# 3.7

# GROUNDWATER AND SOILS

## 3.7.1 Introduction

This section identifies the existing conditions of groundwater and soils within the area of the proposed Project and its alternatives, including soil and groundwater contamination, and evaluates the impact of these conditions on proposed Project and alternative development. The environmental setting is based on a review of published reports, as well as review of previous consulting reports completed in the Port of Los Angeles (Port) area.

### 3.7.1.1 Relationship to 1992 Deep Draft Final EIS/EIR

The 1992 Deep Draft Final Environmental Impact Statement/Environmental Impact Report (FEIS/FEIR) (USACE and LAHD 1992) evaluated at a project-specific level all significant impacts on groundwater and soils associated with navigation and landfill improvements required to create Pier 400. This includes those portions of the current proposed Project that are located on Pier 400. The Deep Draft FEIS/FEIR also evaluated at a general, or programmatic, level the foreseeable impacts of development and operation of terminal facilities planned for location on Pier 400, including a marine oil terminal and associated infrastructure. The Deep Draft FEIS/FEIR concluded that no relevant groundwater or soils impacts would result from the proposed Project on Pier 400 and no mitigation measures were recommended.

## 3.7.2 Environmental Setting

The proposed Project area is predominantly underlain by a shallow unconfined aquifer, which occurs at a depth as shallow as 3 feet below ground surface. This shallow aquifer is underlain by several major water-bearing zones. Spills of petroleum products and hazardous substances, due to long-term industrial land use, have resulted in contamination of some onshore soils and shallow groundwater.

## 3.7.2.1 Groundwater

### 3.7.2.1.1 General Description

The generalized hydrogeology beneath the proposed Project area and region of analysis (i.e., Pier 400, Los Angeles Harbor Department [LAHD] Berths 238-240, and Port of Long Beach Berths 76-78 and 84-87) is partially depicted on Figure 3.7-1 and Figure 3.7-2. The former figure represents hydrogeologic conditions in the vicinity of Pipeline Segment 3 South, which extends from Mormon Island northward to the approximate intersection of Water Street and Fries Avenue (see Figure 2-1). The latter figure represents hydrogeologic conditions in the vicinity of Pipeline Segments 3 West and 3 East, which extend approximately from the intersection of Water Street and Fries Avenue to proposed Pigging Station Site A and Alternative Site B. As indicated in these figures, this portion of the Project area consists of the following:

- A shallow, unconfined semi-perched aquifer in Recent alluvium exposed near the ground surface;
- The Bellflower Aquiclude of the upper Pleistocene Lakewood Formation; and
- The confined Gage aquifer of the upper Pleistocene Lakewood Formation.

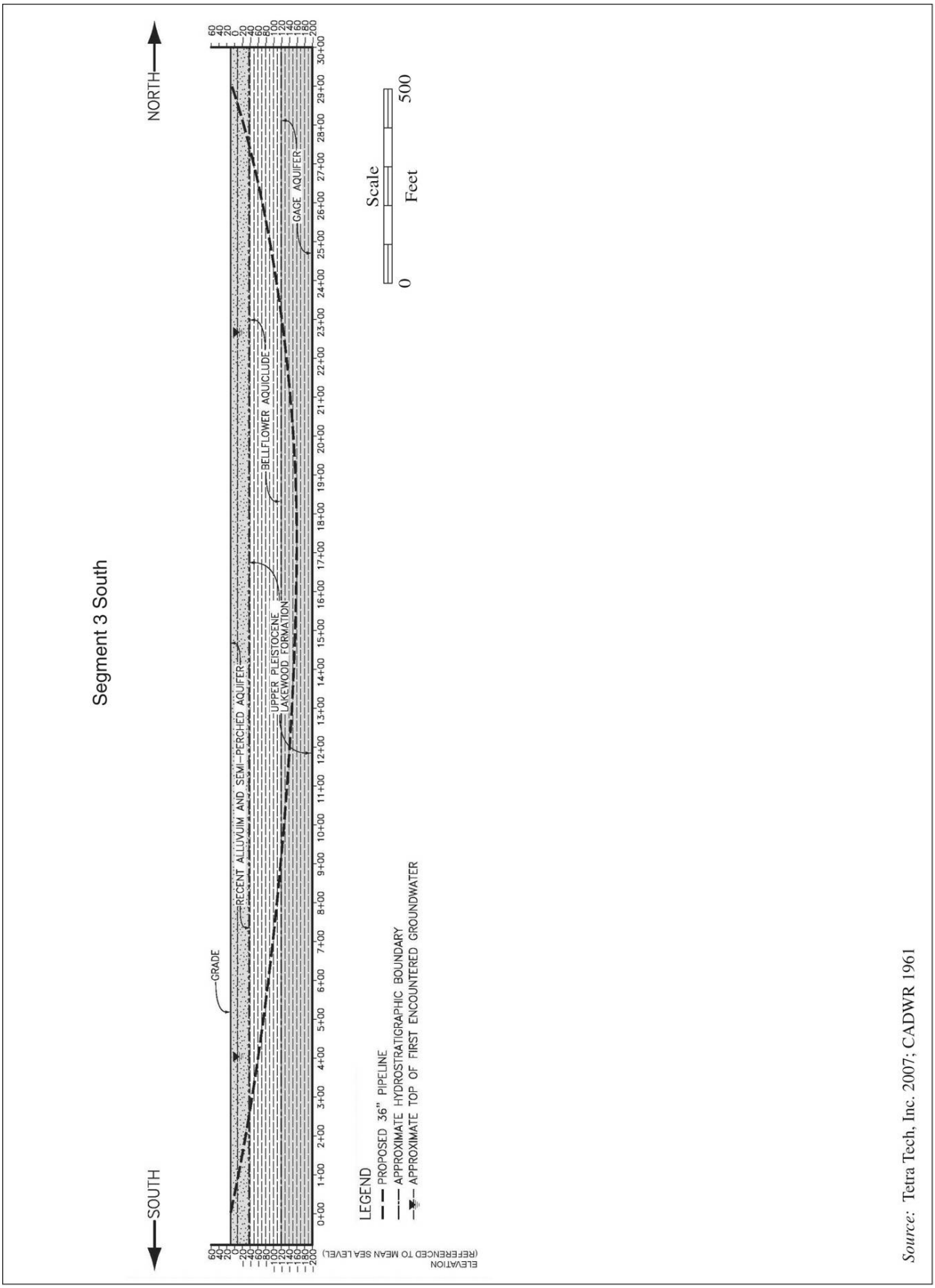
The San Pedro Formation and Lynwood and Silverado aquifers are present in the Project area at elevations below those that would be penetrated by the proposed pipeline bore routes. The Gaspur and Gardena aquifers are not present in the project area (CADWR 1961).

In the Project area, the semi-perched Recent age aquifer extends from a depth of approximately 3 feet to approximately 30-50 feet below ground surface (bgs); the Bellflower Aquiclude occurs from approximately 30-50 feet bgs to 120-140 feet bgs; the Gage Aquifer occurs from approximately 120-150 feet bgs to 200-220 feet bgs; the Lynwood Aquifer occurs from approximately 250-400 feet bgs to 400-550 feet bgs; and the Silverado Aquifer occurs from approximately 600-800 feet bgs to 900-1,100 feet bgs (CADWR 1961).

The existing beneficial uses of groundwater in the Inner Harbor areas does not include municipal or domestic water supply, but does include industrial service supply. The latter is defined as uses of water for industrial activities that do not depend on water quality including, but not limited to, mining, cooling water supply, hydraulic conveyance, gravel washing, fire protection, or oil well re-pressurization (LARWQCB 1994).

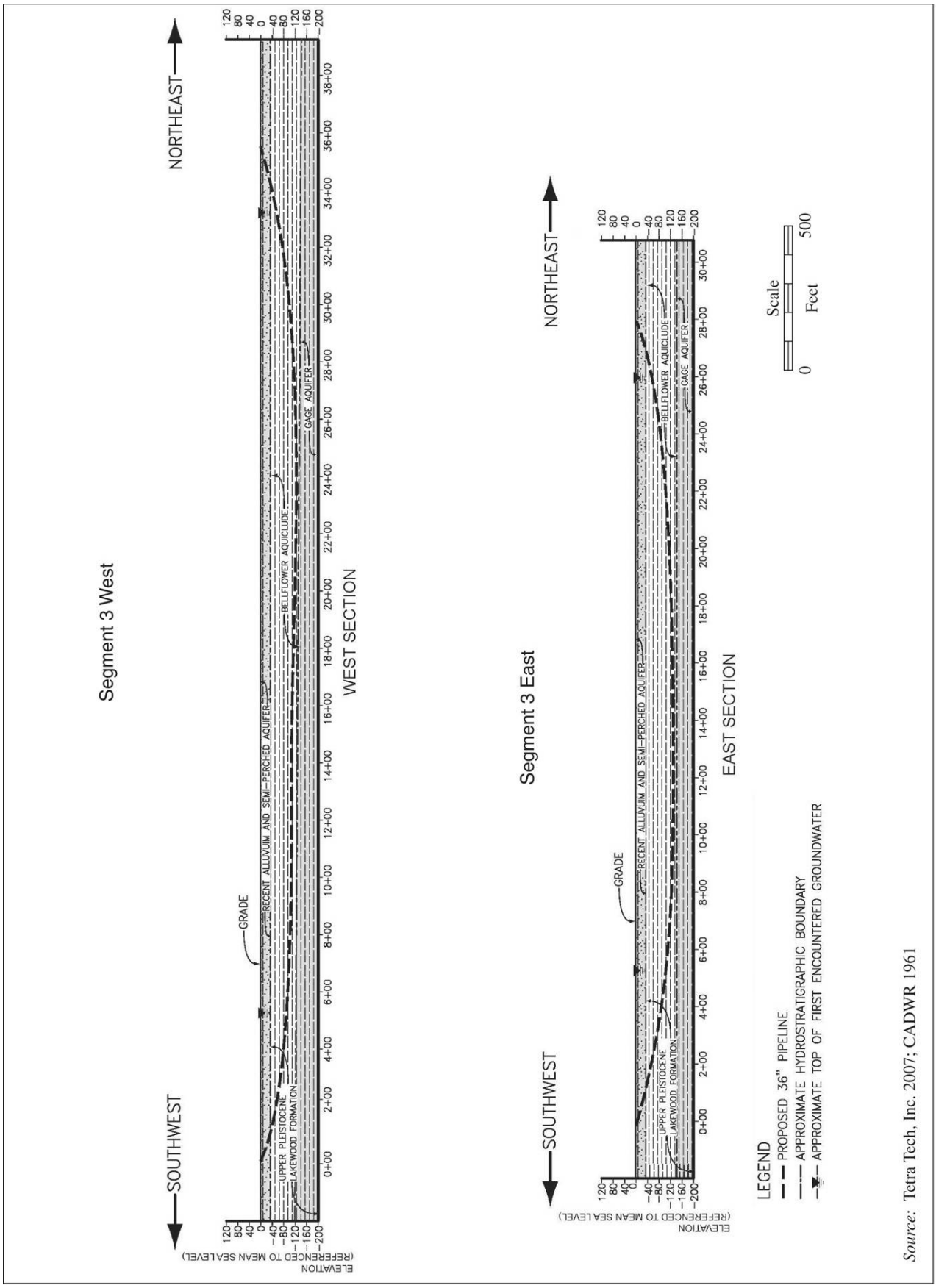
### 3.7.2.1.2 Semi-Perched Aquifer

The first encountered groundwater in the Project area is the unconfined groundwater of the semi-perched aquifer (Figure 3.7-1 and Figure 3.7-2; CADWR 1961), which is estimated to extend from approximately 3 feet to 30-50 feet bgs. The semi-perched aquifer is generally composed of Recent age alluvium, consisting of sand and gravel with minor amounts of silt and clay derived from stream deposition, estuary deposits, and beach sand. The hydraulic conductivity of the semi-perched aquifer is reported to be relatively low at 0.9 feet per day. Due to the proximity of the ship channels, the depth to




*Source:* Tetra Tech, Inc. 2007; CADWR 1961

**Figure 3.7-1. Hydrogeologic Conditions, Pipeline Segment 3 South**




*Source:* Tetra Tech, Inc. 2007; CADWR 1961

**Figure 3.7-2. Hydrogeologic Conditions, Pipeline Segments 3 West and East**

groundwater and direction of groundwater flow in the Project area is dependent on the local tide. Within the Project area, depth to groundwater has been generally reported between 3.5 and 10 feet bgs on Mormon Island, from 8 to 14 feet bgs northeast of Mormon Island and the East Basin (Tetra Tech 2007), and from 5 to 10 feet northeast of the Consolidated Slip (EEC 1999).

#### 3.7.2.1.3 Bellflower Aquiclude

The Bellflower Aquiclude of the Lakewood Formation, which lies directly underneath the semi-perched aquifer (Figure 3.7-1 and Figure 3.7-2), is estimated to be approximately 90 to 110 feet thick in the Project area. The Bellflower Aquiclude is a heterogeneous mixture of fine grained continental, marine, and wind-blown sediments composed of clay, silt, sandy silt to silty sand, clayey sand to sandy clay, and gravelly clays that generally inhibit groundwater movement between the semi-perched aquifer and Gage Aquifer. However, localized areas with moderate permeability allow significant groundwater movement between these two aquifers. The vertical movement of groundwater through the Bellflower Aquiclude is dependent on the hydrostatic pressure of the underlying aquifer and may be either upward or downward (CADWR 1961).

#### 3.7.2.1.4 Gage Aquifer

The Gage Aquifer of the Lakewood Formation, which directly underlies the Bellflower Aquiclude and is situated in the lowest stratigraphic portion of the Lakewood Formation (Figure 3.7-1 and Figure 3.7-2), is estimated to be approximately 80 to 100 feet thick in the Project area. This aquifer is composed of fine- to medium-grained sand with variable amounts of gravel, sandy silt, and clay, of marine and continental origin, with moderate to low permeability (CADWR 1961).

### 3.7.2.2 Soil Conditions

Prior to development of the San Pedro Bay Ports, extensive estuarine deposits were present at the mouth of Bixby Slough, Dominguez Channel, and the Los Angeles River. The organic tidal muds were dredged extensively during development of the Port Complex and mostly covered with artificial fill. Underlying the surface soils of the Harbor area are subsurface soils consisting of dredged fill material, underlain by naturally deposited alluvial soils that overlay Pliocene and older sedimentary deposits. Dredge fill and natural alluvial soils represent a mix of soil types, predominantly unconsolidated layers of soft-to-hard clays and silts, with sandy soils present in some areas to depths of 40 feet. Some upper sections of the fill contain debris, such as electrical tape, tar, wood, concrete, and asphalt.

### 3.7.2.3 Soil and Groundwater Investigations

The Project area has been used for industrial purposes, including petroleum production, storage, and marine terminal operations, since the early 1900s. Consequently, the soil and groundwater of the semi-perched aquifer of the project area are impacted with petroleum hydrocarbons, volatile organic compounds (VOCs), polynuclear aromatic hydrocarbons (PAHs), and metals. The Mormon Island area is known to be impacted with petroleum hydrocarbons released from historic petroleum production, storage, and

marine terminal operations. Similarly, soil and groundwater of the semi-perched aquifer are known to be impacted with petroleum hydrocarbons beneath the Valero Refinery, in east Wilmington.

The following is a summary of soil and groundwater contamination in the Project area. Much of the information was compiled by Tetra Tech, Inc. (Tetra Tech 2007), who conducted a preliminary review of available documents regarding the environmental and geological conditions in the vicinity of the proposed pipeline areas. The objective of the Tetra Tech review was to assess the presence of contaminants and associated potential impacts to the proposed pipeline project. A copy of the report is included in Appendix O, Tetra Tech Report. Information in the Tetra Tech report was supplemented by SAIC, based partially on a file search/review at the Los Angeles Regional Water Quality Control Board (LARWQCB) and partially by surmising potential soil and/or groundwater contamination based on generalized historical site use.

