3.6

GROUNDWATER AND SOILS

3.6.1 Introduction

This section describes the existing environmental and regulatory setting for groundwater and soils, analyzes the potential significant impacts on groundwater and soils related to implementing the proposed Project as well as the impacts from existing contaminated groundwater and soils on the proposed Project, and provides mitigation measures that would reduce the significance of these impacts. No significant unavoidable impacts were identified.

A preliminary Hazardous Materials Assessment (HMA) was prepared for the proposed Project and can be found in Appendix F; the HMA findings are summarized in Section 3.6.2.3 below.

3.6.2 Environmental Setting

The study area for groundwater and soils encompasses approximately 123 acres within the Port of Los Angeles and the southern portion of the Wilmington community, which is approximately 29 acres larger than the proposed project site. Of these 94 acres, roughly 60 acres comprise the Avalon Development District and Avalon Waterfront District, an area defined by Lagoon Avenue to the west, Broad Avenue to the east, C Street to the north, and Banning's Landing and the waterfront of Slip 5 to the south. In addition, the study area includes the Waterfront Red Car Line/California Coastal Trail extension, which begins at Avalon Boulevard and runs along Harry Bridges Boulevard, continuing on to John S Gibson Boulevard, and then on to Front Street, before terminating at Swinford Street. While no physical modifications are proposed at the Avalon Triangle Park site at the southeastern block of Avalon and Harry Bridges Boulevards, this has been assessed because of its proximity to the proposed project elements and because it would be included in the proposed Port Plan and PMP boundary . Also included in the study area, but outside the proposed project boundaries, is the Harbor Generating Station and associated peaker unit sites immediately west of the Avalon Waterfront District. Finally, because the Marine Tank Farm is proposed for demolition, a feasible relocation site

for the oil tanks, known as the Olympic Tank site, has been evaluated at the programmatic level under the scope of this EIR. The Olympic Tank site is approximately 1.5 miles northeast of Harry Bridges Boulevard on the southeastern corner of Alameda Street and Robidoux Street and is not geographically within the proposed project site and its acreage count is not included in the overall 123 acre study area; nevertheless, a records searched was performed on the site. It is important to note that the possible relocation is not called for under the proposed Project and would be processed under a separate action, possibly by LADWP; however, it is considered in this analysis to account for the whole of the action that may result from the proposed Project's implementation.

3.6.2.1 Groundwater

Four major aquifers—the Silverado, Lynwood, Gage, and Gaspur—are present within the Los Angeles Basin and are used for industrial and municipal water supply outside of the harbor area. The proposed project area is located within the southern portion of the West Coast Basin. The two major water-bearing zones that occur beneath the proposed project area are the Gaspur and Gage aquifers (LAHD and USACE 2007). Both of the aquifers are composed of fine- to medium-grained sand and silty sand. Shallow groundwater beneath the site is saline, is not currently considered potable water, and would not likely be considered a potable or beneficial water source in the future. Drinking water is provided to the area by the LADWP.

Groundwater levels are influenced by seasonal precipitation and runoff, irrigation, groundwater pumping, and subsurface stratification and are subject to variation. Groundwater in the study area ranges from approximately 9 feet to 18 feet below the ground surface (Ninyo & Moore 2008). Seepage and saturated soil were also encountered at a depth of approximately 3 feet.

Spills of petroleum products and hazardous substances from long-term industrial land uses have resulted in contamination of some localized onshore soils and shallow groundwater. A discussion of the potential contaminated areas is provided in Section 3.6.2.3 below.

3.6.2.2 Soils

The proposed Project is located within the Los Angeles Basin, which is part of the Transverse Ranges geomorphic province of southern California. The Los Angeles Basin has been divided into four blocks that are generally separated by prominent fault systems: the Northwestern, the Southwestern, the Central, and the Northeastern Blocks. The proposed Project is located within the Southwestern Block, which is bounded on the east by the Newport-Inglewood Fault Zone. The Southwestern Block includes anticlinal (upwardly folded rock) and synclinal (a fold in a rock formation shaped like a basin or trough and contains younger rocks in its core) structural features within the basement rocks, which are overlain by younger sedimentary rocks and alluvium.

Surficial geology of the Los Angeles Harbor is characterized by Holocene-age (the present epoch of geologic time, which began 10,000 years ago), nearshore, marine and non-marine deposits, including beach, estuary, tidal flat, lagoon, shallow-water bay sediments, and shoreline terrace deposits. Dredging and filling operations have modified these native sediments to create extensive land masses of dredged fill material that support numerous harbor facilities. Consequently, most of the harbor facilities in the proposed project area have been constructed on dredged fill material. Both the fill and the native sediments overlie older late-Pleistocene age (the epoch of geologic time, about 1.6 million to 10,000 years ago, characterized by the disappearance of continental ice sheets and the appearance of humans) deposits. These older deposits are exposed in the bluffs that border the westerly side of the proposed project area and include the San Pedro Sand comprised primarily of sand and pebbly gravel and the San Timms Point Silt consisting largely of siltstone (Ninyo & Moore 2008).

3.6.2.3 Historic and Existing Sources Resulting in Soil and Groundwater Contamination

Historical uses at the proposed project site were predominantly heavy industry, such as gas and oil facilities, garage and repair shops, engine repair, truck and diesel warehouses, ship yards, foundries, steel shops using marine solvents, machine shop/welding facilities, iron works, brass works, oil wells, above-ground storage tanks (ASTs), and railroad rights-of-way. Chemicals that are used or would have been used include, but are not limited to, fuels, oil, lubricants, solvents, metals, wood preservatives, polychlorinated biphenyls (PCBs), pesticides, and herbicides (Ninyo & Moore 2008). Long-term industrial use in the vicinity of the proposed project area has contributed to a "toxic plume" within the proposed project area. A toxic plume can be form as an accumulation of contaminated or hazardous soils, groundwater, or vapors that can migrate to areas beyond where they were created. The exact origin of a toxic plume can thus be unknown. All construction, operation, and remediation practices associated with the proposed Project would be performed under guidance with the DTSC, EPA, and state and local regulatory agencies. Therefore, all construction operation and remediation would meet all standards and would not pose a substantial threat to construction workers, the public, or visitors.

A preliminary HMA was prepared for the proposed project site by Ninyo & Moore in May 2008. The purpose of the HMA was to evaluate the likelihood that hazardous materials may be present in soil or groundwater beneath the proposed project site as a result of existing and former onsite construction and operation activities. The assessment methodology included review of historical aerial photographs, historical topographic maps, historical oil and gas maps, regulatory database searches, review of previous hazards material assessments prepared for the site and nearby surroundings, interviews with onsite operators, and a site reconnaissance. The final report is attached as Appendix F.

Based on historical research, review of environmental databases, a review of previous technical HMAs, regulatory agency inquiries, and a site reconnaissance, the HMA

designated properties within the study area with a low, moderate, or high potential for soil and groundwater contamination. Table 3.6-1 presents known contaminated sites from the FirstSearch™ database reports. Properties that were given the high or moderate risk classification are presented in Table 3.6-2.

The following are general areas of concern that fall within the proposed project areas. These include widespread industrial-type operations that occurred within the study areas over several decades and that have the potential to contain hazardous materials that could be exposed during construction and operation of the proposed project, thus potentially exposing construction workers and the public to potentially hazardous materials.

- **Avalon Development District**: Widespread and varied historical industrial usage, which included former gas and oil facilities, railroad rights-of-way, machine shops, and repair shops.
- **Avalon Waterfront District**: Varied historical industrial uses including railroad rights-of-way, machine shops, and repair shops.
- **Waterfront Red Car Line Extension/CCT:** Varied historical industrial and retail uses, which included gas and oil facilities, machine shops, and repair shops.

