments, and ambulances that have jurisdiction within the project area. Written notification and disclosure of lane closure location must be provided at least 30 days prior to the planned closure to allow emergency response providers adequate time to prepare for lane closures.

TRA-2: Prior to construction of the treatment facility upgrades at the Torrance Groundwater Desalter Expansion Project, WRD shall develop and implement a Parking and Staging Plan for all phases of construction to enforce a policy that all project-related parking occurs on-site or in predesignated off-site parking areas. The contractor shall use shuttles to transport workers to and from off-site staging/parking areas and project construction areas.

b) **Less than Significant Impact**. CEQA Guidelines Section 15064.3, subdivision (b) includes criteria for determining the significance of transportation impacts that are primarily focused on projects within transit priority areas and shifts the focus from driver delay to reduction of GHG emissions, creation of multimodal networks, and promotion of a mix of land uses. Vehicle miles traveled (VMT) is a measure of the total number of miles driven to or from a development and is sometimes expressed as an average per trip or per person.

Construction

The Governor's Office of Planning and Research (OPR) has not adopted specific VMT metrics or thresholds of significance for construction-related traffic (OPR 2018). Many jurisdictions in Southern California consider construction-related traffic to cause adverse but not lasting intersection deficiencies because, while sometimes inconvenient, construction-related traffic efforts are temporary.

As discussed above for Impact VII (a), construction of the proposed facilities would generate 12 to 26 types of equipment/vehicles per site and up to 29 workers through the various phases of the Proposed Project. The proposed facilities are anticipated to be implemented starting in year 2025 through the end of 2027. Since construction of the proposed project would generate temporary vehicle trips during each project's construction period that are limited in scope, and since OPR has not established construction-related VMT thresholds, the proposed project would result in a less than significant impact with respect to construction-related VMT.

Operation

The City of Torrance's *Traffic Impact Assessment Guidelines for Land Use Projects*, the Los Angeles Department of Transportation's (LADOT) *Transportation Assessment Guidelines*, the City of Carson's adopted VMT thresholds, and the County's *Transportation Impact Analysis Guidelines* each provide guidance for the analysis of land use projects. However, the State gives cities the discretion to screen out certain types of projects that are expected to cause less than significant impacts from detailed VMT analysis. Below, the applicable screening criteria adopted by each jurisdiction are applied to the project to determine whether VMT impacts would occur.

As discussed under Impact VII (a), operation of the project would result in very few new vehicle trips because the number of new employees needed to operate and maintain project facilities would be marginal. Small projects that generate a net increase of 110 or less daily vehicle trips are screened from detailed VMT analysis in Section 3.2.2 of the *Traffic Impact Assessment Guidelines for Land Use Projects* (City of Torrance 2021); the City of Carson's resolution adopting VMT thresholds dated October 11, 2022 (City of Carson 2022); and LADOT's *Transportation Assessment Guidelines* (LADOT 2020). In Section 3.1.4.1 of Los Angeles County's *Transportation Impact Analysis Guidelines*, the types of development projects that are subject to a VMT screening and impact evaluation include residential land uses, office, manufacturing, or institutional land uses, and retail land uses (County of Los Angeles Public Works 2020). The proposed project, which would include a series of new and improved public utility facilities, would not fall into any of these categories; public services (e.g., public utilities) do not generally generate substantial VMT; instead, these land uses are often built in response to development from other land uses (e.g., office and residential) (LADOT 2020b). Therefore, operation of the project is screened from further VMT analysis and impacts to VMT are considered less than significant.

c) **Less than Significant Impact with Mitigation Incorporated.** Construction of the proposed facilities would involve the hauling of heavy construction equipment. The use of oversize vehicles during construction could be an incompatible use and can create a hazard to the public by limiting motorist views on roadways by the obstruction of space. However, oversize loads associated with construction of the proposed project would be required to comply with applicable California Vehicle Code (CVC) and Caltrans requirements applicable to licensing, size, weight, load, and roadway encroachment of construction vehicles. Compliance with these regulatory requirements, well as implementation of Mitigation Measures **TRA-1 and TRA-2**, which would require the preparation and implementation of a Traffic Control Plan and Parking and Safety Plan, would reduce hazards caused by potential incompatible roadway uses. Therefore, impacts during construction would be less than significant.

The proposed project would not involve any roadway improvements or alterations and would thus not increase hazards due to a design feature like a sharp curve or dangerous intersections. Once constructed, the proposed pipelines would be located underground, and existing roadways and disturbed areas would be returned to pre-construction conditions. Aboveground structures such as wells and the treatment facilities would not encroach into existing rights-of-way and would be constructed in compliance with applicable city and Los Angeles County design regulations to ensure that no new hazards are introduced to the project area during operations. Operation of the proposed project would not require substantial amounts of employees or maintenance activities that would involve traffic hazards. Therefore, impacts during operation of the proposed project would be less than significant.

d) **Less than Significant Impact with Mitigation Incorporated**. Torrance Fire Department provides fire protection services to the City of Torrance, Los Angeles Fire Department provides fire protection services to the City of Los Angeles, and the Los Angeles County Fire Department provides fire protection services to the City of Carson and the portions of unincorporated Los Angeles County within the project area. Police services are provided by the Torrance Police Department, Los Angeles Police Department, and the Los Angeles County Sheriff's Department. The proposed project would be located in a highly urbanized area with roads and highways available to provide access to the various construction sites. During construction of the proposed pipelines, the proposed project would implement tunneling techniques where feasible to allow the city to minimize disruption of surface transportation features in the project area. However, depending upon the timing, location, and duration of construction activities, construction of the proposed facilities could delay emergency vehicle response times or otherwise disrupt delivery of emergency services. Mitigation Measure **TR-1 and TRA-2**, which require coordination with emergency service providers at least one month prior to construction and other measures to reduce impacts related to construction traffic, would be implemented to ensure emergency access is not impacted during construction activities. Adherence to this mitigation measure would reduce any potential impacts regarding emergency services to less than significant levels.

References

City of Carson, 2022. Resolution of the Planning Commission of the City of Carson, California, Recommending the City Council Adopt "Vehicle Miles Traveled" Thresholds of Significance for Purposes of Analyzing Transportation Impacts Under the California Environmental Quality Act (CEQA) and Find that the Action is Exempt from CEQA. Adopted October 11, 2022.

City of Torrance, 2021. Traffic Impact Assessment Guidelines for Land Use Projects. January 2021. Available online at: https://www.torranceca.gov/home/showpublisheddocument/63027/637539099775370000, accessed March 13, 2023.

County of Los Angeles Public Works, 2020. *Transportation Impact Analysis Guidelines*. Available: https://pw.lacounty.gov/traffic/docs/Transportation-Impact-Analysis-Guidelines-July-2020-v1.1.pdf, accessed March 15, 2023.

LADOT, 2020. Transportation Assessment Guidelines. July. Available online at: https://ladot.lacity.org/sites/default/files/documents/2020-transportation-assessment-guidelines_final_2020.07.27_0.pdf, accessed March 16, 2023.

Office of Planning and Research (OPR), 2018. Technical Advisory on Evaluating Impacts in CEQA. Available online at: https://opr.ca.gov/docs/20190122-743_Technical_Advisory.pdf, accessed March 15, 2023.

XVIII. Tribal Cultural Resources

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

Discussion

Records Search

In February 2023, ESA staff requested that staff of the South-Central Coastal Information Center (SCCIC), the official California Historical Resources Information System (CHRIS) repository for the proposed project area and vicinity, conduct a records search for the proposed project area and areas within 0.25 mile. ESA staff requested an additional records search from the SCCIC in July 2023 for the areas between 0.25 and 0.5 mile of the proposed project area; combined, these areas covered by the records searches is considered the Search Area.

The SCCIC has records of nine previously recorded cultural resources mapped within the 0.5-mile Search Area; none of these resources are mapped in or adjacent to the proposed project area. The SCCIC has records of 11 previous cultural resources studies that have covered a portion of the proposed project area.

Native American Correspondence

In March 2023, on behalf of WRD, ESA contacted the California NAHC, in request of a search of the NAHC’s SLF and a list of representatives from California Tribes who may have interest in the proposed project. The NAHC response stated that the SLF has no record of any sacred sites in the proposed project area or vicinity, and also provided a list of nine contacts representing seven Tribes.

In support of required Native American consultation for the proposed project pursuant to PRC § 21080.3, on March 28, 2023, WRD sent a letter to Andrew Salas, Chairperson of the GBMI, providing information on the proposed project and requesting that the GBMI notify WRD if they would like to consult pursuant to PRC § 21080.3.

On March 31, 2023, GBMI sent an email, with attached letter, to WRD in response to WRD's initial proposed project notification letter to GBMI. The attached letter stated that the proposed project is within the GBMI ancestral territory and that GBMI would like to consult with WRD, pursuant to PRC § 21080.3, on the proposed project. WRD responded to GBMI's request by email on April 4, 2023, thanking the Tribe for their response and requesting GBMI's availability for a call to discuss the proposed project. The same day, WRD sent an invitation to GBMI for a call on June 6, 2023, to discuss the proposed project. On June 6, 2023, Andrew Salas, and Matt Teutimez, of GBMI, Mario Bautista and Esther Rojas, of WRD, and Robin Hoffman, of ESA, had a call to discuss the proposed project and the Tribe's concerns regarding potential project impacts on cultural resources and tribal cultural resources. On the call, GBMI conveyed that previous disturbance does not mean lower potential for tribal cultural resources, since significance of tribal cultural resources is not tied to level of disturbance necessarily and, thus, GBMI requests construction monitoring because of the area's traditional use for salt and oil gathering and known human remains at the nearby refinery. GBMI expressed not needing to monitor construction if WRD could provide data showing that only non-native soils are present; WRD stated that likely the desalter is the only area where this may be possible. GBMI stated that they would provide WRD with standard mitigation measures for consideration/incorporation into the CEQA document as well as maps showing sensitivity of tribal cultural resources with respect to the proposed project area. On June 22, 2023, GBMI sent an email to WRD that provided background on why GBMI believes the proposed project area to have a high sensitivity for tribal cultural resources, in addition to proposed tribal cultural resources-related mitigation measures for inclusion in the CEQA document. The background included maps, ethnographic literature, and associated Tribal interpretations. GBMI pointed out the following: a documented village was near the proposed project area; the proposed project area was within a rancho; the proposed project area is near a railroad, which were often based on indigenous travel routes; documented trade routes were near the proposed project area; and natural waterways are in and in the vicinity of the proposed project area. In the email, GBMI reiterated their request for monitoring of proposed project-related ground-disturbing activities, as well as a request to adopt the following proposed tribal cultural resources-related mitigation measures into the CEQA document: Tribal construction monitoring; unanticipated discovery protocol for tribal cultural resources; and unanticipated discovery protocol for human remains. To date, GBMI has not specifically stated that a known tribal cultural resource may be affected/impacted by the proposed project.

On July 18, 2023, in an effort to seek additional input from Tribes regarding concerns over potential project-related impacts, WRD sent letters to all the Tribes provided in the NAHC reply, except GBMI (who had previously been contacted). The letters provided information on the proposed project and requested that the Tribes notify WRD if they had any concerns regarding potential project-related impacts. To date, WRD has not received any replies from the recipients of these letters.

On-Site Survey

On April 20, 2023, ESA conducted a pedestrian archaeological surface survey of the proposed project area. Intensive pedestrian methods were used during the survey for the well location portions of the proposed project area, consisting of walking the ground surface in parallel transects no greater than 10 meters apart and inspecting the ground surface for evidence of archaeological material. Reconnaissance methods were used for the pipeline portions of the proposed project area, as these are all within existing paved streets; these methods consisted of visually inspecting the areas, often from adjacent areas, to verify ground conditions. The portions of the proposed project area where the staging area and desalter are proposed were not surveyed due to restricted access.

No archaeological resources were identified in the proposed project area during the survey. No potential historic districts were identified in the proposed project area or immediate vicinity as a result of the survey. One previously unrecorded architectural resource, La Romería Park, was identified in the proposed project area.

Summary of Resources Identified

Through background research, Native American correspondence, and on-site surveys conducted for the proposed project, no tribal cultural resources, or archaeological resources that could be tribal cultural resources, were identified in the proposed project area.

a.i–ii) **Less Than Significant with Mitigation Incorporated**. No tribal cultural resources, as defined in PRC § 21074, have been identified in the proposed project area through archival research, field survey, or Native American consultation. Therefore, the proposed project is not anticipated to impact any tribal cultural resources.

However, because the proposed project would involve ground-disturbing activities that may extend into undisturbed soil, it is possible that such actions could unearth, expose, or disturb subsurface archaeological resources that were not identified on the surface. If previously unrecorded archaeological deposits are present in the proposed project area, and if they are found to qualify as tribal cultural resources, pursuant to PRC § 21074, any impacts of the proposed project on the resources would be potentially significant. Such potentially significant impacts would be reduced to less-than-significant by implementation of mitigation measures **TCR-1** to **TCR-3**, which were adapted from those proposed by GBMI. As a result, the proposed project would result in a **less-than-significant impact** on tribal cultural resources.

TCR-1: Retain a Native American Monitor Prior to Commencement of Ground-Disturbing Activities. WRD shall retain a Native American Monitor from or approved by the GBMI. The monitor shall be retained prior to the commencement of any “ground-disturbing activity” for the subject project at all project locations (i.e., both on-site and any off-site locations that are included in the project description/definition and/or required in connection with the project, such as public improvement work). “Ground-disturbing activity” shall include, but is not limited to, demolition, pavement removal, potholing, auguring, grubbing, tree removal, boring, grading, excavation, drilling, and trenching. A copy of the executed monitoring agreement shall be submitted to WRD prior to the earlier of: (1) the commencement of any ground-disturbing activity; or (2) the issuance of any permit necessary to commence a ground-disturbing activity. The monitor shall complete daily monitoring logs that will provide descriptions of the relevant ground-disturbing activities, the type of construction activities performed, locations of ground-disturbing activities, soil types, cultural-related materials, and any other facts, conditions, materials, or discoveries of significance to the Tribe. Monitor logs shall identify and describe any discovered tribal cultural resources, including but not limited to, Native American cultural and historical artifacts, remains, places of significance, etc., (collectively, tribal cultural resources), as well as any discovered Native American (ancestral) human remains and burial goods. Copies of monitor logs shall be provided to the project applicant/lead agency upon written request to the Tribe. On-site tribal monitoring shall conclude upon the latter of the following: (1) written confirmation to the GBMI from a designated point of contact for WRD that all ground-disturbing activities and phases that may involve ground-disturbing activities on the project site or in connection with the project are complete; or (2) a determination and written notification by the GBMI to WRD that no future, planned construction activity and/or development/construction phase at the project site possesses the potential to impact GBMI tribal cultural resources.

TCR-2: Unanticipated Discovery of Tribal Cultural Resource Objects (Non-Funerary/Non-Ceremonial). Upon discovery of any tribal cultural resources, all construction activities in the immediate vicinity of the discovery shall cease (i.e., not less than the surrounding 50 feet) and shall not resume until the discovered tribal cultural resources has been fully assessed by the GBMI monitor and/or GBMI archaeologist. The GBMI shall recover and retain all discovered tribal cultural resources in the form and/or manner the Tribe deems appropriate, in the Tribe’s sole discretion, and for any purpose the Tribe deems appropriate, including for educational, cultural and/or historic purposes.

TCR-3: Unanticipated Discovery of Human Remains and Associated Funerary or Ceremonial Objects. Native American human remains, as defined in PRC § 5097.98 (d)(1) as an inhumation or Cremation and in any state of decomposition or skeletal completeness, as well as funerary objects, called associated grave goods in PRC § 5097.98, shall be treated as following. If Native American human remains and/or grave goods are discovered or recognized on the project site, then PRC § 5097.9 as well as HSC § 7050.5 shall be followed. Human remains and grave/burial goods shall be treated alike per PRC § 5097.98(d)(1) and (2). Preservation in place (i.e., avoidance) shall be the preferred manner of treatment for discovered human remains and/or burial goods. Any discovery of human remains/burial goods shall be kept confidential to prevent further disturbance.

References

Hoffman, Robin, Antonette Hyrcyk, and Shannon Papin, 2023, *Regional Brackish Water Reclamation Project, Los Angeles County, California: Archaeological and Architectural Resources Inventory Report*, Prepared by Environmental Science Associates, Los Angeles, CA, Prepared for the Water Replenishment District of Southern California, August.

XIX. Utilities and Service Systems

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

Discussion

a) **Less than Significant Impact with Mitigation Incorporated**. The proposed project would include new treatment facilities, wells, pipelines, and sensors to remove brackish water over an approximate 30-year period. The new treatment facilities would be constructed primarily within the existing City of Torrance Public Works Yard and would not require relocation of utilities. Aboveground components of the wells and sensors would be constructed throughout the City of Torrance but would not require the relocation of utilities. Construction of the pipelines would occur underground within existing public rights-of-way and could result in the need to relocate existing water, wastewater, electric, natural gas, or telecommunications facilities, depending on the location. In order to ensure that existing utilities are not impacted by construction of the proposed project, WRD would implement **Mitigation Measure UTIL-1** for all pipelines, which would require an underground utilities search and coordination with utility providers operating within proposed construction impact areas during the design phase and prior to construction. With implementation of Mitigation Measure UTIL-1, impacts would be less than significant.

Construction associated with the proposed facilities would generate minor wastewater from worker portable toilet use. Per Los Angeles County Municipal Code requirements, wastewater generated from portable toilets within Los Angeles County would be collected by a permitted entity and disposed of at an appropriate location, such as the Savage Canyon Landfill, and would not exceed applicable wastewater treatment requirements. Construction is not expected to generate other forms of wastewater requiring treatment. The volume of wastewater would be negligible compared to the local wastewater treatment capacities, resulting in a less than significant impact. Construction activities would generate negligible to no storm water runoff.

Operation of the wells, pipelines, and sensors would not result in the relocation of utilities or the generation of wastewater. No new or expanded telecommunications or natural gas facilities are proposed and would not be required during operation. The new treatment facilities would be sited at the existing City of Torrance Public Works Yard that is already supplied by electrical lines. Furthermore, the existing electricity grid would have adequate capacity to meet energy requirements of the proposed project.

UTIL-1: During design and prior to construction of proposed project pipelines, WRD shall conduct an underground utilities search and coordinate with all utility providers that operate in the same public rights-of-way impacted by construction activities. WRD shall ensure that any temporary disruption in utility service caused by construction is minimized and that any affected parties are notified in advance.

b) **Less than Significant.** Construction of the proposed project would require minimal amounts of water for dust control, concrete mixing, and sanitary purposes. Water required for construction would be supplied by the local water retailer. Water required for the operation of the proposed wells, pipelines, and treatment facilities would be supplied entirely by on-site water trucks or existing water connections and no new or expanded entitlements would be required. Impacts would be less than significant.

Operation of the proposed facilities would extract, convey, and treat the groundwater. No additional water supply resources or entitlements are required for implementation of the proposed project. Impacts would be less than significant.

c) **Less than Significant Impact.** As described in *Utilities and Service Systems*, wastewater generated during construction of the proposed project would be minimal and would be collected by a permitted portable toilet waste hauler and appropriately disposed of at an identified liquid-disposal station. Impacts would be less than significant.

d) **Less than Significant Impact.** The waste generated during construction of the proposed project would consist of general construction debris, concrete, dirt, and worker personal waste. Approximately 9,028 cubic yards (cy) of soil will be hauled from the site. The construction solid waste would be taken to landfills surrounding the proposed project area as determined by WRD and the construction contractor for proper disposal of materials. The Savage Canyon Landfill is located at 13919 Penn Street in the City of Whittier, is approximately 21.24 miles northeast of the project site, and is one of the closest disposal facilities to the proposed project area. The Savage Canyon Landfill is permitted to receive, manage, and process up to 3,350 tons per day of waste (LACSD 2023). The landfill has a remaining capacity of 9,510,833 cubic yards as of late 2011 and is scheduled to cease operations in 2055. As the majority of waste generated by the proposed project would occur during construction, and because the proposed project would divert debris generated during construction to recycling facilities, the amount of waste generated at the project site is not anticipated to significantly impact nearby landfill serving capacities. The construction contractor would be required to dispose of solid waste in accordance with local solid waste disposal requirements. Impacts would be less than significant.

e) **Less than Significant Impact.** The proposed project would comply with all federal, state, and local requirements related to reduction of solid waste during construction. The proposed project would be required to comply with California Integrated Waste Management Act of 1989 and the California Green Building Code requiring 50 percent diversion of its construction waste from landfills through reuse and recycling. Operation of the proposed project would generate minimal amounts of solid waste. Waste produced during the operation of the proposed project would be sent to the Savage Canyon Landfill or other landfills in accordance with applicable regulations. Therefore, project impacts related to potential noncompliance with solid waste statutes and regulations would be less than significant.

References

Los Angeles County Sanitation District (LACSD), 2023. Savage Canyon Landfill (19-AH-0001) Fact Sheet. Available online at: https://www2.calrecycle.ca.gov/SolidWaste/SiteActivity/Details/3494?siteID=1399, Accessed on March 2, 2023.

XX. Wildfire

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

Discussion

a–d) **No Impact.** The project site would be located in an urbanized area. The proposed project is not included within or near an area designated as a State Responsibility Area and is not located in an area classified as a Very High Fire Hazard Severity Zone according to the map prepared by CAL FIRE (CAL FIRE 2022). Therefore, since the project site would not be located in or near a state responsibility area or lands classified as very high fire hazard severity zones, no impacts related to wildlife would occur.

References

CAL FIRE (California Department of Forestry and Fire Protection). 2022. Fire Hazard Severity Zone Viewer. Available at: https://egis.fire.ca.gov/FHSZ/. Accessed February 24, 2023.

XXI. Mandatory Findings of Significance

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

Discussion

a) The Proposed Project would not: substantially degrade the quality of the environment; substantially reduce the habitat of a fish or wildlife species; cause a fish or wildlife population to drop below self-sustaining levels; threaten to eliminate a plant or animal community; reduce or restrict the range of rare or endangered plants or animals; or, eliminate important examples of the major periods of California history or prehistory. As discussed in the analyses provided in this Initial Study, adherence to federal, state, and local regulations, would reduce all potentially significant impacts to aesthetics, biological, cultural, hazards, transportation, and noise as well as to other issue areas analyzed, to **less-than-significant levels with mitigation incorporated**.

b) As noted above, all of the potential direct and indirect impacts of the Proposed Project were determined to be fully avoided or reduced to less than significant with incorporation of mitigation measures. As a result, the potential impacts of the Proposed Project are not considered cumulatively considerable, and impacts would be **less than significant with mitigation incorporated**.

c) The Proposed Project would not include any activities or uses that may cause substantial adverse effects on human beings, either directly or indirectly, or on the physical environment. Compliance with applicable local, state, and federal standards, as well as incorporation of Project mitigation measures, would result in **less-than-significant impacts with mitigation incorporated**.

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CHAPTER 3
Federal Consistency Analysis

3.1 Introduction

This MND has been prepared in accordance with the CEQA-Plus requirements of the U.S. Environmental Protection Agency (USEPA) to fulfill the requirement of potential federal funding partners to comply with the National Environmental Policy Act (NEPA). The CEQA-Plus requirements have been established by the USEPA and are intended to supplement the CEQA Guidelines with specific requirements for environmental documents acceptable when reviewing applications for federal funding. They are not intended to supersede or replace CEQA Guidelines.

3.2 Federal Regulations

The proposed project must comply with the following applicable federal regulations:

- Archaeological and Historic Preservation Act
- Clean Air Act
- Clean Water Act
- Coastal Zone Management Act
- Cooperation Among Agencies in Protecting the Environment with Respect to Greenhouse Gas Emissions from Motor Vehicles, Nonroad Vehicles, and Nonroad Engines (Executive Order 13432)
- Emergency Planning and Community Right-to-Know Act
- Endangered Species Act
- Energy Independence and Security Act
- Energy Policy Act of 1992 and 2005
- Environmental Justice Executive Order
- Fish and Wildlife Conservation Act
- Fish and Wildlife Coordination Act
- Floodplain Management (Executive Order 11988)
- Hazardous Materials Transportation Act
- Invasive Species (Executive Orders 13112 and 13751)
- Magnuson-Stevens Fishery Conservation and Management Act
- Marine Mammal Protection Act (16 U.S.C. 1361-1421H)

- Marine Protection, Research, and Sanctuaries Act
- Migratory Bird Treaty Act
- National Historic Preservation Act
- National Pollutant Discharge Elimination System, Construction General Permit
- Native American Graves Protection and Repatriation Act (NAGPRA)
- Noise Control Act of 1972
- Occupational Safety and Health Act of 1970
- Protection of Wetlands (Executive Order 11990)
- Resource Conservation and Recovery Act
- Rivers and Harbors Act
- Safeguarding the Nation from the Impacts of Invasive Species (Executive Order 13751)

Compliance with these federal laws and relevant executive orders are described below. In summary, the proposed project complies with those laws and executive orders, with further evidence provided in other sections of this MND as cross-referenced below.

3.2.1 Archaeological and Historic Preservation Act

The Archaeological and Historic Preservation Act (AHPA) also known as the Archaeological Recovery Act was passed and signed into law in 1974. The AHPA required that Federal agencies provide for "… the preservation of historical and archeological data (including relics and specimens) which might otherwise be irreparably lost or destroyed as the result of … any alteration of the terrain caused as a result of any Federal construction project of federally licensed activity or project (Section 1)" (NPS 2023).

The impetus for AHPA was the destruction of archaeological sites throughout the country, frequently by actions funded or otherwise supported by Federal agencies, but not covered by the Reservoir Salvage Act, which required archeological salvage as part of dam projects (NPS 2023).

The AHPA built upon the national policy, set out in the Historic Sites Act of 1935, "… to provide for the preservation of historic American sites, buildings, objects, and antiquities of national significance …." The AHPA expanded the policy by focusing attention on significant resources and data but does not require that they be shown to be of "national" significance. The connection between the 1935 statute and the AHPA is mentioned explicitly in the first section of the statute (NPS 2023).

Compliance with the National Historic Preservation Act (see below), and particularly the implementing regulations for Section 106, fulfill the requirements of the AHPA.

3.2.2 Clean Air Act

The federal Clean Air Act (CAA) requires the USEPA to identify National Ambient Air Quality Standards (NAAQS) to protect public health and welfare. NAAQS has been established for ozone, carbon monoxide, nitrogen dioxide, sulfur dioxide, PM10, PM2.5, and lead. Pursuant to the 1990 FCAA Amendments, the USEPA classifies air basins (or portions thereof) as "attainment" or "nonattainment" for these criteria air pollutants, based on whether or not the NAAQS have been achieved. The CAA requires each state to prepare a State Implementation Plan (SIP), which is an air quality control plan that includes pollution control measures for states that violate the NAAQS. Clean Air Act compliance is described under *Air Quality* in Section 2.3. CEQA-Plus requirements include a CAA general conformity analysis for projects in a federal nonattainment area or an attainment area subject to a SIP. Los Angeles County is designated extreme non-attainment for the federal 8-hour ozone NAAQS, attainment-maintenance for the federal CO and PM10 standards, and non-attainment serious for federal PM2.5 standards. As a result, a CAA general conformity analysis has been included under *Air Quality* in Section 2.3. The general conformity analysis concluded that annual construction and operational emissions would be less than the conformity thresholds and no significant adverse effect would occur.

3.2.3 Clean Water Act

The Clean Water Act (CWA) and subsequent amendments, under the enforcement authority of the USEPA, was enacted "to restore and maintain the chemical, physical, and biological integrity of the Nation's waters." The purpose of the CWA is to protect and maintain the quality and integrity of the nation's waters by requiring states to develop and implement state water plans and policies. The CWA established several projects to regulate and reduce discharges of pollutants into waters of the United States, including wetlands. The U.S. Army Corps of Engineers (USACE) and California State Water Resources Control Board administer the various applicable sections of the CWA with the oversight of the USEPA:

- Section 303, administered by the State, requires states to identify "impaired waters" and to establish total maximum daily loads (TMDLs). A TMDL establishes the maximum amount of a pollutant allowed in a waterbody and serves as the starting point or planning tool for restoring water quality.
- Section 401 of the CWA, administered by the State, requires that before a 404 permit can be issued for an activity, the State in which the activity will occur must certify that the activity will not violate State water quality standards.
- Section 402 of the CWA, administered by the State, established the National Pollutant Discharge Elimination System (NPDES) Project. This requires a permit for sewer discharges and storm water discharges from developments, construction sites, or other areas of soil disturbance.
- Section 404 of the CWA, administered by USACE, established a permit project to regulate the discharge of dredged and fill material into waters of the U.S.

The proposed project's compliance with the above-mentioned sections of the CWA is addressed in Section 2.3 under *Biological Resources*, *Hydrology and Water Quality*, and *Utilities and Service Systems*, if applicable.

3.2.4 Coastal Barriers Resources Act

The Coastal Barriers Resources Act (CBRA) was enacted in 1982 to designate relatively undeveloped coastal barriers along the Atlantic, Gulf of Mexico, Great Lakes, U.S. Virgin Islands, and Puerto Rico coasts as part of the John H. Chafee Coastal Barrier Resources System (CBRS). Those areas became ineligible for most new federal expenditures and financial assistance in order to discourage development such as federal flood insurance. The goals of the CBRA are to minimize loss of human life by discouraging development in high-risk areas, to reduce wasteful expenditure of federal resources, and to protect the natural resources associated with coastal barriers (USFWS 2023a). There is no designated Coastal Barrier Resources System in California (USFWS 2023b). Additionally, the proposed project does not propose any development associated with coastal barriers.

3.2.5 Coastal Zone Management Act

Section 307 of the Coastal Zone Management Act (CZMA) requires activities approved or funded by the federal government that affect any land or water use or natural resource of a State's coastal zone be consistent with the enforceable policies of the State's federally approved coastal management project. California's federally approved coastal management project consists of the California Coastal Act, the McAteer-Petris Act, and the Suisun Marsh Protection Act. The California Coastal Commission (CCC) implements the California Coastal Act and the federal consistency provisions of the CZMA for activities affecting coastal resources outside of San Francisco Bay. The proposed project is not located within a State Coastal Zone and thus would not result in direct impacts to coastal zone natural resources.

3.2.6 Emergency Planning and Community Right-to Know Act

The Emergency Planning and Community Right-to-Know Act (1986; 42 U.S.C. 9601 et seq.) was created to help communities plan for emergencies involving hazardous substances. This law requires hazardous chemical emergency planning by federal, state, and local governments; Native American tribes; and industry. It also requires industry to report on the storage, use, and releases of hazardous chemicals to federal, state, and local governments. Compliance with regulations and plans governing the transport, use, or disposal of hazardous materials and emergency response in the project area is discussed in *Hazards and Hazardous Materials* in Section 2.3.

3.2.7 Endangered Species Act

The purpose of the Endangered Species Act (ESA) is to protect and recover imperiled wildlife and plant species and the habitats/ecosystems upon which they depend for survival. Section 7 of the ESA requires federal agencies to use their legal and discretionary authorities to conserve and assist in the recovery of threatened and endangered species. Federal agencies are required to consult with the United States Fish and Wildlife Services (USFWS) and/or the National Marine Fisheries Service (NMFS) to ensure actions they authorize, permit, fund, or implement are not likely to jeopardize the continued existence of the listed threatened or endangered species. To comply with the ESA, a project applicant analyzes the project's effects on threatened and endangered species, as well as any critical habitat designated for any of the species. The applicant uses biological assessments that have been prepared for the project, as well as any documents pertaining to the project's effects on listed species and designated critical habitat. If a listed species may be adversely affected by the project, the United States Army Corps of Engineers (USACE) or the California Department of Transportation (Caltrans) staff will confer with the USFWS and/or the NMFS to inform these agencies of project impacts to any federally listed species or critical habitat. If USFWS and/or NMFS staff determine the proposed project may adversely impact a federally listed species or designated critical habitat, formal consultation is initiated, where USEPA assumes the role as the lead agency. The discussion in *Biological Resources* in Section 2.3 of this MND includes the documentation to disclose the proposed project's effects on special-status species and support consultation with USFWS and/or NMFS as required by Section 7 of the ESA.

3.2.8 Energy Independence and Security Act

The Energy Independence and Security Act of 2007 (EISA) facilitates the reduction of national GHG emissions by requiring increases in the supply of alternative fuels; prescribing or revising standards of proposed project efficiency of various consumer products; and establishing miles per gallon targets for cars and heavy-duty trucks. Additional provisions of EISA address energy savings in government and public institutions, promote research for alternative energy, additional research in carbon capture, international energy projects, and the creation of green jobs. EISA compliance is addressed in *Greenhouse Gas Emissions/Climate Change* in Section 2.3 of this MND.

3.2.9 Energy Policy Act of 1992 and 2005

The Energy Policy Act of 1992 (1992 Act) was passed to reduce US dependence on foreign petroleum and improve air quality. The 1992 Act includes several provisions intended to build inventory of alternative fuel vehicles (AFVs) in large, centrally fueled fleets in metropolitan areas. The 1992 Act requires certain federal, state, and local governments and private fleets to purchase a percentage of light-duty AFVs capable of running on alternative fuels each year. Financial incentives are also included in the 1992 Act. Federal tax deductions will be allowed for businesses and individuals to cover the incremental cost of AFVs. States are also required by the Energy Policy Act to consider a variety of incentive projects to help promote AFVs.

In 2005, the Energy Policy Act included provisions for renewed and expanded tax credits for electricity generated by qualified energy sources, such as landfill gas; provides bond financing, tax incentives, grants, and loan guarantees for clean renewable energy and rural community electrification; and establishes a federal purchase requirement for renewable energy. Compliance with the Energy Policy Acts of 1992 and 2005 is addressed in *Energy* in Section 2.3.

3.2.10 Fish and Wildlife Conservation Act

The Fish and Wildlife Conservation Act declares that fish and wildlife are of ecological, educational, aesthetic, cultural, recreational, economic, and scientific value to the United States. The purposes of this Act are to encourage all federal departments and agencies to utilize their statutory and administrative authority, to the maximum extent practicable and consistent with each agency's statutory responsibilities and to conserve and to promote conservation of non-game fish and wildlife and their habitats. Another purpose is to provide financial and technical assistance to the states for the development, revision, and implementation of conservation plans and projects for nongame fish and wildlife. Fish and Wildlife Conservation Act compliance is addressed in *Biological Resources* in Section 2.3 of this MND.

3.2.11 Fish and Wildlife Coordination Act

The Fish and Wildlife Coordination Act (FWCA) provides the basic authority for the USFWS involvement in evaluating impacts to fish and wildlife from proposed water resource development projects. The FWCA requires that fish and wildlife resources receive equal consideration as other project features. The FWCA also requires federal agencies that construct, license or permit water resource development projects to first consult with the USFWS, National Oceanic and Atmospheric Administration's (NOAA), and/or NMFS in some instances, and state fish and wildlife agency regarding the impacts on fish and wildlife resources and measures to mitigate these impacts. FWCA compliance is addressed in *Biological Resources* in Section 2.3.

3.2.12 Hazardous Materials Transportation Act

Enacted in 1975, the Hazardous Materials Transportation Act (United States Code Title 49, Section 5101 et seq. [49 U.S.C. 5101 et seq.]) is the principal federal law regulating the transportation of hazardous materials. Its purpose is to "protect against the risks to life, property, and the environment that are inherent in the transportation of hazardous material in intrastate, interstate, and foreign commerce" under the authority of the U.S. Secretary of Transportation. More information about the compliance with regulations and plans governing the transport, use, or disposal of hazardous materials and emergency response in the project area is discussed in *Hazards and Hazardous Materials* in Section 2.3.

3.2.13 Magnuson-Stevens Fishery Conservation and Management Act

The Magnuson-Stevens Fishery Conservation and Management Act (MSA) is the principal law governing marine fisheries in the U.S. First enacted in 1976, it was adopted to create a U.S. fishery conservation zone out to 200 nautical miles off the U.S. coast, to phase out foreign fishing activities within this zone, to prevent overfishing, to allow overfished stocks to recover, and to conserve and manage fishery resources. MSA requires federal agencies to consult with the NOAA Fisheries when their actions or activities may adversely affect habitat identified by federal proposed project management councils as Essential Fish Habitat (EFH). The MSA defines EFH as "those waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity" (NOAA Fisheries 2023). The proposed project facilities are located approximately 3 miles east of the Pacific Ocean. Aquatic resources detected within the survey area included three vernal pools consisting of 0.33 acres and seven other aquatic resources consisting of 4.33 acres. Based on the location of proposed project components, the proposed project is not expected to impact state or federally protected wetlands or other aquatic resources.

3.2.14 Marine Mammal Protection Act (16 U.S.C. 1361-1421H)

The Marine Mammal Protection Act (MMPA) of 1972, as amended, establishes a federal responsibility for the protection and conservation of marine mammal species by prohibiting their take. The MMPA defines "take" as the act of hunting, killing, capture, harassment, or death of any marine mammal. The MMPA also imposes a moratorium on the import, export, or sale of any marine mammals, parts, or products within the United States. These prohibitions apply to any person in U.S. waters and to any U.S. citizen in international waters. All project-related construction activities are prohibited from disturbing marine mammals or disrupting their activities or behavior in known migration routes, feeding areas, or breeding areas. The primary authority for implementing the MMPA belongs to the USFWS and the NMFS. As discussed above, the proposed project facilities are located approximately 3 miles east of the Pacific Ocean and are not expected to impact aquatic resources.

3.2.15 Marine Protection, Research, and Sanctuaries Act

Section 103 of the Marine Protection, Research, and Sanctuaries Act (MPRSA) (16 USC § 1431 et seq. and 33 USC §1401 et seq.), also known as the Ocean Dumping Act, regulates the disposition of any material in the ocean, unless expressly excluded under the MPRSA. The MPRSA prohibits or restricts (primarily in terms of material type, amount, and location) ocean dumping that would adversely affect human health, welfare, amenities, the marine environment, ecological systems, or economic potentialities. Four federal agencies that share responsibilities under the Ocean Dumping Act are the USEPA, USACE, NOAA, and the U.S. Coast Guard. The USEPA has primary authority to regulate ocean disposal of all substances except dredged spoils, which are under the authority of USACE. NOAA is responsible for long-range research on the effects of human-induced changes to the marine environment while USEPA is authorized to carry out research and demonstration activities related to phasing out sewage sludge and industrial waste dumping. The Coast Guard is charged with maintaining surveillance of ocean dumping. Permits for and federal projects involving ocean disposal of dredged material are subject to USEPA review and concurrence. Dumping that occurs in, or affects, ocean waters of a state also may be subject to review for consistency with the enforceable policies of a state's NOAA-approved coastal zone project under the Coastal Zone Management Act. As discussed in *Utilities and Service Systems* in Section 2.3, waste that is generated during construction of the proposed project would be disposed of at the Savage Canyon Landfill in accordance with local solid waste disposal requirements. No ocean dumping would occur. Therefore, the proposed project would comply with the requirements of MPRSA.

3.2.16 Migratory Bird Treaty Act

The Migratory Bird Treaty Act (MBTA) is the domestic law that affirms, or implements, a commitment by the U.S. to four international conventions (with Canada, Mexico, Japan, and Russia) for the protection of a shared migratory bird resource. The MBTA makes it unlawful at any time, by any means, or in any manner to pursue, hunt, take, capture, or kill migratory birds. The law also applies to the removal of nests occupied by migratory birds during the breeding season. The MBTA makes it unlawful to take, pursue, molest, or disturb these species, their nests, or their eggs anywhere in the United States. The proposed project would implement various avoidance and mitigation measures to avoid impacts to nesting birds and raptors protected by the MBTA. The proposed project's compliance with the MBTA is addressed in *Biological Resources* in Section 2.3 of this MND.

3.2.17 National Historic Preservation Act

CEQA-Plus requires compliance with Section 106 of the National Historic Preservation Act (NHPA). Consultation with the State Historic Preservation Officer (SHPO) is required to demonstrate/confirm that Section 106 compliance has been achieved. This MND and the administrative record includes the information and documentation that is required to provide to the SHPO to initiate the Section 106 consultation, including, (1) identification of the proposed project's Area of Potential Effects (APE), (2) cultural records searches for the APE at the appropriate Information Centers, (3) documentation of Native American consultation, (4) cultural resources field surveys of the APE, (4) evaluations of elements of the built environment in and around the APE that are eligible for the National Register of Historic Places, and (5) Determination of Eligibility for any cultural resources that cannot be avoided during project construction. Compliance with the NHPA is discussed in the proposed project's confidential cultural resources technical report (Hoffman et al., 2023), the results of which are summarized in *Cultural Resources* and *Tribal Cultural Resources* in Section 2.3.

3.2.18 National Pollutant Discharge Elimination System, Construction General Permit

The proposed project would be subject to the *NPDES General Permit for Stormwater Discharges Associated with Construction and Land Disturbance Activities* (Order 2009-0009-DWQ, NPDES No. CAS000002; as amended by Orders 2010-0014-DWQ and 2012-006-DWQ). The Construction General Permit regulates discharges of pollutants in stormwater associated with construction activity to waters of the U.S. from construction sites that disturb one acre or more of land surface, or that are part of a common plan of development or sale that disturbs more than one acre of land surface. The permit regulates stormwater discharges associated with construction or demolition activities, such as clearing and excavation; construction of buildings; and linear underground projects, including installation of water pipelines and other utility lines.

The Construction General Permit requires the development and implementation of a Stormwater Pollution Prevention Plan (SWPPP) that includes specific best management practices (BMPs) designed to prevent sediment and pollutants from contacting stormwater from moving off site into receiving waters. Routine inspection of all BMPs is required under the provisions of the Construction General Permit. In addition, the SWPPP is required to contain a visual monitoring project, a chemical monitoring project for non-visible pollutants, and a sediment monitoring plan if the site discharges directly to a water body listed on the 303(d) list for sediment.

More information about the project's compliance with the NPDES Construction General Permit is provided in *Geology and Soils* and *Hydrology and Water Quality* in Section 2.3 of this MND.

3.2.19 Native American Graves Protection and Repatriation Act (NAGPRA)

The Native American Graves Protection and Repatriation Act (NAGPRA) describes the rights of Native American lineal descendants, Indian tribes, and Native Hawaiian organizations with respect to the treatment, repatriation, and disposition of Native American human remains, funerary objects, sacred objects, and objects of cultural patrimony, referred to collectively in the statute as cultural items, with which they can show a relationship of lineal descent or cultural affiliation.

It requires Federal agencies receiving Federal funds to inventory holdings of Native American human remains and funerary objects and provide written summaries of other cultural items. The agencies must consult with Indian Tribes and Native Hawaiian organizations to attempt to reach agreements on the repatriation or other disposition of these remains and objects. NAGPRA requires that Indian tribes or Native Hawaiian organizations be consulted whenever archeological investigations encounter, or are expected to encounter, Native American cultural items or when such items are unexpectedly discovered on Federal or tribal lands.

Compliance with the NAGPRA is addressed in this MND in *Cultural Resources* and *Tribal Cultural Resources* in Section 2.3 of this MND.

3.2.20 Noise Control Act of 1972

The Noise Control Act of 1972 establishes a national policy to promote an environment for all Americans to be free from noise that jeopardizes their health and welfare. *Information on Levels of Environmental Noise Requisite to Protect Health and Welfare with an Adequate Margin of Safety*, commonly referenced as the "Levels Document," identifies safe levels of environmental noise exposure without consideration of costs for achieving these levels or other potentially relevant considerations. Mitigation measures would be implemented as part of the proposed project to reduce construction noise impacts to a less than significant level. The proposed project's compliance with the Noise Control Act of 1972 is addressed in *Noise* in Section 2.3 of this MND.

3.2.21 Occupational Safety and Health Act of 1970

The Occupational Safety and Health Act (Code of Federal Regulations [CFR] Title 29, Parts 70–2400 [29 CFR 70–2400]) is implemented by the federal Occupational Safety and Health Administration (OSHA) and contains provisions with respect to hazardous materials handling. Federal OSHA requirements set forth in 29 CFR 1910 et seq. are designed to promote worker safety, worker training, and a worker's right to know. In California, OSHA has delegated the authority to administer OSHA regulations to the State of California. The proposed project's compliance with this Act is addressed in *Hazards and Hazardous Materials* in Section 2.3 of this MND.

3.2.22 Resource Conservation and Recovery Act

The Resource Conservation and Recovery Act (RCRA) (42 U.S.C. Part 2) was the first major federal act regulating the potential health and environmental problems associated with hazardous and nonhazardous solid waste. RCRA and implementing regulations promulgated by USEPA provide the general framework for the national hazardous and nonhazardous waste management systems. This framework includes the determination of whether hazardous wastes are being generated, techniques for tracking wastes to eventual disposal, and the design and permitting of hazardous waste management facilities (USEPA 2023). The proposed project's compliance with this Act is addressed in *Hazards and Hazardous Materials* in Section 2.3.

3.2.23 Rivers and Harbors Act

Section 9 of the Rivers and Harbors Appropriation Act of 1899 (33 U.S.C. 403; Chapter 425, March 3, 1899; 30 Stat. 1151), commonly known as the Rivers and Harbors Act of 1899, prohibits the construction of any bridge, dam, dike, or causeway over or in navigable waterways of the U.S. without Congressional approval. Under Section 10 of the Act, the building of any wharfs, piers, jetties, and other structures is prohibited without Congressional approval, and excavation or fill within navigable waters requires the approval of the Chief of Engineers. The proposed project does not involve construction or operation of any facilities in proximity to federally designated navigable water. The proposed project is in compliance with this Act.

3.3 Executive Orders

3.3.1 Cooperation Among Agencies in Protecting the Environment with Respect to Greenhouse Gas Emissions from Motor Vehicles, Nonroad Vehicles, and Nonroad Engines (Executive Order 13432)

In response to the *Massachusetts v. Environmental Protection Agency* ruling, President George W. Bush signed Executive Order 13432 on May 14, 2007, directing the USEPA, along with the Departments of Transportation, Energy, and Agriculture, to initiate a regulatory process that responds to the Supreme Court's decision. Executive Order 13432 was codified into law by the 2009 Omnibus Appropriations Law signed on February 17, 2009. The order sets goals in the areas of energy efficiency, acquisition, renewable energy, toxics reductions, recycling, sustainable buildings, electronics stewardship, fleets, and water conservation. Compliance with Executive Order 13432 is addressed in *Greenhouse Gas Emissions* in Section 2.3 of the MND.

3.3.2 Environmental Justice, Executive Order No. 12898

Under Executive Order 12898, federal agencies are directed to make achieving environmental justice a part of their mission by identifying and addressing, as appropriate, disproportionately high adverse human health or environmental effects of its activities on minority and low-income populations (FEMA 2022a). Per Executive Order 12898, each federal agency must make achieving environmental justice part of its mission by identifying and addressing, as appropriate, disproportionately high, and adverse human health, environmental, economic, and social effects of its projects, policies, and activities on minority and low-income populations, particularly when such analysis is required by NEPA. The Executive Order emphasizes the importance of NEPA's public participation process, directing that each federal agency shall provide opportunities for community input in the NEPA process. Agencies are further directed to identify potential effects and mitigation measures in consultation with affected communities. An Environmental Justice Analysis is included in Chapter 4, *Environmental Justice Analysis*, for the proposed project per the guidelines set above to comply with federal regulations required to receive federal funding.

3.3.3 Floodplain Management, Executive Order No. 11988

Executive Order 11988 requires federal agencies avoid, to the extent possible, the long and short-term adverse impacts associated with the occupancy and modification of flood plains and to avoid direct and indirect support of floodplain development wherever there is a practicable alternative (FEMA 2023b). If a project has a potential impact to or within a floodplain, there is an eight-step process that agencies can carry out during their decision-making process on the project. The eight-step process includes: (1) determine if a proposed action is in the base floodplain or area which has a one percent or greater chance of flooding in any given year, (2) conduct early public review, (3) identify and evaluate practicable alternatives to locating in the base floodplain, (4) identify impacts of the proposed action, (5) develop measures to minimize the impacts and restore and preserve the floodplain if impacts cannot be avoided, (6) re-evaluate the alternatives, (7) present the findings and a public explanation, and (8) implement the action (FEMA 2023b).

As discussed in *Hydrology and Water Quality* in Section 2.3, a segment of the proposed pipelines would be located within a 100-year and 500-year flood zone as designated by FEMA. However, the proposed project does not involve construction or operation of habitable or occupied structures. Through implementation of BMPs and compliance with conditions of required permits governing storm water runoff from construction sites, the analysis concluded that potential on-site and off-site flooding impacts would be reduced to less than significant levels. Further discussion of the proposed project's components in the floodplain and compliance with requirements of this Executive Order is included in *Hydrology and Water Quality* in Section 2.3 of the MND.

3.3.4 Invasive Species (Executive Orders 13112 and 13751)

Executive Order 13112 of February 3, 1999 (Invasive Species), called upon executive departments and agencies to take steps to prevent the introduction and spread of invasive species, and to support efforts to eradicate and control invasive species that are established. Executive Order 13112 also created a coordinating body -- the Invasive Species Council, also referred to as the National Invasive Species Council -- to oversee implementation of the order, encourage proactive planning and action, develop recommendations for international cooperation, and take other steps to improve the Federal response to invasive species. Past efforts at preventing, eradicating, and controlling invasive species demonstrated that collaboration across Federal, State, local, tribal, and territorial government; stakeholders; and the private sector is critical to minimizing the spread of invasive species and that coordinated action is necessary to protect the assets and security of the United States.

Executive Order 13751 amends Executive Order 13112 and directs actions to continue coordinated Federal prevention and control efforts related to invasive species. This order maintains the National Invasive Species Council (and the Invasive Species Advisory Committee; expands the membership of the Council; clarifies the operations of the Council; incorporates considerations of human and environmental health, climate change, technological innovation, and other emerging priorities into Federal efforts to address invasive species; and strengthens coordinated, cost-efficient Federal action. The proposed project's compliance with these Executive Orders is addressed in *Biological Resources* in Section 2.3 of this MND. No impacts associated with the introduction of invasive species to the project area were identified.

3.3.5 Protection of Wetlands, Executive Order No. 11990, as amended by Executive Order No. 12608

Under this Executive Order No. 11990, each Federal agency takes action to minimize the destruction, degradation, or modification of wetlands and enhance the natural and beneficial values of wetlands. The Executive Order also directs the avoidance of direct or indirect support of new construction in wetlands and public involvement throughout the wetlands protection decision-making process (HUD 2023). As discussed previously, aquatic resources detected within the survey area included three vernal pools consisting of 0.33 acres and seven other aquatic resources consisting of 4.33 acres. However, based on the location of the proposed project components, the proposed project is not expected to impact state or federally protected wetlands or other aquatic resources. Impacts to wetlands in the project area are described in *Biological Resources* in Section 2.3 of this MND.

CHAPTER 4
Environmental Justice

This chapter discusses the environmental justice issues pertaining to the proposed project and evaluates the potential for the proposed project to disproportionately affect minority and low-income populations. Data presented in this chapter was obtained from the 2017–2021 American Community Survey 5-year population estimates by the U.S. Census Bureau.

4.1 Environmental Setting

4.1.1 Potentially Affected Populations

The study area for environmental justice effects includes areas that may experience adverse human health or environmental effects resulting from construction and operation of the proposed project. The proposed project infrastructure would be located within the cities of Torrance, Los Angeles, Carson, and portions of unincorporated Los Angeles County, California. **Table 4-1** and **Table 4-2** list demographic information and economic data for populations within the census tracts that would be potentially affected by the proposed project. In addition, similar totals for the entire population of each city and CDP within the project area are provided in Tables 4-1 and 4-2 for purpose of comparison. The census tracts in each table are organized according to the city or CDP in which they are located.

Minority Populations

According to the federal Council on Environmental Quality (CEQ) guidelines for environmental justice analyses (CEQ 1997), minority populations should be identified where either (a) the minority population of the affected area exceeds 50 percent or (b) the minority population percentage of the affected area is "meaningfully greater" than the majority population percentage in the general population or other appropriate unit of geographic analysis. CEQ guidance does not define the term "meaningfully greater;" however, the Federal Interagency Working Group on Environmental Justice NEPA Committee's *Promising Practices for EJ Methodologies* (FIWGEJ 2016) suggests that the 50 percent approach and the "meaningfully greater" approach should be used together, and that "[t]he Meaningfully Greater analysis requires use of a reasonable, subjective threshold (e.g., ten or twenty percent greater than the reference community)." This analysis embraces the NEPA Committee's advice on this approach.

TABLE 4-1
DEMOGRAPHIC INFORMATION FOR CENSUS TRACTS WITHIN THE STUDY AREA (2021)

Geography	Black or African American Alone, Not Hispanic or Latino	Asian Alone, Not Hispanic or Latino	Hispanic or Latino (of Any Race)	Total Minority[a,b]
City of Torrance	3%	37%	20%	***58%***
CT 6504.01	16%	37%	22%	***58%***
CT 6505.01	0%	33%	18%	46%
CT 6506.04	3%	40%	23%	***71%***
CT 6506.05	5%	46%	17%	***67%***
CT 6506.06	7%	53%	13%	***70%***
CT 6506.07	3%	52%	9%	***77%****
CT 6507.01	1%	34%	18%	46%
CT 6508.01	0%	53%	19%	***64%***
CT 6508.02	1%	69%	5%	***78%****
CT 6509.03	3%	23%	46%	***68%***
CT 6509.04	3%	66%	6%	***85%****
CT 6510.01	1%	28%	32%	***53%***
CT 6510.02	3%	40%	20%	***65%***
CT 6511.01	2%	52%	8%	***64%***
CT 6511.02	4%	35%	8%	***52%***
City of Los Angeles	9%	12%	48%	55%
CT 2932.05	4%	14%	71%	***73%***
CT 2933.01	2%	48%	20%	***63%***
City of Carson	22%	27%	37%	***78%***
CT 5436.03	27%	30%	19%	***78%****
CT 5436.05	9%	36%	26%	***70%***
West Carson CDP	10%	35%	36%	***75%***
CT 5436.07	7%	52%	30%	***82%****

NOTES:
CT = census tract
CDP = census designated place

[a] Numbers in bold and italics represent tracts where greater than 50 percent of the total population is represented by minority population.

[b] Numbers with asterisk (*) represent tracts where the minority population is meaningfully greater than the average minority populations across the cities and CDPs within the project area.

SOURCE: U.S. Census Bureau 2021.

TABLE 4-2
INCOME AND POVERTY FOR CENSUS TRACTS WITHIN THE STUDY AREA (2021)

Geography	Percentage of Individuals with Family Income below Poverty Threshold[a]
City of Torrance	7%
CT 6504.01	4%
CT 6505.01	1%
CT 6506.04	***16%***
CT 6506.05	3%
CT 6506.06	***13%***
CT 6506.07	4%
CT 6507.01	7%
CT 6508.01	4%
CT 6508.02	7%
CT 6509.03	9%
CT 6509.04	8%
CT 6510.01	7%
CT 6510.02	6%
CT 6511.01	4%
CT 6511.02	6%
City of Los Angeles	17%
CT 2932.05	***15%***
CT 2933.01	6%
City of Carson	9%
CT 5436.03	4%
CT 5436.05	4%
West Carson CDP	9%
CT 5436.07	8%

NOTES:
CT = census tract
CDP = census designated place
[a] Numbers in bold and italics denote disadvantaged communities and low-income populations.

SOURCE: U.S. Census Bureau 2021.

Information regarding racial and ethnic diversity in the study area was derived from the 2017-2021 American Community Survey population estimates by the U.S. Census Bureau. Selected racial and ethnic characteristics of census tracts within the study area are summarized in Table 4-1. The final column in Table 4-1 presents the "total minority" population percentage. Overall, the census tracts within the study area include a total minority population of approximately 67%, which is greater than 50 percent and thus, as a reference population, represents a minority population (U.S. Census Bureau 2021). It was determined that 18 out of 20 census tracts in the project area include predominantly minority populations. Total populations within each census tract range between approximately two and five thousand people.

The “meaningfully greater” approach is also used here to identify minority populations that exceed the percentage of the study area. As explained above, no official threshold defines this term, and a lead agency must select a threshold that provides a reasonable and meaningful basis of comparison. Given the range of minority population concentrations in the vicinity of the proposed project, an inclusive threshold is used to acknowledge areas of particularly high minority populations: any census tracts within the potential area of environmental impact that have concentrated minority populations greater than the overall project area’s approximate 67% percent area considered to be “meaningfully” greater. Five census tracts meet this criteria: Census Tract 6506.07, Census Tract 6508.02, Census Tract 6509.04, Census Tract 5436.03, and Census Tract 5436.07.

However, when comparing the total population and overall minority population percentage within the study area those of each entire city and CDP within the project area, it is apparent that the total population within the study area makes up a small percentage of the proposed project population and has minority population percentages that are consistent with proposed project minority percentages. Specifically, the overall minority population across each city and unincorporated area (the entire cities of Torrance, Los Angeles, Carson, and the West Carson CDP) within the project area is approximately 67%. Therefore, with consideration of the broader characteristics of the region, there is not an overrepresentation of minority populations in the study area and the minority populations in proximity to the project would not be disproportionately impacted.

Low-Income Populations

The CEQ environmental justice guidance states that “…low-income populations in an affected area should be identified with the annual statistical poverty thresholds from the Bureau of the Census’ Current Population Reports, Series P-60 on Income and Poverty” (CEQ 1997, page 25). USEPA guidance (2016) recommends the use of Census data on poverty income as one indicator, as well as other available data. Unlike the CEQ guidance on minority populations, none of the environmental justice guidance documents contains a quantitative definition of what proportion of low-income individuals defines a low-income population. The annual statistical poverty thresholds are based on family income. A threshold of 50 percent of individuals in families with incomes below the poverty threshold (similar to the 50 percent threshold used to identify a minority population) would be an overly restrictive threshold for identifying a low-income population due to the nature of the poverty thresholds, which are not adjusted for proposed project costs of living, and are below levels commonly considered low-income in many areas of California.

For the purposes of this environmental justice analysis, the method of identifying low-income populations within the study area must account for proposed project costs of living. Therefore, this analysis uses a comparative approach and identifies a low-income population if the proportion of people with family incomes below the poverty threshold is greater than that within the general population; in other words, if the percentage of such people in any of the communities considered is greater than 10.5 percent, which is the overall poverty rate for the cities and CDPs within the project area (U.S. Census Bureau 2021). As shown in Table 4-2, within the project area there are three census tracts that have greater population percentages below the poverty line than this figure. However, because the census tracts with greater population percentages below the poverty threshold do not include substantially more people than the other census tracts in the study area, and since the majority of the census tracts within the project area include a lower percentage of populations below the poverty threshold, for the purpose of this analysis, it is more appropriate to consider all census tracts together in comparison to proposed project averages to determine whether low-income populations would be disproportionately impacted. Overall, the poverty threshold across all census tracts in the project area is approximately 5 percent, which is lower than 10.5 percent. For these reasons, the populations within the project area do not meet the threshold for low-income populations.

4.1.2 Significance Thresholds and Criteria

For the purposes of this EIR and consistency with NEPA and CEQA-Plus Guidelines, applicable local plans, and agency and professional standards, the proposed project would have a significant effect on environmental justice if it would:

- Affect the health or environment of minority or low-income populations disproportionately.

4.1.3 Impacts and Mitigation Measures

As discussed above, the study area analyzed for environmental justice impacts does not contain a relative low-income population based on the criteria set out above. As such, the proposed project does not have the potential to affect the health or environment of low-income populations disproportionately. There would be no impact.

The census tracts listed in Table 4-1 include all areas where the proposed project would occur. In the context of nearby cities and unincorporated areas within the region, the proposed project does not contain a meaningfully greater minority population. Census tracts in the project area include much smaller populations and similar minority population percentages. Overall, the adverse environmental effects of the proposed project that have potential to result in adverse effects to public health and environment would occur primarily during construction of the proposed project. Implementation of the proposed project would not result in any potential significant impacts that could not be reduced to less than significant levels with the implementation of mitigation measures, as analyzed throughout Chapter 2 of this MND. Therefore, with implementation of mitigation measures, the proposed project would not have significant effects to environmental resources.

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Appendix A
Air Quality, Greenhouse Gas, and Energy Technical Appendix

Appendix A

Air Quality, Greenhouse Gas, and Energy Technical Appendix

1. Air Quality/GHG Worksheets
2. Energy Worksheets

WRD Regional Brackish Water Reclamation Program

1. Air Quality/GHG Worksheet

WRD Regional Brackish Water Project - CSTN Detailed Report

Table of Contents

1. Basic Project Information

1.1. Basic Project Information

Data Field	Value
Project Name	WRD Regional Brackish Water Project - CSTN
Construction Start Date	11/1/2023
Lead Agency	—
Land Use Scale	Project/site
Analysis Level for Defaults	County
Windspeed (m/s)	3.50
Precipitation (days)	20.6
Location	20150 Hawthorne Blvd, Torrance, CA 90503, USA
County	Los Angeles-South Coast
City	Torrance
Air District	South Coast AQMD
Air Basin	South Coast
TAZ	4668
EDFZ	7
Electric Utility	Southern California Edison
Gas Utility	Southern California Gas
App Version	2022.1.1.13

1.2. Land Use Types

Land Use Subtype	Size	Unit	Lot Acreage	Building Area (sq ft)	Landscape Area (sq ft)	Special Landscape Area (sq ft)	Population	Description
General Light Industry	17.5	1000sqft	1.60	17,500	0.00	—	—	—

Other Asphalt Surfaces	24.2	Acre	24.8	0.00	0.00	—	—	—

1.3. User-Selected Emission Reduction Measures by Emissions Sector

Sector	#	Measure Title
Construction	C-2*	Limit Heavy-Duty Diesel Vehicle Idling

* Qualitative or supporting measure. Emission reductions not included in the mitigated emissions results.

2. Emissions Summary

2.1. Construction Emissions Compared Against Thresholds

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

Un/Mit.	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	7.98	63.1	71.8	0.16	2.68	2.45	5.13	2.46	0.51	2.98	—	18,973	18,973	0.79	0.44	9.57	19,133
Mit.	7.98	63.1	71.8	0.16	2.68	2.45	5.13	2.46	0.51	2.98	—	18,973	18,973	0.79	0.44	9.57	19,133
% Reduced	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	6.16	47.9	60.2	0.11	1.76	2.67	4.43	1.62	0.57	2.18	—	12,864	12,864	0.55	0.40	0.27	12,997
Mit.	6.16	47.9	60.2	0.11	1.76	2.67	4.43	1.62	0.57	2.18	—	12,864	12,864	0.55	0.40	0.27	12,997
% Reduced	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Unmit.	4.09	32.6	39.1	0.08	1.27	1.67	2.94	1.17	0.35	1.51	—	9,394	9,394	0.40	0.27	2.79	9,487
Mit.	4.09	32.6	39.1	0.08	1.27	1.67	2.94	1.17	0.35	1.51	—	9,394	9,394	0.40	0.27	2.79	9,487
% Reduced	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.75	5.95	7.14	0.01	0.23	0.31	0.54	0.21	0.06	0.28	—	1,555	1,555	0.07	0.04	0.46	1,571
Mit.	0.75	5.95	7.14	0.01	0.23	0.31	0.54	0.21	0.06	0.28	—	1,555	1,555	0.07	0.04	0.46	1,571
% Reduced	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

2.2. Construction Emissions by Year, Unmitigated

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

Year	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily - Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2024	2.23	19.0	22.1	0.04	0.80	0.78	1.58	0.74	0.14	0.88	—	4,307	4,307	0.18	0.08	2.26	4,337
2025	7.98	63.1	71.8	0.16	2.68	2.45	5.13	2.46	0.51	2.98	—	18,973	18,973	0.79	0.44	9.57	19,133
Daily - Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2023	0.97	7.56	8.94	0.01	0.33	0.38	0.71	0.31	0.09	0.39	—	1,635	1,635	0.07	0.06	0.05	1,655
2024	2.63	22.2	25.3	0.04	0.92	1.02	1.94	0.85	0.20	1.04	—	5,006	5,006	0.21	0.11	0.08	5,044
2025	6.16	47.9	60.2	0.11	1.76	2.67	4.43	1.62	0.57	2.18	—	12,864	12,864	0.55	0.40	0.27	12,997
2026	5.55	31.0	41.3	0.08	1.08	2.22	3.30	0.99	0.46	1.45	—	9,581	9,581	0.41	0.33	0.20	9,692
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2023	0.12	0.90	1.07	< 0.005	0.04	0.04	0.08	0.04	0.01	0.05	—	196	196	0.01	0.01	0.10	198
2024	0.76	6.39	7.41	0.01	0.27	0.27	0.54	0.25	0.05	0.30	—	1,438	1,438	0.06	0.03	0.39	1,449

2025	4.09	32.6	39.1	0.08	1.27	1.67	2.94	1.17	0.35	1.51	—	9,394	9,394	0.40	0.27	2.79	9,487
2026	0.66	3.11	4.14	0.01	0.11	0.21	0.32	0.10	0.04	0.14	—	938	938	0.04	0.03	0.32	949
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2023	0.02	0.16	0.20	< 0.005	0.01	0.01	0.02	0.01	< 0.005	0.01	—	32.4	32.4	< 0.005	< 0.005	0.02	32.8
2024	0.14	1.17	1.35	< 0.005	0.05	0.05	0.10	0.05	0.01	0.05	—	238	238	0.01	0.01	0.06	240
2025	0.75	5.95	7.14	0.01	0.23	0.31	0.54	0.21	0.06	0.28	—	1,555	1,555	0.07	0.04	0.46	1,571
2026	0.12	0.57	0.76	< 0.005	0.02	0.04	0.06	0.02	0.01	0.03	—	155	155	0.01	0.01	0.05	157

2.3. Construction Emissions by Year, Mitigated

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

Year	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily - Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2024	2.23	19.0	22.1	0.04	0.80	0.78	1.58	0.74	0.14	0.88	—	4,307	4,307	0.18	0.08	2.26	4,337
2025	7.98	63.1	71.8	0.16	2.68	2.45	5.13	2.46	0.51	2.98	—	18,973	18,973	0.79	0.44	9.57	19,133
Daily - Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2023	0.97	7.56	8.94	0.01	0.33	0.38	0.71	0.31	0.09	0.39	—	1,635	1,635	0.07	0.06	0.05	1,655
2024	2.63	22.2	25.3	0.04	0.92	1.02	1.94	0.85	0.20	1.04	—	5,006	5,006	0.21	0.11	0.08	5,044
2025	6.16	47.9	60.2	0.11	1.76	2.67	4.43	1.62	0.57	2.18	—	12,864	12,864	0.55	0.40	0.27	12,997
2026	5.55	31.0	41.3	0.08	1.08	2.22	3.30	0.99	0.46	1.45	—	9,581	9,581	0.41	0.33	0.20	9,692
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2023	0.12	0.90	1.07	< 0.005	0.04	0.04	0.08	0.04	0.01	0.05	—	196	196	0.01	0.01	0.10	198
2024	0.76	6.39	7.41	0.01	0.27	0.27	0.54	0.25	0.05	0.30	—	1,438	1,438	0.06	0.03	0.39	1,449
2025	4.09	32.6	39.1	0.08	1.27	1.67	2.94	1.17	0.35	1.51	—	9,394	9,394	0.40	0.27	2.79	9,487
2026	0.66	3.11	4.14	0.01	0.11	0.21	0.32	0.10	0.04	0.14	—	938	938	0.04	0.03	0.32	949

Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2023	0.02	0.16	0.20	< 0.005	0.01	0.01	0.02	0.01	< 0.005	0.01	—	32.4	32.4	< 0.005	< 0.005	0.02	32.8
2024	0.14	1.17	1.35	< 0.005	0.05	0.05	0.10	0.05	0.01	0.05	—	238	238	0.01	0.01	0.06	240
2025	0.75	5.95	7.14	0.01	0.23	0.31	0.54	0.21	0.06	0.28	—	1,555	1,555	0.07	0.04	0.46	1,571
2026	0.12	0.57	0.76	< 0.005	0.02	0.04	0.06	0.02	0.01	0.03	—	155	155	0.01	0.01	0.05	157

3. Construction Emissions Details

3.1. Demolition (2023) - Unmitigated

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

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.87	7.08	7.40	0.01	0.33	—	0.33	0.30	—	0.30	—	1,087	1,087	0.04	0.01	—	1,091
Demolition	—	—	—	—	—	0.04	0.04	—	0.01	0.01	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.10	0.84	0.88	< 0.005	0.04	—	0.04	0.04	—	0.04	—	130	130	0.01	< 0.005	—	130
Demolition	—	—	—	—	—	0.01	0.01	—	< 0.005	< 0.005	—	—	—	—	—	—	—

Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.02	0.15	0.16	< 0.005	0.01	—	0.01	0.01	—	0.01	—	21.5	21.5	< 0.005	< 0.005	—	21.6
Demolition	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.09	0.12	1.39	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	274	274	0.01	0.01	0.03	277
Vendor	< 0.005	0.17	0.08	< 0.005	< 0.005	0.03	0.04	< 0.005	0.01	0.01	—	131	131	0.01	0.02	0.01	136
Hauling	< 0.005	0.19	0.07	< 0.005	< 0.005	0.04	0.04	< 0.005	0.01	0.01	—	143	143	0.01	0.02	0.01	150
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.17	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	33.1	33.1	< 0.005	< 0.005	0.06	33.6
Vendor	< 0.005	0.02	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	15.6	15.6	< 0.005	< 0.005	0.02	16.3
Hauling	< 0.005	0.02	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	17.1	17.1	< 0.005	< 0.005	0.02	18.0
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.03	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	5.49	5.49	< 0.005	< 0.005	0.01	5.56
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	2.59	2.59	< 0.005	< 0.005	< 0.005	2.70
Hauling	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	2.83	2.83	< 0.005	< 0.005	< 0.005	2.97

3.2. Demolition (2023) - Mitigated

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

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.87	7.08	7.40	0.01	0.33	—	0.33	0.30	—	0.30	—	1,087	1,087	0.04	0.01	—	1,091
Demolition	—	—	—	—	—	0.04	0.04	—	0.01	0.01	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.10	0.84	0.88	< 0.005	0.04	—	0.04	0.04	—	0.04	—	130	130	0.01	< 0.005	—	130
Demolition	—	—	—	—	—	0.01	0.01	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.02	0.15	0.16	< 0.005	0.01	—	0.01	0.01	—	0.01	—	21.5	21.5	< 0.005	< 0.005	—	21.6
Demolition	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.09	0.12	1.39	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	274	274	0.01	0.01	0.03	277
Vendor	< 0.005	0.17	0.08	< 0.005	< 0.005	0.03	0.04	< 0.005	0.01	0.01	—	131	131	0.01	0.02	0.01	136
Hauling	< 0.005	0.19	0.07	< 0.005	< 0.005	0.04	0.04	< 0.005	0.01	0.01	—	143	143	0.01	0.02	0.01	150
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.17	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	33.1	33.1	< 0.005	< 0.005	0.06	33.6
Vendor	< 0.005	0.02	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	15.6	15.6	< 0.005	< 0.005	0.02	16.3
Hauling	< 0.005	0.02	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	17.1	17.1	< 0.005	< 0.005	0.02	18.0
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.03	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	5.49	5.49	< 0.005	< 0.005	0.01	5.56
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	2.59	2.59	< 0.005	< 0.005	< 0.005	2.70
Hauling	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	2.83	2.83	< 0.005	< 0.005	< 0.005	2.97

3.3. Demolition (2024) - Unmitigated

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

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.82	6.80	7.36	0.01	0.30	—	0.30	0.27	—	0.27	—	1,087	1,087	0.04	0.01	—	1,091
Demolition	—	—	—	—	—	0.04	0.04	—	0.01	0.01	—	—	—	—	—	—	—

Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.12	1.00	1.08	< 0.005	0.04	—	0.04	0.04	—	0.04	—	160	160	0.01	< 0.005	—	160
Demolition	—	—	—	—	—	0.01	0.01	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.02	0.18	0.20	< 0.005	0.01	—	0.01	0.01	—	0.01	—	26.4	26.4	< 0.005	< 0.005	—	26.5
Demolition	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.09	0.11	1.28	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	268	268	0.01	0.01	0.03	271
Vendor	< 0.005	0.16	0.08	< 0.005	< 0.005	0.03	0.04	< 0.005	0.01	0.01	—	129	129	0.01	0.02	0.01	135
Hauling	< 0.005	0.18	0.07	< 0.005	< 0.005	0.04	0.04	< 0.005	0.01	0.01	—	141	141	0.01	0.02	0.01	148
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.02	0.20	0.00	0.00	0.04	0.04	0.00	0.01	0.01	—	39.9	39.9	< 0.005	< 0.005	0.07	40.4
Vendor	< 0.005	0.02	0.01	< 0.005	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	—	18.9	18.9	< 0.005	< 0.005	0.02	19.8
Hauling	< 0.005	0.03	0.01	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	20.7	20.7	< 0.005	< 0.005	0.02	21.7

Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.04	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	6.60	6.60	< 0.005	< 0.005	0.01	6.69
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	3.14	3.14	< 0.005	< 0.005	< 0.005	3.27
Hauling	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	3.43	3.43	< 0.005	< 0.005	< 0.005	3.60