Industrial Preliminary Remediation Goals (PRGs) were used in the Tetra Tech report as a standard for measuring contaminant levels. PRGs are tools for evaluating and cleaning up contaminated sites. PRGs are risk-based concentrations that are intended to assist risk assessors and others in initial screening-level evaluations of environmental measurements. PRGs should be viewed as guidelines, not legally enforceable standards, and are to be used for site screening and as initial cleanup goals, if applicable (U.S. EPA 2007).

Present site conditions described in the following text, including documented spills of hazardous materials and petroleum products and soil and groundwater contamination, is representative of June 2004 California Environmental Quality Act (CEQA) baseline conditions. The information includes known spills and contamination occurring prior to 2004, but which have not been remediated.

#### 3.7.2.3.1 Proposed Project Areas

##### 3.7.2.3.1.1 Pipeline Segment 1 and Tank Farm Site 1

Pipeline Segment 1 and Tank Farm Site 1 are located on Pier 400 (Figure 2-1, Figure 2-4, and Figure 2-6), which is a rock-dike-retained hydraulic landfill island that was constructed in two stages from 1994 to 2000. Generally, sandy materials were used to construct the landfill (Fugro West 2004). In general, concentrations of contaminants in sediments dredged for the Pier 400 landfill were relatively low and below regulatory action levels for confined disposal. However, detectable levels of copper, zinc, polychlorinated biphenyls (PCBs), and tributyltin (TBT) were detected. Placement of this dredged material in the Pier 400 landfill resulted in a significant long-term positive impact by isolating and containing the contaminants (USACE and LAHD 1992).

The northern portion of Pipeline Segment 1 is located on Terminal Island. A subsurface investigation completed in 2006 along this portion of the pipeline route, located east of proposed Tank Farm Site 2, included shallow (i.e., 5 feet bgs) soil sampling (Tetra Tech 2007). Analytical results of soil samples indicated the following:

- Total petroleum hydrocarbon (TPH) concentrations were all below the LARWQCB maximum soil screening criteria, for sites located above non-drinking water aquifers.

- VOC results were all below the industrial Preliminary Remediation Goals (PRGs). One sample tested for PAHs contained dibenz(a,h)anthracene at a concentration that exceeds the PRG.
- PCB results were non-detect (less than 50 µg/kg) or were below the industrial PRG of 740 µg/kg for Aroclor-1260.
- Metals concentrations were below the industrial PRGs.

Based on the presence of soils that have been impacted by petroleum hydrocarbons and metals, shallow groundwater may similarly be impacted. The Tetra Tech report (2007) indicated that TPH-impacted soil may be left in-place, based on the 1996 LARWQCB Interim Site Assessment Cleanup Guidebook, given that the site groundwater is non-potable. However, if the soil is excavated, the soil should be reanalyzed for TPH. If the soil contains TPH above 1,000 milligrams per kilogram (mg/kg), the soil would require treatment prior to reuse or off-site disposal.

#### 3.7.2.3.1.2 Pipeline Segment 2 and Tank Farm Site 2

Pipeline Segments 2a/2b and Tank Farm Site 2 are located on the former Los Angeles Export Terminal (LAXT) site (Figure 2-1 and Figure 2-5). Tetra Tech conducted an environmental baseline study to assess conditions at the LAXT facility in 1998 (Tetra Tech 2007). Analytical results of surficial soil samples indicated:

- Relatively low TPH concentrations ranging from 165 to 738 mg/kg in composite soil samples.
- Metals concentrations were consistent with regional background concentrations.
- PAHs were detected at relatively low concentrations; however, dibenz(a,h)anthracene was detected above the industrial PRGs.
- VOCs were not detected in soil samples.
- PCBs (Aroclor 1248) was detected in one composite soil sample at a concentration (0.18 mg/kg) below the industrial PRG.

Based on the presence of soils that had been impacted by petroleum hydrocarbons, shallow groundwater may have been similarly impacted. This baseline study is representative of conditions upon initiation of operations at the LAXT facility, as operations began in 1997. Although no data were generated during operations or subsequent to cessation of operations at the facility, which is currently being demolished, coal/petroleum coke processing operations from 1997 to 2004 may potentially have resulted in soil and/or groundwater contaminated with TPH, VOCs, and/or PAHs.

Pipeline Segment 2c is located within the ExxonMobil Southwest Terminal. A file search by SAIC at the LARWQCB indicated no file is available for this facility, with respect to potential soil and/or groundwater contamination. However, based on existing site use (i.e., storage of crude oil and other petroleum products), subsurface soil and groundwater contamination may be present as a result of prior/historical accidental spills.

#### 3.7.2.3.1.3 Pipeline Segment 3

*Pipeline Segment 3 South*

**GATX Terminal.** The former GATX Los Angeles Marine Terminal (Berths 171-173) is located immediately south of the proposed entrance point for Pipeline Segment 3 South (Figure 2-1 and Figure 2-7). Tetra Tech has conducted quarterly groundwater monitoring and free product recovery at the former GATX facility since the first quarter 2006. The most recent results from the third quarter 2007 indicated that light non-aqueous phase liquid (LNAPL) is present in onsite monitoring wells. Groundwater samples were collected from 29 monitoring wells and analyzed for TPH, carbon chain (C7-C36); and for VOCs, including fuel oxygenates.

The laboratory data indicated that the majority of the groundwater beneath the former Tank Farms No. 1 and No. 2 contains a layer of sheen or contains total TPH concentrations greater than 5,000 micrograms per liter (µg/L). Total TPH concentrations in groundwater beneath former Tank Farm No. 3 were less than 3,000 µg/L, with the exception of free product that was observed in a monitoring well located in Fries Avenue. TPH-diesel range petroleum hydrocarbons are the dominant fingerprint of the total TPH detected in most of the groundwater samples. Additionally, 20 VOCs, primarily aromatic VOCs and fuel oxygenates, were detected at varying concentrations in the shallow groundwater samples (Tetra Tech 2007).

**Ultramar Terminal.** The Ultramar Marine Terminal (Berths 163-164), which is used for liquid bulk storage and shipping, is located immediately west of the proposed entrance point for Pipeline Segment 3 South (Figure 2-1 and Figure 2-7). Subsurface investigations at the Ultramar Marine Terminal, revealed the presence of NAPL underlying the site, up to 6.4 ft (2.0 m) thick. NAPL beneath the site consists primarily of a heavy fuel product and naptha. From the fourth quarter 2000 through the first quarter 2003, 562 gallons (2,127 liters) of NAPL was removed from groundwater beneath the site (The Source Group, Inc. 2003).

**TraPac Terminal.** Berth 142, which is a portion of the TraPac Terminal, is located immediately west of the exit point for Pipeline Segment 3 South (Figure 2-1 and Figure 2-7). Groundwater beneath this berth is impacted with dense non-aqueous phase liquid (DNAPL), TPH (total TPH ranging from 540 µg/L to 610,000 µg/L), and PAHs (ranging from 18 µg/L to 29,000 µg/L for naphthalene) (Tetra Tech 2007).

**Pier A Railyard.** The northern portion of the Pier A Railyard (Berths 156-159), is located immediately west of the proposed exit point for Pipeline Segment 3 South (Figure 2-1 and Figure 2-7). Soil contamination at the Pier A Railyard has been documented in the vicinity of an aboveground storage tank, roundhouse, and pipeline right-of way areas. VOCs, PAHs, and metals concentrations were above the USEPA's industrial PRGs. Additionally, soil TPH ranged from 48 mg/kg to 110,000 mg/kg (Tetra Tech 2007).

**Harry Bridges Boulevard.** LNAPL and elevated levels of gasoline range organics (greater than 10,000 µg/L) plumes are present south of Harry Bridges Boulevard, located north of the proposed exit point for Pipeline Segment 3 South (Figure 2-1 and Figure 2-7) (Tetra Tech 2007).

**Miscellaneous Areas.** In addition, the Tetra Tech report (2007) indicates that other hazardous materials-related land uses adjacent to Pipeline Segment 3 South include:

- Port Construction and Maintenance Yard, located at Berths 159-161, which uses oils, greases, and degreasing materials;
- U.S. Borax, located at LAHD Berths 165-166, which has been used for borate product storage, refining, and shipping;
- Shell Oil Marine Terminal, located at LAHD Berths 167-169, which has been used for liquid bulk storage and shipping; and
- Rio Doce Pasha Marine Terminal, located at LAHD Berths 174-176, which has been utilized as an omni-mixed terminal.

A variety of petroleum hydrocarbons including crude oil and several refined products such as gasoline, diesel fuel, bunker fuel, and gas oil have been stored in aboveground storage tanks (ASTs) at numerous tank farms adjacent to Pipeline Segment 3 South. The petroleum hydrocarbons have been transferred via pipeline, truck, and barge, and shipped to and from facilities on Mormon Island. Subsurface contamination in both soil and groundwater, including the presence of NAPL, is known to exist throughout Mormon Island (Tetra Tech 2007).

*Pipeline Segment 3 West*

**Koppers Facility.** The former Koppers facility is located immediately adjacent to the central and eastern portions of Pipeline Segment 3 West (Figure 2-1 and Figure 2-7). This facility was located on the northeastern corner of the intersection of South Avalon Boulevard and East Water Street, northwest of Berths 195-199 and northeast of Berths of 185-187.

Shallow subsurface soil (i.e., within 15 feet bgs) and shallow groundwater beneath this site have been impacted with metals, VOCs, semivolatile organic compounds (SVOCs), and TPH (as diesel fuel). Historic land use included a wood-treating facility, oil tank farms, oil wells, ASTs, and oil pipelines. The majority of the property is currently operated by Distribution and Auto Services (DAS) and is covered with a parking lot (Tetra Tech 2007).

The site was occupied by American Lumber and Treating, a wood-treating facility, from the 1920s through approximately 1954, when Koppers took over operations of the Site. A variety of wood preservatives were used including creosote, creosote mixed with diesel fuel, "Wolman Salts" (a mixture of sodium fluoride and dinitrophenol with sodium or potassium dichromate), copper chromate, copper chromated arsenate (CCA), and pentachlorophenol (PCP) in oil. Unknown quantities of hazardous wastes, containing arsenic, selenium, antimony, zinc, cadmium, copper, chromium, fungicides, halogenated compounds, and dioxins, were reported to have been disposed in onsite wastewater ponds and other areas. In 1972, Koppers ceased operations and demolished their structures before relinquishing control of the site to the LAHD.

Reportedly, when wood treating operations ceased onsite, unknown quantities of sediments and residues which had accumulated in the former wastewater ponds were

removed. Subsequently, the site was covered with approximately eight feet of fill by LAHD, prior to its current development and operation by DAS.

In 1981, the California Department of Health Services (DHS) considered the site a hazardous waste property. In 1984, the California Environmental Protection Agency, Department of Toxic Substances Control (DTSC) added the Site to the State Superfund List.

From January 21-27, 2004, 37 boreholes were advanced at the site, targeting five potential areas of concern. The boreholes were advanced to first groundwater. The analytical results indicated the following:

- TPH, as diesel (TPHd), concentrations in soil ranged from non-detect to 40,000 mg/kg;
- TPHd concentrations detected in groundwater ranged from 130 ug/L to 290,000 µg/L; and
- The highest concentrations of metals in soil included: chromium (36 mg/kg to 5,700 mg/kg), arsenic (13 mg/kg to 2,900 mg/kg), and copper (24 mg/kg to 9,000 mg/kg).
- PAHs, including Benzo(a)pyrene and naphthalene, and VOCs were detected in shallow subsurface soil and groundwater samples throughout the site.
- The highest VOC levels were found at the former treatment plant area, the former creosote and fuel area farm, and the former wastewater pond area.
- PCP concentrations were detected in groundwater at concentrations greater than 100 µg/L.
- PCBs were not detected in soil or groundwater at the site.
- Dioxin was found in three groundwater samples, but at concentrations below the maximum contaminant level (MCL) of 30 picograms per liter.

Based on the investigations conducted at the site, the lateral and vertical extent of soil and groundwater contamination has not been delineated (Tetra Tech 2007).

*Pipeline Segment 3 East*

**Auto Warehousing Facility.** The former Auto Warehousing Company facility is located immediately adjacent to the entry point of Pipeline Segment 3 East (Figure 2-1 and Figure 2-7). This facility was located at the southern terminus of McFarland Avenue, near the intersection of Alameda Street. The property is also known as Berth 200A. This facility was a former automobile-processing center, which was operated by Auto Warehousing Company from 1993-2003. The majority of the site consists of asphalt and concrete-paved parking lots, a 33,000 square foot service garage and office building, a spray painting area, a car wash rack and associated wastewater clarifier. From about 1925 until the late 1950s or early 1960s, the site was part of a lumber mill. At least two oil wells were formerly located onsite (Tetra Tech 2007).

On March 25 and 26, 2004, 10 boreholes were advanced at the site. Samples were collected at 1 foot, 10 feet, and 15 feet bgs. Once groundwater was encountered,

temporary wells were installed and groundwater was sampled. Analytical results indicated the following:

- TPH, as gasoline, and VOCs were not detected above laboratory reporting limits for soil and groundwater samples selected for analysis.
- Metal concentrations were detected below the LARWQCB soil Environmental Screening Levels (ESLs) for commercial/industrial land use, with the exception of arsenic. Arsenic was detected at a concentration slightly above the ESL (6.1 mg/kg) in a soil sample collected at 1 foot bgs. However, arsenic occurs naturally in soils throughout southern California and this concentration is typical of background conditions.
- VOCs were detected in low concentrations in groundwater: benzene was detected at 2.2 µg/L; naphthalene at 1.6 µg/L; n-butylbenzene at 0.5 µg/L; and methylbenzene was detected at 0.5 µg/L. The concentrations of benzene and naphthalene are below the LARWQCB groundwater ESLs for non-beneficial use groundwater at commercial sites (46 µg/L and 24 µg/L, respectively); the LARWQCB has not published ESLs for butylbenzene and methylbenzene.

Based on the findings of the soil and groundwater sampling, it appears that historical operations have not significantly impacted the shallow subsurface environment at the Former Auto Warehousing Company Facility (Tetra Tech 2007).

*LAHD Berths 238-240 and Port of Long Beach Berths 76-78 and 84-87*

Areas of contaminated soil and groundwater within LAHD Berth 238-240 and Port of Long Beach Berths 76-78 and 84-87 are not summarized, as no construction would occur, and thus no impacts would occur, at those sites with respect to soil and groundwater contamination.

#### 3.7.2.3.1.4 Pipeline Segments 4 and 5, and Pigging Stations A and B

Pipeline Segments 4 and 5, and Pigging Stations A and B, are located in the eastern portion of the Project area, in the vicinity of the Valero Refinery and Air Products and Chemical, Inc. (Air Products) facility (see Figures 2-8 through 2-10). Pipeline Segment 4 traverses immediately south of the Air Products facility and along the northern boundary of the Valero Refinery. Pipeline Segment 5 and optional Pigging Station B are located immediately west of the Air Products facility. Pigging Station A is located approximately 400 feet southwest of the Air Products facility and 800 feet west of the Valero Refinery.

The Valero Refinery transforms crude oil into various refined petroleum products, including gasoline, jet fuel, diesel, propane, asphalt, and coke. The Air Products facility is an industrial gas supply facility, which includes hydrogen fuel production. Both of these sites are located within the Wilmington Oil Field and have been subjected to intensive oil field activities since the late 1930s. Oil field activities associated with the subject sites include exploratory oil drilling and subsequent production well operations, above ground storage tanks, pipelines, and sump disposal sites for oil field wastes and other waste products. Prior activities at both facilities have resulted in soil impacted with metals and petroleum hydrocarbons and petroleum hydrocarbon-impacted soil and

groundwater, including free-phase hydrocarbons (i.e., free product floating) on groundwater (EEC 1999).