Table 3.6-1: Known Contaminated Sites from the FirstSearch™ Database Reports

Business Name and Address	*Case Summary*
AVALON DEVELOPMENT DISTRICT	
Koppers Co., Inc. 210 South Avalon Boulevard	Soil contamination discovered (pentachlorophenol [PCP], copper, chromium, and arsenic). Site was paved over; contamination left in place.
AVALON WATERFRONT DISTRICT	
No properties of concern	
WATERFRONT RED CAR LINE AND CALIFORNIA COASTAL TRAIL	
TraPac, Inc. 920 West B Street	The database report indicated that 55 gallons of "3.3 flammable liquid" had been released from a storage tank and that 5 gallons of ethanol had been released.
American President Lines Sexton Trucking Australian New Zealand Lines 2001 John S. Gibson Boulevard (TraPac, Inc.)	The listings indicate varying amounts of different chemicals that have been released. Chemicals include carbon disulfide, triethylamine, potassium nitrate, ethyl butyrate, terpene hydrocarbons, oil, diesel, miscellaneous oils, petroleum distillates, 1,1,1-Trichloroethane (TCA), fak aerosols, corrosive liquid, diethylenetriamine, propylene glycol, pesticides, and ethyl methacrylate.
HARBOR GENERATING STATION AND PEAKER UNIT SITES (OUTSIDE PROJECT BOUNDARIES)	
No known cases	
OLYMPIC TANK SITE (OUTSIDE PROJECT BOUNDARIES)	
Ultramar Olympic Tank Farm 1220 North Alameda Street	Current and/or historic large bulk storage of petroleum products.

Table 3.6-2: Current Properties of High or Moderate Concern for Soil and/or Groundwater Contamination

Location	*Property Name/Address*	*Site Operations—Reason for Risk Class*	*Data Source*[2]	*Risk Class*[3]	*Map ID From HMA*
Avalon Development District	Dockside Machine and Ship Repair 211 North Marine Avenue	Machine and ship repair (metals, lubricants, fuels)	R, H	M	A1
	Bromma Authorized Warranty Repair Facility North Marine Avenue	Repair facility (metals, lubricants, fuels)	R	M	A2
	Wilmington Iron Works 432 C Street	Iron works (metals, lubricants, solvents)	R, H	M	A3
	Iron shops (402 West C Street and 221 Island Avenue), iron works (432 West C Street), iron warehouse (230 Lagoon Avenue), iron manufacturing (222 Lagoon Avenue)	Iron works (metals, lubricants, solvents)	R and/or H	M	A4
	Former Brass Works 227 Island Avenue	Brass works (metals, lubricants, solvents)	H	M	A5
	Former Koppers Co. Inc. 210 South Avalon Boulevard	Soil contamination left in place (PCP, copper, chromium, and arsenic).	D	H	A6
	Former gas and oil facility 200 Avalon Boulevard/101 East B Street	Gas and oil	H	M	A7
	Former Marine Solvents 214 Marine Avenue	Solvents	H	M	A8
	Five completed wells named "Exxon (WTU-)" numbered: 641, 601, 602, 643, and 644; one completed directional well named "Exxon (WTU-)" number 600; and one plugged and abandoned oil well named "13 Comm" number 6	Completed and plugged and abandoned oil wells	H	M	

Location	*Property Name/Address*	*Site Operations—Reason for Risk Class*	*Data Source*[2]	*Risk Class*[3]	*Map ID From HMA*
Avalon Waterfront District	Former boat building yards 125 West A Street and 128 Avalon Boulevard	Boat building (metals, lubricants, fuels)	H	M	B1
	Vacant Land Southeast corner of West Harry Bridges and Avalon Boulevards	Wells, soil vapor probes present (on-going remediation)	R	H	B2
	Dockside Machine and Ship Repair Avalon Boulevard	Ship repair facility (metals, lubricants, fuels)	R	M	B3
	Valero Southwest corner of Avalon Boulevard and West A Street	Facility contains two very large ASTs and one smaller AST of unknown use; parcel leased from the LADWP	R, I	M	B4
	Eleven completed oil wells named "Exxon (TUA-1)" numbered: 112, 113, 114, 115, 116B, 126, 127, 128, 129, 130, and 131	Completed wells	H	M	
Waterfront Red Car Line/California Coastal Trail	Trans Pacific Container Terminal (TraPac) 920 West B Street	Release of "3.3 flammable liquid" and ethanol	R , D, H	M	C1
	American President Lines Sexton Trucking Australian New Zealand Lines 2001 John S. Gibson Boulevard (TraPac)	Release of varying amounts of different chemicals that have been released. Chemicals include carbon disulfide, triethylamine, potassium nitrate, ethyl butyrate, terpene hydrocarbons, oil, diesel, miscellaneous oils, petroleum distillates, 1,1,1-TCA, fak aerosols, corrosive liquid, diethylenetriamine, propylene glycol, pesticides, and ethyl methacrylate.	D, H	H	C2
	Former gas and oil facility 837 Wilmington and San	Gas and oil	H	M	C3

Location	Property Name/Address	Site Operations—Reason for Risk Class	Data Source[2]	Risk Class[3]	Map ID From HMA
	Pedro Road (North Pacific Avenue)				
	Former gas and oil facility 789 Wilmington & San Pedro Road (North Front Street)	Gas and oil	H	M	C4
	J&J Body Shop 837 North Pacific Avenue	Repair facility (metals, lubricants, fuels)	R	M	C3
	Unlimited Auto 789 North Front Street	Repair facility (metals, lubricants, fuels)	R	M	C4
	Six plugged and abandoned dry holes. One well named King Oil Inc "King"; two wells named Hogan Pet Co "Burkhard"; and three wells named Hogan Pet Co. "Burkhard Core Hole"	Plugged and abandoned dry holes	H	M	

[1]Description of site operations/primary reasons for risk class

[2]Indicates primary information sources for listing: R=Reconnaissance, D=Database, H=Historical Documentation, I= Interviews with POLA or Jones & Stokes staff

[3]Risk Class H = high, M = moderate, L = low

3.6.2.3.1 LADWP Marine Tank Farm Site

The LADWP Marine Tank Farm is located within the Avalon Waterfront District, immediately south of the Avalon Development District. It is bounded by A Street to the north, Avalon Boulevard to the east, a rail line to the south, and the LADWP peaker unit site to the west. The proposed Project would remove the LADWP Marine Tank Farm, remediate the site, and develop a 10-acre land bridge complete with landscaped lawn and a water feature.

A Phase II Environmental Site Assessment (ESA) for the Marine Tank Farm site was prepared by Kleinfelder on May 27, 2004, for LADWP and can be found in Appendix F. The Phase II ESA collected and analyzed soil, soil vapor, and groundwater to assess whether soil and groundwater had been affected by fuel storage activities. The purpose of the ESA was to evaluate the site for the presence of hazardous materials or compounds "to assess the potential feasibility of utilizing

the property as a public park." It does not appear that any oversight regulatory agency involvement, including from RWQCB or Department of Toxic Substances Control (DTSC), has occurred to date.

The Phase II ESA determined that soils contain concentrations of arsenic above the residential Preliminary Remediation Goals (PRGs), and selenium, which exceeded the Soluble Threshold Limit Concentration (STLC) test. Groundwater under the site contains metals and volatile organic compounds (VOCs) that exceed tap water PRGs and/or Maximum Contaminant Levels (MCLs), which pose potential concerns for human health. The Phase II ESA recommends the preparation of a Health Based Risk Assessment (HBRA) to determine whether remediation of soil and/or groundwater is warranted prior to redevelopment of the site.