3.4. Demolition (2024) - Mitigated

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

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.82	6.80	7.36	0.01	0.30	—	0.30	0.27	—	0.27	—	1,087	1,087	0.04	0.01	—	1,091
Demolition	—	—	—	—	—	0.04	0.04	—	0.01	0.01	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.12	1.00	1.08	< 0.005	0.04	—	0.04	0.04	—	0.04	—	160	160	0.01	< 0.005	—	160
Demolition	—	—	—	—	—	0.01	0.01	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.02	0.18	0.20	< 0.005	0.01	—	0.01	0.01	—	0.01	—	26.4	26.4	< 0.005	< 0.005	—	26.5

Demolitio	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.09	0.11	1.28	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	268	268	0.01	0.01	0.03	271
Vendor	< 0.005	0.16	0.08	< 0.005	< 0.005	0.03	0.04	< 0.005	0.01	0.01	—	129	129	0.01	0.02	0.01	135
Hauling	< 0.005	0.18	0.07	< 0.005	< 0.005	0.04	0.04	< 0.005	0.01	0.01	—	141	141	0.01	0.02	0.01	148
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.02	0.20	0.00	0.00	0.04	0.04	0.00	0.01	0.01	—	39.9	39.9	< 0.005	< 0.005	0.07	40.4
Vendor	< 0.005	0.02	0.01	< 0.005	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	—	18.9	18.9	< 0.005	< 0.005	0.02	19.8
Hauling	< 0.005	0.03	0.01	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	20.7	20.7	< 0.005	< 0.005	0.02	21.7
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.04	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	6.60	6.60	< 0.005	< 0.005	0.01	6.69
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	3.14	3.14	< 0.005	< 0.005	< 0.005	3.27
Hauling	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	3.43	3.43	< 0.005	< 0.005	< 0.005	3.60

3.5. Demolition (2025) - Unmitigated

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

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

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.65	5.64	6.75	0.01	0.23	—	0.23	0.21	—	0.21	—	1,040	1,040	0.04	0.01	—	1,043
Demolition	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.07	0.63	0.76	< 0.005	0.03	—	0.03	0.02	—	0.02	—	117	117	< 0.005	< 0.005	—	117
Demolition	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.12	0.14	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	19.3	19.3	< 0.005	< 0.005	—	19.4
Demolition	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.11	0.12	1.47	0.00	0.00	0.33	0.33	0.00	0.08	0.08	—	328	328	0.02	0.01	0.03	332
Vendor	< 0.005	0.15	0.07	< 0.005	< 0.005	0.03	0.04	< 0.005	0.01	0.01	—	127	127	0.01	0.02	0.01	132

Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.17	0.00	0.00	0.04	0.04	0.00	0.01	0.01	—	37.3	37.3	< 0.005	< 0.005	0.06	37.9
Vendor	< 0.005	0.02	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	14.3	14.3	< 0.005	< 0.005	0.02	14.9
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.03	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	6.18	6.18	< 0.005	< 0.005	0.01	6.27
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	2.36	2.36	< 0.005	< 0.005	< 0.005	2.46
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.6. Demolition (2025) - Mitigated

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

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.65	5.64	6.75	0.01	0.23	—	0.23	0.21	—	0.21	—	1,040	1,040	0.04	0.01	—	1,043
Demolition	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.07	0.63	0.76	< 0.005	0.03	—	0.03	0.02	—	0.02	—	117	117	< 0.005	< 0.005	—	117

Demolitio	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.12	0.14	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	19.3	19.3	< 0.005	< 0.005	—	19.4
Demolitio n	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.11	0.12	1.47	0.00	0.00	0.33	0.33	0.00	0.08	0.08	—	328	328	0.02	0.01	0.03	332
Vendor	< 0.005	0.15	0.07	< 0.005	< 0.005	0.03	0.04	< 0.005	0.01	0.01	—	127	127	0.01	0.02	0.01	132
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.17	0.00	0.00	0.04	0.04	0.00	0.01	0.01	—	37.3	37.3	< 0.005	< 0.005	0.06	37.9
Vendor	< 0.005	0.02	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	14.3	14.3	< 0.005	< 0.005	0.02	14.9
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.03	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	6.18	6.18	< 0.005	< 0.005	0.01	6.27
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	2.36	2.36	< 0.005	< 0.005	< 0.005	2.46
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.7. Demolition (2025) - Unmitigated

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

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	2.06	17.4	21.0	0.04	0.61	—	0.61	0.56	—	0.56	—	3,163	3,163	0.13	0.03	—	3,174
Demolition	—	—	—	—	—	0.69	0.69	—	0.10	0.10	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.06	0.48	0.57	< 0.005	0.02	—	0.02	0.02	—	0.02	—	86.7	86.7	< 0.005	< 0.005	—	87.0
Demolition	—	—	—	—	—	0.02	0.02	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.09	0.10	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	14.3	14.3	< 0.005	< 0.005	—	14.4
Demolition	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.25	0.29	3.54	0.00	0.00	0.78	0.78	0.00	0.18	0.18	—	786	786	0.04	0.03	0.08	796
Vendor	< 0.005	0.15	0.07	< 0.005	< 0.005	0.03	0.04	< 0.005	0.01	0.01	—	127	127	0.01	0.02	0.01	132
Hauling	0.01	1.06	0.40	0.01	0.01	0.22	0.23	0.01	0.06	0.07	—	832	832	0.05	0.13	0.05	872
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.10	0.00	0.00	0.02	0.02	0.00	< 0.005	< 0.005	—	21.9	21.9	< 0.005	< 0.005	0.04	22.2
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	3.48	3.48	< 0.005	< 0.005	< 0.005	3.63
Hauling	< 0.005	0.03	0.01	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	22.8	22.8	< 0.005	< 0.005	0.02	23.9
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.02	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	3.62	3.62	< 0.005	< 0.005	0.01	3.67
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	0.58	0.58	< 0.005	< 0.005	< 0.005	0.60
Hauling	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	3.77	3.77	< 0.005	< 0.005	< 0.005	3.96

3.8. Demolition (2025) - Mitigated

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

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	2.06	17.4	21.0	0.04	0.61	—	0.61	0.56	—	0.56	—	3,163	3,163	0.13	0.03	—	3,174

Demolitio	—	—	—	—	—	0.69	0.69	—	0.10	0.10	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.06	0.48	0.57	< 0.005	0.02	—	0.02	0.02	—	0.02	—	86.7	86.7	< 0.005	< 0.005	—	87.0
Demolitio n	—	—	—	—	—	0.02	0.02	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.09	0.10	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	14.3	14.3	< 0.005	< 0.005	—	14.4
Demolitio n	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.25	0.29	3.54	0.00	0.00	0.78	0.78	0.00	0.18	0.18	—	786	786	0.04	0.03	0.08	796
Vendor	< 0.005	0.15	0.07	< 0.005	< 0.005	0.03	0.04	< 0.005	0.01	0.01	—	127	127	0.01	0.02	0.01	132
Hauling	0.01	1.06	0.40	0.01	0.01	0.22	0.23	0.01	0.06	0.07	—	832	832	0.05	0.13	0.05	872
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.10	0.00	0.00	0.02	0.02	0.00	< 0.005	< 0.005	—	21.9	21.9	< 0.005	< 0.005	0.04	22.2
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	3.48	3.48	< 0.005	< 0.005	< 0.005	3.63

Hauling	< 0.005	0.03	0.01	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	22.8	22.8	< 0.005	< 0.005	0.02	23.9
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.02	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	3.62	3.62	< 0.005	< 0.005	0.01	3.67
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	0.58	0.58	< 0.005	< 0.005	< 0.005	0.60
Hauling	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	3.77	3.77	< 0.005	< 0.005	< 0.005	3.96

3.9. Grading (2024) - Unmitigated

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

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.63	14.7	15.2	0.03	0.62	—	0.62	0.57	—	0.57	—	2,984	2,984	0.12	0.02	—	2,994
Dust From Material Movement	—	—	—	—	—	0.34	0.34	—	0.04	0.04	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.63	14.7	15.2	0.03	0.62	—	0.62	0.57	—	0.57	—	2,984	2,984	0.12	0.02	—	2,994
Dust From Material Movement	—	—	—	—	—	0.34	0.34	—	0.04	0.04	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.45	4.02	4.16	0.01	0.17	—	0.17	0.16	—	0.16	—	818	818	0.03	0.01	—	820
Dust From Material Movement	—	—	—	—	—	0.09	0.09	—	0.01	0.01	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.08	0.73	0.76	< 0.005	0.03	—	0.03	0.03	—	0.03	—	135	135	0.01	< 0.005	—	136
Dust From Material Movement	—	—	—	—	—	0.02	0.02	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.09	0.10	1.51	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	282	282	0.01	0.01	1.11	287
Vendor	< 0.005	0.15	0.07	< 0.005	< 0.005	0.03	0.04	< 0.005	0.01	0.01	—	129	129	0.01	0.02	0.35	135
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.09	0.11	1.28	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	268	268	0.01	0.01	0.03	271
Vendor	< 0.005	0.16	0.08	< 0.005	< 0.005	0.03	0.04	< 0.005	0.01	0.01	—	129	129	0.01	0.02	0.01	135
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.03	0.37	0.00	0.00	0.07	0.07	0.00	0.02	0.02	—	74.4	74.4	< 0.005	< 0.005	0.13	75.4
Vendor	< 0.005	0.04	0.02	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	35.4	35.4	< 0.005	< 0.005	0.04	36.9
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	0.01	0.07	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	12.3	12.3	< 0.005	< 0.005	0.02	12.5
Vendor	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	5.85	5.85	< 0.005	< 0.005	0.01	6.11
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.10. Grading (2024) - Mitigated

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

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.63	14.7	15.2	0.03	0.62	—	0.62	0.57	—	0.57	—	2,984	2,984	0.12	0.02	—	2,994
Dust From Material Movement	—	—	—	—	—	0.34	0.34	—	0.04	0.04	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.63	14.7	15.2	0.03	0.62	—	0.62	0.57	—	0.57	—	2,984	2,984	0.12	0.02	—	2,994

Dust From Material Movement	—	—	—	—	—	0.34	0.34	—	0.04	0.04	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.45	4.02	4.16	0.01	0.17	—	0.17	0.16	—	0.16	—	818	818	0.03	0.01	—	820
Dust From Material Movement	—	—	—	—	—	0.09	0.09	—	0.01	0.01	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.08	0.73	0.76	< 0.005	0.03	—	0.03	0.03	—	0.03	—	135	135	0.01	< 0.005	—	136
Dust From Material Movement	—	—	—	—	—	0.02	0.02	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.09	0.10	1.51	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	282	282	0.01	0.01	1.11	287
Vendor	< 0.005	0.15	0.07	< 0.005	< 0.005	0.03	0.04	< 0.005	0.01	0.01	—	129	129	0.01	0.02	0.35	135
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Worker	0.09	0.11	1.28	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	268	268	0.01	0.01	0.03	271
Vendor	< 0.005	0.16	0.08	< 0.005	< 0.005	0.03	0.04	< 0.005	0.01	0.01	—	129	129	0.01	0.02	0.01	135
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.03	0.37	0.00	0.00	0.07	0.07	0.00	0.02	0.02	—	74.4	74.4	< 0.005	< 0.005	0.13	75.4
Vendor	< 0.005	0.04	0.02	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	35.4	35.4	< 0.005	< 0.005	0.04	36.9
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	0.01	0.07	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	12.3	12.3	< 0.005	< 0.005	0.02	12.5
Vendor	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	5.85	5.85	< 0.005	< 0.005	0.01	6.11
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.11. Grading (2025) - Unmitigated

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

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	2.54	21.1	18.3	0.07	1.15	—	1.15	1.05	—	1.05	—	7,297	7,297	0.30	0.06	—	7,322
Dust From Material Movement	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.55	4.56	3.96	0.01	0.25	—	0.25	0.23	—	0.23	—	1,579	1,579	0.06	0.01	—	1,585
Dust From Material Movement	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.10	0.83	0.72	< 0.005	0.05	—	0.05	0.04	—	0.04	—	261	261	0.01	< 0.005	—	262
Dust From Material Movement	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.03	0.56	0.00	0.00	0.10	0.10	0.00	0.02	0.02	—	111	111	< 0.005	< 0.005	0.40	112
Vendor	< 0.005	0.14	0.07	< 0.005	< 0.005	0.03	0.04	< 0.005	0.01	0.01	—	127	127	0.01	0.02	0.35	133
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.11	0.00	0.00	0.02	0.02	0.00	0.01	0.01	—	23.0	23.0	< 0.005	< 0.005	0.04	23.3
Vendor	< 0.005	0.03	0.02	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	27.5	27.5	< 0.005	< 0.005	0.03	28.7

Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.02	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	3.81	3.81	< 0.005	< 0.005	0.01	3.86
Vendor	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	4.55	4.55	< 0.005	< 0.005	0.01	4.75
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.12. Grading (2025) - Mitigated

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

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	2.54	21.1	18.3	0.07	1.15	—	1.15	1.05	—	1.05	—	7,297	7,297	0.30	0.06	—	7,322
Dust From Material Movement	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.55	4.56	3.96	0.01	0.25	—	0.25	0.23	—	0.23	—	1,579	1,579	0.06	0.01	—	1,585
Dust From Material Movement	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—

Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.10	0.83	0.72	< 0.005	0.05	—	0.05	0.04	—	0.04	—	261	261	0.01	< 0.005	—	262
Dust From Material Movement	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.03	0.56	0.00	0.00	0.10	0.10	0.00	0.02	0.02	—	111	111	< 0.005	< 0.005	0.40	112
Vendor	< 0.005	0.14	0.07	< 0.005	< 0.005	0.03	0.04	< 0.005	0.01	0.01	—	127	127	0.01	0.02	0.35	133
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.11	0.00	0.00	0.02	0.02	0.00	0.01	0.01	—	23.0	23.0	< 0.005	< 0.005	0.04	23.3
Vendor	< 0.005	0.03	0.02	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	27.5	27.5	< 0.005	< 0.005	0.03	28.7
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.02	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	3.81	3.81	< 0.005	< 0.005	0.01	3.86
Vendor	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	4.55	4.55	< 0.005	< 0.005	0.01	4.75
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.13. Grading (2025) - Unmitigated

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

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	2.18	20.0	22.4	0.05	0.81	—	0.81	0.74	—	0.74	—	4,934	4,934	0.20	0.04	—	4,951
Dust From Material Movement	—	—	—	—	—	0.62	0.62	—	0.07	0.07	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	2.18	20.0	22.4	0.05	0.81	—	0.81	0.74	—	0.74	—	4,934	4,934	0.20	0.04	—	4,951
Dust From Material Movement	—	—	—	—	—	0.62	0.62	—	0.07	0.07	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.50	13.7	15.4	0.03	0.55	—	0.55	0.51	—	0.51	—	3,389	3,389	0.14	0.03	—	3,401
Dust From Material Movement	—	—	—	—	—	0.43	0.43	—	0.05	0.05	—	—	—	—	—	—	—

Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.27	2.51	2.80	0.01	0.10	—	0.10	0.09	—	0.09	—	561	561	0.02	< 0.005	—	563
Dust From Material Movement	—	—	—	—	—	0.08	0.08	—	0.01	0.01	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.16	0.16	2.64	0.00	0.00	0.50	0.50	0.00	0.12	0.12	—	525	525	0.02	0.02	1.92	533
Vendor	< 0.005	0.14	0.07	< 0.005	< 0.005	0.03	0.04	< 0.005	0.01	0.01	—	127	127	0.01	0.02	0.35	133
Hauling	0.02	1.36	0.53	0.01	0.01	0.30	0.31	0.01	0.08	0.10	—	1,108	1,108	0.06	0.17	2.57	1,164
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.16	0.18	2.24	0.00	0.00	0.50	0.50	0.00	0.12	0.12	—	498	498	0.02	0.02	0.05	504
Vendor	< 0.005	0.15	0.07	< 0.005	< 0.005	0.03	0.04	< 0.005	0.01	0.01	—	127	127	0.01	0.02	0.01	132
Hauling	0.02	1.41	0.53	0.01	0.01	0.30	0.31	0.01	0.08	0.10	—	1,109	1,109	0.06	0.17	0.07	1,162
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.11	0.14	1.62	0.00	0.00	0.34	0.34	0.00	0.08	0.08	—	347	347	0.02	0.01	0.57	352
Vendor	< 0.005	0.10	0.05	< 0.005	< 0.005	0.02	0.02	< 0.005	0.01	0.01	—	87.2	87.2	< 0.005	0.01	0.10	91.0
Hauling	0.01	0.98	0.37	0.01	0.01	0.20	0.21	0.01	0.06	0.06	—	761	761	0.04	0.12	0.76	799
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.02	0.30	0.00	0.00	0.06	0.06	0.00	0.01	0.01	—	57.5	57.5	< 0.005	< 0.005	0.09	58.2
Vendor	< 0.005	0.02	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	14.4	14.4	< 0.005	< 0.005	0.02	15.1

Hauling	< 0.005	0.18	0.07	< 0.005	< 0.005	0.04	0.04	< 0.005	0.01	0.01	—	126	126	0.01	0.02	0.13	132

3.14. Grading (2025) - Mitigated

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

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	2.18	20.0	22.4	0.05	0.81	—	0.81	0.74	—	0.74	—	4,934	4,934	0.20	0.04	—	4,951
Dust From Material Movement	—	—	—	—	—	0.62	0.62	—	0.07	0.07	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	2.18	20.0	22.4	0.05	0.81	—	0.81	0.74	—	0.74	—	4,934	4,934	0.20	0.04	—	4,951
Dust From Material Movement	—	—	—	—	—	0.62	0.62	—	0.07	0.07	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.50	13.7	15.4	0.03	0.55	—	0.55	0.51	—	0.51	—	3,389	3,389	0.14	0.03	—	3,401

Dust From Material Movement	—	—	—	—	—	0.43	0.43	—	0.05	0.05	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.27	2.51	2.80	0.01	0.10	—	0.10	0.09	—	0.09	—	561	561	0.02	< 0.005	—	563
Dust From Material Movement	—	—	—	—	—	0.08	0.08	—	0.01	0.01	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.16	0.16	2.64	0.00	0.00	0.50	0.50	0.00	0.12	0.12	—	525	525	0.02	0.02	1.92	533
Vendor	< 0.005	0.14	0.07	< 0.005	< 0.005	0.03	0.04	< 0.005	0.01	0.01	—	127	127	0.01	0.02	0.35	133
Hauling	0.02	1.36	0.53	0.01	0.01	0.30	0.31	0.01	0.08	0.10	—	1,108	1,108	0.06	0.17	2.57	1,164
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.16	0.18	2.24	0.00	0.00	0.50	0.50	0.00	0.12	0.12	—	498	498	0.02	0.02	0.05	504
Vendor	< 0.005	0.15	0.07	< 0.005	< 0.005	0.03	0.04	< 0.005	0.01	0.01	—	127	127	0.01	0.02	0.01	132
Hauling	0.02	1.41	0.53	0.01	0.01	0.30	0.31	0.01	0.08	0.10	—	1,109	1,109	0.06	0.17	0.07	1,162
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.11	0.14	1.62	0.00	0.00	0.34	0.34	0.00	0.08	0.08	—	347	347	0.02	0.01	0.57	352
Vendor	< 0.005	0.10	0.05	< 0.005	< 0.005	0.02	0.02	< 0.005	0.01	0.01	—	87.2	87.2	< 0.005	0.01	0.10	91.0
Hauling	0.01	0.98	0.37	0.01	0.01	0.20	0.21	0.01	0.06	0.06	—	761	761	0.04	0.12	0.76	799

Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.02	0.30	0.00	0.00	0.06	0.06	0.00	0.01	0.01	—	57.5	57.5	< 0.005	< 0.005	0.09	58.2
Vendor	< 0.005	0.02	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	14.4	14.4	< 0.005	< 0.005	0.02	15.1
Hauling	< 0.005	0.18	0.07	< 0.005	< 0.005	0.04	0.04	< 0.005	0.01	0.01	—	126	126	0.01	0.02	0.13	132

3.15. Grading (2026) - Unmitigated

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

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	2.06	18.3	22.1	0.05	0.72	—	0.72	0.66	—	0.66	—	4,933	4,933	0.20	0.04	—	4,950
Dust From Material Movement	—	—	—	—	—	0.62	0.62	—	0.07	0.07	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.20	1.76	2.12	< 0.005	0.07	—	0.07	0.06	—	0.06	—	473	473	0.02	< 0.005	—	475
Dust From Material Movement	—	—	—	—	—	0.06	0.06	—	0.01	0.01	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.04	0.32	0.39	< 0.005	0.01	—	0.01	0.01	—	0.01	—	78.3	78.3	< 0.005	< 0.005	—	78.6
Dust From Material Movement	—	—	—	—	—	0.01	0.01	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.14	0.17	2.09	0.00	0.00	0.50	0.50	0.00	0.12	0.12	—	488	488	0.02	0.02	0.05	494
Vendor	< 0.005	0.14	0.07	< 0.005	< 0.005	0.03	0.04	< 0.005	0.01	0.01	—	125	125	0.01	0.02	0.01	130
Hauling	0.02	1.36	0.52	0.01	0.01	0.30	0.31	0.01	0.08	0.10	—	1,089	1,089	0.06	0.17	0.06	1,142
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.02	0.21	0.00	0.00	0.05	0.05	0.00	0.01	0.01	—	47.5	47.5	< 0.005	< 0.005	0.07	48.1
Vendor	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	12.0	12.0	< 0.005	< 0.005	0.01	12.5
Hauling	< 0.005	0.13	0.05	< 0.005	< 0.005	0.03	0.03	< 0.005	0.01	0.01	—	104	104	0.01	0.02	0.10	110
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.04	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	7.86	7.86	< 0.005	< 0.005	0.01	7.97
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	1.98	1.98	< 0.005	< 0.005	< 0.005	2.07
Hauling	< 0.005	0.02	0.01	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	17.3	17.3	< 0.005	< 0.005	0.02	18.1

3.16. Grading (2026) - Mitigated

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

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	2.06	18.3	22.1	0.05	0.72	—	0.72	0.66	—	0.66	—	4,933	4,933	0.20	0.04	—	4,950
Dust From Material Movement	—	—	—	—	—	0.62	0.62	—	0.07	0.07	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.20	1.76	2.12	< 0.005	0.07	—	0.07	0.06	—	0.06	—	473	473	0.02	< 0.005	—	475
Dust From Material Movement	—	—	—	—	—	0.06	0.06	—	0.01	0.01	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.04	0.32	0.39	< 0.005	0.01	—	0.01	0.01	—	0.01	—	78.3	78.3	< 0.005	< 0.005	—	78.6
Dust From Material Movement	—	—	—	—	—	0.01	0.01	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.14	0.17	2.09	0.00	0.00	0.50	0.50	0.00	0.12	0.12	—	488	488	0.02	0.02	0.05	494
Vendor	< 0.005	0.14	0.07	< 0.005	< 0.005	0.03	0.04	< 0.005	0.01	0.01	—	125	125	0.01	0.02	0.01	130
Hauling	0.02	1.36	0.52	0.01	0.01	0.30	0.31	0.01	0.08	0.10	—	1,089	1,089	0.06	0.17	0.06	1,142
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.02	0.21	0.00	0.00	0.05	0.05	0.00	0.01	0.01	—	47.5	47.5	< 0.005	< 0.005	0.07	48.1
Vendor	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	12.0	12.0	< 0.005	< 0.005	0.01	12.5
Hauling	< 0.005	0.13	0.05	< 0.005	< 0.005	0.03	0.03	< 0.005	0.01	0.01	—	104	104	0.01	0.02	0.10	110
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.04	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	7.86	7.86	< 0.005	< 0.005	0.01	7.97
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	1.98	1.98	< 0.005	< 0.005	< 0.005	2.07
Hauling	< 0.005	0.02	0.01	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	17.3	17.3	< 0.005	< 0.005	0.02	18.1

3.17. Building Construction (2025) - Unmitigated

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

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.88	8.50	9.53	0.02	0.33	—	0.33	0.31	—	0.31	—	1,646	1,646	0.07	0.01	—	1,652

Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.88	8.50	9.53	0.02	0.33	—	0.33	0.31	—	0.31	—	1,646	1,646	0.07	0.01	—	1,652
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.32	3.08	3.45	0.01	0.12	—	0.12	0.11	—	0.11	—	595	595	0.02	< 0.005	—	597
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.06	0.56	0.63	< 0.005	0.02	—	0.02	0.02	—	0.02	—	98.6	98.6	< 0.005	< 0.005	—	98.9
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.03	0.56	0.00	0.00	0.10	0.10	0.00	0.02	0.02	—	111	111	< 0.005	< 0.005	0.40	112
Vendor	< 0.005	0.14	0.07	< 0.005	< 0.005	0.03	0.04	< 0.005	0.01	0.01	—	127	127	0.01	0.02	0.35	133
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.04	0.47	0.00	0.00	0.10	0.10	0.00	0.02	0.02	—	105	105	< 0.005	< 0.005	0.01	106
Vendor	< 0.005	0.15	0.07	< 0.005	< 0.005	0.03	0.04	< 0.005	0.01	0.01	—	127	127	0.01	0.02	0.01	132
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.02	0.18	0.00	0.00	0.04	0.04	0.00	0.01	0.01	—	38.5	38.5	< 0.005	< 0.005	0.06	39.0
Vendor	< 0.005	0.05	0.03	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	45.9	45.9	< 0.005	0.01	0.05	47.9
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.03	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	6.37	6.37	< 0.005	< 0.005	0.01	6.46
Vendor	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	7.60	7.60	< 0.005	< 0.005	0.01	7.93
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.18. Building Construction (2025) - Mitigated

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

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.88	8.50	9.53	0.02	0.33	—	0.33	0.31	—	0.31	—	1,646	1,646	0.07	0.01	—	1,652
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.88	8.50	9.53	0.02	0.33	—	0.33	0.31	—	0.31	—	1,646	1,646	0.07	0.01	—	1,652
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipment	0.32	3.08	3.45	0.01	0.12	—	0.12	0.11	—	0.11	—	595	595	0.02	< 0.005	—	597
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.06	0.56	0.63	< 0.005	0.02	—	0.02	0.02	—	0.02	—	98.6	98.6	< 0.005	< 0.005	—	98.9
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.03	0.56	0.00	0.00	0.10	0.10	0.00	0.02	0.02	—	111	111	< 0.005	< 0.005	0.40	112
Vendor	< 0.005	0.14	0.07	< 0.005	< 0.005	0.03	0.04	< 0.005	0.01	0.01	—	127	127	0.01	0.02	0.35	133
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.04	0.47	0.00	0.00	0.10	0.10	0.00	0.02	0.02	—	105	105	< 0.005	< 0.005	0.01	106
Vendor	< 0.005	0.15	0.07	< 0.005	< 0.005	0.03	0.04	< 0.005	0.01	0.01	—	127	127	0.01	0.02	0.01	132
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.02	0.18	0.00	0.00	0.04	0.04	0.00	0.01	0.01	—	38.5	38.5	< 0.005	< 0.005	0.06	39.0
Vendor	< 0.005	0.05	0.03	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	45.9	45.9	< 0.005	0.01	0.05	47.9
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.03	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	6.37	6.37	< 0.005	< 0.005	0.01	6.46
Vendor	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	7.60	7.60	< 0.005	< 0.005	0.01	7.93
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.19. Building Construction (2025) - Unmitigated

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

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.53	5.08	5.01	0.01	0.19	—	0.19	0.17	—	0.17	—	1,207	1,207	0.05	0.01	—	1,211
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.53	5.08	5.01	0.01	0.19	—	0.19	0.17	—	0.17	—	1,207	1,207	0.05	0.01	—	1,211
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.09	0.84	0.82	< 0.005	0.03	—	0.03	0.03	—	0.03	—	198	198	0.01	< 0.005	—	199
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.02	0.15	0.15	< 0.005	0.01	—	0.01	0.01	—	0.01	—	32.8	32.8	< 0.005	< 0.005	—	33.0
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.03	0.56	0.00	0.00	0.10	0.10	0.00	0.02	0.02	—	111	111	< 0.005	< 0.005	0.40	112
Vendor	< 0.005	0.14	0.07	< 0.005	< 0.005	0.03	0.04	< 0.005	0.01	0.01	—	127	127	0.01	0.02	0.35	133
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.04	0.47	0.00	0.00	0.10	0.10	0.00	0.02	0.02	—	105	105	< 0.005	< 0.005	0.01	106
Vendor	< 0.005	0.15	0.07	< 0.005	< 0.005	0.03	0.04	< 0.005	0.01	0.01	—	127	127	0.01	0.02	0.01	132
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.08	0.00	0.00	0.02	0.02	0.00	< 0.005	< 0.005	—	17.5	17.5	< 0.005	< 0.005	0.03	17.7
Vendor	< 0.005	0.02	0.01	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	20.9	20.9	< 0.005	< 0.005	0.02	21.8
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	2.90	2.90	< 0.005	< 0.005	< 0.005	2.93
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	3.45	3.45	< 0.005	< 0.005	< 0.005	3.61
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.20. Building Construction (2025) - Mitigated

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

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

Off-Road Equipment	0.53	5.08	5.01	0.01	0.19	—	0.19	0.17	—	0.17	—	1,207	1,207	0.05	0.01	—	1,211
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.53	5.08	5.01	0.01	0.19	—	0.19	0.17	—	0.17	—	1,207	1,207	0.05	0.01	—	1,211
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.09	0.84	0.82	< 0.005	0.03	—	0.03	0.03	—	0.03	—	198	198	0.01	< 0.005	—	199
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.02	0.15	0.15	< 0.005	0.01	—	0.01	0.01	—	0.01	—	32.8	32.8	< 0.005	< 0.005	—	33.0
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.03	0.56	0.00	0.00	0.10	0.10	0.00	0.02	0.02	—	111	111	< 0.005	< 0.005	0.40	112
Vendor	< 0.005	0.14	0.07	< 0.005	< 0.005	0.03	0.04	< 0.005	0.01	0.01	—	127	127	0.01	0.02	0.35	133
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.04	0.47	0.00	0.00	0.10	0.10	0.00	0.02	0.02	—	105	105	< 0.005	< 0.005	0.01	106

Vendor	< 0.005	0.15	0.07	< 0.005	< 0.005	0.03	0.04	< 0.005	0.01	0.01	—	127	127	0.01	0.02	0.01	132
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.08	0.00	0.00	0.02	0.02	0.00	< 0.005	< 0.005	—	17.5	17.5	< 0.005	< 0.005	0.03	17.7
Vendor	< 0.005	0.02	0.01	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	20.9	20.9	< 0.005	< 0.005	0.02	21.8
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	2.90	2.90	< 0.005	< 0.005	< 0.005	2.93
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	3.45	3.45	< 0.005	< 0.005	< 0.005	3.61
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.21. Building Construction (2025) - Unmitigated

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

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.20	2.03	2.89	< 0.005	0.07	—	0.07	0.06	—	0.06	—	455	455	0.02	< 0.005	—	457
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.03	0.32	0.46	< 0.005	0.01	—	0.01	0.01	—	0.01	—	72.2	72.2	< 0.005	< 0.005	—	72.4

Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.06	0.08	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	11.9	11.9	< 0.005	< 0.005	—	12.0
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.04	0.47	0.00	0.00	0.10	0.10	0.00	0.02	0.02	—	105	105	< 0.005	< 0.005	0.01	106
Vendor	< 0.005	0.15	0.07	< 0.005	< 0.005	0.03	0.04	< 0.005	0.01	0.01	—	127	127	0.01	0.02	0.01	132
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.08	0.00	0.00	0.02	0.02	0.00	< 0.005	< 0.005	—	16.9	16.9	< 0.005	< 0.005	0.03	17.1
Vendor	< 0.005	0.02	0.01	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	20.1	20.1	< 0.005	< 0.005	0.02	21.0
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	2.79	2.79	< 0.005	< 0.005	< 0.005	2.83
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	3.33	3.33	< 0.005	< 0.005	< 0.005	3.48
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.22. Building Construction (2025) - Mitigated

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

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

Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.20	2.03	2.89	< 0.005	0.07	—	0.07	0.06	—	0.06	—	455	455	0.02	< 0.005	—	457
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.03	0.32	0.46	< 0.005	0.01	—	0.01	0.01	—	0.01	—	72.2	72.2	< 0.005	< 0.005	—	72.4
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.06	0.08	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	11.9	11.9	< 0.005	< 0.005	—	12.0
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.04	0.47	0.00	0.00	0.10	0.10	0.00	0.02	0.02	—	105	105	< 0.005	< 0.005	0.01	106
Vendor	< 0.005	0.15	0.07	< 0.005	< 0.005	0.03	0.04	< 0.005	0.01	0.01	—	127	127	0.01	0.02	0.01	132
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.08	0.00	0.00	0.02	0.02	0.00	< 0.005	< 0.005	—	16.9	16.9	< 0.005	< 0.005	0.03	17.1
Vendor	< 0.005	0.02	0.01	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	20.1	20.1	< 0.005	< 0.005	0.02	21.0
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	2.79	2.79	< 0.005	< 0.005	< 0.005	2.83
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	3.33	3.33	< 0.005	< 0.005	< 0.005	3.48
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.23. Building Construction (2026) - Unmitigated

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

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.19	1.97	2.88	< 0.005	0.06	—	0.06	0.06	—	0.06	—	455	455	0.02	< 0.005	—	457
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	0.02	0.02	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	3.56	3.56	< 0.005	< 0.005	—	3.58
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipment	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	0.59	0.59	< 0.005	< 0.005	—	0.59
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.03	0.44	0.00	0.00	0.10	0.10	0.00	0.02	0.02	—	103	103	< 0.005	< 0.005	0.01	104
Vendor	< 0.005	0.14	0.07	< 0.005	< 0.005	0.03	0.04	< 0.005	0.01	0.01	—	125	125	0.01	0.02	0.01	130
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.82	0.82	< 0.005	< 0.005	< 0.005	0.83
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	0.98	0.98	< 0.005	< 0.005	< 0.005	1.02
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.14	0.14	< 0.005	< 0.005	< 0.005	0.14
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	0.16	0.16	< 0.005	< 0.005	< 0.005	0.17
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.24. Building Construction (2026) - Mitigated

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

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

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.19	1.97	2.88	< 0.005	0.06	—	0.06	0.06	—	0.06	—	455	455	0.02	< 0.005	—	457
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	0.02	0.02	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	3.56	3.56	< 0.005	< 0.005	—	3.58
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	0.59	0.59	< 0.005	< 0.005	—	0.59
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.03	0.44	0.00	0.00	0.10	0.10	0.00	0.02	0.02	—	103	103	< 0.005	< 0.005	0.01	104
Vendor	< 0.005	0.14	0.07	< 0.005	< 0.005	0.03	0.04	< 0.005	0.01	0.01	—	125	125	0.01	0.02	0.01	130
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Worker	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.82	0.82	< 0.005	< 0.005	< 0.005	0.83
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	0.98	0.98	< 0.005	< 0.005	< 0.005	1.02
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.14	0.14	< 0.005	< 0.005	< 0.005	0.14
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	0.16	0.16	< 0.005	< 0.005	< 0.005	0.17
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.25. Building Construction (2024) - Unmitigated

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

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.47	3.89	4.61	0.01	0.18	—	0.18	0.16	—	0.16	—	669	669	0.03	0.01	—	672
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.47	3.89	4.61	0.01	0.18	—	0.18	0.16	—	0.16	—	669	669	0.03	0.01	—	672
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.14	1.16	1.38	< 0.005	0.05	—	0.05	0.05	—	0.05	—	200	200	0.01	< 0.005	—	201

Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.03	0.21	0.25	< 0.005	0.01	—	0.01	0.01	—	0.01	—	33.2	33.2	< 0.005	< 0.005	—	33.3
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.04	0.60	0.00	0.00	0.10	0.10	0.00	0.02	0.02	—	113	113	< 0.005	< 0.005	0.45	115
Vendor	< 0.005	0.15	0.07	< 0.005	< 0.005	0.03	0.04	< 0.005	0.01	0.01	—	129	129	0.01	0.02	0.35	135
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.05	0.51	0.00	0.00	0.10	0.10	0.00	0.02	0.02	—	107	107	< 0.005	< 0.005	0.01	108
Vendor	< 0.005	0.16	0.08	< 0.005	< 0.005	0.03	0.04	< 0.005	0.01	0.01	—	129	129	0.01	0.02	0.01	135
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.16	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	32.5	32.5	< 0.005	< 0.005	0.06	33.0
Vendor	< 0.005	0.05	0.02	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	38.6	38.6	< 0.005	0.01	0.05	40.3
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.03	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	5.39	5.39	< 0.005	< 0.005	0.01	5.46
Vendor	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	6.40	6.40	< 0.005	< 0.005	0.01	6.67
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.26. Building Construction (2024) - Mitigated

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

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.47	3.89	4.61	0.01	0.18	—	0.18	0.16	—	0.16	—	669	669	0.03	0.01	—	672
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.47	3.89	4.61	0.01	0.18	—	0.18	0.16	—	0.16	—	669	669	0.03	0.01	—	672
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.14	1.16	1.38	< 0.005	0.05	—	0.05	0.05	—	0.05	—	200	200	0.01	< 0.005	—	201
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.03	0.21	0.25	< 0.005	0.01	—	0.01	0.01	—	0.01	—	33.2	33.2	< 0.005	< 0.005	—	33.3
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.04	0.60	0.00	0.00	0.10	0.10	0.00	0.02	0.02	—	113	113	< 0.005	< 0.005	0.45	115
Vendor	< 0.005	0.15	0.07	< 0.005	< 0.005	0.03	0.04	< 0.005	0.01	0.01	—	129	129	0.01	0.02	0.35	135
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.05	0.51	0.00	0.00	0.10	0.10	0.00	0.02	0.02	—	107	107	< 0.005	< 0.005	0.01	108
Vendor	< 0.005	0.16	0.08	< 0.005	< 0.005	0.03	0.04	< 0.005	0.01	0.01	—	129	129	0.01	0.02	0.01	135
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.16	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	32.5	32.5	< 0.005	< 0.005	0.06	33.0
Vendor	< 0.005	0.05	0.02	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	38.6	38.6	< 0.005	0.01	0.05	40.3
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.03	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	5.39	5.39	< 0.005	< 0.005	0.01	5.46
Vendor	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	6.40	6.40	< 0.005	< 0.005	0.01	6.67
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.27. Building Construction (2025) - Unmitigated

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

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

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.45	3.74	4.59	0.01	0.16	—	0.16	0.15	—	0.15	—	669	669	0.03	0.01	—	671
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.03	0.23	0.28	< 0.005	0.01	—	0.01	0.01	—	0.01	—	40.6	40.6	< 0.005	< 0.005	—	40.7
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	0.04	0.05	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	6.72	6.72	< 0.005	< 0.005	—	6.74
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.04	0.47	0.00	0.00	0.10	0.10	0.00	0.02	0.02	—	105	105	< 0.005	< 0.005	0.01	106
Vendor	< 0.005	0.15	0.07	< 0.005	< 0.005	0.03	0.04	< 0.005	0.01	0.01	—	127	127	0.01	0.02	0.01	132
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.03	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	6.45	6.45	< 0.005	< 0.005	0.01	6.54
Vendor	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	7.70	7.70	< 0.005	< 0.005	0.01	8.04
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	1.07	1.07	< 0.005	< 0.005	< 0.005	1.08
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	1.27	1.27	< 0.005	< 0.005	< 0.005	1.33
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.28. Building Construction (2025) - Mitigated

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

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.45	3.74	4.59	0.01	0.16	—	0.16	0.15	—	0.15	—	669	669	0.03	0.01	—	671
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.03	0.23	0.28	< 0.005	0.01	—	0.01	0.01	—	0.01	—	40.6	40.6	< 0.005	< 0.005	—	40.7
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	0.04	0.05	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	6.72	6.72	< 0.005	< 0.005	—	6.74
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.04	0.47	0.00	0.00	0.10	0.10	0.00	0.02	0.02	—	105	105	< 0.005	< 0.005	0.01	106
Vendor	< 0.005	0.15	0.07	< 0.005	< 0.005	0.03	0.04	< 0.005	0.01	0.01	—	127	127	0.01	0.02	0.01	132
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.03	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	6.45	6.45	< 0.005	< 0.005	0.01	6.54
Vendor	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	7.70	7.70	< 0.005	< 0.005	0.01	8.04
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	1.07	1.07	< 0.005	< 0.005	< 0.005	1.08
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	1.27	1.27	< 0.005	< 0.005	< 0.005	1.33
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.29. Paving (2025) - Unmitigated

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

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.30	2.80	3.74	0.01	0.13	—	0.13	0.12	—	0.12	—	567	567	0.02	< 0.005	—	569
Paving	0.23	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.30	2.80	3.74	0.01	0.13	—	0.13	0.12	—	0.12	—	567	567	0.02	< 0.005	—	569
Paving	0.23	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.21	1.92	2.57	< 0.005	0.09	—	0.09	0.08	—	0.08	—	389	389	0.02	< 0.005	—	391
Paving	0.16	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.04	0.35	0.47	< 0.005	0.02	—	0.02	0.02	—	0.02	—	64.5	64.5	< 0.005	< 0.005	—	64.7
Paving	0.03	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.09	0.10	1.53	0.00	0.00	0.29	0.29	0.00	0.07	0.07	—	304	304	0.01	0.01	1.11	309
Vendor	< 0.005	0.14	0.07	< 0.005	< 0.005	0.03	0.04	< 0.005	0.01	0.01	—	127	127	0.01	0.02	0.35	133
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Worker	0.09	0.11	1.30	0.00	0.00	0.29	0.29	0.00	0.07	0.07	—	288	288	0.01	0.01	0.03	292
Vendor	< 0.005	0.15	0.07	< 0.005	< 0.005	0.03	0.04	< 0.005	0.01	0.01	—	127	127	0.01	0.02	0.01	132
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.06	0.08	0.94	0.00	0.00	0.19	0.19	0.00	0.05	0.05	—	201	201	0.01	0.01	0.33	204
Vendor	< 0.005	0.10	0.05	< 0.005	< 0.005	0.02	0.02	< 0.005	0.01	0.01	—	87.2	87.2	< 0.005	0.01	0.10	91.0
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.17	0.00	0.00	0.04	0.04	0.00	0.01	0.01	—	33.3	33.3	< 0.005	< 0.005	0.05	33.7
Vendor	< 0.005	0.02	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	14.4	14.4	< 0.005	< 0.005	0.02	15.1
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.30. Paving (2025) - Mitigated

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

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.30	2.80	3.74	0.01	0.13	—	0.13	0.12	—	0.12	—	567	567	0.02	< 0.005	—	569
Paving	0.23	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.30	2.80	3.74	0.01	0.13	—	0.13	0.12	—	0.12	—	567	567	0.02	< 0.005	—	569

Paving	0.23	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.21	1.92	2.57	< 0.005	0.09	—	0.09	0.08	—	0.08	—	389	389	0.02	< 0.005	—	391
Paving	0.16	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.04	0.35	0.47	< 0.005	0.02	—	0.02	0.02	—	0.02	—	64.5	64.5	< 0.005	< 0.005	—	64.7
Paving	0.03	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.09	0.10	1.53	0.00	0.00	0.29	0.29	0.00	0.07	0.07	—	304	304	0.01	0.01	1.11	309
Vendor	< 0.005	0.14	0.07	< 0.005	< 0.005	0.03	0.04	< 0.005	0.01	0.01	—	127	127	0.01	0.02	0.35	133
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.09	0.11	1.30	0.00	0.00	0.29	0.29	0.00	0.07	0.07	—	288	288	0.01	0.01	0.03	292
Vendor	< 0.005	0.15	0.07	< 0.005	< 0.005	0.03	0.04	< 0.005	0.01	0.01	—	127	127	0.01	0.02	0.01	132
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.06	0.08	0.94	0.00	0.00	0.19	0.19	0.00	0.05	0.05	—	201	201	0.01	0.01	0.33	204

Vendor	< 0.005	0.10	0.05	< 0.005	< 0.005	0.02	0.02	< 0.005	0.01	0.01	—	87.2	87.2	< 0.005	0.01	0.10	91.0
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.17	0.00	0.00	0.04	0.04	0.00	0.01	0.01	—	33.3	33.3	< 0.005	< 0.005	0.05	33.7
Vendor	< 0.005	0.02	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	14.4	14.4	< 0.005	< 0.005	0.02	15.1
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.31. Paving (2026) - Unmitigated

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

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.29	2.67	3.73	0.01	0.12	—	0.12	0.11	—	0.11	—	566	566	0.02	< 0.005	—	568
Paving	0.23	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.03	0.26	0.36	< 0.005	0.01	—	0.01	0.01	—	0.01	—	54.3	54.3	< 0.005	< 0.005	—	54.5
Paving	0.02	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipment	< 0.005	0.05	0.07	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	8.99	8.99	< 0.005	< 0.005	—	9.02
Paving	< 0.005	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.08	0.10	1.21	0.00	0.00	0.29	0.29	0.00	0.07	0.07	—	283	283	0.01	0.01	0.03	286
Vendor	< 0.005	0.14	0.07	< 0.005	< 0.005	0.03	0.04	< 0.005	0.01	0.01	—	125	125	0.01	0.02	0.01	130
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.12	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	27.5	27.5	< 0.005	< 0.005	0.04	27.9
Vendor	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	12.0	12.0	< 0.005	< 0.005	0.01	12.5
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.02	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	4.55	4.55	< 0.005	< 0.005	0.01	4.61
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	1.98	1.98	< 0.005	< 0.005	< 0.005	2.07
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.32. Paving (2026) - Mitigated

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

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

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.29	2.67	3.73	0.01	0.12	—	0.12	0.11	—	0.11	—	566	566	0.02	< 0.005	—	568
Paving	0.23	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.03	0.26	0.36	< 0.005	0.01	—	0.01	0.01	—	0.01	—	54.3	54.3	< 0.005	< 0.005	—	54.5
Paving	0.02	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	0.05	0.07	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	8.99	8.99	< 0.005	< 0.005	—	9.02
Paving	< 0.005	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.08	0.10	1.21	0.00	0.00	0.29	0.29	0.00	0.07	0.07	—	283	283	0.01	0.01	0.03	286
Vendor	< 0.005	0.14	0.07	< 0.005	< 0.005	0.03	0.04	< 0.005	0.01	0.01	—	125	125	0.01	0.02	0.01	130

Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.12	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	27.5	27.5	< 0.005	< 0.005	0.04	27.9
Vendor	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	12.0	12.0	< 0.005	< 0.005	0.01	12.5
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.02	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	4.55	4.55	< 0.005	< 0.005	0.01	4.61
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	1.98	1.98	< 0.005	< 0.005	< 0.005	2.07
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.33. Architectural Coating (2026) - Unmitigated

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

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.23	1.85	2.42	< 0.005	0.06	—	0.06	0.06	—	0.06	—	339	339	0.01	< 0.005	—	340
Architectural Coatings	1.72	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipment	0.04	0.30	0.39	< 0.005	0.01	—	0.01	0.01	—	0.01	—	54.8	54.8	< 0.005	< 0.005	—	55.0
Architectural Coatings	0.28	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.05	0.07	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	9.07	9.07	< 0.005	< 0.005	—	9.10
Architectural Coatings	0.05	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.03	0.33	0.00	0.00	0.08	0.08	0.00	0.02	0.02	—	77.1	77.1	< 0.005	< 0.005	0.01	78.0
Vendor	< 0.005	0.07	0.03	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	0.01	—	62.4	62.4	< 0.005	0.01	< 0.005	65.1
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.06	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	12.6	12.6	< 0.005	< 0.005	0.02	12.8
Vendor	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	10.1	10.1	< 0.005	< 0.005	0.01	10.5
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	2.09	2.09	< 0.005	< 0.005	< 0.005	2.12

Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	1.67	1.67	< 0.005	< 0.005	< 0.005	1.74
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.34. Architectural Coating (2026) - Mitigated

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

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.23	1.85	2.42	< 0.005	0.06	—	0.06	0.06	—	0.06	—	339	339	0.01	< 0.005	—	340
Architectural Coatings	1.72	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.04	0.30	0.39	< 0.005	0.01	—	0.01	0.01	—	0.01	—	54.8	54.8	< 0.005	< 0.005	—	55.0
Architectural Coatings	0.28	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.05	0.07	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	9.07	9.07	< 0.005	< 0.005	—	9.10

Architectu Coatings	0.05	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.03	0.33	0.00	0.00	0.08	0.08	0.00	0.02	0.02	—	77.1	77.1	< 0.005	< 0.005	0.01	78.0
Vendor	< 0.005	0.07	0.03	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	0.01	—	62.4	62.4	< 0.005	0.01	< 0.005	65.1
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.06	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	12.6	12.6	< 0.005	< 0.005	0.02	12.8
Vendor	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	10.1	10.1	< 0.005	< 0.005	0.01	10.5
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	2.09	2.09	< 0.005	< 0.005	< 0.005	2.12
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	1.67	1.67	< 0.005	< 0.005	< 0.005	1.74
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.35. Architectural Coating (2025) - Unmitigated

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

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

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.25	2.27	2.82	< 0.005	0.06	—	0.06	0.06	—	0.06	—	402	402	0.02	< 0.005	—	403
Architectural Coatings	0.41	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.25	2.27	2.82	< 0.005	0.06	—	0.06	0.06	—	0.06	—	402	402	0.02	< 0.005	—	403
Architectural Coatings	0.41	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.10	0.93	1.16	< 0.005	0.03	—	0.03	0.02	—	0.02	—	165	165	0.01	< 0.005	—	166
Architectural Coatings	0.17	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.02	0.17	0.21	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	27.3	27.3	< 0.005	< 0.005	—	27.4
Architectural Coatings	0.03	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.03	0.42	0.00	0.00	0.08	0.08	0.00	0.02	0.02	—	83.0	83.0	< 0.005	< 0.005	0.30	84.2
Vendor	< 0.005	0.07	0.04	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	0.01	—	63.5	63.5	< 0.005	0.01	0.17	66.3
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.03	0.35	0.00	0.00	0.08	0.08	0.00	0.02	0.02	—	78.6	78.6	< 0.005	< 0.005	0.01	79.6
Vendor	< 0.005	0.08	0.04	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	0.01	—	63.5	63.5	< 0.005	0.01	< 0.005	66.2
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.15	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	32.8	32.8	< 0.005	< 0.005	0.05	33.2
Vendor	< 0.005	0.03	0.01	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	26.1	26.1	< 0.005	< 0.005	0.03	27.2
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.03	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	5.43	5.43	< 0.005	< 0.005	0.01	5.50
Vendor	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	4.32	4.32	< 0.005	< 0.005	0.01	4.51
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.36. Architectural Coating (2025) - Mitigated

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

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

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.25	2.27	2.82	< 0.005	0.06	—	0.06	0.06	—	0.06	—	402	402	0.02	< 0.005	—	403
Architectural Coatings	0.41	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.25	2.27	2.82	< 0.005	0.06	—	0.06	0.06	—	0.06	—	402	402	0.02	< 0.005	—	403
Architectural Coatings	0.41	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.10	0.93	1.16	< 0.005	0.03	—	0.03	0.02	—	0.02	—	165	165	0.01	< 0.005	—	166
Architectural Coatings	0.17	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.02	0.17	0.21	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	27.3	27.3	< 0.005	< 0.005	—	27.4
Architectural Coatings	0.03	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.03	0.42	0.00	0.00	0.08	0.08	0.00	0.02	0.02	—	83.0	83.0	< 0.005	< 0.005	0.30	84.2
Vendor	< 0.005	0.07	0.04	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	0.01	—	63.5	63.5	< 0.005	0.01	0.17	66.3
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.03	0.35	0.00	0.00	0.08	0.08	0.00	0.02	0.02	—	78.6	78.6	< 0.005	< 0.005	0.01	79.6
Vendor	< 0.005	0.08	0.04	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	0.01	—	63.5	63.5	< 0.005	0.01	< 0.005	66.2
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.15	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	32.8	32.8	< 0.005	< 0.005	0.05	33.2
Vendor	< 0.005	0.03	0.01	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	26.1	26.1	< 0.005	< 0.005	0.03	27.2
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.03	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	5.43	5.43	< 0.005	< 0.005	0.01	5.50
Vendor	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	4.32	4.32	< 0.005	< 0.005	0.01	4.51
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.37. Trenching (2025) - Unmitigated

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

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

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.71	5.91	6.92	0.01	0.18	—	0.18	0.16	—	0.16	—	946	946	0.04	0.01	—	949
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.71	5.91	6.92	0.01	0.18	—	0.18	0.16	—	0.16	—	946	946	0.04	0.01	—	949
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.49	4.06	4.75	0.01	0.12	—	0.12	0.11	—	0.11	—	650	650	0.03	0.01	—	652
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.09	0.74	0.87	< 0.005	0.02	—	0.02	0.02	—	0.02	—	108	108	< 0.005	< 0.005	—	108
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.09	0.10	1.53	0.00	0.00	0.29	0.29	0.00	0.07	0.07	—	304	304	0.01	0.01	1.11	309
Vendor	< 0.005	0.07	0.04	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	0.01	—	63.5	63.5	< 0.005	0.01	0.17	66.3
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.09	0.11	1.30	0.00	0.00	0.29	0.29	0.00	0.07	0.07	—	288	288	0.01	0.01	0.03	292
Vendor	< 0.005	0.08	0.04	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	0.01	—	63.5	63.5	< 0.005	0.01	< 0.005	66.2
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.06	0.08	0.94	0.00	0.00	0.19	0.19	0.00	0.05	0.05	—	201	201	0.01	0.01	0.33	204
Vendor	< 0.005	0.05	0.02	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	43.6	43.6	< 0.005	0.01	0.05	45.5
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.17	0.00	0.00	0.04	0.04	0.00	0.01	0.01	—	33.3	33.3	< 0.005	< 0.005	0.05	33.7
Vendor	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	7.22	7.22	< 0.005	< 0.005	0.01	7.53
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.38. Trenching (2025) - Mitigated

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

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.71	5.91	6.92	0.01	0.18	—	0.18	0.16	—	0.16	—	946	946	0.04	0.01	—	949
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipment	0.71	5.91	6.92	0.01	0.18	—	0.18	0.16	—	0.16	—	946	946	0.04	0.01	—	949
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.49	4.06	4.75	0.01	0.12	—	0.12	0.11	—	0.11	—	650	650	0.03	0.01	—	652
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.09	0.74	0.87	< 0.005	0.02	—	0.02	0.02	—	0.02	—	108	108	< 0.005	< 0.005	—	108
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.09	0.10	1.53	0.00	0.00	0.29	0.29	0.00	0.07	0.07	—	304	304	0.01	0.01	1.11	309
Vendor	< 0.005	0.07	0.04	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	0.01	—	63.5	63.5	< 0.005	0.01	0.17	66.3
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.09	0.11	1.30	0.00	0.00	0.29	0.29	0.00	0.07	0.07	—	288	288	0.01	0.01	0.03	292
Vendor	< 0.005	0.08	0.04	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	0.01	—	63.5	63.5	< 0.005	0.01	< 0.005	66.2
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.06	0.08	0.94	0.00	0.00	0.19	0.19	0.00	0.05	0.05	—	201	201	0.01	0.01	0.33	204
Vendor	< 0.005	0.05	0.02	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	43.6	43.6	< 0.005	0.01	0.05	45.5

Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.17	0.00	0.00	0.04	0.04	0.00	0.01	0.01	—	33.3	33.3	< 0.005	< 0.005	0.05	33.7
Vendor	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	7.22	7.22	< 0.005	< 0.005	0.01	7.53
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.39. Trenching (2026) - Unmitigated

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

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.68	5.79	6.89	0.01	0.16	—	0.16	0.14	—	0.14	—	945	945	0.04	0.01	—	949
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.07	0.55	0.66	< 0.005	0.02	—	0.02	0.01	—	0.01	—	90.6	90.6	< 0.005	< 0.005	—	91.0
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.10	0.12	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	15.0	15.0	< 0.005	< 0.005	—	15.1
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.08	0.10	1.21	0.00	0.00	0.29	0.29	0.00	0.07	0.07	—	283	283	0.01	0.01	0.03	286
Vendor	< 0.005	0.07	0.03	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	0.01	—	62.4	62.4	< 0.005	0.01	< 0.005	65.1
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.12	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	27.5	27.5	< 0.005	< 0.005	0.04	27.9
Vendor	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	5.98	5.98	< 0.005	< 0.005	0.01	6.25
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.02	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	4.55	4.55	< 0.005	< 0.005	0.01	4.61
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	0.99	0.99	< 0.005	< 0.005	< 0.005	1.03
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.40. Trenching (2026) - Mitigated

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

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

Off-Road Equipment	0.68	5.79	6.89	0.01	0.16	—	0.16	0.14	—	0.14	—	945	945	0.04	0.01	—	949
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.07	0.55	0.66	< 0.005	0.02	—	0.02	0.01	—	0.01	—	90.6	90.6	< 0.005	< 0.005	—	91.0
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.10	0.12	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	15.0	15.0	< 0.005	< 0.005	—	15.1
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.08	0.10	1.21	0.00	0.00	0.29	0.29	0.00	0.07	0.07	—	283	283	0.01	0.01	0.03	286
Vendor	< 0.005	0.07	0.03	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	0.01	—	62.4	62.4	< 0.005	0.01	< 0.005	65.1
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.12	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	27.5	27.5	< 0.005	< 0.005	0.04	27.9
Vendor	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	5.98	5.98	< 0.005	< 0.005	0.01	6.25
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.02	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	4.55	4.55	< 0.005	< 0.005	0.01	4.61

Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	0.99	0.99	< 0.005	< 0.005	< 0.005	1.03
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

4. Operations Emissions Details

4.10. Soil Carbon Accumulation By Vegetation Type

4.10.1. Soil Carbon Accumulation By Vegetation Type - Unmitigated

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

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

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

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

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

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

4.10.3. Avoided and Sequestered Emissions by Species - Unmitigated

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

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

Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.4. Soil Carbon Accumulation By Vegetation Type - Mitigated

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

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

4.10.5. Above and Belowground Carbon Accumulation by Land Use Type - Mitigated

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

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

4.10.6. Avoided and Sequestered Emissions by Species - Mitigated

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

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

Sequeste	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequeste red	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

5. Activity Data

5.1. Construction Schedule

Phase Name	Phase Type	Start Date	End Date	Days Per Week	Work Days per Phase	Phase Description
Desalter - Demo	Demolition	11/1/2023	3/15/2024	5.00	98.0	—
Wells - Demo	Demolition	1/1/2025	2/26/2025	5.00	41.0	—
Pipeline - Demo	Demolition	1/1/2025	1/14/2025	5.00	10.0	—
Desalter - Grading	Grading	3/15/2024	8/1/2024	5.00	100	—
Wells - Borehole Drilling	Grading	4/1/2025	7/18/2025	5.00	79.0	—
Pipeline - Installation	Grading	1/15/2025	2/18/2026	5.00	286	—
Desalter - Building Construction	Building Construction	2/1/2025	8/5/2025	5.00	132	—
Wells - Casing	Building Construction	7/19/2025	10/11/2025	5.00	60.0	—

Wells - Pump install	Building Construction	10/12/2025	1/4/2026	5.00	60.0	—
Desalter - Foundations	Building Construction	8/1/2024	1/31/2025	5.00	132	—
Pipeline - Paving	Paving	1/15/2025	2/18/2026	5.00	286	—
Wells - Finishing	Architectural Coating	1/5/2026	3/26/2026	5.00	59.0	—
Desalter - Architectural Coating	Architectural Coating	2/1/2025	8/31/2025	5.00	150	—
Pipeline - Trenching	Trenching	1/15/2025	2/18/2026	5.00	286	—

5.2. Off-Road Equipment

5.2.1. Unmitigated

Phase Name	Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor
Desalter - Demo	Other Construction Equipment	Diesel	Average	1.00	6.00	82.0	0.42
Desalter - Demo	Generator Sets	Diesel	Average	3.00	6.00	14.0	0.74
Desalter - Demo	Concrete/Industrial Saws	Diesel	Average	1.00	8.00	33.0	0.73
Desalter - Demo	Tractors/Loaders/Backhoes	Diesel	Average	1.00	6.00	84.0	0.37
Desalter - Demo	Air Compressors	Diesel	Average	1.00	6.00	37.0	0.48
Desalter - Demo	Plate Compactors	Diesel	Average	1.00	4.00	8.00	0.43
Wells - Demo	Tractors/Loaders/Backhoes	Diesel	Average	1.00	4.00	84.0	0.37
Wells - Demo	Air Compressors	Diesel	Average	1.00	4.00	36.0	0.38
Wells - Demo	Concrete/Industrial Saws	Diesel	Average	1.00	4.00	33.0	0.73
Wells - Demo	Generator Sets	Diesel	Average	3.00	4.00	14.0	0.74
Wells - Demo	Plate Compactors	Diesel	Average	1.00	4.00	8.00	0.43
Wells - Demo	Other Material Handling Equipment	Diesel	Average	1.00	4.00	93.0	0.40

Wells - Demo	Excavators	Diesel	Average	1.00	4.00	36.0	0.38
Wells - Demo	Graders	Diesel	Average	1.00	4.00	148	0.41
Pipeline - Demo	Concrete/Industrial Saws	Diesel	Average	3.00	6.00	33.0	0.73
Pipeline - Demo	Other Material Handling Equipment	Diesel	Average	3.00	6.00	93.0	0.40
Pipeline - Demo	Plate Compactors	Diesel	Average	3.00	6.00	8.00	0.43
Pipeline - Demo	Generator Sets	Diesel	Average	9.00	6.00	14.0	0.74
Pipeline - Demo	Tractors/Loaders/Backhoes	Diesel	Average	3.00	6.00	84.0	0.37
Pipeline - Demo	Air Compressors	Diesel	Average	3.00	6.00	37.0	0.48
Desalter - Grading	Graders	Diesel	Average	1.00	8.00	148	0.41
Desalter - Grading	Excavators	Diesel	Average	1.00	8.00	36.0	0.38
Desalter - Grading	Tractors/Loaders/Backhoes	Diesel	Average	1.00	6.00	84.0	0.37
Desalter - Grading	Scrapers	Diesel	Average	1.00	6.00	423	0.48
Desalter - Grading	Air Compressors	Diesel	Average	1.00	8.00	37.0	0.48
Desalter - Grading	Plate Compactors	Diesel	Average	1.00	8.00	8.00	0.43
Desalter - Grading	Trenchers	Diesel	Average	1.00	6.00	40.0	0.50
Desalter - Grading	Rough Terrain Forklifts	Diesel	Average	1.00	6.00	96.0	0.40
Wells - Borehole Drilling	Bore/Drill Rigs	Diesel	Average	1.00	24.0	475	0.50
Wells - Borehole Drilling	Cement and Mortar Mixers	Diesel	Average	1.00	24.0	10.0	0.56
Wells - Borehole Drilling	Other Construction Equipment	Diesel	Average	1.00	24.0	50.0	0.42
Pipeline - Installation	Air Compressors	Diesel	Average	3.00	4.00	37.0	0.48
Pipeline - Installation	Graders	Diesel	Average	3.00	4.00	148	0.41
Pipeline - Installation	Rough Terrain Forklifts	Diesel	Average	3.00	4.00	96.0	0.40
Pipeline - Installation	Scrapers	Diesel	Average	3.00	4.00	423	0.48

Pipeline - Installation	Tractors/Loaders/Backh	Diesel	Average	3.00	4.00	84.0	0.37
Desalter - Building Construction	Cranes	Diesel	Average	1.00	1.00	367	0.29
Desalter - Building Construction	Generator Sets	Diesel	Average	1.00	4.00	14.0	0.74
Desalter - Building Construction	Plate Compactors	Diesel	Average	1.00	4.00	8.00	0.43
Desalter - Building Construction	Welders	Diesel	Average	1.00	4.00	46.0	0.45
Desalter - Building Construction	Tractors/Loaders/Backhoes	Diesel	Average	2.00	4.00	84.0	0.37
Desalter - Building Construction	Bore/Drill Rigs	Diesel	Average	1.00	4.00	83.0	0.50
Desalter - Building Construction	Rough Terrain Forklifts	Diesel	Average	1.00	4.00	96.0	0.40
Desalter - Building Construction	Rubber Tired Dozers	Diesel	Average	1.00	4.00	367	0.40
Wells - Casing	Cranes	Diesel	Average	1.00	6.00	367	0.29
Wells - Casing	Generator Sets	Diesel	Average	1.00	6.00	14.0	0.74
Wells - Casing	Pumps	Diesel	Average	1.00	6.00	11.0	0.74
Wells - Casing	Cement and Mortar Mixers	Diesel	Average	1.00	8.00	10.0	0.56
Wells - Casing	Rough Terrain Forklifts	Diesel	Average	1.00	6.00	96.0	0.40
Wells - Pump install	Cement and Mortar Mixers	Diesel	Average	1.00	8.00	10.0	0.56
Wells - Pump install	Excavators	Diesel	Average	1.00	4.00	36.0	0.38
Wells - Pump install	Paving Equipment	Diesel	Average	1.00	4.00	89.0	0.36
Wells - Pump install	Rough Terrain Forklifts	Diesel	Average	1.00	4.00	96.0	0.40
Desalter - Foundations	Forklifts	Diesel	Average	1.00	4.00	82.0	0.20
Desalter - Foundations	Pumps	Diesel	Average	1.00	8.00	11.0	0.74
Desalter - Foundations	Air Compressors	Diesel	Average	1.00	6.00	37.0	0.48

Desalter - Foundations	Pavers	Diesel	Average	1.00	4.00	81.0	0.42
Desalter - Foundations	Paving Equipment	Diesel	Average	1.00	4.00	89.0	0.36
Desalter - Foundations	Rollers	Diesel	Average	1.00	4.00	36.0	0.38
Pipeline - Paving	Pavers	Diesel	Average	3.00	2.00	81.0	0.42
Pipeline - Paving	Paving Equipment	Diesel	Average	3.00	2.00	89.0	0.36
Pipeline - Paving	Rollers	Diesel	Average	3.00	2.00	36.0	0.38
Wells - Finishing	Cement and Mortar Mixers	Diesel	Average	1.00	8.00	10.0	0.56
Wells - Finishing	Paving Equipment	Diesel	Average	1.00	4.00	89.0	0.36
Wells - Finishing	Air Compressors	Diesel	Average	1.00	6.00	37.0	0.48
Desalter - Architectural Coating	Air Compressors	Diesel	Average	1.00	8.00	37.0	0.48
Desalter - Architectural Coating	Aerial Lifts	Diesel	Average	1.00	8.00	46.0	0.31
Desalter - Architectural Coating	Forklifts	Diesel	Average	1.00	4.00	82.0	0.20
Pipeline - Trenching	Plate Compactors	Diesel	Average	3.00	6.00	8.00	0.43
Pipeline - Trenching	Excavators	Diesel	Average	3.00	6.00	36.0	0.38
Pipeline - Trenching	Concrete/Industrial Saws	Diesel	Average	3.00	6.00	33.0	0.73

5.2.2. Mitigated

Phase Name	Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor
Desalter - Demo	Other Construction Equipment	Diesel	Average	1.00	6.00	82.0	0.42
Desalter - Demo	Generator Sets	Diesel	Average	3.00	6.00	14.0	0.74
Desalter - Demo	Concrete/Industrial Saws	Diesel	Average	1.00	8.00	33.0	0.73
Desalter - Demo	Tractors/Loaders/Backhoes	Diesel	Average	1.00	6.00	84.0	0.37

Desalter - Demo	Air Compressors	Diesel	Average	1.00	6.00	37.0	0.48
Desalter - Demo	Plate Compactors	Diesel	Average	1.00	4.00	8.00	0.43
Wells - Demo	Tractors/Loaders/Backhoes	Diesel	Average	1.00	4.00	84.0	0.37
Wells - Demo	Air Compressors	Diesel	Average	1.00	4.00	36.0	0.38
Wells - Demo	Concrete/Industrial Saws	Diesel	Average	1.00	4.00	33.0	0.73
Wells - Demo	Generator Sets	Diesel	Average	3.00	4.00	14.0	0.74
Wells - Demo	Plate Compactors	Diesel	Average	1.00	4.00	8.00	0.43
Wells - Demo	Other Material Handling Equipment	Diesel	Average	1.00	4.00	93.0	0.40
Wells - Demo	Excavators	Diesel	Average	1.00	4.00	36.0	0.38
Wells - Demo	Graders	Diesel	Average	1.00	4.00	148	0.41
Pipeline - Demo	Concrete/Industrial Saws	Diesel	Average	3.00	6.00	33.0	0.73
Pipeline - Demo	Other Material Handling Equipment	Diesel	Average	3.00	6.00	93.0	0.40
Pipeline - Demo	Plate Compactors	Diesel	Average	3.00	6.00	8.00	0.43
Pipeline - Demo	Generator Sets	Diesel	Average	9.00	6.00	14.0	0.74
Pipeline - Demo	Tractors/Loaders/Backhoes	Diesel	Average	3.00	6.00	84.0	0.37
Pipeline - Demo	Air Compressors	Diesel	Average	3.00	6.00	37.0	0.48
Desalter - Grading	Graders	Diesel	Average	1.00	8.00	148	0.41
Desalter - Grading	Excavators	Diesel	Average	1.00	8.00	36.0	0.38
Desalter - Grading	Tractors/Loaders/Backhoes	Diesel	Average	1.00	6.00	84.0	0.37
Desalter - Grading	Scrapers	Diesel	Average	1.00	6.00	423	0.48
Desalter - Grading	Air Compressors	Diesel	Average	1.00	8.00	37.0	0.48
Desalter - Grading	Plate Compactors	Diesel	Average	1.00	8.00	8.00	0.43
Desalter - Grading	Trenchers	Diesel	Average	1.00	6.00	40.0	0.50

Desalter - Grading	Rough Terrain Forklifts	Diesel	Average	1.00	6.00	96.0	0.40
Wells - Borehole Drilling	Bore/Drill Rigs	Diesel	Average	1.00	24.0	475	0.50
Wells - Borehole Drilling	Cement and Mortar Mixers	Diesel	Average	1.00	24.0	10.0	0.56
Wells - Borehole Drilling	Other Construction Equipment	Diesel	Average	1.00	24.0	50.0	0.42
Pipeline - Installation	Air Compressors	Diesel	Average	3.00	4.00	37.0	0.48
Pipeline - Installation	Graders	Diesel	Average	3.00	4.00	148	0.41
Pipeline - Installation	Rough Terrain Forklifts	Diesel	Average	3.00	4.00	96.0	0.40
Pipeline - Installation	Scrapers	Diesel	Average	3.00	4.00	423	0.48
Pipeline - Installation	Tractors/Loaders/Backhoes	Diesel	Average	3.00	4.00	84.0	0.37
Desalter - Building Construction	Cranes	Diesel	Average	1.00	1.00	367	0.29
Desalter - Building Construction	Generator Sets	Diesel	Average	1.00	4.00	14.0	0.74
Desalter - Building Construction	Plate Compactors	Diesel	Average	1.00	4.00	8.00	0.43
Desalter - Building Construction	Welders	Diesel	Average	1.00	4.00	46.0	0.45
Desalter - Building Construction	Tractors/Loaders/Backhoes	Diesel	Average	2.00	4.00	84.0	0.37
Desalter - Building Construction	Bore/Drill Rigs	Diesel	Average	1.00	4.00	83.0	0.50
Desalter - Building Construction	Rough Terrain Forklifts	Diesel	Average	1.00	4.00	96.0	0.40
Desalter - Building Construction	Rubber Tired Dozers	Diesel	Average	1.00	4.00	367	0.40
Wells - Casing	Cranes	Diesel	Average	1.00	6.00	367	0.29
Wells - Casing	Generator Sets	Diesel	Average	1.00	6.00	14.0	0.74
Wells - Casing	Pumps	Diesel	Average	1.00	6.00	11.0	0.74