Numerous episodes of site assessment and remediation have been completed at both the Valero Refinery and Air Products facility. Groundwater sampling completed in February 2002 and June 2003 indicated free-phase hydrocarbons in groundwater throughout much of the Valero Refinery; however, free-phase hydrocarbons were not detected at the Air Products facility. Some of the highest concentrations of free-phase hydrocarbons within the Valero Refinery were detected in a monitoring well located approximately 500 feet south of the proposed pipeline alignment, in the vicinity of the Dominguez Channel crossing. TPH, as diesel and gasoline, and benzene, toluene, ethylbenzene, and total xylenes (BTEX) were detected in numerous monitoring wells in both the Valero Refinery and Air Products facility (EEC 2002, 2003).

## 3.7.3 Applicable Regulations

Applicable federal, state, and local laws each contain lists of hazardous materials or hazardous substances that may require special handling if encountered in soil or groundwater during construction of the proposed Project. These include "hazardous substances" under the 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.)(HSAA)]; "hazardous materials" under Health and Safety Code Section 25501, California Labor Code Section 6380 and California Code of Regulations (CCR) Title 8, Section 339; "hazardous substances" under 40 CFR Part 116; and, priority toxic pollutants under CFR Part 122. In addition, "hazardous materials" are frequently defined under local hazardous materials ordinances, such as the Uniform Fire Code.

Generally speaking, "hazardous materials" means any material that, because of its quantity, concentration, or physical or chemical characteristics, poses a present or potential hazard to human health and safety or to the environment if released into the workplace or the environment. Hazardous materials that are commonly found in soil and groundwater include petroleum products, fuel additives, heavy metals, and volatile organic compounds. Hazardous substances are defined by State and Federal regulations as substances that must be regulated in order to protect the public health and the environment. Hazardous materials are characterized by certain chemical, physical, or infectious properties. CCR Title 22, Chapter 11, Article 2, Section 66261 defines a hazardous material as a substance or combination of substances which, because of its quantity, concentration, or physical, chemical, or infectious characteristics, may either: (1) cause, or significantly contribute to, an increase in mortality or an increase in serious irreversible, or incapacitating reversible illness; or (2) pose a substantial present or potential hazard to human health or environment when improperly treated, stored, transported, or disposed of or otherwise managed.

According to Title 22 (Chapter 11, Article 3, CCR), substances having a characteristic of toxicity, ignitability, corrosivity, or reactivity are considered hazardous. Hazardous wastes are hazardous substances that no longer have a practical use, such as material that has been abandoned, discarded, spilled, or contaminated, or which is being stored prior to disposal.

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's 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 Fire Department. Sites that have more heavily contaminated soils are more likely to fall under the jurisdiction of the State Department of Toxic Substances Control (DTSC), which is authorized to administer the federal hazardous waste program under the Resource Conservation and Recovery Act (RCRA) and is also responsible for administering the State Superfund Program, under the Hazardous Substance Account Act.

Sites that have contaminated groundwater fall within the jurisdiction of the LARWQCB and are subject to the requirements of the State's 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 federal Clean Water Act (CWA), including permitting and possibly pretreatment requirements. A National Pollutant 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.

In July 2002, USEPA 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.

# 3.7.4 Impacts and Mitigation Measures

## 3.7.4.1 Methodology

Groundwater and onshore soils impacts have been evaluated with respect to several general parameters, including groundwater quality, groundwater quantity, and soil contaminants. The impact of the proposed Project and alternatives 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 storm water discharges or coverage under the NPDES General Permit for Storm Water Discharges Associated with Construction Activity would be obtained for the proposed Project.

- The contractor would prepare a Spill Prevention, Control, and Countermeasure (SPCC) Plan and an Oil Spill Contingency Plan (OSCP), that would be reviewed and approved by the California Department of Fish and Game 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 to minimize damage to water quality and provide 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.
- In accordance with standard LAHD lease conditions, the Marine Terminal operator would implement a source control program, which would provide for 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 and marine water quality, including impacts related to erosion, are addressed in Section 3.14, Water Quality, Sediments, and Oceanography.

#### 3.7.4.1.1 CEQA Baseline

Section 15125 of the CEQA Guidelines requires EIRs to include a description of the physical environmental conditions in the vicinity of a project that exist at the time of the NOP. These environmental conditions would normally constitute the baseline physical conditions by which the CEQA lead agency determines whether an impact is significant. For purposes of this Draft Supplemental Environmental Impact Statement/Subsequent Environmental Impact Report (SEIS/SEIR), the CEQA Baseline for determining the significance of potential impacts under CEQA is June 2004. CEQA Baseline conditions are described in Section 2.6.2.

The CEQA Baseline represents the setting at a fixed point in time, with no project growth over time, and differs from the "No Federal Action/No Project" Alternative (discussed in Section 2.5.2.1) in that the No Federal Action/No Project Alternative addresses what is likely to happen at the site over time, starting from the baseline conditions. The No Federal Action/No Project Alternative allows for growth at the proposed Project site that would occur without any required additional approvals.

#### 3.7.4.1.2 NEPA Baseline

For purposes of this Draft SEIS/SEIR, the evaluation of significance under the National Environmental Policy Act (NEPA) is defined by comparing the proposed Project or other alternative to the No Federal Action scenario (i.e., the NEPA Baseline and No Federal Action Alternative are equivalent for this project). Unlike the CEQA Baseline, which is defined by conditions at a point in time, the NEPA Baseline/No Federal Action is not bound by statute to a "flat" or "no growth" scenario; therefore, the USACE may project increases in operations over the life of a project to properly analyze the NEPA Baseline/No Federal Action condition.

The NEPA Baseline condition for determining significance of impacts is defined by examining the full range of construction and operational activities that are likely to occur without a permit from the USACE. As documented in Section 2.6.1, the USACE, the LAHD, and the applicant have concluded that no part of the proposed Project would be built absent a USACE permit. Thus, for the case of this project, the NEPA Baseline is identical to the No Federal Action/No Project Alternative (see Section 2.6.1). Elements of the NEPA Baseline include:

- Paving, lighting, fencing, and construction of an access road at Tank Farm Site 1 to allow intermittent temporary storage of chassis-mounted containers on the site by APM;
- Paving, fencing, and lighting at Tank Farm Site 2 to allow intermittent temporary wheeled container storage by APL or Evergreen; and
- Additional crude oil deliveries at existing crude oil terminals in the San Pedro Bay Ports.

Significance of the proposed Project or alternative is defined by comparing the proposed Project or alternative to the NEPA Baseline (i.e., the increment). The NEPA Baseline conditions are described in Section 2.6.1 and 2.5.2.1.

### 3.7.4.2 Thresholds of Significance

Significance criteria used in this assessment are based on the *L.A. CEQA Thresholds Guide* (City of Los Angeles 2006), Port 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 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:** Release of contaminants to soils and groundwater in such concentrations that existing local (LARWQCB), state, or federal statutes would be violated.

**GW-3:** 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-4:** Change to potable water levels sufficiently 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 flow of groundwater.

**GW-5:** Demonstrable and sustained reduction in groundwater recharge capacity.

**GW-6:** Violation of regulatory water quality standards at an existing production well, as defined in the California Code of Regulations (CCR), Title 22, Division 4, Chapter 15 and in the Safe Drinking Water Act.

Potential impacts to surface water and marine water quality, including impacts related to erosion, are addressed in Section 3.14, Water Quality, Sediments, and Oceanography.

## 3.7.4.3 Project Impacts and Mitigation

### 3.7.4.3.1 Proposed Project

#### 3.7.4.3.1.1 Construction Impacts

**Impact GW-1.1: Construction activities may encounter toxic substances or other contaminants associated with historical uses of the Port, resulting in short-term exposure (duration of construction) to construction/ operations personnel and/or long-term exposure to future site occupants.**

As described in Section 3.7.2.3, soil and/or groundwater contamination has been documented adjacent to portions of Pipeline Segments 1, 2, 3, 4, and 5, as well as in the vicinity of Tank Farm Sites 1 and 2, and alternative Pigging Station B. Other areas of subsurface soil and/or groundwater contamination are likely present along the pipeline corridor, at Pigging Station A, and at the ExxonMobil Southwest Terminal, due to the prolonged duration of industrial land use in the proposed Project area. Below ground pipeline construction is proposed for the majority of the pipeline corridor.

Grading would be completed for Tank Farm Sites 1 and 2. In general, concentrations of contaminants in sediments dredged for the Pier 400 landfill were relatively low and below regulatory action levels for confined disposal. However, detectable levels of copper, zinc, PCBs, and TBT were detected. Placement of this dredged material in the Pier 400 landfill resulted in a significant long-term positive impact by isolating and containing the contaminants (USACE and LAHD 1992). However, these contaminated sediments could be encountered during excavations for construction of Tank Farm Site 1.

A baseline environmental study completed at proposed Tank Farm Site 2 (i.e., Tank Farm Site 2) detected only low concentrations of PAHs and no other high levels of contaminants. This baseline study is representative of conditions upon initiation of operations at the LAXT facility, as operations began in 1997. Although no data were generated during operations or subsequent to cessation of operations at the facility, which is currently being demolished, coal/petroleum coke processing operations from 1997 to 2004 may potentially have resulted in soil and/or groundwater contaminated with TPH, VOCs, and/or PAHs. Therefore, excavations could potentially encounter unknown contaminated sediments at Tank Farm Site 2.

Trenching would be completed in numerous areas along the pipeline route, including Pipeline Segments 1, 2a, 2b, 2c; at the ExxonMobil Southwest Terminal; within and adjacent to the horizontal directional drilled (HDD) work areas; at Pigging Station Site A and Alternative Site B; and at Pipeline Segments 4 and 5 (Figure 2-1, Figures 2-6 through 2-10). As previously discussed, concentrations of contaminants in sediments

dredged for the Pier 400 landfill were relatively low and below regulatory action levels for confined disposal. However, there were detectable levels of copper, zinc, PCBs, and TBT. These contaminated sediments could be encountered during trenching for Pipeline Segment 1. Similarly, contaminated sediments would likely be encountered during trenching for the northern portion of Pipeline Segment 1, east of Tank Farm Site 2; along Pipeline Segment 2, 4, and 5; and within and adjacent to the HDD work areas of Pipeline Segments 3 South and 3 West.

HDD operations completed for proposed Pipeline Segment 3 would likely generate a substantial quantity of contaminated sediments and slurry, due to documented (i.e., known VOCs, SVOCs, PAHs, metals, PCPs, dioxin, and TPH in soil and groundwater, including NAPL) and undocumented spills of petroleum products and hazardous substances in soils and groundwater in this industrial area. A large quantity of soil/slurry cuttings would be generated due to an HDD diameter up to 52 inches.

Table 3.7-1 summarizes known soil and groundwater contamination in the Project areas.

**Table 3.7-1. Known Soil and Groundwater Contamination in the Project Area**

| *Project Area* | *Known Contamination in the Area* |
|---|---|
| Tank Farm Site 1 | Copper, zinc, PCBs, and TBT in soil |
| Tank Farm Site 2 | Low concentrations of PAHs in soil (site characterization not completed since cessation of LAXT operations) |
| Pipeline Segment 1 | Copper, zinc, PCBs, and TBT in soil on Pier 400<br>Low levels of TPH, VOCs, and PAHs along northern pipeline section, east of Tank Farm Site 2 (sampling and TPH analysis required for future excavations) |
| Pipeline Segment 2 | Low concentrations of PAHs in soil (site characterization not completed since cessation of LAXT operations) |
| Pipeline Segment 3 South | VOCs, PAHs, and metals in soil<br>TPH, PAHs, and NAPL in groundwater |
| Pipeline Segment 3 West | TPH, VOCs, SVOCs, PAHs, PCPs, dioxin, and metals in soil and groundwater |
| Pipeline Segment 3 East | Relatively low levels of metals in soil and VOCs in groundwater |
| Pipeline Segment 4 | TPH, VOCs, and metals in soil<br>TPH, VOCs, and free-phase hydrocarbons in groundwater |
| Pipeline Segment 5 | TPH, VOCs, and metals in soil<br>TPH and VOCs in groundwater |
| Pigging Station A | Possible TPH, VOCs, and metals in soil and groundwater |
| Alternate Pigging Station B | TPH, VOCs, and metals in soil<br>TPH and VOCs in groundwater |

## CEQA Impact Determination

Grading and construction, including grading for Tank Farm Sites 1 and 2; trenching for Pipeline Segments 1, 2a, 2b, 2c, 4, and 5; trenching at the ExxonMobil Southwest Terminal; trenching within and adjacent to the HDD work areas; excavations at pigging

Station Site A and Alternative Site B; and dewatering at pigging Station Site A and Alternative Site B could potentially expose construction personnel, existing nearby operations personnel, and future occupants of the site to contaminated soil and groundwater, as summarized in Table 3.7-1. Human health and safety impacts would be significant pursuant to exposure levels established by Cal/EPA's Office of Environmental Health Hazard Assessment (OEHHA).

### *Mitigation Measures*

**Mitigation Measure (MM) GW-1: Site Remediation.** Unless otherwise authorized by the lead regulatory agency for any given site, the LAHD shall remediate all contaminated soils or contamination within the excavation zones on the Project site boundaries prior to or during subsurface construction activities. Remediation shall occur in compliance with local, state, and federal regulations, as described in Section 3.7.3, and as directed by the Los Angeles Fire Department, DTSC, and/or LARWQCB.

Soil remediation shall be completed such that contamination levels in subsurface excavations are below health screening levels established by OEHHA and/or applicable action levels established by the lead regulatory agency with jurisdiction over the site. Only clean soil would be used as backfill. Soil contamination waivers may be acceptable as a result of encapsulation (i.e., paving) in backland 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 shall continue to be monitored and remediated as encountered, simultaneous and/or subsequent to site development, and/or in accordance with direction provided by the LARWQCB.

Unless otherwise authorized by the lead regulatory agency for any given site, areas of excavation with soil contamination that shall be remediated prior to, or in conjunction with, Project construction.

**MM GW-2: Soil, Slurry, and Groundwater Characterization in Areas of Known Contamination**. The following sampling plan shall be implemented to address areas of known soil contamination during grading, trenching, HDD, and dewatering activities:

a. Excavated soil in areas of known contamination shall be systematically tested for contaminants, including but not limited to those listed in Table 3.7-1, for each project area. The Port shall confirm the presence of the suspect material and direct the contractor to remove, stockpile, or contain the suspect material(s) identified within the boundaries of the construction area. Contaminated sediments shall either be treated on-site or trucked off-site for disposal at a licensed facility approved for disposal of such waste. There are numerous contaminated waste treatment facilities in California, including TPS Technologies in Adelanto and TRS in Azusa. The closest Class I hazardous waste landfill is the Buttonwillow Landfill, located in Kern County, approximately 8 miles west of Buttonwillow and 36 miles west of Bakersfield. In addition, the Class I Kettleman Hills facility is located further to the north in Kings County and has a remaining capacity of 1,901,860 cubic yards, with no daily limit (CIWMB, 2007). Several other hazardous waste disposal sites are

located in California and neighboring states. See Section 3.13, Utilities and Public Services, for additional information.

b. HDD drilling waste shall be systematically tested for contaminants, and if present, segregated from clean soils and slurry. Contaminated slurry shall be containerized, dewatered, and dried, pending remediation or off-site disposal. Contaminated groundwater, derived from the slurry dewatering process, shall be trucked off-site and disposed at a licensed disposal facility.

c. The remedial option(s) of contaminated material shall 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 shall be determined on a site-specific basis.

d. On-site personnel handling or working in the vicinity of the contaminated material shall 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" shall receive a minimum of 40 hours of classroom training and a minimum of three days of field training. This training provides precautions and protective measures to reduce or eliminate hazardous materials/waste hazards at the work place.

e. Copies of hazardous waste manifests or other documents indicating the amount, nature, and disposition of such materials shall be submitted to the Chief Harbor Engineer within 30 days of soil/slurry sampling, remediation, and/or disposal.

f. All excavations shall be filled with structurally suitable fill material which contains contaminant concentrations (if any) that are within permissible limits, as directed by the Los Angeles Fire Department, DTSC, and/or LARWQCB.

g. Any project-related dewatering activities shall either discharge into the sanitary sewer, under permit with the City of Los Angeles Sanitation Bureau, or comply with the NPDES permit regulations and an associated SWPPP regarding discharge into storm drains and/or directly into Harbor waters. Such permit requirements typically include on-site treatment to remove pollutants prior to discharge. Effluent analyses should include, but not be limited to, contaminants summarized in Table 3.7-1. Alternatively, the water shall be temporarily stored onsite in holding tanks, pending off-site disposal at a disposal facility approved by the LARWQCB. An NPDES-mandated SWPPP shall include measures ensuring that potential pollutant-contaminated waters encountered during excavation would be isolated and collected for transportation to a hazardous waste treatment facility prior to their discharge into the storm drain system.