3.6.2.3.2 Olympic Tank Farm Site

The Olympic Tank Farm site is bounded to the north by Robidoux Street, to the east by Goodrich Avenue, to the south by railroad right-of-ways, and to the west by Alameda Street. Because this site is only a potential relocation site for the existing Marine Tank Farm, a site reconnaissance and historical review were not performed. Based on the review of the database report, however, the Olympic Tank Farm site appears to comprise several large aboveground petroleum storage tanks associated with the Ultramar Olympic Tank Farm.

The Resource Conservation and Recovery Act (RCRA) Generator database identifies sites that generate hazardous waste as defined by RCRA. Inclusion on these lists is for permitting purposes and is not indicative of a release. The Ultramar Inc., Olympic Tank Farm (1220 Alameda Street) is listed as a large quantity generator with no violations recorded. Other information indicated that this facility is a petroleum and petroleum products merchant wholesaler. No other data were available. Based on this information, this facility would not be considered an environmental concern. However, although no violations or documented releases are noted for the Olympic Tank Site, the HMA concluded that the facility is an environmental concern based on the large volume of petroleum products that have been stored at this site.

3.6.3 Applicable Regulations

Applicable federal, state, and local laws contain lists of hazardous materials or hazardous substances that may require special handling in accordance with the regulations if encountered in soil or groundwater during construction of the proposed Project.

3.6.3.1 Federal Regulations

Proper site characterization and site remediation of hazardous materials is regulated by the federal Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA) and the state Hazardous Substances Account Act (Health and Safety Code Section 25300, et seq.). California's DTSC is authorized to administer the federal hazardous waste program under the RCRA and is also responsible for administering the state Superfund Program under the Hazardous Substance Account Act. DTSC provides guidance for cleanup oversight through an Environmental Oversight Agreement, for government agencies, or a voluntary Cleanup Agreement, for private parties.

Additional requirements for hazardous materials are specified under Health and Safety Code Section 25501; hazardous substances under 40 CFR Part 116; and priority toxic pollutants under CFR Part 122.

In July 2002, EPA amended the Oil Pollution Prevention regulation at Title 40 of the Code of Federal Regulations, Part 112 (40 CFR 112). The regulation incorporated revisions proposed in 1991, 1993, and 1997. Subparts A through C of the Oil Pollution Prevention regulation are often referred to as the SPCC Rule because they describe the requirements for certain facilities to prepare, amend, and implement spill prevention, control, and countermeasure (SPCC) plans. These plans ensure that facilities include containment and other countermeasures that would prevent oil spills that could reach navigable waters. In addition, oil spill contingency plans are required as part of this legislation to address spill cleanup measures after a spill has occurred.

3.6.3.2 State and Local Regulations

Hazardous materials are frequently defined under local hazardous materials ordinances, such as the Uniform Fire Code. Depending on the type and degree of contamination that is present in soil and groundwater, any of several governmental agencies may have jurisdiction over the proposed project site. Generally, the agency with the most direct statutory authority over the affected media is designated as the lead agency for purposes of overseeing any necessary investigation or remediation.

Typically, sites that are nominally contaminated with hazardous materials remain within the jurisdiction of local hazardous materials agencies, such as the Los Angeles County Fire Department's (LAcFD's) Health Hazardous Materials Division (HHMD). In 1997, HHMD became a Certified Unified Program Agency (CUPA) to administer the following programs within Los Angeles County: the Hazardous Waste Generator Program, the Hazardous Materials Release Response Plans and Inventory Program, the California Accidental Release Prevention Program (Cal-ARP), the Aboveground Storage Tank Program, and the Underground Storage Tank Program. HHMD consists of an Inspection Section, Emergency Operations Section, Special Operations composed of the Site Investigations Unit and Site Mitigation Unit, and an Administrative/Planning Section.

Sites that have more heavily contaminated soils are more likely to fall under the jurisdiction of DTSC, which, as mentioned above, regulates hazardous waste in California primarily under the authority of the federal RCRA, and the California Health and Safety Code as well as other laws that affect hazardous waste specific to handling, storage, transportation, disposal, treatment, reduction, cleanup, and emergency planning. DTSC's major program areas develop regulations and consistent program policies and procedures using these laws. The regulations specify, for hazardous waste handlers, how to comply with the laws. As is the case with environmental risk management decisions, these rulemakings are subject to public review and comment (DTSC 2008).

Sites that have contaminated groundwater fall within the jurisdiction of the Los Angeles RWQCB and are subject to the requirements of the Porter-Cologne Water Quality Control Act. Contaminated groundwater that is proposed to be discharged to surface waters or to a publicly owned treatment works would be subject to the applicable provisions of the CWA, including permitting and possibly pretreatment requirements. A National Pollution Discharge Elimination System (NPDES) permit is required to discharge pumped groundwater to surface waters, including local storm drains, in accordance with California Water Code Section 13260. Additional restrictions may be imposed upon discharges to water bodies that are listed as impaired under Section 303(d) of the CWA, including San Pedro Bay.

3.6.4 Impact Analysis

3.6.4.1 Methodology

The existing conditions, impacts, and mitigation measures related to contaminated sites described in this EIR are based on the HMA for the Wilmington Waterfront Project (Ninyo & Moore 2008). To establish the environmental baseline, the HMA used a range of sources, including a review of historical aerial photographs and historical topographic maps, historical oil and gas maps, environmental regulatory database searches, review of previous HMAs prepared within the study area and nearby surroundings, interviews with onsite operators, and a site reconnaissance. This impact analysis evaluates the changes the proposed Project would have on existing conditions and how existing conditions may adversely affect the proposed Project.

3.6.4.1.1 Analytical Framework

Groundwater and onshore soils impacts have been evaluated with respect to several general parameters, including groundwater quality and quantity, and soil contaminants. The impact of the proposed Project on each of these parameters has been evaluated with respect to the significance criteria listed below. The assessment of impacts is also based on regulatory controls and on the assumptions that the proposed Project would include the following:

- An individual NPDES permit for stormwater discharges or coverage under the General Construction Activity Storm Water Permit would be obtained for the proposed Project.
- The contractors would prepare a SPCC plan and an oil spill contingency plan (OSCP), which would be reviewed and approved by the California Department of Fish and Game (DFG) Office of Spill Prevention and Response, in consultation with other responsible agencies. The SPCC Plan would detail and implement spill prevention and control measures to prevent oil spills from reaching navigable waters. The OSCP would identify and plan as necessary for contingency measures that would minimize damage to water quality and provide for restoration to pre-spill conditions.
- All contaminated soil and groundwater occurring as a result of oil spills related to the proposed Project would be remediated, in accordance with LAHD lease conditions and all federal, state, and local regulations. Remediation effort would be supervised by the appropriate lead agency, which could include DTSC, RWQCR, or LACFD.
- In accordance with standard LAHD lease conditions, the future tenants would implement a source control program, which provides for the inspection, control, and cleanup of leaks from aboveground tank and pipeline sources, as well as requirements related to groundwater and soil remediation.

Potential impacts to surface water, off-shore sediments, and marine water quality are addressed in Section 3.14, "Water Quality, Sediments, and Oceanography."

3.6.4.2 Thresholds of Significance

3.6.4.2.1 CEQA Criteria

Significance criteria used in this assessment are based on the *L.A. CEQA Threshold Guide* (City of Los Angeles 2006), LAHD criteria, and the scientific judgment of the report preparers. The effects of a project on groundwater and soils resources are considered to be significant if the proposed Project would result in any of the following:

GW-1: Exposure of soils containing toxic substances and petroleum hydrocarbons associated with prior operations, which would be deleterious to humans based on regulatory standards established by the lead agency for the site.

GW-2: Changes in the rate or direction of movement of existing contaminants; expansion of the area affected by contaminants; or increased level of groundwater contamination, which would increase risk of harm to humans.