Wells - Casing	Cement and Mortar Mixers	Diesel	Average	1.00	8.00	10.0	0.56
Wells - Casing	Rough Terrain Forklifts	Diesel	Average	1.00	6.00	96.0	0.40
Wells - Pump install	Cement and Mortar Mixers	Diesel	Average	1.00	8.00	10.0	0.56
Wells - Pump install	Excavators	Diesel	Average	1.00	4.00	36.0	0.38
Wells - Pump install	Paving Equipment	Diesel	Average	1.00	4.00	89.0	0.36
Wells - Pump install	Rough Terrain Forklifts	Diesel	Average	1.00	4.00	96.0	0.40
Desalter - Foundations	Forklifts	Diesel	Average	1.00	4.00	82.0	0.20
Desalter - Foundations	Pumps	Diesel	Average	1.00	8.00	11.0	0.74
Desalter - Foundations	Air Compressors	Diesel	Average	1.00	6.00	37.0	0.48
Desalter - Foundations	Pavers	Diesel	Average	1.00	4.00	81.0	0.42
Desalter - Foundations	Paving Equipment	Diesel	Average	1.00	4.00	89.0	0.36
Desalter - Foundations	Rollers	Diesel	Average	1.00	4.00	36.0	0.38
Pipeline - Paving	Pavers	Diesel	Average	3.00	2.00	81.0	0.42
Pipeline - Paving	Paving Equipment	Diesel	Average	3.00	2.00	89.0	0.36
Pipeline - Paving	Rollers	Diesel	Average	3.00	2.00	36.0	0.38
Wells - Finishing	Cement and Mortar Mixers	Diesel	Average	1.00	8.00	10.0	0.56
Wells - Finishing	Paving Equipment	Diesel	Average	1.00	4.00	89.0	0.36
Wells - Finishing	Air Compressors	Diesel	Average	1.00	6.00	37.0	0.48
Desalter - Architectural Coating	Air Compressors	Diesel	Average	1.00	8.00	37.0	0.48
Desalter - Architectural Coating	Aerial Lifts	Diesel	Average	1.00	8.00	46.0	0.31
Desalter - Architectural Coating	Forklifts	Diesel	Average	1.00	4.00	82.0	0.20
Pipeline - Trenching	Plate Compactors	Diesel	Average	3.00	6.00	8.00	0.43
Pipeline - Trenching	Excavators	Diesel	Average	3.00	6.00	36.0	0.38

Pipeline - Trenching	Concrete/Industrial Saws	Diesel	Average	3.00	6.00	33.0	0.73

5.3. Construction Vehicles

5.3.1. Unmitigated

Phase Name	Trip Type	One-Way Trips per Day	Miles per Trip	Vehicle Mix
Desalter - Demo	—	—	—	—
Desalter - Demo	Worker	20.0	18.5	LDA,LDT1,LDT2
Desalter - Demo	Vendor	4.00	10.2	HHDT,MHDT
Desalter - Demo	Hauling	2.00	20.0	HHDT
Desalter - Demo	Onsite truck	—	—	HHDT
Desalter - Grading	—	—	—	—
Desalter - Grading	Worker	20.0	18.5	LDA,LDT1,LDT2
Desalter - Grading	Vendor	4.00	10.2	HHDT,MHDT
Desalter - Grading	Hauling	0.00	20.0	HHDT
Desalter - Grading	Onsite truck	—	—	HHDT
Desalter - Building Construction	—	—	—	—
Desalter - Building Construction	Worker	8.00	18.5	LDA,LDT1,LDT2
Desalter - Building Construction	Vendor	4.00	10.2	HHDT,MHDT
Desalter - Building Construction	Hauling	0.00	20.0	HHDT
Desalter - Building Construction	Onsite truck	—	—	HHDT
Desalter - Foundations	—	—	—	—
Desalter - Foundations	Worker	8.00	18.5	LDA,LDT1,LDT2
Desalter - Foundations	Vendor	4.00	10.2	HHDT,MHDT
Desalter - Foundations	Hauling	0.00	20.0	HHDT
Desalter - Foundations	Onsite truck	—	—	HHDT
Desalter - Architectural Coating	—	—	—	—

Desalter - Architectural Coating	Worker	6.00	18.5	LDA,LDT1,LDT2
Desalter - Architectural Coating	Vendor	2.00	10.2	HHDT,MHDT
Desalter - Architectural Coating	Hauling	0.00	20.0	HHDT
Desalter - Architectural Coating	Onsite truck	—	—	HHDT
Wells - Demo	—	—	—	—
Wells - Demo	Worker	25.0	18.5	LDA,LDT1,LDT2
Wells - Demo	Vendor	4.00	10.2	HHDT,MHDT
Wells - Demo	Hauling	0.00	20.0	HHDT
Wells - Demo	Onsite truck	—	—	HHDT
Pipeline - Demo	—	—	—	—
Pipeline - Demo	Worker	60.0	18.5	LDA,LDT1,LDT2
Pipeline - Demo	Vendor	4.00	10.2	HHDT,MHDT
Pipeline - Demo	Hauling	12.0	20.0	HHDT
Pipeline - Demo	Onsite truck	—	—	HHDT
Wells - Borehole Drilling	—	—	—	—
Wells - Borehole Drilling	Worker	8.00	18.5	LDA,LDT1,LDT2
Wells - Borehole Drilling	Vendor	4.00	10.2	HHDT,MHDT
Wells - Borehole Drilling	Hauling	0.00	20.0	HHDT
Wells - Borehole Drilling	Onsite truck	—	—	HHDT
Wells - Casing	—	—	—	—
Wells - Casing	Worker	8.00	18.5	LDA,LDT1,LDT2
Wells - Casing	Vendor	4.00	10.2	HHDT,MHDT
Wells - Casing	Hauling	0.00	20.0	HHDT
Wells - Casing	Onsite truck	—	—	HHDT
Wells - Pump install	—	—	—	—
Wells - Pump install	Worker	8.00	18.5	LDA,LDT1,LDT2
Wells - Pump install	Vendor	4.00	10.2	HHDT,MHDT

Wells - Pump install	Hauling	0.00	20.0	HHDT
Wells - Pump install	Onsite truck	—	—	HHDT
Pipeline - Installation	—	—	—	—
Pipeline - Installation	Worker	38.0	18.5	LDA,LDT1,LDT2
Pipeline - Installation	Vendor	4.00	10.2	HHDT,MHDT
Pipeline - Installation	Hauling	16.0	20.0	HHDT
Pipeline - Installation	Onsite truck	—	—	HHDT
Pipeline - Paving	—	—	—	—
Pipeline - Paving	Worker	22.0	18.5	LDA,LDT1,LDT2
Pipeline - Paving	Vendor	4.00	10.2	HHDT,MHDT
Pipeline - Paving	Hauling	0.00	20.0	HHDT
Pipeline - Paving	Onsite truck	—	—	HHDT
Wells - Finishing	—	—	—	—
Wells - Finishing	Worker	6.00	18.5	LDA,LDT1,LDT2
Wells - Finishing	Vendor	2.00	10.2	HHDT,MHDT
Wells - Finishing	Hauling	0.00	20.0	HHDT
Wells - Finishing	Onsite truck	—	—	HHDT
Pipeline - Trenching	—	—	—	—
Pipeline - Trenching	Worker	22.0	18.5	LDA,LDT1,LDT2
Pipeline - Trenching	Vendor	2.00	10.2	HHDT,MHDT
Pipeline - Trenching	Hauling	0.00	20.0	HHDT
Pipeline - Trenching	Onsite truck	—	—	HHDT

5.3.2. Mitigated

Phase Name	Trip Type	One-Way Trips per Day	Miles per Trip	Vehicle Mix
Desalter - Demo	—	—	—	—
Desalter - Demo	Worker	20.0	18.5	LDA,LDT1,LDT2

Desalter - Demo	Vendor	4.00	10.2	HHDT,MHDT
Desalter - Demo	Hauling	2.00	20.0	HHDT
Desalter - Demo	Onsite truck	—	—	HHDT
Desalter - Grading	—	—	—	—
Desalter - Grading	Worker	20.0	18.5	LDA,LDT1,LDT2
Desalter - Grading	Vendor	4.00	10.2	HHDT,MHDT
Desalter - Grading	Hauling	0.00	20.0	HHDT
Desalter - Grading	Onsite truck	—	—	HHDT
Desalter - Building Construction	—	—	—	—
Desalter - Building Construction	Worker	8.00	18.5	LDA,LDT1,LDT2
Desalter - Building Construction	Vendor	4.00	10.2	HHDT,MHDT
Desalter - Building Construction	Hauling	0.00	20.0	HHDT
Desalter - Building Construction	Onsite truck	—	—	HHDT
Desalter - Foundations	—	—	—	—
Desalter - Foundations	Worker	8.00	18.5	LDA,LDT1,LDT2
Desalter - Foundations	Vendor	4.00	10.2	HHDT,MHDT
Desalter - Foundations	Hauling	0.00	20.0	HHDT
Desalter - Foundations	Onsite truck	—	—	HHDT
Desalter - Architectural Coating	—	—	—	—
Desalter - Architectural Coating	Worker	6.00	18.5	LDA,LDT1,LDT2
Desalter - Architectural Coating	Vendor	2.00	10.2	HHDT,MHDT
Desalter - Architectural Coating	Hauling	0.00	20.0	HHDT
Desalter - Architectural Coating	Onsite truck	—	—	HHDT
Wells - Demo	—	—	—	—
Wells - Demo	Worker	25.0	18.5	LDA,LDT1,LDT2
Wells - Demo	Vendor	4.00	10.2	HHDT,MHDT
Wells - Demo	Hauling	0.00	20.0	HHDT

Wells - Demo	Onsite truck	—	—	HHDT
Pipeline - Demo	—	—	—	—
Pipeline - Demo	Worker	60.0	18.5	LDA,LDT1,LDT2
Pipeline - Demo	Vendor	4.00	10.2	HHDT,MHDT
Pipeline - Demo	Hauling	12.0	20.0	HHDT
Pipeline - Demo	Onsite truck	—	—	HHDT
Wells - Borehole Drilling	—	—	—	—
Wells - Borehole Drilling	Worker	8.00	18.5	LDA,LDT1,LDT2
Wells - Borehole Drilling	Vendor	4.00	10.2	HHDT,MHDT
Wells - Borehole Drilling	Hauling	0.00	20.0	HHDT
Wells - Borehole Drilling	Onsite truck	—	—	HHDT
Wells - Casing	—	—	—	—
Wells - Casing	Worker	8.00	18.5	LDA,LDT1,LDT2
Wells - Casing	Vendor	4.00	10.2	HHDT,MHDT
Wells - Casing	Hauling	0.00	20.0	HHDT
Wells - Casing	Onsite truck	—	—	HHDT
Wells - Pump install	—	—	—	—
Wells - Pump install	Worker	8.00	18.5	LDA,LDT1,LDT2
Wells - Pump install	Vendor	4.00	10.2	HHDT,MHDT
Wells - Pump install	Hauling	0.00	20.0	HHDT
Wells - Pump install	Onsite truck	—	—	HHDT
Pipeline - Installation	—	—	—	—
Pipeline - Installation	Worker	38.0	18.5	LDA,LDT1,LDT2
Pipeline - Installation	Vendor	4.00	10.2	HHDT,MHDT
Pipeline - Installation	Hauling	16.0	20.0	HHDT
Pipeline - Installation	Onsite truck	—	—	HHDT
Pipeline - Paving	—	—	—	—

Pipeline - Paving	Worker	22.0	18.5	LDA,LDT1,LDT2
Pipeline - Paving	Vendor	4.00	10.2	HHDT,MHDT
Pipeline - Paving	Hauling	0.00	20.0	HHDT
Pipeline - Paving	Onsite truck	—	—	HHDT
Wells - Finishing	—	—	—	—
Wells - Finishing	Worker	6.00	18.5	LDA,LDT1,LDT2
Wells - Finishing	Vendor	2.00	10.2	HHDT,MHDT
Wells - Finishing	Hauling	0.00	20.0	HHDT
Wells - Finishing	Onsite truck	—	—	HHDT
Pipeline - Trenching	—	—	—	—
Pipeline - Trenching	Worker	22.0	18.5	LDA,LDT1,LDT2
Pipeline - Trenching	Vendor	2.00	10.2	HHDT,MHDT
Pipeline - Trenching	Hauling	0.00	20.0	HHDT
Pipeline - Trenching	Onsite truck	—	—	HHDT

5.4. Vehicles

5.4.1. Construction Vehicle Control Strategies

Control Strategies Applied	PM10 Reduction	PM2.5 Reduction
Limit vehicle speeds on unpaved roads to 25 mph	44%	44%
Sweep paved roads once per month	9%	9%

5.5. Architectural Coatings

Phase Name	Residential Interior Area Coated (sq ft)	Residential Exterior Area Coated (sq ft)	Non-Residential Interior Area Coated (sq ft)	Non-Residential Exterior Area Coated (sq ft)	Parking Area Coated (sq ft)
Desalter - Architectural Coating	0.00	0.00	9,870	3,290	0.00
Wells - Finishing	0.00	0.00	16,380	5,460	0.00

5.6. Dust Mitigation

5.6.1. Construction Earthmoving Activities

Phase Name	Material Imported (Cubic Yards)	Material Exported (Cubic Yards)	Acres Graded (acres)	Material Demolished (Building Square Footage)	Acres Paved (acres)
Desalter - Demo	0.00	0.00	0.00	6,400	—
Wells - Demo	0.00	0.00	0.00	0.00	—
Pipeline - Demo	0.00	0.00	0.00	10,494	—
Desalter - Grading	0.00	0.00	125	0.00	—
Wells - Borehole Drilling	0.00	0.00	0.00	0.00	—
Pipeline - Installation	0.00	37,783	858	0.00	—
Pipeline - Paving	0.00	0.00	0.00	0.00	24.9

5.6.2. Construction Earthmoving Control Strategies

Control Strategies Applied	Frequency (per day)	PM10 Reduction	PM2.5 Reduction
Water Exposed Area	3	74%	74%
Water Demolished Area	2	36%	36%

5.7. Construction Paving

Land Use	Area Paved (acres)	% Asphalt
General Light Industry	0.10	0%
Other Asphalt Surfaces	24.8	100%

5.8. Construction Electricity Consumption and Emissions Factors

kWh per Year and Emission Factor (lb/MWh)

Year	kWh per Year	CO2	CH4	N2O

2023	0.00	532	0.03	< 0.005
2024	0.00	532	0.03	< 0.005
2025	0.00	532	0.03	< 0.005
2026	0.00	532	0.03	< 0.005

5.18. Vegetation

5.18.1. Land Use Change

5.18.1.1. Unmitigated

Vegetation Land Use Type	Vegetation Soil Type	Initial Acres	Final Acres

5.18.1.2. Mitigated

Vegetation Land Use Type	Vegetation Soil Type	Initial Acres	Final Acres

5.18.1. Biomass Cover Type

5.18.1.1. Unmitigated

Biomass Cover Type	Initial Acres	Final Acres

5.18.1.2. Mitigated

Biomass Cover Type	Initial Acres	Final Acres

5.18.2. Sequestration

5.18.2.1. Unmitigated

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

5.18.2.2. Mitigated

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

6. Climate Risk Detailed Report

6.1. Climate Risk Summary

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

Climate Hazard	Result for Project Location	Unit
Temperature and Extreme Heat	4.89	annual days of extreme heat
Extreme Precipitation	4.25	annual days with precipitation above 20 mm
Sea Level Rise	0.00	meters of inundation depth
Wildfire	0.00	annual hectares burned

Temperature and Extreme Heat data are for grid cell in which your project are located. The projection is based on the 98th historical percentile of daily maximum/minimum temperatures from observed historical data (32 climate model ensemble from Cal-Adapt, 2040–2059 average under RCP 8.5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.
Extreme Precipitation data are for the grid cell in which your project are located. The threshold of 20 mm is equivalent to about ¾ an inch of rain, which would be light to moderate rainfall if received over a full day or heavy rain if received over a period of 2 to 4 hours. Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.
Sea Level Rise data are for the grid cell in which your project are located. The projections are from Radke et al. (2017), as reported in Cal-Adapt (2040–2059 average under RCP 8.5), and consider different increments of sea level rise coupled with extreme storm events. Users may select from four model simulations to view the range in potential inundation depth for the grid cell. The four simulations make different assumptions about expected rainfall and temperature are: Warmer/drier (HadGEM2-ES), Cooler/wetter (CNRM-CM5), Average conditions (CanESM2), Range of different rainfall and temperature possibilities (MIROC5). Each grid cell is 50 meters (m) by 50 m, or about 164 feet (ft) by 164 ft.
Wildfire data are for the grid cell in which your project are located. The projections are from UC Davis, as reported in Cal-Adapt (2040–2059 average under RCP 8.5), and consider historical data of climate, vegetation, population density, and large (> 400 ha) fire history. Users may select from four model simulations to view the range in potential wildfire probabilities for the grid cell. The four simulations make different assumptions about expected rainfall and temperature are: Warmer/drier (HadGEM2-ES), Cooler/wetter (CNRM-CM5), Average conditions (CanESM2), Range of different rainfall and temperature possibilities (MIROC5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.

6.2. Initial Climate Risk Scores

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score
Temperature and Extreme Heat	1	0	0	N/A
Extreme Precipitation	N/A	N/A	N/A	N/A
Sea Level Rise	1	0	0	N/A

Wildfire	1	0	0	N/A
Flooding	N/A	N/A	N/A	N/A
Drought	N/A	N/A	N/A	N/A
Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	0	0	0	N/A

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.
The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.
The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores do not include implementation of climate risk reduction measures.

6.3. Adjusted Climate Risk Scores

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score
Temperature and Extreme Heat	1	1	1	2
Extreme Precipitation	N/A	N/A	N/A	N/A
Sea Level Rise	1	1	1	2
Wildfire	1	1	1	2
Flooding	N/A	N/A	N/A	N/A
Drought	N/A	N/A	N/A	N/A
Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	1	1	1	2

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.
The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.
The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores include implementation of climate risk reduction measures.

6.4. Climate Risk Reduction Measures

7. Health and Equity Details

7.1. CalEnviroScreen 4.0 Scores

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

Indicator	Result for Project Census Tract
Exposure Indicators	—
AQ-Ozone	24.9
AQ-PM	77.1
AQ-DPM	42.0
Drinking Water	29.9
Lead Risk Housing	65.4
Pesticides	66.7
Toxic Releases	98.1
Traffic	72.2
Effect Indicators	—
CleanUp Sites	81.6
Groundwater	90.1
Haz Waste Facilities/Generators	97.8
Impaired Water Bodies	0.00
Solid Waste	80.6
Sensitive Population	—
Asthma	19.8
Cardio-vascular	32.0
Low Birth Weights	70.2
Socioeconomic Factor Indicators	—
Education	17.2
Housing	22.1
Linguistic	39.8
Poverty	18.2

Unemployment	48.3

7.2. Healthy Places Index Scores

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

Indicator	Result for Project Census Tract
Economic	—
Above Poverty	82.07365584
Employed	83.35685872
Median HI	84.17810856
Education	—
Bachelor's or higher	71.73104068
High school enrollment	100
Preschool enrollment	87.91222892
Transportation	—
Auto Access	72.44963429
Active commuting	21.35249583
Social	—
2-parent households	89.99101758
Voting	76.90234826
Neighborhood	—
Alcohol availability	63.86500706
Park access	81.35506224
Retail density	45.11741306
Supermarket access	56.5635827
Tree canopy	47.87629924
Housing	—
Homeownership	66.77787758

Housing habitability	90.5812909
Low-inc homeowner severe housing cost burden	93.19902477
Low-inc renter severe housing cost burden	90.14500192
Uncrowded housing	43.11561658
Health Outcomes	—
Insured adults	78.54484794
Arthritis	45.8
Asthma ER Admissions	79.0
High Blood Pressure	49.4
Cancer (excluding skin)	19.8
Asthma	92.9
Coronary Heart Disease	51.0
Chronic Obstructive Pulmonary Disease	74.0
Diagnosed Diabetes	62.8
Life Expectancy at Birth	36.9
Cognitively Disabled	50.3
Physically Disabled	76.0
Heart Attack ER Admissions	74.5
Mental Health Not Good	84.7
Chronic Kidney Disease	73.0
Obesity	88.9
Pedestrian Injuries	53.9
Physical Health Not Good	73.7
Stroke	64.5
Health Risk Behaviors	—
Binge Drinking	75.2
Current Smoker	83.5

No Leisure Time for Physical Activity	71.9
Climate Change Exposures	—
Wildfire Risk	0.0
SLR Inundation Area	0.0
Children	59.5
Elderly	36.3
English Speaking	52.9
Foreign-born	49.0
Outdoor Workers	54.4
Climate Change Adaptive Capacity	—
Impervious Surface Cover	24.5
Traffic Density	54.0
Traffic Access	87.4
Other Indices	—
Hardship	26.4
Other Decision Support	—
2016 Voting	63.5

7.3. Overall Health & Equity Scores

Metric	Result for Project Census Tract
CalEnviroScreen 4.0 Score for Project Location (a)	55.0
Healthy Places Index Score for Project Location (b)	88.0
Project Located in a Designated Disadvantaged Community (Senate Bill 535)	No
Project Located in a Low-Income Community (Assembly Bill 1550)	No
Project Located in a Community Air Protection Program Community (Assembly Bill 617)	No

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

7.4. Health & Equity Measures

No Health & Equity Measures selected.

7.5. Evaluation Scorecard

Health & Equity Evaluation Scorecard not completed.

7.6. Health & Equity Custom Measures

No Health & Equity Custom Measures created.

8. User Changes to Default Data

Screen	Justification
Land Use	Project size
Construction: Construction Phases	Planned phases
Construction: Off-Road Equipment	planned equipment.
Construction: Dust From Material Movement	trenching soil movement
Construction: Trips and VMT	anticipated trips
Construction: Paving	desalter paving
Construction: Architectural Coatings	no parking area
Construction: Off-Road Equipment EF	Tier4 Final

WRD Regional Brackish Water Project - MIT CSTN Detailed Report

Table of Contents

1. Basic Project Information

1.1. Basic Project Information

Data Field	Value
Project Name	WRD Regional Brackish Water Project - MIT CSTN
Construction Start Date	11/1/2023
Lead Agency	—
Land Use Scale	Project/site
Analysis Level for Defaults	County
Windspeed (m/s)	3.50
Precipitation (days)	20.6
Location	20150 Hawthorne Blvd, Torrance, CA 90503, USA
County	Los Angeles-South Coast
City	Torrance
Air District	South Coast AQMD
Air Basin	South Coast
TAZ	4668
EDFZ	7
Electric Utility	Southern California Edison
Gas Utility	Southern California Gas
App Version	2022.1.1.13

1.2. Land Use Types

Land Use Subtype	Size	Unit	Lot Acreage	Building Area (sq ft)	Landscape Area (sq ft)	Special Landscape Area (sq ft)	Population	Description
General Light Industry	17.5	1000sqft	1.60	17,500	0.00	—	—	—

Other Asphalt Surfaces	24.2	Acre	24.8	0.00	0.00	—	—	—

1.3. User-Selected Emission Reduction Measures by Emissions Sector

Sector	#	Measure Title
Construction	C-2*	Limit Heavy-Duty Diesel Vehicle Idling

* Qualitative or supporting measure. Emission reductions not included in the mitigated emissions results.

2. Emissions Summary

2.1. Construction Emissions Compared Against Thresholds

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

Un/Mit.	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	7.98	49.6	71.8	0.16	1.72	2.45	4.17	1.59	0.51	2.10	—	18,973	18,973	0.79	0.44	9.57	19,133
Mit.	7.98	49.6	71.8	0.16	1.72	2.45	4.17	1.59	0.51	2.10	—	18,973	18,973	0.79	0.44	9.57	19,133
% Reduced	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	6.16	45.4	60.2	0.11	1.64	2.67	4.32	1.51	0.57	2.08	—	12,864	12,864	0.55	0.40	0.27	12,997
Mit.	6.16	45.4	60.2	0.11	1.64	2.67	4.32	1.51	0.57	2.08	—	12,864	12,864	0.55	0.40	0.27	12,997
% Reduced	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Unmit.	4.09	28.7	39.1	0.08	1.02	1.67	2.70	0.94	0.35	1.29	—	9,394	9,394	0.40	0.27	2.79	9,487
Mit.	4.09	28.7	39.1	0.08	1.02	1.67	2.70	0.94	0.35	1.29	—	9,394	9,394	0.40	0.27	2.79	9,487
% Reduced	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.75	5.24	7.14	0.01	0.19	0.31	0.49	0.17	0.06	0.24	—	1,555	1,555	0.07	0.04	0.46	1,571
Mit.	0.75	5.24	7.14	0.01	0.19	0.31	0.49	0.17	0.06	0.24	—	1,555	1,555	0.07	0.04	0.46	1,571
% Reduced	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

2.2. Construction Emissions by Year, Unmitigated

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

Year	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily - Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2024	2.23	19.0	22.1	0.04	0.80	0.78	1.58	0.74	0.14	0.88	—	4,307	4,307	0.18	0.08	2.26	4,337
2025	7.98	49.6	71.8	0.16	1.72	2.45	4.17	1.59	0.51	2.10	—	18,973	18,973	0.79	0.44	9.57	19,133
Daily - Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2023	0.97	7.56	8.94	0.01	0.33	0.38	0.71	0.31	0.09	0.39	—	1,635	1,635	0.07	0.06	0.05	1,655
2024	2.63	22.2	25.3	0.04	0.92	1.02	1.94	0.85	0.20	1.04	—	5,006	5,006	0.21	0.11	0.08	5,044
2025	6.16	45.4	60.2	0.11	1.64	2.67	4.32	1.51	0.57	2.08	—	12,864	12,864	0.55	0.40	0.27	12,997
2026	5.55	30.3	41.3	0.08	1.06	2.22	3.27	0.97	0.46	1.43	—	9,581	9,581	0.41	0.33	0.20	9,692
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2023	0.12	0.90	1.07	< 0.005	0.04	0.04	0.08	0.04	0.01	0.05	—	196	196	0.01	0.01	0.10	198
2024	0.76	6.39	7.41	0.01	0.27	0.27	0.54	0.25	0.05	0.30	—	1,438	1,438	0.06	0.03	0.39	1,449

2025	4.09	28.7	39.1	0.08	1.02	1.67	2.70	0.94	0.35	1.29	—	9,394	9,394	0.40	0.27	2.79	9,487
2026	0.66	3.02	4.14	0.01	0.10	0.21	0.32	0.10	0.04	0.14	—	938	938	0.04	0.03	0.32	949
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2023	0.02	0.16	0.20	< 0.005	0.01	0.01	0.02	0.01	< 0.005	0.01	—	32.4	32.4	< 0.005	< 0.005	0.02	32.8
2024	0.14	1.17	1.35	< 0.005	0.05	0.05	0.10	0.05	0.01	0.05	—	238	238	0.01	0.01	0.06	240
2025	0.75	5.24	7.14	0.01	0.19	0.31	0.49	0.17	0.06	0.24	—	1,555	1,555	0.07	0.04	0.46	1,571
2026	0.12	0.55	0.76	< 0.005	0.02	0.04	0.06	0.02	0.01	0.03	—	155	155	0.01	0.01	0.05	157

2.3. Construction Emissions by Year, Mitigated

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

Year	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily - Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2024	2.23	19.0	22.1	0.04	0.80	0.78	1.58	0.74	0.14	0.88	—	4,307	4,307	0.18	0.08	2.26	4,337
2025	7.98	49.6	71.8	0.16	1.72	2.45	4.17	1.59	0.51	2.10	—	18,973	18,973	0.79	0.44	9.57	19,133
Daily - Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2023	0.97	7.56	8.94	0.01	0.33	0.38	0.71	0.31	0.09	0.39	—	1,635	1,635	0.07	0.06	0.05	1,655
2024	2.63	22.2	25.3	0.04	0.92	1.02	1.94	0.85	0.20	1.04	—	5,006	5,006	0.21	0.11	0.08	5,044
2025	6.16	45.4	60.2	0.11	1.64	2.67	4.32	1.51	0.57	2.08	—	12,864	12,864	0.55	0.40	0.27	12,997
2026	5.55	30.3	41.3	0.08	1.06	2.22	3.27	0.97	0.46	1.43	—	9,581	9,581	0.41	0.33	0.20	9,692
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2023	0.12	0.90	1.07	< 0.005	0.04	0.04	0.08	0.04	0.01	0.05	—	196	196	0.01	0.01	0.10	198
2024	0.76	6.39	7.41	0.01	0.27	0.27	0.54	0.25	0.05	0.30	—	1,438	1,438	0.06	0.03	0.39	1,449
2025	4.09	28.7	39.1	0.08	1.02	1.67	2.70	0.94	0.35	1.29	—	9,394	9,394	0.40	0.27	2.79	9,487
2026	0.66	3.02	4.14	0.01	0.10	0.21	0.32	0.10	0.04	0.14	—	938	938	0.04	0.03	0.32	949

Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2023	0.02	0.16	0.20	< 0.005	0.01	0.01	0.02	0.01	< 0.005	0.01	—	32.4	32.4	< 0.005	< 0.005	0.02	32.8
2024	0.14	1.17	1.35	< 0.005	0.05	0.05	0.10	0.05	0.01	0.05	—	238	238	0.01	0.01	0.06	240
2025	0.75	5.24	7.14	0.01	0.19	0.31	0.49	0.17	0.06	0.24	—	1,555	1,555	0.07	0.04	0.46	1,571
2026	0.12	0.55	0.76	< 0.005	0.02	0.04	0.06	0.02	0.01	0.03	—	155	155	0.01	0.01	0.05	157

3. Construction Emissions Details

3.1. Demolition (2023) - Unmitigated

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

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.87	7.08	7.40	0.01	0.33	—	0.33	0.30	—	0.30	—	1,087	1,087	0.04	0.01	—	1,091
Demolition	—	—	—	—	—	0.04	0.04	—	0.01	0.01	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.10	0.84	0.88	< 0.005	0.04	—	0.04	0.04	—	0.04	—	130	130	0.01	< 0.005	—	130
Demolition	—	—	—	—	—	0.01	0.01	—	< 0.005	< 0.005	—	—	—	—	—	—	—

Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.02	0.15	0.16	< 0.005	0.01	—	0.01	0.01	—	0.01	—	21.5	21.5	< 0.005	< 0.005	—	21.6
Demolition	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.09	0.12	1.39	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	274	274	0.01	0.01	0.03	277
Vendor	< 0.005	0.17	0.08	< 0.005	< 0.005	0.03	0.04	< 0.005	0.01	0.01	—	131	131	0.01	0.02	0.01	136
Hauling	< 0.005	0.19	0.07	< 0.005	< 0.005	0.04	0.04	< 0.005	0.01	0.01	—	143	143	0.01	0.02	0.01	150
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.17	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	33.1	33.1	< 0.005	< 0.005	0.06	33.6
Vendor	< 0.005	0.02	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	15.6	15.6	< 0.005	< 0.005	0.02	16.3
Hauling	< 0.005	0.02	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	17.1	17.1	< 0.005	< 0.005	0.02	18.0
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.03	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	5.49	5.49	< 0.005	< 0.005	0.01	5.56
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	2.59	2.59	< 0.005	< 0.005	< 0.005	2.70
Hauling	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	2.83	2.83	< 0.005	< 0.005	< 0.005	2.97

3.2. Demolition (2023) - Mitigated

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

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.87	7.08	7.40	0.01	0.33	—	0.33	0.30	—	0.30	—	1,087	1,087	0.04	0.01	—	1,091
Demolition	—	—	—	—	—	0.04	0.04	—	0.01	0.01	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.10	0.84	0.88	< 0.005	0.04	—	0.04	0.04	—	0.04	—	130	130	0.01	< 0.005	—	130
Demolition	—	—	—	—	—	0.01	0.01	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.02	0.15	0.16	< 0.005	0.01	—	0.01	0.01	—	0.01	—	21.5	21.5	< 0.005	< 0.005	—	21.6
Demolition	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.09	0.12	1.39	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	274	274	0.01	0.01	0.03	277
Vendor	< 0.005	0.17	0.08	< 0.005	< 0.005	0.03	0.04	< 0.005	0.01	0.01	—	131	131	0.01	0.02	0.01	136
Hauling	< 0.005	0.19	0.07	< 0.005	< 0.005	0.04	0.04	< 0.005	0.01	0.01	—	143	143	0.01	0.02	0.01	150
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.17	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	33.1	33.1	< 0.005	< 0.005	0.06	33.6
Vendor	< 0.005	0.02	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	15.6	15.6	< 0.005	< 0.005	0.02	16.3
Hauling	< 0.005	0.02	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	17.1	17.1	< 0.005	< 0.005	0.02	18.0
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.03	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	5.49	5.49	< 0.005	< 0.005	0.01	5.56
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	2.59	2.59	< 0.005	< 0.005	< 0.005	2.70
Hauling	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	2.83	2.83	< 0.005	< 0.005	< 0.005	2.97

3.3. Demolition (2024) - Unmitigated

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

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.82	6.80	7.36	0.01	0.30	—	0.30	0.27	—	0.27	—	1,087	1,087	0.04	0.01	—	1,091
Demolition	—	—	—	—	—	0.04	0.04	—	0.01	0.01	—	—	—	—	—	—	—

Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.12	1.00	1.08	< 0.005	0.04	—	0.04	0.04	—	0.04	—	160	160	0.01	< 0.005	—	160
Demolition	—	—	—	—	—	0.01	0.01	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.02	0.18	0.20	< 0.005	0.01	—	0.01	0.01	—	0.01	—	26.4	26.4	< 0.005	< 0.005	—	26.5
Demolition	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.09	0.11	1.28	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	268	268	0.01	0.01	0.03	271
Vendor	< 0.005	0.16	0.08	< 0.005	< 0.005	0.03	0.04	< 0.005	0.01	0.01	—	129	129	0.01	0.02	0.01	135
Hauling	< 0.005	0.18	0.07	< 0.005	< 0.005	0.04	0.04	< 0.005	0.01	0.01	—	141	141	0.01	0.02	0.01	148
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.02	0.20	0.00	0.00	0.04	0.04	0.00	0.01	0.01	—	39.9	39.9	< 0.005	< 0.005	0.07	40.4
Vendor	< 0.005	0.02	0.01	< 0.005	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	—	18.9	18.9	< 0.005	< 0.005	0.02	19.8
Hauling	< 0.005	0.03	0.01	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	20.7	20.7	< 0.005	< 0.005	0.02	21.7

Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.04	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	6.60	6.60	< 0.005	< 0.005	0.01	6.69
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	3.14	3.14	< 0.005	< 0.005	< 0.005	3.27
Hauling	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	3.43	3.43	< 0.005	< 0.005	< 0.005	3.60

3.4. Demolition (2024) - Mitigated

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

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.82	6.80	7.36	0.01	0.30	—	0.30	0.27	—	0.27	—	1,087	1,087	0.04	0.01	—	1,091
Demolition	—	—	—	—	—	0.04	0.04	—	0.01	0.01	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.12	1.00	1.08	< 0.005	0.04	—	0.04	0.04	—	0.04	—	160	160	0.01	< 0.005	—	160
Demolition	—	—	—	—	—	0.01	0.01	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.02	0.18	0.20	< 0.005	0.01	—	0.01	0.01	—	0.01	—	26.4	26.4	< 0.005	< 0.005	—	26.5

Demolitio	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.09	0.11	1.28	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	268	268	0.01	0.01	0.03	271
Vendor	< 0.005	0.16	0.08	< 0.005	< 0.005	0.03	0.04	< 0.005	0.01	0.01	—	129	129	0.01	0.02	0.01	135
Hauling	< 0.005	0.18	0.07	< 0.005	< 0.005	0.04	0.04	< 0.005	0.01	0.01	—	141	141	0.01	0.02	0.01	148
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.02	0.20	0.00	0.00	0.04	0.04	0.00	0.01	0.01	—	39.9	39.9	< 0.005	< 0.005	0.07	40.4
Vendor	< 0.005	0.02	0.01	< 0.005	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	—	18.9	18.9	< 0.005	< 0.005	0.02	19.8
Hauling	< 0.005	0.03	0.01	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	20.7	20.7	< 0.005	< 0.005	0.02	21.7
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.04	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	6.60	6.60	< 0.005	< 0.005	0.01	6.69
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	3.14	3.14	< 0.005	< 0.005	< 0.005	3.27
Hauling	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	3.43	3.43	< 0.005	< 0.005	< 0.005	3.60

3.5. Demolition (2025) - Unmitigated

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

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

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.65	3.22	6.75	0.01	0.11	—	0.11	0.10	—	0.10	—	1,040	1,040	0.04	0.01	—	1,043
Demolition	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.07	0.36	0.76	< 0.005	0.01	—	0.01	0.01	—	0.01	—	117	117	< 0.005	< 0.005	—	117
Demolition	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.07	0.14	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	19.3	19.3	< 0.005	< 0.005	—	19.4
Demolition	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.11	0.12	1.47	0.00	0.00	0.33	0.33	0.00	0.08	0.08	—	328	328	0.02	0.01	0.03	332
Vendor	< 0.005	0.15	0.07	< 0.005	< 0.005	0.03	0.04	< 0.005	0.01	0.01	—	127	127	0.01	0.02	0.01	132

Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.17	0.00	0.00	0.04	0.04	0.00	0.01	0.01	—	37.3	37.3	< 0.005	< 0.005	0.06	37.9
Vendor	< 0.005	0.02	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	14.3	14.3	< 0.005	< 0.005	0.02	14.9
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.03	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	6.18	6.18	< 0.005	< 0.005	0.01	6.27
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	2.36	2.36	< 0.005	< 0.005	< 0.005	2.46
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.6. Demolition (2025) - Mitigated

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

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.65	3.22	6.75	0.01	0.11	—	0.11	0.10	—	0.10	—	1,040	1,040	0.04	0.01	—	1,043
Demolition	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.07	0.36	0.76	< 0.005	0.01	—	0.01	0.01	—	0.01	—	117	117	< 0.005	< 0.005	—	117

Demolitio	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.07	0.14	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	19.3	19.3	< 0.005	< 0.005	—	19.4
Demolitio n	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.11	0.12	1.47	0.00	0.00	0.33	0.33	0.00	0.08	0.08	—	328	328	0.02	0.01	0.03	332
Vendor	< 0.005	0.15	0.07	< 0.005	< 0.005	0.03	0.04	< 0.005	0.01	0.01	—	127	127	0.01	0.02	0.01	132
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.17	0.00	0.00	0.04	0.04	0.00	0.01	0.01	—	37.3	37.3	< 0.005	< 0.005	0.06	37.9
Vendor	< 0.005	0.02	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	14.3	14.3	< 0.005	< 0.005	0.02	14.9
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.03	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	6.18	6.18	< 0.005	< 0.005	0.01	6.27
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	2.36	2.36	< 0.005	< 0.005	< 0.005	2.46
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.7. Demolition (2025) - Unmitigated

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

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	2.06	17.4	21.0	0.04	0.61	—	0.61	0.56	—	0.56	—	3,163	3,163	0.13	0.03	—	3,174
Demolition	—	—	—	—	—	0.69	0.69	—	0.10	0.10	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.06	0.48	0.57	< 0.005	0.02	—	0.02	0.02	—	0.02	—	86.7	86.7	< 0.005	< 0.005	—	87.0
Demolition	—	—	—	—	—	0.02	0.02	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.09	0.10	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	14.3	14.3	< 0.005	< 0.005	—	14.4
Demolition	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.25	0.29	3.54	0.00	0.00	0.78	0.78	0.00	0.18	0.18	—	786	786	0.04	0.03	0.08	796
Vendor	< 0.005	0.15	0.07	< 0.005	< 0.005	0.03	0.04	< 0.005	0.01	0.01	—	127	127	0.01	0.02	0.01	132
Hauling	0.01	1.06	0.40	0.01	0.01	0.22	0.23	0.01	0.06	0.07	—	832	832	0.05	0.13	0.05	872
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.10	0.00	0.00	0.02	0.02	0.00	< 0.005	< 0.005	—	21.9	21.9	< 0.005	< 0.005	0.04	22.2
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	3.48	3.48	< 0.005	< 0.005	< 0.005	3.63
Hauling	< 0.005	0.03	0.01	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	22.8	22.8	< 0.005	< 0.005	0.02	23.9
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.02	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	3.62	3.62	< 0.005	< 0.005	0.01	3.67
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	0.58	0.58	< 0.005	< 0.005	< 0.005	0.60
Hauling	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	3.77	3.77	< 0.005	< 0.005	< 0.005	3.96

3.8. Demolition (2025) - Mitigated

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

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	2.06	17.4	21.0	0.04	0.61	—	0.61	0.56	—	0.56	—	3,163	3,163	0.13	0.03	—	3,174

Demolitio	—	—	—	—	—	0.69	0.69	—	0.10	0.10	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.06	0.48	0.57	< 0.005	0.02	—	0.02	0.02	—	0.02	—	86.7	86.7	< 0.005	< 0.005	—	87.0
Demolitio n	—	—	—	—	—	0.02	0.02	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.09	0.10	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	14.3	14.3	< 0.005	< 0.005	—	14.4
Demolitio n	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.25	0.29	3.54	0.00	0.00	0.78	0.78	0.00	0.18	0.18	—	786	786	0.04	0.03	0.08	796
Vendor	< 0.005	0.15	0.07	< 0.005	< 0.005	0.03	0.04	< 0.005	0.01	0.01	—	127	127	0.01	0.02	0.01	132
Hauling	0.01	1.06	0.40	0.01	0.01	0.22	0.23	0.01	0.06	0.07	—	832	832	0.05	0.13	0.05	872
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.10	0.00	0.00	0.02	0.02	0.00	< 0.005	< 0.005	—	21.9	21.9	< 0.005	< 0.005	0.04	22.2
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	3.48	3.48	< 0.005	< 0.005	< 0.005	3.63

Hauling	< 0.005	0.03	0.01	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	22.8	22.8	< 0.005	< 0.005	0.02	23.9
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.02	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	3.62	3.62	< 0.005	< 0.005	0.01	3.67
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	0.58	0.58	< 0.005	< 0.005	< 0.005	0.60
Hauling	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	3.77	3.77	< 0.005	< 0.005	< 0.005	3.96

3.9. Grading (2024) - Unmitigated

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

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.63	14.7	15.2	0.03	0.62	—	0.62	0.57	—	0.57	—	2,984	2,984	0.12	0.02	—	2,994
Dust From Material Movement	—	—	—	—	—	0.34	0.34	—	0.04	0.04	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.63	14.7	15.2	0.03	0.62	—	0.62	0.57	—	0.57	—	2,984	2,984	0.12	0.02	—	2,994
Dust From Material Movement	—	—	—	—	—	0.34	0.34	—	0.04	0.04	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.45	4.02	4.16	0.01	0.17	—	0.17	0.16	—	0.16	—	818	818	0.03	0.01	—	820
Dust From Material Movement	—	—	—	—	—	0.09	0.09	—	0.01	0.01	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.08	0.73	0.76	< 0.005	0.03	—	0.03	0.03	—	0.03	—	135	135	0.01	< 0.005	—	136
Dust From Material Movement	—	—	—	—	—	0.02	0.02	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.09	0.10	1.51	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	282	282	0.01	0.01	1.11	287
Vendor	< 0.005	0.15	0.07	< 0.005	< 0.005	0.03	0.04	< 0.005	0.01	0.01	—	129	129	0.01	0.02	0.35	135
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.09	0.11	1.28	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	268	268	0.01	0.01	0.03	271
Vendor	< 0.005	0.16	0.08	< 0.005	< 0.005	0.03	0.04	< 0.005	0.01	0.01	—	129	129	0.01	0.02	0.01	135
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.03	0.37	0.00	0.00	0.07	0.07	0.00	0.02	0.02	—	74.4	74.4	< 0.005	< 0.005	0.13	75.4
Vendor	< 0.005	0.04	0.02	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	35.4	35.4	< 0.005	< 0.005	0.04	36.9
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	0.01	0.07	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	12.3	12.3	< 0.005	< 0.005	0.02	12.5
Vendor	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	5.85	5.85	< 0.005	< 0.005	0.01	6.11
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.10. Grading (2024) - Mitigated

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

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.63	14.7	15.2	0.03	0.62	—	0.62	0.57	—	0.57	—	2,984	2,984	0.12	0.02	—	2,994
Dust From Material Movement	—	—	—	—	—	0.34	0.34	—	0.04	0.04	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.63	14.7	15.2	0.03	0.62	—	0.62	0.57	—	0.57	—	2,984	2,984	0.12	0.02	—	2,994

Dust From Material Movement	—	—	—	—	—	0.34	0.34	—	0.04	0.04	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.45	4.02	4.16	0.01	0.17	—	0.17	0.16	—	0.16	—	818	818	0.03	0.01	—	820
Dust From Material Movement	—	—	—	—	—	0.09	0.09	—	0.01	0.01	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.08	0.73	0.76	< 0.005	0.03	—	0.03	0.03	—	0.03	—	135	135	0.01	< 0.005	—	136
Dust From Material Movement	—	—	—	—	—	0.02	0.02	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.09	0.10	1.51	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	282	282	0.01	0.01	1.11	287
Vendor	< 0.005	0.15	0.07	< 0.005	< 0.005	0.03	0.04	< 0.005	0.01	0.01	—	129	129	0.01	0.02	0.35	135
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Worker	0.09	0.11	1.28	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	268	268	0.01	0.01	0.03	271
Vendor	< 0.005	0.16	0.08	< 0.005	< 0.005	0.03	0.04	< 0.005	0.01	0.01	—	129	129	0.01	0.02	0.01	135
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.03	0.37	0.00	0.00	0.07	0.07	0.00	0.02	0.02	—	74.4	74.4	< 0.005	< 0.005	0.13	75.4
Vendor	< 0.005	0.04	0.02	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	35.4	35.4	< 0.005	< 0.005	0.04	36.9
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	0.01	0.07	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	12.3	12.3	< 0.005	< 0.005	0.02	12.5
Vendor	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	5.85	5.85	< 0.005	< 0.005	0.01	6.11
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.11. Grading (2025) - Unmitigated

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

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	2.54	7.56	18.3	0.07	0.19	—	0.19	0.18	—	0.18	—	7,297	7,297	0.30	0.06	—	7,322
Dust From Material Movement	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.55	1.64	3.96	0.01	0.04	—	0.04	0.04	—	0.04	—	1,579	1,579	0.06	0.01	—	1,585
Dust From Material Movement	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.10	0.30	0.72	< 0.005	0.01	—	0.01	0.01	—	0.01	—	261	261	0.01	< 0.005	—	262
Dust From Material Movement	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.03	0.56	0.00	0.00	0.10	0.10	0.00	0.02	0.02	—	111	111	< 0.005	< 0.005	0.40	112
Vendor	< 0.005	0.14	0.07	< 0.005	< 0.005	0.03	0.04	< 0.005	0.01	0.01	—	127	127	0.01	0.02	0.35	133
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.11	0.00	0.00	0.02	0.02	0.00	0.01	0.01	—	23.0	23.0	< 0.005	< 0.005	0.04	23.3
Vendor	< 0.005	0.03	0.02	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	27.5	27.5	< 0.005	< 0.005	0.03	28.7

Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.02	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	3.81	3.81	< 0.005	< 0.005	0.01	3.86
Vendor	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	4.55	4.55	< 0.005	< 0.005	0.01	4.75
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.12. Grading (2025) - Mitigated

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

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	2.54	7.56	18.3	0.07	0.19	—	0.19	0.18	—	0.18	—	7,297	7,297	0.30	0.06	—	7,322
Dust From Material Movement	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.55	1.64	3.96	0.01	0.04	—	0.04	0.04	—	0.04	—	1,579	1,579	0.06	0.01	—	1,585
Dust From Material Movement	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—

Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.10	0.30	0.72	< 0.005	0.01	—	0.01	0.01	—	0.01	—	261	261	0.01	< 0.005	—	262
Dust From Material Movement	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.03	0.56	0.00	0.00	0.10	0.10	0.00	0.02	0.02	—	111	111	< 0.005	< 0.005	0.40	112
Vendor	< 0.005	0.14	0.07	< 0.005	< 0.005	0.03	0.04	< 0.005	0.01	0.01	—	127	127	0.01	0.02	0.35	133
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.11	0.00	0.00	0.02	0.02	0.00	0.01	0.01	—	23.0	23.0	< 0.005	< 0.005	0.04	23.3
Vendor	< 0.005	0.03	0.02	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	27.5	27.5	< 0.005	< 0.005	0.03	28.7
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.02	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	3.81	3.81	< 0.005	< 0.005	0.01	3.86
Vendor	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	4.55	4.55	< 0.005	< 0.005	0.01	4.75
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.13. Grading (2025) - Unmitigated

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

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	2.18	20.0	22.4	0.05	0.81	—	0.81	0.74	—	0.74	—	4,934	4,934	0.20	0.04	—	4,951
Dust From Material Movement	—	—	—	—	—	0.62	0.62	—	0.07	0.07	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	2.18	20.0	22.4	0.05	0.81	—	0.81	0.74	—	0.74	—	4,934	4,934	0.20	0.04	—	4,951
Dust From Material Movement	—	—	—	—	—	0.62	0.62	—	0.07	0.07	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.50	13.7	15.4	0.03	0.55	—	0.55	0.51	—	0.51	—	3,389	3,389	0.14	0.03	—	3,401
Dust From Material Movement	—	—	—	—	—	0.43	0.43	—	0.05	0.05	—	—	—	—	—	—	—

Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.27	2.51	2.80	0.01	0.10	—	0.10	0.09	—	0.09	—	561	561	0.02	< 0.005	—	563
Dust From Material Movement	—	—	—	—	—	0.08	0.08	—	0.01	0.01	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.16	0.16	2.64	0.00	0.00	0.50	0.50	0.00	0.12	0.12	—	525	525	0.02	0.02	1.92	533
Vendor	< 0.005	0.14	0.07	< 0.005	< 0.005	0.03	0.04	< 0.005	0.01	0.01	—	127	127	0.01	0.02	0.35	133
Hauling	0.02	1.36	0.53	0.01	0.01	0.30	0.31	0.01	0.08	0.10	—	1,108	1,108	0.06	0.17	2.57	1,164
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.16	0.18	2.24	0.00	0.00	0.50	0.50	0.00	0.12	0.12	—	498	498	0.02	0.02	0.05	504
Vendor	< 0.005	0.15	0.07	< 0.005	< 0.005	0.03	0.04	< 0.005	0.01	0.01	—	127	127	0.01	0.02	0.01	132
Hauling	0.02	1.41	0.53	0.01	0.01	0.30	0.31	0.01	0.08	0.10	—	1,109	1,109	0.06	0.17	0.07	1,162
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.11	0.14	1.62	0.00	0.00	0.34	0.34	0.00	0.08	0.08	—	347	347	0.02	0.01	0.57	352
Vendor	< 0.005	0.10	0.05	< 0.005	< 0.005	0.02	0.02	< 0.005	0.01	0.01	—	87.2	87.2	< 0.005	0.01	0.10	91.0
Hauling	0.01	0.98	0.37	0.01	0.01	0.20	0.21	0.01	0.06	0.06	—	761	761	0.04	0.12	0.76	799
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.02	0.30	0.00	0.00	0.06	0.06	0.00	0.01	0.01	—	57.5	57.5	< 0.005	< 0.005	0.09	58.2
Vendor	< 0.005	0.02	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	14.4	14.4	< 0.005	< 0.005	0.02	15.1

Hauling	< 0.005	0.18	0.07	< 0.005	< 0.005	0.04	0.04	< 0.005	0.01	0.01	—	126	126	0.01	0.02	0.13	132

3.14. Grading (2025) - Mitigated

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

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	2.18	20.0	22.4	0.05	0.81	—	0.81	0.74	—	0.74	—	4,934	4,934	0.20	0.04	—	4,951
Dust From Material Movement	—	—	—	—	—	0.62	0.62	—	0.07	0.07	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	2.18	20.0	22.4	0.05	0.81	—	0.81	0.74	—	0.74	—	4,934	4,934	0.20	0.04	—	4,951
Dust From Material Movement	—	—	—	—	—	0.62	0.62	—	0.07	0.07	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.50	13.7	15.4	0.03	0.55	—	0.55	0.51	—	0.51	—	3,389	3,389	0.14	0.03	—	3,401

Dust From Material Movement	—	—	—	—	—	0.43	0.43	—	0.05	0.05	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.27	2.51	2.80	0.01	0.10	—	0.10	0.09	—	0.09	—	561	561	0.02	< 0.005	—	563
Dust From Material Movement	—	—	—	—	—	0.08	0.08	—	0.01	0.01	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.16	0.16	2.64	0.00	0.00	0.50	0.50	0.00	0.12	0.12	—	525	525	0.02	0.02	1.92	533
Vendor	< 0.005	0.14	0.07	< 0.005	< 0.005	0.03	0.04	< 0.005	0.01	0.01	—	127	127	0.01	0.02	0.35	133
Hauling	0.02	1.36	0.53	0.01	0.01	0.30	0.31	0.01	0.08	0.10	—	1,108	1,108	0.06	0.17	2.57	1,164
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.16	0.18	2.24	0.00	0.00	0.50	0.50	0.00	0.12	0.12	—	498	498	0.02	0.02	0.05	504
Vendor	< 0.005	0.15	0.07	< 0.005	< 0.005	0.03	0.04	< 0.005	0.01	0.01	—	127	127	0.01	0.02	0.01	132
Hauling	0.02	1.41	0.53	0.01	0.01	0.30	0.31	0.01	0.08	0.10	—	1,109	1,109	0.06	0.17	0.07	1,162
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.11	0.14	1.62	0.00	0.00	0.34	0.34	0.00	0.08	0.08	—	347	347	0.02	0.01	0.57	352
Vendor	< 0.005	0.10	0.05	< 0.005	< 0.005	0.02	0.02	< 0.005	0.01	0.01	—	87.2	87.2	< 0.005	0.01	0.10	91.0
Hauling	0.01	0.98	0.37	0.01	0.01	0.20	0.21	0.01	0.06	0.06	—	761	761	0.04	0.12	0.76	799

Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.02	0.30	0.00	0.00	0.06	0.06	0.00	0.01	0.01	—	57.5	57.5	< 0.005	< 0.005	0.09	58.2
Vendor	< 0.005	0.02	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	14.4	14.4	< 0.005	< 0.005	0.02	15.1
Hauling	< 0.005	0.18	0.07	< 0.005	< 0.005	0.04	0.04	< 0.005	0.01	0.01	—	126	126	0.01	0.02	0.13	132

3.15. Grading (2026) - Unmitigated

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

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	2.06	18.3	22.1	0.05	0.72	—	0.72	0.66	—	0.66	—	4,933	4,933	0.20	0.04	—	4,950
Dust From Material Movement	—	—	—	—	—	0.62	0.62	—	0.07	0.07	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.20	1.76	2.12	< 0.005	0.07	—	0.07	0.06	—	0.06	—	473	473	0.02	< 0.005	—	475
Dust From Material Movement	—	—	—	—	—	0.06	0.06	—	0.01	0.01	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.04	0.32	0.39	< 0.005	0.01	—	0.01	0.01	—	0.01	—	78.3	78.3	< 0.005	< 0.005	—	78.6
Dust From Material Movement	—	—	—	—	—	0.01	0.01	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.14	0.17	2.09	0.00	0.00	0.50	0.50	0.00	0.12	0.12	—	488	488	0.02	0.02	0.05	494
Vendor	< 0.005	0.14	0.07	< 0.005	< 0.005	0.03	0.04	< 0.005	0.01	0.01	—	125	125	0.01	0.02	0.01	130
Hauling	0.02	1.36	0.52	0.01	0.01	0.30	0.31	0.01	0.08	0.10	—	1,089	1,089	0.06	0.17	0.06	1,142
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.02	0.21	0.00	0.00	0.05	0.05	0.00	0.01	0.01	—	47.5	47.5	< 0.005	< 0.005	0.07	48.1
Vendor	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	12.0	12.0	< 0.005	< 0.005	0.01	12.5
Hauling	< 0.005	0.13	0.05	< 0.005	< 0.005	0.03	0.03	< 0.005	0.01	0.01	—	104	104	0.01	0.02	0.10	110
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.04	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	7.86	7.86	< 0.005	< 0.005	0.01	7.97
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	1.98	1.98	< 0.005	< 0.005	< 0.005	2.07
Hauling	< 0.005	0.02	0.01	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	17.3	17.3	< 0.005	< 0.005	0.02	18.1

3.16. Grading (2026) - Mitigated

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

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	2.06	18.3	22.1	0.05	0.72	—	0.72	0.66	—	0.66	—	4,933	4,933	0.20	0.04	—	4,950
Dust From Material Movement	—	—	—	—	—	0.62	0.62	—	0.07	0.07	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.20	1.76	2.12	< 0.005	0.07	—	0.07	0.06	—	0.06	—	473	473	0.02	< 0.005	—	475
Dust From Material Movement	—	—	—	—	—	0.06	0.06	—	0.01	0.01	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.04	0.32	0.39	< 0.005	0.01	—	0.01	0.01	—	0.01	—	78.3	78.3	< 0.005	< 0.005	—	78.6
Dust From Material Movement	—	—	—	—	—	0.01	0.01	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.14	0.17	2.09	0.00	0.00	0.50	0.50	0.00	0.12	0.12	—	488	488	0.02	0.02	0.05	494
Vendor	< 0.005	0.14	0.07	< 0.005	< 0.005	0.03	0.04	< 0.005	0.01	0.01	—	125	125	0.01	0.02	0.01	130
Hauling	0.02	1.36	0.52	0.01	0.01	0.30	0.31	0.01	0.08	0.10	—	1,089	1,089	0.06	0.17	0.06	1,142
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.02	0.21	0.00	0.00	0.05	0.05	0.00	0.01	0.01	—	47.5	47.5	< 0.005	< 0.005	0.07	48.1
Vendor	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	12.0	12.0	< 0.005	< 0.005	0.01	12.5
Hauling	< 0.005	0.13	0.05	< 0.005	< 0.005	0.03	0.03	< 0.005	0.01	0.01	—	104	104	0.01	0.02	0.10	110
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.04	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	7.86	7.86	< 0.005	< 0.005	0.01	7.97
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	1.98	1.98	< 0.005	< 0.005	< 0.005	2.07
Hauling	< 0.005	0.02	0.01	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	17.3	17.3	< 0.005	< 0.005	0.02	18.1

3.17. Building Construction (2025) - Unmitigated

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

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.88	8.50	9.53	0.02	0.33	—	0.33	0.31	—	0.31	—	1,646	1,646	0.07	0.01	—	1,652

Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.88	8.50	9.53	0.02	0.33	—	0.33	0.31	—	0.31	—	1,646	1,646	0.07	0.01	—	1,652
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.32	3.08	3.45	0.01	0.12	—	0.12	0.11	—	0.11	—	595	595	0.02	< 0.005	—	597
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.06	0.56	0.63	< 0.005	0.02	—	0.02	0.02	—	0.02	—	98.6	98.6	< 0.005	< 0.005	—	98.9
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.03	0.56	0.00	0.00	0.10	0.10	0.00	0.02	0.02	—	111	111	< 0.005	< 0.005	0.40	112
Vendor	< 0.005	0.14	0.07	< 0.005	< 0.005	0.03	0.04	< 0.005	0.01	0.01	—	127	127	0.01	0.02	0.35	133
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.04	0.47	0.00	0.00	0.10	0.10	0.00	0.02	0.02	—	105	105	< 0.005	< 0.005	0.01	106
Vendor	< 0.005	0.15	0.07	< 0.005	< 0.005	0.03	0.04	< 0.005	0.01	0.01	—	127	127	0.01	0.02	0.01	132
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.02	0.18	0.00	0.00	0.04	0.04	0.00	0.01	0.01	—	38.5	38.5	< 0.005	< 0.005	0.06	39.0
Vendor	< 0.005	0.05	0.03	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	45.9	45.9	< 0.005	0.01	0.05	47.9
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.03	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	6.37	6.37	< 0.005	< 0.005	0.01	6.46
Vendor	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	7.60	7.60	< 0.005	< 0.005	0.01	7.93
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.18. Building Construction (2025) - Mitigated

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

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.88	8.50	9.53	0.02	0.33	—	0.33	0.31	—	0.31	—	1,646	1,646	0.07	0.01	—	1,652
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.88	8.50	9.53	0.02	0.33	—	0.33	0.31	—	0.31	—	1,646	1,646	0.07	0.01	—	1,652
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipment	0.32	3.08	3.45	0.01	0.12	—	0.12	0.11	—	0.11	—	595	595	0.02	< 0.005	—	597
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.06	0.56	0.63	< 0.005	0.02	—	0.02	0.02	—	0.02	—	98.6	98.6	< 0.005	< 0.005	—	98.9
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.03	0.56	0.00	0.00	0.10	0.10	0.00	0.02	0.02	—	111	111	< 0.005	< 0.005	0.40	112
Vendor	< 0.005	0.14	0.07	< 0.005	< 0.005	0.03	0.04	< 0.005	0.01	0.01	—	127	127	0.01	0.02	0.35	133
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.04	0.47	0.00	0.00	0.10	0.10	0.00	0.02	0.02	—	105	105	< 0.005	< 0.005	0.01	106
Vendor	< 0.005	0.15	0.07	< 0.005	< 0.005	0.03	0.04	< 0.005	0.01	0.01	—	127	127	0.01	0.02	0.01	132
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.02	0.18	0.00	0.00	0.04	0.04	0.00	0.01	0.01	—	38.5	38.5	< 0.005	< 0.005	0.06	39.0
Vendor	< 0.005	0.05	0.03	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	45.9	45.9	< 0.005	0.01	0.05	47.9
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.03	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	6.37	6.37	< 0.005	< 0.005	0.01	6.46
Vendor	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	7.60	7.60	< 0.005	< 0.005	0.01	7.93
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.19. Building Construction (2025) - Unmitigated

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

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.53	1.98	5.01	0.01	0.08	—	0.08	0.07	—	0.07	—	1,207	1,207	0.05	0.01	—	1,211
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.53	1.98	5.01	0.01	0.08	—	0.08	0.07	—	0.07	—	1,207	1,207	0.05	0.01	—	1,211
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.09	0.32	0.82	< 0.005	0.01	—	0.01	0.01	—	0.01	—	198	198	0.01	< 0.005	—	199
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.02	0.06	0.15	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	32.8	32.8	< 0.005	< 0.005	—	33.0
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.03	0.56	0.00	0.00	0.10	0.10	0.00	0.02	0.02	—	111	111	< 0.005	< 0.005	0.40	112
Vendor	< 0.005	0.14	0.07	< 0.005	< 0.005	0.03	0.04	< 0.005	0.01	0.01	—	127	127	0.01	0.02	0.35	133
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.04	0.47	0.00	0.00	0.10	0.10	0.00	0.02	0.02	—	105	105	< 0.005	< 0.005	0.01	106
Vendor	< 0.005	0.15	0.07	< 0.005	< 0.005	0.03	0.04	< 0.005	0.01	0.01	—	127	127	0.01	0.02	0.01	132
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.08	0.00	0.00	0.02	0.02	0.00	< 0.005	< 0.005	—	17.5	17.5	< 0.005	< 0.005	0.03	17.7
Vendor	< 0.005	0.02	0.01	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	20.9	20.9	< 0.005	< 0.005	0.02	21.8
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	2.90	2.90	< 0.005	< 0.005	< 0.005	2.93
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	3.45	3.45	< 0.005	< 0.005	< 0.005	3.61
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.20. Building Construction (2025) - Mitigated

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

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

Off-Road Equipment	0.53	1.98	5.01	0.01	0.08	—	0.08	0.07	—	0.07	—	1,207	1,207	0.05	0.01	—	1,211
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.53	1.98	5.01	0.01	0.08	—	0.08	0.07	—	0.07	—	1,207	1,207	0.05	0.01	—	1,211
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.09	0.32	0.82	< 0.005	0.01	—	0.01	0.01	—	0.01	—	198	198	0.01	< 0.005	—	199
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.02	0.06	0.15	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	32.8	32.8	< 0.005	< 0.005	—	33.0
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.03	0.56	0.00	0.00	0.10	0.10	0.00	0.02	0.02	—	111	111	< 0.005	< 0.005	0.40	112
Vendor	< 0.005	0.14	0.07	< 0.005	< 0.005	0.03	0.04	< 0.005	0.01	0.01	—	127	127	0.01	0.02	0.35	133
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.04	0.47	0.00	0.00	0.10	0.10	0.00	0.02	0.02	—	105	105	< 0.005	< 0.005	0.01	106

Vendor	< 0.005	0.15	0.07	< 0.005	< 0.005	0.03	0.04	< 0.005	0.01	0.01	—	127	127	0.01	0.02	0.01	132
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.08	0.00	0.00	0.02	0.02	0.00	< 0.005	< 0.005	—	17.5	17.5	< 0.005	< 0.005	0.03	17.7
Vendor	< 0.005	0.02	0.01	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	20.9	20.9	< 0.005	< 0.005	0.02	21.8
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	2.90	2.90	< 0.005	< 0.005	< 0.005	2.93
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	3.45	3.45	< 0.005	< 0.005	< 0.005	3.61
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.21. Building Construction (2025) - Unmitigated

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

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.20	0.99	2.89	< 0.005	0.04	—	0.04	0.03	—	0.03	—	455	455	0.02	< 0.005	—	457
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.03	0.16	0.46	< 0.005	0.01	—	0.01	0.01	—	0.01	—	72.2	72.2	< 0.005	< 0.005	—	72.4

Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.03	0.08	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	11.9	11.9	< 0.005	< 0.005	—	12.0
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.04	0.47	0.00	0.00	0.10	0.10	0.00	0.02	0.02	—	105	105	< 0.005	< 0.005	0.01	106
Vendor	< 0.005	0.15	0.07	< 0.005	< 0.005	0.03	0.04	< 0.005	0.01	0.01	—	127	127	0.01	0.02	0.01	132
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.08	0.00	0.00	0.02	0.02	0.00	< 0.005	< 0.005	—	16.9	16.9	< 0.005	< 0.005	0.03	17.1
Vendor	< 0.005	0.02	0.01	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	20.1	20.1	< 0.005	< 0.005	0.02	21.0
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	2.79	2.79	< 0.005	< 0.005	< 0.005	2.83
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	3.33	3.33	< 0.005	< 0.005	< 0.005	3.48
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.22. Building Construction (2025) - Mitigated

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

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

Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.20	0.99	2.89	< 0.005	0.04	—	0.04	0.03	—	0.03	—	455	455	0.02	< 0.005	—	457
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.03	0.16	0.46	< 0.005	0.01	—	0.01	0.01	—	0.01	—	72.2	72.2	< 0.005	< 0.005	—	72.4
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.03	0.08	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	11.9	11.9	< 0.005	< 0.005	—	12.0
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.04	0.47	0.00	0.00	0.10	0.10	0.00	0.02	0.02	—	105	105	< 0.005	< 0.005	0.01	106
Vendor	< 0.005	0.15	0.07	< 0.005	< 0.005	0.03	0.04	< 0.005	0.01	0.01	—	127	127	0.01	0.02	0.01	132
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.08	0.00	0.00	0.02	0.02	0.00	< 0.005	< 0.005	—	16.9	16.9	< 0.005	< 0.005	0.03	17.1
Vendor	< 0.005	0.02	0.01	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	20.1	20.1	< 0.005	< 0.005	0.02	21.0
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	2.79	2.79	< 0.005	< 0.005	< 0.005	2.83
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	3.33	3.33	< 0.005	< 0.005	< 0.005	3.48
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.23. Building Construction (2026) - Unmitigated

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

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.19	0.99	2.88	< 0.005	0.03	—	0.03	0.03	—	0.03	—	455	455	0.02	< 0.005	—	457
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	0.01	0.02	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	3.56	3.56	< 0.005	< 0.005	—	3.58
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipment	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	0.59	0.59	< 0.005	< 0.005	—	0.59
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.03	0.44	0.00	0.00	0.10	0.10	0.00	0.02	0.02	—	103	103	< 0.005	< 0.005	0.01	104
Vendor	< 0.005	0.14	0.07	< 0.005	< 0.005	0.03	0.04	< 0.005	0.01	0.01	—	125	125	0.01	0.02	0.01	130
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.82	0.82	< 0.005	< 0.005	< 0.005	0.83
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	0.98	0.98	< 0.005	< 0.005	< 0.005	1.02
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.14	0.14	< 0.005	< 0.005	< 0.005	0.14
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	0.16	0.16	< 0.005	< 0.005	< 0.005	0.17
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.24. Building Construction (2026) - Mitigated

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

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

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.19	0.99	2.88	< 0.005	0.03	—	0.03	0.03	—	0.03	—	455	455	0.02	< 0.005	—	457
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	0.01	0.02	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	3.56	3.56	< 0.005	< 0.005	—	3.58
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	0.59	0.59	< 0.005	< 0.005	—	0.59
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.03	0.44	0.00	0.00	0.10	0.10	0.00	0.02	0.02	—	103	103	< 0.005	< 0.005	0.01	104
Vendor	< 0.005	0.14	0.07	< 0.005	< 0.005	0.03	0.04	< 0.005	0.01	0.01	—	125	125	0.01	0.02	0.01	130
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Worker	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.82	0.82	< 0.005	< 0.005	< 0.005	0.83
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	0.98	0.98	< 0.005	< 0.005	< 0.005	1.02
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.14	0.14	< 0.005	< 0.005	< 0.005	0.14
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	0.16	0.16	< 0.005	< 0.005	< 0.005	0.17
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.25. Building Construction (2024) - Unmitigated

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

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.47	3.89	4.61	0.01	0.18	—	0.18	0.16	—	0.16	—	669	669	0.03	0.01	—	672
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.47	3.89	4.61	0.01	0.18	—	0.18	0.16	—	0.16	—	669	669	0.03	0.01	—	672
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.14	1.16	1.38	< 0.005	0.05	—	0.05	0.05	—	0.05	—	200	200	0.01	< 0.005	—	201

Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.03	0.21	0.25	< 0.005	0.01	—	0.01	0.01	—	0.01	—	33.2	33.2	< 0.005	< 0.005	—	33.3
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.04	0.60	0.00	0.00	0.10	0.10	0.00	0.02	0.02	—	113	113	< 0.005	< 0.005	0.45	115
Vendor	< 0.005	0.15	0.07	< 0.005	< 0.005	0.03	0.04	< 0.005	0.01	0.01	—	129	129	0.01	0.02	0.35	135
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.05	0.51	0.00	0.00	0.10	0.10	0.00	0.02	0.02	—	107	107	< 0.005	< 0.005	0.01	108
Vendor	< 0.005	0.16	0.08	< 0.005	< 0.005	0.03	0.04	< 0.005	0.01	0.01	—	129	129	0.01	0.02	0.01	135
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.16	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	32.5	32.5	< 0.005	< 0.005	0.06	33.0
Vendor	< 0.005	0.05	0.02	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	38.6	38.6	< 0.005	0.01	0.05	40.3
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.03	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	5.39	5.39	< 0.005	< 0.005	0.01	5.46
Vendor	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	6.40	6.40	< 0.005	< 0.005	0.01	6.67
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.26. Building Construction (2024) - Mitigated

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

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.47	3.89	4.61	0.01	0.18	—	0.18	0.16	—	0.16	—	669	669	0.03	0.01	—	672
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.47	3.89	4.61	0.01	0.18	—	0.18	0.16	—	0.16	—	669	669	0.03	0.01	—	672
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.14	1.16	1.38	< 0.005	0.05	—	0.05	0.05	—	0.05	—	200	200	0.01	< 0.005	—	201
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.03	0.21	0.25	< 0.005	0.01	—	0.01	0.01	—	0.01	—	33.2	33.2	< 0.005	< 0.005	—	33.3
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.04	0.60	0.00	0.00	0.10	0.10	0.00	0.02	0.02	—	113	113	< 0.005	< 0.005	0.45	115
Vendor	< 0.005	0.15	0.07	< 0.005	< 0.005	0.03	0.04	< 0.005	0.01	0.01	—	129	129	0.01	0.02	0.35	135
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.05	0.51	0.00	0.00	0.10	0.10	0.00	0.02	0.02	—	107	107	< 0.005	< 0.005	0.01	108
Vendor	< 0.005	0.16	0.08	< 0.005	< 0.005	0.03	0.04	< 0.005	0.01	0.01	—	129	129	0.01	0.02	0.01	135
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.16	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	32.5	32.5	< 0.005	< 0.005	0.06	33.0
Vendor	< 0.005	0.05	0.02	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	38.6	38.6	< 0.005	0.01	0.05	40.3
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.03	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	5.39	5.39	< 0.005	< 0.005	0.01	5.46
Vendor	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	6.40	6.40	< 0.005	< 0.005	0.01	6.67
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.27. Building Construction (2025) - Unmitigated

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

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

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.45	3.74	4.59	0.01	0.16	—	0.16	0.15	—	0.15	—	669	669	0.03	0.01	—	671
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.03	0.23	0.28	< 0.005	0.01	—	0.01	0.01	—	0.01	—	40.6	40.6	< 0.005	< 0.005	—	40.7
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	0.04	0.05	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	6.72	6.72	< 0.005	< 0.005	—	6.74
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.04	0.47	0.00	0.00	0.10	0.10	0.00	0.02	0.02	—	105	105	< 0.005	< 0.005	0.01	106
Vendor	< 0.005	0.15	0.07	< 0.005	< 0.005	0.03	0.04	< 0.005	0.01	0.01	—	127	127	0.01	0.02	0.01	132
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.03	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	6.45	6.45	< 0.005	< 0.005	0.01	6.54
Vendor	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	7.70	7.70	< 0.005	< 0.005	0.01	8.04
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	1.07	1.07	< 0.005	< 0.005	< 0.005	1.08
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	1.27	1.27	< 0.005	< 0.005	< 0.005	1.33
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.28. Building Construction (2025) - Mitigated