**MM GW-3: Contamination Contingency Plan**. The following contingency plan shall be implemented to address unknown contamination during grading, trenching, HDD, and dewatering activities:

a. All grading, trench excavation and filling operations, HDD, and dewatering operations shall be observed for the presence of free-phase petroleum products, chemicals, or contaminated soil/groundwater. Discolored soil or suspected contaminated soil shall be segregated from clean soil. In the event unexpected, contaminated soil or groundwater is encountered during construction, the contractor shall notify the LAHD's Chief Harbor Engineer, Director of

Environmental Management, and Risk Management's Industrial Hygienist. The Port shall confirm the presence of the suspect material and direct the contractor to remove, stockpile or contain, and characterize the suspect material(s) identified within the boundaries of the construction area. Continued work at a contaminated site shall require the approval of the Chief Harbor Engineer.

b. A photoionization detector (or other organic vapor detecting device) shall be present during grading, excavation, and HDD through suspected chemically impacted soil.

c. Excavation of VOC-impacted soil will require obtaining and complying with a South Coast Air Quality Management District Rule 1166 permit.

d. The extent of removal actions shall be determined on a site-specific basis. At a minimum, the chemically impacted area(s) within the boundary of the tank farm construction area or pipeline trench shall be remediated to the satisfaction of the lead regulatory agency for the site. The Port Project Manager overseeing removal actions shall inform the contractor when the removal action is complete.

e. HDD drilling waste shall similarly be monitored for contaminants, and if present, segregated from clean soils and slurry. Contaminated slurry shall be containerized, dewatered, and dried, pending remediation or off-site disposal. Contaminated groundwater, derived from the slurry dewatering process, shall be trucked off-site and disposed at a licensed disposal facility.

f. The remedial option(s) of contaminated material shall 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 shall be determined on a site-specific basis. Both off-site and on-site remedial options shall be evaluated.

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

h. In the event that contaminated soil is encountered, all on-site personnel handling or working in the vicinity of the contaminated material shall 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” shall receive a minimum of 40 hours of classroom training and a minimum of three days of field training. This training provides precautions and protective measures to reduce or eliminate hazardous materials/waste hazards at the work place.

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

j. All excavations shall be filled with structurally suitable fill material which contains contaminant concentrations (if any) that are within permissible limits, as directed by the Los Angeles Fire Department, DTSC, and/or LARWQCB.

k. Any project-related dewatering activities shall either discharge into the sanitary sewer, under permit with the City of Los Angeles Sanitation Bureau, or comply with the NPDES permit regulations and an associated SWPPP regarding discharge into storm drains and/or directly into Harbor waters. Such permit requirements typically include on-site treatment to remove pollutants prior to discharge. Alternatively, the water shall be temporarily stored onsite in holding tanks, pending off-site disposal at a disposal facility approved by the LARWQCB. An NPDES-mandated SWPPP shall include measures ensuring that potential pollutant-contaminated waters encountered during excavation would be isolated and collected for transportation to a hazardous waste treatment facility prior to their discharge into the storm drain system.

*Residual Impacts*

Additional soil characterization and remediation of Tank Farm Site 2, as outlined in **MM GW-1**; soil, slurry, and groundwater characterization in areas of known contamination, as outlined in **MM GW-2**; as well as implementation of a contingency plan for potentially encountering unknown soil or groundwater contamination, as outlined in **MM GW-3**, would reduce health and safety impacts to on-site personnel in onshore areas, as well as operational personnel in immediately adjacent areas, such that residual impacts would be less than significant.

## NEPA Impact Determination

Grading and construction, including grading for Tank Farm Sites 1 and 2; trenching for Pipeline Segments 1, 2a, 2b, 2c, 4 and 5; trenching at the ExxonMobil Southwest Terminal; trenching within and adjacent to the HDD work areas; excavations at pigging Station Site A and Alternative Site B; and dewatering at pigging Station Site A and Alternative Site B could potentially expose construction personnel, existing nearby operations personnel, and future occupants of the site to contaminated soil and groundwater, as summarized in Table 3.7-1. Human health and safety impacts would be significant under NEPA pursuant to exposure levels established by Cal/EPA's Office of Environmental Health Hazard Assessment (OEHHA).

*Mitigation Measures*

Additional soil characterization and remediation of Tank Farm Site 2, as outlined in **MM GW-1**; soil, slurry, and groundwater characterization in areas of known contamination, as outlined in **MM GW-2**; as well as implementation of a contingency plan for potentially encountering unknown soil or groundwater contamination, as outlined in **MM GW-3**, shall be applied to reduce potentially significant health and safety impacts to on-site personnel in onshore areas, as well as operational personnel in immediately adjacent areas.

*Residual Impacts*

Additional soil characterization and remediation of Tank Farm Site 2, as outlined in **MM GW-1**; soil, slurry, and groundwater characterization in areas of known contamination, as outlined in **MM GW-2**; as well as implementation of a contingency plan for potentially encountering unknown soil or groundwater contamination, as outlined in **MM GW-3**, would reduce health and safety impacts to on-site personnel in onshore

areas, as well as operational personnel in immediately adjacent areas, such that residual impacts would be less than significant.

**Impact GW-2.1: Project construction activities would potentially result in release of contaminants to soils and groundwater in such concentrations that existing local (LARWQCB), state, or federal statutes would be violated.**

*Potential Aquifer Cross-Contamination*

As part of pipeline construction, HDD would be completed above and locally within the semi-perched and Gage aquifers, to a maximum depth of 170 feet. The major concern associated with the HDD method of construction is the potential for contaminated groundwater in the semi-perched aquifer to be introduced into deeper aquifers. As illustrated in Figure 3.7-1 and Figure 3.7-2, Pipeline Segment 3 South would extend through the low-permeability Bellflower Aquiclude and into the Gage Aquifer. Similarly, Pipeline Segments 3 West and 3 East would extend to the base of the Bellflower Aquiclude and almost into the Gage Aquifer. As previously discussed, HDD would occur through areas of contaminated soil and groundwater, including TPH, VOCs, SVOCs, PAHs, metals, dioxin, PCPs, and NAPL, as a result of prior industrial activities in the Port. The HDD borehole would potentially create a conduit for contamination in near-surface soils and the semi-perched aquifer to extend downward through the low permeability Bellflower Aquiclude and into the Gage Aquifer. This scenario would be most likely at the entry point to Pipeline Segment 3 South, as much of Mormon Island is underlain by NAPL.

*Frac-Outs*

Another concern associated with the HDD method of construction is frac-outs, which is generally defined as an inadvertent return of drilling fluids to the ground surface. Frac-outs could potentially result in adverse impacts to the underlying groundwater.

Frac-outs generally occur in very coarse grained, pebbly to cobbly sands, which may be locally present along the pipeline route. HDD drilling in clay, silt, and sand generally does not result in frac-outs, as these types of sediments allow a cohesive mudpack, or filter-pack, to form on the walls of the borehole. The integrity of the mudpack in these types of sediments prevents the drilling mud from permeating the surrounding strata and migrating to the ground surface or groundwater. The potential for frac-outs also increases with increasing length of the HDD borehole. Longer drilling reaches require increased hydraulic head for effective drilling at increased distances from the drill rig. This increased hydraulic head increases the pressure on the surrounding strata, thus increasing the potential for frac-outs.

The drilling fluids would consist of a bentonite clay solution, which is a non-hazardous, inert material. Shallow groundwater beneath the proposed Project areas is not currently considered potable water and would not likely be considered a potable or beneficial water source in the future (LARWQCB 1995). In addition, drilling pressures would be closely monitored so that they do not exceed those needed to penetrate the formation, thus reducing the potential for frac-outs. Nevertheless, drilling mud losses could cause temporary and localized increases in turbidity and suspended solids concentrations and promote siltation within the underlying shallow alluvial aquifers.

See Section 3.14, Water Quality, Sediments, and Oceanography, for potential surface water quality impacts related to equipment spills and HDD-induced frac-outs.

## CEQA Impact Determination

As part of pipeline construction, HDD would be completed above and locally within the semi-perched and Gage aquifers, to a maximum depth of 170 feet. The HDD borehole would potentially create a conduit for contamination in near-surface soils and the semi-perched aquifer to extend downward through the low permeability Bellflower Aquiclude and into the Gage Aquifer. In addition, frac-outs could potentially result in adverse impacts to water quality in the underlying groundwater. Water quality impacts from HDD operations would be considered potentially significant because construction activities would potentially result in release of contaminants to soils and groundwater in such concentrations that existing statutes would be violated.

### *Mitigation Measures*

**MM GW-4: Aquifer Cross-Contamination Prevention**. The following aquifer cross-contamination prevention measures shall be implemented to address HDD related operations:

a. Additional assessment of the hydrologic conditions of the semi-perched aquifer, Bellflower Aquiclude, and Gage Aquifer shall be performed in areas where cross-contamination could occur as a result of HDD operations. Groundwater assessment would include groundwater well installation for sampling and constituent analysis, as well as pumping tests to evaluate aquifer characteristics, including storage, transmissivity, and hydraulic conductivity. Groundwater samples would be analyzed for chemicals of concern including but not limited to: TPH, VOCs, SVOCs, PAHs, pesticides, PCBs, and metals. Groundwater samples would also be analyzed for physical groundwater characteristics including pH, conductivity, general mineral content, and other parameters. At least one set of cluster wells shall be completed to evaluate the vertical gradient and potential for vertical flow between the semi-perched aquifer, Bellflower Aquiclude, and Gage Aquifer.

b. An HDD plan shall be developed and implemented to prevent the introduction of contaminated groundwater from the semi-perched aquifer into deeper aquifers along the HDD routes. The plan shall be developed based on the results of an assessment of the hydrologic conditions, as described above in "a". The plan may include using a conductor casing during HDD through the semi-perched aquifer into the underlying Bellflower Aquiclude. Use of such a conductor casing would likely be most appropriate at the entry point to Pipeline Segment 3 South, as much of Mormon Island is underlain by NAPL.

**MM GW-5: Frac-Out Prevention.** The following frac-out prevention measures shall be implemented to address construction related frac-outs:

a. A preliminary, site-specific, geotechnical investigation shall be completed in areas proposed for HDD. Preliminary geotechnical borings shall be drilled to verify that the proposed depth of HDD is appropriate to avoid frac-outs (i.e., the depth of finest grained sediments and least fractures) and to determine

appropriate horizontal directional drilling methods (i.e., appropriate drilling mud mixtures for specific types of sediments).

b. A frac-out contingency plan shall be completed, including measures for prevention, containment, clean up, and disposal of released drilling muds that might occur either on the ground surface or into harbor waters. Preventative measures would include incorporation of the recommendations of the geotechnical investigation to determine the most appropriate HDD depth and drilling mud mixture. In addition, drilling pressures shall be closely monitored so that they do not exceed those needed to penetrate the formation.

*Residual Impacts*

Aquifer cross-contamination prevention measures, as outlined in **MM GW-4**; and frac-out prevention measures, as outlined in **MM GW-5**, would reduce water quality impacts, such that residual impacts would be less than significant.

**NEPA Impact Determination**

As part of pipeline construction, HDD would be completed above and locally within the semi-perched and Gage aquifers, to a maximum depth of 170 feet. The HDD borehole would potentially create a conduit for contamination in near-surface soils and the semi-perched aquifer to extend downward through the low permeability Bellflower Aquiclude and into the Gage Aquifer. In addition, frac-outs could potentially result in adverse impacts to water quality in the underlying groundwater. Water quality impacts from HDD operations would be considered potentially significant under NEPA because these activities would potentially result in release of contaminants to soils and groundwater in such concentrations that existing statutes would be violated.

*Mitigation Measures*

Aquifer cross-contamination prevention measures, as outlined in **MM GW-4**; and frac-out prevention measures, as outlined in **MM GW-5**, shall be applied to reduce water quality impacts.

*Residual Impacts*

Aquifer cross-contamination prevention measures, as outlined in **MM GW-4**; and frac-out prevention measures, as outlined in **MM GW-5**, would reduce water quality impacts, such that residual impacts would be less than significant.

**Impact GW-3.1: Project construction could locally change the rate or direction of movement of existing contaminants, and would potentially expand the area affected by contaminants or increase the level of groundwater contamination.**

Potential expansion of the area affected by contaminants and potential increases in levels of groundwater contamination due to cross-contamination of aquifers as a result of HDD operations, could occur as described under **Impact GW-2.1**. In addition, approximately 70 to 80 percent of Mormon Island is underlain by NAPL.

## CEQA Impact Determination

The rate or direction of contaminant movement along Pipeline Segment 3 South could locally change as a result of possible dewatering operations during trenching at the southern end of the pipeline segment. A dewatering well placed within the NAPL plume would draw the NAPL towards the well, thus locally changing the direction and/or rate of movement of existing contaminants. In addition, HDD operations through contaminated groundwater of the semi-perched aquifer, most notably along Pipeline Segment 3 South, could result in cross-contamination of the underlying Gage Aquifer. Impacts would be considered potentially significant under CEQA because Project construction could locally change the rate or direction of movement of existing contaminants, and would potentially expand the area affected by contaminants or increase the level of groundwater contamination.

### *Mitigation Measures*

**MM GW-2(g)**, proper discharge of contaminated dewatering effluent, **MM GW-4**, aquifer cross-contamination prevention measures, and **MM GW-5**, frac-out prevention measures, shall be applied to reduce potentially significant water quality impacts.

### *Residual Impacts*

Proper discharge of contaminated dewatering effluent, as outlined in **MM GW-2(g)**, and aquifer cross-contamination prevention measures, as outlined in **MM GW-4,** would reduce water quality impacts, such that residual impacts would be less than significant.

## NEPA Impact Determination

The rate or direction of contaminant movement along Pipeline Segment 3 South could locally change as a result of possible dewatering operations during trenching at the southern end of the pipeline segment. A dewatering well placed within the NAPL plume would draw the NAPL towards the well, thus locally changing the direction and/or rate of movement of existing contaminants. In addition, HDD operations through contaminated groundwater of the semi-perched aquifer, most notably along Pipeline Segment 3 South, could result in cross-contamination of the underlying Gage Aquifer. Impacts would be considered potentially significant under NEPA because Project construction could locally change the rate or direction of movement of existing contaminants, and would potentially expand the area affected by contaminants or increase the level of groundwater contamination.

### *Mitigation Measures*

Proper discharge of contaminated dewatering effluent, as outlined in **MM GW-2(g)**, aquifer cross-contamination prevention measures, as outlined in **MM GW-4**, and frac-out prevention measures, as outlined in **MM GW-5**, shall be applied to reduce water quality impacts.

### *Residual Impacts*

Proper discharge of contaminated dewatering effluent, as outlined in **MM GW-2(g)**, aquifer cross-contamination prevention measures, as outlined in **MM GW-4**, and frac-

out prevention measures, as outlined in **MM GW-5**, would reduce water quality impacts, such that residual impacts would be less than significant.