GW-3: Demonstrable and sustained reduction in potable groundwater recharge capacity or change in potable water levels sufficient to:

- reduce the ability of a water utility to use the groundwater basin for public water supplies, conjunctive use purposes, storage of imported water, summer/winter peaking, or to respond to emergencies and drought;
- reduce yields of adjacent wells or well fields (public or private); or
- adversely change the rate or direction of groundwater flow.

GW-4: Violation of regulatory water quality standards at an existing production well, as defined in CCR, Title 22, Division 4, Chapter 15 and in the Safe Drinking Water Act.

3.6.4.3 Impacts and Mitigation

3.6.4.3.1 Construction Impacts

Impact GW-1a: Proposed project construction activities may result in exposure of soils containing toxic substances and petroleum hydrocarbons associated with prior operations, which would be deleterious to humans based on regulatory standards established by the lead agency for the site.

Soil and groundwater within the proposed project area have been adversely affected by hazardous substances and petroleum products as a result of spills during historic industrial land uses. All of these areas are in various stages of contaminant site characterization and remediation, as previously described in Table 3.6-2. For example, the historical review indicated the presence of abandoned oil production wells in the Avalon Development District, the Avalon Waterfront District, and within the vicinity of the Waterfront Red Car Line/California Coastal Trail. Moreover, the LADWP Tank Farm site was identified with soil and groundwater contamination. It is unknown if each of these properties (as listed in Table 3.6-2) is currently contaminated. LAHD would determine the contamination level for each area and would mitigate contaminated soil and groundwater where necessary prior to construction. In addition, LAHD would take measures to address the potential to encounter unanticipated contaminated soil and groundwater during construction in areas outside currently identified contaminated sites.

In addition, Phase I of the proposed Project would be in operation beginning in 2012. As such, any onsite personnel, visitors, or recreational users of the Phase I facilities may be exposed to soils containing toxic substances and petroleum hydrocarbons associated with Phase II construction, including LADWP tank demolition, if proper containment measures are not followed.

Additionally, demolition of structures built prior to 1980 may result in the exposure of the public and/or the environment to asbestos containing materials (ACMs) and/or lead based paint (LBP). Human health and safety impacts would be significant

pursuant to exposure levels established by CalEPA's Office of Environmental Health Hazard Assessment (OEHHA).

Impact Determination

The proposed Project would result in exposure of soils containing toxic substances and petroleum hydrocarbons associated with prior operations, which would be deleterious to humans based on regulatory standards established by the lead agency for the site. Specifically, grading and construction would potentially expose construction personnel, existing operations personnel, and Phase 1 recreational users to contaminated soil, toxic plumes, or contaminated water. Grading and construction activities may also encounter previously unidentified underground storage tanks (USTs), hazardous materials, petroleum hydrocarbons, or hazardous or solid wastes.

Mitigation Measures

MM GW-1. Preparation of a Soil Management Plan or Phase II Environmental Site Assessment. LAHD will prepare a soil management plan prior to construction and will implement it during all phases of construction. Disturbed soils will be monitored for visual evidence of contamination (e.g., staining or discoloration). Soil will also be monitored for the presence of VOCs using appropriate field instruments such as organic vapor measurement with photoionization detectors or flame ionization detectors. If the monitoring procedures indicate the possible presence of contaminated soil, a contaminated soil contingency plan will be implemented and will include procedures for segregation, sampling, and chemical analysis of soil. Contaminated soil will be profiled for disposal and will be transported to an appropriate hazardous or non-hazardous waste or recycling facility licensed to accept and treat the type of waste indicated by the profiling process. The contaminated soil contingency plan will be developed and in place during all construction activities. If these processes generate any contaminated groundwater that must be disposed of outside of the dewatering/NPDES process, the groundwater will be profiled, manifested, hauled, and disposed of in the same manner.

Alternatively, preparation of a Phase II ESA will be prepared. In general, the Phase II ESA will include the following:

- A work plan that includes the number and locations of proposed soil/monitoring wells, sampling intervals, drilling and sampling methods, analytical methods, sampling rationale, site geohydrology, field screening methods, quality control/quality assurance, and reporting methods. Where appropriate, the work plan is approved by a regulatory agency such as the LACFD or the RWQCB.
- A site-specific health and safety plan signed by a Certified Industrial Hygienist.
- Necessary permits for encroachment, boring completion, and well installation.
- A traffic safety plan.
- Sampling program (fieldwork) in accordance with the work plan and health and safety plan. Fieldwork is completed under the supervision of a State of California registered geologist.

- Hazardous materials testing through a state-certified laboratory.
- Documentation including a description of filed procedures, boring logs/well construction diagrams, tabulations of analytical results, cross-sections, an evaluation of the levels and extent of contaminants found, and conclusions and recommendations regarding the environmental condition of the site and the need for further assessment. Recommendations may include additional assessment or handling of the contaminants found though the contaminated soil contingency plan. If the contaminated soil contingency plan is inadequate for the contamination found, a remedial action plan will be developed. Contaminated groundwater will generally be handled through the NPDES/dewatering process.
- Disposal process including transport by a state-certified hazardous material hauler to a state-certified disposal or recycling facility licensed to accept and treat the identified type of waste.

MM GW-2: Site Remediation. Unless otherwise authorized by the lead regulatory agency for any given site, LAHD will remediate all contaminated soils within proposed project boundaries prior to or during demolition and grading activities. Remediation will occur in compliance with local, state, and federal regulations as described in Section 3.6.3 and as directed by the LACFD, DTSC, and/or RWQCB.

Soil remediation will be completed such that contamination levels are below health screening levels established by OEHHA of CalEPA and/or applicable action levels established by the lead regulatory agency with jurisdiction over the site. Soil contamination waivers may be acceptable as a result of encapsulation (i.e., paving) in upland areas and/or risk-based soil assessments, but would be subject to the discretion of the lead regulatory agency.

Existing groundwater contamination throughout the proposed project boundary will continue to be monitored and remediated, simultaneous and/or subsequent to site redevelopment, in accordance with direction provided by the RWQCB.

Unless otherwise authorized by the lead regulatory agency for any given site, areas of soil contamination that will be remediated prior to or in conjunction with proposed project demolition, grading, and construction will include, but not be limited to, the properties within and adjacent to the proposed Project as listed in the HMA and filed as Appendix F of this EIR.

MM GW-2a: Remediate Former Oil Wells in the Avalon Development District (Area A), Avalon Waterfront District (Area B), and within the Immediate Vicinity of the Waterfront Red Car Line/CCT (Area C). Locate the well using geophysical or other methods. Contact the Division of Oil, Gas, and Geothermal Resources (DOGGR) to review abandonment records and inquire whether re-abandonment is necessary prior to any future construction related to the proposed Project (re-abandonment is required if previously abandoned wells were abandoned in accordance with the standards of the time and those standards are now considered too low). Implement corrective measures as directed by DOGGR. Successful site remediation will require compliance with MM GW-2.

MM GW-2b: Remediate Soil along Existing and Former Rail Lines. Soil along and immediately adjacent to existing and former rail lines that will be disturbed during construction will be assessed for the presence of herbicides, petroleum hydrocarbons, and metals. Successful site remediation will require compliance with MM GW-2.

MM GW-2c: Health Based Risk Assessment for the Marine Tank Farm. LAHD will prepare a HBRA to determine whether remediation of soil and/or groundwater is needed at the Marine Tank Farm site and, if so, determine the appropriate work plan to ensure the site would comply with applicable local, state, and federal laws. Successful site remediation will require compliance with MM GW-2.