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

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.45	3.74	4.59	0.01	0.16	—	0.16	0.15	—	0.15	—	669	669	0.03	0.01	—	671
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.03	0.23	0.28	< 0.005	0.01	—	0.01	0.01	—	0.01	—	40.6	40.6	< 0.005	< 0.005	—	40.7
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	0.04	0.05	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	6.72	6.72	< 0.005	< 0.005	—	6.74
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.04	0.47	0.00	0.00	0.10	0.10	0.00	0.02	0.02	—	105	105	< 0.005	< 0.005	0.01	106
Vendor	< 0.005	0.15	0.07	< 0.005	< 0.005	0.03	0.04	< 0.005	0.01	0.01	—	127	127	0.01	0.02	0.01	132
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.03	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	6.45	6.45	< 0.005	< 0.005	0.01	6.54
Vendor	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	7.70	7.70	< 0.005	< 0.005	0.01	8.04
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	1.07	1.07	< 0.005	< 0.005	< 0.005	1.08
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	1.27	1.27	< 0.005	< 0.005	< 0.005	1.33
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.29. Paving (2025) - Unmitigated

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

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.30	2.80	3.74	0.01	0.13	—	0.13	0.12	—	0.12	—	567	567	0.02	< 0.005	—	569
Paving	0.23	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.30	2.80	3.74	0.01	0.13	—	0.13	0.12	—	0.12	—	567	567	0.02	< 0.005	—	569
Paving	0.23	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.21	1.92	2.57	< 0.005	0.09	—	0.09	0.08	—	0.08	—	389	389	0.02	< 0.005	—	391
Paving	0.16	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.04	0.35	0.47	< 0.005	0.02	—	0.02	0.02	—	0.02	—	64.5	64.5	< 0.005	< 0.005	—	64.7
Paving	0.03	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.09	0.10	1.53	0.00	0.00	0.29	0.29	0.00	0.07	0.07	—	304	304	0.01	0.01	1.11	309
Vendor	< 0.005	0.14	0.07	< 0.005	< 0.005	0.03	0.04	< 0.005	0.01	0.01	—	127	127	0.01	0.02	0.35	133
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Worker	0.09	0.11	1.30	0.00	0.00	0.29	0.29	0.00	0.07	0.07	—	288	288	0.01	0.01	0.03	292
Vendor	< 0.005	0.15	0.07	< 0.005	< 0.005	0.03	0.04	< 0.005	0.01	0.01	—	127	127	0.01	0.02	0.01	132
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.06	0.08	0.94	0.00	0.00	0.19	0.19	0.00	0.05	0.05	—	201	201	0.01	0.01	0.33	204
Vendor	< 0.005	0.10	0.05	< 0.005	< 0.005	0.02	0.02	< 0.005	0.01	0.01	—	87.2	87.2	< 0.005	0.01	0.10	91.0
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.17	0.00	0.00	0.04	0.04	0.00	0.01	0.01	—	33.3	33.3	< 0.005	< 0.005	0.05	33.7
Vendor	< 0.005	0.02	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	14.4	14.4	< 0.005	< 0.005	0.02	15.1
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.30. Paving (2025) - Mitigated

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

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.30	2.80	3.74	0.01	0.13	—	0.13	0.12	—	0.12	—	567	567	0.02	< 0.005	—	569
Paving	0.23	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.30	2.80	3.74	0.01	0.13	—	0.13	0.12	—	0.12	—	567	567	0.02	< 0.005	—	569

Paving	0.23	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.21	1.92	2.57	< 0.005	0.09	—	0.09	0.08	—	0.08	—	389	389	0.02	< 0.005	—	391
Paving	0.16	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.04	0.35	0.47	< 0.005	0.02	—	0.02	0.02	—	0.02	—	64.5	64.5	< 0.005	< 0.005	—	64.7
Paving	0.03	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.09	0.10	1.53	0.00	0.00	0.29	0.29	0.00	0.07	0.07	—	304	304	0.01	0.01	1.11	309
Vendor	< 0.005	0.14	0.07	< 0.005	< 0.005	0.03	0.04	< 0.005	0.01	0.01	—	127	127	0.01	0.02	0.35	133
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.09	0.11	1.30	0.00	0.00	0.29	0.29	0.00	0.07	0.07	—	288	288	0.01	0.01	0.03	292
Vendor	< 0.005	0.15	0.07	< 0.005	< 0.005	0.03	0.04	< 0.005	0.01	0.01	—	127	127	0.01	0.02	0.01	132
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.06	0.08	0.94	0.00	0.00	0.19	0.19	0.00	0.05	0.05	—	201	201	0.01	0.01	0.33	204

Vendor	< 0.005	0.10	0.05	< 0.005	< 0.005	0.02	0.02	< 0.005	0.01	0.01	—	87.2	87.2	< 0.005	0.01	0.10	91.0
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.17	0.00	0.00	0.04	0.04	0.00	0.01	0.01	—	33.3	33.3	< 0.005	< 0.005	0.05	33.7
Vendor	< 0.005	0.02	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	14.4	14.4	< 0.005	< 0.005	0.02	15.1
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.31. Paving (2026) - Unmitigated

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

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.29	2.67	3.73	0.01	0.12	—	0.12	0.11	—	0.11	—	566	566	0.02	< 0.005	—	568
Paving	0.23	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.03	0.26	0.36	< 0.005	0.01	—	0.01	0.01	—	0.01	—	54.3	54.3	< 0.005	< 0.005	—	54.5
Paving	0.02	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipment	< 0.005	0.05	0.07	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	8.99	8.99	< 0.005	< 0.005	—	9.02
Paving	< 0.005	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.08	0.10	1.21	0.00	0.00	0.29	0.29	0.00	0.07	0.07	—	283	283	0.01	0.01	0.03	286
Vendor	< 0.005	0.14	0.07	< 0.005	< 0.005	0.03	0.04	< 0.005	0.01	0.01	—	125	125	0.01	0.02	0.01	130
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.12	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	27.5	27.5	< 0.005	< 0.005	0.04	27.9
Vendor	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	12.0	12.0	< 0.005	< 0.005	0.01	12.5
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.02	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	4.55	4.55	< 0.005	< 0.005	0.01	4.61
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	1.98	1.98	< 0.005	< 0.005	< 0.005	2.07
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.32. Paving (2026) - Mitigated

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

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

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.29	2.67	3.73	0.01	0.12	—	0.12	0.11	—	0.11	—	566	566	0.02	< 0.005	—	568
Paving	0.23	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.03	0.26	0.36	< 0.005	0.01	—	0.01	0.01	—	0.01	—	54.3	54.3	< 0.005	< 0.005	—	54.5
Paving	0.02	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	0.05	0.07	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	8.99	8.99	< 0.005	< 0.005	—	9.02
Paving	< 0.005	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.08	0.10	1.21	0.00	0.00	0.29	0.29	0.00	0.07	0.07	—	283	283	0.01	0.01	0.03	286
Vendor	< 0.005	0.14	0.07	< 0.005	< 0.005	0.03	0.04	< 0.005	0.01	0.01	—	125	125	0.01	0.02	0.01	130

Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.12	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	27.5	27.5	< 0.005	< 0.005	0.04	27.9
Vendor	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	12.0	12.0	< 0.005	< 0.005	0.01	12.5
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.02	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	4.55	4.55	< 0.005	< 0.005	0.01	4.61
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	1.98	1.98	< 0.005	< 0.005	< 0.005	2.07
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.33. Architectural Coating (2026) - Unmitigated

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

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.23	1.34	2.42	< 0.005	0.04	—	0.04	0.04	—	0.04	—	339	339	0.01	< 0.005	—	340
Architectural Coatings	1.72	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipment	0.04	0.22	0.39	< 0.005	0.01	—	0.01	0.01	—	0.01	—	54.8	54.8	< 0.005	< 0.005	—	55.0
Architectural Coatings	0.28	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.04	0.07	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	9.07	9.07	< 0.005	< 0.005	—	9.10
Architectural Coatings	0.05	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.03	0.33	0.00	0.00	0.08	0.08	0.00	0.02	0.02	—	77.1	77.1	< 0.005	< 0.005	0.01	78.0
Vendor	< 0.005	0.07	0.03	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	0.01	—	62.4	62.4	< 0.005	0.01	< 0.005	65.1
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.06	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	12.6	12.6	< 0.005	< 0.005	0.02	12.8
Vendor	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	10.1	10.1	< 0.005	< 0.005	0.01	10.5
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	2.09	2.09	< 0.005	< 0.005	< 0.005	2.12

Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	1.67	1.67	< 0.005	< 0.005	< 0.005	1.74
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.34. Architectural Coating (2026) - Mitigated

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

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.23	1.34	2.42	< 0.005	0.04	—	0.04	0.04	—	0.04	—	339	339	0.01	< 0.005	—	340
Architectural Coatings	1.72	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.04	0.22	0.39	< 0.005	0.01	—	0.01	0.01	—	0.01	—	54.8	54.8	< 0.005	< 0.005	—	55.0
Architectural Coatings	0.28	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.04	0.07	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	9.07	9.07	< 0.005	< 0.005	—	9.10

Architectu Coatings	0.05	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.03	0.33	0.00	0.00	0.08	0.08	0.00	0.02	0.02	—	77.1	77.1	< 0.005	< 0.005	0.01	78.0
Vendor	< 0.005	0.07	0.03	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	0.01	—	62.4	62.4	< 0.005	0.01	< 0.005	65.1
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.06	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	12.6	12.6	< 0.005	< 0.005	0.02	12.8
Vendor	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	10.1	10.1	< 0.005	< 0.005	0.01	10.5
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	2.09	2.09	< 0.005	< 0.005	< 0.005	2.12
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	1.67	1.67	< 0.005	< 0.005	< 0.005	1.74
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.35. Architectural Coating (2025) - Unmitigated

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

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

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.25	2.27	2.82	< 0.005	0.06	—	0.06	0.06	—	0.06	—	402	402	0.02	< 0.005	—	403
Architectural Coatings	0.41	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.25	2.27	2.82	< 0.005	0.06	—	0.06	0.06	—	0.06	—	402	402	0.02	< 0.005	—	403
Architectural Coatings	0.41	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.10	0.93	1.16	< 0.005	0.03	—	0.03	0.02	—	0.02	—	165	165	0.01	< 0.005	—	166
Architectural Coatings	0.17	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.02	0.17	0.21	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	27.3	27.3	< 0.005	< 0.005	—	27.4
Architectural Coatings	0.03	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.03	0.42	0.00	0.00	0.08	0.08	0.00	0.02	0.02	—	83.0	83.0	< 0.005	< 0.005	0.30	84.2
Vendor	< 0.005	0.07	0.04	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	0.01	—	63.5	63.5	< 0.005	0.01	0.17	66.3
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.03	0.35	0.00	0.00	0.08	0.08	0.00	0.02	0.02	—	78.6	78.6	< 0.005	< 0.005	0.01	79.6
Vendor	< 0.005	0.08	0.04	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	0.01	—	63.5	63.5	< 0.005	0.01	< 0.005	66.2
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.15	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	32.8	32.8	< 0.005	< 0.005	0.05	33.2
Vendor	< 0.005	0.03	0.01	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	26.1	26.1	< 0.005	< 0.005	0.03	27.2
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.03	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	5.43	5.43	< 0.005	< 0.005	0.01	5.50
Vendor	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	4.32	4.32	< 0.005	< 0.005	0.01	4.51
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.36. Architectural Coating (2025) - Mitigated

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

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

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.25	2.27	2.82	< 0.005	0.06	—	0.06	0.06	—	0.06	—	402	402	0.02	< 0.005	—	403
Architectural Coatings	0.41	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.25	2.27	2.82	< 0.005	0.06	—	0.06	0.06	—	0.06	—	402	402	0.02	< 0.005	—	403
Architectural Coatings	0.41	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.10	0.93	1.16	< 0.005	0.03	—	0.03	0.02	—	0.02	—	165	165	0.01	< 0.005	—	166
Architectural Coatings	0.17	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.02	0.17	0.21	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	27.3	27.3	< 0.005	< 0.005	—	27.4
Architectural Coatings	0.03	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.03	0.42	0.00	0.00	0.08	0.08	0.00	0.02	0.02	—	83.0	83.0	< 0.005	< 0.005	0.30	84.2
Vendor	< 0.005	0.07	0.04	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	0.01	—	63.5	63.5	< 0.005	0.01	0.17	66.3
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.03	0.35	0.00	0.00	0.08	0.08	0.00	0.02	0.02	—	78.6	78.6	< 0.005	< 0.005	0.01	79.6
Vendor	< 0.005	0.08	0.04	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	0.01	—	63.5	63.5	< 0.005	0.01	< 0.005	66.2
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.15	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	32.8	32.8	< 0.005	< 0.005	0.05	33.2
Vendor	< 0.005	0.03	0.01	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	26.1	26.1	< 0.005	< 0.005	0.03	27.2
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.03	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	5.43	5.43	< 0.005	< 0.005	0.01	5.50
Vendor	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	4.32	4.32	< 0.005	< 0.005	0.01	4.51
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.37. Trenching (2025) - Unmitigated

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

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

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.71	5.91	6.92	0.01	0.18	—	0.18	0.16	—	0.16	—	946	946	0.04	0.01	—	949
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.71	5.91	6.92	0.01	0.18	—	0.18	0.16	—	0.16	—	946	946	0.04	0.01	—	949
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.49	4.06	4.75	0.01	0.12	—	0.12	0.11	—	0.11	—	650	650	0.03	0.01	—	652
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.09	0.74	0.87	< 0.005	0.02	—	0.02	0.02	—	0.02	—	108	108	< 0.005	< 0.005	—	108
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.09	0.10	1.53	0.00	0.00	0.29	0.29	0.00	0.07	0.07	—	304	304	0.01	0.01	1.11	309
Vendor	< 0.005	0.07	0.04	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	0.01	—	63.5	63.5	< 0.005	0.01	0.17	66.3
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.09	0.11	1.30	0.00	0.00	0.29	0.29	0.00	0.07	0.07	—	288	288	0.01	0.01	0.03	292
Vendor	< 0.005	0.08	0.04	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	0.01	—	63.5	63.5	< 0.005	0.01	< 0.005	66.2
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.06	0.08	0.94	0.00	0.00	0.19	0.19	0.00	0.05	0.05	—	201	201	0.01	0.01	0.33	204
Vendor	< 0.005	0.05	0.02	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	43.6	43.6	< 0.005	0.01	0.05	45.5
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.17	0.00	0.00	0.04	0.04	0.00	0.01	0.01	—	33.3	33.3	< 0.005	< 0.005	0.05	33.7
Vendor	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	7.22	7.22	< 0.005	< 0.005	0.01	7.53
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.38. Trenching (2025) - Mitigated

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

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.71	5.91	6.92	0.01	0.18	—	0.18	0.16	—	0.16	—	946	946	0.04	0.01	—	949
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipment	0.71	5.91	6.92	0.01	0.18	—	0.18	0.16	—	0.16	—	946	946	0.04	0.01	—	949
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.49	4.06	4.75	0.01	0.12	—	0.12	0.11	—	0.11	—	650	650	0.03	0.01	—	652
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.09	0.74	0.87	< 0.005	0.02	—	0.02	0.02	—	0.02	—	108	108	< 0.005	< 0.005	—	108
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.09	0.10	1.53	0.00	0.00	0.29	0.29	0.00	0.07	0.07	—	304	304	0.01	0.01	1.11	309
Vendor	< 0.005	0.07	0.04	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	0.01	—	63.5	63.5	< 0.005	0.01	0.17	66.3
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.09	0.11	1.30	0.00	0.00	0.29	0.29	0.00	0.07	0.07	—	288	288	0.01	0.01	0.03	292
Vendor	< 0.005	0.08	0.04	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	0.01	—	63.5	63.5	< 0.005	0.01	< 0.005	66.2
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.06	0.08	0.94	0.00	0.00	0.19	0.19	0.00	0.05	0.05	—	201	201	0.01	0.01	0.33	204
Vendor	< 0.005	0.05	0.02	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	43.6	43.6	< 0.005	0.01	0.05	45.5

Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.17	0.00	0.00	0.04	0.04	0.00	0.01	0.01	—	33.3	33.3	< 0.005	< 0.005	0.05	33.7
Vendor	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	7.22	7.22	< 0.005	< 0.005	0.01	7.53
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.39. Trenching (2026) - Unmitigated

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

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.68	5.79	6.89	0.01	0.16	—	0.16	0.14	—	0.14	—	945	945	0.04	0.01	—	949
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.07	0.55	0.66	< 0.005	0.02	—	0.02	0.01	—	0.01	—	90.6	90.6	< 0.005	< 0.005	—	91.0
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.10	0.12	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	15.0	15.0	< 0.005	< 0.005	—	15.1
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.08	0.10	1.21	0.00	0.00	0.29	0.29	0.00	0.07	0.07	—	283	283	0.01	0.01	0.03	286
Vendor	< 0.005	0.07	0.03	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	0.01	—	62.4	62.4	< 0.005	0.01	< 0.005	65.1
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.12	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	27.5	27.5	< 0.005	< 0.005	0.04	27.9
Vendor	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	5.98	5.98	< 0.005	< 0.005	0.01	6.25
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.02	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	4.55	4.55	< 0.005	< 0.005	0.01	4.61
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	0.99	0.99	< 0.005	< 0.005	< 0.005	1.03
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.40. Trenching (2026) - Mitigated

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

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

Off-Road Equipment	0.68	5.79	6.89	0.01	0.16	—	0.16	0.14	—	0.14	—	945	945	0.04	0.01	—	949
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.07	0.55	0.66	< 0.005	0.02	—	0.02	0.01	—	0.01	—	90.6	90.6	< 0.005	< 0.005	—	91.0
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.10	0.12	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	15.0	15.0	< 0.005	< 0.005	—	15.1
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.08	0.10	1.21	0.00	0.00	0.29	0.29	0.00	0.07	0.07	—	283	283	0.01	0.01	0.03	286
Vendor	< 0.005	0.07	0.03	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	0.01	—	62.4	62.4	< 0.005	0.01	< 0.005	65.1
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.12	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	27.5	27.5	< 0.005	< 0.005	0.04	27.9
Vendor	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	5.98	5.98	< 0.005	< 0.005	0.01	6.25
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.02	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	4.55	4.55	< 0.005	< 0.005	0.01	4.61

Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	0.99	0.99	< 0.005	< 0.005	< 0.005	1.03
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

4. Operations Emissions Details

4.10. Soil Carbon Accumulation By Vegetation Type

4.10.1. Soil Carbon Accumulation By Vegetation Type - Unmitigated

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

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

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

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

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

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

4.10.3. Avoided and Sequestered Emissions by Species - Unmitigated

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

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

Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.4. Soil Carbon Accumulation By Vegetation Type - Mitigated

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

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

4.10.5. Above and Belowground Carbon Accumulation by Land Use Type - Mitigated

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

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

4.10.6. Avoided and Sequestered Emissions by Species - Mitigated

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

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

Sequeste	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequeste red	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

5. Activity Data

5.1. Construction Schedule

Phase Name	Phase Type	Start Date	End Date	Days Per Week	Work Days per Phase	Phase Description
Desalter - Demo	Demolition	11/1/2023	3/15/2024	5.00	98.0	—
Wells - Demo	Demolition	1/1/2025	2/26/2025	5.00	41.0	—
Pipeline - Demo	Demolition	1/1/2025	1/14/2025	5.00	10.0	—
Desalter - Grading	Grading	3/15/2024	8/1/2024	5.00	100	—
Wells - Borehole Drilling	Grading	4/1/2025	7/18/2025	5.00	79.0	—
Pipeline - Installation	Grading	1/15/2025	2/18/2026	5.00	286	—
Desalter - Building Construction	Building Construction	2/1/2025	8/5/2025	5.00	132	—
Wells - Casing	Building Construction	7/19/2025	10/11/2025	5.00	60.0	—

Wells - Pump install	Building Construction	10/12/2025	1/4/2026	5.00	60.0	—
Desalter - Foundations	Building Construction	8/1/2024	1/31/2025	5.00	132	—
Pipeline - Paving	Paving	1/15/2025	2/18/2026	5.00	286	—
Wells - Finishing	Architectural Coating	1/5/2026	3/26/2026	5.00	59.0	—
Desalter - Architectural Coating	Architectural Coating	2/1/2025	8/31/2025	5.00	150	—
Pipeline - Trenching	Trenching	1/15/2025	2/18/2026	5.00	286	—

5.2. Off-Road Equipment

5.2.1. Unmitigated

Phase Name	Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor
Desalter - Demo	Other Construction Equipment	Diesel	Average	1.00	6.00	82.0	0.42
Desalter - Demo	Generator Sets	Diesel	Average	3.00	6.00	14.0	0.74
Desalter - Demo	Concrete/Industrial Saws	Diesel	Average	1.00	8.00	33.0	0.73
Desalter - Demo	Tractors/Loaders/Backhoes	Diesel	Average	1.00	6.00	84.0	0.37
Desalter - Demo	Air Compressors	Diesel	Average	1.00	6.00	37.0	0.48
Desalter - Demo	Plate Compactors	Diesel	Average	1.00	4.00	8.00	0.43
Wells - Demo	Tractors/Loaders/Backhoes	Diesel	Average	1.00	4.00	84.0	0.37
Wells - Demo	Air Compressors	Diesel	Average	1.00	4.00	36.0	0.38
Wells - Demo	Concrete/Industrial Saws	Diesel	Average	1.00	4.00	33.0	0.73
Wells - Demo	Generator Sets	Diesel	Average	3.00	4.00	14.0	0.74
Wells - Demo	Plate Compactors	Diesel	Average	1.00	4.00	8.00	0.43
Wells - Demo	Other Material Handling Equipment	Diesel	Average	1.00	4.00	93.0	0.40

Wells - Demo	Excavators	Diesel	Average	1.00	4.00	36.0	0.38
Wells - Demo	Graders	Diesel	Average	1.00	4.00	148	0.41
Pipeline - Demo	Concrete/Industrial Saws	Diesel	Average	3.00	6.00	33.0	0.73
Pipeline - Demo	Other Material Handling Equipment	Diesel	Average	3.00	6.00	93.0	0.40
Pipeline - Demo	Plate Compactors	Diesel	Average	3.00	6.00	8.00	0.43
Pipeline - Demo	Generator Sets	Diesel	Average	9.00	6.00	14.0	0.74
Pipeline - Demo	Tractors/Loaders/Backhoes	Diesel	Average	3.00	6.00	84.0	0.37
Pipeline - Demo	Air Compressors	Diesel	Average	3.00	6.00	37.0	0.48
Desalter - Grading	Graders	Diesel	Average	1.00	8.00	148	0.41
Desalter - Grading	Excavators	Diesel	Average	1.00	8.00	36.0	0.38
Desalter - Grading	Tractors/Loaders/Backhoes	Diesel	Average	1.00	6.00	84.0	0.37
Desalter - Grading	Scrapers	Diesel	Average	1.00	6.00	423	0.48
Desalter - Grading	Air Compressors	Diesel	Average	1.00	8.00	37.0	0.48
Desalter - Grading	Plate Compactors	Diesel	Average	1.00	8.00	8.00	0.43
Desalter - Grading	Trenchers	Diesel	Average	1.00	6.00	40.0	0.50
Desalter - Grading	Rough Terrain Forklifts	Diesel	Average	1.00	6.00	96.0	0.40
Wells - Borehole Drilling	Bore/Drill Rigs	Diesel	Average	1.00	24.0	475	0.50
Wells - Borehole Drilling	Cement and Mortar Mixers	Diesel	Average	1.00	24.0	10.0	0.56
Wells - Borehole Drilling	Other Construction Equipment	Diesel	Average	1.00	24.0	50.0	0.42
Pipeline - Installation	Air Compressors	Diesel	Average	3.00	4.00	37.0	0.48
Pipeline - Installation	Graders	Diesel	Average	3.00	4.00	148	0.41
Pipeline - Installation	Rough Terrain Forklifts	Diesel	Average	3.00	4.00	96.0	0.40
Pipeline - Installation	Scrapers	Diesel	Average	3.00	4.00	423	0.48

Pipeline - Installation	Tractors/Loaders/Backh	Diesel	Average	3.00	4.00	84.0	0.37
Desalter - Building Construction	Cranes	Diesel	Average	1.00	1.00	367	0.29
Desalter - Building Construction	Generator Sets	Diesel	Average	1.00	4.00	14.0	0.74
Desalter - Building Construction	Plate Compactors	Diesel	Average	1.00	4.00	8.00	0.43
Desalter - Building Construction	Welders	Diesel	Average	1.00	4.00	46.0	0.45
Desalter - Building Construction	Tractors/Loaders/Backhoes	Diesel	Average	2.00	4.00	84.0	0.37
Desalter - Building Construction	Bore/Drill Rigs	Diesel	Average	1.00	4.00	83.0	0.50
Desalter - Building Construction	Rough Terrain Forklifts	Diesel	Average	1.00	4.00	96.0	0.40
Desalter - Building Construction	Rubber Tired Dozers	Diesel	Average	1.00	4.00	367	0.40
Wells - Casing	Cranes	Diesel	Average	1.00	6.00	367	0.29
Wells - Casing	Generator Sets	Diesel	Average	1.00	6.00	14.0	0.74
Wells - Casing	Pumps	Diesel	Average	1.00	6.00	11.0	0.74
Wells - Casing	Cement and Mortar Mixers	Diesel	Average	1.00	8.00	10.0	0.56
Wells - Casing	Rough Terrain Forklifts	Diesel	Average	1.00	6.00	96.0	0.40
Wells - Pump install	Cement and Mortar Mixers	Diesel	Average	1.00	8.00	10.0	0.56
Wells - Pump install	Excavators	Diesel	Average	1.00	4.00	36.0	0.38
Wells - Pump install	Paving Equipment	Diesel	Average	1.00	4.00	89.0	0.36
Wells - Pump install	Rough Terrain Forklifts	Diesel	Average	1.00	4.00	96.0	0.40
Desalter - Foundations	Forklifts	Diesel	Average	1.00	4.00	82.0	0.20
Desalter - Foundations	Pumps	Diesel	Average	1.00	8.00	11.0	0.74
Desalter - Foundations	Air Compressors	Diesel	Average	1.00	6.00	37.0	0.48

Desalter - Foundations	Pavers	Diesel	Average	1.00	4.00	81.0	0.42
Desalter - Foundations	Paving Equipment	Diesel	Average	1.00	4.00	89.0	0.36
Desalter - Foundations	Rollers	Diesel	Average	1.00	4.00	36.0	0.38
Pipeline - Paving	Pavers	Diesel	Average	3.00	2.00	81.0	0.42
Pipeline - Paving	Paving Equipment	Diesel	Average	3.00	2.00	89.0	0.36
Pipeline - Paving	Rollers	Diesel	Average	3.00	2.00	36.0	0.38
Wells - Finishing	Cement and Mortar Mixers	Diesel	Average	1.00	8.00	10.0	0.56
Wells - Finishing	Paving Equipment	Diesel	Average	1.00	4.00	89.0	0.36
Wells - Finishing	Air Compressors	Diesel	Average	1.00	6.00	37.0	0.48
Desalter - Architectural Coating	Air Compressors	Diesel	Average	1.00	8.00	37.0	0.48
Desalter - Architectural Coating	Aerial Lifts	Diesel	Average	1.00	8.00	46.0	0.31
Desalter - Architectural Coating	Forklifts	Diesel	Average	1.00	4.00	82.0	0.20
Pipeline - Trenching	Plate Compactors	Diesel	Average	3.00	6.00	8.00	0.43
Pipeline - Trenching	Excavators	Diesel	Average	3.00	6.00	36.0	0.38
Pipeline - Trenching	Concrete/Industrial Saws	Diesel	Average	3.00	6.00	33.0	0.73

5.2.2. Mitigated

Phase Name	Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor
Desalter - Demo	Other Construction Equipment	Diesel	Average	1.00	6.00	82.0	0.42
Desalter - Demo	Generator Sets	Diesel	Average	3.00	6.00	14.0	0.74
Desalter - Demo	Concrete/Industrial Saws	Diesel	Average	1.00	8.00	33.0	0.73
Desalter - Demo	Tractors/Loaders/Backhoes	Diesel	Average	1.00	6.00	84.0	0.37

Desalter - Demo	Air Compressors	Diesel	Average	1.00	6.00	37.0	0.48
Desalter - Demo	Plate Compactors	Diesel	Average	1.00	4.00	8.00	0.43
Wells - Demo	Tractors/Loaders/Backhoes	Diesel	Average	1.00	4.00	84.0	0.37
Wells - Demo	Air Compressors	Diesel	Average	1.00	4.00	36.0	0.38
Wells - Demo	Concrete/Industrial Saws	Diesel	Average	1.00	4.00	33.0	0.73
Wells - Demo	Generator Sets	Diesel	Average	3.00	4.00	14.0	0.74
Wells - Demo	Plate Compactors	Diesel	Average	1.00	4.00	8.00	0.43
Wells - Demo	Other Material Handling Equipment	Diesel	Average	1.00	4.00	93.0	0.40
Wells - Demo	Excavators	Diesel	Average	1.00	4.00	36.0	0.38
Wells - Demo	Graders	Diesel	Average	1.00	4.00	148	0.41
Pipeline - Demo	Concrete/Industrial Saws	Diesel	Average	3.00	6.00	33.0	0.73
Pipeline - Demo	Other Material Handling Equipment	Diesel	Average	3.00	6.00	93.0	0.40
Pipeline - Demo	Plate Compactors	Diesel	Average	3.00	6.00	8.00	0.43
Pipeline - Demo	Generator Sets	Diesel	Average	9.00	6.00	14.0	0.74
Pipeline - Demo	Tractors/Loaders/Backhoes	Diesel	Average	3.00	6.00	84.0	0.37
Pipeline - Demo	Air Compressors	Diesel	Average	3.00	6.00	37.0	0.48
Desalter - Grading	Graders	Diesel	Average	1.00	8.00	148	0.41
Desalter - Grading	Excavators	Diesel	Average	1.00	8.00	36.0	0.38
Desalter - Grading	Tractors/Loaders/Backhoes	Diesel	Average	1.00	6.00	84.0	0.37
Desalter - Grading	Scrapers	Diesel	Average	1.00	6.00	423	0.48
Desalter - Grading	Air Compressors	Diesel	Average	1.00	8.00	37.0	0.48
Desalter - Grading	Plate Compactors	Diesel	Average	1.00	8.00	8.00	0.43
Desalter - Grading	Trenchers	Diesel	Average	1.00	6.00	40.0	0.50

Desalter - Grading	Rough Terrain Forklifts	Diesel	Average	1.00	6.00	96.0	0.40
Wells - Borehole Drilling	Bore/Drill Rigs	Diesel	Average	1.00	24.0	475	0.50
Wells - Borehole Drilling	Cement and Mortar Mixers	Diesel	Average	1.00	24.0	10.0	0.56
Wells - Borehole Drilling	Other Construction Equipment	Diesel	Average	1.00	24.0	50.0	0.42
Pipeline - Installation	Air Compressors	Diesel	Average	3.00	4.00	37.0	0.48
Pipeline - Installation	Graders	Diesel	Average	3.00	4.00	148	0.41
Pipeline - Installation	Rough Terrain Forklifts	Diesel	Average	3.00	4.00	96.0	0.40
Pipeline - Installation	Scrapers	Diesel	Average	3.00	4.00	423	0.48
Pipeline - Installation	Tractors/Loaders/Backhoes	Diesel	Average	3.00	4.00	84.0	0.37
Desalter - Building Construction	Cranes	Diesel	Average	1.00	1.00	367	0.29
Desalter - Building Construction	Generator Sets	Diesel	Average	1.00	4.00	14.0	0.74
Desalter - Building Construction	Plate Compactors	Diesel	Average	1.00	4.00	8.00	0.43
Desalter - Building Construction	Welders	Diesel	Average	1.00	4.00	46.0	0.45
Desalter - Building Construction	Tractors/Loaders/Backhoes	Diesel	Average	2.00	4.00	84.0	0.37
Desalter - Building Construction	Bore/Drill Rigs	Diesel	Average	1.00	4.00	83.0	0.50
Desalter - Building Construction	Rough Terrain Forklifts	Diesel	Average	1.00	4.00	96.0	0.40
Desalter - Building Construction	Rubber Tired Dozers	Diesel	Average	1.00	4.00	367	0.40
Wells - Casing	Cranes	Diesel	Average	1.00	6.00	367	0.29
Wells - Casing	Generator Sets	Diesel	Average	1.00	6.00	14.0	0.74
Wells - Casing	Pumps	Diesel	Average	1.00	6.00	11.0	0.74

Wells - Casing	Cement and Mortar Mixers	Diesel	Average	1.00	8.00	10.0	0.56
Wells - Casing	Rough Terrain Forklifts	Diesel	Average	1.00	6.00	96.0	0.40
Wells - Pump install	Cement and Mortar Mixers	Diesel	Average	1.00	8.00	10.0	0.56
Wells - Pump install	Excavators	Diesel	Average	1.00	4.00	36.0	0.38
Wells - Pump install	Paving Equipment	Diesel	Average	1.00	4.00	89.0	0.36
Wells - Pump install	Rough Terrain Forklifts	Diesel	Average	1.00	4.00	96.0	0.40
Desalter - Foundations	Forklifts	Diesel	Average	1.00	4.00	82.0	0.20
Desalter - Foundations	Pumps	Diesel	Average	1.00	8.00	11.0	0.74
Desalter - Foundations	Air Compressors	Diesel	Average	1.00	6.00	37.0	0.48
Desalter - Foundations	Pavers	Diesel	Average	1.00	4.00	81.0	0.42
Desalter - Foundations	Paving Equipment	Diesel	Average	1.00	4.00	89.0	0.36
Desalter - Foundations	Rollers	Diesel	Average	1.00	4.00	36.0	0.38
Pipeline - Paving	Pavers	Diesel	Average	3.00	2.00	81.0	0.42
Pipeline - Paving	Paving Equipment	Diesel	Average	3.00	2.00	89.0	0.36
Pipeline - Paving	Rollers	Diesel	Average	3.00	2.00	36.0	0.38
Wells - Finishing	Cement and Mortar Mixers	Diesel	Average	1.00	8.00	10.0	0.56
Wells - Finishing	Paving Equipment	Diesel	Average	1.00	4.00	89.0	0.36
Wells - Finishing	Air Compressors	Diesel	Average	1.00	6.00	37.0	0.48
Desalter - Architectural Coating	Air Compressors	Diesel	Average	1.00	8.00	37.0	0.48
Desalter - Architectural Coating	Aerial Lifts	Diesel	Average	1.00	8.00	46.0	0.31
Desalter - Architectural Coating	Forklifts	Diesel	Average	1.00	4.00	82.0	0.20
Pipeline - Trenching	Plate Compactors	Diesel	Average	3.00	6.00	8.00	0.43
Pipeline - Trenching	Excavators	Diesel	Average	3.00	6.00	36.0	0.38

Pipeline - Trenching	Concrete/Industrial Saws	Diesel	Average	3.00	6.00	33.0	0.73

5.3. Construction Vehicles

5.3.1. Unmitigated

Phase Name	Trip Type	One-Way Trips per Day	Miles per Trip	Vehicle Mix
Desalter - Demo	—	—	—	—
Desalter - Demo	Worker	20.0	18.5	LDA,LDT1,LDT2
Desalter - Demo	Vendor	4.00	10.2	HHDT,MHDT
Desalter - Demo	Hauling	2.00	20.0	HHDT
Desalter - Demo	Onsite truck	—	—	HHDT
Desalter - Grading	—	—	—	—
Desalter - Grading	Worker	20.0	18.5	LDA,LDT1,LDT2
Desalter - Grading	Vendor	4.00	10.2	HHDT,MHDT
Desalter - Grading	Hauling	0.00	20.0	HHDT
Desalter - Grading	Onsite truck	—	—	HHDT
Desalter - Building Construction	—	—	—	—
Desalter - Building Construction	Worker	8.00	18.5	LDA,LDT1,LDT2
Desalter - Building Construction	Vendor	4.00	10.2	HHDT,MHDT
Desalter - Building Construction	Hauling	0.00	20.0	HHDT
Desalter - Building Construction	Onsite truck	—	—	HHDT
Desalter - Foundations	—	—	—	—
Desalter - Foundations	Worker	8.00	18.5	LDA,LDT1,LDT2
Desalter - Foundations	Vendor	4.00	10.2	HHDT,MHDT
Desalter - Foundations	Hauling	0.00	20.0	HHDT
Desalter - Foundations	Onsite truck	—	—	HHDT
Desalter - Architectural Coating	—	—	—	—

Desalter - Architectural Coating	Worker	6.00	18.5	LDA,LDT1,LDT2
Desalter - Architectural Coating	Vendor	2.00	10.2	HHDT,MHDT
Desalter - Architectural Coating	Hauling	0.00	20.0	HHDT
Desalter - Architectural Coating	Onsite truck	—	—	HHDT
Wells - Demo	—	—	—	—
Wells - Demo	Worker	25.0	18.5	LDA,LDT1,LDT2
Wells - Demo	Vendor	4.00	10.2	HHDT,MHDT
Wells - Demo	Hauling	0.00	20.0	HHDT
Wells - Demo	Onsite truck	—	—	HHDT
Pipeline - Demo	—	—	—	—
Pipeline - Demo	Worker	60.0	18.5	LDA,LDT1,LDT2
Pipeline - Demo	Vendor	4.00	10.2	HHDT,MHDT
Pipeline - Demo	Hauling	12.0	20.0	HHDT
Pipeline - Demo	Onsite truck	—	—	HHDT
Wells - Borehole Drilling	—	—	—	—
Wells - Borehole Drilling	Worker	8.00	18.5	LDA,LDT1,LDT2
Wells - Borehole Drilling	Vendor	4.00	10.2	HHDT,MHDT
Wells - Borehole Drilling	Hauling	0.00	20.0	HHDT
Wells - Borehole Drilling	Onsite truck	—	—	HHDT
Wells - Casing	—	—	—	—
Wells - Casing	Worker	8.00	18.5	LDA,LDT1,LDT2
Wells - Casing	Vendor	4.00	10.2	HHDT,MHDT
Wells - Casing	Hauling	0.00	20.0	HHDT
Wells - Casing	Onsite truck	—	—	HHDT
Wells - Pump install	—	—	—	—
Wells - Pump install	Worker	8.00	18.5	LDA,LDT1,LDT2
Wells - Pump install	Vendor	4.00	10.2	HHDT,MHDT

Wells - Pump install	Hauling	0.00	20.0	HHDT
Wells - Pump install	Onsite truck	—	—	HHDT
Pipeline - Installation	—	—	—	—
Pipeline - Installation	Worker	38.0	18.5	LDA,LDT1,LDT2
Pipeline - Installation	Vendor	4.00	10.2	HHDT,MHDT
Pipeline - Installation	Hauling	16.0	20.0	HHDT
Pipeline - Installation	Onsite truck	—	—	HHDT
Pipeline - Paving	—	—	—	—
Pipeline - Paving	Worker	22.0	18.5	LDA,LDT1,LDT2
Pipeline - Paving	Vendor	4.00	10.2	HHDT,MHDT
Pipeline - Paving	Hauling	0.00	20.0	HHDT
Pipeline - Paving	Onsite truck	—	—	HHDT
Wells - Finishing	—	—	—	—
Wells - Finishing	Worker	6.00	18.5	LDA,LDT1,LDT2
Wells - Finishing	Vendor	2.00	10.2	HHDT,MHDT
Wells - Finishing	Hauling	0.00	20.0	HHDT
Wells - Finishing	Onsite truck	—	—	HHDT
Pipeline - Trenching	—	—	—	—
Pipeline - Trenching	Worker	22.0	18.5	LDA,LDT1,LDT2
Pipeline - Trenching	Vendor	2.00	10.2	HHDT,MHDT
Pipeline - Trenching	Hauling	0.00	20.0	HHDT
Pipeline - Trenching	Onsite truck	—	—	HHDT

5.3.2. Mitigated

Phase Name	Trip Type	One-Way Trips per Day	Miles per Trip	Vehicle Mix
Desalter - Demo	—	—	—	—
Desalter - Demo	Worker	20.0	18.5	LDA,LDT1,LDT2

Desalter - Demo	Vendor	4.00	10.2	HHDT,MHDT
Desalter - Demo	Hauling	2.00	20.0	HHDT
Desalter - Demo	Onsite truck	—	—	HHDT
Desalter - Grading	—	—	—	—
Desalter - Grading	Worker	20.0	18.5	LDA,LDT1,LDT2
Desalter - Grading	Vendor	4.00	10.2	HHDT,MHDT
Desalter - Grading	Hauling	0.00	20.0	HHDT
Desalter - Grading	Onsite truck	—	—	HHDT
Desalter - Building Construction	—	—	—	—
Desalter - Building Construction	Worker	8.00	18.5	LDA,LDT1,LDT2
Desalter - Building Construction	Vendor	4.00	10.2	HHDT,MHDT
Desalter - Building Construction	Hauling	0.00	20.0	HHDT
Desalter - Building Construction	Onsite truck	—	—	HHDT
Desalter - Foundations	—	—	—	—
Desalter - Foundations	Worker	8.00	18.5	LDA,LDT1,LDT2
Desalter - Foundations	Vendor	4.00	10.2	HHDT,MHDT
Desalter - Foundations	Hauling	0.00	20.0	HHDT
Desalter - Foundations	Onsite truck	—	—	HHDT
Desalter - Architectural Coating	—	—	—	—
Desalter - Architectural Coating	Worker	6.00	18.5	LDA,LDT1,LDT2
Desalter - Architectural Coating	Vendor	2.00	10.2	HHDT,MHDT
Desalter - Architectural Coating	Hauling	0.00	20.0	HHDT
Desalter - Architectural Coating	Onsite truck	—	—	HHDT
Wells - Demo	—	—	—	—
Wells - Demo	Worker	25.0	18.5	LDA,LDT1,LDT2
Wells - Demo	Vendor	4.00	10.2	HHDT,MHDT
Wells - Demo	Hauling	0.00	20.0	HHDT

Wells - Demo	Onsite truck	—	—	HHDT
Pipeline - Demo	—	—	—	—
Pipeline - Demo	Worker	60.0	18.5	LDA,LDT1,LDT2
Pipeline - Demo	Vendor	4.00	10.2	HHDT,MHDT
Pipeline - Demo	Hauling	12.0	20.0	HHDT
Pipeline - Demo	Onsite truck	—	—	HHDT
Wells - Borehole Drilling	—	—	—	—
Wells - Borehole Drilling	Worker	8.00	18.5	LDA,LDT1,LDT2
Wells - Borehole Drilling	Vendor	4.00	10.2	HHDT,MHDT
Wells - Borehole Drilling	Hauling	0.00	20.0	HHDT
Wells - Borehole Drilling	Onsite truck	—	—	HHDT
Wells - Casing	—	—	—	—
Wells - Casing	Worker	8.00	18.5	LDA,LDT1,LDT2
Wells - Casing	Vendor	4.00	10.2	HHDT,MHDT
Wells - Casing	Hauling	0.00	20.0	HHDT
Wells - Casing	Onsite truck	—	—	HHDT
Wells - Pump install	—	—	—	—
Wells - Pump install	Worker	8.00	18.5	LDA,LDT1,LDT2
Wells - Pump install	Vendor	4.00	10.2	HHDT,MHDT
Wells - Pump install	Hauling	0.00	20.0	HHDT
Wells - Pump install	Onsite truck	—	—	HHDT
Pipeline - Installation	—	—	—	—
Pipeline - Installation	Worker	38.0	18.5	LDA,LDT1,LDT2
Pipeline - Installation	Vendor	4.00	10.2	HHDT,MHDT
Pipeline - Installation	Hauling	16.0	20.0	HHDT
Pipeline - Installation	Onsite truck	—	—	HHDT
Pipeline - Paving	—	—	—	—

Pipeline - Paving	Worker	22.0	18.5	LDA,LDT1,LDT2
Pipeline - Paving	Vendor	4.00	10.2	HHDT,MHDT
Pipeline - Paving	Hauling	0.00	20.0	HHDT
Pipeline - Paving	Onsite truck	—	—	HHDT
Wells - Finishing	—	—	—	—
Wells - Finishing	Worker	6.00	18.5	LDA,LDT1,LDT2
Wells - Finishing	Vendor	2.00	10.2	HHDT,MHDT
Wells - Finishing	Hauling	0.00	20.0	HHDT
Wells - Finishing	Onsite truck	—	—	HHDT
Pipeline - Trenching	—	—	—	—
Pipeline - Trenching	Worker	22.0	18.5	LDA,LDT1,LDT2
Pipeline - Trenching	Vendor	2.00	10.2	HHDT,MHDT
Pipeline - Trenching	Hauling	0.00	20.0	HHDT
Pipeline - Trenching	Onsite truck	—	—	HHDT

5.4. Vehicles

5.4.1. Construction Vehicle Control Strategies

Control Strategies Applied	PM10 Reduction	PM2.5 Reduction
Limit vehicle speeds on unpaved roads to 25 mph	44%	44%
Sweep paved roads once per month	9%	9%

5.5. Architectural Coatings

Phase Name	Residential Interior Area Coated (sq ft)	Residential Exterior Area Coated (sq ft)	Non-Residential Interior Area Coated (sq ft)	Non-Residential Exterior Area Coated (sq ft)	Parking Area Coated (sq ft)
Desalter - Architectural Coating	0.00	0.00	9,870	3,290	0.00
Wells - Finishing	0.00	0.00	16,380	5,460	0.00

5.6. Dust Mitigation

5.6.1. Construction Earthmoving Activities

Phase Name	Material Imported (Cubic Yards)	Material Exported (Cubic Yards)	Acres Graded (acres)	Material Demolished (Building Square Footage)	Acres Paved (acres)
Desalter - Demo	0.00	0.00	0.00	6,400	—
Wells - Demo	0.00	0.00	0.00	0.00	—
Pipeline - Demo	0.00	0.00	0.00	10,494	—
Desalter - Grading	0.00	0.00	125	0.00	—
Wells - Borehole Drilling	0.00	0.00	0.00	0.00	—
Pipeline - Installation	0.00	37,783	858	0.00	—
Pipeline - Paving	0.00	0.00	0.00	0.00	24.9

5.6.2. Construction Earthmoving Control Strategies

Control Strategies Applied	Frequency (per day)	PM10 Reduction	PM2.5 Reduction
Water Exposed Area	3	74%	74%
Water Demolished Area	2	36%	36%

5.7. Construction Paving

Land Use	Area Paved (acres)	% Asphalt
General Light Industry	0.10	0%
Other Asphalt Surfaces	24.8	100%

5.8. Construction Electricity Consumption and Emissions Factors

kWh per Year and Emission Factor (lb/MWh)

Year	kWh per Year	CO2	CH4	N2O

2023	0.00	532	0.03	< 0.005
2024	0.00	532	0.03	< 0.005
2025	0.00	532	0.03	< 0.005
2026	0.00	532	0.03	< 0.005

5.18. Vegetation

5.18.1. Land Use Change

5.18.1.1. Unmitigated

Vegetation Land Use Type	Vegetation Soil Type	Initial Acres	Final Acres

5.18.1.2. Mitigated

Vegetation Land Use Type	Vegetation Soil Type	Initial Acres	Final Acres

5.18.1. Biomass Cover Type

5.18.1.1. Unmitigated

Biomass Cover Type	Initial Acres	Final Acres

5.18.1.2. Mitigated

Biomass Cover Type	Initial Acres	Final Acres

5.18.2. Sequestration

5.18.2.1. Unmitigated

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

5.18.2.2. Mitigated

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

6. Climate Risk Detailed Report

6.1. Climate Risk Summary

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

Climate Hazard	Result for Project Location	Unit
Temperature and Extreme Heat	4.89	annual days of extreme heat
Extreme Precipitation	4.25	annual days with precipitation above 20 mm
Sea Level Rise	0.00	meters of inundation depth
Wildfire	0.00	annual hectares burned

Temperature and Extreme Heat data are for grid cell in which your project are located. The projection is based on the 98th historical percentile of daily maximum/minimum temperatures from observed historical data (32 climate model ensemble from Cal-Adapt, 2040–2059 average under RCP 8.5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.
Extreme Precipitation data are for the grid cell in which your project are located. The threshold of 20 mm is equivalent to about ¾ an inch of rain, which would be light to moderate rainfall if received over a full day or heavy rain if received over a period of 2 to 4 hours. Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.
Sea Level Rise data are for the grid cell in which your project are located. The projections are from Radke et al. (2017), as reported in Cal-Adapt (2040–2059 average under RCP 8.5), and consider different increments of sea level rise coupled with extreme storm events. Users may select from four model simulations to view the range in potential inundation depth for the grid cell. The four simulations make different assumptions about expected rainfall and temperature are: Warmer/drier (HadGEM2-ES), Cooler/wetter (CNRM-CM5), Average conditions (CanESM2), Range of different rainfall and temperature possibilities (MIROC5). Each grid cell is 50 meters (m) by 50 m, or about 164 feet (ft) by 164 ft.
Wildfire data are for the grid cell in which your project are located. The projections are from UC Davis, as reported in Cal-Adapt (2040–2059 average under RCP 8.5), and consider historical data of climate, vegetation, population density, and large (> 400 ha) fire history. Users may select from four model simulations to view the range in potential wildfire probabilities for the grid cell. The four simulations make different assumptions about expected rainfall and temperature are: Warmer/drier (HadGEM2-ES), Cooler/wetter (CNRM-CM5), Average conditions (CanESM2), Range of different rainfall and temperature possibilities (MIROC5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.

6.2. Initial Climate Risk Scores

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score
Temperature and Extreme Heat	1	0	0	N/A
Extreme Precipitation	N/A	N/A	N/A	N/A
Sea Level Rise	1	0	0	N/A

Wildfire	1	0	0	N/A
Flooding	N/A	N/A	N/A	N/A
Drought	N/A	N/A	N/A	N/A
Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	0	0	0	N/A

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.
The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.
The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores do not include implementation of climate risk reduction measures.

6.3. Adjusted Climate Risk Scores

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score
Temperature and Extreme Heat	1	1	1	2
Extreme Precipitation	N/A	N/A	N/A	N/A
Sea Level Rise	1	1	1	2
Wildfire	1	1	1	2
Flooding	N/A	N/A	N/A	N/A
Drought	N/A	N/A	N/A	N/A
Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	1	1	1	2

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.
The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.
The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores include implementation of climate risk reduction measures.

6.4. Climate Risk Reduction Measures

7. Health and Equity Details

7.1. CalEnviroScreen 4.0 Scores

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

Indicator	Result for Project Census Tract
Exposure Indicators	—
AQ-Ozone	24.9
AQ-PM	77.1
AQ-DPM	42.0
Drinking Water	29.9
Lead Risk Housing	65.4
Pesticides	66.7
Toxic Releases	98.1
Traffic	72.2
Effect Indicators	—
CleanUp Sites	81.6
Groundwater	90.1
Haz Waste Facilities/Generators	97.8
Impaired Water Bodies	0.00
Solid Waste	80.6
Sensitive Population	—
Asthma	19.8
Cardio-vascular	32.0
Low Birth Weights	70.2
Socioeconomic Factor Indicators	—
Education	17.2
Housing	22.1
Linguistic	39.8
Poverty	18.2

Unemployment	48.3

7.2. Healthy Places Index Scores

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

Indicator	Result for Project Census Tract
Economic	—
Above Poverty	82.07365584
Employed	83.35685872
Median HI	84.17810856
Education	—
Bachelor's or higher	71.73104068
High school enrollment	100
Preschool enrollment	87.91222892
Transportation	—
Auto Access	72.44963429
Active commuting	21.35249583
Social	—
2-parent households	89.99101758
Voting	76.90234826
Neighborhood	—
Alcohol availability	63.86500706
Park access	81.35506224
Retail density	45.11741306
Supermarket access	56.5635827
Tree canopy	47.87629924
Housing	—
Homeownership	66.77787758

Housing habitability	90.5812909
Low-inc homeowner severe housing cost burden	93.19902477
Low-inc renter severe housing cost burden	90.14500192
Uncrowded housing	43.11561658
Health Outcomes	—
Insured adults	78.54484794
Arthritis	45.8
Asthma ER Admissions	79.0
High Blood Pressure	49.4
Cancer (excluding skin)	19.8
Asthma	92.9
Coronary Heart Disease	51.0
Chronic Obstructive Pulmonary Disease	74.0
Diagnosed Diabetes	62.8
Life Expectancy at Birth	36.9
Cognitively Disabled	50.3
Physically Disabled	76.0
Heart Attack ER Admissions	74.5
Mental Health Not Good	84.7
Chronic Kidney Disease	73.0
Obesity	88.9
Pedestrian Injuries	53.9
Physical Health Not Good	73.7
Stroke	64.5
Health Risk Behaviors	—
Binge Drinking	75.2
Current Smoker	83.5

No Leisure Time for Physical Activity	71.9
Climate Change Exposures	—
Wildfire Risk	0.0
SLR Inundation Area	0.0
Children	59.5
Elderly	36.3
English Speaking	52.9
Foreign-born	49.0
Outdoor Workers	54.4
Climate Change Adaptive Capacity	—
Impervious Surface Cover	24.5
Traffic Density	54.0
Traffic Access	87.4
Other Indices	—
Hardship	26.4
Other Decision Support	—
2016 Voting	63.5

7.3. Overall Health & Equity Scores

Metric	Result for Project Census Tract
CalEnviroScreen 4.0 Score for Project Location (a)	55.0
Healthy Places Index Score for Project Location (b)	88.0
Project Located in a Designated Disadvantaged Community (Senate Bill 535)	No
Project Located in a Low-Income Community (Assembly Bill 1550)	No
Project Located in a Community Air Protection Program Community (Assembly Bill 617)	No

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

7.4. Health & Equity Measures

No Health & Equity Measures selected.

7.5. Evaluation Scorecard

Health & Equity Evaluation Scorecard not completed.

7.6. Health & Equity Custom Measures

No Health & Equity Custom Measures created.

8. User Changes to Default Data

Screen	Justification
Land Use	Project size
Construction: Construction Phases	Planned phases
Construction: Off-Road Equipment	planned equipment.
Construction: Dust From Material Movement	trenching soil movement
Construction: Trips and VMT	anticipated trips
Construction: Paving	desalter paving
Construction: Architectural Coatings	no parking area
Construction: Off-Road Equipment EF	Tier4 Final

WRD Regional Brackish Water Project - Operations Detailed Report

Table of Contents

1. Basic Project Information

1.1. Basic Project Information

Data Field	Value
Project Name	WRD Regional Brackish Water Project - Operations
Operational Year	2026
Lead Agency	—
Land Use Scale	Project/site
Analysis Level for Defaults	County
Windspeed (m/s)	3.50
Precipitation (days)	17.4
Location	33.844508, -118.341775
County	Los Angeles-South Coast
City	Torrance
Air District	South Coast AQMD
Air Basin	South Coast
TAZ	4668
EDFZ	7
Electric Utility	Southern California Edison
Gas Utility	Southern California Gas
App Version	2022.1.1.12

1.2. Land Use Types

Land Use Subtype	Size	Unit	Lot Acreage	Building Area (sq ft)	Landscape Area (sq ft)	Special Landscape Area (sq ft)	Population	Description
General Light Industry	17.5	1000sqft	1.60	17,500	—	—	—	—

1.3. User-Selected Emission Reduction Measures by Emissions Sector

No measures selected

2. Emissions Summary

2.4. Operations Emissions Compared Against Thresholds

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

Un/Mit.	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.58	0.03	1.05	< 0.005	< 0.005	0.03	0.03	< 0.005	< 0.005	0.01	11.7	234	246	1.19	< 0.005	4.80	281
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.45	0.03	0.27	< 0.005	< 0.005	0.03	0.03	< 0.005	< 0.005	< 0.005	11.7	228	239	1.19	< 0.005	4.56	275
Average Daily (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.54	0.03	0.80	< 0.005	< 0.005	0.03	0.03	< 0.005	< 0.005	0.01	11.7	231	242	1.19	< 0.005	4.66	278
Annual (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.10	0.01	0.15	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	1.94	38.2	40.1	0.20	< 0.005	0.77	46.0

2.5. Operations Emissions by Sector, Unmitigated

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

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

Mobile	0.03	0.03	0.29	< 0.005	< 0.005	0.03	0.03	< 0.005	< 0.005	< 0.005	—	71.5	71.5	< 0.005	< 0.005	0.24	72.6
Area	0.54	0.01	0.76	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	3.13	3.13	< 0.005	< 0.005	—	3.14
Energy	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	159	159	0.02	< 0.005	—	160
Waste	—	—	—	—	—	—	—	—	—	—	11.7	0.00	11.7	1.17	0.00	—	40.9
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	4.56	4.56
Total	0.58	0.03	1.05	< 0.005	< 0.005	0.03	0.03	< 0.005	< 0.005	0.01	11.7	234	246	1.19	< 0.005	4.80	281
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.03	0.03	0.27	< 0.005	< 0.005	0.03	0.03	< 0.005	< 0.005	< 0.005	—	68.5	68.5	< 0.005	< 0.005	0.01	69.4
Area	0.42	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Energy	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	159	159	0.02	< 0.005	—	160
Waste	—	—	—	—	—	—	—	—	—	—	11.7	0.00	11.7	1.17	0.00	—	40.9
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	4.56	4.56
Total	0.45	0.03	0.27	< 0.005	< 0.005	0.03	0.03	< 0.005	< 0.005	< 0.005	11.7	228	239	1.19	< 0.005	4.56	275
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.03	0.03	0.28	< 0.005	< 0.005	0.03	0.03	< 0.005	< 0.005	< 0.005	—	69.3	69.3	< 0.005	< 0.005	0.10	70.3
Area	0.50	< 0.005	0.52	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	2.14	2.14	< 0.005	< 0.005	—	2.15
Energy	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	159	159	0.02	< 0.005	—	160
Waste	—	—	—	—	—	—	—	—	—	—	11.7	0.00	11.7	1.17	0.00	—	40.9
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	4.56	4.56
Total	0.54	0.03	0.80	< 0.005	< 0.005	0.03	0.03	< 0.005	< 0.005	0.01	11.7	231	242	1.19	< 0.005	4.66	278
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.01	0.01	0.05	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	11.5	11.5	< 0.005	< 0.005	0.02	11.6
Area	0.09	< 0.005	0.10	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	0.35	0.35	< 0.005	< 0.005	—	0.36
Energy	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	26.4	26.4	< 0.005	< 0.005	—	26.5
Waste	—	—	—	—	—	—	—	—	—	—	1.94	0.00	1.94	0.19	0.00	—	6.77
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.75	0.75

Total	0.10	0.01	0.15	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	1.94	38.2	40.1	0.20	< 0.005	0.77	46.0

4. Operations Emissions Details

4.1. Mobile Emissions by Land Use

4.1.1. Unmitigated

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

Land Use	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Light Industry	0.03	0.03	0.29	< 0.005	< 0.005	0.03	0.03	< 0.005	< 0.005	< 0.005	—	71.5	71.5	< 0.005	< 0.005	0.24	72.6
Total	0.03	0.03	0.29	< 0.005	< 0.005	0.03	0.03	< 0.005	< 0.005	< 0.005	—	71.5	71.5	< 0.005	< 0.005	0.24	72.6
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Light Industry	0.03	0.03	0.27	< 0.005	< 0.005	0.03	0.03	< 0.005	< 0.005	< 0.005	—	68.5	68.5	< 0.005	< 0.005	0.01	69.4
Total	0.03	0.03	0.27	< 0.005	< 0.005	0.03	0.03	< 0.005	< 0.005	< 0.005	—	68.5	68.5	< 0.005	< 0.005	0.01	69.4
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Light Industry	0.01	0.01	0.05	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	11.5	11.5	< 0.005	< 0.005	0.02	11.6
Total	0.01	0.01	0.05	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	11.5	11.5	< 0.005	< 0.005	0.02	11.6

4.2. Energy

4.2.1. Electricity Emissions By Land Use - Unmitigated

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

Land Use	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Light Industry	—	—	—	—	—	—	—	—	—	—	—	159	159	0.02	< 0.005	—	160
Total	—	—	—	—	—	—	—	—	—	—	—	159	159	0.02	< 0.005	—	160
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Light Industry	—	—	—	—	—	—	—	—	—	—	—	159	159	0.02	< 0.005	—	160
Total	—	—	—	—	—	—	—	—	—	—	—	159	159	0.02	< 0.005	—	160
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Light Industry	—	—	—	—	—	—	—	—	—	—	—	26.4	26.4	< 0.005	< 0.005	—	26.5
Total	—	—	—	—	—	—	—	—	—	—	—	26.4	26.4	< 0.005	< 0.005	—	26.5

4.2.3. Natural Gas Emissions By Land Use - Unmitigated

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

Land Use	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Light Industry	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00

Total	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Light Industry	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Total	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Light Industry	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Total	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00

4.3. Area Emissions by Source

4.3.2. Unmitigated

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

Source	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	0.37	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.04	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Landscape Equipment	0.12	0.01	0.76	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	3.13	3.13	< 0.005	< 0.005	—	3.14
Total	0.54	0.01	0.76	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	3.13	3.13	< 0.005	< 0.005	—	3.14

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	0.37	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.04	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	0.42	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	0.07	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.01	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Landscape Equipment	0.02	< 0.005	0.10	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	0.35	0.35	< 0.005	< 0.005	—	0.36
Total	0.09	< 0.005	0.10	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	0.35	0.35	< 0.005	< 0.005	—	0.36

4.4. Water Emissions by Land Use

4.4.2. Unmitigated

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

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

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

4.5. Waste Emissions by Land Use

4.5.2. Unmitigated

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

Land Use	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Light Industry	—	—	—	—	—	—	—	—	—	—	11.7	0.00	11.7	1.17	0.00	—	40.9
Total	—	—	—	—	—	—	—	—	—	—	11.7	0.00	11.7	1.17	0.00	—	40.9
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Light Industry	—	—	—	—	—	—	—	—	—	—	11.7	0.00	11.7	1.17	0.00	—	40.9
Total	—	—	—	—	—	—	—	—	—	—	11.7	0.00	11.7	1.17	0.00	—	40.9
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Light Industry	—	—	—	—	—	—	—	—	—	—	1.94	0.00	1.94	0.19	0.00	—	6.77
Total	—	—	—	—	—	—	—	—	—	—	1.94	0.00	1.94	0.19	0.00	—	6.77

4.6. Refrigerant Emissions by Land Use

4.6.1. Unmitigated

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

Land Use	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Light Industry	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	4.56	4.56
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	4.56	4.56
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Light Industry	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	4.56	4.56
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	4.56	4.56
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Light Industry	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.75	0.75
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.75	0.75

4.7. Offroad Emissions By Equipment Type

4.7.1. Unmitigated

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

Equipment Type	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e

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

4.8. Stationary Emissions By Equipment Type

4.8.1. Unmitigated

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

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

4.9. User Defined Emissions By Equipment Type

4.9.1. Unmitigated

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

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

4.10. Soil Carbon Accumulation By Vegetation Type

4.10.1. Soil Carbon Accumulation By Vegetation Type - Unmitigated

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

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

Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

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

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

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

4.10.3. Avoided and Sequestered Emissions by Species - Unmitigated

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

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

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequeste red	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequeste red	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

5. Activity Data

5.9. Operational Mobile Sources

5.9.1. Unmitigated

Land Use Type	Trips/Weekday	Trips/Saturday	Trips/Sunday	Trips/Year	VMT/Weekday	VMT/Saturday	VMT/Sunday	VMT/Year
General Light Industry	10.0	10.0	10.0	3,654	90.8	90.8	90.8	33,159

5.10. Operational Area Sources

5.10.1. Hearths

5.10.1.1. Unmitigated

5.10.2. Architectural Coatings

Residential Interior Area Coated (sq ft)	Residential Exterior Area Coated (sq ft)	Non-Residential Interior Area Coated (sq ft)	Non-Residential Exterior Area Coated (sq ft)	Parking Area Coated (sq ft)
0	0.00	26,250	8,750	—

5.10.3. Landscape Equipment

Season	Unit	Value
Snow Days	day/yr	0.00
Summer Days	day/yr	250

5.11. Operational Energy Consumption

5.11.1. Unmitigated

Electricity (kWh/yr) and CO2 and CH4 and N2O and Natural Gas (kBTU/yr)

Land Use	Electricity (kWh/yr)	CO2	CH4	N2O	Natural Gas (kBTU/yr)
General Light Industry	167,873	346	0.0330	0.0040	0.00

5.12. Operational Water and Wastewater Consumption

5.12.1. Unmitigated

Land Use	Indoor Water (gal/year)	Outdoor Water (gal/year)

5.13. Operational Waste Generation

5.13.1. Unmitigated

Land Use	Waste (ton/year)	Cogeneration (kWh/year)
General Light Industry	21.7	—

5.14. Operational Refrigeration and Air Conditioning Equipment

5.14.1. Unmitigated

Land Use Type	Equipment Type	Refrigerant	GWP	Quantity (kg)	Operations Leak Rate	Service Leak Rate	Times Serviced
General Light Industry	Other commercial A/C and heat pumps	R-410A	2,088	0.30	4.00	4.00	18.0

5.15. Operational Off-Road Equipment

5.15.1. Unmitigated

Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor

5.16. Stationary Sources

5.16.1. Emergency Generators and Fire Pumps

Equipment Type	Fuel Type	Number per Day	Hours per Day	Hours per Year	Horsepower	Load Factor

5.16.2. Process Boilers

Equipment Type	Fuel Type	Number	Boiler Rating (MMBtu/hr)	Daily Heat Input (MMBtu/day)	Annual Heat Input (MMBtu/yr)

5.17. User Defined

Equipment Type	Fuel Type
—	—

5.18. Vegetation

5.18.1. Land Use Change

5.18.1.1. Unmitigated

Vegetation Land Use Type	Vegetation Soil Type	Initial Acres	Final Acres

5.18.1. Biomass Cover Type

5.18.1.1. Unmitigated

Biomass Cover Type	Initial Acres	Final Acres

5.18.2. Sequestration

5.18.2.1. Unmitigated

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

6. Climate Risk Detailed Report

6.1. Climate Risk Summary

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

Climate Hazard	Result for Project Location	Unit

Temperature and Extreme Heat	4.89	annual days of extreme heat
Extreme Precipitation	4.25	annual days with precipitation above 20 mm
Sea Level Rise	0.00	meters of inundation depth
Wildfire	0.00	annual hectares burned

Temperature and Extreme Heat data are for grid cell in which your project are located. The projection is based on the 98th historical percentile of daily maximum/minimum temperatures from observed historical data (32 climate model ensemble from Cal-Adapt, 2040–2059 average under RCP 8.5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.
Extreme Precipitation data are for the grid cell in which your project are located. The threshold of 20 mm is equivalent to about ¾ an inch of rain, which would be light to moderate rainfall if received over a full day or heavy rain if received over a period of 2 to 4 hours. Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.
Sea Level Rise data are for the grid cell in which your project are located. The projections are from Radke et al. (2017), as reported in Cal-Adapt (2040–2059 average under RCP 8.5), and consider different increments of sea level rise coupled with extreme storm events. Users may select from four model simulations to view the range in potential inundation depth for the grid cell. The four simulations make different assumptions about expected rainfall and temperature are: Warmer/drier (HadGEM2-ES), Cooler/wetter (CNRM-CM5), Average conditions (CanESM2), Range of different rainfall and temperature possibilities (MIROC5). Each grid cell is 50 meters (m) by 50 m, or about 164 feet (ft) by 164 ft.
Wildfire data are for the grid cell in which your project are located. The projections are from UC Davis, as reported in Cal-Adapt (2040–2059 average under RCP 8.5), and consider historical data of climate, vegetation, population density, and large (> 400 ha) fire history. Users may select from four model simulations to view the range in potential wildfire probabilities for the grid cell. The four simulations make different assumptions about expected rainfall and temperature are: Warmer/drier (HadGEM2-ES), Cooler/wetter (CNRM-CM5), Average conditions (CanESM2), Range of different rainfall and temperature possibilities (MIROC5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.

6.2. Initial Climate Risk Scores

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score
Temperature and Extreme Heat	1	0	0	N/A
Extreme Precipitation	N/A	N/A	N/A	N/A
Sea Level Rise	1	0	0	N/A
Wildfire	1	0	0	N/A
Flooding	N/A	N/A	N/A	N/A
Drought	N/A	N/A	N/A	N/A
Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	0	0	0	N/A

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.
The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.
The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores do not include implementation of climate risk reduction measures.

6.3. Adjusted Climate Risk Scores

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score
Temperature and Extreme Heat	1	1	1	2
Extreme Precipitation	N/A	N/A	N/A	N/A
Sea Level Rise	1	1	1	2
Wildfire	1	1	1	2
Flooding	N/A	N/A	N/A	N/A
Drought	N/A	N/A	N/A	N/A
Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	1	1	1	2

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.
The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.
The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores include implementation of climate risk reduction measures.

6.4. Climate Risk Reduction Measures

7. Health and Equity Details

7.1. CalEnviroScreen 4.0 Scores

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

Indicator	Result for Project Census Tract
Exposure Indicators	—
AQ-Ozone	24.9
AQ-PM	77.1
AQ-DPM	42.0
Drinking Water	29.9
Lead Risk Housing	65.4

Pesticides	66.7
Toxic Releases	98.1
Traffic	72.2
Effect Indicators	—
CleanUp Sites	81.6
Groundwater	90.1
Haz Waste Facilities/Generators	97.8
Impaired Water Bodies	0.00
Solid Waste	80.6
Sensitive Population	—
Asthma	19.8
Cardio-vascular	32.0
Low Birth Weights	70.2
Socioeconomic Factor Indicators	—
Education	17.2
Housing	22.1
Linguistic	39.8
Poverty	18.2
Unemployment	48.3

7.2. Healthy Places Index Scores

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

Indicator	Result for Project Census Tract
Economic	—
Above Poverty	82.07365584
Employed	83.35685872
Median HI	84.17810856

Education	—
Bachelor's or higher	71.73104068
High school enrollment	100
Preschool enrollment	87.91222892
Transportation	—
Auto Access	72.44963429
Active commuting	21.35249583
Social	—
2-parent households	89.99101758
Voting	76.90234826
Neighborhood	—
Alcohol availability	63.86500706
Park access	81.35506224
Retail density	45.11741306
Supermarket access	56.5635827
Tree canopy	47.87629924
Housing	—
Homeownership	66.77787758
Housing habitability	90.5812909
Low-inc homeowner severe housing cost burden	93.19902477
Low-inc renter severe housing cost burden	90.14500192
Uncrowded housing	43.11561658
Health Outcomes	—
Insured adults	78.54484794
Arthritis	45.8
Asthma ER Admissions	79.0
High Blood Pressure	49.4

Cancer (excluding skin)	19.8
Asthma	92.9
Coronary Heart Disease	51.0
Chronic Obstructive Pulmonary Disease	74.0
Diagnosed Diabetes	62.8
Life Expectancy at Birth	36.9
Cognitively Disabled	50.3
Physically Disabled	76.0
Heart Attack ER Admissions	74.5
Mental Health Not Good	84.7
Chronic Kidney Disease	73.0
Obesity	88.9
Pedestrian Injuries	53.9
Physical Health Not Good	73.7
Stroke	64.5
Health Risk Behaviors	—
Binge Drinking	75.2
Current Smoker	83.5
No Leisure Time for Physical Activity	71.9
Climate Change Exposures	—
Wildfire Risk	0.0
SLR Inundation Area	0.0
Children	59.5
Elderly	36.3
English Speaking	52.9
Foreign-born	49.0
Outdoor Workers	54.4

Climate Change Adaptive Capacity	—
Impervious Surface Cover	24.5
Traffic Density	54.0
Traffic Access	87.4
Other Indices	—
Hardship	26.4
Other Decision Support	—
2016 Voting	63.5

7.3. Overall Health & Equity Scores

Metric	Result for Project Census Tract
CalEnviroScreen 4.0 Score for Project Location (a)	55.0
Healthy Places Index Score for Project Location (b)	88.0
Project Located in a Designated Disadvantaged Community (Senate Bill 535)	No
Project Located in a Low-Income Community (Assembly Bill 1550)	No
Project Located in a Community Air Protection Program Community (Assembly Bill 617)	No

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

7.4. Health & Equity Measures

No Health & Equity Measures selected.

7.5. Evaluation Scorecard

Health & Equity Evaluation Scorecard not completed.

7.6. Health & Equity Custom Measures

No Health & Equity Custom Measures created.

8. User Changes to Default Data

Screen	Justification
Land Use	1.6 acre lot.
Operations: Vehicle Data	3-5 workers on-site, assumed two trips per worker. Included weekends.
Operations: Energy Use	No NG .
Operations: Water and Waste Water	Energy intensity from water treatment. Treat values taken for the Brakish Desalination Treament (https://www.next10.org/sites/default/files/2021-09/Next10-Water-Energy-Report_v2.pdf). Supply would be local sources.