### Impact GW-4.1: Project construction would not result in a substantial change to potable water levels.

Drinking water is provided to the area where the proposed Project would be located by the City of Los Angeles Department of Water and Power. Although shallow groundwater may be locally extracted during construction dewatering operations (e.g., for pipeline trench excavations), this perched groundwater is highly saline and non-potable. The existing beneficial uses of groundwater in the Inner Harbor areas does not include municipal or domestic water supply. Localized groundwater withdrawal would have no impact on potential underlying potable water supplies.

#### CEQA Impact Determination

As drinking water is provided to the area where the proposed Project would be located by the City of Los Angeles Department of Water and Power, no impacts would occur under CEQA with respect to changes in potable water levels beneath the site.

*Mitigation Measures*

No mitigation is required.

*Residual Impacts*

With no mitigation required, there would be no residual impacts under CEQA.

#### NEPA Impact Determination

As drinking water is provided to the area where the proposed Project would be located by the City of Los Angeles Department of Water and Power, no impacts would occur under NEPA with respect to changes in potable water levels beneath the site.

*Mitigation Measures*

No mitigation is required.

*Residual Impacts*

With no mitigation required, there would be no residual impacts under NEPA.

### Impact GW-5.1: Project construction would not result in a demonstrable and sustained reduction in groundwater recharge capacity.

Groundwater recharge occurs when precipitation seeps into the ground and percolates down to the water table. The more permeable the ground surface and underlying soils, the more recharge occurs. Proposed Project construction would result in a combination of permeable and impermeable surfaces and therefore partially reduces groundwater recharge. However, the significance criterion only applies to potable water. The proposed Project site is underlain by saline, non-potable groundwater.

### CEQA Impact Determination

Although proposed Project construction would partially reduce 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. Therefore, any temporary decrease in recharge would be inconsequential and no impacts would occur under CEQA with respect to potable groundwater recharge.

#### *Mitigation Measures*

No mitigation is required.

#### *Residual Impacts*

With no mitigation required, there would be no residual impacts under CEQA.

### NEPA Impact Determination

Although proposed Project construction would partially reduce 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. Therefore, any temporary decrease in recharge would be inconsequential and no impacts would occur under NEPA with respect to potable groundwater recharge.

#### *Mitigation Measures*

No mitigation is required.

#### *Residual Impacts*

No impacts are anticipated.

### Impact GW-6.1: Project construction would not violate regulatory water quality standards at an existing production well.

Drinking water is provided to the proposed Project area by the City of Los Angeles Department of Water and Power. No existing production wells are located in the vicinity of the proposed Project site.

### CEQA Impact Determination

No existing production wells are located in the vicinity of the proposed Project site. No impacts would occur under CEQA because Project construction would not violate regulatory water quality standards at an existing production well.

#### *Mitigation Measures*

No mitigation is required.

*Residual Impacts*

With no mitigation required, there would be no residual impacts under CEQA.

**NEPA Impact Determination**

No existing production wells are located in the vicinity of the proposed Project site. No impacts would occur under NEPA because Project construction would not violate regulatory water quality standards at an existing production well.

*Mitigation Measures*

No mitigation is required.

*Residual Impacts*

With no mitigation required, there would be no residual impacts under NEPA.

#### 3.7.4.3.1.2 Operational Impacts

**Impact GW-1.2: 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.**

As described in Section 3.7.2.3, soil and/or groundwater contamination has been documented adjacent to portions of Pipeline Segments 1, 2, and 3, as well as in the vicinity of Tank Farm Sites 1 and 2. Other areas of subsurface soil and/or groundwater contamination are likely present along the pipeline corridor, due to the prolonged duration of industrial land use in the proposed Project area. These areas are in various stages of contaminant site characterization and remediation, as described above. Implementation of **MMs GW-1, GW-2,** and **GW-3** prior to or during proposed Project grading and construction would reduce on-site contamination to levels acceptable by the applicable lead regulatory agency prior to project operations. In addition, no excavations that might encounter contaminated soil would be completed as part of proposed Project operations.

**CEQA Impact Determination**

As discussed under **Impact GW-1.1, MMs GW-1, GW-2,** and **GW-3** would reduce on-site contamination to levels acceptable by the applicable lead regulatory agency. No additional excavations that might encounter contaminated soil and/or groundwater would be completed as part of proposed Project operations. Therefore, health and safety impacts associated with contaminated soil and groundwater would be less than significant under CEQA because 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 Measures*

No mitigation is required.

*Residual Impacts*

With no mitigation required, there would be less than significant residual impacts under CEQA.

**NEPA Impact Determination**

As discussed under **Impact GW-1.1, MMs GW-1, GW-2,** and **GW-3** would reduce on-site contamination to levels acceptable by the applicable lead regulatory agency. No additional excavations that might encounter contaminated soil and/or groundwater would be completed as part of proposed Project operations. Therefore, health and safety impacts associated with contaminated soil and groundwater would be less than significant under NEPA because 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 Measures*

No mitigation is required.

*Residual Impacts*

With no mitigation required, there would less than significant residual impacts under NEPA.

### Impact GW-2.2: Operational activities would not result in release of crude oil to soils and groundwater in such concentrations that existing local (LARWQCB), state, or federal statutes would be violated.

The principal operational impacts on soils and groundwater quality under the pipeline system and tanks are those potentially resulting from an oil spill. The severity of the water quality impacts of an oil spill depends on spill frequency (probability), spill size, and the area affected by the spill. In addition, the severity of groundwater quality impacts is influenced by a lack of paving, which allows potential spills to more easily penetrate surface soils and impact groundwater. For example, areas immediately surrounding bulk storage tanks at other Port facilities, within the confines of spill containment berms, have locally been unpaved, resulting in percolation of spills through the sandy soils and into the shallow groundwater. Similar impacts would occur in association with a pipeline rupture, as the pipelines would be buried within these sandy soils. The following preventative and remedial measures would be completed to minimize potential project-related spills.

#### Pipelines

The pipeline routes would be visually inspected at least biweekly by line rider patrol in accordance with DOT requirements (49 CFR Part 195) to spot third-party construction

or other factors that might threaten the integrity of the pipelines. Additionally, inspection of highway, utility, and pipeline crossing locations would be conducted in accordance with state and federal regulations. Pipelines would be inspected annually at all test locations, quarterly at control points, and more than quarterly at cathodic protection systems to ensure corrosion control. Internal inspection pigs ("smart pigs") would be used to inspect and record the condition of the pipe. Smart pigs detect where corrosion or other damage has affected the wall thickness or shape. All pipeline valves would be inspected twice annually, not to exceed 7 months between inspections, and maintained as necessary to ensure proper operation.

Pipeline inspection and maintenance would include periodic hydrostatic testing to check for pipeline leakage and structural integrity, as required by DOT. Following the test, the water would either be transferred to the next pipeline section or discharged into an existing storm drain with the prior approval of the LARWQCB.

All underground pipelines would have factory-applied external pipe coating with field applied joints that would provide the primary protection against external corrosion. In addition, all buried pipelines would have cathodic protection systems installed to provide secondary protection against corrosion. (Cathodic protection of pipelines and equipment is a method of preventing the corrosion of metals by passing an electric current through an electrolyte to the metal surface. This flow of electricity opposes the normal corrosion flow of electrons, thus protecting the metal.)

The pipeline safety system would rely upon a SCADA system, which would gather data from remote points for use by automatic controls and safety systems. Pumps would be equipped with various safety devices such as pressure sensing devices, vibration monitors, seal failure monitors, over and under pressure monitors, no flow monitors, electrical current and temperature measuring devices, and safety release valves to assure reliable and safe operation at the pumps. Pressure control valves, pressure measuring devices, and pressure relief valves would protect the pipelines. The computerized SCADA system would constantly gather operational data from the critical sources throughout the system and automatically adjust the pressure and flow rate of the pipeline to provide for safe operation of the system. The system would also provide for continuous leak detection monitoring.

### Tanks

In order to prevent releases to soil or groundwater, each tank would be equipped with primary leak detection systems (instrumentation to monitor and control tank level), secondary leak detection systems (hydrocarbon detection rods under the base plate), overfill protection, and instrumentation to monitor temperature. Each tank would be designed to allow for monitoring and control from the Marine Terminal Control Building. The leak detection systems would be in place and usable immediately upon construction.

In addition, the tenant's source control program for tanks would detail the following items:

- Inspection of external tank conditions; either daily, weekly, or monthly;

- Other conditions or components involved in the in-service inspections, such as leaks, settlement, corrosion, and valving;
- Information to be included in checklists and reports for external inspections;
- The frequency of formal external inspections by certified inspectors; and
- Inspection intervals for cathodic protection systems.

The tenant's source control program would be submitted to the LAHD for comments, changes, and approval prior to incorporation into the lease agreement.

Aboveground tanks would be inspected at least every 5 years (internal inspection of the tank bottoms) starting after the first 10 years of service.

The tenant's source control program for tanks would detail the following items:

- Inspection methods acceptable to the LAHD which would be used to quantify the minimum thickness of the tank bottom;
- The minimum bottom thicknesses that would be used (based on product type, corrosion considerations, and seismic loading considerations) in deciding whether the bottom will be lined, repaired, or replaced;
- Other conditions or components involved in the in-service inspections, such as leaks, settlement, and corrosion;
- Information to be included in checklists and reports for internal inspections;
- The qualifications and certifications of inspectors to perform formal internal inspections;
- Inspection intervals for cathodic protection systems;
- Maintenance of tank inspection records; both internal and external inspections;
- The type of materials and minimum thicknesses that will be used for new tank construction and repairs;
- The seismic designs that would be incorporated into tank construction and repair;
- The measures that would be taken to prevent galvanic corrosion when tank bottoms are replaced;
- The types of nondestructive examinations, procedures, qualifications, and acceptance criteria that would be used for testing tank structures; and
- The procedures that would be used to inspect Shell-to-Bottom welds for replacement, alterations, and repairs.

### All Project-Related Facilities

Storm water from process areas (e.g., tank farms, manifold and equipment areas, equipment wash-down areas) would be collected in a tank. The tank would feed a treating system that would remove oil from the water to meet the requirements for discharge under an NPDES

permit. The treated water would be discharged to the Port storm drain. The collected oil would be returned to the oil storage system.

Storm water and fire-fighting water from each tank farm intermediate dike area would be collected through an isolation valve installed outside of each dike area to oil/water separators. The oil/water separators would remove oil from the water to meet the requirements for discharge under an NPDES permit. The water would be discharged to the Port storm drain. The collected oil would be returned to the oil storage system.

Wastes such as oil coated rags and miscellaneous non-hazardous trash would be collected on site in containers and transported from the site periodically by approved methods. It is anticipated that very few hazardous materials would be used on-site; the petroleum in the tanks and pipes would be the major hazardous substances on the site. Other potentially hazardous materials may include those which are typically used for maintenance activities only, such as cleaners, paints, coatings and various lubricants. These materials would not be stored on site, but would be brought to the site on an as-needed basis by company maintenance personnel and removed after the maintenance work is completed.

### Spill Remediation

**Groundwater Remediation.** As part of the lease agreement, groundwater recovery would begin immediately upon identification of free product on the groundwater. At the boundary of the lease-hold, adequate control systems would be installed to prevent migration of any contamination off-site. The LAHD would approve tenant recovery plans prior to recovery operations. Recovery operations would continue throughout the term of the lease or until further recovery is infeasible, whichever is later. Remediation would be complete by the end of the term of occupancy. In circumstances where groundwater remediation is not complete by the term of the permit, the tenant would continue to remediate the site until clean-up is considered complete. In addition to LAHD approval, the tenant would obtain regulatory agency approval for groundwater remediation.

**Soil Remediation.** Remediation of accessible soils would begin immediately upon completion of a source control program. All soil would be remediated by the end of the term of occupancy. The LAHD would approve remediation plans prior to initiation of remediation activities. Not more than five years, or less than three years, prior to lease expiration, notification would be made by the LAHD whether or not a new lease would be considered. Facility decommissioning and site remediation would begin immediately if lease will not be renewed. Holdover occupancy would result in increased rental rates and financial liability. This funding is paid to reimburse the LAHD for its costs to prepare the environmental documents. In addition to LAHD approval, the tenant would obtain regulatory agency approval for soil remediation.

### CEQA Impact Determination

Proper design, operation, and maintenance of the pipelines, tanks, and associated facilities can dramatically reduce, but not completely eliminate, the potential for accidental releases or spills. As discussed in Section 3.12, Risk of Upset/Hazardous Materials, the probability of spills into water from all proposed Project pipelines would have a frequency that is considered extraordinary. Similarly, the probability of a release

from a failed tank would be unlikely to rare. However, in the event of a spill into surface waters and/or groundwater, implementation of an OSCP and remediation of contaminated soil and groundwater in accordance with the LARWQCB, the LAHD source control program, and all applicable federal, state, and local regulations, residual contaminant concentrations would be below existing regulatory levels. Therefore, potential spill impacts would be less than significant because operational activities would not result in release of crude oil to soils and groundwater in such concentrations that existing local (LARWQCB), state, or federal statutes would be violated.

*Mitigation Measures*

No mitigation is required.

*Residual Impacts*

With no mitigation required, there would be less than significant residual impacts under CEQA.

**NEPA Impact Determination**

Proper design, operation, and maintenance of the pipelines, tanks, and associated facilities can dramatically reduce, but not completely eliminate, the potential for accidental releases or spills. As discussed in Section 3.12, Risk of Upset/Hazardous Materials, the probability of spills into water from all proposed Project pipelines would have a frequency that is considered extraordinary. Similarly, the probability of a release from a failed tank would be unlikely to rare. However, in the event of a spill into surface waters and/or groundwater, implementation of an OSCP and remediation of contaminated soil and groundwater in accordance with the LARWQCB, the LAHD source control program, and all applicable federal, state, and local regulations, residual contaminant concentrations would be below existing regulatory levels. Therefore, potential spill impacts would be less than significant because operational activities would not result in release of crude oil to soils and groundwater in such concentrations that existing local (LARWQCB), state, or federal statutes would be violated.

*Mitigation Measures*

No mitigation is required.

*Residual Impacts*

With no mitigation required, there would be less than significant residual impacts under NEPA.

**Impact GW-3.2: The Project would not change the rate or direction of movement of existing contaminants; and would not expand the area affected by contaminants or increase the level of groundwater contamination.**

As described in Section 3.7.2.3, soil and/or groundwater contamination has been documented adjacent to portions of Pipeline Segments 1, 2, and 3, as well as in the vicinity of Tank Farm Sites 1 and 2. Other areas of subsurface soil and/or groundwater

contamination are likely present along the pipeline corridor, due to the prolonged duration of industrial land use in the proposed Project area. Implementation of **MMs GW-1, GW-2,** and **GW-3** prior to or during proposed Project grading, trenching, and construction, would reduce on-site contamination to levels acceptable by the applicable lead regulatory agency prior to project operations. No excavations that might encounter contaminated soil, which could be inadvertently spread to non-contaminated areas, would be completed as part of proposed Project operations. In addition, the rate or direction of contaminant movement is not expected to change as a result of the proposed Project, as no dewatering would occur in association with proposed Project operations.

## CEQA Impact Determination

As discussed under **Impact GW-1.1, MMs GW-1, GW-2,** and **GW-3** would reduce on-site contamination to levels acceptable by the applicable lead regulatory agency, prior to proposed Project operations. No excavations that might encounter contaminated soil, which could be inadvertently spread to non-contaminated areas, would be completed as part of proposed Project operations. In addition, the rate or direction of contaminant movement is not expected to change as a result of the proposed Project, as no dewatering would occur in association with proposed Project operations. Therefore, impacts would be less than significant under CEQA because the Project would not change the rate or direction of movement of existing contaminants; and would not expand the area affected by contaminants or increase the level of groundwater contamination.

### *Mitigation Measures*

No mitigation is required.

### *Residual Impacts*

With no mitigation required, there would be less than significant residual impacts under CEQA.