MM GW-3: Contamination Contingency Plan for Non-Specific Facilities and Unidentified Sources of Hazardous Materials. LAHD will prepare a hazardous materials contingency plan addressing the potential for discovery of unidentified USTs, hazardous materials, petroleum hydrocarbons, or hazardous or solid wastes encountered during construction. The following will be implemented to address previously unknown contamination during demolition, grading, and construction:

a) All trench excavation and filling operations will be observed for the presence of free petroleum products, chemicals, or contaminated soil. Deeply discolored soil or suspected contaminated soil will be segregated from light colored soil. In the event unexpected suspected chemically impacted material (soil or water) is encountered during construction, the contractor will notify LAHD's Chief Harbor Engineer, the Director of Environmental Management, and Risk Management's Industrial Hygienist. LAHD will confirm the presence of the suspect material; direct the contractor to remove, stockpile, or contain the material; and characterize the suspect material identified within the boundaries of the construction area. Continued work at a contaminated site will require the approval of the Chief Harbor Engineer.

b) A photoionization detector (or other similar devices) will be present during grading and excavation of suspected chemically impacted soil.

c) Excavation of VOC-impacted soil will require obtaining and complying with a SCAQMD Rule 1166 permit.

d) The remedial option(s) selected will be dependent upon a number of criteria (including but not limited to types of chemical constituents, concentration of the chemicals, health and safety issues, time constraints, cost, etc.) and will be determined on a site-specific basis. Both off-site and onsite remedial options will be evaluated.

e) The extent of removal actions will be determined on a site-specific basis. At a minimum, the chemically impacted area(s) within the boundaries of the construction area will be remediated to the satisfaction of the lead regulatory agency for the site. The LAHD Project Manager overseeing removal actions will inform the contractor when the removal action is complete.

f) Copies of hazardous waste manifests or other documents indicating the amount, nature, and disposition of such materials will be submitted to the Chief Harbor Engineer within 30 days of project completion.

g) In the event that contaminated soil is encountered, all onsite personnel handling or working in the vicinity of the contaminated material will be trained in accordance with Occupational Safety and Health and Administration (OSHA) regulations for hazardous waste operations. These regulations are based on CFR 1910.120 (e) and 8 CCR 5192, which states that "general site workers" will receive a minimum of 40 hours of classroom training and a minimum of 3 days of field training. This training provides precautions and protective measures to reduce or eliminate hazardous materials/waste hazards at the work place.

h) In cases where potential chemically impacted soil is encountered, a real-time aerosol monitor will be placed on the prevailing downwind side of the impacted soil area to monitor for airborne particulate emissions during soil excavation and handling activities.

i) All excavations will be filled with structurally suitable fill material that is free from contamination.

j) Prior to dewatering activities, LAHD will obtain a NPDES permit. In areas of suspected contaminated groundwater, special conditions will apply with regard to acquisition of the NPDES permit, including testing and monitoring, as well as discharge limitations under the NPDES permits.

k) Soil along and immediately adjacent to existing and former rail lines that will be disturbed during construction will be assessed for the presence of herbicides, petroleum hydrocarbons, and metals.

l) Demolition of chemical/fuel storage facilities will include decommissioning and removal of USTs and ASTs in accordance with local and state regulatory agencies. These agencies will likely require soil and groundwater sampling. This sampling will be conducted in accordance with local and state regulatory agency requirements.

m) Prior to construction activities, LAHD, or its contractors, will conduct an evaluation of all buildings (built prior to 1980) to be demolished to evaluate the presence of asbestos-containing building materials and lead-based paint. Remediation will be implemented in accordance with the recommendations of these evaluations.

n) Upon discovery of soil or groundwater contamination, the lead agency responsible for site remediation will determine if the identified contaminants pose a health risk to the general public, operation personnel, or other possible human receptors present at Phase 1 operational locations. If it is determined that an adverse risk to the general public, operation personnel, or other human receptors is present, Phase 1 Project elements in operation will be closed as a precaution to prevent human exposure to toxic substances.

Residual Impacts

Excavated soil would be managed in accordance with MM GW-1. Soil and groundwater remediation of known contaminated areas would occur as outlined in MM GW-2. The potential of encountering unknown soil contamination and remediation requirements are outlined in MM GW-3. Prior to any visitor activity on site all soils and potentially hazardous materials will be remediated to satisfy the

appropriate regulatory standards. Examples of areas that will be remediated to satisfactory levels prior to occupation include the former oil wells in the Avalon Development District (Area A), Avalon Waterfront District (Area B), and within the immediate vicinity of the Waterfront Red Car Line/CCT (Area C). Implementation of mitigation measures MM GW-1, MM GW-2, MM GW-2a, MM GW-2b, MM GW-2c, and MM GW-3 would reduce health and safety impacts on construction personnel and recreational users to less-than-significant levels.

Impacts after mitigation would be less than significant.

Impact GW-2a: Proposed project construction would not result in changes in the rate or direction of movement of existing contaminants, expansion of the area affected by contaminants, or increased level of groundwater contamination, which would increase risk of harm to humans.

As discussed for Impact GW-1, soil and groundwater in limited portions of the proposed project site have been affected by hazardous substances and petroleum products as a result of spills during historic industrial land uses. Excavation and grading in contaminated soils, as well as dredging of potentially contaminated soil and marine sediments, would potentially result in inadvertent spreading of such contamination to areas that were previously unaffected by spills of petroleum products or hazardous substances. The lead agency responsible for remediation would provide containment guidance and would assist in overseeing construction and remediation activities for the proposed Project, including ensuring that remediation efforts would be conducted in accordance with federal, state, and local laws. The local and state regulatory agencies would also provide guidance and oversight on the proper construction BMPs implemented for the proposed Project.

Impact Determination

Grading and construction in upland areas would potentially change the rate or direction of movement of existing contaminants; expand the area affected by contaminants; or increase the level of groundwater contamination, which would increase risk of harm to humans. Human health and safety impacts would be significant pursuant to exposure levels established by OEHHA.

Mitigation Measures

Implement mitigation measures MM GW-1, MM GW-2, MM GW-2a, MM GW-2b, MM GW-2c, and MM GW-3.

Residual Impacts

Excavated soil would be managed in accordance with MM GW-1. Soil and groundwater remediation of known contaminated areas would occur as outlined in

mitigation measure MM GW-2, MM GW-2a, MM GW-2b, and MM GW-2c. The potential of encountering unknown soil contamination and the remediation requirements are outlined in mitigation measure MM GW-3. Implementation of these mitigation measures would substantially reduce the possibility of expanding the area affected by contaminants, and agency oversight and regulatory requirements would significantly reduce the consequences of movement, expansion, or an increase in groundwater contamination.

Impacts after mitigation would be less than significant.

Impact GW-3a: Construction activities for the proposed Project would not result in a demonstrable and sustained reduction in potable groundwater recharge capacity nor would construction result in a change in potable water levels.

Most of the proposed project area is paved and impermeable to groundwater recharge. Construction activities at the proposed project site would result in removal of pavement in select areas, thus resulting in an increase in groundwater recharge at the site. The proposed project area is predominantly underlain by deep, unconfined potable aquifers of highly saline, non-potable groundwater, and is not a designated recharge area for potable groundwater; therefore it is not used by any utility for public water uses, such as storage of imported water, summer or winter peak water usage, or as a defense against a drought season or emergency. The proposed project construction activities would not interfere with the potential yields of any adjacent groundwater wells or well fields (public or private) as all groundwater underlying the entire vicinity of the proposed project area is highly saline and non-potable. It is also not expected that any construction activities would adversely alter the rate or direction of groundwater flow in the vicinity of the proposed project area.