WRD Regional Brackish Water Reclamation Program - Water GHG Emissions

Project Info:

Total Brackish Water Processed (30yrs):	375,000	acre feet
Yearly Brackish Groundwater Processed:	12,500	Acre feet per year
Yearly gallons of water processed:	4,073,142,857	Gallons

Project GHG Emissions

Project Treatment (Mgal/year)	Extract (kWh/year)	Treat (kWh/year)	Convey (kWh/year)	Total kWh/year	Project GHG Emissions (CO2e lbs/year)	Project GHG Emissions MTCO2e
4073	8,416,661	20,720,078	6,260,421	35,397,159	12,255,537.20	**6,127.8**

Factors:

Electricity Intensity Factor for Water Processes (kWh/Mgal)[1]

Extract	Treat[3]	Convey
2,066	5,087	1,537

SCE 2026 GHG Intensity Factors (lb/MWh)[2]

CO2	CH4	N2O
346.196	0.033	0.0004

1 acre feet	325851	gallons

Source:

1. CalEEMod2022, Table G-32.
2. CalEEMod2022, Forecasted SCE 2026 GHG factors. Table G-3.
3. The kWh/Mgal electricity intensity factor for ground water pumping and brackish desalination treatment. Table 4 - https://www.next10.org/sites/default/files/2021-09/Next10-Water-Energy-Report_v2.pdf.

WRD Regional Brackish Water Reclamation Program

1. Energy Worksheet

WRD Regional Brackish Water Project
Construction Energy Analysis

Annual Fuel Summary

Maximum	Heavy-Duty Construction Equipment
126,179	Total Project Consumption
52,574	Annual Consumption
	On-Road Diesel
20,098	Total Project Consumption
8,374	Annual Consumption
	On-Road Gasoline
11,505	Total Project Consumption
4,794	Annual Consumption
146,276	Total Gallons Diesel
11,505	Total Gallons Gasoline
60,949	Average Annual Gallons Diesel
4,794	Average Annual Gallons Gasoline
2.4	Estimated Project Construction Duration (years)

Los Angeles County			Percent of Annual Project Compared to Los Angeles County
Source	**Fuel Type**	**Gallons**	
Workers	Gasoline	3,061,000,000	0.0004%
Off-Road/Vendor/Haul Trucks	Diesel	474,576,271	0.031%

Notes:

1 Gasoline and diesel amounts from CEC, 2019. Available: https://www.energy.ca.gov/data-reports/energy-almanac/transportation-energy/california-retail-fuel-outlet-annual-reporting

Annual Electricity Summary

Electricity Demand from Water Conveyance	12,963	kWh/year
Total	**12,963**	**kWh/year**
Total SCE Sales - 2021	8,421,800,000	kWh/year
Construction Increase	**0.0002%**	

Source: Southern California Edison 2022 Annual Report. https://s3.amazonaws.com/cms.ipressroom.com/406/files/20232/2022-eix-sce-annual-report.pdf

WRD Regional Brackish Water Project
Construction Energy Analysis

Off-Road Equipment

Equipment ≤ 100 hp		
pounds diesel fuel/hp-hr (lb/hp-hr):[1]	0.408	lb/hp-hr
diesel density (lb/gal):[1]	7.11	lb/gal
diesel gallons/hp-hr:	0.0574	gal/hp-hr
Total <100	700,302	hp-hr
Total diesel gallons:	40,192	gal
Equipment > 100 hp		
pounds diesel fuel/hp-hr (lb/hp-hr):[1]	0.367	lb/hp-hr
diesel density (lb/gal):[1]	7.11	lb/gal
diesel gallons/hp-hr:	0.0516	gal/hp-hr
Total >100	1,665,581	hp-hr
Total diesel gallons:	85,986	gal
Total diesel gallons (off-road equipment):	**126,179**	**gal**

1. OFFROAD2017 Emission Factor Documentation

Construction Phase	Equipment	Number	Hours/Day	HP	Load	Days	Total hp-hr
Desalter - Demo	Other Construction Equipment	1	6	82	0.42	98	20,251
Desalter - Demo	Generator Sets	3	6	14	0.74	98	18,275
Desalter - Demo	Concrete/Industrial Saws	1	8	33	0.73	98	18,887
Desalter - Demo	Tractors/Loaders/Backhoes	1	6	84	0.37	98	18,275
Desalter - Demo	Air Compressors	1	6	37	0.48	98	10,443
Desalter - Demo	Plate Compactors	1	4	8	0.43	98	1,348
Wells - Demo	Tractors/Loaders/Backhoes	1	4	84	0.37	41	5,097
Wells - Demo	Air Compressors	1	4	36	0.38	41	2,244
Wells - Demo	Concrete/Industrial Saws	1	4	33	0.73	41	3,951
Wells - Demo	Generator Sets	3	4	14	0.74	41	5,097
Wells - Demo	Plate Compactors	1	4	8	0.43	41	564
Wells - Demo	Other Material Handling Equipment	1	4	93	0.4	41	6,101
Wells - Demo	Excavators	1	4	36	0.38	41	2,244
Wells - Demo	Graders	1	4	148	0.41	41	9,952
Pipeline - Demo	Concrete/Industrial Saws	3	6	33	0.73	10	4,336
Pipeline - Demo	Other Material Handling Equipment	3	6	93	0.4	10	6,696
Pipeline - Demo	Plate Compactors	3	6	8	0.43	10	619
Pipeline - Demo	Generator Sets	9	6	14	0.74	10	5,594
Pipeline - Demo	Tractors/Loaders/Backhoes	3	6	84	0.37	10	5,594
Pipeline - Demo	Air Compressors	3	6	37	0.48	10	3,197
Desalter - Grading	Graders	1	8	148	0.41	100	48,544
Desalter - Grading	Excavators	1	8	36	0.38	100	10,944
Desalter - Grading	Tractors/Loaders/Backhoes	1	6	84	0.37	100	18,648
Desalter - Grading	Scrapers	1	6	423	0.48	100	121,824
Desalter - Grading	Air Compressors	1	8	37	0.48	100	14,208
Desalter - Grading	Plate Compactors	1	8	8	0.43	100	2,752
Desalter - Grading	Trenchers	1	6	40	0.5	100	12,000
Desalter - Grading	Rough Terrain Forklifts	1	6	96	0.4	100	23,040
Wells - Borehole Drilling	Bore/Drill Rigs	1	24	475	0.5	79	450,300
Wells - Borehole Drilling	Cement and Mortar Mixers	1	24	10	0.56	79	10,618
Wells - Borehole Drilling	Other Construction Equipment	1	24	50	0.42	79	39,816
Pipeline - Installation	Air Compressors	3	4	37	0.48	286	60,952
Pipeline - Installation	Graders	3	4	148	0.41	286	208,254
Pipeline - Installation	Rough Terrain Forklifts	3	4	96	0.4	286	131,789
Pipeline - Installation	Scrapers	3	4	423	0.48	286	696,833
Pipeline - Installation	Tractors/Loaders/Backhoes	3	4	84	0.37	286	106,667
Desalter - Building Construction	Cranes	1	1	367	0.29	132	14,049
Desalter - Building Construction	Generator Sets	1	4	14	0.74	132	5,470
Desalter - Building Construction	Plate Compactors	1	4	8	0.43	132	1,816
Desalter - Building Construction	Welders	1	4	46	0.45	132	10,930
Desalter - Building Construction	Tractors/Loaders/Backhoes	2	4	84	0.37	132	32,820
Desalter - Building Construction	Bore/Drill Rigs	1	4	83	0.5	132	21,912
Desalter - Building Construction	Rough Terrain Forklifts	1	4	96	0.4	132	20,275
Desalter - Building Construction	Rubber Tired Dozers	1	4	367	0.4	132	77,510

Wells - Casing	Cranes	1	6	367	0.29	60	38,315
Wells - Casing	Generator Sets	1	6	14	0.74	60	3,730
Wells - Casing	Pumps	1	6	11	0.74	60	2,930
Wells - Casing	Cement and Mortar Mixers	1	8	10	0.56	60	2,688
Wells - Casing	Rough Terrain Forklifts	1	6	96	0.4	60	13,824
Wells - Pump install	Cement and Mortar Mixers	1	8	10	0.56	60	2,688
Wells - Pump install	Excavators	1	4	36	0.38	60	3,283
Wells - Pump install	Paving Equipment	1	4	89	0.36	60	7,690
Wells - Pump install	Rough Terrain Forklifts	1	4	96	0.4	60	9,216
Desalter - Foundations	Forklifts	1	4	82	0.2	132	8,659
Desalter - Foundations	Pumps	1	8	11	0.74	132	8,596
Desalter - Foundations	Air Compressors	1	6	37	0.48	132	14,066
Desalter - Foundations	Pavers	1	4	81	0.42	132	17,963
Desalter - Foundations	Paving Equipment	1	4	89	0.36	132	16,917
Desalter - Foundations	Rollers	1	4	36	0.38	132	7,223
Pipeline - Paving	Pavers	3	2	81	0.42	286	58,378
Pipeline - Paving	Paving Equipment	3	2	89	0.36	286	54,981
Pipeline - Paving	Rollers	3	2	36	0.38	286	23,475
Wells - Finishing	Cement and Mortar Mixers	1	8	10	0.56	59	2,643
Wells - Finishing	Paving Equipment	1	4	89	0.36	59	7,561
Wells - Finishing	Air Compressors	1	6	37	0.48	59	6,287
Desalter - Architectural Coating	Air Compressors	1	8	37	0.48	150	21,312
Desalter - Architectural Coating	Aerial Lifts	1	8	46	0.31	150	17,112
Desalter - Architectural Coating	Forklifts	1	4	82	0.2	150	9,840
Pipeline - Trenching	Plate Compactors	3	6	8	0.43	286	17,709
Pipeline - Trenching	Excavators	3	6	36	0.38	286	70,425
Pipeline - Trenching	Concrete/Industrial Saws	3	6	33	0.73	286	124,015
						Total >100	1,665,581
						Total <100	700,302

WRD Regional Brackish Water Project
Construction Energy

Construction Water Energy Estimates

Source	Acreage/Day	Number of Days	Total Construction Water Use (Mgal)	Electricity Demand from Water Conveyance (MWh)	Annual Electricity Demand from Water Conveyance (MWh)
Desalter - Demo	0.0	98	0.000	0.0	0.0
Wells - Demo	0.5	41	0.062	0.4	0.2
Pipeline - Demo	0.0	10	0.000	0.0	0.0
Desalter - Grading	1.5	100	0.450	3.1	1.3
Wells - Borehole Drilling	0.0	79	0.000	0.0	0.0
Pipeline - Installation	4.5	286	3.861	26.3	11.0
Desalter - Building Construction	0.5	132	0.198	1.3	0.6
Wells - Casing	0.0	60	0.000	0.0	0.0
Wells - Pump install	0.0	60	0.000	0.0	0.0
Desalter - Foundations	0.0	132	0.000	0.0	0.0
Pipeline - Paving	0.0	286	0.000	0.0	0.0
Wells - Finishing	0.0	59	0.000	0.0	0.0
Desalter - Architectural Coating	0.0	150	0.000	0.0	0.0
Pipeline - Trenching	0.0	286	0.000	0.0	0.0
Total			**4.571**	**31.1**	**13.0**

CalEEMod Water Electricity Factors	Electricity Intensity Factor To Supply (kWh/Mgal)	Electricity Intensity Factor To Treat (kWh/Mgal)	Electricity Intensity Factor To Distribute (kWh/Mgal)	Electricity Intensity Factor For Wastewater Treatment (kWh/Mgal)
	3044	725	1537	1501

Construction Water GHG	Electricity Emission (MT CO2e/MWh)	Electricity Emission (lbs CO2e/MWh)
5.86	0.19	415.12

Sources and Assumptions:

CalEEMod Appendix A, Pg. 8, based on given piece of equipment can pass over in an 8-hour workday

-Electricity Intensity Factors - California Emissions Estimator Model (CalEEMod).

-Estimated construction water use assumed to be generally equivalent to landscape irrigation, based on a factor of 20.94 gallons per year per square foot of landscaped area within the Los Angeles area (Mediterranean climate), which assumes high water demand landscaping materials and an irrigation system efficiency of 85%. Factor is therefore (20.94 GAL/SF/year) x (43,560 SF/acre) / (365 days/year) / (0.85) = 2,940 gallons/acre/day, rounded up to 3,000 gallons/acre/day. (U.S. Department of Energy, Energy Efficiency & Renewable Energy, Federal Energy Management Program. "Guidelines for Estimating Unmetered Landscaping Water Use." July 2010. Page 12, Table 4 - Annual Irrigation Factor – Landscaped Areas with High Water Requirements).

WRD Regional Brackish Water Project
Total On-Road Fuel Consumption

WRD Regional Brackish Water Project
Total On-Road Fuel Consumption

		gal/mile
2023Hauling	Hauling	0.16765003
2023Vendor	Vendor	0.13998726
2023Worker	Worker	0.03854242
2024Hauling	Hauling	0.1656907
2024Vendor	Vendor	0.13888166
2024Worker	Worker	0.03771161
2025Hauling	Hauling	0.16346378
2025Vendor	Vendor	0.13752209
2025Worker	Worker	0.0368976
2026Hauling	Hauling	0.1612349
2026Vendor	Vendor	0.13616514
2026Worker	Worker	0.03612173

Source	Fuel Type	Total Fuel Use (gal)
Hauling	Diesel	16,010
Vendor	Diesel	4,088
Worker	Gasoline	11,505

Fuel Type	Total Fuel Use	Annual Fuel Use
Diesel	20,098	8,374
Gasoline	11,505	4,794

Duration of Construction	
Start	11/1/2023
End	3/26/2026
2.4	years

Construction Phase	Daily One-Way Trips	Haul Days per Phase (days)	Work Hours per Day (hours/day)	One-Way Trip Distance per Day (miles)	Idling per Day (minutes)	Regional Emissions (gallons) gal/mile	gal/min	gal/day	Total Gallons/yr
Desalter - Demo	2023								
Total Haul Trips									
Hauling	2	98	8	20	15	0.17	0.00E+00	7	657
Vendor	4	98	8	6.9	15	0.14	0.00E+00	4	379
Worker	20	98	8	14.7	0	0.04	0.00E+00	11	1,110
Desalter - Grading	2024								
Total Haul Trips									
Hauling	0	100	8	20	15	0.17	0.00E+00	0	0
Vendor	4	100	8	6.9	15	0.14	0.00E+00	4	383
Worker	20	100	8	14.7	0	0.04	0.00E+00	11	1,109
Desalter - Building Construction	2025								
Total Haul Trips									
Hauling	0	132	8	20	15	0.16	0.00E+00	0	0
Vendor	4	132	8	6.9	15	0.14	0.00E+00	4	501
Worker	8	132	8	14.7	0	0.04	0.00E+00	4	573
Desalter - Foundations	2024								
Total Haul Trips									
Hauling	0	132	8	20	15	0.17	0.00E+00	0	0
Vendor	4	132	8	6.9	15	0.14	0.00E+00	4	506
Worker	8	132	8	14.7	0	0.04	0.00E+00	4	585
Desalter - Architectural Coating	2025								
Total Haul Trips									
Hauling	0	150	8	20	15	0.16	0.00E+00	0	0
Vendor	2	150	8	6.9	15	0.14	0.00E+00	2	285
Worker	6	150	8	14.7	0	0.04	0.00E+00	3	488
Wells - Demo	2025								
Total Haul Trips									
Hauling	0	41	8	20	15	0.16	0.00E+00	0	0
Vendor	4	41	8	6.9	15	0.14	0.00E+00	4	156
Worker	25	41	8	14.7	0	0.04	0.00E+00	14	556

Pipeline - Demo	2025								
Total Haul Trips									
Hauling	12	10	8	20	15	0.16	0.00E+00	39	392
Vendor	4	10	8	6.9	15	0.14	0.00E+00	4	38
Worker	60	10	8	14.7	0	0.04	0.00E+00	33	325
Wells - Borehole Drilling	2025								
Total Haul Trips									
Hauling	0	79	8	20	15	0.16	0.00E+00	0	0
Vendor	4	79	8	6.9	15	0.14	0.00E+00	4	300
Worker	8	79	8	14.7	0	0.04	0.00E+00	4	343
Wells - Casing	2025								
Total Haul Trips									
Hauling	0	60	8	20	15	0.16	0.00E+00	0	0
Vendor	4	60	8	6.9	15	0.14	0.00E+00	4	228
Worker	8	60	8	14.7	0	0.04	0.00E+00	4	260
Wells - Pump install	2025								
Total Haul Trips									
Hauling	0	60	8	20	15	0.16	0.00E+00	0	0
Vendor	4	60	8	6.9	15	0.14	0.00E+00	4	228
Worker	8	60	8	14.7	0	0.04	0.00E+00	4	260
Pipeline - Installation	2025								
Total Haul Trips									
Hauling	16	286	8	20	15	0.16	0.00E+00	52	14,960
Vendor	4	286	8	6.9	15	0.14	0.00E+00	4	1,086
Worker	38	286	8	14.7	0	0.04	0.00E+00	21	5,895
Pipeline - Paving	2025								
Total Haul Trips									
Hauling	0	286	8	20	15	0.16	0.00E+00	0	0
Vendor	4	286	8	6.9	15	0.14	0.00E+00	4	1,086
Worker	22	286	8	14.7	0	0.04	0.00E+00	12	3,413

Wells - Finishing	2025								
Total Haul Trips									
Hauling	0	59	8	20	15	0.16	0.00E+00	0	0
Vendor	2	59	8	6.9	15	0.14	0.00E+00	2	112
Worker	6	59	8	14.7	0	0.04	0.00E+00	3	192
Pipeline - Trenching	2025								
Total Haul Trips									
Hauling	0	236	8	20	15	0.16	0.00E+00	0	0
Vendor	2	236	8	6.9	15	0.14	0.00E+00	2	448
Worker	22	236	8	14.7	0	0.04	0.00E+00	12	2,816

Source: EMFAC2021 (v1.0.2) Emissions Inventory
Region Type: Air Basin
Region: South Coast
Calendar Year: 2022
Season: Annual
Vehicle Classification: EMFAC2007 Categories
Units: miles/day for CVMT and EVMT, tons/day for Emissions, 1000 gallons/day for Fuel Consumption, mph for Speed, kWh/day for Energy Consumption

Helper	Region	Calendar Year	Vehicle Cat	Model Yea	Fuel	Population	Total VMT	Trips	Fuel Consumption	gallons/mile
South Coast2022LDAG	South Coast	2022	LDA	Aggregatec	Gasoline	5432984.9	217937990	25333114	7725.407	0.035448
South Coast2022LDT1	South Coast	2022	LDT1	Aggregatec	Gasoline	508118.95	18186231.22	2234897	771.443	0.042419
South Coast2022LDT2	South Coast	2022	LDT2	Aggregatec	Gasoline	2380479	97358601.17	11180657	4283.088	0.043993
South Coast2022MHD	South Coast	2022	MHDT	Aggregatec	Diesel	111240.7	4766318.794	1363402	537.3889	0.112747
South Coast2022HHDT	South Coast	2022	HHDT	Aggregatec	Diesel	86344.615	11080949.98	1308488	1883.166	0.169946
	0	0	0	0	0	0	0	#N/A	0	0

	Running	gallons/mil
(assume to be gasoline)	2022LDA	0.035448
(assume to be gasoline)	2022LDT1	0.042419
(assume to be gasoline)	2022LDT2	0.043993
(assume to be gasoline)	2022Work	0.039327
(assume to be diesel)	2022MHDT	0.112747
(assume to be diesel)	2022Haulir	0.169946
(assume to be diesel)	2022Vend	0.141347

Source: EMFAC2021 (v1.0.2) Emissions Inventory
Region Type: Air Basin
Region: South Cen South Coast
Calendar Year: 202 2023
Season: Annual
Vehicle Classification: EMFAC2007 Categories
Units: miles/day for CVMT and EVMT, tons/day for Emissions, 1000 gallons/day for Fuel Consumption, mph for Speed, kWh/day for Energy Consumption

Helper	Region	Calendar Year	Vehicle Cat	Model Yea	Fuel	Population	Total VMT	Trips	Fuel Consumption	gallons/mile
South Coast2023LDAG	South Coast	2023	LDA	Aggregatec	Gasoline	5370116	216250190.4	25014255	7525.825	0.034801
South Coast2023LDT1	South Coast	2023	LDT1	Aggregatec	Gasoline	499113.9	18009866.74	2195668	750.9431	0.041696
South Coast2023LDT2	South Coast	2023	LDT2	Aggregatec	Gasoline	2429950.1	100292660.9	11422829	4299.6	0.042871
South Coast2023MHD	South Coast	2023	MHDT	Aggregatec	Diesel	112753.17	4826755.64	1384257	542.1628	0.112324
South Coast2023HHDT	South Coast	2023	HHDT	Aggregatec	Diesel	88939.483	11341687.62	1354184	1901.434	0.16765
	0		0	0	0	0	0	#N/A	0	0

	Running	gallons/mil
(assume to be gasoline)	2023LDA	0.034801
(assume to be gasoline)	2023LDT1	0.041696
(assume to be gasoline)	2023LDT2	0.042871
(assume to be gasoline)	2023Work	0.038542
(assume to be diesel)	2023MHDT	0.112324
(assume to be diesel)	2023Haulir	0.16765
(assume to be diesel)	2023Vend	0.139987

Source: EMFAC2021 (v1.0.2) Emissions Inventory
Region Type: Air Basin
Region: South Cen South Coast
Calendar Year: 202 2024
Season: Annual
Vehicle Classification: EMFAC2007 Categories
Units: miles/day for CVMT and EVMT, tons/day for Emissions, 1000 gallons/day for Fuel Consumption, mph for Speed, kWh/day for Energy Consumption

Helper	Region	Calendar Year	Vehicle Cat	Model Yea	Fuel	Population	Total VMT	Trips	Fuel Consumption	gallons/mile
South Coast2024LDAG	South Coast	2024	LDA	Aggregatec	Gasoline	5306414.6	213709568	24694250	7287.155	0.034098
South Coast2024LDT1	South Coast	2024	LDT1	Aggregatec	Gasoline	490973.66	17788975.08	2160511	727.774	0.040912
South Coast2024LDT2	South Coast	2024	LDT2	Aggregatec	Gasoline	2478766.9	102696789.3	11657788	4286.369	0.041738
South Coast2024MHD	South Coast	2024	MHDT	Aggregatec	Diesel	114693.76	4878223.739	1409922	546.7153	0.112073
South Coast2024HHDT	South Coast	2024	HHDT	Aggregatec	Diesel	92441.355	11547992.76	1412166	1913.395	0.165691
	0		0	0	0	0	0	#N/A	0	0

	Running	gallons/mil
(assume to be gasoline)	2024LDA	0.034098
(assume to be gasoline)	2024LDT1	0.040912

(assume to be gasoline)	2024LDT2	0.041738
(assume to be gasoline)	2024Work	0.037712
(assume to be diesel)	2024MHDT	0.112073
(assume to be diesel)	2024Haulir	0.165691
(assume to be diesel)	2024Vendc	0.138882

Source: EMFAC2021 (v1.0.2) Emissions Inventory
Region Type: Air Basin
Region: South Cen South Coast
Calendar Year: 202 2025
Season: Annual
Vehicle Classification: EMFAC2007 Categories
Units: miles/day for CVMT and EVMT, tons/day for Emissions, 1000 gallons/day for Fuel Consumption, mph for Speed, kWh/day for Energy Consumption

Helper	Region	Calendar Year	Vehicle Cat	Model Year	Fuel	Population	Total VMT	Trips	Fuel Consumption	gallons/mile
South Coast2025LDAG	South Coast	2025	LDA	Aggregatec	Gasoline	5244723.7	210339700.5	24385315	7024.107	0.033394
South Coast2025LDT1	South Coast	2025	LDT1	Aggregatec	Gasoline	483367.51	17503198.77	2127610	702.5441	0.040138
South Coast2025LDT2	South Coast	2025	LDT2	Aggregatec	Gasoline	2528171.9	104543301.5	11891190	4251.163	0.040664
South Coast2025MHD	South Coast	2025	MHDT	Aggregatec	Diesel	117076.63	4914316.485	1440705	548.3414	0.11158
South Coast2025HHDT	South Coast	2025	HHDT	Aggregatec	Diesel	95337.368	11745346.31	1459641	1919.939	0.163464
	0		0	0	0	0	0	#N/A	0	0

	Running	gallons/mil
(assume to be gasoline)	2025LDA	0.033394
(assume to be gasoline)	2025LDT1	0.040138
(assume to be gasoline)	2025LDT2	0.040664
(assume to be gasoline)	2025Work	0.036898
(assume to be diesel)	2025MHDT	0.11158
(assume to be diesel)	2025Haulir	0.163464
(assume to be diesel)	2025Vendc	0.137522

Source: EMFAC2021 (v1.0.2) Emissions Inventory
Region Type: Air Basin
Region: South Cen South Coast
Calendar Year: 202 2026
Season: Annual
Vehicle Classification: EMFAC2007 Categories
Units: miles/day for CVMT and EVMT, tons/day for Emissions, 1000 gallons/day for Fuel Consumption, mph for Speed, kWh/day for Energy Consumption

Helper	Region	Calendar Year	Vehicle Cat	Model Year	Fuel	Population	Total VMT	Trips	Fuel Consumption	gallons/mile
South Coast2026LDAG	South Coast	2026	LDA	Aggregatec	Gasoline	5195643.7	207389418.9	24143840	6782.677	0.032705
South Coast2026LDT1	South Coast	2026	LDT1	Aggregatec	Gasoline	476323.52	17216273.05	2097591	678.0887	0.039386
South Coast2026LDT2	South Coast	2026	LDT2	Aggregatec	Gasoline	2579520.4	106163830	12130525	4213.679	0.03969
South Coast2026MHD	South Coast	2026	MHDT	Aggregatec	Diesel	119147.67	4943659.689	1467301	549.2177	0.111095
South Coast2026HHDT	South Coast	2026	HHDT	Aggregatec	Diesel	97738.137	11935536.65	1499288	1924.425	0.161235
	0		0	0	0	0	0	#N/A	0	0

	Running	gallons/mil
(assume to be gasoline)	2026LDA	0.032705
(assume to be gasoline)	2026LDT1	0.039386
(assume to be gasoline)	2026LDT2	0.03969
(assume to be gasoline)	2026Work	0.036122
(assume to be diesel)	2026MHDT	0.111095
(assume to be diesel)	2026Haulir	0.161235
(assume to be diesel)	2026Vendc	0.136165

Source: EMFAC2021 (v1.0.2) Emissions Inventory
Region Type: Air Basin
Region: South Cen South Coast
Calendar Year: 202 2027
Season: Annual
Vehicle Classification: EMFAC2007 Categories
Units: miles/day for CVMT and EVMT, tons/day for Emissions, 1000 gallons/day for Fuel Consumption, mph for Speed, kWh/day for Energy Consumption

Helper	Region	Calendar Year	Vehicle Cat	Model Year	Fuel	Population	Total VMT	Trips	Fuel Consumption	gallons/mile
South Coast2027LDAG	South Coast	2027	LDA	Aggregatec	Gasoline	5149468.7	205049563.4	23919044	6578.021	0.03208
South Coast2027LDT1	South Coast	2027	LDT1	Aggregatec	Gasoline	469894.33	16981744.77	2070624	656.9174	0.038684
South Coast2027LDT2	South Coast	2027	LDT2	Aggregatec	Gasoline	2629697.5	107853666.8	12359993	4189.976	0.038849
South Coast2027MHD	South Coast	2027	MHDT	Aggregatec	Diesel	120843.21	4956414.582	1489042	548.6483	0.110695
South Coast2027HHDT	South Coast	2027	HHDT	Aggregatec	Diesel	99724.515	12112029	1532346	1925.518	0.158976
	0		0	0	0	0	0	#N/A	0	0

		Running	gallons/mil
(assume to be gasoline)	2027LDA	0.03208	
(assume to be gasoline)	2027LDT1	0.038684	
(assume to be gasoline)	2027LDT2	0.038849	
(assume to be gasoline)	2027Work	0.035423	
(assume to be diesel)	2027MHDT	0.110695	
(assume to be diesel)	2027Haulir	0.158976	
(assume to be diesel)	2027Vendc	0.134835	

Source: EMFAC2021 (v1.0.2) Emissions Inventory
Region Type: Air Basin
Region: South Cen South Coast
Calendar Year: 202 2028
Season: Annual
Vehicle Classification: EMFAC2007 Categories
Units: miles/day for CVMT and EVMT, tons/day for Emissions, 1000 gallons/day for Fuel Consumption, mph for Speed, kWh/day for Energy Consumption

Helper	Region	Calendar Year	Vehicle Cat	Model Year	Fuel	Population	Total VMT	Trips	Fuel Consumption	gallons/mile
South Coast2028LDAG	South Coast	2028	LDA	Aggregatec	Gasoline	5106488.5	202877600.5	23711763	6389.979	0.031497
South Coast2028LDT1	South Coast	2028	LDT1	Aggregatec	Gasoline	464030.37	16762344.96	2045974	637.1653	0.038012
South Coast2028LDT2	South Coast	2028	LDT2	Aggregatec	Gasoline	2678252.3	109370882.4	12578138	4166.58	0.038096
South Coast2028MHD	South Coast	2028	MHDT	Aggregatec	Diesel	121913.08	4942457.232	1502856	544.5083	0.11017
South Coast2028HHDT	South Coast	2028	HHDT	Aggregatec	Diesel	101298.04	12270919.81	1559135	1920.808	0.156533
	0		0	0	0	0	0	#N/A	0	0

		Running	gallons/mil
(assume to be gasoline)	2028LDA	0.031497	
(assume to be gasoline)	2028LDT1	0.038012	
(assume to be gasoline)	2028LDT2	0.038096	
(assume to be gasoline)	2028Work	0.034775	
(assume to be diesel)	2028MHDT	0.11017	
(assume to be diesel)	2028Haulir	0.156533	
(assume to be diesel)	2028Vendc	0.133351	

Source: EMFAC2021 (v1.0.2) Emissions Inventory
Region Type: Air Basin
Region: South Cen South Coast
Calendar Year: 202 2029
Season: Annual
Vehicle Classification: EMFAC2007 Categories
Units: miles/day for CVMT and EVMT, tons/day for Emissions, 1000 gallons/day for Fuel Consumption, mph for Speed, kWh/day for Energy Consumption

Helper	Region	Calendar Year	Vehicle Cat	Model Year	Fuel	Population	Total VMT	Trips	Fuel Consumption	gallons/mile
South Coast2029LDAG	South Coast	2029	LDA	Aggregatec	Gasoline	5064796.2	200861409.9	23514931	6219.291	0.030963
South Coast2029LDT1	South Coast	2029	LDT1	Aggregatec	Gasoline	458321.7	16556822.42	2022801	618.8424	0.037377
South Coast2029LDT2	South Coast	2029	LDT2	Aggregatec	Gasoline	2724207.4	110720060	12781277	4144.386	0.037431
South Coast2029MHD	South Coast	2029	MHDT	Aggregatec	Diesel	122219.22	4898486.788	1507015	537.0714	0.10964
South Coast2029HHDT	South Coast	2029	HHDT	Aggregatec	Diesel	102441.27	12411391.13	1579958	1913.364	0.154162
	0		0	0	0	0	0	#N/A	0	0

		Running	gallons/mil
(assume to be gasoline)	2029LDA	0.030963	
(assume to be gasoline)	2029LDT1	0.037377	
(assume to be gasoline)	2029LDT2	0.037431	
(assume to be gasoline)	2029Work	0.034184	
(assume to be diesel)	2029MHDT	0.10964	
(assume to be diesel)	2029Haulir	0.154162	
(assume to be diesel)	2029Vendc	0.131901	

Source: EMFAC2021 (v1.0.2) Emissions Inventory
Region Type: Air Basin
Region: South Cen South Coast
Calendar Year: 202 2030
Season: Annual
Vehicle Classification: EMFAC2007 Categories
Units: miles/day for CVMT and EVMT, tons/day for Emissions, 1000 gallons/day for Fuel Consumption, mph for Speed, kWh/day for Energy Consumption

Helper	Region	Calendar Year	Vehicle Cat	Model Year	Fuel	Population	Total VMT	Trips	Fuel Consumption	gallons/mile
South Coast2030LDAG	South Coast	2030	LDA	Aggregatec	Gasoline	5024990.2	198988303.1	23330360	6064.704	0.030478
South Coast2030LDT1	South Coast	2030	LDT1	Aggregatec	Gasoline	452746.03	16361396.1	2000834	601.7928	0.036781
South Coast2030LDT2	South Coast	2030	LDT2	Aggregatec	Gasoline	2767379.6	111904873.3	12969187	4122.691	0.036841
South Coast2030MHD	South Coast	2030	MHDT	Aggregatec	Diesel	121766.96	4825086.037	1501679	526.3657	0.109089
South Coast2030HHDT	South Coast	2030	HHDT	Aggregatec	Diesel	103216.88	12535980.82	1595624	1904.339	0.15191
	0		0	0	0	0	0	#N/A	0	0

		Running	gallons/mil
(assume to be gasoline)	2030LDA		0.030478
(assume to be gasoline)	2030LDT1		0.036781
(assume to be gasoline)	2030LDT2		0.036841
(assume to be gasoline)	2030Work		0.033644
(assume to be diesel)	2030MHDT		0.109089
(assume to be diesel)	2030Haulir		0.15191
(assume to be diesel)	2030Vendc		0.1305

Source: EMFAC2021 (v1.0.2) Emissions Inventory
Region Type: Air Basin
Region: South Cen South Coast
Calendar Year: 202 2031
Season: Annual
Vehicle Classification: EMFAC2007 Categories
Units: miles/day for CVMT and EVMT, tons/day for Emissions, 1000 gallons/day for Fuel Consumption, mph for Speed, kWh/day for Energy Consumption

Helper	Region	Calendar Year	Vehicle Cat	Model Year	Fuel	Population	Total VMT	Trips	Fuel Consumption	gallons/mile
South Coast2031LDAG	South Coast	2031	LDA	Aggregatec	Gasoline	4988287.7	197320934.2	23163411	5926.996	0.030037
South Coast2031LDT1	South Coast	2031	LDT1	Aggregatec	Gasoline	447343.78	16182214.87	1980459	586.1436	0.036221
South Coast2031LDT2	South Coast	2031	LDT2	Aggregatec	Gasoline	2806833	112939507.8	13139626	4101.112	0.036312
South Coast2031MHD	South Coast	2031	MHDT	Aggregatec	Diesel	121275.59	4763811.371	1495956	516.7538	0.108475
South Coast2031HHDT	South Coast	2031	HHDT	Aggregatec	Diesel	104180.68	12768548.62	1615249	1911.089	0.149672
	0		0	0	0	0	0	#N/A	0	0

		Running	gallons/mil
(assume to be gasoline)	2031LDA		0.030037
(assume to be gasoline)	2031LDT1		0.036221
(assume to be gasoline)	2031LDT2		0.036312
(assume to be gasoline)	2031Work		0.033152
(assume to be diesel)	2031MHDT		0.108475
(assume to be diesel)	2031Haulir		0.149672
(assume to be diesel)	2031Vendc		0.129073

Source: EMFAC2021 (v1.0.2) Emissions Inventory
Region Type: Air Basin
Region: South Coast
Calendar Year: 2032
Season: Annual
Vehicle Classification: EMFAC2007 Categories
Units: miles/day for CVMT and EVMT, tons/day for Emissions, 1000 gallons/day for Fuel Consumption, mph for Speed, kWh/day for Energy Consumption

Helper	Region	Calendar Year	Vehicle Cat	Model Year	Fuel	Population	Total VMT	Trips	Fuel Consumption	gallons/mile
South Coast2032LDAG	South Coast	2032	LDA	Aggregatec	Gasoline	4955146.9	195879815	23016301	5805.819	0.02964
South Coast2032LDT1	South Coast	2032	LDT1	Aggregatec	Gasoline	442606.89	16024272.53	1962602	572.184	0.035707
South Coast2032LDT2	South Coast	2032	LDT2	Aggregatec	Gasoline	2842982.4	113849667.9	13294340	4080.236	0.035839
South Coast2032MHD	South Coast	2032	MHDT	Aggregatec	Diesel	120236.99	4691991.351	1483399	505.8984	0.107822
South Coast2032HHDT	South Coast	2032	HHDT	Aggregatec	Diesel	104962.13	12996427.99	1632866	1917.7	0.147556
	0	0	0	0	0	0	0	#N/A	0	0

		Running	gallons/mil
(assume to be gasoline)	2032LDA		0.02964
(assume to be gasoline)	2032LDT1		0.035707
(assume to be gasoline)	2032LDT2		0.035839
(assume to be gasoline)	2032Work		0.032706
(assume to be diesel)	2032MHDT		0.107822
(assume to be diesel)	2032Haulir		0.147556
(assume to be diesel)	2032Vendc		0.127689

Source: EMFAC2021 (v1.0.2) Emissions Inventory
Region Type: Air Basin
Region: South Cen South Coast

Calendar Year: 202 2033
Season: Annual
Vehicle Classification: EMFAC2007 Categories
Units: miles/day for CVMT and EVMT, tons/day for Emissions, 1000 gallons/day for Fuel Consumption, mph for Speed, kWh/day for Energy Consumption

Helper	Region	Calendar Year	Vehicle Cat	Model Year	Fuel	Population	Total VMT	Trips	Fuel Consumption	gallons/mile
South Coast2033LDAG	South Coast	2033	LDA	Aggregatec	Gasoline	4925960	194651527.9	22889245	5699.505	0.029281
South Coast2033LDT1	South Coast	2033	LDT1	Aggregatec	Gasoline	438628.78	15889935.39	1947664	559.8149	0.035231
South Coast2033LDT2	South Coast	2033	LDT2	Aggregatec	Gasoline	2874796.1	114619605.2	13429832	4058.316	0.035407
South Coast2033MHD	South Coast	2033	MHDT	Aggregatec	Diesel	118683.88	4610017.977	1464420	493.9748	0.107152
South Coast2033HHD1	South Coast	2033	HHDT	Aggregatec	Diesel	105671.73	13233793.43	1650068	1927.432	0.145645
	0		0	0	0	0	0	#N/A	0	0

		Running	gallons/mil
(assume to be gasoline)	2033LDA		0.029281
(assume to be gasoline)	2033LDT1		0.035231
(assume to be gasoline)	2033LDT2		0.035407
(assume to be gasoline)	2033Work		0.0323
(assume to be diesel)	2033MHDT		0.107152
(assume to be diesel)	2033Haulir		0.145645
(assume to be diesel)	2033Vendc		0.126399

Source: EMFAC2021 (v1.0.2) Emissions Inventory
Region Type: Air Basin
Region: South Cen South Coast
Calendar Year: 202 2034
Season: Annual
Vehicle Classification: EMFAC2007 Categories
Units: miles/day for CVMT and EVMT, tons/day for Emissions, 1000 gallons/day for Fuel Consumption, mph for Speed, kWh/day for Energy Consumption

Helper	Region	Calendar Year	Vehicle Cat	Model Year	Fuel	Population	Total VMT	Trips	Fuel Consumption	gallons/mile
South Coast2034LDAG	South Coast	2034	LDA	Aggregatec	Gasoline	4900009	193613915.1	22780459	5607.876	0.028964
South Coast2034LDT1	South Coast	2034	LDT1	Aggregatec	Gasoline	434395.8	15757783.26	1932531	548.1899	0.034789
South Coast2034LDT2	South Coast	2034	LDT2	Aggregatec	Gasoline	2903069.7	115272960.6	13549492	4037.668	0.035027
South Coast2034MHD	South Coast	2034	MHDT	Aggregatec	Diesel	116673.87	4517341.931	1439757	481.1248	0.106506
South Coast2034HHD1	South Coast	2034	HHDT	Aggregatec	Diesel	106333.46	13483120.74	1667818	1938.862	0.143799
	0		0	0	0	0	0	#N/A	0	0

		Running	gallons/mil
(assume to be gasoline)	2034LDA		0.028964
(assume to be gasoline)	2034LDT1		0.034789
(assume to be gasoline)	2034LDT2		0.035027
(assume to be gasoline)	2034Work		0.031936
(assume to be diesel)	2034MHDT		0.106506
(assume to be diesel)	2034Haulir		0.143799
(assume to be diesel)	2034Vendc		0.125153

Source: EMFAC2021 (v1.0.2) Emissions Inventory
Region Type: Air Basin
Region: South Cen South Coast
Calendar Year: 202 2035
Season: Annual
Vehicle Classification: EMFAC2007 Categories
Units: miles/day for CVMT and EVMT, tons/day for Emissions, 1000 gallons/day for Fuel Consumption, mph for Speed, kWh/day for Energy Consumption

Helper	Region	Calendar Year	Vehicle Cat	Model Year	Fuel	Population	Total VMT	Trips	Fuel Consumption	gallons/mile
South Coast2035LDAG	South Coast	2035	LDA	Aggregatec	Gasoline	4877444.5	192743165.8	22689945	5528.903	0.028685
South Coast2035LDT1	South Coast	2035	LDT1	Aggregatec	Gasoline	431057.25	15648334.84	1920404	538.2036	0.034394
South Coast2035LDT2	South Coast	2035	LDT2	Aggregatec	Gasoline	2927896	115809991.7	13654042	4017.502	0.03469
South Coast2035MHD	South Coast	2035	MHDT	Aggregatec	Diesel	114328.88	4418239.502	1411019	467.7896	0.105877
South Coast2035HHD1	South Coast	2035	HHDT	Aggregatec	Diesel	107072.84	13748649.67	1687080	1953.978	0.142121
	0		0	0	0	0	0	#N/A	0	0

		Running	gallons/mil
(assume to be gasoline)	2035LDA		0.028685
(assume to be gasoline)	2035LDT1		0.034394
(assume to be gasoline)	2035LDT2		0.03469
(assume to be gasoline)	2035Work		0.031614
(assume to be diesel)	2035MHDT		0.105877

(assume to be diesel)	2035Haulir	0.142121
(assume to be diesel)	2035Vendo	0.123999

Source: EMFAC2021 (v1.0.2) Emissions Inventory
Region Type: Air Basin
Region: South Cen South Coast
Calendar Year: 202 2036
Season: Annual
Vehicle Classification: EMFAC2007 Categories
Units: miles/day for CVMT and EVMT, tons/day for Emissions, 1000 gallons/day for Fuel Consumption, mph for Speed, kWh/day for Energy Consumption

Helper	Region	Calendar Year	Vehicle Cat	Model Year	Fuel	Population	Total VMT	Trips	Fuel Consumption	gallons/mile
South Coast2036LDAG	South Coast	2036	LDA	Aggregatec	Gasoline	4858860.9	192031849.3	22618967	5462.95	0.028448
South Coast2036LDT1	South Coast	2036	LDT1	Aggregatec	Gasoline	427861.13	15547047.71	1909109	529.2278	0.03404
South Coast2036LDT2	South Coast	2036	LDT2	Aggregatec	Gasoline	2949526.6	116241922.4	13744731	3999.005	0.034402
South Coast2036MHD	South Coast	2036	MHDT	Aggregatec	Diesel	111882.67	4326016.949	1381044	455.0751	0.105195
South Coast2036HHD1	South Coast	2036	HHDT	Aggregatec	Diesel	107653.47	13932074.11	1703972	1957.428	0.140498
	0		0	0	0	0	0	#N/A	0	0

	Running	gallons/mil
(assume to be gasoline)	2036LDA	0.028448
(assume to be gasoline)	2036LDT1	0.03404
(assume to be gasoline)	2036LDT2	0.034402
(assume to be gasoline)	2036Work	0.031335
(assume to be diesel)	2036MHD1	0.105195
(assume to be diesel)	2036Haulir	0.140498
(assume to be diesel)	2036Vendo	0.122846

Source: EMFAC2021 (v1.0.2) Emissions Inventory
Region Type: Air Basin
Region: South Cen South Coast
Calendar Year: 202 2037
Season: Annual
Vehicle Classification: EMFAC2007 Categories
Units: miles/day for CVMT and EVMT, tons/day for Emissions, 1000 gallons/day for Fuel Consumption, mph for Speed, kWh/day for Energy Consumption

Helper	Region	Calendar Year	Vehicle Cat	Model Year	Fuel	Population	Total VMT	Trips	Fuel Consumption	gallons/mile
South Coast2037LDAG	South Coast	2037	LDA	Aggregatec	Gasoline	4845966.2	191465347.5	22571703	5406.922	0.02824
South Coast2037LDT1	South Coast	2037	LDT1	Aggregatec	Gasoline	425227.8	15459358.76	1899855	521.2301	0.033716
South Coast2037LDT2	South Coast	2037	LDT2	Aggregatec	Gasoline	2968664.1	116579602.1	13824145	3980.442	0.034144
South Coast2037MHD	South Coast	2037	MHDT	Aggregatec	Diesel	109506.65	4244394.398	1351964	443.9011	0.104585
South Coast2037HHD1	South Coast	2037	HHDT	Aggregatec	Diesel	108405.92	14136206.74	1723850	1966.843	0.139135
			0	0	0	0	0	#N/A	0	0

	Running	gallons/mil
(assume to be gasoline)	2037LDA	0.02824
(assume to be gasoline)	2037LDT1	0.033716
(assume to be gasoline)	2037LDT2	0.034144
(assume to be gasoline)	2037Work	0.031085
(assume to be diesel)	2037MHD1	0.104585
(assume to be diesel)	2037Haulir	0.139135
(assume to be diesel)	2037Vendo	0.12186

Source: EMFAC2021 (v1.0.2) Emissions Inventory
Region Type: Air Basin
Region: South Cen South Coast
Calendar Year: 202 2038
Season: Annual
Vehicle Classification: EMFAC2007 Categories
Units: miles/day for CVMT and EVMT, tons/day for Emissions, 1000 gallons/day for Fuel Consumption, mph for Speed, kWh/day for Energy Consumption

Helper	Region	Calendar Year	Vehicle Cat	Model Year	Fuel	Population	Total VMT	Trips	Fuel Consumption	gallons/mile
South Coast2038LDAG	South Coast	2038	LDA	Aggregatec	Gasoline	4837470.3	191011663.2	22543836	5360.403	0.028063
South Coast2038LDT1	South Coast	2038	LDT1	Aggregatec	Gasoline	422659.72	15375047.46	1891242	513.9803	0.03343
South Coast2038LDT2	South Coast	2038	LDT2	Aggregatec	Gasoline	2985725.9	116838413.7	13894906	3963.684	0.033924
South Coast2038MHD	South Coast	2038	MHDT	Aggregatec	Diesel	107280.16	4171786.889	1324783	433.3735	0.103882
South Coast2038HHD1	South Coast	2038	HHDT	Aggregatec	Diesel	109334.4	14359191.42	1746832	1980.531	0.137928
	0		0	0	0	0	0	#N/A	0	0

	Running	gallons/mil	
(assume to be gasoline)	2038LDA	0.028063	
(assume to be gasoline)	2038LDT1	0.03343	
(assume to be gasoline)	2038LDT2	0.033924	
(assume to be gasoline)	2038Work	0.03087	
(assume to be diesel)	2038MHDT	0.103882	
(assume to be diesel)	2038Haulir	0.137928	
(assume to be diesel)	2038Vendo	0.120905	

Source: EMFAC2021 (v1.0.2) Emissions Inventory
Region Type: Air Basin
Region: South Cen South Coast
Calendar Year: 202 2039
Season: Annual
Vehicle Classification: EMFAC2007 Categories
Units: miles/day for CVMT and EVMT, tons/day for Emissions, 1000 gallons/day for Fuel Consumption, mph for Speed, kWh/day for Energy Consumption

Helper	Region	Calendar Year	Vehicle Cat	Model Year	Fuel	Population	Total VMT	Trips	Fuel Consumption	gallons/mile
South Coast2039LDAG	South Coast	2039	LDA	Aggregated	Gasoline	4832807.3	190655672.4	22532603	5322.163	0.027915
South Coast2039LDT1	South Coast	2039	LDT1	Aggregated	Gasoline	420320.3	15298122.21	1883735	507.3836	0.033166
South Coast2039LDT2	South Coast	2039	LDT2	Aggregated	Gasoline	3001813	117053399	13961157	3948.703	0.033734
South Coast2039MHD	South Coast	2039	MHDT	Aggregated	Diesel	105260.39	4110085.004	1300261	424.5858	0.103303
South Coast2039HHDT	South Coast	2039	HHDT	Aggregated	Diesel	110420.68	14601099.03	1772843	1999.179	0.13692
	0	0	0	0	0	0	0	#N/A	0	0

	Running	gallons/mil
(assume to be gasoline)	2039LDA	0.027915
(assume to be gasoline)	2039LDT1	0.033166
(assume to be gasoline)	2039LDT2	0.033734
(assume to be gasoline)	2039Work	0.030683
(assume to be diesel)	2039MHDT	0.103303
(assume to be diesel)	2039Haulir	0.13692
(assume to be diesel)	2039Vendo	0.120112

Source: EMFAC2021 (v1.0.2) Emissions Inventory
Region Type: Air Basin
Region: South Cen South Coast
Calendar Year: 202 2040
Season: Annual
Vehicle Classification: EMFAC2007 Categories
Units: miles/day for CVMT and EVMT, tons/day for Emissions, 1000 gallons/day for Fuel Consumption, mph for Speed, kWh/day for Energy Consumption

Helper	Region	Calendar Year	Vehicle Cat	Model Year	Fuel	Population	Total VMT	Trips	Fuel Consumption	gallons/mile
South Coast2040LDAG	South Coast	2040	LDA	Aggregated	Gasoline	4830698.6	190367906	22533108	5290.691	0.027792
South Coast2040LDT1	South Coast	2040	LDT1	Aggregated	Gasoline	418419.59	15229244.13	1877828	501.5338	0.032932
South Coast2040LDT2	South Coast	2040	LDT2	Aggregated	Gasoline	3016449.2	117219343.6	14021683	3935.296	0.033572
South Coast2040MHD	South Coast	2040	MHDT	Aggregated	Diesel	103403.88	4056664.349	1277837	416.8015	0.102745
South Coast2040HHDT	South Coast	2040	HHDT	Aggregated	Diesel	111677.03	14862815.63	1801991	2022.252	0.136061
	0	0	0	0	0	0	0	#N/A	0	0

	Running	gallons/mil
(assume to be gasoline)	2040LDA	0.027792
(assume to be gasoline)	2040LDT1	0.032932
(assume to be gasoline)	2040LDT2	0.033572
(assume to be gasoline)	2040Work	0.030522
(assume to be diesel)	2040MHDT	0.102745
(assume to be diesel)	2040Haulir	0.136061
(assume to be diesel)	2040Vendo	0.119403

Source: EMFAC2021 (v1.0.2) Emissions Inventory
Region Type: Air Basin
Region: South Cen South Coast
Calendar Year: 202 2041
Season: Annual
Vehicle Classification: EMFAC2007 Categories
Units: miles/day for CVMT and EVMT, tons/day for Emissions, 1000 gallons/day for Fuel Consumption, mph for Speed, kWh/day for Energy Consumption

Helper	Region	Calendar Year	Vehicle Cat	Model Year	Fuel	Population	Total VMT	Trips	Fuel Consumption	gallons/mile
South Coast2041LDAG	South Coast	2041	LDA	Aggregated	Gasoline	4832020.6	190131090.8	22546324	5265.034	0.027692
South Coast2041LDT1	South Coast	2041	LDT1	Aggregated	Gasoline	416816	15165455.63	1873030	496.2611	0.032723

South Coast2041LDT2(	South Coast	2041	LDT2	Aggregatec	Gasoline	3029937.3	117337030.2	14076899	3923.345	0.033437
South Coast2041MHD	South Coast	2041	MHDT	Aggregatec	Diesel	101780.1	4010508.453	1258342	409.9298	0.102214
South Coast2041HHD1	South Coast	2041	HHDT	Aggregatec	Diesel	113114.52	15145925.59	1834381	2049.888	0.135343
	0		0	0	0	0	0	#N/A	0	0

	Running	gallons/mil
(assume to be gasoline)	2041LDA	0.027692
(assume to be gasoline)	2041LDT1	0.032723
(assume to be gasoline)	2041LDT2	0.033437
(assume to be gasoline)	2041Work	0.030386
(assume to be diesel)	2041MHD1	0.102214
(assume to be diesel)	2041Haulir	0.135343
(assume to be diesel)	2041Vend	0.118778

Source: EMFAC2021 (v1.0.2) Emissions Inventory
Region Type: Air Basin
Region: South Coast
Calendar Year: 2042
Season: Annual
Vehicle Classification: EMFAC2007 Categories
Units: miles/day for CVMT and EVMT, tons/day for Emissions, 1000 gallons/day for Fuel Consumption, mph for Speed, kWh/day for Energy Consumption

Helper	Region	Calendar Year	Vehicle Cat	Model Year	Fuel	Population	Total VMT	Trips	Fuel Consumption	gallons/mile
South Coast2042LDAG	South Coast	2042	LDA	Aggregatec	Gasoline	4834586	189941226.6	22565163	5244.298	0.02761
South Coast2042LDT1	South Coast	2042	LDT1	Aggregatec	Gasoline	415129.04	15103590.44	1868235	491.3614	0.032533
South Coast2042LDT2(	South Coast	2042	LDT2	Aggregatec	Gasoline	3040736.9	117397631.1	14122784	3911.525	0.033319
South Coast2042MHD	South Coast	2042	MHDT	Aggregatec	Diesel	100360.7	3971892.998	1241428	404.0045	0.101716
South Coast2042HHD1	South Coast	2042	HHDT	Aggregatec	Diesel	114739.53	15452553.13	1869849	2082.313	0.134755
	0	0	0	0	0	0	0	#N/A	0	0

	Running	gallons/mil
(assume to be gasoline)	2042LDA	0.02761
(assume to be gasoline)	2042LDT1	0.032533
(assume to be gasoline)	2042LDT2	0.033319
(assume to be gasoline)	2042Work	0.030268
(assume to be diesel)	2042MHD1	0.101716
(assume to be diesel)	2042Haulir	0.134755
(assume to be diesel)	2042Vend	0.118236

Source: EMFAC2021 (v1.0.2) Emissions Inventory
Region Type: Air Basin
Region: South Cen South Coast
Calendar Year: 202 2043
Season: Annual
Vehicle Classification: EMFAC2007 Categories
Units: miles/day for CVMT and EVMT, tons/day for Emissions, 1000 gallons/day for Fuel Consumption, mph for Speed, kWh/day for Energy Consumption

Helper	Region	Calendar Year	Vehicle Cat	Model Year	Fuel	Population	Total VMT	Trips	Fuel Consumption	gallons/mile
South Coast2043LDAG	South Coast	2043	LDA	Aggregatec	Gasoline	4838247.2	189770713.1	22588258	5227.206	0.027545
South Coast2043LDT1	South Coast	2043	LDT1	Aggregatec	Gasoline	413336.13	15041316.15	1863372	486.725	0.032359
South Coast2043LDT2(	South Coast	2043	LDT2	Aggregatec	Gasoline	3050409.5	117423233.2	14163927	3900.784	0.03322
South Coast2043MHD	South Coast	2043	MHDT	Aggregatec	Diesel	99180.745	3943731.849	1227531	399.2876	0.101246
South Coast2043HHD1	South Coast	2043	HHDT	Aggregatec	Diesel	116547.43	15782423.38	1908373	2119.1	0.13427
	0		0	0	0	0	0	#N/A	0	0

	Running	gallons/mil
(assume to be gasoline)	2043LDA	0.027545
(assume to be gasoline)	2043LDT1	0.032359
(assume to be gasoline)	2043LDT2	0.03322
(assume to be gasoline)	2043Work	0.030167
(assume to be diesel)	2043MHD1	0.101246
(assume to be diesel)	2043Haulir	0.13427
(assume to be diesel)	2043Vend	0.117758

Source: EMFAC2021 (v1.0.2) Emissions Inventory
Region Type: Air Basin
Region: South Cen South Coast
Calendar Year: 202 2044
Season: Annual
Vehicle Classification: EMFAC2007 Categories

Units: miles/day for CVMT and EVMT, tons/day for Emissions, 1000 gallons/day for Fuel Consumption, mph for Speed, kWh/day for Energy Consumption

Helper	Region	Calendar Year	Vehicle Cat	Model Year	Fuel	Population	Total VMT	Trips	Fuel Consumption	gallons/mile
South Coast2044LDAG	South Coast	2044	LDA	Aggregated	Gasoline	4842751	189613920.1	22614037	5213.084	0.027493
South Coast2044LDT1	South Coast	2044	LDT1	Aggregated	Gasoline	412135.84	14991318.01	1860291	482.8924	0.032211
South Coast2044LDT2	South Coast	2044	LDT2	Aggregated	Gasoline	3058966.1	117421257.6	14200602	3890.962	0.033137
South Coast2044MHD	South Coast	2044	MHDT	Aggregated	Diesel	98231.236	3925359.384	1216546	395.6762	0.1008
South Coast2044HHD1	South Coast	2044	HHDT	Aggregated	Diesel	118501.61	16133904.74	1949569	2159.615	0.133856
	0		0	0	0	0	0	#N/A	0	0

	Running	gallons/mil
(assume to be gasoline)	2044LDA	0.027493
(assume to be gasoline)	2044LDT1	0.032211
(assume to be gasoline)	2044LDT2	0.033137
(assume to be gasoline)	2044Work	0.030084
(assume to be diesel)	2044MHDT	0.1008
(assume to be diesel)	2044Haulir	0.133856
(assume to be diesel)	2044Vendo	0.117328

Source: EMFAC2021 (v1.0.2) Emissions Inventory
Region Type: Air Basin
Region: South Cen South Coast
Calendar Year: 202 2045
Season: Annual
Vehicle Classification: EMFAC2007 Categories
Units: miles/day for CVMT and EVMT, tons/day for Emissions, 1000 gallons/day for Fuel Consumption, mph for Speed, kWh/day for Energy Consumption

Helper	Region	Calendar Year	Vehicle Cat	Model Year	Fuel	Population	Total VMT	Trips	Fuel Consumption	gallons/mile
South Coast2045LDAG	South Coast	2045	LDA	Aggregated	Gasoline	4846970	189467391.8	22638906	5201.22	0.027452
South Coast2045LDT1	South Coast	2045	LDT1	Aggregated	Gasoline	411096.45	14946618.9	1857770	479.4258	0.032076
South Coast2045LDT2	South Coast	2045	LDT2	Aggregated	Gasoline	3066065.6	117395777.9	14232141	3881.595	0.033064
South Coast2045MHD	South Coast	2045	MHDT	Aggregated	Diesel	97534.973	3918216.7	1208763	393.2994	0.100377
South Coast2045HHD1	South Coast	2045	HHDT	Aggregated	Diesel	120622.06	16507826.76	1993410	2203.92	0.133508
	0		0	0	0	0	0	#N/A	0	0

	Running	gallons/mil
(assume to be gasoline)	2045LDA	0.027452
(assume to be gasoline)	2045LDT1	0.032076
(assume to be gasoline)	2045LDT2	0.033064
(assume to be gasoline)	2045Work	0.030011
(assume to be diesel)	2045MHDT	0.100377
(assume to be diesel)	2045Haulir	0.133508
(assume to be diesel)	2045Vendo	0.116942

Source: EMFAC2021 (v1.0.2) Emissions Inventory
Region Type: Air Basin
Region: South Cen South Coast
Calendar Year: 202 2046
Season: Annual
Vehicle Classification: EMFAC2007 Categories
Units: miles/day for CVMT and EVMT, tons/day for Emissions, 1000 gallons/day for Fuel Consumption, mph for Speed, kWh/day for Energy Consumption

Helper	Region	Calendar Year	Vehicle Cat	Model Year	Fuel	Population	Total VMT	Trips	Fuel Consumption	gallons/mile
South Coast2046LDAG	South Coast	2046	LDA	Aggregated	Gasoline	4851776.5	189309381.3	22664736	5190.735	0.027419
South Coast2046LDT1	South Coast	2046	LDT1	Aggregated	Gasoline	410307.12	14906430.4	1856041	476.3796	0.031958
South Coast2046LDT2	South Coast	2046	LDT2	Aggregated	Gasoline	3073160.7	117356521.8	14262346	3873.327	0.033005
South Coast2046MHD	South Coast	2046	MHDT	Aggregated	Diesel	97076.558	3921621.425	1203960	392.087	0.099981
South Coast2046HHD1	South Coast	2046	HHDT	Aggregated	Diesel	122897.83	16902742.61	2039785	2251.524	0.133205
	0		0	0	0	0	0	#N/A	0	0

	Running	gallons/mil
(assume to be gasoline)	2046LDA	0.027419
(assume to be gasoline)	2046LDT1	0.031958
(assume to be gasoline)	2046LDT2	0.033005
(assume to be gasoline)	2046Work	0.02995
(assume to be diesel)	2046MHDT	0.099981
(assume to be diesel)	2046Haulir	0.133205
(assume to be diesel)	2046Vendo	0.116593

Source: EMFAC2021 (v1.0.2) Emissions Inventory
Region Type: Air Basin
Region: South Cen South Coast
Calendar Year: 202 2047
Season: Annual
Vehicle Classification: EMFAC2007 Categories
Units: miles/day for CVMT and EVMT, tons/day for Emissions, 1000 gallons/day for Fuel Consumption, mph for Speed, kWh/day for Energy Consumption

Helper	Region	Calendar Year	Vehicle Cat	Model Year	Fuel	Population	Total VMT	Trips	Fuel Consumption	gallons/mile
South Coast2047LDAG	South Coast	2047	LDA	Aggregatec	Gasoline	4856454.2	189140600.4	22689325	5181.237	0.027394
South Coast2047LDT1	South Coast	2047	LDT1	Aggregatec	Gasoline	409821.87	14872555.52	1855258	473.7998	0.031857
South Coast2047LDT2	South Coast	2047	LDT2	Aggregatec	Gasoline	3079333.5	117293806.8	14288795	3865.17	0.032953
South Coast2047MHD	South Coast	2047	MHDT	Aggregatec	Diesel	96860.523	3935223.057	1202197	392.0345	0.099622
South Coast2047HHD1	South Coast	2047	HHDT	Aggregatec	Diesel	125332.6	17318702.03	2088587	2302.533	0.132951
			0	0	0	0	0	#N/A	0	0

	Running	gallons/mil
(assume to be gasoline)	2047LDA	0.027394
(assume to be gasoline)	2047LDT1	0.031857
(assume to be gasoline)	2047LDT2	0.032953
(assume to be gasoline)	2047Work	0.029899
(assume to be diesel)	2047MHDT	0.099622
(assume to be diesel)	2047Haulir	0.132951
(assume to be diesel)	2047Vendo	0.116286

Source: EMFAC2021 (v1.0.2) Emissions Inventory
Region Type: Air Basin
Region: South Cen South Coast
Calendar Year: 202 2048
Season: Annual
Vehicle Classification: EMFAC2007 Categories
Units: miles/day for CVMT and EVMT, tons/day for Emissions, 1000 gallons/day for Fuel Consumption, mph for Speed, kWh/day for Energy Consumption

Helper	Region	Calendar Year	Vehicle Cat	Model Year	Fuel	Population	Total VMT	Trips	Fuel Consumption	gallons/mile
South Coast2048LDAG	South Coast	2048	LDA	Aggregatec	Gasoline	4860556.9	188953170.4	22711310	5172.194	0.027373
South Coast2048LDT1	South Coast	2048	LDT1	Aggregatec	Gasoline	409984.84	14848636.63	1856131	471.8981	0.031781
South Coast2048LDT2	South Coast	2048	LDT2	Aggregatec	Gasoline	3084727.4	117208423.3	14311963	3856.996	0.032907
South Coast2048MHD	South Coast	2048	MHDT	Aggregatec	Diesel	96903.288	3958886.724	1203660	393.122	0.099301
South Coast2048HHD1	South Coast	2048	HHDT	Aggregatec	Diesel	127929.4	17754854.93	2139792	2356.559	0.132728
	0		0	0	0	0	0	#N/A	0	0

	Running	gallons/mil
(assume to be gasoline)	2048LDA	0.027373
(assume to be gasoline)	2048LDT1	0.031781
(assume to be gasoline)	2048LDT2	0.032907
(assume to be gasoline)	2048Work	0.029858
(assume to be diesel)	2048MHDT	0.099301
(assume to be diesel)	2048Haulir	0.132728
(assume to be diesel)	2048Vendo	0.116014

Source: EMFAC2021 (v1.0.2) Emissions Inventory
Region Type: Air Basin
Region: South Cen South Coast
Calendar Year: 202 2049
Season: Annual
Vehicle Classification: EMFAC2007 Categories
Units: miles/day for CVMT and EVMT, tons/day for Emissions, 1000 gallons/day for Fuel Consumption, mph for Speed, kWh/day for Energy Consumption

Helper	Region	Calendar Year	Vehicle Cat	Model Year	Fuel	Population	Total VMT	Trips	Fuel Consumption	gallons/mile
South Coast2049LDAG	South Coast	2049	LDA	Aggregatec	Gasoline	4864742.5	188751288.8	22732298	5163.516	0.027356
South Coast2049LDT1	South Coast	2049	LDT1	Aggregatec	Gasoline	410278.64	14826324.02	1857273	470.2363	0.031716
South Coast2049LDT2	South Coast	2049	LDT2	Aggregatec	Gasoline	3089012.5	117097186.1	14331076	3848.666	0.032867
South Coast2049MHD	South Coast	2049	MHDT	Aggregatec	Diesel	97198.246	3991993.119	1208257	395.276	0.099017
South Coast2049HHD1	South Coast	2049	HHDT	Aggregatec	Diesel	130700.82	18211235.95	2193530	2413.676	0.132538
	0		0	0	0	0	0	#N/A	0	0

	Running	gallons/mil
(assume to be gasoline)	2049LDA	0.027356

(assume to be gasoline)	2049LDT1	0.031716
(assume to be gasoline)	2049LDT2	0.032867
(assume to be gasoline)	2049Work	0.029824
(assume to be diesel)	2049MHDT	0.099017
(assume to be diesel)	2049Haulir	0.132538
(assume to be diesel)	2049Vendo	0.115777

Source: EMFAC2021 (v1.0.2) Emissions Inventory
Region Type: Air Basin
Region: South Cen South Coast
Calendar Year: 202 2050
Season: Annual
Vehicle Classification: EMFAC2007 Categories
Units: miles/day for CVMT and EVMT, tons/day for Emissions, 1000 gallons/day for Fuel Consumption, mph for Speed, kWh/day for Energy Consumption

Helper	Region	Calendar Year	Vehicle Cat	Model Year	Fuel	Population	Total VMT	Trips	Fuel Consumption	gallons/mile
South Coast2050LDAG	South Coast	2050	LDA	Aggregatec	Gasoline	4867942.5	188510435.1	22749383	5154.346	0.027342
South Coast2050LDT1	South Coast	2050	LDT1	Aggregatec	Gasoline	410755.81	14805247.16	1858841	468.7999	0.031664
South Coast2050LDT2	South Coast	2050	LDT2	Aggregatec	Gasoline	3093115.8	116964880	14348643	3840.362	0.032833
South Coast2050MHD	South Coast	2050	MHDT	Aggregatec	Diesel	97725.724	4033505.56	1215756	398.3711	0.098765
South Coast2050HHDT	South Coast	2050	HHDT	Aggregatec	Diesel	133633.67	18687081.33	2249689	2473.644	0.132372
	0		0	0	0	0	0	#N/A	0	0

	Running	gallons/mil
(assume to be gasoline)	2050LDA	0.027342
(assume to be gasoline)	2050LDT1	0.031664
(assume to be gasoline)	2050LDT2	0.032833
(assume to be gasoline)	2050Work	0.029796
(assume to be diesel)	2050MHDT	0.098765
(assume to be diesel)	2050Haulir	0.132372
(assume to be diesel)	2050Vendo	0.115569

Source: EMFAC2021 (v1.0.2) Emissions Inventory
Region Type: Air Basin
Region: South Cen South Coast
Calendar Year: 202 2021
Season: Annual
Vehicle Classification: EMFAC2007 Categories
Units: miles/day for CVMT and EVMT, tons/day for Emissions, 1000 gallons/day for Fuel Consumption, mph for Speed, kWh/day for Energy Consumption

Helper	Region	Calendar Year	Vehicle Cat	Model Year	Fuel	Population	Total VMT	Trips	Fuel Consumption	gallons/mile
South Coast2021LDAG	South Coast	2021	LDA	Aggregatec	Gasoline	5499398.9	218982603.7	25673860	7890.701	0.036033
South Coast2021LDT1	South Coast	2021	LDT1	Aggregatec	Gasoline	517869.67	18309703.87	2277954	788.7551	0.043079
South Coast2021LDT2	South Coast	2021	LDT2	Aggregatec	Gasoline	2331857.5	94020933.74	10939477	4240.528	0.045102
South Coast2021MHD	South Coast	2021	MHDT	Aggregatec	Diesel	110246.02	4706657.121	1348911	531.5429	0.112934
South Coast2021HHDT	South Coast	2021	HHDT	Aggregatec	Diesel	83796.523	10864486.68	1262886	1864.732	0.171636
	0		0	0	0	0	0	#N/A	0	0

	Running	gallons/mil
(assume to be gasoline)	2021LDA	0.036033
(assume to be gasoline)	2021LDT1	0.043079
(assume to be gasoline)	2021LDT2	0.045102
(assume to be gasoline)	2021Work	0.040062
(assume to be diesel)	2021MHDT	0.112934
(assume to be diesel)	2021Haulir	0.171636
(assume to be diesel)	2021Vendo	0.142285

Retail Gasoline Sales by County

(Millions of Gallons)

County	2012^A Survey Responses (Millions of	2012^A Estimated Totals (Millions of Gallons)	2013^A Survey Responses (Millions of	2013^A Estimated Totals (Millions of Gallons)	2014^A Survey Responses (Millions of	2014^A Estimated Totals (Millions of Gallons)	2015^A Survey Responses (Millions of	2015^A Estimated Totals (Millions of Gallons)	2016^A Survey Responses (Millions of	2016^A Estimated Totals (Millions of Gallons)	2017^A Survey Responses (Millions of	2017^A Estimated Totals (Millions of Gallons)	2018^A Survey Responses (Millions of	2018^A Estimated Totals (Millions of Gallons)	2019^A Survey Responses (Millions of	2019^A Estimated Totals (Millions of Gallons)	2020^A Survey Responses (Millions of	2020^A Estimated Totals (Millions of Gallons)	2021^A Survey Responses (Millions of Gallons)	2021^A Estimated Totals (Millions of Gallons)
Alameda	480	568	473	603	341	491	432	542	518	582	521	583	495	569	505	591	400	442	393	492
Amador	12	14	10	12	11	15	10	13	12	14	13	15	14	17	16	18	12	13	11	14
Butte	66	78	64	81	59	85	62	78	74	83	78	87	75	86	62	78	58	68	58	74
Calaveras	10	12	10	13	10	14	11	14	13	15	14	15	13	15	14	15	14	15	11	13
Colusa	8	10	10	13	7	10	7	9	10	11	11	12	11	13	11	13	12	15	11	16
Contra Costa	354	419	331	422	272	392	303	380	384	431	385	430	346	397	374	427	304	336	304	374
Del Norte	6	7	4	5	5	7	5	6	6	7	6	7	6	7	4	6	5	5	4	5
El Dorado	64	75	56	72	36	52	65	81	72	81	73	82	66	76	64	74	58	62	52	65
Fresno	288	341	269	344	209	300	264	331	318	358	328	367	320	368	306	376	296	347	294	387
Glenn	11	12	11	14	11	16	13	16	15	17	17	18	15	17	14	18	13	15	14	17
Humboldt	45	53	51	64	31	44	47	59	54	61	49	55	51	58	42	53	51	56	47	52
Imperial	46	54	46	58	58	83	63	79	77	86	74	83	78	89	73	86	59	64	56	74
Inyo	13	16	12	16	12	17	14	18	16	18	16	18	16	18	14	17	14	16	14	15
Kern	301	356	287	367	267	384	299	375	362	407	349	390	345	396	340	392	318	364	331	406
Kings	40	47	38	49	31	45	41	51	50	57	54	60	52	60	67	76	49	52	42	58
Lake	17	20	19	24	17	25	19	23	19	21	19	21	20	23	18	24	17	20	17	20
Lassen	5	6	5	6	6	8	7	9	7	8	5	6	4	5	5	7	6	6	7	7
Los Angeles	2,916	3,451	2,700	3,445	2,606	3,749	2,762	3,465	3,184	3,577	3,272	3,659	3,169	3,638	3,189	3,559	2,513	2,770	2,700	3,061
Madera	44	53	43	54	31	45	35	44	52	59	56	62	49	57	44	62	45	63	53	71
Marin	91	107	83	106	52	75	83	105	91	102	90	101	71	82	86	96	72	77	66	88
Mariposa	5	6	4	5	6	9	5	6	7	8	5	6	6	7	7	8	4	5	6	7
Mendocino	36	43	33	42	28	40	32	40	37	42	34	38	35	40	27	44	35	37	33	39
Merced	78	92	74	94	58	83	84	105	101	114	105	117	115	132	100	119	91	106	90	122
Mono	2	2	6	8	6	8	6	7	7	8	5	5	6	7	7	8	6	7	5	6
Monterey	124	147	139	177	87	126	147	184	157	177	155	174	157	181	148	174	123	141	116	162
Napa	49	58	41	52	27	39	50	63	50	57	47	53	53	61	54	57	40	44	42	47
Nevada	29	34	19	25	19	27	31	40	36	40	35	39	33	38	29	39	31	36	28	35
Orange	1,145	1,355	1,044	1,332	1,018	1,465	1,092	1,370	1,224	1,375	1,236	1,382	1,222	1,402	1,198	1,325	943	1,029	1,037	1,159
Placer	162	192	131	167	118	170	167	209	181	204	182	203	179	206	177	198	150	163	160	178
Plumas	6	7	3	4	5	8	5	7	5	5	5	6	5	6	5	6	5	6	4	7
Riverside	756	895	725	925	702	1,010	828	1,039	921	1,035	941	1,052	916	1,052	921	1,046	799	876	847	981
Sacramento	473	560	446	568	308	442	465	584	534	600	535	599	511	586	536	600	475	689	448	557
San Benito	17	20	5	7	10	14	12	15	15	17	18	20	15	17	12	21	10	18	11	17
San Bernardino	742	878	697	889	659	948	725	909	899	1,010	888	993	862	990	851	977	757	823	786	926
San Diego	1,079	1,277	972	1,241	940	1,352	1,123	1,408	1,221	1,372	1,231	1,377	1,208	1,387	1,197	1,325	973	1,055	964	1,165
San Francisco	126	149	126	161	71	102	107	134	119	134	120	134	105	120	107	118	76	91	82	99
San Joaquin	253	299	254	325	217	312	287	360	303	340	310	347	293	336	289	352	255	292	265	321
San Luis Obispo	105	124	109	140	101	145	117	147	127	142	127	142	131	150	125	138	103	115	101	125
San Mateo	258	306	244	311	159	229	243	304	289	325	291	326	264	304	293	322	215	238	217	269
Santa Barbara	140	166	135	172	124	178	148	186	161	181	152	170	167	191	166	177	136	146	148	168
Santa Clara	589	697	546	696	460	661	580	727	638	717	613	685	560	643	614	713	446	511	488	599
Santa Cruz	89	105	79	101	53	77	77	96	85	95	84	94	78	90	72	90	69	74	64	88
Shasta	77	91	65	83	55	79	76	95	73	82	83	92	76	87	72	82	68	76	67	79
Siskiyou	19	23	9	12	10	14	21	27	24	27	26	29	25	28	26	27	22	25	19	28
Solano	180	213	158	202	116	167	160	201	187	210	194	217	188	216	182	216	155	180	161	196
Sonoma	160	189	163	208	146	210	160	201	186	209	186	208	167	192	169	204	146	167	159	181
Stanislaus	173	205	144	183	159	229	201	252	217	244	227	253	212	244	196	245	178	197	205	243
Sutter	34	40	33	42	17	24	30	38	35	39	35	39	35	40	27	38	28	30	30	34
Tehama	23	27	19	24	18	26	24	30	25	29	26	29	27	31	28	30	25	26	25	30
Trinity	1	2	3	4	3	4	3	4	4	5	4	5	4	4	2	4	3	4	3	4
Tulare	120	142	91	116	107	155	114	143	136	152	149	167	147	168	144	174	126	149	138	181
Tuolumne	15	18	12	15	14	21	18	23	21	23	22	25	22	25	21	23	19	20	17	19
Ventura	262	310	246	314	249	358	256	321	294	330	302	338	298	342	297	329	242	262	255	294
Yolo	74	87	75	96	63	90	82	103	98	110	101	113	96	110	97	114	76	91	83	101
Yuba	22	26	23	30	14	20	24	30	32	36	30	34	40	46	27	32	26	35	28	40
Other Counties*	1	2	1	1	1	2	2	2	2	2	2	2	1	1	2	2	2	2	1	2
Total	**12,241**	**14,486**	**11,396**	**14,540**	**10,220**	**14,701**	**12,044**	**15,108**	**13,785**	**15,491**	**13,936**	**15,584**	**13,475**	**15,471**	**13,473**	**15,365**	**11,174**	**12,572**	**11,618**	**13,818**

[A] 2012 to 2019 data are not directly comparable to other years since an improved methodology is used, but is within 5 percent compared to the previous methodology.