## NEPA Impact Determination

As discussed under **Impact GW-1.1, MMs GW-1, GW-2,** and **GW-3** would reduce on-site contamination to levels acceptable by the applicable lead regulatory agency, prior to proposed Project operations. No excavations that might encounter contaminated soil, which could be inadvertently spread to non-contaminated areas, would be completed as part of proposed Project operations. In addition, the rate or direction of contaminant movement is not expected to change as a result of the proposed Project, as no dewatering would occur in association with proposed Project operations. Therefore, impacts would be less than significant under NEPA because the Project would not change the rate or direction of movement of existing contaminants; and would not expand the area affected by contaminants or increase the level of groundwater contamination.

### *Mitigation Measures*

No mitigation is required.

*Residual Impacts*

With no mitigation required, there would be less than significant residual impacts under NEPA.

**Impact GW-4.2: Project operations would not result in a substantial change to potable water levels.**

Drinking water is provided to the area where the proposed Project would be located by the City of Los Angeles Department of Water and Power. There is no potable water in the proposed Project area.

**CEQA Impact Determination**

Drinking water is provided to the area where the proposed Project would be located by the City of Los Angeles Department of Water and Power. No impacts would occur under CEQA with respect to changes in potable water levels because no potable water is located beneath the proposed Project site.

*Mitigation Measures*

No mitigation is required.

*Residual Impacts*

With no mitigation required, there would be no residual impacts under CEQA.

**NEPA Impact Determination**

As drinking water is provided to the area where the proposed Project would be located by the City of Los Angeles Department of Water and Power, no impacts would occur under NEPA with respect to changes in potable water levels beneath the site.

*Mitigation Measures*

No mitigation is required.

*Residual Impacts*

With no mitigation required, there would be no residual impacts under NEPA.

**Impact GW-5.2: Project operations would not result in a demonstrable and sustained reduction in groundwater recharge capacity.**

Groundwater recharge occurs when precipitation seeps into the ground and percolates down to the water table. The more permeable the ground surface and underlying soils, the more recharge occurs. Proposed Project construction would result in a combination of permeable and impermeable surfaces and therefore partially reduces groundwater recharge during operations. However, the significance criterion only applies to potable water. The proposed Project site is underlain by saline, non-potable groundwater.

### CEQA Impact Determination

Although proposed Project construction would partially reduce groundwater recharge during operations, 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. Therefore, any decrease in recharge during operations would be inconsequential and no impacts would occur under CEQA with respect to potable groundwater recharge.

#### *Mitigation Measures*

No mitigation is required.

#### *Residual Impacts*

With no mitigation required, there would be no residual impacts under CEQA.

### NEPA Impact Determination

Although proposed Project construction would partially reduce groundwater recharge during operations, 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. Therefore, any decrease in recharge would be inconsequential and no impacts would occur under NEPA with respect to potable groundwater recharge.

#### *Mitigation Measures*

No mitigation is required.

#### *Residual Impacts*

With no mitigation required, there would be no residual impacts under NEPA.

### Impact GW-6.2: Project operations would not violate regulatory water quality standards at an existing production well.

Drinking water is provided to the proposed Project area by the City of Los Angeles Department of Water and Power. No existing production wells are located in the vicinity of the proposed Project site.

### CEQA Impact Determination

No existing production wells are located in the vicinity of the proposed Project site, No impacts would occur under CEQA because Project operations would not violate regulatory water quality standards at an existing production well.

#### *Mitigation Measures*

No mitigation is required.

*Residual Impacts*

With no mitigation required, there would be no residual impacts under CEQA.

**NEPA Impact Determination**

No existing production wells are located in the vicinity of the proposed Project site. No impacts would occur under NEPA. Project operations would not violate regulatory water quality standards at an existing production well.

*Mitigation Measures*

No mitigation is required.

*Residual Impacts*

With no mitigation required, there would be no residual impacts under CEQA.

### 3.7.4.3.2 No Federal Action/No Project Alternative

Under the No Federal Action/No Project Alternative, proposed Project facilities would not be constructed or operated. As described in Section 2.5.2.1, the No Federal Action/No Project Alternative considers the only remaining allowable and reasonably foreseeable use of the proposed Project site: Use of the site for temporary storage of wheeled containers on the site of Tank Farm 1 and on Tank Farm Site 2. This use would require paving, construction of access roads, and installation of lighting and perimeter fencing.

In addition, for analysis purposes, under the No Federal Action/No Project Alternative a portion of the increasing demand for crude oil imports is assumed to be accommodated at existing liquid bulk terminals in the San Pedro Bay Ports, to the extent of their remaining capacities. Although additional demand, in excess of the capacity of existing marine terminals to receive it, may come in by rail, barge, or other means, rather than speculate about the specific method by which more crude oil or refined products would enter southern California, for analysis purposes, the impact assessment for the No Federal Action/No Project Alternative in this SEIS/SEIR is based on marine deliveries only up to the available capacity of existing crude oil berths. As described in Section 2.5.2.1, the impact assessment for the No Federal Action/No Project Alternative also assumes existing terminals would eventually comply with the California State Lands Commission (CSLC) Marine Oil Terminal Engineering and Maintenance Standards (MOTEMS), that LAHD and the Port of Long Beach would renew the operating leases for existing marine terminals, and that existing terminals would comply with Clean Air Action Plan (CAAP) measures as of the time of lease renewal (i.e., 2008 for Port of Long Beach Berths 84-87, 2015 for LAHD Berths 238-240, and 2023 for Port of Long Beach Berths 76-78).

The NEPA Baseline condition coincides with the No Federal Action/No Project Alternative for this project because the USACE, the LAHD, and the applicant have concluded that, absent a USACE permit, no part of the proposed Project would be built (Section 2.6.1). All elements of the No Federal Action/No Project Alternative are identical to the elements of the NEPA Baseline. Therefore, under a NEPA determination there would be no impact associated with the No Federal Action/No Project Alternative.

#### 3.7.4.3.2.1 Construction Impacts

**Impact GW-1.1: The No Federal Action/No Project Alternative 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.**

**CEQA Impact Determination**

In the absence of federal permits, in-water construction would not occur and no development would occur within the proposed Project area. Construction would be limited to paving of Tank Farm Sites 1 and 2, for use as part of adjacent container terminals. Paving would not involve excavations that might encounter contaminated soil and groundwater, as excavations would be limited to the upper few inches of soil. Although contaminated soils were used during construction of Pier 400, these soils were encapsulated with clean soils, which would include the near-surface soils in areas proposed for paving. Therefore, no impacts would occur with respect to potential soil and groundwater contamination because the No Federal Action/No Project Alternative 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.

In addition, since no construction would occur on Port of Long Beach Berths 76-78 and 84-87, nor LAHD Berths 238-240, there would be no construction impacts at these berths.

*Mitigation Measures*

No mitigation is required.

*Residual Impacts*

With no mitigation required, there would be no residual impacts under CEQA.

**NEPA Impact Determination**

Development under the No Federal Action/No Project Alternative would be the same as under the NEPA Baseline. Therefore, potential impacts under NEPA would not occur because there would be no net change in the environmental conditions between the No Federal Action/No Project Alternative and the NEPA Baseline.

*Mitigation Measures*

No mitigation is required.

*Residual Impacts*

With no mitigation required, there would be no residual impacts under NEPA.

**Impact GW-2.1: No Federal Action/No Project Alternative construction activities would not result in release of crude oil to sediments and groundwater in such concentrations that existing local (LARWQCB), state, or federal statutes would be violated.**

**CEQA Impact Determination**

Under the No Federal Action/No Project Alternative, in-water construction would not occur and no development would occur within the proposed Project area. Construction would be limited to paving of Tank Farm Sites 1 and 2, for use as part of adjacent container terminals, and HDD would not be completed. No impacts would occur under CEQA because the No Federal Action/No Project Alternative construction activities would not result in release of crude oil to sediments and groundwater in such concentrations that existing statutes would be violated.

In addition, since no construction would occur on Port of Long Beach Berths 76-78 and 84-87, nor LAHD Berths 238-240, there would be no construction impacts at these berths.

*Mitigation Measures*

No mitigation is required.

*Residual Impacts*

With no mitigation required, there would be no residual impacts under CEQA.

**NEPA Impact Determination**

Development under the No Federal Action/No Project Alternative would be the same as under the NEPA Baseline. Therefore, potential impacts under NEPA would not occur because there would be no net change in the environmental conditions between the No Federal Action/No Project Alternative and the NEPA Baseline.

*Mitigation Measures*

No mitigation is required.

*Residual Impacts*

With no mitigation required, there would be no residual impacts under NEPA.

**Impact GW-3.1: No Federal Action/No Project Alternative construction activities would not change the rate or direction of movement of existing contaminants, expand the area affected by contaminants, or increase the level of groundwater contamination.**

**CEQA Impact Determination**

Under the No Federal Action/No Project Alternative, in-water construction would not occur and no development would occur within the proposed Project area. Construction would be limited to paving of Tank Farm Sites 1 and 2, for use as part of adjacent container terminals. Dewatering and HDD would not be required. Therefore, no

impacts would occur under CEQA because No Federal Action/No Project Alternative construction activities would not change the rate or direction of movement of existing contaminants, expand the area affected by contaminants, or increase the level of groundwater contamination.

In addition, since no construction would occur on Port of Long Beach Berths 76-78 and 84-87, nor LAHD Berths 238-240, there would be no construction impacts at these berths.

*Mitigation Measures*

No mitigation is required.

*Residual Impacts*

With no mitigation required, there would be no residual impacts under CEQA.

**NEPA Impact Determination**

Development under the No Federal Action/No Project Alternative would be the same as under the NEPA Baseline. Therefore, potential impacts under NEPA would not occur because there would be no net change in the environmental conditions between the No Federal Action/No Project Alternative and the NEPA Baseline.

*Mitigation Measures*

No mitigation is required.

*Residual Impacts*

With no mitigation required, there would be no residual impacts under NEPA.

**Impact GW-4.1: No Federal Action/No Project Alternative construction activities would not result in a change to potable water levels.**

**CEQA Impact Determination**

Under this alternative, no new development would occur. Drinking water is provided to the No Federal Action/No Project Alternative area of analysis by the City of Los Angeles Department of Water and Power and Long Beach Water Department. No impacts would occur with respect to changes in potable water levels because no potable water is located beneath the site.

*Mitigation Measures*

No mitigation is required.

*Residual Impacts*

With no mitigation required, there would be no residual impacts.

**NEPA Impact Determination**

Development under the No Federal Action/No Project Alternative would be the same as under the NEPA Baseline. Therefore, potential impacts under NEPA would not occur because there would be no net change in the environmental conditions between the No Federal Action/No Project Alternative and the NEPA Baseline.

*Mitigation Measures*

No mitigation is required.

*Residual Impacts*

With no mitigation required, there would be no residual impacts under NEPA.

**Impact GW-5.1: No Federal Action/No Project Alternative construction activities would not result in a demonstrable and sustained reduction in groundwater recharge capacity.**

**CEQA Impact Determination**

Under this alternative, in-water construction would not occur and no development would occur within the proposed Project area. Construction would be limited to paving of Tank Farm Sites 1 and 2, for use as part of adjacent container terminals. Although paving would partially reduce 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. Therefore, any decrease in recharge would be inconsequential and no impacts would occur under CEQA with respect to potable groundwater recharge.

In addition, since no construction would occur on Port of Long Beach Berths 76-78 and 84-87, nor LAHD Berths 238-240, there would be no construction impacts at these berths.

*Mitigation Measures*

No mitigation is required.

*Residual Impacts*

With no mitigation required, there would be no residual impacts under CEQA.

**NEPA Impact Determination**

Development under the No Federal Action/No Project Alternative would be the same as under the NEPA Baseline. Therefore, potential impacts under NEPA would not occur because there would be no net change in the environmental conditions between the No Federal Action/No Project Alternative and the NEPA Baseline.

*Mitigation Measures*

No mitigation is required.

*Residual Impacts*

With no mitigation required, there would be no residual impacts under NEPA.

**Impact GW-6.1: No Federal Action/No Project Alternative construction activities would not result in violation of regulatory water quality standards at an existing production well.**

Drinking water would continue to be provided to the No Federal Action/No Project Alternative area of analysis by the City of Los Angeles Department of Water and Power and Long Beach Water Department. No existing production wells are located in the vicinity of the No Federal Action/No Project Alternative sites.

**CEQA Impact Determination**

No existing production wells are located in the vicinity of the No Federal Action/No Project Alternative sites. No impacts would occur because No Federal Action/No Project Alternative construction activities would not result in violation of regulatory water quality standards at an existing production well.

In addition, since no construction would occur on Port of Long Beach Berths 76-78 and 84-87, nor LAHD Berths 238-240, there would be no construction impacts at these berths.

*Mitigation Measures*

No mitigation is required.

*Residual Impacts*

With no mitigation required, there would be no residual impacts under CEQA.

**NEPA Impact Determination**

Development under the No Federal Action/No Project Alternative would be the same as under the NEPA Baseline. Therefore, potential impacts under NEPA would not occur because there would be no net change in the environmental conditions between the No Federal Action/No Project Alternative and the NEPA Baseline.

*Mitigation Measures*

No mitigation is required.

*Residual Impacts*

With no mitigation required, there would be no residual impacts under NEPA.

#### 3.7.4.3.2.2 Operations Impacts

**Impact GW-1.2: No Federal Action/No 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.**

**CEQA Impact Determination**

Under this alternative, no new development would occur and existing groundwater/sediment quality and characteristics would remain the same, including conditions at LAHD Berth 238-240 and Port of Long Beach Berth 76-78 and 84-87. Therefore, no impacts would occur with respect to soil and groundwater contamination under CEQA because No Federal Action/No 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 Measures*

No mitigation is required.

*Residual Impacts*

With no mitigation required, there would no residual impacts under CEQA.

**NEPA Impact Determination**

Development under the No Federal Action/No Project Alternative would be the same as under the NEPA Baseline. Therefore, potential impacts under NEPA would not occur because there would be no net change in the environmental conditions between the No Federal Action/No Project Alternative and the NEPA Baseline.

*Mitigation Measures*

No mitigation is required.

*Residual Impacts*

With no mitigation required, there would be no residual impacts under NEPA.

**Impact GW-2.2: No Federal Action/No Project Alternative activities would not result in release of crude oil to sediments, surface waters, and groundwater in such concentrations that existing local (LARWQCB), state, or federal statutes would be violated.**

**CEQA Impact Determination**

Under the No Federal Action/No Project Alternative, no development would occur within the proposed Project area. However, marine terminal operations would continue at LAHD Berths 238-240 and Port of Long Beach Berths 76-78 and 84-87. The total

incremental capacity of the existing terminals to import crude oil is estimated to be 252,000 barrels per day (bpd), as a result of 267 new tanker calls. This throughput figure is assumed as the additional throughput to southern California under the No Federal Action/No Project Alternative. Impacts would be similar to, but greater than those described for the proposed Project, because the potential for spills or leaks of crude oil into soils or groundwater is increased with the additional throughput. In addition, aging marine terminals, such as LAHD Berths 238-240 and Port of Long Beach Berths 76-78 and 84-87, would potentially be operating out of compliance with MOTEMS for at least some of the period subsequent to 2010.

Proper design, operation, and maintenance of the pipelines, tanks, and associated facilities at these marine terminals can dramatically reduce, but not completely eliminate, the potential for accidental discharges to onsite soils and groundwater during operations and maintenance of system facilities (e.g., cleaning and painting). However, in the event of a spill into soils and/or groundwater, implementation of established OSCPs and remediation of contaminated soil and groundwater in accordance with the LARWQCB; the San Pedro Bay Ports source control programs; and all applicable federal, state, and local regulations, residual contaminant concentrations would be below existing regulatory levels. Therefore, potential spill impacts would be less than significant.

*Mitigation Measures*

No mitigation is required.

*Residual Impacts*

With no mitigation required, there would be less than significant residual impacts under CEQA.

## NEPA Impact Determination

Development under the No Federal Action/No Project Alternative would be the same as under the NEPA Baseline. Therefore, potential impacts under NEPA would not occur because there would be no net change in the environmental conditions between the No Federal Action/No Project Alternative and the NEPA Baseline.