Drinking water is provided to the proposed project area by LADWP. Although shallow groundwater may be locally extracted during construction dewatering operations, this perched groundwater under the proposed project area is highly saline and non-potable. As such, if any potential groundwater withdrawal in the vicinity of the proposed project area would occur, it would have no impact on potential underlying potable water supplies. Furthermore, in the event groundwater is encountered during excavation, appropriate dewatering and engineering standards would be implemented to ensure water levels are not substantially affected.

Impact Determination

Although proposed project construction would result in a temporary increase in groundwater recharge, the proposed project site is underlain by saline, non-potable groundwater. Because the water is non-potable, the amount of recharge is irrelevant with respect to potential utilization of the perched aquifer as a drinking water source, and any extracted groundwater would be replaced to reduce the potential of seawater intrusion inland. Therefore, any temporary increase in recharge would be

inconsequential, and no impacts would occur with respect to potable groundwater recharge.

Because drinking water is provided to the proposed project area by LADWP and the groundwater is highly saline and non-potable, no impact would occur.

Mitigation Measures

No mitigation is required.

Residual Impacts

No impacts would occur.

Impact GW-4a: Construction activities for the proposed Project would not result in a violation of regulatory water quality standards at an existing production well, as defined in CCR, Title 22, Division 4, Chapter 15 and in the Safe Drinking Water Act.

Drinking water is provided to the proposed project area by LADWP. No existing production wells are located in the vicinity of the proposed project site as the underlying groundwater is not suitable for drinking.

Impact Determination

Because no existing production wells are located in the vicinity of the proposed project site, no impacts would occur.

Mitigation Measures

No mitigation is required.

Residual Impacts

No impacts would occur.

3.6.4.3.2 Operational Impacts

Impact GW-1b: Proposed project operations would not result in exposure of soils containing toxic substances and petroleum hydrocarbons associated with prior operations, which would be deleterious to humans based on regulatory standards established by the lead agency for the site.

Soil and groundwater in limited portions of the proposed project site have been affected by hazardous substances and petroleum products as a result of spills during historic industrial land uses. These areas are in various stages of contaminant site characterization and remediation, as described above. Implementation of mitigation measures MM GW-1, MM GW-2, MM GW-2a, MM GW-2b, MM GW-2c, and MM GW-3 prior to or during proposed project demolition, grading, and construction would reduce onsite contamination to levels acceptable by the applicable lead regulatory agency prior to project operations.

Impact Determination

Mitigation measures MM GW-1, MM GW-2, MM GW-2a, MM GW-2b, MM GW-2c, and MM GW-3 would reduce onsite contamination to levels acceptable by the applicable lead regulatory agency prior to proposed project operations. In addition, no excavations that might encounter contaminated soil and/or groundwater would be completed as part of proposed project operations. Therefore, impacts would be less than significant.

Mitigation Measures

Implement mitigation measures MM GW-1, MM GW-2, MM GW-2a, MM GW-2b, MM GW-2c, and MM GW-3.

Residual Impacts

Impacts after mitigation would be less than significant.

Impact GW-2b: Proposed project operations would not result changes in the rate or direction of movement of existing contaminants, expansion of the area affected by contaminants, or increased level of groundwater contamination which would increase risk of harm to humans.

As discussed for Impact GW-1b, soil and groundwater in limited portions of the proposed project site have been affected by hazardous substances and petroleum products as a result of spills during historic industrial land uses. These areas are in various stages of contaminant site characterization and remediation, as described above. Implementation of mitigation measures MM GW-1, MM GW-2, and

MM GW-3 prior to or during proposed project demolition, grading, and construction would reduce onsite contamination to levels acceptable by the applicable lead regulatory agency prior to project operations.

Impact Determination

Mitigation measures MM GW-1, GW-2, MM GW-2a, MM GW-2b, MM GW-2c,and MM GW-3 would reduce onsite contamination to levels acceptable by the applicable lead regulatory agency prior to proposed project operations. In addition, excavations that might encounter contaminated soil, which could be inadvertently spread to non-contaminated areas, would be mitigated under MM GW-1 and MM GW-3. Therefore, impacts would be less than significant.

Mitigation Measures

Implement mitigation measures MM GW-1, MM GW-2, MM GW-2a, MM GW-2b, MM GW-2c, and MM GW-3.

Residual Impacts

Impacts after mitigation would be less than significant.

Impact GW-3b: Proposed project operations would not result in a demonstrable and sustained reduction in potable groundwater recharge capacity and would not result in a change in potable water levels.

Most of the proposed project area is currently paved and impermeable to groundwater recharge. Most of the proposed project site would be converted to park space with a smaller amount being paved, resulting in a greater amount of recharge at the majority of the site. However, the proposed project area is underlain by highly saline, non-potable groundwater.

Drinking water is provided to the proposed project area by LADWP.

Impact Determination

The proposed project operations would increase recharge; however, the proposed project site is underlain by saline, non-potable groundwater. Therefore, no impacts would occur under CEQA with respect to loss of potable groundwater recharge.

Furthermore, because drinking water is provided to the proposed project area by LADWP and does not come from beneath the site, no impacts would occur with respect to changes in potable water levels beneath the site.

Mitigation Measures

No mitigation is required.

Residual Impacts

No impact would occur.

Impact GW-4b: Proposed project operations would not result in a violation of regulatory water quality standards at an existing production well, as defined in CCR, Title 22, Division 4, Chapter 15 and in the Safe Drinking Water Act.

Drinking water is provided to the proposed project area by LADWP. No existing production wells are located in the vicinity of the proposed project site.

Impact Determination

Because no existing production wells are located in the vicinity of the proposed project site, no impacts would occur under CEQA.

Mitigation Measures

No mitigation is required.

Residual Impacts

No impacts would occur.

3.6.4.3.3 Summary of Impact Determinations

Table 3.6-3 summarizes the impact determinations of the proposed Project related to groundwater and soils, as described in the detailed discussion in Sections 3.6.4.3.1 and 3.6.4.3.2. Identified impacts may be based on federal, state, and City of Los Angeles significance criteria, LAHD criteria, and the conclusions of the technical reports.

For each type of potential impact, the table describes the impact, notes the impact determinations, describes any applicable mitigation measures, and notes the residual impacts (i.e., the impact remaining after mitigation). All impacts, whether significant or not, are included in this table.

Table 3.6-3: Summary Matrix of Potential Impacts and Mitigation Measures for Groundwater and Soils Associated with the Proposed Project

Environmental Impacts	*Significance of Impact before Mitigation*	*Mitigation Measures*	*Impacts after Mitigation*
3.6 Groundwater and Soils			
Construction			
GW-1a: Proposed project construction activities may result in exposure of soils containing toxic substances and petroleum hydrocarbons associated with prior operations, which would be deleterious to humans based on regulatory standards established by the lead agency for the site.	Significant	**MM GW-1**. **Preparation of a Soil Management Plan or Phase II Environmental Site Assessment.** LAHD will prepare a soil management plan prior to construction and will implement it during all phases of construction. Disturbed soils will be monitored for visual evidence of contamination (e.g., staining or discoloration). Soil will also be monitored for the presence of VOCs using appropriate field instruments such as organic vapor measurement with photoionization detectors or flame ionization detectors. If the monitoring procedures indicate the possible presence of contaminated soil, a contaminated soil contingency plan will be implemented and will include procedures for segregation, sampling, and chemical analysis of soil. Contaminated soil will be profiled for disposal and will be transported to an appropriate hazardous or non-hazardous waste or recycling facility licensed to accept and treat the type of waste indicated by the profiling process. The contaminated soil contingency plan will be developed and in place during all construction activities. If these processes generate any contaminated groundwater that must be disposed of outside of the dewatering/NPDES process, the groundwater will be profiled, manifested, hauled, and disposed of in the same manner. Alternatively, preparation of a Phase II ESA will be prepared. In general, the Phase II ESA will include the following: ■ A work plan that includes the number and locations of	Less than significant