[*] Other Counties include Alpine, Modoc and Sierra.

Retail Diesel Sales by County

(Millions of Gallons)

County	2012[A] Survey Responses (Millions of Gallons)	2012[A] Estimated Totals (Millions of Gallons)	2013[A] Survey Responses (Millions of Gallons)	2013[A] Estimated Totals (Millions of Gallons)	2014[A] Survey Responses (Millions of Gallons)	2014[A] Estimated Totals (Millions of Gallons)	2015[A] Survey Responses (Millions of Gallons)	2015[A] Estimated Totals (Millions of Gallons)	2016[A] Survey Responses (Millions of Gallons)	2016[A] Estimated Totals (Millions of Gallons)	2017[A] Survey Responses (Millions of Gallons)	2017[A] Estimated Totals (Millions of Gallons)	2018[A] Survey Responses (Millions of Gallons)	2018[A] Estimated Totals (Millions of Gallons)	2019[A] Survey Responses (Millions of Gallons)	2019[A] Estimated Totals (Millions of Gallons)	2020[A] Survey Responses (Millions of Gallons)	2020[A] Estimated Totals (Millions of Gallons)	2021[A] Survey Responses (Millions of Gallons)	2021[A] Estimated Totals (Millions of Gallons)
Alameda	30	36	27	34	19	27	38	49	47	54	51	58	56	62	48	55	47	51	50	53
Amador	2	2	1	2	1	2	1	2	2	2	2	2	2	3	3	3	2	2	2	3
Butte	7	9	8	10	8	10	9	11	11	13	11	13	12	13	12	15	10	11	11	13
Calaveras	2	2	1	2	1	2	2	2	3	3	3	3	2	3	3	3	3	3	2	3
Colusa	4	5	4	5	2	2	3	4	4	4	2	3	4	4	7	7	10	11	8	11
Contra Costa	17	20	17	21	12	17	19	24	23	26	24	28	31	34	24	27	22	23	22	28
Del Norte	1	1	1	1	1	1	1	2	2	2	2	2	2	2	1	2	1	2	1	1
El Dorado	6	7	5	6	4	6	7	9	8	9	8	10	8	9	8	10	8	8	8	11
Fresno	33	40	23	29	18	25	39	50	40	46	40	45	46	51	39	49	62	66	52	91
Glenn	4	5	4	5	4	5	5	6	12	14	16	19	16	17	18	19	17	18	16	17
Humboldt	10	12	11	14	4	5	10	13	13	14	8	9	7	8	6	7	6	6	9	10
Imperial	7	8	8	10	8	11	9	11	14	16	11	12	20	22	21	25	22	24	27	27
Inyo	2	2	3	4	3	3	3	4	3	4	3	4	3	3	3	4	3	4	3	3
Kern	133	158	118	148	124	171	125	160	131	149	107	121	97	108	96	105	108	116	116	137
Kings	7	9	5	6	4	6	7	9	5	6	7	7	8	9	8	9	7	7	6	10
Lake	2	2	2	3	2	3	3	3	1	1	3	3	3	4	3	4	3	4	3	4
Lassen	1	1	1	1	1	2	3	3	4	4	1	1	1	1	1	2	1	1	2	2
Los Angeles	205	245	190	239	194	267	257	328	273	309	267	301	228	253	246	276	279	299	206	224
Madera	24	28	18	23	22	31	26	33	28	31	29	33	28	31	23	24	30	32	36	37
Marin	3	3	2	3	2	2	2	3	4	4	4	4	3	3	4	4	4	4	4	5
Mariposa	1	1	-	1	2	2	1	1	1	2	1	1	1	1	1	1	1	1	1	2
Mendocino	7	9	6	6	4	5	6	7	9	10	6	6	5	6	5	8	9	9	6	10
Merced	46	55	49	62	49	68	54	69	59	66	38	42	35	39	28	36	28	30	28	33
Mono	-	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Monterey	25	30	22	27	13	18	23	29	24	28	24	27	24	26	23	26	21	22	20	27
Napa	6	7	2	3	2	3	6	8	6	7	6	7	6	7	6	7	6	6	6	6
Nevada	4	4	1	2	4	6	7	8	8	9	8	9	7	8	5	8	7	8	6	8
Orange	38	46	33	42	37	51	46	59	52	59	54	61	49	55	51	56	49	53	43	46
Placer	12	15	9	12	10	13	13	16	15	17	15	17	16	17	16	17	32	35	18	20
Plumas	1	1	1	1	1	1	1	1	1	1	1	2	1	1	1	1	1	1	1	2
Riverside	89	107	86	109	100	138	119	152	128	145	131	148	119	132	108	122	134	144	138	146
Sacramento	27	32	18	21	21	29	28	36	38	42	42	48	41	45	37	41	41	44	40	45
San Bernardino	158	189	164	206	152	210	198	253	223	252	235	265	176	195	165	178	148	159	184	198
San Diego	62	74	58	73	67	93	87	111	93	105	92	103	92	103	94	110	88	94	93	117
San Francisco	3	4	4	5	1	2	5	6	6	6	5	6	5	5	5	5	4	4	4	5
San Joaquin	84	99	90	113	86	119	102	131	116	131	111	126	105	117	101	113	86	93	94	97
San Luis Obispo	11	13	9	12	12	17	19	24	20	23	19	21	20	22	20	22	19	20	17	22
San Mateo	8	10	8	10	4	6	15	19	13	14	15	17	16	17	18	19	12	13	13	16
Santa Barbara	10	13	12	15	13	18	20	26	22	25	17	19	21	24	18	19	16	17	16	17
Santa Clara	27	32	28	35	25	35	36	47	30	34	32	36	43	48	33	42	32	35	31	50
Santa Cruz	4	5	4	6	2	3	5	6	5	6	6	6	6	7	4	6	7	8	6	7
Shasta	16	19	18	22	13	18	21	27	21	24	22	25	21	24	14	16	13	14	20	22
Siskiyou	16	20	15	19	16	20	20	26	19	22	18	21	16	17	16	17	17	18	16	18
Solano	14	16	14	17	8	11	14	18	17	19	22	24	23	25	24	27	25	27	19	30
Sonoma	13	16	14	18	12	17	15	20	20	23	20	23	20	22	28	32	28	30	26	30
Stanislaus	25	30	15	19	20	27	26	33	20	22	30	34	32	36	33	35	36	39	44	49
Sutter	3	4	4	5	2	3	4	5	5	6	3	4	4	5	5	6	5	5	4	4
Tehama	35	42	37	47	25	35	37	48	35	39	34	38	18	20	17	18	7	8	14	17
Tulare	27	32	31	39	31	43	34	43	37	42	37	41	31	34	42	45	47	51	54	66
Tuolumne	1	2	2	2	2	2	2	3	2	3	3	3	3	3	3	3	3	3	3	4
Ventura	23	27	23	29	25	34	27	34	29	32	32	36	30	33	33	35	29	32	31	35
Yolo	27	33	30	37	29	40	27	35	32	37	27	30	25	28	24	26	21	22	24	28
Yuba	3	4	3	4	2	3	2	3	4	5	8	9	11	12	4	5	4	4	4	12
Other Counties*	1	2	1	1	1	2	2	2	3	3	3	3	2	2	2	3	2	2	2	3
Total	**1,327**	**1,589**	**1,261**	**1,587**	**1,226**	**1,691**	**1,592**	**2,033**	**1,742**	**1,971**	**1,717**	**1,937**	**1,602**	**1,777**	**1,559**	**1,756**	**1,624**	**1,744**	**1,611**	**1,883**

[A] 2012-2019 data are not directly comparable to other years since an improved methodology is used, but is within 5 percent compared to the previous methodology.

* Other Counties include Alpine, Modoc, San Benito, Sierra and Trinity.

Note: Non-Retail diesel sales, which comprise approximately 52.8% of all diesel sales, are not reported in this chart.

This tool provides a quick estimation of the fuel use and emissions for your equipment in a specific year. The results may slightly differ from those from the official inventory model.
Instructions:
Enter the horsepwer, model year, and other details about your equipment in the Input box.
Make sure to update the ***load factor*** for your equipment using the lookup table.
The ***Output*** box gives a quick estimation of the fuel use, NOx, PM, and THC emission for your equipment.

Input	Input Engine Here
Horsepower (hp)	100
Model year	2011
Calendar year	2015
Activity (annual hours)	250
Accumulated hours on equipment (estimate using annual-hours*age if you only know the age of the equipment)	1000
Load factor (check the lookup table)	0.2

Results	
Fuel Used (gallon)	287
NOx Emissions (kg)	12.9
PM Emissions (kg)	0.6
THC Emissions (kg)	0.6
CO2 Emissions (kg)	2929.9
NOx Emission Factor (including deterioration and fuel correction factor): gram/bhp-hr	2.57
PM Emission Factor (including deterioration and fuel correction factor): gram/bhp-hr	0.12
THC Emission Factor (including deterioration and fuel correction factor): gram/ bhp-hr	0.11

Intermediate steps	
HPbin	175
NOx_EF0	2.67
NOx_DR	3.5E-05
NOx_FCF	0.950
PM_EF0	0.12
PM_DR	8.6E-06
PM_FCF	0.90
THC_EF0	0.10
THC_DR	2.5E-05
THC_FCF	0.90
NOx_EF (g/hp-hr)	2.57
PM_EF (g/hp-hr)	0.12
THC_EF (g/hp-hr)	0.11
CO2_EF (kg/gallon-diesel)*	10.21
BSFC (lb/hp-hr)	0.408
Unit conversion (lb/gallon)	7.109

*Reference: www.epa.gov/sites/production/files/2015-07/documents/emission-factors_2014.pdf

Loac Factor Lookup Table

Equipment Category	Equipment Type	Details	Load Factor
Agriculture equipment	Agricultural tractors		0.48
	Combine harvesters		0.44
	Forage & silage harvesters		0.44
	Cotton pickers		0.44
	Nut harvester		0.44
	Other harvesters		0.44
	Balers (self propelled)		0.50
	Bale wagons (self propelled)		0.50
	Swathers/windrowers/hay conditioners		0.48
	Hay Squeeze/Stack retriever		0.42
	Sprayers/Spray rigs		0.42
	Construction equipment		0.40
	Other non-mobile		0.48
	Forklifts		0.40
	Atvs		0.40
	Others		0.40
Portable equipment	All portable equipment		0.31
Cargo Handling Equipment	Construction equipment		0.55
	Container handling equipment		0.59
	Forklift		0.30
	Other general industrial equipment		0.51
	Rtg crane		0.20
	Yard tractor		0.39
Transport Refrigeration Units (TRU)	TRU on trailers	25 HP and over, MY2012 and Older	0.46
	TRU on trailers	25 HP and over, MY2013 and Newer	0.38
	TRU on trailers	23 HP and Over, below 25 HP, All years	0.46
	TRU on trucks	Below 23 HP, All Model years	0.56
	TRU on railcars	25 HP and over, MY2012 and Older	0.33
	TRU on railcars	25 HP and over, MY2013 and Newer	0.27
	TRU on railcars	Below 25 HP, All Model years	0.33
	TRU with generators	25 HP and over, MY2012 and Older	0.46
	TRU with generators	25 HP and Over, MY2013 and Newer	0.38
	TRU with generators	23 HP and Over, below 25 HP, All Model Years	0.46
Ground Support Equipment	Passenger Stand		0.40
	A/C Tug Narrow Body		0.54
	A/C Tug Wide Body		0.54
	Baggage Tug		0.37
	Belt Loader		0.34
	Bobtail		0.37
	Cargo Loader		0.34
	Cargo Tractor		0.36
	Forklift (GSE)		0.20
	Lift (GSE)		0.34
	Other GSE		0.34
Construction and Industrial Equipment	Cranes		0.29
	Crawler Tractors		0.43
	Excavators		0.38
	Graders		0.41
	Off-Highway Tractors		0.44
	Off-Highway Trucks		0.38
	Other Construction Equipment		0.42
	Pavers		0.42
	Paving Equipment		0.36
	Rollers		0.38
	Rough Terrain Forklifts		0.40
	Rubber Tired Dozers		0.40
	Rubber Tired Loaders		0.36
	Scrapers		0.48
	Skid Steer Loaders		0.37
	Surfacing Equipment		0.30
	Tractors/Loaders/Backhoes		0.37
	Trenchers		0.50
	Aerial Lifts		0.31
	Forklifts		0.20
	Other General Industrial Equipment		0.34
	Other Material Handling Equipment		0.40
	Sweepers/Scrubbers		0.46
Oil and Drill Rigs	Drill Rig (Mobile)		0.50
	Workover Rig (Mobile)		0.50
	Bore/Drill Rigs		0.50

WRD Regional Brackish Water Reclamation Program
Operational Energy Demand

Project		
General Light Industry - Desalter Builsing	167,873	
Project Total Building Energy	**167,873**	**-**
Project Total	**167,873**	**167.87**
Total (including water, see below)	**35,563,484**	**35,563**

Source: California Air Resources Board, CalEEMod, Version 2022.1

Electricity	MWh/yr (Sales)	
Total SCE, 2021	84,218,000	
Project Annual	35,563	
Net Project Annual	35,563	
Percent Net Project of SCE	0.0422%	0.042%

Source: Southern California Edison 2022 Annual Report.
https://s3.amazonaws.com/cms.ipressroom.com/406/files/20232/2022-eix-sce-annual-report.pdf

4.06

Water	Mgal/yr	MWh/yr
Project		
Water Treatment	4073.14	35,395.61
Project Total	**4,073.143**	**35,395.61**

Electricity Intensity Factors	kWh/Mgal
Electricity Factor - Extract	2,066
Electricity Factor - Treat	5,087
Electricity Factor - Distribute/Convey	1,537

Source: California Air Resources Board, CalEEMod, Version 2022.1
Table 4 - https://www.next10.org/sites/default/files/2021-09/Next10-Water-Energy-Report_v2.pdf.

WRD Regional Brackish Water Reclamation Program
Project Energy Analysis
Fuel Usage from VMT

Annual VMT : 33,159 miles/year

Fuel Type:[1]	Gasoline	Diesel
Percent:	89.9%	10.1%
Miles per Gallon Fuel:	26.5	9.0
Annual VMT by Fuel Type (miles):	29,814	3,345
Annual Fuel Usage (gallons):	1,126	372

	Los Angeles County Fuel Consumption [3]	
	Gasoline	Diesel
Los Angeles County:	3,061,000,000	474,576,271
Mobile	1,138	372
Project Total	1,138	372
Net Project Total	1,138	372
Percent Net Project of Los Angeles County:	0.00004%	0.00008%

Notes:

1. California Air Resources Board, EMFAC2021 (LA County; Annual; 2024', Aggregate Fleet).
2. Assumes electric vehicles would replace traditional gasoline-fueled vehicles.
3. California Energy Commission, California Retail Fuel Outlet Annual Reporting (CEC-A15) Results, 2019. Available at: https://ww2.energy.ca.gov/almanac/transportation_data/gasoline/piira_retail_survey.html. Accessed May 2021. Diesel is adjusted to account for retail (48%) and non-retail (52%) diesel sales.

Retail Gasoline Sales by County

County	2010		2011		2012[#]		2013[#]		2014[#]		2015[#]		2016[#]		2017#		2018#		2019#	
	2012[A] Survey Responses (Millions of	2012[A] Estimated Totals (Millions of Gallons)	2013[A] Survey Responses (Millions of	2013[A] Estimated Totals (Millions of Gallons)	2014[A] Survey Responses (Millions of	2014[A] Estimated Totals (Millions of Gallons)	2015[A] Survey Responses (Millions of	2015[A] Estimated Totals (Millions of Gallons)	2016[A] Survey Responses (Millions of	2016[A] Estimated Totals (Millions of Gallons)	2017[A] Survey Responses (Millions of	2017[A] Estimated Totals (Millions of Gallons)	2018[A] Survey Responses (Millions of	2018[A] Estimated Totals (Millions of Gallons)	2019[A] Survey Responses (Millions of	2019[A] Estimated Totals (Millions of Gallons)	2020[A] Survey Responses (Millions of	2020[A] Estimated Totals (Millions of Gallons)	2021[A] Survey Responses (Millions of Gallons)	2021[A] Estimated Totals (Millions of Gallons)
Alameda	480	568	473	603	341	491	432	542	518	582	521	583	495	569	505	591	400	442	393	492
Amador	12	14	10	12	11	15	10	13	12	14	13	15	14	17	16	18	12	13	11	14
Butte	66	78	64	81	59	85	62	78	74	83	78	87	75	86	62	78	58	68	58	74
Calaveras	10	12	10	13	10	14	11	14	13	15	14	15	13	15	14	15	14	15	11	13
Colusa	8	10	10	13	7	10	7	9	10	11	11	12	11	13	11	13	12	15	11	16
Contra Costa	354	419	331	422	272	392	303	380	384	431	385	430	346	397	374	427	304	336	304	374
Del Norte	6	7	4	5	5	7	5	6	6	7	6	7	6	7	4	6	5	5	4	5
El Dorado	64	75	56	72	36	52	65	81	72	81	73	82	66	76	64	74	58	62	52	65
Fresno	288	341	269	344	209	300	264	331	318	358	328	367	320	368	306	376	296	347	294	387
Glenn	11	12	11	14	11	16	13	16	15	17	17	18	15	17	14	18	13	15	14	17
Humboldt	45	53	51	64	31	44	47	59	54	61	49	55	51	58	42	53	51	56	47	52
Imperial	46	54	46	58	58	83	63	79	77	86	74	83	78	89	73	86	59	64	56	74
Inyo	13	16	12	16	12	17	14	18	16	18	16	18	16	18	14	17	14	16	14	15
Kern	301	356	287	367	267	384	299	375	362	407	349	390	345	396	340	392	318	364	331	406
Kings	40	47	38	49	31	45	41	51	50	57	54	60	52	60	67	76	49	52	42	58
Lake	17	20	19	24	17	25	19	23	19	21	19	21	20	23	18	24	17	20	17	20
Lassen	5	6	5	6	6	8	7	9	7	8	5	6	4	5	5	7	6	6	7	7
Los Angeles	2,916	3,451	2,700	3,445	2,606	3,749	2,762	3,465	3,184	3,577	3,272	3,659	3,169	3,638	3,189	3,559	2,513	2,770	2,700	3,061
Madera	44	53	43	54	31	45	35	44	52	59	56	62	49	57	44	62	45	63	53	71
Marin	91	107	83	106	52	75	83	105	91	102	90	101	71	82	86	96	72	77	66	88
Mariposa	5	6	4	5	6	9	5	6	7	8	5	6	6	7	7	8	4	5	6	7
Mendocino	36	43	33	42	28	40	32	40	37	42	34	38	35	40	27	44	35	37	33	39
Merced	78	92	74	94	58	83	84	105	101	114	105	117	115	132	100	119	91	106	90	122
Mono	2	2	6	8	6	8	6	7	7	8	5	5	6	7	7	8	6	7	5	6
Monterey	124	147	139	177	87	126	147	184	157	177	155	174	157	181	148	174	123	141	116	162
Napa	49	58	41	52	27	39	50	63	50	57	47	53	53	61	54	57	40	44	42	47
Nevada	29	34	19	25	19	27	31	40	36	40	35	39	33	38	29	39	31	36	28	35
Orange	1,145	1,355	1,044	1,332	1,018	1,465	1,092	1,370	1,224	1,375	1,236	1,382	1,222	1,402	1,198	1,325	943	1,029	1,037	1,159
Placer	162	192	131	167	118	170	167	209	181	204	182	203	179	206	177	198	150	163	160	178
Plumas	6	7	3	4	5	8	5	7	5	5	5	6	5	6	5	6	5	6	4	7
Riverside	756	895	725	925	702	1,010	828	1,039	921	1,035	941	1,052	916	1,052	921	1,046	799	876	847	981
Sacramento	473	560	446	568	308	442	465	584	534	600	535	599	511	586	536	600	475	689	448	557
San Benito	17	20	5	7	10	14	12	15	15	17	18	20	15	17	12	21	10	18	11	17
San Bernardino	742	878	697	889	659	948	725	909	899	1,010	888	993	862	990	851	977	757	823	786	926
San Diego	1,079	1,277	972	1,241	940	1,352	1,123	1,408	1,221	1,372	1,231	1,377	1,208	1,387	1,197	1,325	973	1,055	964	1,165
San Francisco	126	149	126	161	71	102	107	134	119	134	120	134	105	120	107	118	76	91	82	99
San Joaquin	253	299	254	325	217	312	287	360	303	340	310	347	293	336	289	352	255	292	265	321
San Luis Obispo	105	124	109	140	101	145	117	147	127	142	127	142	131	150	125	138	103	115	101	125
San Mateo	258	306	244	311	159	229	243	304	289	325	291	326	264	304	293	322	215	238	217	269
Santa Barbara	140	166	135	172	124	178	148	186	161	181	152	170	167	191	166	177	136	146	148	168
Santa Clara	589	697	546	696	460	661	580	727	638	717	613	685	560	643	614	713	446	511	488	599
Santa Cruz	89	105	79	101	53	77	77	96	85	95	84	94	78	90	72	90	69	74	64	88
Shasta	77	91	65	83	55	79	76	95	73	82	83	92	76	87	72	82	68	76	67	79
Siskiyou	19	23	9	12	10	14	21	27	24	27	26	29	25	28	26	27	22	25	19	28
Solano	180	213	158	202	116	167	160	201	187	210	194	217	188	216	182	216	155	180	161	196
Sonoma	160	189	163	208	146	210	160	201	186	209	186	208	167	192	169	204	146	167	159	181
Stanislaus	173	205	144	183	159	229	201	252	217	244	227	253	212	244	196	245	178	197	205	243
Sutter	34	40	33	42	17	24	30	38	35	39	35	39	35	40	27	38	28	30	30	34
Tehama	23	27	19	24	18	26	24	30	25	29	26	29	27	31	28	30	25	26	25	30
Trinity	1	2	3	4	3	4	3	4	4	5	4	5	4	4	2	4	3	4	3	4
Tulare	120	142	91	116	107	155	114	143	136	152	149	167	147	168	144	174	126	149	138	181
Tuolumne	15	18	12	15	14	21	18	23	21	23	22	25	22	25	21	23	19	20	17	19
Ventura	262	310	246	314	249	358	256	321	294	330	302	338	298	342	297	329	242	262	255	294
Yolo	74	87	75	96	63	90	82	103	98	110	101	113	96	110	97	114	76	91	83	101
Yuba	22	26	23	30	14	20	24	30	32	36	30	34	40	46	27	32	26	35	28	40
Other Counties[*]	1	2	1	1	1	2	2	2	2	2	2	2	1	1	2	2	2	2	1	2
Total	**12,241**	**14,486**	**11,396**	**14,540**	**10,220**	**14,701**	**12,044**	**15,108**	**13,785**	**15,491**	**13,936**	**15,584**	**13,475**	**15,471**	**13,473**	**15,365**	**11,174**	**12,572**	**11,618**	**13,818**

[A] 2012 to 2021 data are not directly comparable to other years since an improved methodology is used, but is within 5 percent compared to the previous methodology.

[*] Other Counties include Alpine, Modoc and Sierra.

Source: California Energy Commission, California Annual Retail Fuel Outlet Report Results (CEC-A15), 2010-2021https://www.energy.ca.gov/media/3874

Retail Diesel Sales by County

(Millions of Gallons)

County	2012[A] Survey Responses (Millions of Gallons)	2012[A] Estimated Totals (Millions of Gallons)	2013[A] Survey Responses (Millions of Gallons)	2013[A] Estimated Totals (Millions of Gallons)	2014[A] Survey Responses (Millions of Gallons)	2014[A] Estimated Totals (Millions of Gallons)	2015[A] Survey Responses (Millions of Gallons)	2015[A] Estimated Totals (Millions of Gallons)	2016[A] Survey Responses (Millions of Gallons)	2016[A] Estimated Totals (Millions of Gallons)	2017[A] Survey Responses (Millions of Gallons)	2017[A] Estimated Totals (Millions of Gallons)	2018[A] Survey Responses (Millions of Gallons)	2018[A] Estimated Totals (Millions of Gallons)	2019[A] Survey Responses (Millions of Gallons)	2019[A] Estimated Totals (Millions of Gallons)	2020[A] Survey Responses (Millions of Gallons)	2020[A] Estimated Totals (Millions of Gallons)	2021[A] Survey Responses (Millions of Gallons)	2021[A] Estimated Totals (Millions of Gallons)
Alameda	30	36	27	34	19	27	38	49	47	54	51	58	56	62	48	55	47	51	50	53
Amador	2	2	1	2	1	2	1	2	2	2	2	2	2	3	3	3	2	2	2	3
Butte	7	9	8	10	8	10	9	11	11	13	11	13	12	13	12	15	10	11	11	13
Calaveras	2	2	1	2	1	2	2	2	3	3	3	3	2	3	3	3	3	3	2	3
Colusa	4	5	4	5	2	2	3	4	4	4	2	3	4	4	7	7	10	11	8	11
Contra Costa	17	20	17	21	12	17	19	24	23	26	24	28	31	34	24	27	22	23	22	28
Del Norte	1	1	1	1	1	1	1	2	2	2	2	2	2	2	1	2	1	2	1	1
El Dorado	6	7	5	6	4	6	7	9	8	9	8	10	8	9	8	10	8	8	8	11
Fresno	33	40	23	29	18	25	39	50	40	46	40	45	46	51	39	49	62	66	52	91
Glenn	4	5	4	5	4	5	5	6	12	14	16	19	16	17	18	19	17	18	16	17
Humboldt	10	12	11	14	4	5	10	13	13	14	8	9	7	8	6	7	6	6	9	10
Imperial	7	8	8	10	8	11	9	11	14	16	11	12	20	22	21	25	22	24	27	27
Inyo	2	2	3	4	3	3	3	4	3	4	3	4	3	3	3	4	3	4	3	3
Kern	133	158	118	148	124	171	125	160	131	149	107	121	97	108	96	105	108	116	116	137
Kings	7	9	5	6	4	6	7	9	5	6	7	7	8	9	8	9	7	7	6	10
Lake	2	2	2	3	2	3	3	3	1	1	3	3	3	4	3	4	3	4	3	4
Lassen	1	1	1	1	1	2	3	3	4	4	1	1	1	1	1	2	1	1	2	2
Los Angeles	205	245	190	239	194	267	257	328	273	309	267	301	228	253	246	276	279	299	206	224
Madera	24	28	18	23	22	31	26	33	28	31	29	33	28	31	23	24	30	32	36	37
Marin	3	3	2	3	2	2	2	3	4	4	4	4	3	3	4	4	4	4	4	5
Mariposa	1	1	-	1	2	2	1	1	1	2	1	1	1	1	1	1	1	1	1	2
Mendocino	7	9	6	6	4	5	6	7	9	10	6	6	5	6	5	8	9	9	6	10
Merced	46	55	49	62	49	68	54	69	59	66	38	42	35	39	28	36	28	30	28	33
Mono	-	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Monterey	25	30	22	27	13	18	23	29	24	28	24	27	24	26	23	26	21	22	20	27
Napa	6	7	2	3	2	3	6	8	6	7	6	7	6	7	6	7	6	6	6	6
Nevada	4	4	1	2	4	6	7	8	8	9	8	9	7	8	5	8	7	8	6	8
Orange	38	46	33	42	37	51	46	59	52	59	54	61	49	55	51	56	49	53	43	46
Placer	12	15	9	12	10	13	13	16	15	17	15	17	16	17	16	17	32	35	18	20
Plumas	1	1	1	1	1	1	1	1	1	1	1	2	1	1	1	1	1	1	1	2
Riverside	89	107	86	109	100	138	119	152	128	145	131	148	119	132	108	122	134	144	138	146
Sacramento	27	32	18	21	21	29	28	36	38	42	42	48	41	45	37	41	41	44	40	45
San Bernardino	158	189	164	206	152	210	198	253	223	252	235	265	176	195	165	178	148	159	184	198
San Diego	62	74	58	73	67	93	87	111	93	105	92	103	92	103	94	110	88	94	93	117
San Francisco	3	4	4	5	1	2	5	6	6	6	5	6	5	5	5	5	4	4	4	5
San Joaquin	84	99	90	113	86	119	102	131	116	131	111	126	105	117	101	113	86	93	94	97
San Luis Obispo	11	13	9	12	12	17	19	24	20	23	19	21	20	22	20	22	19	20	17	22
San Mateo	8	10	8	10	4	6	15	19	13	14	15	17	16	17	18	19	12	13	13	16
Santa Barbara	10	13	12	15	13	18	20	26	22	25	17	19	21	24	18	19	16	17	16	17
Santa Clara	27	32	28	35	25	35	36	47	30	34	32	36	43	48	33	42	32	35	31	50
Santa Cruz	4	5	4	6	2	3	5	6	5	6	6	6	6	7	4	6	7	8	6	7
Shasta	16	19	18	22	13	18	21	27	21	24	22	25	21	24	14	16	13	14	20	22
Siskiyou	16	20	15	19	16	20	20	26	19	22	18	21	16	17	16	17	17	18	16	18
Solano	14	16	14	17	8	11	14	18	17	19	22	24	23	25	24	27	25	27	19	30
Sonoma	13	16	14	18	12	17	15	20	20	23	20	23	20	22	28	32	28	30	26	30
Stanislaus	25	30	15	19	20	27	26	33	20	22	30	34	32	36	33	35	36	39	44	49
Sutter	3	4	4	5	2	3	4	5	5	6	3	4	4	5	5	6	5	5	4	4
Tehama	35	42	37	47	25	35	37	48	35	39	34	38	18	20	17	18	7	8	14	17
Tulare	27	32	31	39	31	43	34	43	37	42	37	41	31	34	42	45	47	51	54	66
Tuolumne	1	2	2	2	2	2	2	3	2	3	3	3	3	3	3	3	3	3	3	4
Ventura	23	27	23	29	25	34	27	34	29	32	32	36	30	33	33	35	29	32	31	35
Yolo	27	33	30	37	29	40	27	35	32	37	27	30	25	28	24	26	21	22	24	28
Yuba	3	4	3	4	2	3	2	3	4	5	8	9	11	12	4	5	4	4	4	12
Other Counties*	1	2	1	1	1	2	2	2	3	3	3	3	2	2	2	3	2	2	2	3
Total	**1,327**	**1,589**	**1,261**	**1,587**	**1,226**	**1,691**	**1,592**	**2,033**	**1,742**	**1,971**	**1,717**	**1,937**	**1,602**	**1,777**	**1,559**	**1,756**	**1,624**	**1,744**	**1,611**	**1,883**

[A] - 2012 to 2021 data are not directly comparable to other years since an improved methodology is used, but is within 5 percent compared to the previous methodology.

* Other Counties include Alpine, Modoc, San Benito, Sierra and Trinity.

Note: Non-Retail diesel sales, which comprise approximately 52.8% of all diesel sales, are not reported in this chart.

Source: California Energy Commission, California Annual Retail Fuel Outlet Report Results (CEC-A15), 2010-2021https://www.energy.ca.gov/media/3874

Row Labels	Sum of Population	Sum of CVMT	Sum of EVMT
2021	**49.01%**	**270,686,615**	**6,550,614**
Gasoline	94.14%	254,817,900	-
Diesel	3.00%	13,005,773	-
Electricity	1.57%	-	4,769,720
Natural Gas	0.16%	858,321	-
Plug-in Hybrid	1.13%	2,004,620	1,780,894
2028	**50.99%**	**271,877,412**	**17,970,454**
Gasoline	89.91%	252,592,445	-
Diesel	3.51%	15,288,211	-
Electricity	4.28%	-	14,207,311
Natural Gas	0.18%	904,637	-
Plug-in Hybrid	2.11%	3,092,118	3,763,143
Grand Total	**100.00%**	**542,564,026**	**24,521,068**

Sum of Fuel Consumption	MPG
12,944	
11,038	23.09
1,616	8.05
-	#DIV/0!
217	3.96
73	51.68
11,565	
9,542	26.47
1,702	8.98
-	#DIV/0!
208	4.35
113	60.63
24,509	

WRD Regional Brackish Water Reclamation Program - Water GHG Emissions

Project Info:

Total Brackish Water Processed (30yrs):	375,000	acre feet
Yearly Brackish Groundwater Processed:	12,500	Acre feet per year
Yearly gallons of water processed:	4,073,142,857	Gallons

Project GHG Emissions

Project Treatment (Mgal/year)	Extract (kWh/year)	Treat (kWh/year)	Convey (kWh/year)	Total kWh/year	Project GHG Emissions (CO2e lbs/year)	Project GHG Emissions MTCO2e
4073	8,416,661	20,720,078	6,260,421	35,397,159	12,255,537.20	**6,127.8**

Factors:

Electricity Intensity Factor for Water Processes (kWh/Mgal)[1]

Extract	Treat[3]	Convey
2,066	5,087	1,537

SCE 2026 GHG Intensity Factors (lb/MWh)[2]

CO2	CH4	N2O
346.196	0.033	0.0004

1 acre feet	325851	gallons

Source:

1. CalEEMod2022, Table G-32.
2. CalEEMod2022, Forecasted SCE 2026 GHG factors. Table G-3.
3. The kWh/Mgal electricity intensity factor for ground water pumping and brackish desalination treatment. Table 4 - https://www.next10.org/sites/default/files/2021-09/Next10-Water-Energy-Report_v2.pdf.

Appendix B
Biological Resources Report

ESA

626 Wilshire Boulevard
Suite 1100
Los Angeles, CA 90017
213.599.4300 phone
213.599.4301 fax

esassoc.com

August 22, 2023

Kevin L. Alexander, P.E.
Vice President
Hazen and Sawyer
11260 El Camino Real, Suite 102
San Diego, CA 92130

Subject: Water Replenishment District Torrance Desalter Expansion Project Biological Technical Letter Report

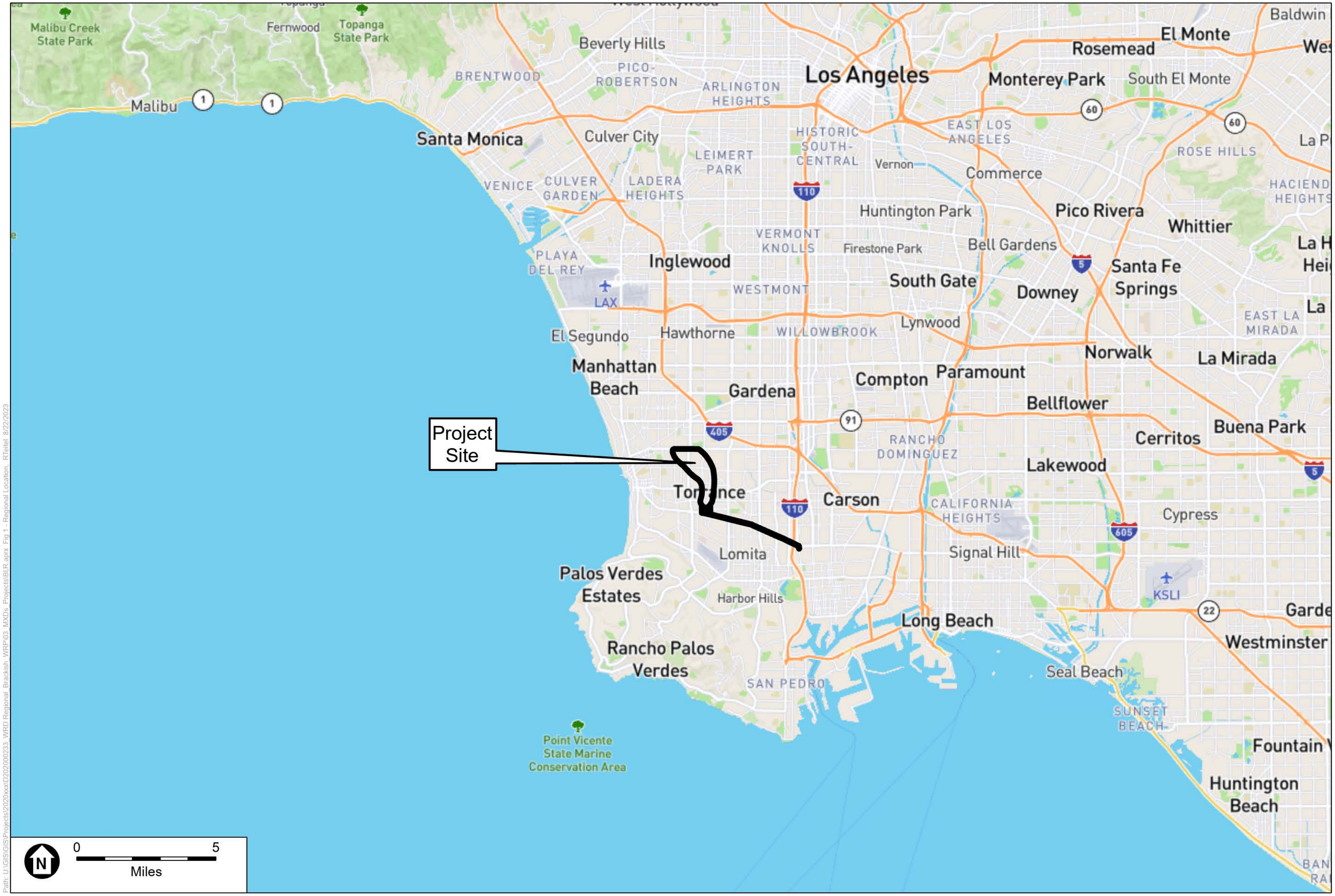
Dear Mr. Alexander:

This letter report documents the findings of a biological resources assessment (assessment) conducted by Environmental Science Associates (ESA) for the Water Replenishment District of Southern California (WRD) Torrance Desalter Expansion Project (proposed project). This report provides an overview of the proposed project activities, the survey methodology implemented during the assessment, the applicable regulatory framework, existing conditions, sensitive biological resources that have the potential to occur within the project area, conclusions and impact assessments, and recommended avoidance and minimization measures.

Project Location/Survey Area

The project location is located within WRD's service area in southwestern Los Angeles County (**Figure 1, Regional Location**). The program is situated within the West Coast Basin and overlies the saline plume, which are shown on **Figure 2, Proposed Project Facilities**. The proposed infrastructure associated with the project would be located within the cities of Torrance, Los Angeles, Carson, and portions of unincorporated Los Angeles County.

The potential extraction well implementation area encompasses all proposed project components, except for the proposed brine disposal pipeline, which extends farther south along Madrona Avenue and Maple Avenue, continues southeast along Sepulveda Boulevard and ends just after the I-110 Harbor Freeway. For the purpose of this analysis, a preliminary Proposed Action Area has been determined and consists of the Potential Extraction Well Implementation Area and the proposed pipelines shown on Figure 2, which includes the components discussed below. However, it is assumed a more limited Action Area will be developed later during the planning process. The approximately 1,006-acre survey area included a 100-foot buffer around the Proposed Action Area (no buffer was included along the proposed brine disposal pipeline). The survey area is bounded by 190th Street to the north, Anza Avenue to the west, Sepulveda Boulevard to the south, and the I-110 Harbor Freeway to the east. The survey area falls within the U.S. Geological Survey (USGS) Winchester 7.5-minute Torrance quadrangle in Township 4 South, Range 14 West, unsectioned - San Bernardino Principal Meridian.

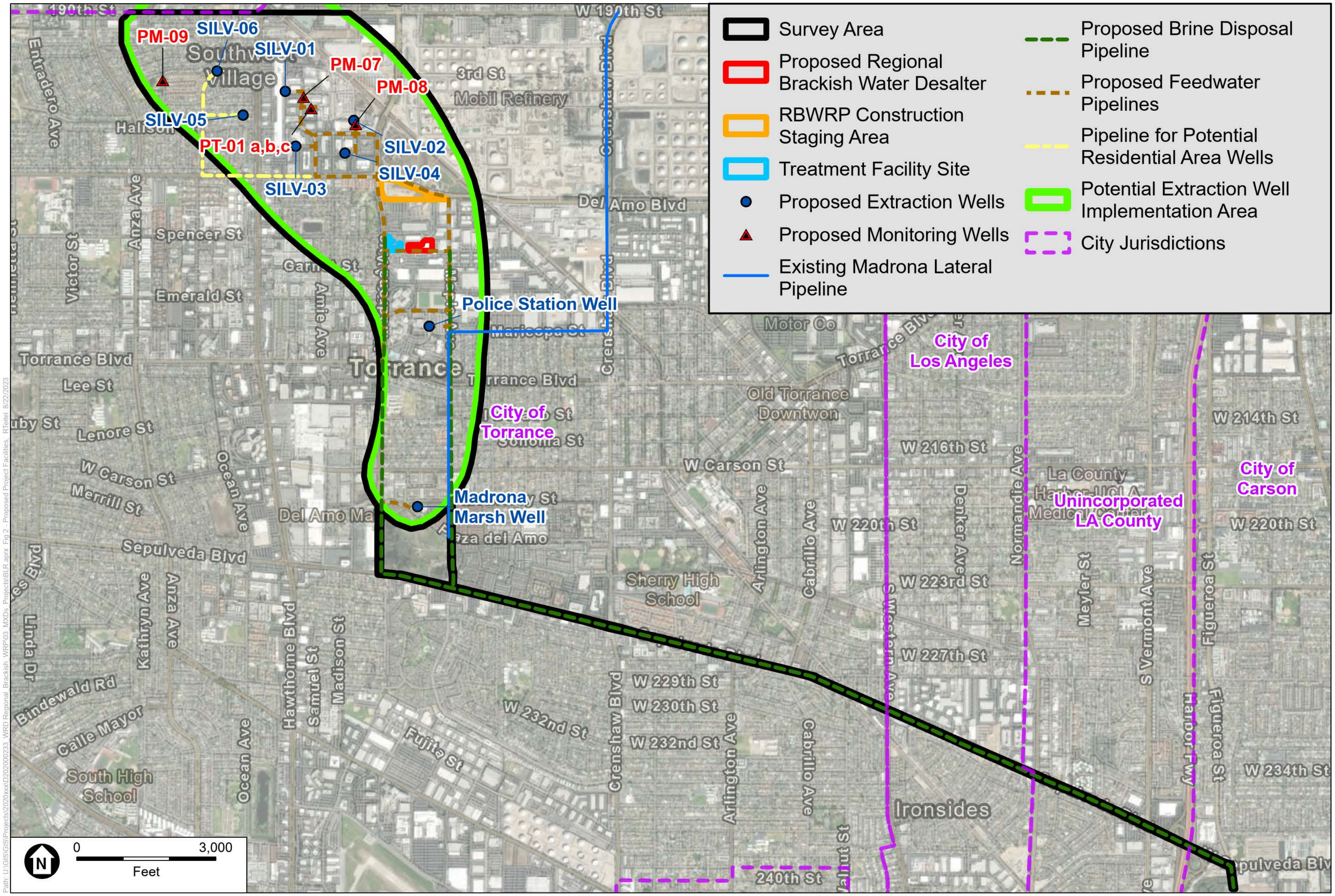


SOURCE: Mapbox; ESA, 2023

Water Replenishment District Torrance Groundwater Desalter Expansion Project

Figure 1
Regional Location

ESA



SOURCE: City of Torrance; ESA, 2023

Water Replenishment District Torrance Groundwater Desalter Expansion Project

Figure 2
Proposed Project Facilities

ESA

Project Description

WRD is the lead agency pursuant to the California Environmental Quality Act (CEQA) and is responsible for managing and replenishing both the West Coast and Central groundwater basins in southwestern Los Angeles County. In the West Coast Basin, a significant plume of saline groundwater has been trapped in the Gage, Silverado, and Lower San Pedro aquifers. To remediate the trapped saline plume, WRD has initiated the proposed project, which will extract, convey, and treat the groundwater so that it can be put to beneficial use.

WRD anticipates receiving federal funding for the proposed project, including Title XVI/WaterSMART grants from the U.S. Bureau of Reclamation (USBR). As a result, this document has been prepared to include information USBR will need to comply with the federal Endangered Species Act (FESA).

The Proposed Action involves the following components (as shown on Figure 2):

2. **Extraction Wells**: Installation of 8 new extraction wells (SILV-01, -02, -03, -04, -05, -06, the police station well, and the Madrona Marsh well). Preliminary locations are shown in Figure 2; however, final extraction well locations will be selected based on results of the plume characterization study.
3. **Monitoring wells**: Approximately four 5-nested groundwater monitoring wells (PM-07, -08, -09, and PT-01 a,b,c) will be constructed. The nested monitoring wells will consist of approximately five 2.5-inch-diameter polyvinyl chloride casing well casings installed in a single boring to a proposed total depth of 700 feet below ground surface).
4. **Pipelines**: The proposed project would require a series of underground pipelines to convey brackish water from the new extraction wells to the proposed Regional Brackish Groundwater Desalter, treated water to the City of Torrance, and brine waste from the proposed Regional Brackish Groundwater Desalter to the Los Angeles County Sanitation District's (LACSD's) Joint Water Pollution Control Plant. Necessary pipelines would include feedwater, product water, and brine disposal pipelines.
5. **Regional Brackish Water Desalter**: The proposed treatment facilities would be installed at a new Regional Brackish Water Desalter located within the existing City of Torrance Public Works Yard adjacent to the Goldsworthy Desalter, which is operated by the City of Torrance.
6. **Treatment Facility Site**: **[Kevin, Please insert details here]**
7. **Staging Areas**: Staging areas would be located within the proposed Regional Brackish Water Desalter property boundaries. Off-site construction staging areas may also be needed, and would be used for pipe lay-down, soil stockpiling, and equipment storage. A potential off-site staging area would be located at the southeast corner of Del Amo Boulevard and Madrona Avenue on a parcel owned by the City of Torrance.

Methodology

Literature Review

Prior to the biological field survey, ESA conducted a query of the following resource inventory databases to analyze the potential for sensitive resources to occur within the survey area:

- California Department of Fish and Wildlife (CDFW). 2023a. California Sensitive Natural Communities List. Sacramento, CA: CDFW, Natural Heritage Division, July 5, 2022. Accessed March 10, 2023. https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=153609&inline.
- California Department of Fish and Wildlife (CDFW). 2023b. California Natural Diversity Data Base (CNDDB). Database was queried for special-status species records in the Torrance USGS 7.5-minute quadrangle and six surrounding quadrangles including Venice, Inglewood, South Gate, Redondo Beach, Long Beach, and San Pedro. Accessed March 13, 2023.
- California Native Plant Society (CNPS). 2023b. Inventory of Rare and Endangered Vascular Plants of California. Database was queried for special-status species records in the Torrance USGS 7.5-minute quadrangle and six surrounding quadrangles including Venice, Inglewood, South Gate, Redondo Beach, Long Beach, and San Pedro. Accessed March 13, 2023.
- U.S. Fish and Wildlife Service (USFWS). 2023a. Critical Habitat Portal. Accessed March 10, 2023. https://fws.maps.arcgis.com/home/webmap/viewer.html?webmap=9d8de5e265 ad4fe09893cf75b8dbfb77.
- U.S. Fish and Wildlife Service (USFWS). 2023b. IPaC – Information for Planning and Consultation. Accessed March 20, 2023. https://ecos.fws.gov/ipac/.

Biological Resources Assessment

The biological resources assessment was conducted in the field by ESA biologists Sonya Vargas and Amanda French on March 2, 2023, within the survey area. Prior to fieldwork, the assessment began with a desktop analysis to identify key biological areas to survey in the field. Areas outside of key biological areas were labeled using appropriate land cover/land use types based on visual interpretation of aerial photography.[1] Key biological areas surveyed on foot included open space areas with natural habitat. Areas not accessible by foot were surveyed from public vantage points. In addition, all proposed well locations were surveyed, and drive-by observations for the proposed pipeline alignment along Sepulveda Avenue were recorded. Access was mainly possible in open, urban areas and was not possible for two project components (police station well and staging area), as discussed later in this report. In addition, a large patch of habitat north of Del Amo Boulevard and east of Prairie Avenue and four sumps were not accessible.

The assessment consisted of walking transects throughout the accessible key biological areas to characterize and map plant communities and land use, and to determine the potential for special-status plants and wildlife to occur.

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1 Maxar – Vivid Advanced, March 12, 2022.

All incidental, visual observations of flora and fauna, including sign (i.e., presence of scat) as well as any audible detections, were noted during the site visit and are described in further detail below.

A focused rare plant survey was conducted concurrently with the biological resources assessment within the survey area, where access was permitted. The rare plant survey was conducted at the appropriate time of year for the special-status plant species that have the potential to occur within the survey area. The survey was conducted in accordance with the *Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Sensitive Natural Communities* (CDFW 2018). The results of the focused rare plant survey have been incorporated into this report. It should be noted that ongoing restoration activities are known to occur within Madrona Marsh, which may include planting special-status species.

Natural communities and land use were mapped and quantified within the survey area using ArcGIS software. Plant taxonomy followed Hickman (1993), as updated in *The Jepson Manual: Vascular Plants of California, Second Edition* (Baldwin et al. 2012), and plant community descriptions were characterized using *A Manual of California Vegetation* (Sawyer et al. 2009). Plant communities, land uses, and habitats not identified within the manuals were characterized based on species dominance. Representative photographs were taken during the field assessment and are provided in **Appendix A, Representative Photographs**.

Regulatory Framework

Federal and State Endangered Species Acts

FESA provides guidance for conserving federally listed species and the ecosystems upon which they depend. Section 9 of the FESA and its implementing regulations prohibit the "take" of any federally listed endangered or threatened plant or animal species, unless otherwise authorized by federal regulations. Take includes the destruction of a listed species' habitat. Section 9 also prohibits several specified activities with respect to endangered and threatened plants.

The California Endangered Species Act (CESA) mandates that state agencies do not approve a project that would jeopardize the continued existence of species if reasonable and prudent alternatives are available that would avoid a jeopardy finding. CESA also prohibits the take of any fish, wildlife, or plant species listed as endangered or threatened, or designated as candidates for listing, under CESA. Similar to the FESA, CESA contains a procedure for the CDFW to issue an incidental take permit authorizing the take of listed and candidate species incidental to an otherwise lawful activity, subject to specified conditions.

Migratory Bird Treaty Act

The Migratory Bird Treaty Act (MBTA) prohibits the take of native, protected migratory birds "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 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.

Clean Water Act

In accordance with Section 404 of the Clean Water Act (CWA), the United States Army Corps of Engineers (USACE) regulates discharge of dredged or fill material into waters of the U.S. Waters of the U.S. and their lateral limits are defined in 33 CFR 328.3(a) and includes navigable waters of the U.S. (Traditional Navigable Waters, the territorial seas, and Interstate waters and wetlands), certain impoundments, certain tributaries to any of these waters, certain wetlands adjacent to any of these waters, and certain Intrastate lakes and ponds, streams, or wetlands. Any activity resulting in the placement of "fill" material within waters of the U.S. may require a permit from USACE; *fill* is defined as any material that replaces any portion of a water of the U.S. with dry land or that changes the bottom elevation of any portion of a water of the U.S. In accordance with Section 401 of the CWA, applicants that apply for a Section 404 permit for discharge of dredged or fill material must obtain water quality certification from the Regional Water Quality Control Board (RWQCB).

Native Plant Protection Act

The Native Plant Protection Act (NPPA) includes measures to preserve, protect, and enhance rare and endangered native plants. The list of native plants afforded protection pursuant to the NPPA includes those listed as rare and endangered under the CESA. The NPPA provides limitations on take as follows: "No person will import into this state, or take, possess, or sell within this state" any rare or endangered native plant, except in compliance with provisions of the act. Individual landowners are required to notify the CDFW at least 10 days in advance of changing land use to allow the CDFW to salvage any rare or endangered native plant material.

Section 15380 of the California Environmental Quality Act Guidelines

Although threatened and endangered species are protected by specific federal and state statutes, CEQA Guidelines Section 15380(b) provides that a species not listed on the federal or state list of protected species may be considered rare or endangered if the species can be shown to meet certain specified criteria. These criteria have been modeled after the definition in FESA and the section of the California Fish and Game Code (i.e., CESA) dealing with rare or endangered plants or animals. This section was included in CEQA primarily to deal with situations in which a public agency must review a project that may have a significant effect on, for example, a species that has not been formally listed by either USFWS or CDFW; CEQA provides such an agency with the ability to protect the non-listed species from the potential impacts of a project. CEQA also calls for the protection of other significant resources, such as certain natural communities, for example, as well as an assessment of whether they would be affected and requires findings of significance regarding potential losses.

Sections 3503 and 3513 of the California Fish and Game Code

Section 3503 of the Fish and Game Code (FGC) prohibits the killing of birds or the destruction of bird nests. Birds of prey are protected under Section 3503.5 of the FGC, which provides that it is “unlawful to take, possess, or destroy any birds in the order Falconiformes or Strigiformes (birds of prey) or to take, possess, or destroy the nest or eggs of any such bird except as otherwise provided by this code or any regulation adopted pursuant thereto.” Section 3513 of the FGC prohibits any take or possession of birds that are designated by the MBTA as migratory nongame birds except as allowed by federal rules and regulations promulgated pursuant to the MBTA. Migratory birds include all native birds in the United States, except those non-migratory game species, such as quail and turkey, which are managed by individual states.

Section 1602 of the California Fish and Game Code

Section 1602 of the FGC requires submittal of a Notification of Lake or Streambed Alteration for any activity that may alter the bed and/or bank of a lake, stream, river, or channel. Typical activities that require a Streambed Alteration Agreement may include, but are not limited to, excavation or “fill” placed within a channel, vegetation clearing, installation of culverts and bridge supports, and bank reinforcement.

Los Angeles County Significant Ecological Areas

The Madrona Marsh was established as a permanent ecological preserve in 1986. It is maintained as a natural preserve, which was dedicated to the city, but it is now smaller than the original Significant Ecological Area due to the Park Del Amo planned development (City of Torrance 2010). However, because the Madrona Marsh is located within the incorporated city, the Significant Ecological Area Ordinance does not apply.

City of Torrance Wildlife Habitat Objectives and Policies

Objective CR.16 of the City of Torrance General Plan calls for the preservation of unique and beneficial wildlife habitat in Torrance (City of Torrance 2010). This includes Policy CR.16.1, “Maintain the Madrona Marsh Nature Preserve for the enjoyment and education of present and future generations” and Policy CR.16.2, “Support the dual use of drainage detention and retention basins for open space, recreation, and/or wildlife habitat communities, and increased groundwater recharge as long as the secondary use does not conflict or interfere with the operation and maintenance of the primary function of flood control and drainage.”

City of Torrance Street Tree Policy

City of Torrance General Plan Objective CR. 18.1 specifies that specimen trees will be preserved whether they occur on public or private property (City of Torrance 2010). In addition, the City’s street tree policy established special designated areas for street trees that will be protected and preserved; two of these special designated areas fall within the survey area: Carson Street—between Maple Avenue and Crenshaw Boulevard (for *Eucalyptus* *ciminalis* – Manna Gum) and Torrance Boulevard—between Madrona Avenue and Madrid Avenue (for *Eucalyptus camaldulensis* – Red Gum).

City of Los Angeles Open Space Plan

The City of Los Angeles Open Space Plan—specifically the Open Space and Conservation Chapter 6 Objective 6.2, Policy 6.2.1(b) and Resource Development Objective 6.5—and the subsequent policies as outlined in the General Plan Framework Element (LACPD 1996) outline the establishment of open space systems in local neighborhoods and communities.

City of Los Angeles Tree Protection Ordinance

Per City of Los Angeles 2020 Ordinance No. 186873, Section 1. Subdivision 12 of Subsection A of Section 12.21 of the Los Angeles Municipal Code: 12. Protected Tree and Shrub Relocation and Replacement. All existing protected trees and shrubs and relocation and replacement trees and shrubs specified by the Advisory Agency in accordance with Sections 17.02, 17.05, 17.06, 17.51, and 17.52 of this Code shall be indicated on a plot plan attached to the building permit issued pursuant to this Code. In addition, the trees or shrubs shall be identified and described by map and documentation as required by the Advisory Agency. A Certificate of Occupancy may be issued by the Department of Building and Safety, provided the owner of the property or authorized person representing the owner of the property (licensed contractor) obtains from the Advisory Agency, in consultation with the City's Chief Forester and prior to the final inspection for the construction, a written or electronic document certifying that all the conditions set forth by the Advisory Agency relative to protected trees have been met. Ordinance 186873 requires that all development be sited and designed to preserve protected tree and shrub species with a cumulative trunk diameter at breast height (DBH) of 4 inches or greater, where feasible. Protected trees include native oaks (*Quercus* species), excluding the scrub oak (*Quercus dumosa*); California (western) sycamore (*Platanus racemosa*); Southern California black walnut (*Juglans californica*); and California bay (*Umbellularia californica*). Protected shrubs include Mexican elderberry (*Sambucus mexicana*) and toyon (*Heteromeles arbutifolia*). The City Planning Division refers to all other private property trees with a cumulative DBH of 8 inches or greater as Significant trees and requires that they be preserved where feasible, as well. Significant trees are not otherwise regulated by the municipal code. Protected trees do not include any tree or shrub grown or held for sale by a licensed nursery, or trees planted or grown as part of a tree planting program.

City of Carson Protective Measures for Trees During Construction

Article III, Chapter 9, Section 3928 of the City of Carson Municipal Code, Protective Measures for Trees During Construction, states that the City Manager or his/her designee shall determine during the project review process whether and to what extent conditions or measures will be required to protect parkway trees during construction. This decision shall be based upon the proximity of the construction activity to parkway trees. “Parkway” means either the area between the curb and sidewalk within a fully improved street right-of-way, or that area extending from the curb toward the nearest parallel easement line in an area with no sidewalk, or any area within a street right-of-way in which a parkway tree is located (City of Cason 2022).

Existing Conditions

Topography and Soils

Topography within the survey area is generally flat, ranging between an elevation of 25 feet above mean sea level (amsl) and 120 feet amsl. A total of four soil types were mapped within the survey area (see **Figure 3, Soils**), Urban Land-Centinela-Typic Xerorthents, fine substratum complex, 0 to 2 percent slopes, Urban Land-Marina complex, 0 to 5 percent slopes, Urban land-Typic Xerorthents, coarse substratum Typic Haploxeralfs complex, 0 to 5 percent slopes, and Urban land-Thums-Windfetch complex, 0 to 2 percent slopes (NRCS 2023). A brief description of each soil type is provided below:

Urban Land-Centinela – Typic Xerorthents, fine substratum complex, 0 to 2 percent slopes

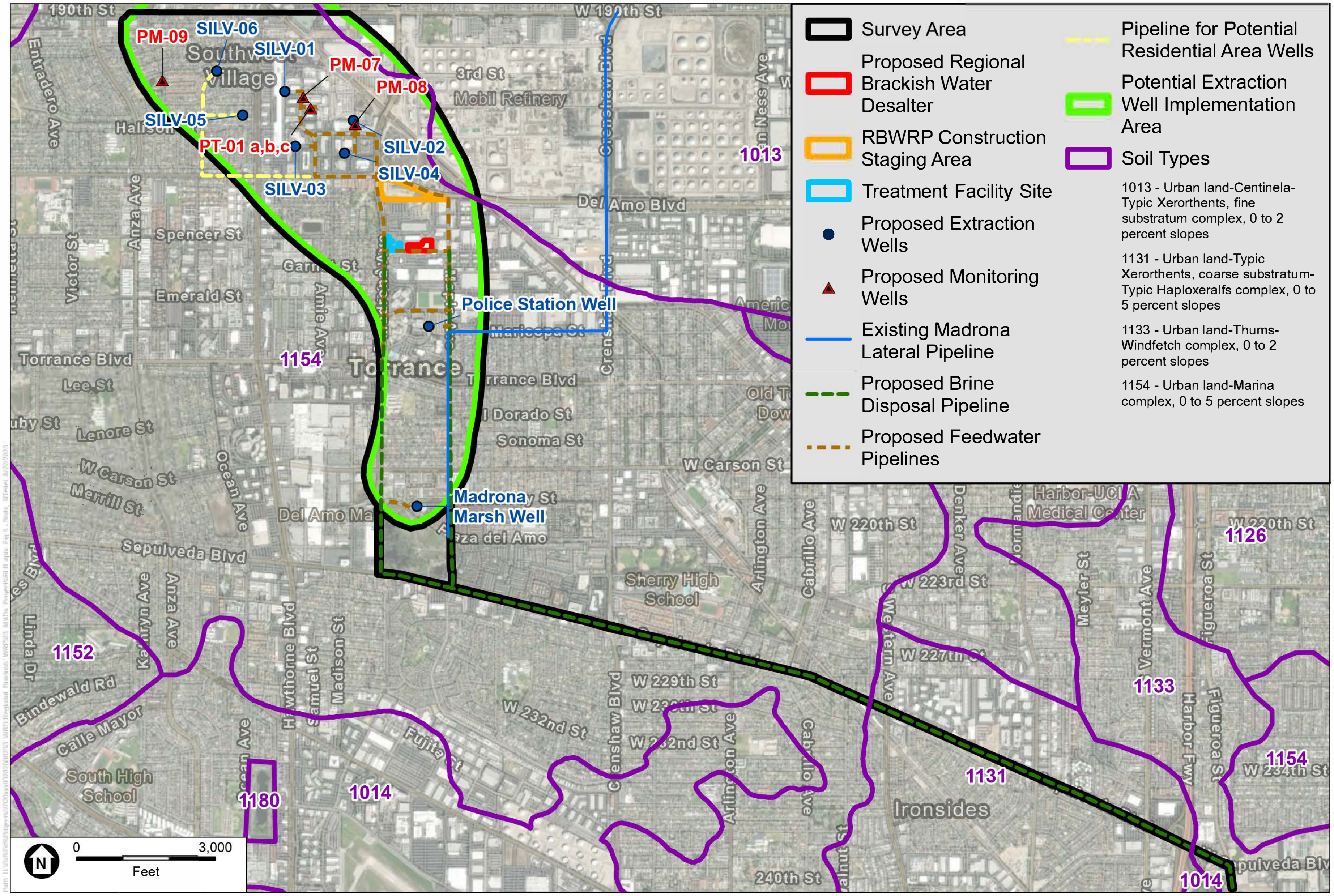
This soil type was mapped in the northeastern border of the survey area. This soil type is composed of 55 percent urban land; 20 percent Centinela and similar soils; 15 percent typic xerorthents, fine substratum, and similar soils; and minor components. Urban land consists of a manufactured layer. The typical profile for Centinela consists of 0 to 17 inches loam, 17 to 55 inches clay, 55 to 79 inches clay loam; it is considered a well-drained soil with more than 80 inches to restrictive layer. The typical profile for typic xerorthents, fine stratum is 0 to 12 inches clay loam, 12 to 28 inches clay, 28 to 37 inches loam, and 37 to 79 inches clay; it is considered a well-drained soil with more than 80 inches to restrictive layer.

Urban Land – Marina complex, 0 to 5 percent slopes

This soil type was mapped within the majority of the survey area. This soil type is composed of 70 percent urban land, 15 percent Marina and similar soils, and 15 percent minor components. It consists of somewhat excessively drained soils consisting of discontinuous human-transported material over eolian sands. Urban land consists of a manufactured layer. The typical soil profile for Marina complex consists of 0 to 6 inches fine sandy loam and 6 to 79 inches loamy sand; it is considered a somewhat excessively drained soil with more than 80 inches to restrictive layer.

Urban Land – Typic Xerorthents, coarse substratum Typic Haploxeralfs complex, 0 to 5 percent slopes

This soil type was mapped along Sepulveda Boulevard between approximately S Western Avenue and the Harbor Freeway. This soil type is composed of 55 percent urban land; 20 percent typic xerorthents, coarse substratum, and similar soils; 15 percent typic haploxeralfs and similar soils; and 10 percent minor components. Urban land consists of a manufactured layer. The typical soil profile for typic xerorthents, coarse substratum is 0 to 28 inches fine sandy loam, 28 to 79 inches loamy fine sand; it is considered a well-drained soil with more than 80 inches to restrictive layer. The typical soil profile for typic haploxeralfs is 0 to 6 inches fine sandy loam, 6 to 30 inches loamy fine sand, 30 to 79 inches fine sandy loam; it is considered a well-drained soil with more than 80 inches to restrictive layer. Minor components include Hueneme drained, Marina, and typic haploxerolls graded.



SOURCE: City of Torrance; NRCS; ESA, 2023

Water Replenishment District Torrance Groundwater Desalter Expansion Project

Figure 3
Soils

ESA

Urban land – Thums – Windfetch complex, 0 to 2 percent slopes

This soil type was mapped along Sepulveda Boulevard west of Harbor Freeway. This soil type is composed of 50 percent urban land; 20 percent Thums and similar soils; 15 percent Windfetch and similar soils; 10 percent Sepulveda; and 5 percent typic argiaquolls drained. Urban land consists of a manufactured layer. The typical soil profile for Thums is 0 to 10 inches loam, 10 to 24 inches clay loam 24 to 59 inches clay; it is considered a well-drained soil with more than 80 inches to restrictive layer. The typical soil profile for Windfetch is 0 to 5 inches silt loam, 5 to 16 inches loam, 16 to 65 inches clay loam; it is considered a well-drained soil with more than 80 inches to restrictive layer.

Natural Communities and Land Cover Types

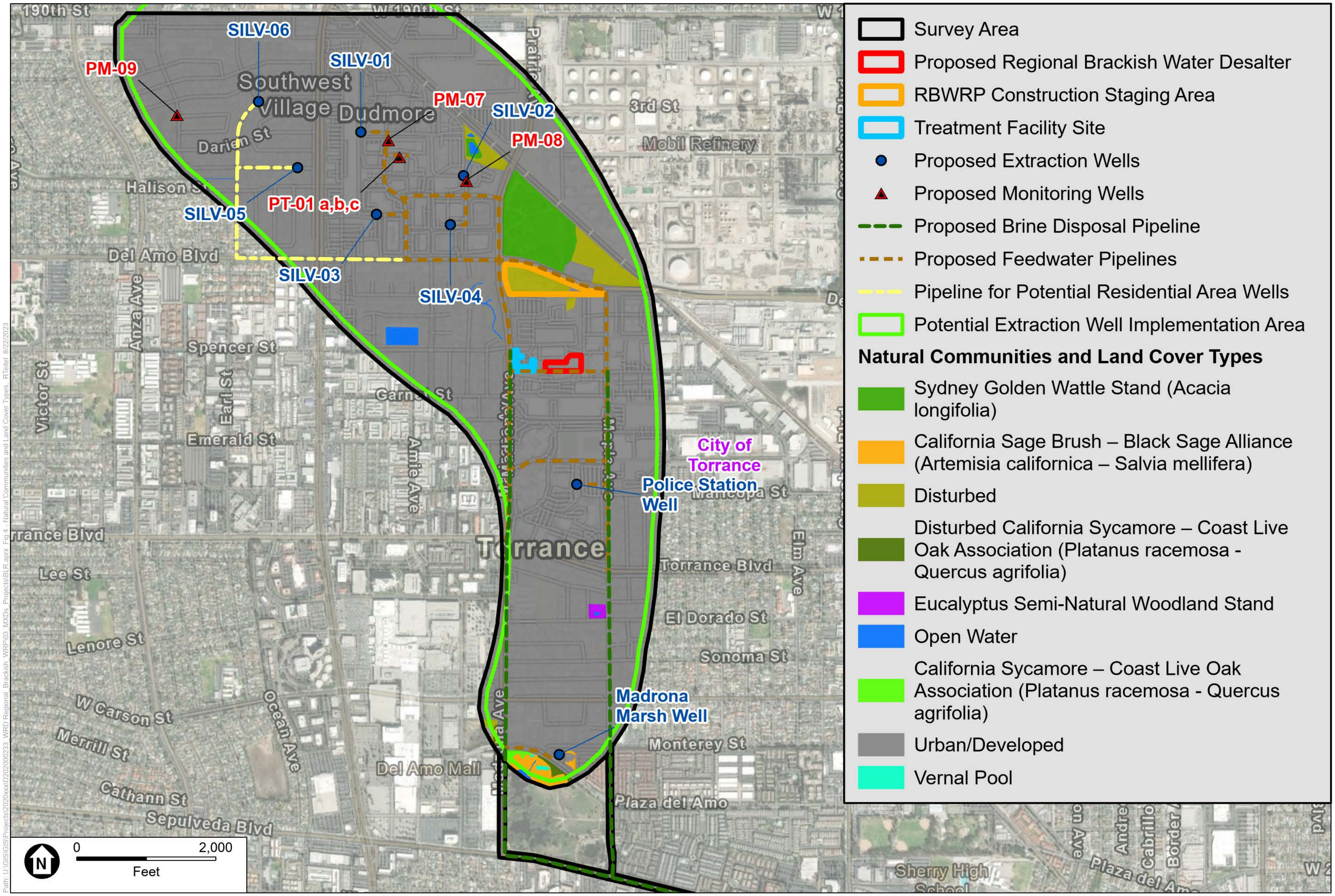
The natural communities and land cover types characterized and mapped within the survey area are depicted in **Figure 4, Natural Communities and Land Cover Types**, and their respective acreages within the survey area are provided in **Table 1, Natural Communities and Land Cover Types**. A complete list of plant species observed within the survey area is provided in **Appendix B, Plant Species Detected,** and **Appendix C, Wildlife Species Detected**. Each natural community and land cover type is described in detail below.