*Mitigation Measures*

No mitigation is required.

*Residual Impacts*

With no mitigation required, there would be no residual impacts under NEPA.

**Impact GW-3.2: The No Federal Action/No Project Alternative would not change the rate or direction of movement of existing contaminants, expand the area affected by contaminants, or increase the level of groundwater contamination.**

### CEQA Impact Determination

No development would occur within the proposed Project area. No excavations that might encounter contaminated soil, which could be inadvertently spread to non-contaminated areas, would be completed as part of No Project operations. In addition, the rate or direction of contaminant movement is not expected to change as a result of the No Federal Action/No Project Alternative, as no dewatering would occur in association with No Federal Action/No Project Alternative operations. Thus, this threshold is not triggered because the No Federal Action/No Project Alternative would not change the rate or direction of movement of existing contaminants, expand the area affected by contaminants, or increase the level of groundwater contamination. Potential expansion of the area affected by contaminants and potential increases in levels of groundwater contamination due to a spill or leakage from existing pipelines could occur as described under **Impact GW-2.2**. However, implementation of an OSCP and remediation of contaminated soil and groundwater in accordance with the San Pedro Bay Ports source control programs, as well as all applicable federal, state, and local regulations, would reduce potential spill impacts to less than significant.

#### *Mitigation Measures*

No mitigation is required.

#### *Residual Impacts*

With no mitigation required, there would be less than significant residual impacts under CEQA.

### NEPA Impact Determination

Development under the No Federal Action/No Project Alternative would be the same as under the NEPA Baseline. Therefore, potential impacts under NEPA would not occur because there would be no net change in the environmental conditions between the No Federal Action/No Project Alternative and the NEPA Baseline.

#### *Mitigation Measures*

No mitigation is required.

#### *Residual Impacts*

With no mitigation required, there would be no residual impacts under NEPA.

### Impact GW-4.2: The No Federal Action/No Project Alternative would not result in a change to potable water levels.

### CEQA Impact Determination

Under this alternative, no new development would occur. Drinking water is provided to the No Federal Action/No Project Alternative area of analysis by the City of Los Angeles Department of Water and Power and Long Beach Water Department. No impacts would occur with respect to changes in potable water levels because no potable water is located beneath the site.

*Mitigation Measures*

No mitigation is required.

*Residual Impacts*

With no mitigation required, there would be no residual impacts under CEQA.

**NEPA Impact Determination**

Development under the No Federal Action/No Project Alternative would be the same as under the NEPA Baseline. Therefore, potential impacts under NEPA would not occur because there would be no net change in the environmental conditions between the No Federal Action/No Project Alternative and the NEPA Baseline.

*Mitigation Measures*

No mitigation is required.

*Residual Impacts*

With no mitigation required, there would be no residual impacts under NEPA.

**Impact GW-5.2: The No Federal Action/No Project Alternative would not result in a demonstrable and sustained reduction in groundwater recharge capacity.**

**CEQA Impact Determination**

Under this alternative, in-water construction would not occur and no development would occur within the proposed Project area. Construction would be limited to paving of Tank Farm Sites 1 and 2 for the intermittent and temporary storage of containers. In addition, most of the No Federal Project/No Project Alternative analysis area (including LAHD Berths 238-240 and Port of Long Beach Berths 76-78 and 84-87) is currently paved and impermeable to groundwater recharge. Although paving would partially reduce groundwater recharge during operations, the No Federal Project/No Project Alternative analysis area 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. Therefore, any decrease in recharge would be inconsequential and no impacts would occur under CEQA with respect to potable groundwater recharge.

*Mitigation Measures*

No mitigation is required.

*Residual Impacts*

With no mitigation required, there would be no residual impacts.

### NEPA Impact Determination

Development under the No Federal Project/No Project Alternative would be the same as under the NEPA Baseline. Therefore, potential impacts under NEPA would not occur because there would be no net change in the environmental conditions between the No Federal Project/No Project Alternative and the NEPA Baseline.

#### *Mitigation Measures*

No mitigation is required.

#### *Residual Impacts*

With no mitigation required, there would be no residual impacts under NEPA.

### Impact GW-6.2: The No Federal Action/No Project Alternative would not result in violation of regulatory water quality standards at an existing production well.

Drinking water would continue to be provided to the No Federal Project/No Project Alternative area of analysis by the City of Los Angeles Department of Water and Power and Long Beach Water Department. No existing production wells are located in the vicinity of the No Federal Project/No Project Alternative sites.

### CEQA Impact Determination

No existing production wells are located in the vicinity of the No Federal Action/No Project Alternative sites. No impacts would occur because the No Federal Action/No Project Alternative would not result in violation of regulatory water quality standards at an existing production well.

#### *Mitigation Measures*

No mitigation is required.

#### *Residual Impacts*

With no mitigation required, there would be no residual impacts under CEQA.

### NEPA Impact Determination

Development under the No Federal Action/No Project Alternative would be the same as under the NEPA Baseline. Therefore, potential impacts under NEPA would not occur because there would be no net change in the environmental conditions between the No Federal Action/No Project Alternative and the NEPA Baseline.

#### *Mitigation Measures*

No mitigation is required.

*Residual Impacts*

With no mitigation required, there would be no residual impacts under NEPA.

#### 3.7.4.3.3 Reduced Project Alternative

Under the Reduced Project Alternative, as described in Section 2.5.2.2, construction and operation at Berth 408 would be identical to the proposed Project with the exception of the lease cap limiting throughput in certain years. However, as explained in Section 2.5.2.2, the lease cap would not change the amount of crude oil demanded in southern California, and therefore the analysis of the Reduced Project Alternative also includes the impacts of marine delivery of incremental crude oil deliveries to existing liquid bulk terminals in the San Pedro Bay Ports in years where demand exceeds the capacity of the lease-limited Berth 408.

As described in Section 2.5.2.2, the impact assessment for the Reduced Project Alternative also assumes existing terminals would eventually comply with the MOTEMS, that the LAHD and the Port of Long Beach would renew the operating leases for existing marine terminals, and that existing terminals would comply with CAAP measures as of the time of lease renewal (i.e., 2008 for Port of Long Beach Berths 84-87, 2015 for LAHD Berths 238-240, and 2023 for Port of Long Beach Berths 76-78).

##### 3.7.4.3.3.1 Construction Impacts

**Impact GW-1.1: Reduced Project Alternative construction activities may encounter toxic substances or other contaminants associated with historical uses of the Port, resulting in short-term exposure (duration of construction) to construction/operations personnel and/or long-term exposure to future site occupants.**

Impacts would be similar to those described for the proposed Project, as the Reduced Project Alternative would be identical to the proposed Project in terms of the design and construction, and similar in operation, of the Marine Terminal, Tank Farm Sites 1 and 2, and Pipeline Segments 1, 2a, 2b, 2c, 3, 4, and 5.

Construction activities may encounter toxic substances or other contaminants associated with historical uses of the Port, resulting in short-term exposure (duration of construction) to construction/operations personnel and/or long-term exposure to future site occupants.

As described in Section 3.7.2.3, soil and/or groundwater contamination has been documented adjacent to portions of Pipeline Segments 1, 2, and 3, as well as in the vicinity of Tank Farm Sites 1 and 2. Other areas of subsurface soil and/or groundwater contamination are likely present along the pipeline corridor, due to the prolonged duration of industrial land use in the proposed Project area. Below ground pipeline construction is proposed for the majority of the pipeline corridor.

Table 3.7-1 summarizes known soil and groundwater contamination in the Project areas.

## CEQA Impact Determination

Grading and construction, including grading for Tank Farm Sites 1 and 2; trenching for Pipeline Segments 1, 2a, 2b, 2c, at pigging Station Site A and Alternative Site B, and at Pipeline Segments 4 and 5; HDD for Pipeline Segment 3; and dewatering at pigging Station Site A and Alternative Site B, and in trenches for pipeline construction, could potentially expose construction personnel, existing nearby operations personnel, and future occupants of the site to contaminated soil and groundwater. Human health and safety impacts would be significant pursuant to exposure levels established by Cal/EPA's Office of Environmental Health Hazard Assessment (OEHHA).

In addition, since no construction would occur on Port of Long Beach Berths 76-78 and 84-87, nor LAHD Berths 238-240, there would be no construction impacts at these berths.

### *Mitigation Measures*

Additional soil characterization and remediation of Tank Farm Site 2, as outlined in **MM GW-1**; soil, slurry, and groundwater characterization in areas of known contamination, as outlined in **MM GW-2**; as well as implementation of a contingency plan for potentially encountering unknown soil or groundwater contamination, as outlined in **MM GW-3** (as described under the proposed Project) shall be implemented to reduce potential health and safety impacts.

### *Residual Impacts*

**MMs GW-1**, **GW-2**, and **GW-3** would reduce health and safety impacts to on-site personnel in backland areas, as well as construction personnel in the immediate vicinity of the Project, such that residual impacts would be less than significant.

## NEPA Impact Determination

Grading and construction, including grading for Tank Farm Sites 1 and 2; trenching for Pipeline Segments 1, 2a, 2b, 2c, 4 and 5; trenching at the ExxonMobil Southwest Terminal; trenching within and adjacent to the HDD work areas; excavations at pigging Station Site A and Alternative Site B; and dewatering at pigging Station Site A and Alternative Site B could potentially expose construction personnel, existing nearby operations personnel, and future occupants of the site to contaminated soil and groundwater, as summarized in Table 3.7-1. Human health and safety impacts would be significant pursuant to exposure levels established by Cal/EPA's Office of Environmental Health Hazard Assessment (OEHHA).

In addition, since no construction would occur on Port of Long Beach Berths 76-78 and 84-87, nor LAHD Berths 238-240, there would be no construction impacts at these berths.

### *Mitigation Measures*

Additional soil characterization and remediation of Tank Farm Site 2, as outlined in **MM GW-1**; soil, slurry, and groundwater characterization in areas of known contamination, as outlined in **MM GW-2**; as well as implementation of a contingency plan for potentially encountering unknown soil or groundwater contamination, as outlined in **MM GW-3**, shall be applied to reduce potentially significant health and safety impacts

to on-site personnel in onshore areas, as well as operational personnel in immediately adjacent areas.

### *Residual Impacts*

Additional soil characterization and remediation of Tank Farm Site 2, as outlined in **MM GW-1**; soil, slurry, and groundwater characterization in areas of known contamination, as outlined in **MM GW-2**; as well as implementation of a contingency plan for potentially encountering unknown soil or groundwater contamination, as outlined in **MM GW-3**, would reduce health and safety impacts to on-site personnel in onshore areas, as well as operational personnel in immediately adjacent areas, such that residual impacts would be less than significant.

### Impact GW-2.1: Reduced Project Alternative construction activities would not result in release of contaminants to soils, surface waters, and groundwater in such concentrations existing local (LARWQCB), state, or federal statutes would be violated.

Impacts would be similar to those described for the proposed Project, as the Reduced Project Alternative would be identical to the proposed Project in terms of the design and construction, and similar in operation, of the Marine Terminal, Tank Farm Sites 1 and 2, and Pipeline Segments 1, 2a, 2b, 2c, 3, 4, and 5.

As described for the proposed Project, HDD would be completed above and locally within the semi-perched and Gage aquifers, to a maximum depth of 170 feet. The major concern associated with the HDD method of construction is the potential for contaminated groundwater in the semi-perched aquifer to be introduced into deeper aquifers. As illustrated in Figure 3.7-1 and Figure 3.7-2, Pipeline Segment 3 South would extend through the low-permeability Bellflower Aquiclude and into the Gage Aquifer. Similarly, Pipeline Segments 3 West and 3 East would extend to the base of the Bellflower Aquiclude and almost into the Gage Aquifer. As previously discussed, HDD would occur through areas of contaminated soil and groundwater, including TPH, VOCs, SVOCs, PAHs, metals, dioxin, PCPs, and NAPL, as a result of prior industrial activities in the Port. The HDD borehole would potentially create a conduit for contamination in near-surface soils and the semi-perched aquifer to extend downward through the low permeability Bellflower Aquiclude and into the Gage Aquifer. This scenario would be most likely at the entry point to Pipeline Segment 3 South, as much of Mormon Island is underlain by NAPL.

Another concern associated with the HDD method of construction is frac-outs. The drilling fluids would consist of a bentonite clay solution, which is a non-hazardous, inert material. Shallow groundwater beneath the proposed Project areas is not currently considered potable water and would not likely be considered a potable or beneficial water source in the future (LARWQCB 1995). In addition, drilling pressures would be closely monitored so that they do not exceed those needed to penetrate the formation, thus reducing the potential for frac-outs. Nevertheless, drilling mud losses could cause temporary and localized increases in turbidity and suspended solids concentrations and promote siltation within the underlying shallow alluvial aquifers.

See Section 3.14, Water Quality, Sediments, and Oceanography, for potential surface water quality impacts related to equipment spills and HDD-induced frac-outs.

## CEQA Impact Determination

As part of pipeline construction, HDD would be completed above and locally within the semi-perched and Gage aquifers, to a maximum depth of 170 feet. The HDD borehole would potentially create a conduit for contamination in near-surface soils and the semi-perched aquifer to extend downward through the low permeability Bellflower Aquiclude and into the Gage Aquifer. In addition, frac-outs could potentially result in adverse impacts to water quality in the underlying groundwater. Water quality impacts from HDD operations would be considered potentially significant because construction activities would potentially result in release of contaminants to soils and groundwater in such concentrations that existing statutes would be violated.

In addition, since no construction would occur on Port of Long Beach Berths 76-78 and 84-87, nor LAHD Berths 238-240, there would be no construction impacts at these berths.

### *Mitigation Measure*

Aquifer cross-contamination prevention measures, as outlined in **MM GW-4**; and frac-out prevention measures, as outlined in **MM GW-5**, shall be implemented to reduce potential water quality impacts.

### *Residual Impacts*

**MMs GW-4** and **GW-5** would reduce water quality impacts, such that residual impacts would be less than significant.

## NEPA Impact Determination

As part of pipeline construction, HDD would be completed above and locally within the semi-perched and Gage aquifers, to a maximum depth of 170 feet. The HDD borehole would potentially create a conduit for contamination in near-surface soils and the semi-perched aquifer to extend downward through the low permeability Bellflower Aquiclude and into the Gage Aquifer. In addition, frac-outs could potentially result in adverse impacts to water quality in the underlying groundwater. Water quality impacts from HDD operations would be considered potentially significant under NEPA because construction activities would potentially result in release of contaminants to soils and groundwater in such concentrations that existing statutes would be violated.

In addition, since no construction would occur on Port of Long Beach Berths 76-78 and 84-87, nor LAHD Berths 238-240, there would be no construction impacts at these berths.

### *Mitigation Measures*

Aquifer cross-contamination prevention measures, as outlined in **MM GW-4**; and frac-out prevention measures, as outlined in **MM GW-5**, shall be applied to reduce water quality impacts.

*Residual Impacts*

Aquifer cross-contamination prevention measures, as outlined in **MM GW-4;** and frac-out prevention measures, as outlined in **MM GW-5,** would reduce water quality impacts, such that residual impacts would be less than significant.

**Impact GW-3.1: Reduced Project Alternative construction could locally change the rate or direction of movement of existing contaminants, expand the area affected by contaminant, or increase the level of groundwater contamination.**

Impacts would be similar to those described for the proposed Project, as the Reduced Project Alternative would be identical to the proposed Project in terms of the design and construction, and similar in operation, of the Marine Terminal, Tank Farm Sites 1 and 2, and Pipeline Segments 1, 2a, 2b, 2c, 3, 4, and 5.

Potential expansion of the area affected by contaminants and potential increases in levels of groundwater contamination due to dewatering wells or cross-contamination of aquifers as a result of HDD operations, could occur as described under **Impact GW-2.1**. In addition, approximately 70 to 80 percent of Mormon Island is underlain by NAPL.