Environmental Impacts	*Significance of Impact before Mitigation*	*Mitigation Measures*	*Impacts after Mitigation*
		proposed soil/monitoring wells, sampling intervals, drilling and sampling methods, analytical methods, sampling rationale, site geohydrology, field screening methods, quality control/quality assurance, and reporting methods. Where appropriate, the work plan is approved by a regulatory agency such as the LAFD or the RWQCB. ■ A site-specific health and safety plan signed by a Certified Industrial Hygienist. ■ Necessary permits for encroachment, boring completion, and well installation. ■ A traffic safety plan. ■ Sampling program (fieldwork) in accordance with the work plan and health and safety plan. Fieldwork is completed under the supervision of a State of California registered geologist. ■ Hazardous materials testing through a state-certified laboratory. ■ Documentation including a description of filed procedures, boring logs/well construction diagrams, tabulations of analytical results, cross-sections, an evaluation of the levels and extent of contaminants found, and conclusions and recommendations regarding the environmental condition of the site and the need for further assessment. Recommendations may	

Environmental Impacts	*Significance of Impact before Mitigation*	*Mitigation Measures*	*Impacts after Mitigation*
		include additional assessment or handling of the contaminants found though the contaminated soil contingency plan. If the contaminated soil contingency plan is inadequate for the contamination found, a remedial action plan will be developed. Contaminated groundwater will generally be handled through the NPDES/dewatering process. ■ Disposal process including transport by a state-certified hazardous material hauler to a state-certified disposal or recycling facility licensed to accept and treat the identified type of waste. **MM GW-2: Site Remediation.** Unless otherwise authorized by the lead regulatory agency for any given site, LAHD will remediate all contaminated soils within proposed project boundaries prior to or during demolition and grading activities. Remediation will occur in compliance with local, state, and federal regulations as described in Section 3.6.3 and as directed by the LACFD, DTSC, and/or RWQCB. Soil remediation will be completed such that contamination levels are below health screening levels established by OEHHA of CalEPA and/or applicable action levels established by the lead regulatory agency with jurisdiction over the site. Soil contamination waivers may be acceptable as a result of encapsulation (i.e., paving) in upland areas and/or risk-based soil assessments, but would be subject to the discretion of the lead regulatory agency. Existing groundwater contamination throughout the proposed project	

Environmental Impacts	*Significance of Impact before Mitigation*	*Mitigation Measures*	*Impacts after Mitigation*
		boundary will continue to be monitored and remediated, simultaneous and/or subsequent to site redevelopment, in accordance with direction provided by the RWQCB. Unless otherwise authorized by the lead regulatory agency for any given site, areas of soil contamination that will be remediated prior to or in conjunction with proposed project demolition, grading, and construction will include, but not be limited to, the properties within and adjacent to the proposed Project as listed in the HMA and filed as Appendix F of this EIR. **MM GW-2a: Remediate Former Oil Wells in the Avalon Development District (Area A), Avalon Waterfront District (Area B), and within the Immediate Vicinity of the Waterfront Red Car Line/CCT (Area C)**. Locate the well using geophysical or other methods. Contact the Division of Oil, Gas, and Geothermal Resources (DOGGR) to review abandonment records and inquire whether re-abandonment is necessary prior to any future construction related to the proposed Project (re-abandonment is required if previously abandoned wells were abandoned in accordance with the standards of the time and those standards are now considered too low). Implement corrective measures as directed by DOGGR. Successful site remediation will require compliance with MM GW-2. **MM GW-2b: Remediate Soil along Existing and Former Rail Lines.** Soil along and immediately adjacent to existing and former rail lines that will be disturbed during construction will be assessed for the presence of herbicides, petroleum hydrocarbons, and metals. Successful site remediation will require compliance with MM GW-2.	

Environmental Impacts	*Significance of Impact before Mitigation*	*Mitigation Measures*	*Impacts after Mitigation*
		MM GW-2c: Health Based Risk Assessment for the Marine Tank Farm. LAHD will prepare a HBRA to determine whether remediation of soil and/or groundwater is needed at the Marine Tank Farm site and, if so, determine the appropriate work plan to ensure the site would comply with applicable local, state, and federal laws. Successful site remediation will require compliance with MM GW-2. **MM GW-3: Contamination Contingency Plan for Non-Specific Facilities and Unidentified Sources of Hazardous Materials**. LAHD will prepare a hazardous materials contingency plan addressing the potential for discovery of unidentified USTs, hazardous materials, petroleum hydrocarbons, or hazardous or solid wastes encountered during construction. The following will be implemented to address previously unknown contamination during demolition, grading, and construction: a) All trench excavation and filling operations will be observed for the presence of free petroleum products, chemicals, or contaminated soil. Deeply discolored soil or suspected contaminated soil will be segregated from light colored soil. In the event unexpected suspected chemically impacted material (soil or water) is encountered during construction, the contractor will notify LAHD's Chief Harbor Engineer, the Director of Environmental Management, and Risk Management's Industrial Hygienist. LAHD will confirm the presence of the suspect material; direct the contractor to remove, stockpile, or contain the material; and characterize	

Environmental Impacts	*Significance of Impact before Mitigation*	*Mitigation Measures*	*Impacts after Mitigation*
		the suspect material identified within the boundaries of the construction area. Continued work at a contaminated site will require the approval of the Chief Harbor Engineer. b) A photoionization detector (or other similar devices) will be present during grading and excavation of suspected chemically impacted soil. c) Excavation of VOC-impacted soil will require obtaining and complying with a SCAQMD Rule 1166 permit. d) The remedial option(s) selected will be dependent upon a number of criteria (including but not limited to types of chemical constituents, concentration of the chemicals, health and safety issues, time constraints, cost, etc.) and will be determined on a site-specific basis. Both off-site and onsite remedial options will be evaluated. e) The extent of removal actions will be determined on a site-specific basis. At a minimum, the chemically impacted area(s) within the boundaries of the construction area will be remediated to the satisfaction of the lead regulatory agency for the site. The LAHD Project Manager overseeing removal actions will inform the contractor when the removal action is complete. f) Copies of hazardous waste manifests or other documents indicating the amount, nature, and disposition of such materials will be submitted to the Chief Harbor Engineer within 30 days of project completion. g) In the event that contaminated soil is encountered, all onsite	

Environmental Impacts	*Significance of Impact before Mitigation*	*Mitigation Measures*	*Impacts after Mitigation*
		personnel handling or working in the vicinity of the contaminated material will be trained in accordance with Occupational Safety and Health and Administration (OSHA) regulations for hazardous waste operations. These regulations are based on CFR 1910.120 (e) and 8 CCR 5192, which states that "general site workers" will receive a minimum of 40 hours of classroom training and a minimum of 3 days of field training. This training provides precautions and protective measures to reduce or eliminate hazardous materials/waste hazards at the work place. h) In cases where potential chemically impacted soil is encountered, a real-time aerosol monitor will be placed on the prevailing downwind side of the impacted soil area to monitor for airborne particulate emissions during soil excavation and handling activities. i) All excavations will be filled with structurally suitable fill material that is free from contamination. j) Prior to dewatering activities, LAHD will obtain a NPDES permit. In areas of suspected contaminated groundwater, special conditions will apply with regard to acquisition of the NPDES permit, including testing and monitoring, as well as discharge limitations under the NPDES permits. k) Soil along and immediately adjacent to existing and former rail lines that will be disturbed during construction will be assessed for the presence of herbicides, petroleum hydrocarbons, and metals.	