TABLE 1
NATURAL COMMUNITIES AND LAND COVER TYPES

Natural Community/Land Cover Type	Proposed Action Area (acres)[1]	100-foot Buffer (acres)	Total (acres)
Terrestrial			
Sydney Golden Wattle Stand	23.76	-	23.76
California Sagebrush – Black Sage Shrubland Alliance	3.17	1.71	4.88
California Sycamore – Coast Live Oak Association	0.55	0.28	0.83
Disturbed California Sycamore – Coast Live Oak Association	0.78	0.18	0.96
Eucalyptus Semi-Natural Woodland Stand	1.09	0.46	1.55
Fremont Cottonwood – Velvet Ash – Black Willow Woodland Alliance	-	0.28	0.28
Aquatic/Riparian			
Open Water	3.96	0.15	4.11
Vernal Pool	0.30	0.03	0.33
Developed/Disturbed Land Cover Types			
Urban/Developed	891.59	57.64	949.23
Disturbed	19.11	0.61	19.72
TOTAL	**944.31**	**61.34**	**1,005.65**

[1] NOTE: Proposed Action Area consists of the Potential Extraction Well Implementation Area and the proposed pipelines.

SOURCE: ESA 2023



SOURCE: City of Torrance; ESA, 2023

Water Replenishment District Torrance Groundwater Desalter Expansion Project

Figure 4
Natural Communities and Land Cover Types

ESA

Sydney Golden Wattle (Acacia longifolia) Stand

The *Acacia longifolia* stand vegetation type is not recognized in *A Manual of California Vegetation* (CNPS 2023a) classification system, because it is not a natural community. Sydney golden wattle (*Acacia longifolia*), an Australian native species, is being called a stand here to indicate a large area dominated by this species located north of Del Amo Boulevard and east of Prairie Avenue.

California Sage Brush – Black Sage (Artemisia californica - Salvia mellifera) Shrubland Alliance

The California sage brush – black sage (*Artemisia californica – Salvia mellifera*) alliance was detected within the Madrona Marsh Preserve and surrounding the Madrona Marsh Preserve Nature Center as a native plant garden. The Madrona Marsh Preserve is surrounded by a tall metal fence with a main entrance located off of Plaza del Amo directly across from the Nature Center. Both areas are maintained by the Nature Center staff with ongoing planting efforts which include sensitive species such as the mariposa lily (*Calochortus* sp.).

California Sycamore – Coast Live Oak (Platanus racemosa - Quercus agrifolia) Association

The California sycamore – coast live oak (*Platanus racemosa - Quercus agrifolia*) association was mapped within the southernmost part of the survey area, within the Madrona Marsh preserve. This alliance was primarily composed of California sycamore and coast live oak. The understory contained scattered shrubs including California sagebrush (*Artemisia californica*) but was mostly dominated by annual non-native grasses including slender oat (*Avena barbata*) and ripgut brome (*Bromus diandrus*).

Disturbed California Sycamore – Coast Live Oak (Platanus racemosa - Quercus agrifolia) Association

The disturbed California sycamore – coast live oak (*Platanus racemosa - Quercus agrifolia*) association was mapped within the southernmost part of the survey area, within the Madrona Marsh preserve. The canopy of this alliance contained California sycamore and coast live oak; however, it also included several eucalyptus trees. The understory contained scattered shrubs including California sagebrush (*Artemisia californica*) but was mostly dominated by annual non-native grasses including slender oat and ripgut brome.

Eucalyptus Semi-Natural Woodland Stand

The eucalyptus semi-natural woodland stand was detected at the sump located at the corner of Florwood Avenue and El Dorado Street. The stand surrounded the sump and the canopy was dominated by eucalyptus trees including blue gum (*Eucalyptus globulus*) with scattered Brazilian pepper trees (*Schinus terebinthifolius*). The understory consisted of other non-native species including English ivy (*Hedra helix*), bermuda buttercup (*Oxalis pes-caprae*), and non-native grasses, including slender oat and ripgut brome.

Fremont Cottonwood – Velvet Ash – Black Willow (Populus fremontii – Fraxinus velutina – Salix gooddingii) Woodland Alliance

The Fremont cottonwood – velvet ash – black willow (*Populus fremontii - Fraxinus velutina - Salix gooddingii*) woodland alliance was mapped within the southernmost part of the survey area, within the Del Amo Sump. The alliance was primarily composed of Fremont cottonwood (*Populus fremontii*) and willow (*Salix* sp.).

Open Water

Open water was mapped in several locations. The open water features within the survey area consisted of the marsh within the Madrona Marsh Preserve, a small, designed drainage that bisects the Delthorne Park, a drainage located at the end of Talisman Street, and several sumps (Del Amo Sump, Florwood Avenue and El Dorado Street Sump, Amie Sump, and Pioneer Sump).

Vernal Pool

Several vernal pools exist within the Madrona Marsh Preserve; however, three vernal pools are located within the survey area. Rough boundaries were mapped based on existing conditions. No formal delineation or wet season surveys were conducted for these pools; however, Madrona Marsh Preserve staff on-site during the survey indicated that fairy shrimp was detected within the Preserve in January 2023 (species unknown).

Urban/Developed

The urban/developed land cover type is the dominant land cover type within the survey area. This land cover type consists of developed and paved roads and lots, buildings, concrete sidewalks, residential areas, schools, community parks, landscaped areas with ornamental plantings, and disturbed open bare areas directly adjacent to roads and buildings. This land cover type also includes ornamental plants found along landscaped areas within the survey area. Ornamental species included Gum (*Eucalyptus* sp.), carrotwood (*Cupaniopsis anacardiopsis*), Pine (*Pinus* sp.), Brazilian pepper tree, Chinese Elm (*Ulmus parvifolia*), Canary Island Date Palm (*Phoenix canariensis*), and Magnolia (*Magnolia* sp.). These areas are maintained throughout the year, and many are supported by irrigation.

Disturbed

The disturbed land cover type was mapped in scattered patches. Disturbed land was used to describe areas dominated by non-native grasses including ripgut brome, red brome (*Bromus rubens*), slender oat, and Bermuda grass (*Cynodon dactylon*), and non-native forbs including ice plant (*Carpobrotus edulis* and *Carpobrotus chilensis*), cheeseweed (*Malva parviflora*), and wild radish (*Raphanus sativus*). This community is characterized by substantial disturbance both historic (i.e., excavation and grading) and ongoing (i.e., regular mowing activities).

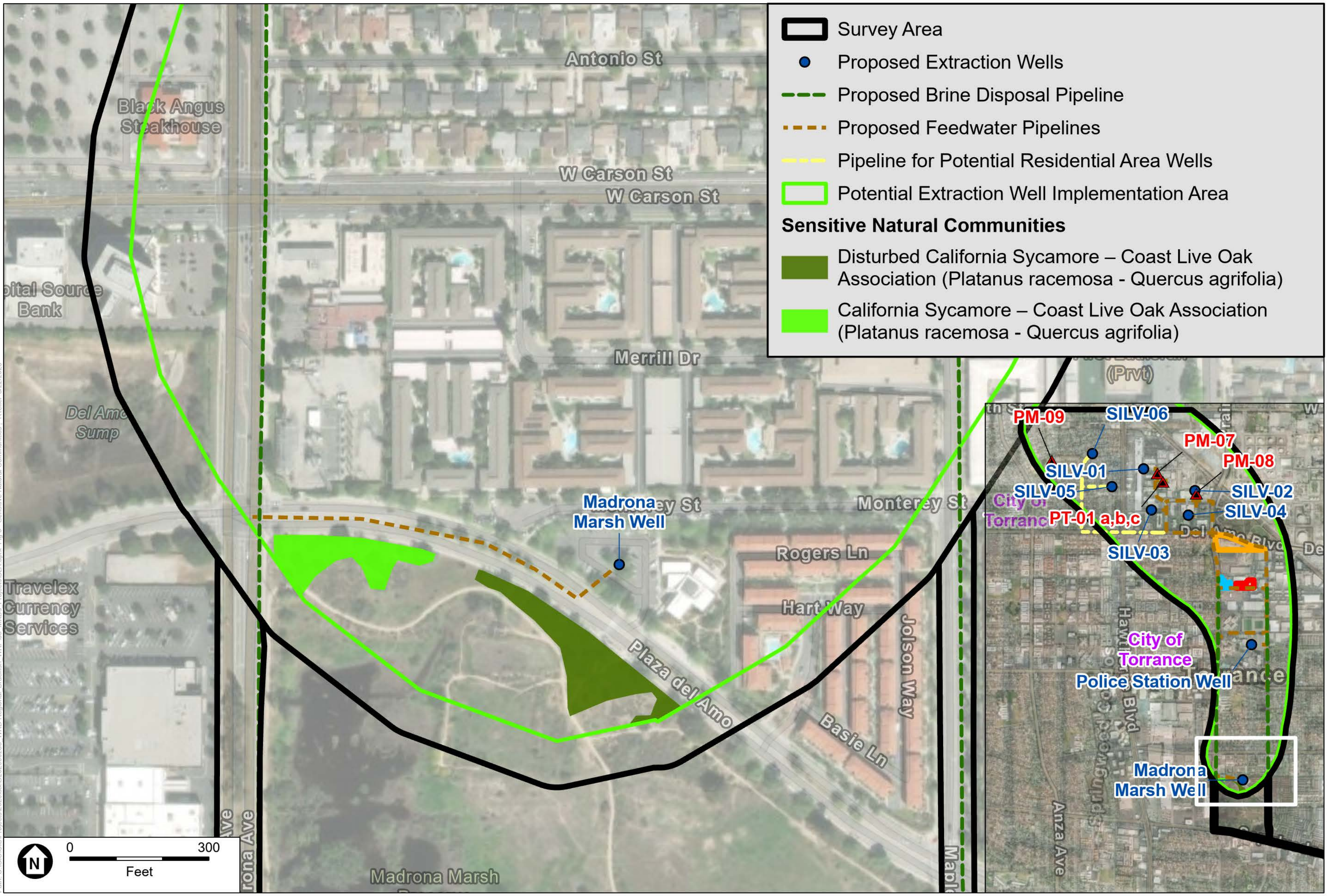
Sensitive Natural Communities

"Sensitive" natural communities and habitats are defined by CDFW as those natural communities that have a reduced range and/or are imperiled because of various forms of development and other anthropogenic stressors, including residential and commercial expansion, various forms of agriculture, energy production, mining, etc. These communities are evaluated using NatureServe's Heritage Methodology (NatureServe 2023), which is based on the knowledge of range and distribution of a specific vegetation type and the proportion of occurrences that are of good ecological integrity. Evaluation is done at both a global (natural range within and outside of California [G]) and subnational (State level for California [S]) level, each ranked from 1 ("critically imperiled" or very rare and threatened) to 5 (demonstrably secure). A community or habitat with a State rank of S1 through S3 are considered "sensitive" natural communities and may require review when evaluating environmental impacts (CDFW 2023a). The *Populus fremontii - Fraxinus velutina - Salix gooddingii* woodland alliance and the *Platanus racemosa - Quercus agrifolia* association (including the disturbed California sycamore – coast live oak association) have a State rank of S3; therefore, these communities meet the criteria for a CDFW sensitive natural community. Sensitive natural communities observed within the survey area are depicted within **Figure 5, Sensitive Natural Communities**.

Special-Status Plants

Special-status plants are defined as those that, because of their recognized rarity or vulnerability to various causes of habitat loss or population decline, are recognized by federal, state, or other agencies as imperiled in some way. Some of these species receive specific protection that is defined by federal or state endangered species legislation and others have been designated as special-status based on adopted policies (e.g., counties and cities) and/or the expertise of state resource agencies or non-profit organizations (e.g., CNPS). For purposes of this report, special-status plants are defined as follows:

- Plants that are listed or proposed for listing as threatened or endangered or are candidates for possible future listing as threatened or endangered, under the FESA or the CESA.
- Plants that meet the definitions of rare or endangered under State CEQA Guidelines Section 15380.
- Plants considered by the CNPS to be rare, threatened, or endangered (Rank 1A, 1B, 2A and 2B plants) in California.
- Plants listed as rare under the California Native Plant Protection Act (Fish and Game Code 1900 et seq.).



SOURCE: City of Torrance; ESA, 2023

Water Replenishment District Torrance Groundwater Desalter Expansion Project

Figure 5
Sensitive Natural Communities

ESA

A review of the CNDDB (CDFW 2023b), the CNPS Inventory of Rare and Endangered Plants (CNPS 2023b), and the Information for Planning and Consultation List (USFWS 2023b) revealed that 49 special-status plant species have been recorded within the USGS quadrangle search area (see **Appendix D, Literature Review Results)**. The potential for special-status plant species to occur is based on existing vegetation and habitat quality, topography, elevation, soils, surrounding land uses, habitat preferences, and geographic ranges. Based on the presence of suitable habitat, known geographic distributions and/or range restrictions, it was determined that 28 of the plant species generated in the database do not have the potential to occur within the survey area, because they lack the necessary habitat requirements. Such species are therefore omitted from further discussion in this report. Based on the criteria defined below, it was determined that suitable habitat for 21 species is present within or immediately adjacent to the survey area (see **Appendix E, Special-Status Species Evaluated for Potential to Occur within Survey Area**).

Present: The species was observed within the survey area during the focused rare plant survey.

High Potential: The survey area provides suitable habitat conditions for a particular species and/or known populations occur in the immediate vicinity.

Moderate Potential: Marginal habitat for a particular species is present within the survey area. For example, the available habitat may be somewhat disturbed, however, still supports important components, such as a particular soil or community type.

Low Potential: Limited habitat exists for a particular species within the survey area. For example, the appropriate vegetation assemblage may be present while the substrate preferred by the species may be absent, or the preferred habitat may be present, but has undergone substantial disturbance, such that the species is not expected to occur.

Not Expected: Suitable habitat for the species is not present within the survey area; or the species was not observed during focused rare plant surveys conducted during the appropriate blooming period or the species is a perennial herb/shrub that would have been identifiable outside of the blooming period, if present.

A total of 13 species, including southern tarplant (*Centromadia parryi* ssp. *Australis*), Orcutt's pincushion (*Chaenactis glabriuscula* var. *orcuttiana*), decumbent goldenbush (*Isocoma menziesii* var. *decumbens*), San Bernardino aster (*Symphyotrichum defoliatum*), island wallflower (*Erysimum insulare*), suffrutescent wallflower (*Erysimum suffrutescens*), southern California black walnut (*Juglans californica*), Catalina mariposa lily (*Calochortus catalinae*), Lewis' evening-primrose (*Camissoniopsis lewisii*), mesa horkelia (*Horkelia cuneata* var. *puberula*), San Diego button-celery (*Eryngium aristulatum* var. *parishii*), California Orcutt grass (*Orcuttia californica*), and spreading Navarretia (*Navarretia fossalis*), had a moderate to high potential to occur within or adjacent to the survey area; however, these species were not observed during the appropriately timed focused survey. The remaining eight species were not expected or determined to have a low potential to occur.

Federally Listed Plant Species

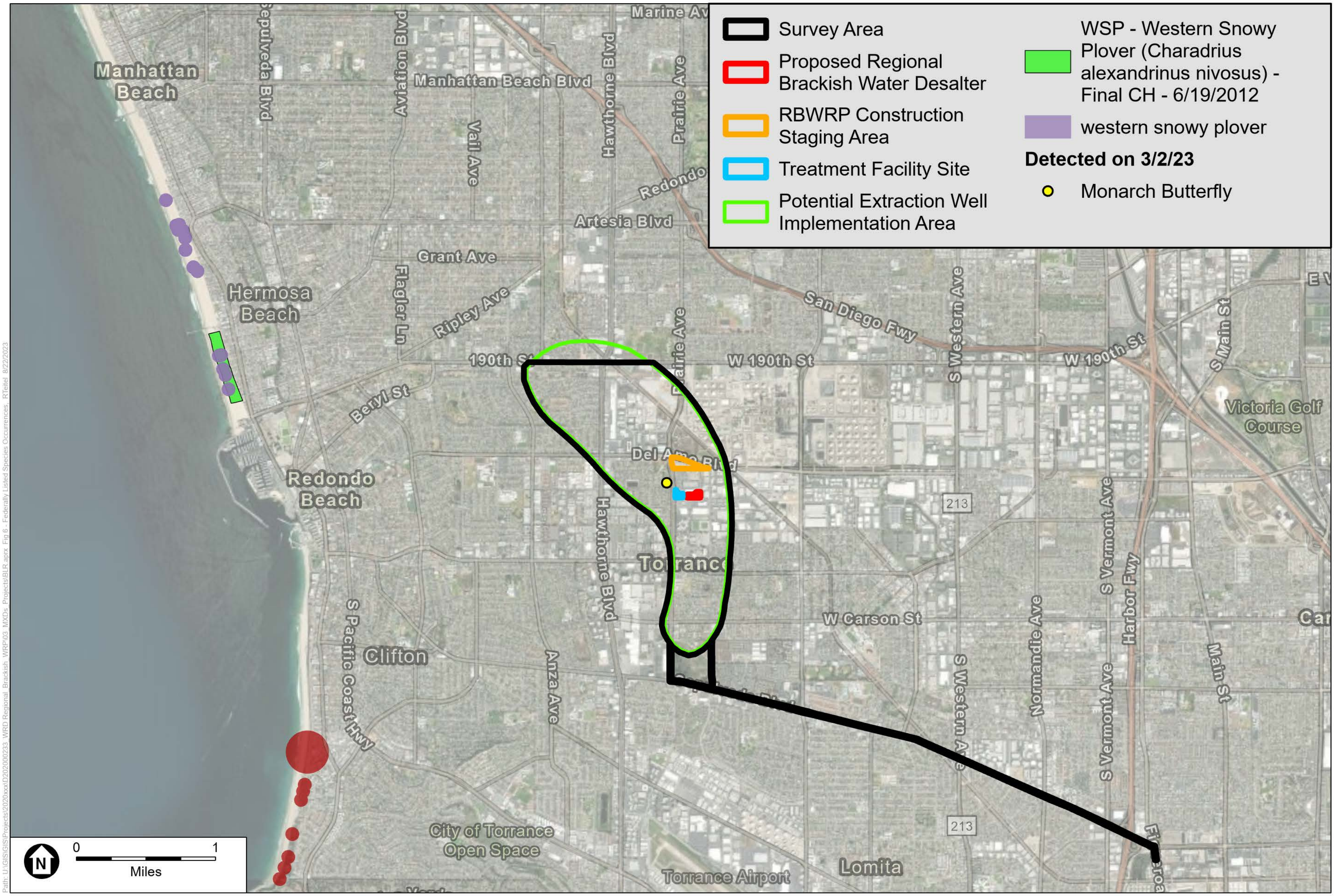
Of the 13 special-status plant species with moderate to high potential to occur, three are federally listed plant species which are discussed in this section. The federally listed or candidate species that may be impacted by the Proposed Action and considered in this document are based upon review of the USFWS Critical Habitat Portal, IPaC, and Species Occurrence Data, and CDFW California Natural Diversity Database. The result of the IPAC is provided as Appendix D. Known occurrences of federally listed and candidate species, within or immediately adjacent to the Proposed Action Area are depicted in **Figure 6, Federally Listed Species Occurrences**.

The three federally listed (or candidate) species, San Diego button-celery, California Orcutt grass, and spreading navarretia, have the potential to occur within the survey area based on known reported occurrences within the Torrance USGS 7.5-minute quadrangle and six surrounding quadrangles. The potential for each species to occur within the Proposed Action Area and be affected by the Proposed Action is based on habitat suitability and geographic location. As noted at the beginning of this report, it is assumed a more limited Action Area will be developed later during the planning process.

Special-Status Wildlife

Special-status wildlife are defined as those that, because of their recognized rarity or vulnerability to various causes of habitat loss or population decline, are recognized by federal, state, or other agencies as imperiled in some way. Some of these species receive specific protection that is defined by federal or state endangered species legislation and others have been designated as special-status based on adopted policies (e.g., counties and cities) and/or the expertise of state resource agencies or non-profit organizations (e.g., Western Bat Working Group). Special-status wildlife are defined as follows:

- Wildlife listed or proposed for listing as threatened or endangered, or are candidates for possible future listing as threatened or endangered, under the FESA or the CESA.
- Wildlife that meet the definitions of rare or endangered under California Environmental Quality Act (CEQA) Guidelines Section 15380.
- Wildlife designated by CDFW as species of special concern, CDFW Watch List species, or have a state rank of S1-S3 on CDFW's Special Animals List (CNDDB 2023).
- Wildlife "fully protected" in California (FGC Sections 3511, 4700, and 5050).
- Bird species protected by the MBTA.
- Bat species considered as a priority species by the Western Bat Working Group (WBWG).



SOURCE: City of Torrance; ESA, 2023

Water Replenishment District Torrance Groundwater Desalter Expansion Project

Figure 6
Federally Listed Species Occurrences

ESA

The potential for special-status wildlife species to occur within the survey area was assessed according to on-site vegetation and habitat quality, topography, elevation, soils, surrounding land uses, habitat preferences, and geographic ranges. A review of the CNDDB (CDFW 2023b) and Information for Planning and Consultation List (USFWS 2023b) revealed that 47 special-status wildlife species have been recorded within the USGS quadrangle search area (see Appendix D) containing the survey area; however, based on habitat preference, geographic distributions, and/or range restrictions, it was determined that 20 of the species do not have the potential to occur and were therefore omitted from further discussion in this report. Based on the criteria defined below, it was determined that 27 species have a low to high potential to occur within the survey area, and 1 was detected during the survey (see Appendix E):

Present: The species was observed within the survey area during the site assessment.

High Potential: The survey area provides suitable habitat conditions for a particular species and/or known populations occur in the immediate vicinity.

Moderate Potential: Marginal habitat for a particular species may exist. For example, the habitat may be heavily disturbed and/or may not support all stages of a species' life cycle, or it may not fit all preferred habitat characteristics.

Low Potential: The survey area supports limited habitat for a particular species. For example, the appropriate vegetation assemblage may be present while the substrate preferred by the species may be absent.

Based on the condition of the vegetation and habitats that were characterized during the site visit, it was determined that 16 special-status species have a moderate to high potential to occur within the survey including: Palos Verdes blue butterfly (*Glaucopsyche lygdamus palosverdesensis*), Crotch bumble bee (*Bombus crotchii*), burrowing owl (*Athene cunicularia*), wandering skipper (*Panoquina errans*), western spadefoot (*Spea hammondii*), southern California legless lizard (*Anniella stebbinsi*), coast horned lizard (*Phrynosoma blainvillii*), bank swallow (*Riparia riparia*), tricolored blackbird (*Agelaius tricolor*), yellow rail (*Coturnicops noveboracensis*), silver-haired bat (*Lasionycteris noctivagans*), Riverside fairy shrimp (*Streptocephalus woottoni*), western yellow-billed cuckoo (*Coccyzus americanus occidentalis*), coastal California gnatcatcher (*Polioptila californica californica*), and least Bell's vireo (*Vireo bellii* ssp. *pusillus*); one of which was detected during the site assessment, monarch butterfly (*Danaus plexippus*).

Federally Listed Wildlife Species

Of the 27 special-status wildlife species with low to high potential to occur within the survey area, 10 were federally listed (or candidate) species. Four species were determined to have a low potential to occur within the survey area, western snowy plover (*Charadrius nivosus nivosus*), California least tern (*Sternula antillarum browni*), southwestern willow flycatcher (*Empidonax traillii*), and pacific pocket mouse (*Perognathus longimembris pacificus*). Six species were determined to have a moderate to high potential to occur within the survey area (mentioned above): Palos Verdes blue butterfly, Riverside fairy shrimp, western yellow-billed cuckoo, coastal California gnatcatcher, least Bell's vireo, and the monarch butterfly (which was detected).

The federally listed or candidate species that may be impacted by the Proposed Action and considered in this document are based upon review of the USFWS Critical Habitat Portal, IPaC, and Species Occurrence Data, and CDFW California Natural Diversity Database. The result of the IPAC is provided as Appendix D. Known occurrences of federally listed and candidate species, within or immediately adjacent to the Proposed Action Area are depicted in Figure 6, Federally Listed Species Occurrences.

Critical Habitat

Critical habitat is defined in Section 3(5) A of the FESA as the specific portions of the species geographic range, either currently or historically occupied, that possess the physical and biological features essential to their conservation, and that may require special management considerations or protection. Critical habitat is not present within the survey area (Figure 6). The nearest designated critical habitat to the survey area is for the coastal California gnatcatcher (*Polioptila californica californica*) approximately 1.85 miles south of Sepulveda (not shown in figure extent) and for western snowy plover (*Charadrius alexandrinus nivosus*) approximately 1.97 miles west of Anza Avenue and 190th Street at Hermosa Beach (USFWS 2023a).

Wildlife Movement

Migration corridors are navigable pockets or strips of land that connect larger tracts of open space together, allowing them to function as a greater habitat complex. These “passages” can exist on a small scale, allowing wildlife to pass through or under an otherwise uninhabitable area (such as a roadway, housing development, or city) through drainage culverts, green belts, and waterways, or, on a larger scale, providing an opportunity for wildlife to skirt large topographical features (such as mountains, lakes, and streams) by using adjacent canyons, valleys, and upland swaths when migrating.

The survey area is primarily composed of urban development including schools, businesses, and residential development. There are small pockets of vegetation within the survey area; however, it is primarily disturbed habitat with even smaller pockets of native vegetation. Larger open space areas are also surrounded by tall gates that act as barriers for larger animals. The Madrona Marsh Preserve is a County-designated Significant Ecological Area and as discussed above in the *Regulatory Framework* section, the Significant Ecological Area Ordinance does not apply because it is located within the incorporated city. A tall, metal bar fence surrounds the preserve. Some open space areas, such as the City of Torrance La Romeria Park, do provide habitat for more mobile species, such as coyotes. The survey area is not located on a regional wildlife linkage map and is shown as having limited connectivity opportunity (CDFW 2023c). In addition, the survey area does not occur within or adjacent to any habitat linkages identified by South Coast Missing Linkages (South Coast Wildlands 2008).

Aquatic Resources

No formal aquatic resources delineation was conducted within the survey area; however, aquatic resources detected within the survey area included three vernal pools consisting of 0.33 acres and seven other aquatic resources consisting of 4.33 acres (Figure 4). The other aquatic resources within the survey area consisted of the marsh within the Madrona Marsh Preserve; a small, designed drainage that bisects the Delthorne Park, which appears to be ephemeral in nature (i.e., conveying flow immediately following precipitation or watering events) and appears to carry surface water flow from adjacent lawn; a concrete-lined drainage that occurs near the intersection of Talisman Street and Halison Street, which runs in an east-west direction and also appears to be ephemeral in nature, that appears to originate from Entradero Park, east of the survey area; and four sumps (Del Amo Sump, Florwood Avenue and El Dorado Street Sump, Amie Sump, and Pioneer Sump). In addition, the National Wetlands Inventory (NWI) and National Hydrography Dataset (NHD) features within the survey area are shown in **Figures 7a** and **7b, National Wetlands Inventory and National Hydrography Dataset**, which includes freshwater pond (NWI), freshwater emergent wetland (NWI), Freshwater Forested/Shrub Wetland (NWI), and pipeline (NHD).

Summary of Existing Conditions by Proposed Project Components

PM-07

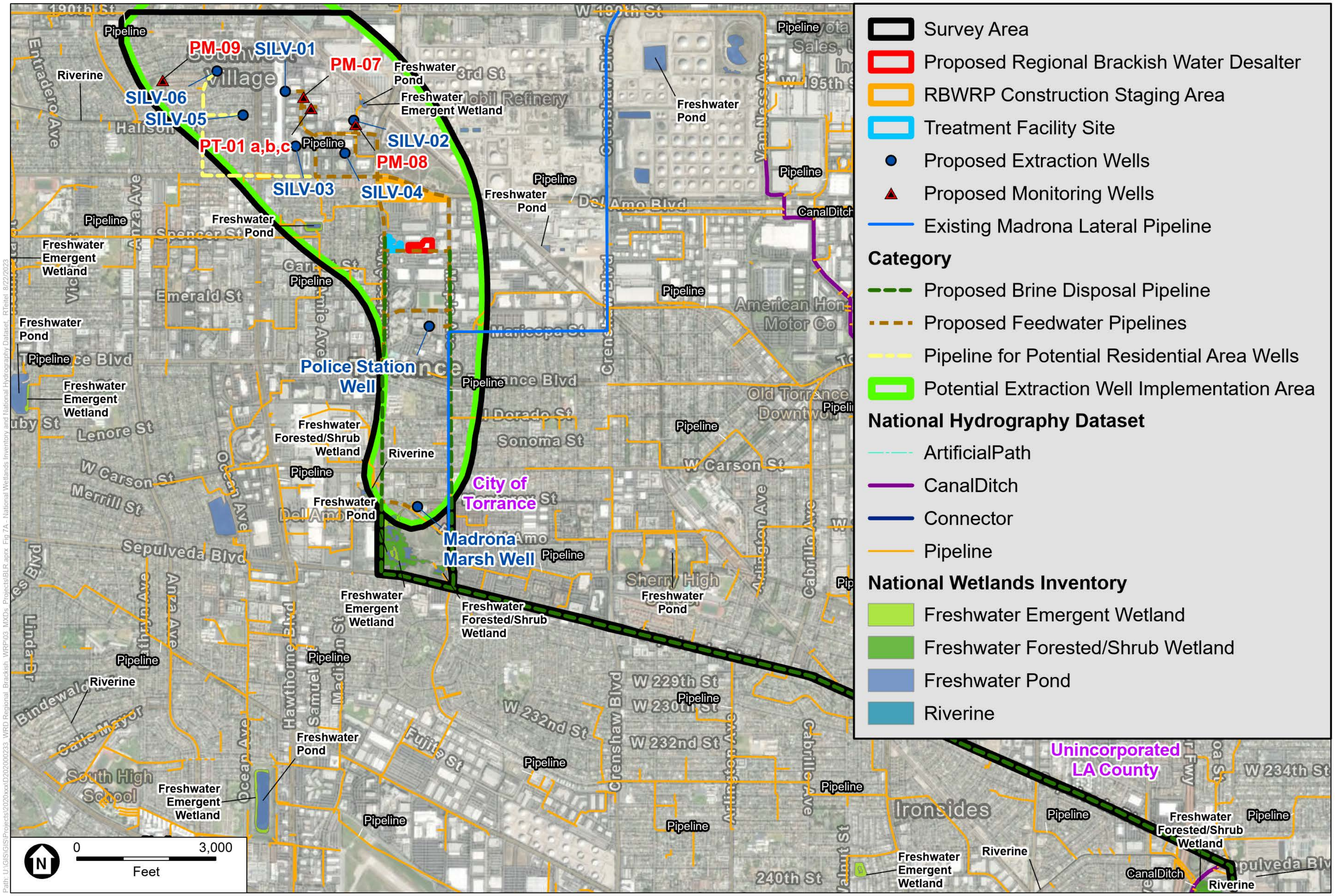
The proposed monitoring well PM-07 is located within an urban setting along Mariner Avenue. Several ornamental trees, including Eucalyptus, occur in adjacent landscaped areas. The PM-07 site does not contain any sensitive natural communities, suitable habitat for special-status plant or wildlife species, or aquatic resources, and does not support wildlife movement.

PM-08

The proposed monitoring well PM-08 is located within an urban setting on Pioneer Avenue, north of Challenger Street, within the road where cars typically park. Several ornamental trees occur in adjacent landscaped areas. The PM-08 site does not contain any sensitive natural communities, suitable habitat for special-status plant or wildlife species, or aquatic resources, and does not support wildlife movement.

PM-09

The proposed monitoring well PM-09 is located within an urban setting along South Inglewood Avenue, directly adjacent to the City of Torrance La Romeria Park. The PM-09 site does not contain any sensitive natural communities, and primarily consists of a maintained lawn with scattered ornamental trees. No suitable habitat for special-status plant or wildlife species is available at the park, although a city sign within the park indicates that coyotes have been detected within the park; therefore, the park may support some wildlife movement. No aquatic resources are located within or adjacent to the PM-09 site.

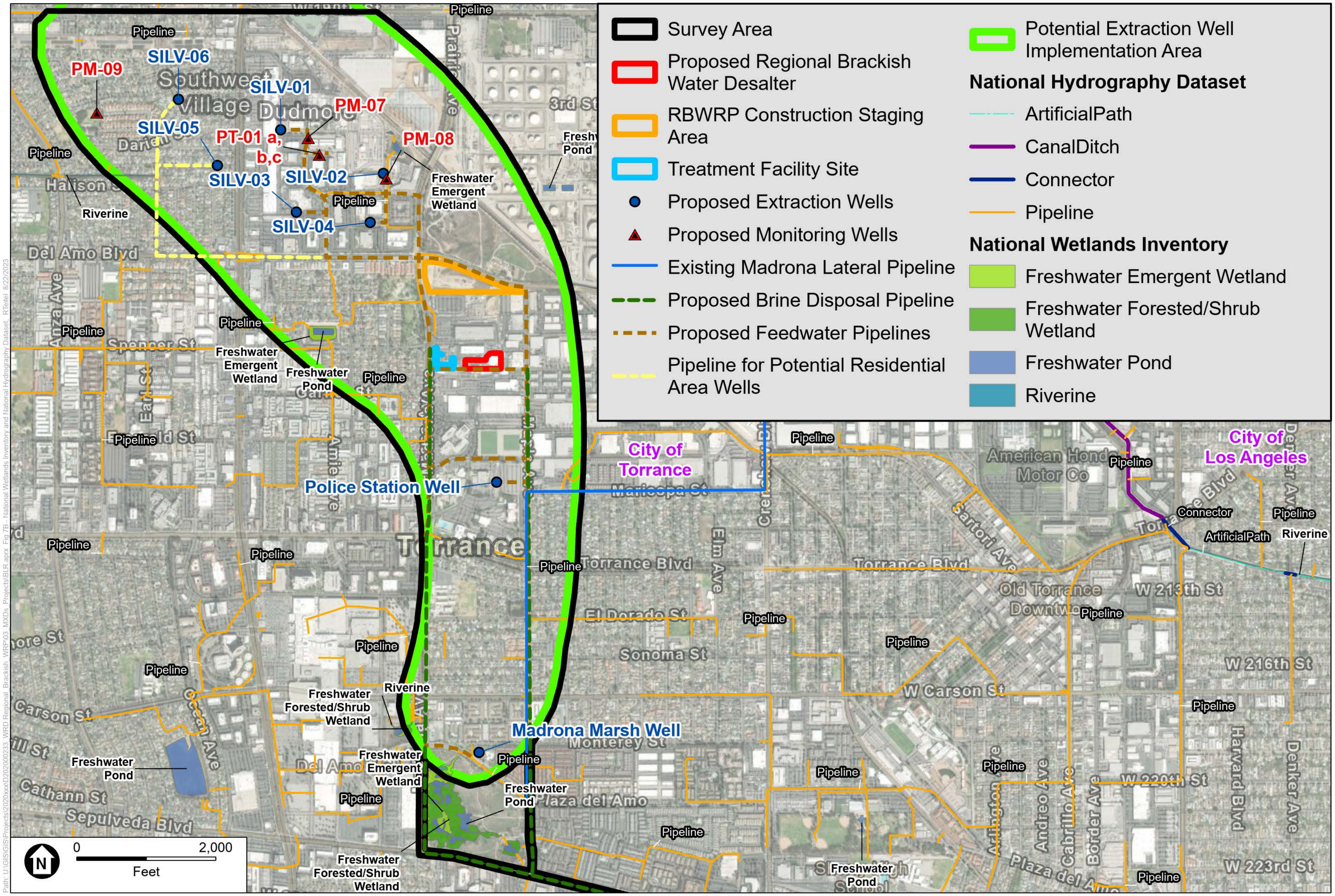


SOURCE: NHD/NWI; ESA, 2023

Water Replenishment District Torrance Groundwater Desalter Expansion Project

Figure 7A
National Wetlands Inventory and National Hydrography Dataset

ESA



SOURCE: NHD/NWI; ESA, 2023

Water Replenishment District Torrance Groundwater Desalter Expansion Project

Figure 7B
National Wetlands Inventory and National Hydrography Dataset

ESA

PT-01 a,b,c

The proposed monitoring well PT-01 a,b,c is located along Voyager Street, within the road where cars typically park. Ornamental trees occur on either side of the road with a maintained lawn in the understory. The PT-01 a,b,c site does not contain any sensitive natural communities, suitable habitat for special-status plant or wildlife species, or aquatic resources, and does not support wildlife movement.

SILV-01

The proposed extraction well SILV-01 is located along an unnamed road that bisects Mariner Avenue, within a parking lot development devoid of vegetation. The SILV-01 site does not contain any sensitive natural communities, suitable habitat for special-status plant or wildlife species, or aquatic resources, and does not support wildlife movement.

SILV-02

The proposed extraction well SILV-02 is located near PM-08 on Pioneer Avenue, north of Challenger Street. SILV-02 occurs adjacent to a concrete v-ditch that contained traces of water. On the north side of the v-ditch, a row of about six ornamental trees occurs with a bare understory and scattered non-native grass patches. The SILV-02 site does not contain any sensitive natural communities, suitable habitat for special-status plant or wildlife species and does not support wildlife movement.

SILV-03

The proposed extraction well SILV-03 is located in an urban setting near the intersection of Challenger Street and Mariner Avenue, within a parking lot. Scattered ornamental trees occur within the parking lot. The SILV-03 site does not contain any sensitive natural communities, suitable habitat for special-status plant or wildlife species, or aquatic resources, and does not support wildlife movement.

SILV-04

The proposed extraction well SILV-04 is located in an urban setting near the intersection of Challenger Street and Pioneer Avenue, within a parking lot. Scattered ornamental trees occur within the parking lot. The SILV-04 site does not contain any sensitive natural communities, suitable habitat for special-status plant or wildlife species, or aquatic resources, and does not support wildlife movement.

SILV-05

The proposed extraction well SILV-05 is located in an urban setting near the intersection of Deelane Street and Hawthorne Boulevard, within a dense residential area. The SILV-05 site does not contain any sensitive natural communities, suitable habitat for special-status plant or wildlife species, or aquatic resources, and does not support wildlife movement.

SILV-06

The proposed extraction well SILV-06 is located in an urban setting near the intersection of Talisman Street and Firmona Avenue, within a dense residential area. The SILV-06 site does not contain any sensitive natural communities, suitable habitat for special-status plant or wildlife species, or aquatic resources, and does not support wildlife movement.

Police Station Well

The police station well is located in an urban setting west of the intersection between Maricopa Street and Maple Avenue, within the Torrance Police Department facility. It occurs within a parking lot beyond a gate that was not accessible during the survey; however, surrounding vegetation consists of landscaped lawns and ornamental tree plantings, including several eucalyptus trees. The police station well site does not contain any sensitive natural communities, suitable habitat for special-status plant or wildlife species, or aquatic resources, and does not support wildlife movement.

Madrona Marsh Well

The Madrona Marsh well is located in an urban setting, north of Plaza del Amo, within the Madrona Marsh Preserve and Nature Center parking lot. It occurs within the center of the parking lot which contains a patch of landscaped lawn with three sycamore trees. Similar vegetation cover occurs to the north and south of the well along the perimeter of the parking lot, consisting of lawn understory with scattered sycamore trees. To the east, and surrounding the nature center, a patch of coastal sage scrub habitat was mapped. This area was observed to be maintained by park staff and is bisected by several foot trails for public visitors. The Madrona Marsh Preserve occurs south of Plaza del Amo and is also regularly maintained by park staff. Suitable habitat for several special-status plant and wildlife species occurs within the Madrona Marsh Preserve. As shown in Figure 5, two sensitive natural communities occur adjacent to the Madrona Marsh well site, disturbed California sycamore – coast live oak association and California sycamore – coast live oak association. The Madrona Marsh Preserve also contains aquatic resources including vernal pools and wetland habitat; it is surrounded by a tall metal fence and urban development occurs in adjacent areas, which may limit wildlife movement. In addition, the Del Amo Sump occurs to the west of Madrona Avenue, north of Plaza del Amo. This sump held water during the site assessment, and the surrounding vegetation was mapped as urban developed because the habitat was heavily disturbed and contained ornamental and non-native plant species. Scattered trees occurred within the center of the sump, but access within the sump was not possible due to a chain link fence surrounding the area.

Feedwater Pipelines and Proposed Brine Disposal Pipeline

These proposed pipeline alignments occurred along several urban streets, including Mariner Avenue, Voyager Street, Challenger Street, Pioneer Avenue, Prairie Avenue, Civic Center Drive North, Del Amo Boulevard, Madrona Avenue, Maple Avenue, Plaza del Amo, Sepulveda Boulevard, Figueroa Street, Talisman Street, Deelane Street, and four unnamed segments associated with parking lots or property lines. A drive by survey was conducted for all of the alignment except for one segment associated with a property, immediately adjacent to the south of the proposed regional brackish water desalter, and the alignment connecting extraction wells SILV-05 and SILV-06 which traverses a residential neighborhood with no open space. The proposed brine disposal pipeline alignment occurs adjacent to the eastern (approximately 65 feet), western (approximately 15 feet), and southern boundary of the Madrona Marsh Preserve (approximately 65 feet), and the pipeline alignment supports native trees and native habitat. The proposed feedwater pipeline occurs adjacent to the northern boundary (approximately 44 feet) of the Madrona Marsh Preserve and leads to the Madrona Marsh well.

The center divide on Madrona Avenue that occurs adjacent to the Madrona Marsh Preserve also contains native species, including mulefat (*Baccharis salicifolia*) and California sagebrush mixed in with lemon scented gum (*Eucalyptus citriodora*). The remainder of the alignments contained ornamental trees and landscaped development that is presumed to provide little habitat value, which would primarily be used by nesting birds.

Regional Brackish Water Desalter

The regional brackish water desalter site is located in an urban setting, within the City of Torrance Service Facilities at 20500 Madrona Avenue. It occurs on the southeastern corner of the property. Scattered ornamental trees occur within the immediate surroundings. The regional brackish water desalter site does not contain any sensitive natural communities, suitable habitat for special-status plant or wildlife species, or aquatic resources, and does not support wildlife movement.

Treatment Facility Site

The treatment facility site is located in an urban setting, within the City of Torrance Service Facilities at 20500 Madrona Avenue. It occurs on the southwestern corner of the property. Along the western edge of this area there is a small strip of disturbed vegetation consisting of non-native grasses and forbs with some small saplings including Mexican fan palm (*Washingtonia robusta*), Peruvian pepper tree (*Schinus molle*), treasure flower (*Gazania linearis*), ripgut brome, slender oat, cheeseweed, smooth cat's ears (*Hypochaeris glabra*), seaside barley (*Hordeum murinum*), smilo grass (*Stipa miliacea*), prickly sow thistle (*Sonchus asper*), and Mediterranean schismus (*Schismus barbatus*). The treatment facility site does not contain any sensitive natural communities, suitable habitat for special-status plant or wildlife species, or aquatic resources, and does not support wildlife movement.

Staging Area

The staging area is located in an urban setting, south of the intersection between Del Amo Boulevard and Madrona Avenue. A fence surrounded the staging area perimeter, which prevented a foot survey. Survey information was collected from vantage points along the perimeter. The staging area contains a parking lot on the eastern section, which was mapped as urban/developed. This parking lot area contained non-native grasses and forbs including smooth cat's ears, ripgut brome, cheeseweed, prickly sow thistle, crown daisy (*Glebionis coronaria*) and wild radish. The perimeter also contained shrubs which appeared to be acacia as well as Mexican fan palms. The westernmost section was fairly developed with some decomposed granite substrate and a small storage container. The remainder of the western section appeared to be primarily composed of non-native grasses and forbs including those present around the parking lot area. Based on the aerial imagery, there are established buildings located at the center on top of a hill surrounded by an access road that leads to this center area. The staging area site does not contain any sensitive natural communities or aquatic resources but may contain marginally suitable habitat for special-status plants and wildlife species. The closest CNDDB occurrence was for the southern California legless lizard, which was documented in 2012 within the adjacent open area north of Del Amo Boulevard and east of Prairie Avenue. Due to the perimeter fencing, the site would likely not support substantial wildlife movement.

Conclusions and Potential Impacts

The Proposed Action will primarily occur in currently developed/disturbed land including existing roads, paved substrates, and previously graded and frequently disturbed open areas (particularly the staging area). The Proposed Action is not expected to result in impacts to natural communities or sensitive natural communities that have the potential to provide habitat for special-status plant and wildlife species; however, proposed project activities may result in direct and indirect impacts to nesting birds. Potential impacts are discussed in further detail below.

Special-Status Plants

Federally Listed Plant Species

Table 2, Federally Listed Plant Species lists the species considered and summarizes the preliminary recommended effects determinations for these species to be affected by the Proposed Action. Note: Final effects determinations would be made by the federal lead agency as part of its consultation with the U.S. Fish and Wildlife Service. Final effects determinations are also often informed by the results of protocol surveys (not included in this report), when appropriate.

- A preliminary “no effect” determination was recommended if there is no suitable habitat present or within the vicinity of the Action Area, if the Action Area is outside of the known range of the species, or if the species would not be affected by the Proposed Action.
- A preliminary “may affect” determination was recommended if suitable habitat was identified within the Action Area and if it was determined that the Proposed Action may affect that habitat or species. (Additional descriptions of the species determined to be potentially affected by the Proposed Action are presented in Table 3.)

TABLE 2
FEDERALLY LISTED PLANT SPECIES

Species	Federal Status	Potential to Affect
Eryngium aristulatum var. *parishii* San Diego button-celery	Endangered	**No effect.** Suitable habitat is present within Madrona Marsh; however, the species was not observed within the survey area during appropriately timed focused surveys. A "no effect" determination is recommended because suitable habitat is limited to Madrona Marsh, and although the marsh is located within the preliminary Proposed Action Area, it is not anticipated to be a part of the final Action Area as it is a preserve.
Orcuttia californica California Orcutt grass	Endangered	**No effect.** Vernal pool and wetland habitats occur within Madrona Marsh; however, this species was not detected during appropriately timed focused surveys. A "no effect" determination is recommended because suitable habitat is limited to Madrona Marsh, and although the marsh is located within the preliminary Proposed Action Area, it is not anticipated to be a part of the final Action Area as it is a preserve.
Navarretia fossalis spreading navarretia	Threatened	**No effect**. Vernal pool and wetland habitats occur within Madrona Marsh; however, this species was not detected during appropriately timed focused surveys. A "no effect" determination is recommended because suitable habitat is limited to Madrona Marsh, and although the marsh is located within the preliminary Proposed Action Area, it is not anticipated to be a part of the final Action Area as it is a preserve.

As presented in Table 2, a total of three federally listed plant species were considered in this report. The Proposed Action was preliminarily determined to have "no effect" on these species, since suitable habitat was limited to the Madrona Marsh, which is not a part of the Proposed Action.

Other Special-Status Plant Species

Suitable habitat for the plant species analyzed in Appendix E is found within the Madrona Marsh and sumps, both of which are protected by tall metal fences and are not expected to be impacted by the proposed project activities.

Special-Status Wildlife

Federally Listed Wildlife Species

Table 3, Federally Listed Wildlife Species, lists the species considered and summarizes the preliminary recommended effects determinations for these species to be affected by the Proposed Action. Note: Final effects determinations would be made by the federal lead agency as part of its consultation with the U.S. Fish and Wildlife Service. Final effects determinations are also often informed by the results of protocol surveys (not included in this report), when appropriate.

- A preliminary "no effect" determination was recommended if there is no suitable habitat present or within the vicinity of the Action Area, if the Action Area is outside of the known range of the species, or if the species would not be affected by the Proposed Action.

- A preliminary "may affect" determination was recommended if suitable habitat was identified within the Action Area and if it was determined that the Proposed Action may affect that habitat or species. Additional descriptions of the species determined to be potentially affected by the Proposed Action are presented below.

TABLE 3
FEDERALLY LISTED WILDLIFE SPECIES

Species	Federal Status	Potential to Affect
Invertebrates		
Glaucopsyche lygdamus palosverdesensis Palos verdes blue butterfly	Endangered	**No effect**. This species has a moderate potential to occur within Madrona Marsh where the host plant has been known to occur. However, although the Madrona Marsh is located within the preliminary Proposed Action Area, it is not anticipated to be a part of the final Action Area, since it is a preserve.
Danaus plexippus monarch butterfly	Candidate	**May effect.** Suitable breeding habitat (i.e., milkweed (*Asclepias* sp.)) was only detected within Madrona Marsh, while roosting habitat (i.e., stands of trees on the pacific coast) was detected within the survey area including stands of eucalyptus. One individual was detected within the survey area. Construction activities may affect any monarchs present if removal of suitable roosting habitat is necessary.
Streptocephalus woottoni Riverside fairy shrimp	Endangered	**No effect**. Suitable habitat (i.e., vernal pool) is present only within Madrona Marsh, which, although located within the preliminary Proposed Action Area, is not anticipated to be a part of the final Action Area, since it is a preserve.
Mammals		
Perognathus longimembris pacificus Pacific pocket mouse	Endangered	**No effect**. Marginally suitable coastal scrub habitat is present within Madrona Marsh; however, it lacks the preferred gravelly, fine alluvial soils. Suitable habitat is limited to Madrona Marsh, which although located within the preliminary Proposed Action Area, is not anticipated to be a part of the final Action Area, since it is a preserve.
Birds		
Charadrius nivosus nivosus western snowy plover	Threatened	**No effect.** Suitable breeding (i.e., beach and shoreline) habitat is not present within the Action Area.
Coccyzus americanus occidentalis western yellow-billed cuckoo	Threatened	**May effect**. Suitable breeding and foraging habitat (i.e., riparian vegetation) is limited to the Madrona Marsh and sump areas, which are not a part of the Action Area; however, proposed pipeline alignments are located adjacent to suitable habitat.
Empidonax traillii ssp. *extimus* southwestern willow flycatcher	Endangered	**May effect**. Suitable breeding and foraging habitat (i.e., riparian vegetation) is limited to the Madrona Marsh and sump areas, which are not a part of the Action Area; however, proposed pipeline alignments are located adjacent to suitable habitat.
Polioptila californica californica coastal California gnatcatcher	Threatened	**May effect.** Suitable breeding and foraging habitat (i.e., coastal sage scrub) is limited to the Madrona Marsh area, which is not a part of the Action Area; however, proposed pipeline alignments as well as the Madrona Well site are located adjacent to suitable habitat (within 500 feet).

Species	Federal Status	Potential to Affect
Sternula antillarum browni California least tern	Endangered	**No effect**. Suitable breeding (i.e., bare, sandy beaches) habitat is not present within the Action Area.
Vireo bellii ssp. *pusillus* least Bell's vireo	Endangered	**May effect**. Suitable breeding and foraging habitat (i.e., riparian vegetation) is limited to the Madrona Marsh and sump areas, which are not a part of the Action Area; however, proposed pipeline alignments as well as the Madrona Well site are located adjacent to suitable habitat (within 500 feet).

As presented in Table 3, a total of 10 federally listed (or candidate) species were considered in this report. The Proposed Action was determined to have "no effect" on 5 species, and was determined that it "may effect" 4 bird species due to suitable habitat being present in areas adjacent to the proposed pipeline alignment: least Bell's vireo, coastal California gnatcatcher, southwestern willow flycatcher, and western yellow-billed cuckoo. In addition, it was determined that the Proposed Action "may effect" the monarch butterfly. However, avoidance and mitigation measures are identified below to avoid impacts to nesting birds and raptors and the monarch butterfly.

Other Special-Status Wildlife Species

Suitable habitat for wandering skipper and western spadefoot is restricted to the Madrona Marsh and sumps, which are not anticipated to be directly impacted; however, potential indirect impacts from noise and vibration caused by adjacent pipeline construction activities may affect spadefoot toad.

Southern California legless lizard and coast horned lizard may forage and breed within annual grasses and forb habitat present within the staging area and other areas of the survey area. Crotch Bumble Bee may be present in marginally suitable open grassland habitat within the survey area. Very limited suitable microhabitat for Crotch Bumble Bee including native plant species and nectar resources are only present within Madrona Marsh. The Proposed Action may result in a direct impact to these species through the killing of an individual or the removal of a nest during construction activities.

The bank swallow, tricolored blackbird, yellow rail, and silver-haired bat may forage and/or breed within the annual grasses and forbs and other sensitive natural communities present within the survey area. The Proposed Action may result in both direct and indirect impacts to these species through the removal of an active nest or roost or the disruption of breeding/nesting or roosting behavior, such as copulation, nest building or incubation during construction activities.

Nesting Birds

The Proposed Action may result in both direct and indirect impacts to nesting migratory birds that may utilize the survey area for foraging and/or nesting. Ground disturbance, noise, lighting, and vegetation clearing activities during nesting season may disrupt breeding/nesting behavior, such as copulation, nest building or incubation, or result in the removal of an active nest.

Protected Trees

No formal tree inventory was collected; however, general recommendations are provided below based on the current preliminary Proposed Action Area.

City of Torrance

The proposed brine disposal pipeline alignment occurs perpendicular to Carson Street along Maple Avenue; therefore, this alignment is expected to be in concurrence with the City of Torrance General Plan Objective CR. 18.1. The proposed brine disposal pipeline alignment and the proposed feedwater pipelines alignment also occur perpendicular to Torrance Boulevard; however, the alignment occurs directly on the road right of way and the Proposed Action is not expected to impact adjacent trees occurring within the intersection of Madrona Avenue and Torrance Boulevard, or Madrona Avenue and Torrance Boulevard. Therefore, this alignment is also expected to be compliant with the City of Torrance General Plan Objective CR. 18.1.

The current proposed feedwater pipeline alignment that occurs along Plaza del Amo appears to occur within the center divider and crosses a patch of landscaped lawn as the alignment turns north toward the Madrona Marsh Well. Both areas contain a landscaped lawn understory and several sycamore trees. In addition, two segments of the proposed brine disposal pipeline that occur along Sepulveda Boulevard, one east of Crenshaw Boulevard to Orange Avenue and the other east of Border Avenue to Konde Street, occur under the center dividers, which have planted tree saplings.

City of Los Angeles

A small section of the proposed brine disposal pipeline alignment falls within the city of Los Angeles boundaries, along Sepulveda Boulevard and between Western Avenue and S Normandie Avenue. No protected tree species listed in the city of Los Angeles Tree Protection Ordinance were detected within this segment of the alignment; therefore, no protective measures for trees during construction are recommended.

City of Carson

A small section of the proposed brine disposal pipeline alignment falls within the city of Carson boundaries, along Sepulveda Boulevard and between Harbor Freeway and Figueroa Street, which is adjacent to Bixby Marshland (approximately 65 feet away from the parking lot entrance). The pipeline segment that occurs within the city of Carson contains six mature ornamental parkway trees that occur directly where the current alignment is proposed in the center divider.

Critical Habitat

Critical habitat is not present within the survey area. Given that areas designated as critical habitat for coastal California gnatcatcher and western snowy plover were both more than a mile away from the survey area, the Proposed Action would not adversely modify critical habitat for either species.

Wildlife Movement

While wildlife may use patches of open space to forage and breed and, to some extent, for local and regional movement, the survey area is heavily developed and does not link large areas of contiguous, intact habitat together and is thus not expected to function as an important migration corridor. Therefore, the Proposed Action would have no impacts on wildlife movement.

Sensitive Natural Communities

The *Populus fremontii - Fraxinus velutina - Salix gooddingii* woodland alliance and the *Platanus racemosa - Quercus agrifolia* association (including the disturbed California sycamore – coast live oak association) have a state rank of S3 and therefore meet the criteria for a CDFW sensitive natural community. Both communities are located within the Madrona Marsh Preserve, which (although part of the Proposed Action Area) is not expected to be directly impacted as part of the final Action Area.

Aquatic Resources

Aquatic resources detected within the survey area included three vernal pools consisting of 0.33 acres and seven other aquatic resources consisting of 4.33 acres (Figure 4). The other aquatic resources within the survey area consisted of the marsh within the Madrona Marsh Preserve; a small, designed drainage that bisects the Delthorne Park, which appears to be ephemeral in nature (i.e., conveying flow immediately following precipitation or watering events) and appears to carry surface water flow from adjacent lawn; a concrete-lined drainage that occurs near the intersection of Talisman Street and Halison Street, which runs in an east-west direction and also appears to be ephemeral in nature, which appears to originate from Entradero Park, east of the survey area; and four sumps (Del Amo Sump, Florwood Avenue and El Dorado Street Sump, Amie Sump, and Pioneer Sump). These aquatic resources support wetlands or other aquatic habitat that may be regulated by the CDFW, RWQCB, and/or USACE. Based on the location of proposed project components, the Proposed Action is not expected to impact wetland habitats or other aquatic resources.

Avoidance and Minimization Measures

Avoidance and Minimization Measure (AMM)-1: Tree Protection Measures

AMM-1A: City of Torrance: If any specimen trees within the city of Torrance are to be impacted by the Proposed Action, a certified arborist will prepare a Tree Removal Plan assessing each tree, including consideration of alternatives to tree removal, as well as any proposed tree replacement, and submit the plan to the City for approval.

AMM-1B: City of Los Angeles: For any portion of the proposed brine disposal pipeline occurring within the city of Los Angeles, all existing protected trees and shrubs and relocation and replacement trees and shrubs specified by the Advisory Agency in accordance with Sections 17.02, 17.05, 17.06, 17.51 and 17.52 of this Code shall be indicated on a plot plan attached to the building permit issued pursuant to this Code. In addition, the trees or shrubs shall be identified and described by map and documentation as required by the Advisory Agency.

AMM-1C: City of Carson: If any parkway trees within the city of Carson are to be impacted by the Proposed Action, a certified arborist will prepare a Tree Removal Plan assessing each tree, including consideration of alternatives to tree removal, as well as any proposed tree replacement, and submit the plan to the City for approval.

AMM-2: Nesting Birds/Raptors and Special-status Birds

Project activities could negatively impact nesting birds that are protected under the FESA, CESA, MBTA, and/or FGC, such as least Bell's vireo, coastal California gnatcatcher, southwestern willow flycatcher, and western yellow-billed cuckoo. Therefore, the following measure is recommended to avoid impacts to nesting birds and raptors:

- If work activities occur within the avian nesting season (generally defined as January 15 through September 15), a qualified biologist should conduct a nesting bird and raptor survey within 3 days prior to ground disturbance, to identify any active nests within 500 feet of suitable nesting habitat. If an active nest is found, the nest should be avoided, and a suitable buffer zone delineated in the field where no impacts would occur until the chicks have fledged the nest, as determined by a qualified biologist. Construction avoidance buffers are generally 300 feet for non-listed passerines and 500 feet for listed avian species (i.e., least Bell's vireo) and raptors; however, avoidance buffers may be reduced for non-listed species at the discretion of the biologist, depending on the location of the nest and species tolerance to human presence and construction-related noises and vibrations.

AMM-3: Special-Status Bats

The following are recommended to avoid or minimize potential impacts to special-status bats:

- Prior to commencement of construction activities, within or outside of the maternity roosting season, a qualified biologist shall conduct a pre-construction clearance survey throughout areas within the project site that have the potential to provide suitable bat roosting habitat to determine if western red bats, or any other special-status bat species, are roosting on-site. If bats are determined to be using trees specifically for roosting, the biologist will determine whether a day roost (non-breeding) or maternity roost (lactating females and dependent young) is present.
- If a day roost is determined to be present, the biologist shall ensure that direct mortality to roosting individuals will not occur. In general, disturbances to day roosts as a result of noise or other indirect impact is not generally considered significant, as it would not cause direct mortality of individuals and would not be expected to reduce populations to below self-sustaining levels. If removal of any trees supporting a day roost would occur, the biologist will ensure that all roosting individuals disperse from the location prior to removal of the vegetation to prevent direct mortality.
- If a maternity roost is observed, the biologist will determine whether construction activities are likely to disturb breeding activities. If it is determined that the vegetation supporting the roost must be removed or activities are expected to disturb the breeding activities, a Bat Exclusion Plan shall be prepared in consultation with CDFW. At a minimum, the plan shall include avoidance and minimization measures to reduce potential impacts to breeding bats during construction activities and prescribed methods to safely and humanely evict bats from the roost in order to minimize any potential impacts.

Special-Status Ground-Dwelling Wildlife

To avoid potential impacts to special-status ground-dwelling species, the following measures are recommended:

AMM-4: Coast Horned Lizard, Southern California Legless Lizard and Western Spadefoot Toad

A qualified biologist shall conduct a pre-construction clearance survey throughout areas with suitable habitat within the staging area, including a 100-foot buffer, for the coast horned lizard, southern California legless lizard and western spadefoot toad. If any of these species are observed during the survey, a qualified biologist should relocate the individual to suitable habitat at least 100 feet from the project site. Trapping and relocation methods should be conducted in consultation with CDFW.

AMM-5: Crotch Bumble Bee

A qualified biologist will conduct presence/absence surveys for the species at the appropriate time of year prior to the start of construction activities. If a nest is located in an area that would be affected by construction activities, an avoidance buffer will be implemented or the nest will be relocated to a suitable area that would not be affected by construction activities. Prior to any decision related to creating a buffer or relocating a nest, a qualified biologist will consult with CDFW, and rely on the best available science at that time to inform the decision (including communicating with experts, if appropriate). Such updated science related to relocation could include, but would not be limited to, information pertaining to delaying relocation as long as possible so that queens have a chance to emerge, relocating within their existing home range so nectar sources are familiar, relocating in the evening when bees are resting, and keeping the nest upright and level so not to spill nectar pots which are critical resources for the bees. A brief technical memorandum documenting the survey results will be submitted to CDFW.

AMM-6: Monarch Butterfly

Prior to the start of construction activities, a qualified biologist shall conduct pre-construction surveys for monarch butterfly, within 100 feet of construction activities near host plant communities (including mature eucalyptus and pines trees). The pre-construction surveys shall be conducted 7 days prior to the start of construction activities. If this species is present or determined to be within 100 feet of construction areas, construction best management practices (BMPs) will be implemented and incorporation of information about the species will be incorporated into the WEAP training to avoid potential impacts to the species. BMPs shall include limiting construction vehicle speeds to 15 miles per hour when operating within 100 feet of the habitat areas, fencing habitat areas using temporary silt fencing, and cleaning up all trash and debris daily. In coordination with the CDFW, additional avoidance measures may be required that include establishing a buffer around the species host plants, large trees, and on-site monitoring dependent on distance from the work area. Construction personnel will be instructed to not directly harm any butterflies on-site by halting activities until individuals can move to off-site areas or contact a qualified biologist to move the species out of harm's way.

AMM-7: General Avoidance and Minimization Measures

- Prior to the commencement of construction activities, construction personnel should check under stationary equipment to ensure no wildlife species are present, particularly when working around the perimeter of the Madrona Marsh.
- All trash should be collected daily and taken off-site for proper disposal.
- Prior to project implementation, a Workers Environmental Awareness Program (WEAP) should be prepared and presented to construction crews regarding the potential for nesting birds and other special-status wildlife species to occur on-site during construction activities. The WEAP training should concentrate on the proper identification of sensitive resources while in the field, suggested strategies in avoiding impact to sensitive resources, and proper reporting methods for field crews if sensitive resources are observed during construction activities.
- Erosion control measures (e.g., silt fencing, straw wattles) should be implemented within the project site to prevent sediment/contaminants from continuing off-site.
- Drip pans should be placed underneath all mechanical machinery that will be staged within or adjacent to the project site.
- Re-fueling of equipment should be conducted within designated staging areas.

If you should have any questions regarding this letter report, please do not hesitate to contact Sonya Vargas (svargas@esassoc.com) at (619) 767-8652.

Sincerely,

Amanda French
Biologist

Sonya Vargas
Senior Biologist

List of Attachments

Appendix A: Representative Photographs
Appendix B: Plant Species Detected
Appendix C: Wildlife Species Detected
Appendix D: Literature Review Results
Appendix E: Special-Status Species Evaluated for Potential to Occur within Survey Area

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Appendix A
Representative Photographs

Photo 1 (NE). Representative photograph of PM-07.

Photo 2 (SW). Representative photograph of PM-08.

Photo 3 (W). Representative photograph of PM-09.

Photo 4 (W). Representative photograph of PT-01 a,b,c.

Photo 5 (NW). Representative photograph of SILV-01.

Photo 6 (NW). Representative photograph of SILV-02.

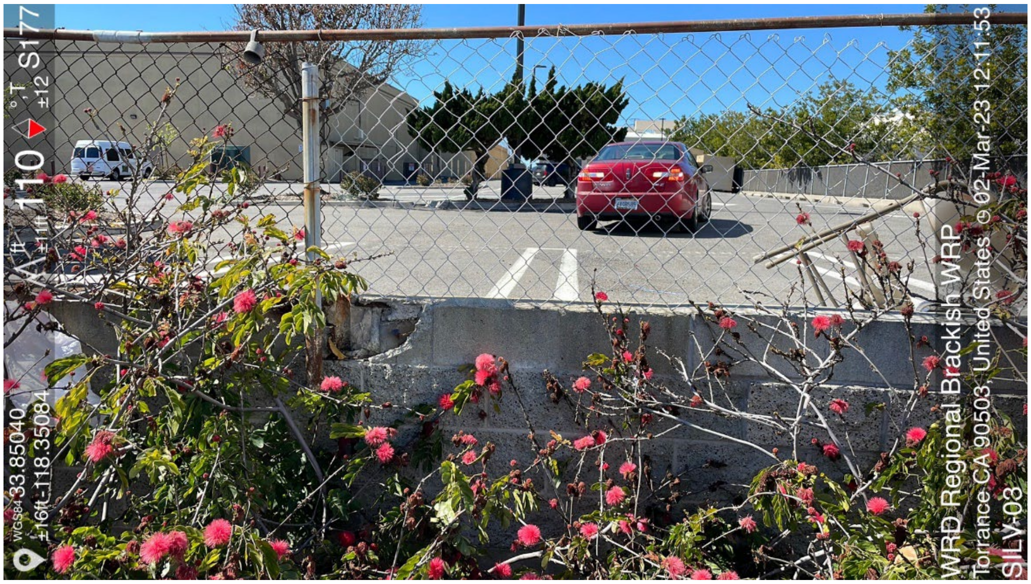


Photo 7 (W). Representative photograph of SILV-03.

Photo 8 (NW). Representative photograph of SILV-04.

Photo 9 (NE). Representative photograph of Madrona Marsh Well.

Photo 10 (S). Representative photograph of the Proposed Brine Disposal Pipeline, along Madrona Avenue.

Photo 11 (NW). Representative photograph of the Proposed Brine Disposal Pipeline, along Maple Avenue.

Photo 12 (N). Representative photograph of the Proposed Brine Disposal Pipeline, along Figueroa Street.

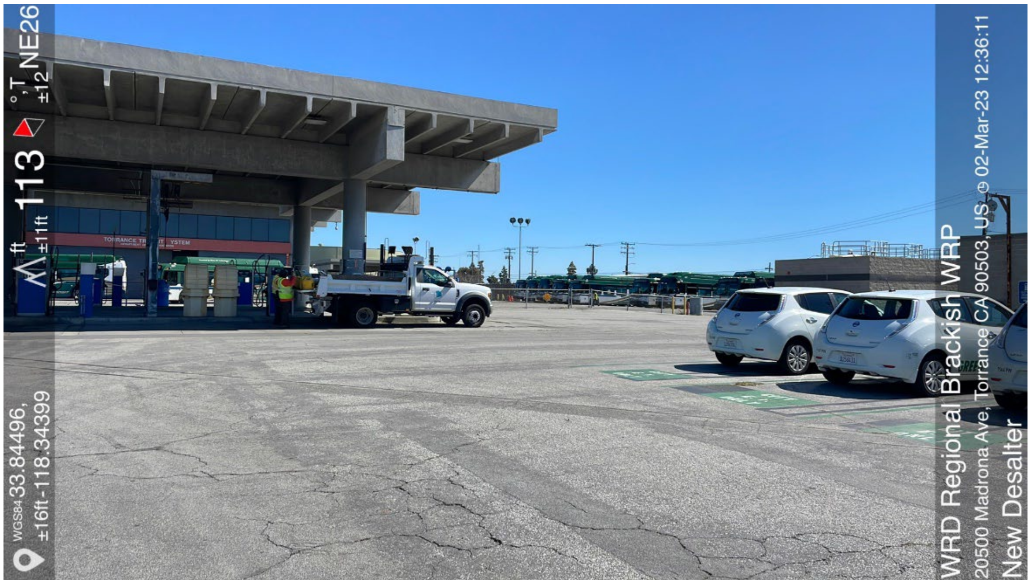


Photo 13 (SE). Representative photograph of area around the Proposed Regional Brackish Water Desalter.

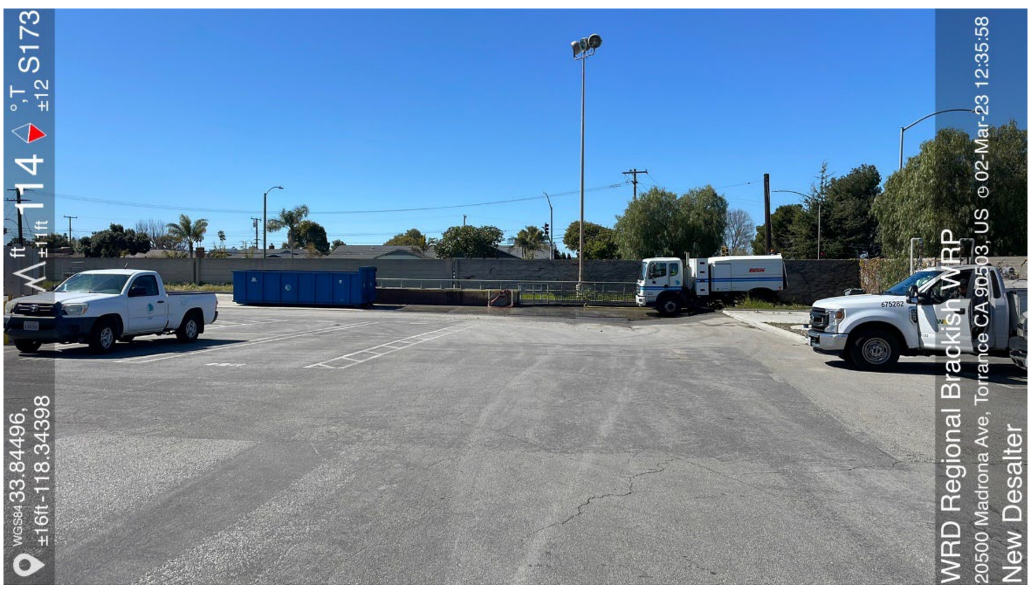


Photo 14 (W). Representative photograph of the Treatment Facility Site.

Photo 15 (S). Representative photograph of the Treatment Facility Site.

Photo 16 (SE). Representative photograph of the Treatment Facility Site.

Photo 17 (SE). Representative photograph of the Staging Area, taken near the parking lot area from Del Amo Boulevard.

Photo 18 (SE). Representative photograph of the Staging Area, taken from outside of the gate at the intersection of Madrona Avenue and Del Amo Boulevard.