Environmental Impacts	*Significance of Impact before Mitigation*	*Mitigation Measures*	*Impacts after Mitigation*
		l) Demolition of chemical/fuel storage facilities will include decommissioning and removal of USTs and ASTs in accordance with local and state regulatory agencies. These agencies will likely require soil and groundwater sampling. This sampling will be conducted in accordance with local and state regulatory agency requirements. m) Prior to construction activities, LAHD, or its contractors, will conduct an evaluation of all buildings (built prior to 1980) to be demolished to evaluate the presence of asbestos-containing building materials and lead-based paint. Remediation will be implemented in accordance with the recommendations of these evaluations. n) Upon discovery of soil or groundwater contamination, the lead agency responsible for site remediation will determine if the identified contaminants pose a health risk to the general public, operation personnel, or other possible human receptors present at Phase 1 operational locations. If it is determined that an adverse risk to the general public, operation personnel, or other human receptors is present, Phase 1 Project elements in operation will be closed as a precaution to prevent human exposure to toxic substances.	

Environmental Impacts	*Significance of Impact before Mitigation*	*Mitigation Measures*	*Impacts after Mitigation*
GW-2a: Proposed project construction would not result in changes in the rate or direction of movement of existing contaminants, expansion of the area affected by contaminants, or increased level of groundwater contamination, which would increase risk of harm to humans.	Significant	Implement mitigation measures MM GW-1, MM GW-2, MM GW-2a, MM GW-2b, MM GW-2c, and MM GW-3.	Less than significant
GW-3a: Construction activities for the proposed Project would not result in a demonstrable and sustained reduction in potable groundwater recharge capacity nor would construction result in a change in potable water levels.	No impact would occur	No mitigation is required	No impact would occur
GW-4a: Construction activities for the proposed Project would not result in a violation of regulatory water quality standards at an existing production well, as defined in CCR, Title 22, Division 4, Chapter 15 and in the Safe Drinking Water Act.	No impact would occur	No mitigation is required	No impact would occur
Operations			
GW-1b: Proposed project operations would not result in exposure of soils containing toxic substances and petroleum hydrocarbons associated with prior operations, which would be deleterious to humans based on regulatory standards established by the lead agency for the site.	Significant	Implement mitigation measures MM GW-1, MM GW-2, MM GW-2a, MM GW-2b, MM GW-2c, and MM GW-3.	Less than significant
GW-2b: Proposed project operations would not result changes in the rate or direction of movement of existing contaminants, expansion of the area affected by contaminants, or increased level of groundwater contamination which would increase risk of harm to humans.	Significant	Implement mitigation measures MM GW-1, MM GW-2, MM GW-2a, MM GW-2b, MM GW-2c, and MM GW-3.	Less than significant

Environmental Impacts	*Significance of Impact before Mitigation*	*Mitigation Measures*	*Impacts after Mitigation*
GW-3b: Proposed project operations would not result in a demonstrable and sustained reduction in potable groundwater recharge capacity and would not result in a change in potable water levels.	No impact would occur	No mitigation is required	No impact would occur
GW-4b: Proposed project operations would not result in a violation of regulatory water quality standards at an existing production well, as defined in CCR, Title 22, Division 4, Chapter 15 and in the Safe Drinking Water Act.	No impact would occur	No mitigation is required	No impact would occur

3.6.4.4 Mitigation Monitoring

Table 3.6-4: Mitigation Monitoring for Groundwater and Soils

Impact GW-1a: Proposed project construction activities may result in exposure of soils containing toxic substances and petroleum hydrocarbons associated with prior operations, which would be deleterious to humans based on regulatory standards established by the lead agency for the site.	
Mitigation Measure	**MM GW-1**. **Preparation of a Soil Management Plan or Phase II Environmental Site Assessment.**
Timing	Prior to construction activities.
Methodology	Preparation of a soil management plan prior to construction and its required implementation during all phases of construction.
Responsible Parties	LAHD
Residual Impacts	None
Mitigation Measure	**MM GW-2: Site Remediation.**
Timing	Prior to construction activities.
Methodology	Required remedial actions will be specified by the appropriate lead agency responsible for remediation of each site.
Responsible Parties	LAHD will coordinate with the appropriate oversight agencies, e.g. DTSC, LAFD, LACFD, LADWP, etc.
Residual Impacts	None
Mitigation Measure	**MM GW-2a: Remediate Former Oil Wells in the Avalon Development District (Area A), Avalon Waterfront District (Area B), and within the Immediate Vicinity of the Waterfront Red Car Line/CCT (Area C)**

Timing	Prior to construction activities at or within close proximity to oil wells identified in the HMA.
Methodology	Consult with DOGGR to determine abandonment status and determine workplan to remediate the wells in accordance with MM GW-2.
Responsible Parties	LAHD will coordinate with DOGGR.
Residual Impacts	None
Mitigation Measure	**MM GW-2b: Remediate Soil along Existing and Former Rail Lines.** .
Timing	Prior to construction or grading activities along the existing and former rail lines.
Methodology	Same as GW-2
Responsible Parties	LAHD
Residual Impacts	None
Mitigation Measure	**MM GW-2c: Health Based Risk Assessment for the Marine Tank Farm.**
Timing	Prior to construction activities at the Marine Tank Farm.
Methodology	Prepare a Health Based Risk Assessment for the Marine Tank Farm to determine necessary remediation. A workplan will be developed in accordance with MM GW-2.
Responsible Parties	LAHD in coordination with the appropriate regulatory agencies.
Residual Impacts	None
Mitigation Measure	**MM GW-3: Contamination Contingency Plan for Non-Specific Facilities and Unidentified Sources of Hazardous Materials**.
Timing	Prior to construction activities.
Methodology	LAHD will prepare a hazardous materials contingency plan addressing the potential for discovery of unidentified USTs, hazardous materials, petroleum hydrocarbons, or hazardous or solid wastes encountered during construction.
Responsible Parties	LAHD and all construction contractors who could come into contact with historical soil or groundwater contamination.
Residual Impacts	None
Impact GW-2a: Proposed project construction would not result in changes in the rate or direction of movement of existing contaminants, expansion of the area affected by contaminants, or increased level of groundwater contamination, which would increase risk of harm to humans.	
Mitigation Measure	Implement mitigation measures MM GW-1, MM GW-2, MM GW-2a, MM GW-2b, MM GW-2c, and MM GW-3.
Timing	Same as above
Methodology	Same as above
Responsible Parties	Same as above
Residual Impacts	Less than significant
Impact GW-1b: Proposed project operations would not result in exposure of soils containing toxic substances and petroleum hydrocarbons associated with prior operations, which would be deleterious to humans based on regulatory standards established by the lead agency for the site.	
Mitigation Measure	Implement mitigation measures MM GW-1, MM GW-2, MM GW-2a, MM GW-2b, MM

	GW-2c, and MM GW-3.
Timing	Same as above
Methodology	Same as above
Responsible Parties	Same as above
Residual Impacts	Less than significant
Impact GW-2b: Proposed project operations would not result changes in the rate or direction of movement of existing contaminants, expansion of the area affected by contaminants, or increased level of groundwater contamination which would increase risk of harm to humans.	
Mitigation Measure	Implement mitigation measures MM GW-1, MM GW-2, MM GW-2a, MM GW-2b, MM GW-2c, and MM GW-3.
Timing	Same as above
Methodology	Same as above
Responsible Parties	Same as above
Residual Impacts	Less than significant

3.6.5 Significant Unavoidable Impacts

The proposed Project would not result in any significant unavoidable impacts regarding groundwater and soils. Identification, characterization, and remediation of known historical contaminated sites (as well as any currently unknown contaminated sites encountered during construction) would ensure that contaminated sites would pose no significant risks to soil, groundwater, worker exposure, or public exposure.