Appendix B
Plant Species Detected

EUDICOTS

	Scientific Name	Common Name
	Aizoaceae	**Fig Marigold Family**
*	*Carpobrotus edulis*	Ice plant/hottentot fig
*	*Carpobrotus chilensis*	Chilean sea fig
	Anacardiaceae	**Sumac Family**
*	*Cupaniopsis anacardiopsis*	carrotwood
	Rhus integrifolia	lemonade berry
*	*Schinus molle*	Peruvian pepper tree
*	*Schinus terebinthifolius*	Brazilian pepper tree
	Araliaceae	**Ginseng Family**
*	*Hedra helix*	English ivy
	Asteraceae	**Aster Family**
	Artemisia californica	California sagebrush
	Baccharis salicifolia ssp. *salicifolia*	mule fat
	Encelia californica	California sunflower
*	*Erigeron bonariensis*	flax leaf fleabane
*	*Gazania linearis*	treasure flower
*	*Glebionis coronaria*	crown daisy
*	*Hypochaeris glabra*	Smooth cat's ears
	Isocoma menziesii	goldenbush
*	*Lactuca serriola*	prickly lettuce
*	*Pseudognaphalium luteoalbum*	Jersey cudweed
*	*Sonchus asper*	prickly sow thistle
*	*Sonchus oleraceus*	sow thistle
	Bignoniaceae	**Mustard Family**
*	*Jacaranda mimosifolia*	Black poui
	Brassicaceae	**Mustard Family**
*	*Raphanus sativus*	wild radish
*	*Sisymbrium irio*	London rocket
	Boraginaceae	**Borage Family**
	Amsinckia intermedia	Common fiddleneck
	Chenopodiaceae	**Goosefoot Family**
*	*Chenopodium murale*	Nettle leaf goosefoot

EUDICOTS

	Scientific Name	Common Name
*	*Salsola tragus*	Russian thistle
	Euphorbiaceae	**Spurge Family**
*	*Euphorbia helioscopia*	wartweed
*	*Ricinus communis*	castor bean
	Fabaceae	**Legume Family**
*	*Acacia longifolia*	Sydney golden wattle
*	*Acacia* sp.	wattle
	Acmispon glaber	coastal deerweed
	Lupinus bicolor	bicolored lupine
	Lupinus arboreus	coastal bush lupine
*	*Melilotus albus*	white sweetclover
	Fagaceae	**Beech Family**
	Quercus agrifolia	coast live oak
	Geraniaceae	**Geranium Family**
*	*Erodium botrys*	longbeak stork's bill
*	*Erodium cicutarium*	redstem stork's bill
	Hamamelidaceae	**Witch-hazel Family**
*	*Liquidambar styraciflua*	sweetgum
	Liliaceae	**Lily Family**
	Calochortus sp.	mariposa lily
	Lythraceae	**Loosestrife Family**
*	*Lagerstroemia indica*	Crapemyrtle
*	*Lythrum hyssopifolia*	Hyssop loosestrife
	Magnoliaceae	**Magnolia Family**
*	*Magnolia* sp.	magnolia
	Malvaceae	**Mallow Family**
*	*Malva parviflora*	cheeseweed
	Myrtaceae	**Eucalyptus Family**
*	*Eucalyptus* spp.	eucalyptus
*	*Eucalyptus globulus*	blue gum
*	*Eucalyptus polyanthemos*	silver dollar gum
*	*Eucalyptus citriodora*	lemon scented gum
	Nyctaginaceae	**Four O'clock Family**
*	*Bougainvillea glabra*	paperflowerh

EUDICOTS

Scientific Name	Common Name
Oleaceae	**Olive Family**
* *Fraxinus* sp.	ash
* *Olea europea*	olive
Onagraceae	**Evening Primrose**
Camissoniopsis bistorta	California sun cup
Oxalidaceae	**Wood Sorrel Family**
* *Oxalis pes-caprae*	Bermuda buttercup
Papaveraceae	**Poppy Family**
Eschscholzia californica	California poppy
Platanaceae	**Plantain Family**
Platanus racemosa	California sycamore
Polygonaceae	**Buckwheat Family**
Eriogonum fasciculatum	California buckwheat
Primulaceae	**Primrose Family**
* *Lysimachia arvensis*	scarlet pimpernel
Rosaceae	**Rose Family**
Heteromeles arbutifolia	Toyon
* *Prunus caroliniana*	Carolina laurelcherry
Salicaceae	**Willow Family**
Salix lasiolepis	arroyo willow
Salix sp.	willow
Saururaceae	**Lizard's Tail Family**
Anemopsis californica	Yerba mansa
* *Leucophyllum frutescens*	Texas barometer bush
Solanaceae	**Nightshade Family**
* *Nicotiana glauca*	tree tobacco
Tropaeolaceae	**Nasturtium Family**
* *Tropaeolum majus*	garden nasturtium
Ulmaceae	**Elm Family**
* *Ulmus parvifolia*	Chinese elm
Urticaceae	**Nettle Family**
* *Urtica urens*	annual stinging nettle

MONOCOTYLEDONS

Scientific Name	Common Name
Areacaeae	**Palm Family**
* *Phoenix canariensis*	Canary Island date palm
* *Syagrus romanzoffiana*	queen palm
* *Washingtonia robusta*	Mexican fan palm
Poaceae	**Grass Family**
* *Avena barbata*	slender oat
* *Bromus diandrus*	ripgut brome
* *Bromus hordeaceus*	soft chess
* *Bromus rubens*	red brome
* *Cynodon dactylon*	Bermuda grass
* *Cortaderia selloana*	pampas grass
* *Festuca myuros*	rattail fescue
* *Hordeum murinum*	seaside barley
* *Poa annua*	annual blue grass
* *Schismus barbatus*	Mediterranean schismus
* *Stipa miliacea*	smilo grass

CONIFERS

Scientific Name	Common Name
Pinaceae	**Pine Family**
* *Pinus* sp.	pine
* *Pinus canariensis*	Canary island pine

* = Non-native plant species

Appendix C
Wildlife Species Detected

INVERTEBRATES

Scientific Name	Common Name
Insecta (Order Hymenoptera)	**Ants, Bees, and Wasps**
* *Apis mellifera*	European honey bee
Insecta (Order Lepidoptera)	**Butterflies and Moths**
# *Danaus plexippus*	monarch butterfly

REPTILES

Scientific Name	Common Name
LACERTILIA	**LIZARDS**
Phrynosomatidae	**Zebratail, Earless, Horned, Spiny, Fringe-Toed Lizards**
Sceloporus occidentalis	western fence lizard
Uta stansburiana elegans	western side-blotched lizard

BIRDS

Scientific Name	Common Name
GRUIFORMES	
Rallidae	**Rails**
Fulica americana	American coot
COLUMBIFORMES	
Columbidae	**Pigeons and Doves**
Zenaida macroura	mourning dove
APODIFORMES	
Trochilidae	**Hummingbirds**
Calypte anna	Anna's hummingbird
PASSERIFORMES	
Tyrannidae	**Tyrant Flycatchers**
Sayornis nigricans	black phoebe
Corvidae	**Jays and Crows**
Corvus brachyrhynchos	American crow
Corvus corax	common raven

BIRDS

Scientific Name	Common Name
Fringillidae	**Finches**
Haemorhous mexicanus	house finch
Spinus psaltria	lesser goldfinch
Passerellidae	**New World Sparrows**
Junco hyemalis	dark-eyed junco
Melozone crissalis	California towhee
Zonotrichia leucophrys	white-crowned sparrow
Icteridae	**New World Blackbirds**
Agelaius phoeniceus	red-winged blackbird
Quiscalus mexicanus	great-tailed grackle
Parulidae	**New World Warblers**
Setophaga coronata	yellow-rumped warbler
Setophaga nigrescens	black-throated gray warbler
Sturnidae	**Starlings**
Strunus vulgaris	European starling
Turdidae	**Thrushes**
Sialia mexicana	western bluebird
Bombycillidae	**Waxwings**
Bombycilla cedorum	cedar waxwing
Aegithalidae	**Long-tailed Titss**
Psaltriparus minimus	bushtit
PICIFORMES	
Picidae	**Woodpeckers**
Dryobates pubescens	downy woodpecker
ANSERIFORMES	
Anatidae	**Ducks, Geese, Swans**
Anas platyrhynchos	mallard

BIRDS

Scientific Name	Common Name
Anatidae	**Ducks, Geese, Swans**
Branta canadensis	Canada goose
PELECANIFORMES	
Ardeidae	**Herons**
Ardea alba	great egret
ACCIPITRIFORMES	
Accipitridae	**Birds of Prey**
Buteo jamaicensis	red-tailed hawk

* = Non-native species

#= Special-status species

Appendix D
Literature Review Results

CALIFORNIA DEPARTMENT OF FISH and WILDLIFE RareFind

Query Summary:
Quad IS (Venice (3311884) OR Inglewood (3311883) OR South Gate (3311882) OR Redondo Beach (3311874) OR Torrance (3311873) OR Long Beach (3311872) OR San Pedro (3311863))

Print Close

CNDDB Element Query Results

Scientific Name	Common Name	Taxonomic Group	Element Code	Total Occs	Returned Occs	Federal Status	State Status	Global Rank	State Rank	CA Rare Plant Rank	Other Status	Habitats
Agelaius tricolor	tricolored blackbird	Birds	ABPBXB0020	955	3	None	Threatened	G1G2	S1S2	null	BLM_S-Sensitive, CDFW_SSC-Species of Special Concern, IUCN_EN-Endangered, NABCI_RWL-Red Watch List, USFWS_BCC-Birds of Conservation Concern	Freshwater marsh, Marsh & swamp, Swamp, Wetland
Anniella stebbinsi	Southern California legless lizard	Reptiles	ARACC01060	426	26	None	None	G3	S3	null	CDFW_SSC-Species of Special Concern, USFS_S-Sensitive	Broadleaved upland forest, Chaparral, Coastal dunes, Coastal scrub
Aphanisma blitoides	aphanisma	Dicots	PDCHE02010	82	8	None	None	G3G4	S2	1B.2	SB_CRES-San Diego Zoo CRES Native Gene Seed Bank, SB_SBBG-Santa Barbara Botanic Garden	Coastal bluff scrub, Coastal dunes, Coastal scrub
Astragalus hornii var. hornii	Horn's milk-vetch	Dicots	PDFAB0F421	28	1	None	None	GUT1	S1	1B.1	BLM_S-Sensitive	Alkali playa, Meadow & seep, Wetland
Astragalus pycnostachyus var. lanosissimus	Ventura Marsh milk-vetch	Dicots	PDFAB0F7B1	7	1	Endangered	Endangered	G2T1	S1	1B.1	SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden, SB_SBBG-Santa Barbara Botanic Garden	Coastal dunes, Coastal scrub, Marsh & swamp, Salt marsh, Wetland
Astragalus tener var. titi	coastal dunes milk-vetch	Dicots	PDFAB0F8R2	6	1	Endangered	Endangered	G2T1	S1	1B.1	SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden	Coastal bluff scrub, Coastal dunes, Coastal prairie
Athene cunicularia	burrowing owl	Birds	ABNSB10010	2011	2	None	None	G4	S3	null	BLM_S-Sensitive, CDFW_SSC-Species of Special Concern, IUCN_LC-Least Concern, USFWS_BCC-Birds of Conservation Concern	Coastal prairie, Coastal scrub, Great Basin grassland, Great Basin scrub, Mojavean desert scrub, Sonoran desert scrub, Valley & foothill grassland
Atriplex coulteri	Coulter's saltbush	Dicots	PDCHE040E0	121	3	None	None	G3	S1S2	1B.2	SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden, SB_CRES-San Diego Zoo CRES Native Gene Seed Bank	Coastal bluff scrub, Coastal dunes, Coastal scrub, Valley & foothill grassland
Atriplex pacifica	south coast saltscale	Dicots	PDCHE041C0	109	5	None	None	G4	S2	1B.2	SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden, SB_CRES-San Diego Zoo CRES Native Gene Seed Bank	Alkali playa, Coastal bluff scrub, Coastal dunes, Coastal scrub

Atriplex parishii	Parish's brittlescale	Dicots	PDCHE041D0	15	2	None	None	G1G2	S1	1B.1	SB_CRES-San Diego Zoo CRES Native Gene Seed Bank, USFS_S-Sensitive	Alkali playa, Chenopod scrub, Meadow & seep, Vernal pool, Wetland
Atriplex serenana var. davidsonii	Davidson's saltscale	Dicots	PDCHE041T1	26	1	None	None	G5T1	S1	1B.2	SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden	Coastal bluff scrub, Coastal scrub
Bombus crotchii	Crotch bumble bee	Insects	IIHYM24480	437	8	None	Candidate Endangered	G2	S2	null	IUCN_EN-Endangered	null
Brennania belkini	Belkin's dune tabanid fly	Insects	IIDIP17010	5	5	None	None	G1G2	S1S2	null	IUCN_VU-Vulnerable	Coastal dunes
Centromadia parryi ssp. australis	southern tarplant	Dicots	PDAST4R0P4	94	12	None	None	G3T2	S2	1B.1	SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden, SB_CRES-San Diego Zoo CRES Native Gene Seed Bank, SB_SBBG-Santa Barbara Botanic Garden	Marsh & swamp, Salt marsh, Valley & foothill grassland, Vernal pool, Wetland
Centromadia pungens ssp. laevis	smooth tarplant	Dicots	PDAST4R0R4	137	1	None	None	G3G4T2	S2	1B.1	SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden	Alkali playa, Chenopod scrub, Meadow & seep, Riparian woodland, Valley & foothill grassland, Wetland
Chaenactis glabriuscula var. orcuttiana	Orcutt's pincushion	Dicots	PDAST20095	36	5	None	None	G5T1T2	S1	1B.1	SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden, SB_CRES-San Diego Zoo CRES Native Gene Seed Bank	Coastal bluff scrub, Coastal dunes
Charadrius nivosus nivosus	western snowy plover	Birds	ABNNB03031	138	2	Threatened	None	G3T3	S3	null	CDFW_SSC-Species of Special Concern, NABCI_RWL-Red Watch List	Great Basin standing waters, Sand shore, Wetland
Chenopodium littoreum	coastal goosefoot	Dicots	PDCHE091Z0	13	1	None	None	G1	S1	1B.2	SB_SBBG-Santa Barbara Botanic Garden	Coastal dunes
Chloropyron maritimum ssp. maritimum	salt marsh bird's-beak	Dicots	PDSCR0J0C2	26	3	Endangered	Endangered	G4?T1	S1	1B.2	BLM_S-Sensitive, SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden, SB_CRES-San Diego Zoo CRES Native Gene Seed Bank, SB_SBBG-Santa Barbara Botanic Garden	Coastal dunes, Marsh & swamp, Salt marsh, Wetland
Chorizanthe parryi var. fernandina	San Fernando Valley spineflower	Dicots	PDPGN040J1	21	1	None	Endangered	G2T1	S1	1B.1	SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden, USFS_S-Sensitive	Coastal scrub, Valley & foothill grassland
Cicindela hirticollis gravida	sandy beach tiger beetle	Insects	IICOL02101	34	6	None	None	G5T2	S2	null	null	Coastal dunes
Cicindela latesignata	western beach tiger beetle	Insects	IICOL02110	27	3	None	None	G2G3	S1	null	null	Estuary, Mud shore/flats, Salt marsh, Sand shore
Cicindela senilis frosti	senile tiger beetle	Insects	IICOL02121	9	1	None	None	G2G3T1T3	S1	null	null	Mud shore/flats, Wetland
Coccyzus americanus occidentalis	western yellow-billed cuckoo	Birds	ABNRB02022	165	4	Threatened	Endangered	G5T2T3	S1	null	BLM_S-Sensitive, NABCI_RWL-Red Watch List, USFS_S-Sensitive	Riparian forest
Coelus globosus	globose dune beetle	Insects	IICOL4A010	50	2	None	None	G1G2	S1S2	null	IUCN_VU-Vulnerable	Coastal dunes
Coturnicops noveboracensis	yellow rail	Birds	ABNME01010	45	1	None	None	G4	S1S2	null	CDFW_SSC-Species of Special Concern, IUCN_LC-Least Concern,	Freshwater marsh, Meadow & seep

											NABCI_RWL-Red Watch List, USFS_S-Sensitive, USFWS_BCC-Birds of Conservation Concern	
Crossosoma californicum	Catalina crossosoma	Dicots	PDCRO02020	80	2	None	None	G3	S3	1B.2	SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden	Chaparral, Coastal scrub
Danaus plexippus plexippus pop. 1	monarch - California overwintering population	Insects	IILEPP2012	389	13	Candidate	None	G4T1T2Q	S2	null	IUCN_EN-Endangered, USFS_S-Sensitive	Closed-cone coniferous forest
Dithyrea maritima	beach spectaclepod	Dicots	PDBRA10020	28	4	None	Threatened	G1	S1	1B.1	SB_SBBG-Santa Barbara Botanic Garden	Coastal dunes, Coastal scrub
Dudleya virens ssp. insularis	island green dudleya	Dicots	PDCRA040S2	23	4	None	None	G3?T3	S3	1B.2	null	Coastal bluff scrub, Coastal scrub
Empidonax traillii extimus	southwestern willow flycatcher	Birds	ABPAE33043	70	2	Endangered	Endangered	G5T2	S1	null	NABCI_RWL-Red Watch List	Riparian woodland
Emys marmorata	western pond turtle	Reptiles	ARAAD02030	1424	1	None	None	G3G4	S3	null	BLM_S-Sensitive, CDFW_SSC-Species of Special Concern, IUCN_VU-Vulnerable, USFS_S-Sensitive	Aquatic, Artificial flowing waters, Klamath/North coast flowing waters, Klamath/North coast standing waters, Marsh & swamp, Sacramento/San Joaquin flowing waters, Sacramento/San Joaquin standing waters, South coast flowing waters, South coast standing waters, Wetland
Eryngium aristulatum var. parishii	San Diego button-celery	Dicots	PDAPI0Z042	83	1	Endangered	Endangered	G5T1	S1	1B.1	SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden, SB_CRES-San Diego Zoo CRES Native Gene Seed Bank	Coastal scrub, Valley & foothill grassland, Vernal pool, Wetland
Eugnosta busckana	Busck's gallmoth	Insects	IILEM2X090	15	1	None	None	G1G3	S2S3	null	null	Coastal dunes, Coastal scrub
Eumops perotis californicus	western mastiff bat	Mammals	AMACD02011	296	2	None	None	G4G5T4	S3S4	null	BLM_S-Sensitive, CDFW_SSC-Species of Special Concern	Chaparral, Cismontane woodland, Coastal scrub, Valley & foothill grassland
Euphilotes battoides allyni	El Segundo blue butterfly	Insects	IILEPG201B	4	4	Endangered	None	G5T1	S1	null	null	Coastal dunes
Glaucopsyche lygdamus palosverdesensis	Palos Verdes blue butterfly	Insects	IILEPG402A	12	12	Endangered	None	G5T1	S1	null	null	Coastal scrub
Glyptostoma gabrielense	San Gabriel chestnut	Mollusks	IMGASB1010	24	2	None	None	G2	S3	null	null	null
Gonidea angulata	western ridged mussel	Mollusks	IMBIV19010	157	1	None	None	G3	S2	null	IUCN_VU-Vulnerable	Aquatic
Habroscelimorpha gabbii	western tidal-flat tiger beetle	Insects	IICOL02080	9	2	None	None	G2G4	S1	null	null	Estuary, Mud shore/flats
Horkelia cuneata var. puberula	mesa horkelia	Dicots	PDROS0W045	103	2	None	None	G4T1	S1	1B.1	SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden, USFS_S-Sensitive	Chaparral, Cismontane woodland, Coastal scrub
Isocoma menziesii var. decumbens	decumbent goldenbush	Dicots	PDAST57091	126	1	None	None	G3G5T2T3	S2	1B.2	BLM_S-Sensitive, SB_CRES-San Diego Zoo CRES Native Gene Seed Bank	Chaparral, Coastal scrub
Lasionycteris noctivagans	silver-haired bat	Mammals	AMACC02010	139	1	None	None	G3G4	S3S4	null	IUCN_LC-Least Concern	Lower montane coniferous forest, Oldgrowth, Riparian forest

Lasthenia glabrata ssp. coulteri	Coulter's goldfields	Dicots	PDAST5L0A1	111	6	None	None	G4T2	S2	1B.1	BLM_S-Sensitive, SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden, SB_SBBG-Santa Barbara Botanic Garden	Alkali playa, Marsh & swamp, Salt marsh, Vernal pool, Wetland
Laterallus jamaicensis coturniculus	California black rail	Birds	ABNME03041	303	1	None	Threatened	G3T1	S1	null	BLM_S-Sensitive, CDFW_FP-Fully Protected, IUCN_EN-Endangered, NABCI_RWL-Red Watch List	Brackish marsh, Freshwater marsh, Marsh & swamp, Salt marsh, Wetland
Lycium brevipes var. hassei	Santa Catalina Island desert-thorn	Dicots	PDSOL0G0N0	7	3	None	None	G5T1Q	S1	3.1	null	Coastal bluff scrub, Coastal scrub
Microtus californicus stephensi	south coast marsh vole	Mammals	AMAFF11035	7	3	None	None	G5T2T3	S2	null	CDFW_SSC-Species of Special Concern	null
Nama stenocarpa	mud nama	Dicots	PDHYD0A0H0	22	1	None	None	G4G5	S1S2	2B.2	null	Marsh & swamp, Wetland
Navarretia fossalis	spreading navarretia	Dicots	PDPLM0C080	82	1	Threatened	None	G2	S2	1B.1	SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden, SB_CRES-San Diego Zoo CRES Native Gene Seed Bank	Alkali playa, Chenopod scrub, Marsh & swamp, Vernal pool, Wetland
Navarretia prostrata	prostrate vernal pool navarretia	Dicots	PDPLM0C0Q0	61	6	None	None	G2	S2	1B.2	null	Coastal scrub, Meadow & seep, Valley & foothill grassland, Vernal pool, Wetland
Nemacaulis denudata var. denudata	coast woolly-heads	Dicots	PDPGN0G011	42	2	None	None	G3G4T2	S2	1B.2	SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden, SB_CRES-San Diego Zoo CRES Native Gene Seed Bank	Coastal dunes
Neotoma lepida intermedia	San Diego desert woodrat	Mammals	AMAFF08041	132	1	None	None	G5T3T4	S3S4	null	CDFW_SSC-Species of Special Concern	Coastal scrub
Nyctinomops femorosaccus	pocketed free-tailed bat	Mammals	AMACD04010	90	2	None	None	G5	S3	null	CDFW_SSC-Species of Special Concern, IUCN_LC-Least Concern	Joshua tree woodland, Pinon & juniper woodlands, Riparian scrub, Sonoran desert scrub
Nyctinomops macrotis	big free-tailed bat	Mammals	AMACD04020	32	1	None	None	G5	S3	null	CDFW_SSC-Species of Special Concern, IUCN_LC-Least Concern	null
Onychobaris langei	Lange's El Segundo Dune weevil	Insects	IICOL4W010	1	1	None	None	G1	S1	null	null	Coastal dunes
Orcuttia californica	California Orcutt grass	Monocots	PMPOA4G010	39	3	Endangered	Endangered	G1	S1	1B.1	SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden, SB_CRES-San Diego Zoo CRES Native Gene Seed Bank	Vernal pool, Wetland
Panoquina errans	wandering (=saltmarsh) skipper	Insects	IILEP84030	14	1	None	None	G4G5	S2	null	IUCN_NT-Near Threatened	Marsh & swamp, Wetland
Passerculus sandwichensis beldingi	Belding's savannah sparrow	Birds	ABPBX99015	39	2	None	Endangered	G5T3	S3	null	USFWS_BCC-Birds of Conservation Concern	Marsh & swamp, Wetland

Pelecanus occidentalis californicus	California brown pelican	Birds	ABNFC01021	27	2	Delisted	Delisted	G4T3T4	S3	null	BLM_S-Sensitive, CDFW_FP-Fully Protected, USFS_S-Sensitive	null
Pelochrista hennei	Henne's eucosman moth	Insects	IILEM0R390	1	1	None	None	G1	S1	null	null	Coastal dunes
Pentachaeta lyonii	Lyon's pentachaeta	Dicots	PDAST6X060	45	3	Endangered	Endangered	G1	S1	1B.1	SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden	Chaparral, Coastal scrub, Valley & foothill grassland
Perognathus longimembris pacificus	Pacific pocket mouse	Mammals	AMAFD01042	14	3	Endangered	None	G5T1	S2	null	CDFW_SSC-Species of Special Concern	Coastal scrub
Phacelia stellaris	Brand's star phacelia	Dicots	PDHYD0C510	15	4	None	None	G1	S1	1B.1	SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden	Coastal dunes, Coastal scrub
Phrynosoma blainvillii	coast horned lizard	Reptiles	ARACF12100	784	5	None	None	G3	S4	null	BLM_S-Sensitive, CDFW_SSC-Species of Special Concern, IUCN_LC-Least Concern	Chaparral, Cismontane woodland, Coastal bluff scrub, Coastal scrub, Desert wash, Pinon & juniper woodlands, Riparian scrub, Riparian woodland, Valley & foothill grassland
Polioptila californica californica	coastal California gnatcatcher	Birds	ABPBJ08081	1087	15	Threatened	None	G4G5T3Q	S2	null	CDFW_SSC-Species of Special Concern, NABCI_YWL-Yellow Watch List	Coastal bluff scrub, Coastal scrub
Potentilla multijuga	Ballona cinquefoil	Dicots	PDROS1B120	1	1	None	None	GX	SX	1A	null	Meadow & seep
Rhaphiomidas terminatus terminatus	El Segundo flower-loving fly	Insects	IIDIP05022	1	1	None	None	G1T1	S1	null	null	null
Riparia riparia	bank swallow	Birds	ABPAU08010	299	2	None	Threatened	G5	S2	null	BLM_S-Sensitive, IUCN_LC-Least Concern	Riparian scrub, Riparian woodland
Sidalcea neomexicana	salt spring checkerbloom	Dicots	PDMAL110J0	30	1	None	None	G4	S2	2B.2	USFS_S-Sensitive	Alkali playa, Chaparral, Coastal scrub, Lower montane coniferous forest, Mojavean desert scrub, Wetland
Siphateles bicolor mohavensis	Mohave tui chub	Fish	AFCJB1303H	24	1	Endangered	Endangered	G4T1	S1	null	AFS_EN-Endangered, CDFW_FP-Fully Protected	Aquatic, Artificial flowing waters, Artificial standing waters
Sorex ornatus salicornicus	southern California saltmarsh shrew	Mammals	AMABA01104	4	1	None	None	G5T1?	S1	null	CDFW_SSC-Species of Special Concern	Salt marsh
Southern Coastal Bluff Scrub	Southern Coastal Bluff Scrub	Scrub	CTT31200CA	23	1	None	None	G1	S1.1	null	null	Coastal bluff scrub
Southern Coastal Salt Marsh	Southern Coastal Salt Marsh	Marsh	CTT52120CA	24	1	None	None	G2	S2.1	null	null	Marsh & swamp, Wetland
Southern Dune Scrub	Southern Dune Scrub	Dune	CTT21330CA	10	1	None	None	G1	S1.1	null	null	Coastal dunes
Spea hammondii	western spadefoot	Amphibians	AAABF02020	1425	6	None	None	G2G3	S3S4	null	BLM_S-Sensitive, CDFW_SSC-Species of Special Concern, IUCN_NT-Near Threatened	Cismontane woodland, Coastal scrub, Valley & foothill grassland, Vernal pool, Wetland
Sternula antillarum browni	California least tern	Birds	ABNNM08103	75	7	Endangered	Endangered	G4T2T3Q	S2	null	CDFW_FP-Fully Protected, NABCI_RWL-Red Watch List	Alkali playa, Wetland

Streptocephalus wootoni	Riverside fairy shrimp	Crustaceans	ICBRA07010	83	4	Endangered	None	G1G2	S2	null	IUCN_EN-Endangered	Coastal scrub, Valley & foothill grassland, Vernal pool, Wetland
Suaeda esteroa	estuary seablite	Dicots	PDCHE0P0D0	39	2	None	None	G3	S2	1B.2	null	Marsh & swamp, Salt marsh, Wetland
Symphyotrichum defoliatum	San Bernardino aster	Dicots	PDASTE80C0	102	2	None	None	G2	S2	1B.2	SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden, SB_CRES-San Diego Zoo CRES Native Gene Seed Bank, USFS_S-Sensitive	Cismontane woodland, Coastal scrub, Lower montane coniferous forest, Marsh & swamp, Meadow & seep, Valley & foothill grassland
Taxidea taxus	American badger	Mammals	AMAJF04010	594	1	None	None	G5	S3	null	CDFW_SSC-Species of Special Concern, IUCN_LC-Least Concern	Alkali marsh, Alkali playa, Alpine, Alpine dwarf scrub, Bog & fen, Brackish marsh, Broadleaved upland forest, Chaparral, Chenopod scrub, Cismontane woodland, Closed-cone coniferous forest, Coastal bluff scrub, Coastal dunes, Coastal prairie, Coastal scrub, Desert dunes, Desert wash, Freshwater marsh, Great Basin grassland, Great Basin scrub, Interior dunes, Ione formation, Joshua tree woodland, Limestone, Lower montane coniferous forest, Marsh & swamp, Meadow & seep, Mojavean desert scrub, Montane dwarf scrub, North coast coniferous forest, Oldgrowth, Pavement plain, Redwood, Riparian forest, Riparian scrub, Riparian woodland, Salt marsh, Sonoran desert scrub, Sonoran thorn woodland, Ultramafic, Upper montane coniferous forest, Upper Sonoran scrub, Valley & foothill grassland
Trigonoscuta dorothea dorothea	Dorothy's El Segundo Dune weevil	Insects	IICOL51021	4	2	None	None	G1T1	S1	null	null	Coastal dunes
Tryonia imitator	mimic tryonia (=California brackishwater snail)	Mollusks	IMGASJ7040	39	3	None	None	G2	S2	null	IUCN_DD-Data Deficient	Aquatic, Brackish marsh, Estuary, Lagoon, Marsh & swamp, Salt marsh, Wetland
Vireo bellii pusillus	least Bell's vireo	Birds	ABPBW01114	504	2	Endangered	Endangered	G5T2	S2	null	NABCI_YWL-Yellow Watch List	Riparian forest, Riparian scrub, Riparian woodland

CNPS Rare Plant Inventory

CALIFORNIA NATIVE PLANT SOCIETY

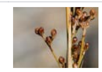
Search Results

49 matches found. Click on scientific name for details

Search Criteria: Quad is one of [3311873:3311884:3311883:3311882:3311872:3311874:3311863]

▲ SCIENTIFIC NAME	COMMON NAME	FAMILY	LIFEFORM	BLOOMING PERIOD	FED LIST	STATE LIST	GLOBAL RANK	STATE RANK	CA RARE PLANT RANK	CA ENDEMIC	DATE ADDED	PHOTO
Abronia maritima	red sand-verbena	Nyctaginaceae	perennial herb	Feb-Nov	None	None	G4	S3?	4.2		1994-01-01	 ©2003 Christopher L. Christie
Aphanisma blitoides	aphanisma	Chenopodiaceae	annual herb	Feb-Jun	None	None	G3G4	S2	1B.2		1980-01-01	 © 2010 Larry Sward
Astragalus hornii var. hornii	Horn's milk-vetch	Fabaceae	annual herb	May-Oct	None	None	GUT1	S1	1B.1		2006-12-01	No Photo Available
Astragalus pycnostachyus var. lanosissimus	Ventura Marsh milk-vetch	Fabaceae	perennial herb	(Jun)Aug-Oct	FE	CE	G2T1	S1	1B.1	Yes	1974-01-01	No Photo Available
Astragalus tener var. titi	coastal dunes milk-vetch	Fabaceae	annual herb	Mar-May	FE	CE	G2T1	S1	1B.1	Yes	1974-01-01	No Photo Available
Atriplex coulteri	Coulter's saltbush	Chenopodiaceae	perennial herb	Mar-Oct	None	None	G3	S1S2	1B.2		1994-01-01	No Photo Available
Atriplex pacifica	south coast saltscale	Chenopodiaceae	annual herb	Mar-Oct	None	None	G4	S2	1B.2		1994-01-01	No Photo Available
Atriplex parishii	Parish's brittlescale	Chenopodiaceae	annual herb	Jun-Oct	None	None	G1G2	S1	1B.1		1988-01-01	No Photo Available
Atriplex serenana var. davidsonii	Davidson's saltscale	Chenopodiaceae	annual herb	Apr-Oct	None	None	G5T1	S1	1B.2		1994-01-01	No Photo Available
Calochortus catalinae	Catalina mariposa lily	Liliaceae	perennial bulbiferous herb	(Feb)Mar-Jun	None	None	G3G4	S3S4	4.2	Yes	1974-01-01	No Photo Available
Calystegia peirsonii	Peirson's morning-glory	Convolvulaceae	perennial rhizomatous herb	Apr-Jun	None	None	G4	S4	4.2	Yes	1974-01-01	No Photo Available

Camissoniopsis lewisii	Lewis' evening-primrose	Onagraceae	annual herb	Mar-May(Jun)	None	None	G4	S4	3		1994-01-01	No Photo Available
Centromadia parryi ssp. *australis*	southern tarplant	Asteraceae	annual herb	May-Nov	None	None	G3T2	S2	1B.1		1994-01-01	No Photo Available
Centromadia pungens ssp. *laevis*	smooth tarplant	Asteraceae	annual herb	Apr-Sep	None	None	G3G4T2	S2	1B.1	Yes	1994-01-01	No Photo Available
Chaenactis glabriuscula var. *orcuttiana*	Orcutt's pincushion	Asteraceae	annual herb	Jan-Aug	None	None	G5T1T2	S1	1B.1		2001-01-01	No Photo Available
Chenopodium littoreum	coastal goosefoot	Chenopodiaceae	annual herb	Apr-Aug	None	None	G1	S1	1B.2	Yes	2011-06-01	No Photo Available
Chloropyron maritimum ssp. *maritimum*	salt marsh bird's-beak	Orobanchaceae	annual herb (hemiparasitic)	May-Oct(Nov)	FE	CE	G4?T1	S1	1B.2		1974-01-01	No Photo Available
Chorizanthe parryi var. *fernandina*	San Fernando Valley spineflower	Polygonaceae	annual herb	Apr-Jul	None	CE	G2T1	S1	1B.1	Yes	1974-01-01	No Photo Available
Cistanthe maritima	seaside cistanthe	Montiaceae	annual herb	(Feb)Mar-Jun(Aug)	None	None	G3G4	S3	4.2		1980-01-01	No Photo Available
Convolvulus simulans	small-flowered morning-glory	Convolvulaceae	annual herb	Mar-Jul	None	None	G4	S4	4.2		1994-01-01	No Photo Available
Crossosoma californicum	Catalina crossosoma	Crossosomataceae	perennial deciduous shrub	Feb-May	None	None	G3	S3	1B.2		1980-01-01	No Photo Available
Deinandra paniculata	paniculate tarplant	Asteraceae	annual herb	(Mar)Apr-Nov	None	None	G4	S4	4.2		2001-01-01	No Photo Available
Dichondra occidentalis	western dichondra	Convolvulaceae	perennial rhizomatous herb	(Jan)Mar-Jul	None	None	G3G4	S3S4	4.2		1974-01-01	No Photo Available
Dithyrea maritima	beach spectaclepod	Brassicaceae	perennial rhizomatous herb	Mar-May	None	CT	G1	S1	1B.1		1980-01-01	No Photo Available
Dudleya virens ssp. *insularis*	island green dudleya	Crassulaceae	perennial herb	Apr-Jun	None	None	G3?T3	S3	1B.2	Yes	2001-01-01	No Photo Available
Eryngium aristulatum var. *parishii*	San Diego button-celery	Apiaceae	annual/perennial herb	Apr-Jun	FE	CE	G5T1	S1	1B.1		1974-01-01	No Photo Available
Erysimum insulare	island wallflower	Brassicaceae	perennial herb	Mar-Jul	None	None	G3	S3	1B.3	Yes	1974-01-01	No Photo Available

Erysimum suffrutescens	suffrutescent wallflower	Brassicaceae	perennial herb	Jan-Jul(Aug)	None	None	G3	S3	4.2	Yes	1980-01-01	No Photo Available
Hordeum intercedens	vernal barley	Poaceae	annual herb	Mar-Jun	None	None	G3G4	S3S4	3.2		1994-01-01	No Photo Available
Horkelia cuneata var. *puberula*	mesa horkelia	Rosaceae	perennial herb	Feb-Jul(Sep)	None	None	G4T1	S1	1B.1	Yes	2001-01-01	 © 2008 Tony Morosco
Isocoma menziesii var. *decumbens*	decumbent goldenbush	Asteraceae	perennial shrub	Apr-Nov	None	None	G3G5T2T3	S2	1B.2		1994-01-01	No Photo Available
Juglans californica	Southern California black walnut	Juglandaceae	perennial deciduous tree	Mar-Aug	None	None	G4	S4	4.2	Yes	1994-01-01	 © 2020 Zoya Akulova
Juncus acutus ssp. *leopoldii*	southwestern spiny rush	Juncaceae	perennial rhizomatous herb	(Mar)May-Jun	None	None	G5T5	S4	4.2		1988-01-01	 © 2019 Belinda Lo
Lasthenia glabrata ssp. *coulteri*	Coulter's goldfields	Asteraceae	annual herb	Feb-Jun	None	None	G4T2	S2	1B.1		1994-01-01	 © 2013 Keir Morse
Lycium brevipes var. *hassei*	Santa Catalina Island desert-thorn	Solanaceae	perennial deciduous shrub	Jun(Aug)	None	None	G5T1Q	S1	3.1	Yes	1974-01-01	No Photo Available
Lycium californicum	California box-thorn	Solanaceae	perennial shrub	Mar-Aug(Dec)	None	None	G4	S4	4.2		2001-01-01	No Photo Available
Nama stenocarpa	mud nama	Namaceae	annual/perennial herb	Jan-Jul	None	None	G4G5	S1S2	2B.2		1994-01-01	No Photo Available
Navarretia fossalis	spreading navarretia	Polemoniaceae	annual herb	Apr-Jun	FT	None	G2	S2	1B.1		1980-01-01	No Photo Available
Navarretia prostrata	prostrate vernal pool navarretia	Polemoniaceae	annual herb	Apr-Jul	None	None	G2	S2	1B.2	Yes	2001-01-01	No Photo Available
Nemacaulis denudata var. *denudata*	coast woolly-heads	Polygonaceae	annual herb	Apr-Sep	None	None	G3G4T2	S2	1B.2		1994-01-01	No Photo Available
Orcuttia californica	California Orcutt grass	Poaceae	annual herb	Apr-Aug	FE	CE	G1	S1	1B.1		1974-01-01	No Photo Available

Pentachaeta lyonii	Lyon's pentachaeta	Asteraceae	annual herb	(Feb)Mar-Aug	FE	CE	G1	S1	1B.1	Yes	1974-01-01	No Photo Available
Phacelia ramosissima var. austrolitoralis	south coast branching phacelia	Hydrophyllaceae	perennial herb	Mar-Aug	None	None	G5?T3Q	S3	3.2		2007-05-17	No Photo Available
Phacelia stellaris	Brand's star phacelia	Hydrophyllaceae	annual herb	Mar-Jun	None	None	G1	S1	1B.1		1994-01-01	No Photo Available
Potentilla multijuga	Ballona cinquefoil	Rosaceae	perennial herb	Jun-Aug	None	None	GX	SX	1A	Yes	1974-01-01	No Photo Available
Sidalcea neomexicana	salt spring checkerbloom	Malvaceae	perennial herb	Mar-Jun	None	None	G4	S2	2B.2		1994-01-01	No Photo Available
Suaeda esteroa	estuary seablite	Chenopodiaceae	perennial herb	(Jan-May)Jul-Oct	None	None	G3	S2	1B.2		1984-01-01	No Photo Available
Suaeda taxifolia	woolly seablite	Chenopodiaceae	perennial evergreen shrub	Jan-Dec	None	None	G4	S4	4.2		1994-01-01	No Photo Available
Symphyotrichum defoliatum	San Bernardino aster	Asteraceae	perennial rhizomatous herb	Jul-Nov	None	None	G2	S2	1B.2	Yes	2004-01-01	No Photo Available

Showing 1 to 49 of 49 entries

Suggested Citation:
California Native Plant Society, Rare Plant Program. 2023. Rare Plant Inventory (online edition, v9.5). Website https://www.rareplants.cnps.org [accessed 13 March 2023].

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Carlsbad Fish And Wildlife Office
2177 Salk Avenue - Suite 250
Carlsbad, CA 92008-7385
Phone: (760) 431-9440 Fax: (760) 431-5901

In Reply Refer To: March 20, 2023
Project Code: 2023-0057803
Project Name: Regional Brackish Water Reclamation Program

Subject: List of threatened and endangered species that may occur in your proposed project location or may be affected by your proposed project

To Whom It May Concern:

The enclosed species list identifies threatened, endangered, proposed and candidate species, as well as proposed and final designated critical habitat, that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the U.S. Fish and Wildlife Service (Service) under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*).

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Please feel free to contact us if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the ECOS-IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the ECOS-IPaC system by completing the same process used to receive the enclosed list.

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the Act and its implementing regulations (50 CFR 402 *et seq.*), Federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered species and to determine whether projects may affect threatened and endangered species and/or designated critical habitat.

A biological assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2)(c)). For projects other than major construction activities, the Service suggests that a biological evaluation similar to a biological assessment be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a biological assessment are described at 50 CFR 402.12.

If a Federal agency determines, based on the Biological Assessment or biological evaluation, that listed species and/or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. In addition, the Service recommends that candidate species, proposed species and proposed critical habitat be addressed within the consultation. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found at the Fish and Wildlife Service's Endangered Species Consultation website at:

https://www.fws.gov/endangered/what-we-do/faq.html

Migratory Birds: In addition to responsibilities to protect threatened and endangered species under the Endangered Species Act (ESA), there are additional responsibilities under the Migratory Bird Treaty Act (MBTA) and the Bald and Golden Eagle Protection Act (BGEPA) to protect native birds from project-related impacts. Any activity, intentional or unintentional, resulting in take of migratory birds, including eagles, is prohibited unless otherwise permitted by the U.S. Fish and Wildlife Service (50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)). For more information regarding these Acts see https://www.fws.gov/birds/policies-and-regulations.php.

The MBTA has no provision for allowing take of migratory birds that may be unintentionally killed or injured by otherwise lawful activities. It is the responsibility of the project proponent to comply with these Acts by identifying potential impacts to migratory birds and eagles within applicable NEPA documents (when there is a federal nexus) or a Bird/Eagle Conservation Plan (when there is no federal nexus). Proponents should implement conservation measures to avoid or minimize the production of project-related stressors or minimize the exposure of birds and their resources to the project-related stressors. For more information on avian stressors and recommended conservation measures see https://www.fws.gov/birds/bird-enthusiasts/threats-to-birds.php.

In addition to MBTA and BGEPA, Executive Order 13186: *Responsibilities of Federal Agencies to Protect Migratory Birds*, obligates all Federal agencies that engage in or authorize activities that might affect migratory birds, to minimize those effects and encourage conservation measures that will improve bird populations. Executive Order 13186 provides for the protection of both migratory birds and migratory bird habitat. For information regarding the implementation of Executive Order 13186, please visit https://www.fws.gov/birds/policies-and-regulations/executive-orders/e0-13186.php.

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the Act. Please include the Consultation Code in the header of this letter with any request for consultation or correspondence about your project that you submit to our office.

Attachment(s):

- Official Species List

OFFICIAL SPECIES LIST

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

Carlsbad Fish And Wildlife Office
2177 Salk Avenue - Suite 250
Carlsbad, CA 92008-7385
(760) 431-9440

PROJECT SUMMARY

Project Code: 2023-0057803
Project Name: Regional Brackish Water Reclamation Program
Project Type: Water Supply Facility - Desalination Plant Ops
Project Description: The Water Replenishment District of Southern California (WRD) Regional Brackish Water Reclamation Program (proposed program) is situated within the West Coast Basin and overlies a saline plume that would require the proposed program infrastructure to be located within the cities of Torrance, Los Angeles, Carson, and portions of unincorporated Los Angeles County. The survey area consisted of approximately 1,028 acres, which included a 100-foot buffer around a potential extraction well implementation area. The proposed program infrastructure includes six new extraction wells, approximately four groundwater monitoring wells, two borehole resistivity sensors, a network of new and existing brackish feedwater pipelines (product water pipelines, brine disposal pipeline), a regional brackish water desalter, and a staging area. Construction of the project is expected to be completed in four concurrent contracts: 1) Wells; 2) Treatment plant; 3) Brine pipeline; 4) Raw/Product water pipeline. The construction duration of the wells is expected to be 10 months beginning in quarter two of 2025. Treatment plant construction duration is expected to be 30 months beginning in quarter three of 2025. Construction of the brine pipeline is expected to take 24 months beginning in quarter three of 2025. Construction of the raw/product water pipeline is expected to take 24 months beginning in quarter four of 2025.

Project Location:

The approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/@33.8290894,-118.33680203089774,14z

Counties: Los Angeles County, California

ENDANGERED SPECIES ACT SPECIES

There is a total of 7 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries[1], as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

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1. NOAA Fisheries, also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

MAMMALS

NAME	STATUS
Pacific Pocket Mouse *Perognathus longimembris pacificus* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/8080	Endangered

BIRDS

NAME	STATUS
California Least Tern *Sterna antillarum browni* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/8104	Endangered
Coastal California Gnatcatcher *Polioptila californica californica* There is **final** critical habitat for this species. Your location does not overlap the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/8178	Threatened
Least Bell's Vireo *Vireo bellii pusillus* There is **final** critical habitat for this species. Your location does not overlap the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/5945	Endangered
Western Snowy Plover *Charadrius nivosus nivosus* Population: Pacific Coast population DPS-U.S.A. (CA, OR, WA), Mexico (within 50 miles of Pacific coast) There is **final** critical habitat for this species. Your location does not overlap the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/8035	Threatened

INSECTS

NAME	STATUS
Monarch Butterfly *Danaus plexippus* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/9743	Candidate

CRUSTACEANS

NAME	STATUS
Riverside Fairy Shrimp *Streptocephalus woottoni* There is **final** critical habitat for this species. Your location does not overlap the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/8148	Endangered

CRITICAL HABITATS

THERE ARE NO CRITICAL HABITATS WITHIN YOUR PROJECT AREA UNDER THIS OFFICE'S JURISDICTION.

IPAC USER CONTACT INFORMATION

Agency:	Environmental Science Associates
Name:	Sonya Vargas
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Appendix E

Special-Status Species Evaluated for Potential to Occur within Survey Area

SPECIAL-STATUS PLANT SPECIES EVALUATED FOR POTENTIAL TO OCCUR WITHIN SURVEY AREA

Scientific Name	Common Name	Flowering Period	Federal	State	Local (CRPR/MSCP /Other)	Preferred Habitat	Local Distribution	Potential to Occur
ANGIOSPERMS (DICOTYLEDONS)								
Asteraceae	**Sunflower Family**							
Centromadia pungens ssp. *laevis*	smooth tarplant	Apr.–Sep.	None	None	1B.1	Valley and foothill grasslands with poorly drained alkaline soil conditions at low elevation; wetland; alkali playa. 5-1,170 meters.	Riverside, San Bernardino, San Diego counties.	**Low Potential.** Marginally suitable habitat occurs within the survey area and wetland habitat occurs within Madrona Marsh; however, the species was not detected during appropriately-timed focused surveys.
Centromadia parryi ssp. *australis*	southern tarplant	May-Nov.	None	None	1B.1	Marshes and swamps (margins), valley and foothill grassland (vernally mesic), vernal pools. 0-480 meters.	Los Angeles, Orange, Santa Barbra, San Diego, Ventura counties.	**High Potential.** Suitable habitat is present within Madrona Marsh, where it has previously been detected. The species was not detected during appropriately-timed focused surveys.
Chaenactis glabriuscula var. *orcuttiana*	Orcutt's pincushion	Jan.-Aug.	None	None	1B.1	Coastal bluff scrub, coastal dunes, sandy sites. 3-100 meters.	Los Angeles, Orange, San Diego, Ventura counties.	**High Potential.** Suitable habitat is present within Madrona Marsh, where it has previously been detected. The species was not detected during appropriately-timed focused surveys.
Deinandra paniculata	paniculate tarplant	Apr.-Nov.	None	None	4.2	Coastal scrub, valley and foothill grassland, vernal pools. 25-940 meters.	Kern, Los Angeles, Orange, Riverside, Santa Barbara, San Bernardino, San Diego, San Luis Obispo, Ventura counties.	**Low Potential**. Suitable habitat is present within Madrona Marsh and marginally suitable grassland habitat is present within the survey area; however, the species was not detected during appropriately-timed focused surveys. Closest known occurrence is at Ballona wetlands from 2006.
Isocoma menziesii var. *decumbens*	decumbent goldenbush	Apr.-Nov.	None	None	1B.2	Chaparral, Coastal scrub (often disturbed areas, sandy). 10-250 meters.	Los Angeles, Orange, San Diego, Ventura counties.	**Moderate Potential**. Suitable habitat is present within Madrona Marsh, where it has previously been detected; however, the species was not detected during appropriately-timed focused surveys.
Lasthenia glabrata ssp. *coulteri*	Coulter's goldfields	Feb.-Jun.	None	None	1B.1	Salt-marsh, playas, vernal-pools, coastal; usually occurs in wetlands but occasionally in non-wetlands. 1-1,220 meters.	San Diego, and possibly Los Angeles, Kern and San Bernardino counties.	**Low Potential**. Suitable habitat is present within Madrona Marsh; however, the species was not detected during appropriately-timed focused surveys. This species is known to occur at Ken Malloy.

Scientific Name	Common Name	Flowering Period	Federal	State	Local (CRPR/MSCP /Other)	Preferred Habitat	Local Distribution	Potential to Occur
Symphyotrichum defoliatum	San Bernardino aster	Jul.-Nov.	None	None	1B.2	Meadows and seeps, cismontane woodland, coastal scrub, lower montane coniferous forest, marshes and swamps, valley and foothill grassland. 2-2,040 meters.	Los Angeles, Orange, Santa Barbara, San Diego, San Luis Obispo, Ventura counties.	**Moderate Potential**. Suitable habitat is present within Madrona Marsh; however, the species was not detected during appropriately-timed focused surveys.
Apiaceae	**Celery, Carrot, Parsley Family**							
Eryngium aristulatum var. parishii	San Diego button-celery	Apr.-Jun.	FE	SE	1B.1	Coastal scrub, valley and foothill grassland, vernal pools. 20-620 meters.	Los Angeles, Orange, Riverside, San Diego counties.	**Moderate.** Suitable habitat is present within Madrona Marsh; however, the species was not observed within the survey area during appropriately- timed focused surveys.
Boraginaceae	**Borage Family**							
Nama stenocarpum	mud nama	Mar.-Oct.	None	None	2B.2	Marshes and swamps (lake margins, riverbanks). 5–500 meters.	Orange, Riverside, San Diego, possibly Los Angeles counties.	**Not Expected.** Suitable habitat is present within Madrona Marsh; however, the species was not observed within the survey area during appropriately- timed focused surveys.
Brassicaceae								
Erysimum insulare	island wallflower	Mar.-Jul.	None	None	1B.3	Coastal bluff scrub, Coastal dunes. 0-300 meters.	Santa Barbara, Ventura counties.	**High Potential.** Suitable habitat occurs within Madrona Marsh and around the nature center, where it has been previously detected. The species was not detected during appropriately-timed focused surveys.
Erysimum suffrutescens	suffrutescent wallflower	Jun.-Jul.	None	None	4.2	Chaparral (maritime), Coastal bluff scrub, Coastal dunes, Coastal scrub. 0-150 meters.	Los Angeles, Santa Barbara, San Luis Obispo, Ventura counties.	**High Potential.** Suitable habitat occurs within Madrona Marsh and around the nature center, where it has been previously detected. The species was not detected during appropriately-timed focused surveys.

Scientific Name	Common Name	Flowering Period	Federal	State	Local (CRPR/MSCP /Other)	Preferred Habitat	Local Distribution	Potential to Occur
Convolvulaceae	**Morning-glory Family**							
Dichondra occidentalis	western dichondra	Mar.-Jul.	None	None	4.2	Chaparral, Cismontane woodland, Coastal scrub, Valley and foothill grassland. 50-500 meters.	Los Angeles, Orange, Santa Barbara, Ventura, and San Diego counties.	**Low Potential.** Marginal suitable grassland habitat is present within the survey area; however, the closest known occurrence is at Ballona wetlands from 2006.
Chenopodiaceae	**Goosefoot Subfamily**							
Atriplex parishii	Parish's brittlescale	Jun.-Oct.	None	None	1B.1	Alkali playa, chenopod scrub, meadow and seep, vernal pool, wetland. 4-1,420 meters.	Los Angeles, Orange, San Bernardino, Riverside, and San Diego counties.	**Not Expected.** Vernal pool and wetland habitat occurs within Madrona Marsh; however, this species was not detected during appropriately-timed focused surveys.
Juglandaceae	**Walnut Family**							
Juglans californica	Southern California black walnut	Mar.-Aug.	None	None	4.2	Chaparral, cismontane woodland, coastal scrub, riparian woodland. 50-900 meters.	Alameda, Contra Costa, Fresno, Kern, Los Angeles, Orange, Riverside, Santa Barbara, San Bernardino, San Benito, Santa Clara, San Diego, Ventura counties.	**Moderate Potential. S**uitable habitat present within Madrona Marsh Preserve; one occurrence from 2010 within the preserve. Ongoing restoration activities are known to occur within the preserve.
Liliaceae	**Lily Family**							
Calochortus catalinae	Catalina mariposa lily	Mar.-Jun.	None	None	4.2	Chaparral, cismontane woodland, coastal scrub, valley and foothill grassland. 15-700 meters.	Los Angeles, Orange, San Bernardino, Riverside, Santa Barbara, Ventura counties.	**Moderate Potential**. Suitable habitat is present within the Madrona Marsh. Calochortus spp. that was not in flower was detected at the entrance to the preserve. Ongoing restoration activities are known to occur within the preserve.

Scientific Name	Common Name	Flowering Period	Federal	State	Local (CRPR/MSCP /Other)	Preferred Habitat	Local Distribution	Potential to Occur
Onagraceae	**Evening Primrose Family**							
Camissoniopsis lewisii	Lewis' evening-primrose	Mar.-Jun.	None	None	3	Cismontane woodland, Coastal bluff scrub, Coastal dunes, Coastal scrub, Valley and foothill grassland. 0-300 meters.	Los Angeles, Orange, San Diego counties.	**High Potential.** Suitable habitat occurs within Madrona Marsh and around the nature center, where it has been previously detected. The species was not detected during appropriately-timed focused surveys.
Poaceae	**Grass Family**							
Orcuttia californica	California Orcutt grass	Apr.-Aug.	FE	CE	1B.1	Vernal pools. 15-660 meters.	Los Angeles, Orange, Riverside, San Diego, Ventura counties.	**Moderate.** Vernal pool and wetland habitat occurs within Madrona Marsh; however, this species was not detected during appropriately-timed focused surveys.
Hordeum intercedens	vernal barley	Mar.-Jun.	None	None	3.2	Coastal dunes, coastal scrub, valley and foothill grassland (depressions, saline flats), Vernal pools. 5-1,000 meters.	Fresno, Kern, Los Angeles, Merced, Orange, Riverside, Santa Barbara, San Benito, San Diego, Tulare, Ventura counties.	**Low Potential**. Suitable vernal pool habitat within Madrona Marsh; closest known occurrence is north of Gardena from 1963. This species was not detected during appropriately-timed focused surveys.
Polemoniaceae	**Phlox Family**							
Navarretia fossalis	spreading navarretia	Apr.–Jun.	FT	None	1B.1	Chenopod scrub, Marshes and swamps (shallow freshwater), Playas, Vernal pools 30-655 meters.	Los Angeles, Riverside, San Diego, San Luis Obispo counties.	**Moderate.** Vernal pool and wetland habitat occurs within Madrona Marsh; however, this species was not detected during appropriately-timed focused surveys.
Navarretia prostrata	prostrate vernal pool navarretia	Apr.–Jul.	None	None	1B.1	Coastal scrub, valley and foothill grassland, vernal pools, meadows and seeps. 15–1,210 meters.	Los Angeles, Orange, San Diego counties.	**Not Expected.** Vernal pool and wetland habitat occurs within Madrona Marsh; however, this species was not detected during appropriately-timed focused surveys.
Rosaceae	**Rose Family**							
Horkelia cuneata var. *puberula*	mesa horkelia	Feb.-Jul.	None	None	1B.1	Chaparral (maritime), Cismontane woodland, Coastal scrub. 70-810 meters.	Los Angeles, Orange, Riverside, Santa Barbara, San Bernardino, San Diego, San Luis Obispo, Ventura counties.	**High Potential.** Suitable habitat occurs within Madrona Marsh and around the nature center, where it has been previously detected. The species was not detected during appropriately-timed focused surveys.

Scientific Name	Common Name	Flowering Period	Federal	State	Local (CRPR/MSCP /Other)	Preferred Habitat	Local Distribution	Potential to Occur

Key to Species Listing Status Codes

SE *State Listed as Endangered*

SCE *State Candidate as Endangered*

ST *State Listed as Threatened*

FE *Federally Endangered*

FT *Federally Threatened*

California Rare Plant Rank (CRPR)

CRPR 1B.1 *Plants rare, threatened, or endangered in California and elsewhere; seriously threatened in California.*

CRPR 1B.2 *Plants rare, threatened, or endangered in California and elsewhere; moderately threatened in California.*

CRPR 4.1 *Plants of limited distribution; seriously threatened in California.*

CRPR 4.2 *Plants of limited distribution; moderately threatened in California.*

CRPR 4.3 *Plants of limited distribution; not very threatened in California.*

Occurrence Potential Definitions

Present: The species was observed within the survey area during the focused rare plant survey.

High Potential: The survey area provides suitable habitat conditions for a particular species and/or known populations occur in the immediate vicinity.

Moderate Potential: Marginal habitat for a particular species is present within the survey area. For example, the available habitat may be somewhat disturbed, however, still supports important components, such as a particular soil or community type.

Low Potential: Limited habitat exists for a particular species within the survey area. For example, the appropriate vegetation assemblage may be present while the substrate preferred by the species may be absent, or the preferred habitat may be present, but has undergone substantial disturbance, such that the species is not expected to occur.

Not Expected: Suitable habitat for the species is not present within the survey area; or the species was not observed during focused rare plant surveys conducted during the appropriate blooming period or the species is a perennial herb/shrub that would have been identifiable outside of the blooming period, if present.

Source: Calflora 2023; CDFW 2023a; CNPS 2023, Friends of Madrona Marsh 2014-2023.

Special-Status Wildlife Species Evaluated for Potential to Occur within Survey Area

Common Name Scientific Name	Sensitivity Status[1]	Preferred Habitat/Known Distribution[2]	Presence/Potential to Occur Within Biological Survey Area
Invertebrates			
Order Anostraca (brine shrimp, fairy shrimp) **Branchiopoda**			
Riverside fairy shrimp *Streptocephalus woottoni*	Federal: FE State: None	Endemic to western Riverside, Orange and San Diego Counties in areas of tectonic swales/earth slump basins in grassland and coastal sage scrub. Inhabit seasonally astatic pools filled by winter/spring rains greater than 12 inches in depth. Hatch in warm water later in the season. Typically observed January through March.	**High Potential.** This species has a high potential to occur within Madrona Marsh. Presence would be restricted to Madrona Marsh, where suitable vernal pool habitat exists. This species was not detected during the biological resources assessment.
Order Lepidoptera (butterflies & moths) **Insecta**			
Palos verdes blue butterfly *Glaucopsyche lygdamus palosverdesensis*	Federal: FE State: None	Restricted to the cool, fog-shrouded, seaward side of Palos Verdes Hills, Los Angeles County. Occurs in coastal scrub, host plant is *Astragalus trichopodus* var. *lonchus* (locoweed).	**Moderate Potential**. This species has a moderate potential to occur within Madrona Marsh where the host plant has been known to occur. CNDDB showed a 2001 record in the Torrance quad.
monarch butterfly – California overwintering population *Danaus plexippus plexippus pop. 1*	Federal: FC State: None	Wintering sites in California are associated with wind-protected groves of large trees (primarily eucalyptus or pine [*Pinus* spp.]) with nectar and water sources nearby that are generally near the coast.	**Present.** This species was detected within the survey area. Suitable breeding habitat (i.e., milkweed (*Asclepias* sp.)) was only detected within Madrona Marsh, while roosting habitat (i.e., stands of trees on the pacific coast) was detected within the survey area including stands of eucalyptus. Small patches of suitable microhabitat including nectar resources are also present at the Madrona Marsh.
wandering (= saltmarsh) skipper *Panoquina errans*	Federal: None State: None	Southern California coastal salt marshes.	**Moderate Potential.** This species has a moderate potential to occur within the survey area due to suitable habitat including salt marsh habitat within Madrona Marsh. This species was not detected during the biological resources assessment.
Order Hymenoptera (ants, bees, & wasps) **Insecta**			
Crotch bumble bee *Bombus crotchii*	Federal: None State: SCE	Open grassland and scrub habitats that support potential nectar sources such as plants within the Fabaceae, Apocynaceae, Asteraceae, Lamiaceae, and Boraginaceae families. Food plant genera include Antirrhinum, Phacelia, Clarkia, Dendromecon, Eschscholzia, and Eriogonum.	**Moderate.** This species has a moderate potential to occur due to marginally suitable open grassland habitat within the survey area. Very limited suitable microhabitat including native plant species and nectar resources and are only present within Madrona Marsh. This species was not detected during the biological resources assessment.

Common Name Scientific Name	Sensitivity Status[1]	Preferred Habitat/Known Distribution[2]	Presence/Potential to Occur Within Biological Survey Area
AMPHIBIANS			
American Spadefoot Toads **Scaphiopodidae**			
western spadefoot *Spea hammondii*	Federal: None State: SSC	Mixed woodland, grasslands, chaparral, sandy washes, lowlands, river floodplains, alluvial fans, playas, alkali flats, foothills, and mountains. Prefers washes and other sandy areas with patches of brush and rocks. Rain pools or shallow temporary pools, which do not contain bullfrogs, fish, or crayfish are necessary for breeding. Perennial plants necessary for its major food-termites.	**High Potential**. This species has a high potential to occur within Madrona Marsh, where it has previously been detected. Presence would be restricted to Madrona Marsh, where suitable vernal pool habitat exists. This species was not detected during the biological resources assessment.
REPTILES			
Legless Lizards **Anniellidae**			
southern California legless lizard [=silvery legless lizard] *Anniella stebbinsi* [=*Anniella pulchra*]	Federal: None State: SSC	Occurs in moist warm loose soil with plant cover. Moisture is essential. Occurs in sparsely vegetated areas of beach/coastal dunes, chaparral, pine-oak woodlands, desert scrub, sandy washes, and stream terraces with sycamores, cottonwoods, or oaks. Leaf litter under trees and bushes in sunny areas and dunes stabilized with bush lupine and mock heather often indicate suitable habitat. Often can be found under surface objects such as rocks, boards, driftwood, and logs. Can also be found by gently raking leaf litter under bushes and trees. Sometimes found in suburban gardens in Southern California.	**High Potential.** A CNDDB occurrence within the open area north of Del Amo Boulevard and east of Prairie Avenue was documented in 2012. The species has a high potential to occur within the survey area, particularly within Madrona Marsh, but may also occur within sumps or irrigated areas with tree or shrub canopy where moisture content is high and leaf litter is present.
North American Spiny Lizards Phrynosomatidae			
coast horned lizard *Phrynosoma blainvillii*	Federal: None State: SSC	Prefers sandy riparian and sage scrub habitats but also occurs in valley-foothill hardwood, conifer, pine-cypress, juniper and annual grassland habitats below 6,000 feet, open country, especially sandy areas, washes, flood plains, and windblown deposits. Requires open areas for sunning, bushes and loose soil for cover and abundant supply of harvester ants.	**High Potential.** A CNDDB occurrence overlaps with the northern portion of the survey area from 1989. This species has a high potential to occur within the survey area within Madrona Marsh and other open areas with loose soil and abundant food sources including ants and insects.

Common Name Scientific Name	Sensitivity Status[1]	Preferred Habitat/Known Distribution[2]	Presence/Potential to Occur Within Biological Survey Area
BIRDS **Aves**			
Anis, Cuckoos, Roadrunners Cuculidae			
Yellow-billed Cuckoo *Coccyzus americanus*	Federal: FT State: SE	Prefers riparian forest for nesting, along the broad, lower flood-bottoms of larger river systems, typically containing willow, often mixed with cottonwoods, with lower story of blackberry, nettles, or wild grape.	**Moderate Potential.** This species has a moderate potential to occur within Madrona Marsh, where it has previously been detected. Marginally suitable nesting habitat containing willows and cottonwoods is present within Madrona Marsh.
Plovers & relatives **Charadriidae**			
western snowy plover *Charadrius alexandrinus nivosus*	Federal: FT, BCC State: SSC	Found in Great Basin standing waters, sand shore, wetland. Sandy beaches, salt pond levees & shores of large alkali lakes. Requires sandy, gravelly, or friable soil substrate for nesting.	**Low Potential.** This species is not expected to occur within the survey area due to a lack of suitable beach and shoreline habitat within the survey area.
Swallows, Martins, Saw-wings Hirundinidae			
bank swallow *Riparia riparia*	Federal: None State: ST	Colonial nester; nests primarily in riparian and other lowland habitats west of the desert. Requires vertical banks/cliffs with fine-textured/sandy soils near streams, rivers, lakes, ocean to dig nesting hole.	**Moderate Potential.** This species has a moderate potential to occur within Madrona Marsh, where it has previously been detected. Marginally suitable nesting habitat containing willows and cottonwoods is present within Madrona Marsh.
American Blackbirds, Orioles, New World Blackbirds **Icteridae**			
tricolored blackbird *Agelaius tricolor*	Federal: None State: ST	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.	**Moderate Potential.** This species has a moderate potential to occur within Madrona Marsh, where it has previously been detected. Suitable nesting habitat including open water habitat and adjacent food source is present within Madrona Marsh.
Gulls, Terns, Skimmers **Laridae**			
California least tern *Sternula antillarum browni*	Federal: FE State: SE	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, land fills, or paved areas.	**Low Potential.** Suitable foraging habitat occurs within Madrona Marsh, where it has previously been detected; however, the survey area lacks suitable nesting habitat.

Common Name Scientific Name	Sensitivity Status[1]	Preferred Habitat/Known Distribution[2]	Presence/Potential to Occur Within Biological Survey Area
New World sparrows, American sparrows, towhees **Passerellidae**			
Belding's savannah sparrow *Passerculus sandwichensis beldingi*	Federal: None State: SE	Inhabits coastal salt marshes, from Santa Barbara south through San Diego County. Nests in Salicornia on and about margins of tidal flats.	**Low Potential.** Suitable foraging habitat occurs within Madrona Marsh, where it has previously been detected; however, the survey area lacks suitable nesting habitat.
Rails, Coots, & Gallinules **Rallidae**			
yellow rail *Coturnicops noveboracensis*	Federal: None State: None	Inhabits freshwater marshlands. Summer resident in eastern Sierra Nevada in Mono County.	**Moderate Potential.** This species has a moderate potential to occur within Madrona Marsh. Suitable nesting habitat including freshwater marshland is present within Madrona Marsh.
California black rail *Laterallus jamaicensis coturniculus*	Federal: None State: ST	Inhabits freshwater marshes, wet meadows and shallow margins of saltwater marshes bordering larger bays. Needs water depths of about 1 inch that do not fluctuate during the year and dense vegetation for nesting habitat.	**Low Potential.** This species has a low potential to occur within the survey area. While freshwater marsh habitat exists within Madrona Marsh, it is not connected to saltwater marsh or the bay.
Tyrant Flycatchers **Tyrannidae**			
southwestern willow flycatcher *Empidonax traillii extimus*	Federal: FE State: SE	Inhabits riparian woodlands in Southern California.	**Low Potential**. This species has a low potential to occur within the survey area. Marginal riparian habitat exists within Madrona Marsh and the sumps; however, Madrona Marsh has scattered willows and the sumps do not have sufficient riparian vegetation to support this species.
True Owls **Strigidae**			
burrowing owl *Athene cunicularia*	Federal: BCC State: SSC	Inhabits coastal prairie, coastal scrub, Great Basin scrub, Mojavean desert scrub, Sonoran desert scrub, annual and perennial grasslands, bare ground, and disturbed habitats characterized by low-growing vegetation. A subterranean nester dependent upon burrowing mammals, particularly the California ground squirrel.	**Moderate Potential.** This species has a moderate potential to occur within the survey area. Marginally suitable habitat is present within Madrona Marsh and other open patches of habitat within the survey area. While it has previously been detected within Madrona Marsh, suitable burrows were not detected within the survey area during the site assessment.

Common Name Scientific Name	Sensitivity Status[1]	Preferred Habitat/Known Distribution[2]	Presence/Potential to Occur Within Biological Survey Area
Gnatcatchers **Polioptilidae**			
coastal California gnatcatcher *Polioptila californica californica*	Federal: FT State: SSC	Species is an obligate, permanent resident of coastal sage scrub habitats dominated by California sagebrush and flat-topped buckwheat, mainly on cismontane slopes below 1,500 feet in elevation. Low coastal sage scrub in arid washes, on mesas and slopes.	**Moderate Potential.** This species has a moderate potential to occur within the survey area, primarily within suitable coastal scrub within and adjacent to Madrona Marsh.
Greenlets, Vireos **Vireonidae**			
least Bell's vireo *Vireo bellii pusillus*	Federal: FE State: SE, SSC	Known to occur in riparian forest, scrub, and woodland habitats. Summer resident of Southern California in low riparian in vicinity of water or in dry river bottoms; below 2,000 feet. Highly territorial and nests primarily in willow, mulefat, or mesquite habitats.	**Moderate Potential.** Suitable habitat exists within Madrona Marsh, where it has previously been detected, and marginally suitable habitat may occur within the sump enclosures.
MAMMALS			
Kangaroo rats, Pocket mice, & Kangaroo mice **Heteromyidae**			
Pacific pocket mouse *Perognathus longimembris pacificus*	Federal: FE State: SSC	Found in the coastal scrub and maritime chaparral from the Mexican border north to El Segundo, Los Angeles County. Commonly associated with gravelly, or fine alluvial soils within coastal plains in the immediate vicinity of the Pacific Ocean. Also found on coastal strand, coastal dunes, and ruderal vegetation on river alluvium, within open, sparsely vegetated areas.	**Low Potential.** Marginally suitable coastal scrub habitat is present within Madrona Marsh; however, it lacks the preferred gravelly, fine alluvial soils.
Rodents **Cricetidae**			
San Diego desert woodrat *Neotoma lepida intermedia*	Federal: None State: SSC	Found in a variety of coastal scrub, desert scrub, chaparral, cactus, and rocky habitats. Nests primarily against rock outcroppings, boulders, cacti, or areas of dense undergrowth.	**Low Potential.** Marginally suitable coastal scrub habitat is present within Madrona Marsh; however, it lacks the preferred nesting habitat.

Common Name Scientific Name	Sensitivity Status[1]	Preferred Habitat/Known Distribution[2]	Presence/Potential to Occur Within Biological Survey Area
Free-tailed bats **Molossidae**			
western mastiff bat *Eumops perotis californicus*	Federal: None State: SSC	Known to occur in habitat consisting of extensive open areas within dry desert washes, flood plains, chaparral, cismontane oak woodland, coastal scrub, open ponderosa pine forest, and grasslands. Roosts primarily in crevices in rock outcrops and buildings.	**Low Potential.** Marginally suitable coastal scrub habitat is present within Madrona Marsh; however, there are no adjacent rock outcrops or buildings suitable for roosting.
pocketed free-tailed bat *Nyctinomops femorosaccus*	Federal: None State: SSC	Known to occur in a variety of arid areas in Southern California; pine-juniper woodlands, desert scrub, palm oasis, desert wash, desert riparian, and rocky areas with high cliffs.	**Low Potential.** Marginally suitable foraging habitat is present within Madrona Marsh; however, there are no adjacent rocky areas with high cliffs suitable for roosting.
big free-tailed bat *Nyctinomops macrotis*	Federal: None State: SSC	Known to occur in low-lying arid areas in Southern California. Need high cliffs or rocky outcrops for roosting sites. Feeds principally on large moths.	**Low Potential.** Marginally suitable foraging habitat is present within Madrona Marsh; however, there are no adjacent high cliffs or rocky outcrops suitable for roosting.
Mustelids **Mustelidae**			
American badger *Taxidea taxus*	Federal: None State: SSC	Found in a variety of habitats, including alkali marsh, desert wash, Great Basin scrub, marsh and swamp, meadow and seep, Mojavean desert scrub, riparian scrub, riparian woodland, valley and foothill grassland. Most abundant in drier open stages of most shrub, forest, and herbaceous habitats, with friable soils. Needs sufficient food, friable soils, and open, uncultivated ground to dig burrows. Preys on burrowing rodents.	**Low Potential.** Suitable habitat is present within Madrona Marsh; however, no suitable burrows were detected within the survey area.
Vesper bats, vespertilionid bats, evening bats **Vespertilionidae**			
silver-haired bat *Lasionycteris noctivagans*	Federal: None State: None Other: LC	Primarily a coastal and montane forest dweller, feeding over streams, ponds and open brushy areas. Roosts in hollow trees, beneath exfoliating bark, abandoned woodpecker holes, and rarely under rocks. Needs drinking water.	**Moderate Potential**. Suitable foraging habitat is present within Madrona Marsh, which is surrounded by trees that could serve as suitable roosting sites.

Common Name Scientific Name	Sensitivity Status[1]	Preferred Habitat/Known Distribution[2]	Presence/Potential to Occur Within Biological Survey Area

NOTES:

[1] Sensitivity Status

Federal/State/Local Status: FE = Federally Endangered; FT = Federally Threatened; BCC = Federal Bird of Conservation Concern; SE = State Endangered; SCE = State Candidate as Endangered; ST = State Threatened; SSC = State Species of Special Concern; FP = Fully Protected; WL = State Watch List; LC = ICUN Least Concern.

Present: The species was observed within the survey area during the site assessment.

High Potential: The survey area provides suitable habitat conditions for a particular species and/or known populations occur in the immediate vicinity.

Moderate Potential: Marginal habitat for a particular species may exist. For example, the habitat may be heavily disturbed and/or may not support all stages of a species' life cycle; or may not fit all preferred habitat characteristics.

Low Potential: The survey area supports limited habitat for a particular species. For example, the appropriate vegetation assemblage may be present while the substrate preferred by the species may be absent.

Source: CDFW 2023a, 2023b; Cornell Lab of Ornithology 2019; Friends of Madrona Marsh 2014-2023.

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