**CEQA Impact Determination**

The rate or direction of contaminant movement along Pipeline Segment 3 South could locally change as a result of possible dewatering operations during trenching at the southern end of the pipeline segment. A dewatering well placed within the NAPL plume would draw the NAPL towards the well, thus locally changing the direction and/or rate of movement of existing contaminants. In addition, HDD operations through contaminated groundwater of the semi-perched aquifer, most notably along Pipeline Segment 3 South, could result in cross-contamination of the underlying Gage Aquifer. Impacts would be considered potentially significant under CEQA because Project construction could locally change the rate or direction of movement of existing contaminants, and would potentially expand the area affected by contaminants or increase the level of groundwater contamination.

In addition, since no construction would occur on Port of Long Beach Berths 76-78 and 84-87, nor LAHD Berths 238-240, there would be no construction impacts at these berths.

*Mitigation Measures*

**MM GW-2(g)**, proper discharge of contaminated dewatering effluent, **MM GW-4**, aquifer cross-contamination prevention measures, and **MM GW-5**, frac-out prevention measures, shall be applied to reduce potentially significant water quality impacts.

*Residual Impacts*

Proper discharge of contaminated dewatering effluent, as outlined in **MM GW-2(g)**, aquifer cross-contamination prevention measures, as outlined in **MM GW-4**, and frac-out prevention measures, as outlined in **MM GW-5**, would reduce water quality impacts, such that residual impacts would be less than significant.

## NEPA Impact Determination

The rate or direction of contaminant movement along Pipeline Segment 3 South could locally change as a result of possible dewatering operations during trenching at the southern end of the pipeline segment. A dewatering well placed within the NAPL plume would draw the NAPL towards the well, thus locally changing the direction and/or rate of movement of existing contaminants. In addition, HDD operations through contaminated groundwater of the semi-perched aquifer, most notably along Pipeline Segment 3 South, could result in cross-contamination of the underlying Gage Aquifer. Impacts would be considered potentially significant under NEPA because Project construction could locally change the rate or direction of movement of existing contaminants, and would potentially expand the area affected by contaminants or increase the level of groundwater contamination.

In addition, since no construction would occur on Port of Long Beach Berths 76-78 and 84-87, nor LAHD Berths 238-240, there would be no construction impacts at these berths.

### *Mitigation Measures*

**MMs GW-2(g)**, proper discharge of contaminated dewatering effluent, **GW-4**, aquifer cross-contamination prevention measures, and **GW-5**, frac-out prevention measures, shall be applied to reduce potentially significant water quality impacts.

### *Residual Impacts*

Proper discharge of contaminated dewatering effluent, as outlined in **MM GW-2(g)**, aquifer cross-contamination prevention measures, as outlined in **MM GW-4**, and frac-out prevention measures, as outlined in **MM GW-5**, would reduce water quality impacts, such that residual impacts would be less than significant.

### Impact GW-4.1: Reduced Project Alternative construction would not result in a substantial change to potable water levels.

Drinking water is provided to the area where the Reduced Project would be located by the City of Los Angeles Department of Water and Power. Although shallow groundwater may be locally extracted during construction dewatering operations (e.g., for pipeline trench excavations), this perched groundwater is highly saline and non-potable. Localized groundwater withdrawal would have no impact on potential underlying potable water supplies.

## CEQA Impact Determination

Drinking water is provided to the area where the Reduced Project would be located by the City of Los Angeles Department of Water and Power. No impacts would occur under CEQA with respect to changes in potable water levels because potable water is not present beneath the site.

### *Mitigation Measures*

No mitigation is required.

### *Residual Impacts*

With no mitigation required, there would be no residual impacts under CEQA.

## NEPA Impact Determination

Drinking water is provided to the area where the Reduced Project would be located by the City of Los Angeles Department of Water and Power. No impacts would occur under NEPA with respect to changes in potable water levels because potable water is not present beneath the site.

### *Mitigation Measures*

No mitigation is required.

### *Residual Impacts*

No impacts are anticipated.

### Impact GW-5.1: Reduced Project construction would not result in a demonstrable and sustained reduction in groundwater recharge capacity.

Impacts would be similar to those described for the proposed Project, as the Reduced Project Alternative would be identical to the proposed Project in terms of the design and construction, and similar in operation, of the Marine Terminal, Tank Farm Sites 1 and 2, and Pipeline Segments 1, 2a, 2b, 2c, 3, 4, and 5.

Groundwater recharge occurs when precipitation seeps into the ground and percolates down to the water table. The more permeable the ground surface and underlying soils, the more recharge occurs. Reduced Project construction would result in a combination of permeable and impermeable surfaces and therefore partially reduces groundwater recharge. However, the significance criterion only applies to potable water. The proposed Project site is underlain by saline, non-potable groundwater.

## CEQA Impact Determination

Although Reduced Project construction would partially reduce groundwater recharge, the Reduced 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. Therefore, any temporary decrease in recharge would be inconsequential and no impacts would occur under CEQA with respect to potable groundwater recharge.

In addition, since no construction would occur on Port of Long Beach Berths 76-78 and 84-87, nor LAHD Berths 238-240, there would be no construction impacts at these berths.

### *Mitigation Measures*

No mitigation is required.

*Residual Impacts*

With no mitigation required, there would be no residual impacts under CEQA.

**NEPA Impact Determination**

Although Reduced Project construction would partially reduce groundwater recharge, the Reduced 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. Therefore, any temporary decrease in recharge would be inconsequential and no impacts would occur under NEPA with respect to potable groundwater recharge.

In addition, since no construction would occur on Port of Long Beach Berths 76-78 and 84-87, nor LAHD Berths 238-240, there would be no construction impacts at these berths.

*Mitigation Measures*

No mitigation is required.

*Residual Impacts*

With no mitigation required, there would be no residual impacts under NEPA.

**Impact GW-6.1: Reduced Project Alternative construction would not violate regulatory water quality standards at an existing production well.**

Impacts would be similar to the proposed Project. Drinking water is provided to the proposed Project area by the City of Los Angeles Department of Water and Power. No existing production wells are located in the vicinity of the Reduced Project site.

**CEQA Impact Determination**

No existing production wells are located in the vicinity of the proposed Project site. No impacts would occur under CEQA because Project construction would not violate regulatory water quality standards at an existing production well.

In addition, since no construction would occur on Port of Long Beach Berths 76-78 and 84-87, nor LAHD Berths 238-240, there would be no construction impacts at these berths.

*Mitigation Measures*

No mitigation is required.

*Residual Impacts*

With no mitigation required, there would be no residual impacts under CEQA.

**NEPA Impact Determination**

No existing production wells are located in the vicinity of the proposed Project site. No impacts would occur under NEPA because Project construction would not violate regulatory water quality standards at an existing production well.

In addition, since no construction would occur on Port of Long Beach Berths 76-78 and 84-87, nor LAHD Berths 238-240, there would be no construction impacts at these berths.

*Mitigation Measures*

No mitigation is required.

*Residual Impacts*

With no mitigation required, there would be no residual impacts under NEPA.

#### 3.7.4.3.3.2 Operational Impacts

**Impact GW-1.2: Reduced 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.**

**CEQA Impact Determination**

Impacts would be similar to the proposed Project. As discussed under **Impact GW-1.1, MMs GW-1, GW-2,** and **GW-3** would reduce on-site contamination to levels acceptable by the applicable lead regulatory agency. No additional excavations that might encounter contaminated soil and/or groundwater would be completed as part of Reduced Project Alternative operations. Therefore, health and safety impacts associated with contaminated soil and groundwater would be less than significant under CEQA because Reduced Project Alternative 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 Measures*

No mitigation is required.

*Residual Impacts*

With no mitigation required, there would be less than significant residual impacts under CEQA.

**NEPA Impact Determination**

Impacts would be similar to the proposed Project. As discussed under **Impact GW-1.1, MMs GW-1, GW-2,** and **GW-3** would reduce on-site contamination to levels acceptable by the applicable lead regulatory agency. No additional excavations that might encounter contaminated soil and/or groundwater would be completed as part of Reduced Project

Alternative operations. Therefore, health and safety impacts associated with contaminated soil and groundwater would be less than significant under NEPA because Reduced Project Alternative 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 Measures*

No mitigation is required.

*Residual Impacts*

With no mitigation required, there would less than significant residual impacts under NEPA.

**Impact GW-2.2: Reduced Project operational activities would not result in release of crude oil to soils and groundwater in such concentrations that existing local (LARWQCB), state, or federal statutes would be violated.**

Under the Reduced Project Alternative, LAHD would impose a limitation on the amount of crude oil that could be received at Berth 408 after 2015, thus reducing the potential for spills after 2015, within the Reduced Project area (i.e., berth, associated pipelines, and tanks), in comparison to the proposed Project. However, marine terminal operations would continue at LAHD Berth 238-240 and Port of Long Beach Berths 76-78 and 84-87, thus overall throughput above baseline into the San Pedro Bay Ports would be similar to proposed Project conditions. Therefore, impacts would be similar to the proposed Project with respect to potential for spills or leaks of crude oil into soils or groundwater of the Port.

**CEQA Impact Determination**

Proper design, operation, and maintenance of the pipelines, tanks, and associated facilities at these marine terminals can dramatically reduce, but not completely eliminate, the potential for accidental discharges to onsite soils, surface water, and groundwater during operations and maintenance of system facilities (e.g., cleaning and painting). However, in the event of a spill into soil and/or groundwater, implementation of established OSCPs and remediation of contaminated soil and groundwater in accordance with the LARWQCB; the San Pedro Bay Ports source control programs; and all applicable federal, state, and local regulations, residual contaminant concentrations would be below existing regulatory levels. Therefore, potential spill impacts would be less than significant under CEQA because the Reduced Project operational activities would not result in release of crude oil to soils and groundwater in such concentrations that existing statutes would be violated.

*Mitigation Measures*

No mitigation is required.

*Residual Impacts*

With no mitigation required, there would be less than significant residual impacts under CEQA.

## NEPA Impact Determination

Proper design, operation, and maintenance of the pipelines, tanks, and associated facilities at these marine terminals can dramatically reduce, but not completely eliminate, the potential for accidental discharges to onsite soils, surface water, and groundwater during operations and maintenance of system facilities (e.g., cleaning and painting). However, in the event of a spill into soil and/or groundwater, implementation of established OSCPs and remediation of contaminated soil and groundwater in accordance with the LARWQCB; the San Pedro Bay Ports source control programs; and all applicable federal, state, and local regulations, residual contaminant concentrations would be below existing regulatory levels. Therefore, potential spill impacts would be less than significant under NEPA because the Reduced Project operational activities would not result in release of crude oil to soils and groundwater in such concentrations that existing statutes would be violated.

*Mitigation Measures*

No mitigation is required.

*Residual Impacts*

With no mitigation required, there would be less than significant residual impacts under NEPA.

### Impact GW-3.2: The Reduced Project would not change the rate or direction of movement of existing contaminants; and would not expand the area affected by contaminants or increase the level of groundwater contamination.

Impacts would be similar to those described for the proposed Project. As described in Section 3.7.2.3, soil and/or groundwater contamination has been documented adjacent to portions of Pipeline Segments 1, 2, and 3, as well as in the vicinity of Tank Farm Sites 1 and 2. Other areas of subsurface soil and/or groundwater contamination are likely present along the pipeline corridor, due to the prolonged duration of industrial land use in the proposed Project area. Implementation of **MMs GW-1, GW-2,** and **GW-3** prior to or during proposed Project grading, trenching, and construction, would reduce on-site contamination to levels acceptable by the applicable lead regulatory agency prior to project operations. No excavations that might encounter contaminated soil, which could be inadvertently spread to non-contaminated areas, would be completed as part of proposed Project operations. In addition, the rate or direction of contaminant movement is not expected to change as a result of the proposed Project, as no dewatering would occur in association with proposed Project operations.

### CEQA Impact Determination

**MMs GW-1, GW-2,** and **GW-3** would reduce on-site contamination to levels acceptable by the applicable lead regulatory agency, prior to proposed Project operations. No excavations that might encounter contaminated soil, which could be inadvertently spread to non-contaminated areas, would be completed as part of proposed Project operations. In addition, the rate or direction of contaminant movement is not expected to change as a result of the proposed Project, as no dewatering would occur in association with proposed Project operations. Therefore, impacts associated with contaminated soil and groundwater would be less than significant under CEQA.

*Mitigation Measures*

No mitigation is required.

*Residual Impacts*

With no mitigation required, there would be less than significant residual impacts under CEQA.

### NEPA Impact Determination

**MMs GW-1, GW-2,** and **GW-3** would reduce on-site contamination to levels acceptable by the applicable lead regulatory agency, prior to proposed Project operations. No excavations that might encounter contaminated soil, which could be inadvertently spread to non-contaminated areas, would be completed as part of proposed Project operations. In addition, the rate or direction of contaminant movement is not expected to change as a result of the proposed Project, as no dewatering would occur in association with proposed Project operations. Therefore, impacts associated with contaminated soil and groundwater would be less than significant under NEPA.

*Mitigation Measures*

No mitigation is required.

*Residual Impacts*

With no mitigation required, there would be less than significant residual impacts under NEPA.

### Impact GW-4.2: Reduced Project operations would not result in a substantial change to potable water levels.

Impacts would be similar to the proposed Project. Drinking water is provided to the area where the Reduced Project would be located by the City of Los Angeles Department of Water and Power.

### CEQA Impact Determination

As drinking water is provided to the area where the Reduced Project would be located by the City of Los Angeles Department of Water and Power, no impacts would occur under CEQA with respect to changes in potable water levels beneath the site.

*Mitigation Measures*

No mitigation is required.

*Residual Impacts*

With no mitigation required, there would be no residual impacts under CEQA.

**NEPA Impact Determination**

As drinking water is provided to the area where the Reduced Project would be located by the City of Los Angeles Department of Water and Power, no impacts would occur under NEPA with respect to changes in potable water levels beneath the site.

*Mitigation Measures*

No mitigation is required.

*Residual Impacts*

With no mitigation required, there would be no residual impacts under NEPA.

**Impact GW-5.2: Reduced Project operations would not result in a demonstrable and sustained reduction in groundwater recharge capacity.**

Impacts would be similar to the proposed Project. Groundwater recharge occurs when precipitation seeps into the ground and percolates down to the water table. The more permeable the ground surface and underlying soils, the more recharge occurs. Reduced Project construction would result in a combination of permeable and impermeable surfaces and therefore partially reduces groundwater recharge during operations. However, the significance criterion only applies to potable water. The proposed Project site is underlain by saline, non-potable groundwater.

**CEQA Impact Determination**

Although Reduced Project construction would partially reduce groundwater recharge during operations, the Reduced 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. Therefore, any decrease in recharge would be inconsequential and no impacts would occur under CEQA with respect to potable groundwater recharge.

*Mitigation Measures*

No mitigation is required.

*Residual Impacts*

With no mitigation required, there would be no residual impacts under CEQA.

**NEPA Impact Determination**

Although Reduced Project construction would partially reduce groundwater recharge during operations, the Reduced 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. Therefore, any decrease in recharge would be inconsequential and no impacts would occur under NEPA with respect to potable groundwater recharge.

*Mitigation Measures*

No mitigation is required.

*Residual Impacts*

With no mitigation required, there would be no residual impacts under NEPA.

**Impact GW-6.2: Reduced Project operations would not violate regulatory water quality standards at an existing production well.**

Impacts would be similar to the proposed Project. Drinking water is provided to the Reduced Project area by the City of Los Angeles Department of Water and Power. No existing production wells are located in the vicinity of the Reduced Project site.

**CEQA Impact Determination**

No existing production wells are located in the vicinity of the proposed Project site. No impacts would occur under CEQA because Project operations would not violate regulatory water quality standards at an existing production well.

*Mitigation Measures*

No mitigation is required.

*Residual Impacts*

With no mitigation required, there would be no residual impacts under CEQA.

**NEPA Impact Determination**

No existing production wells are located in the vicinity of the proposed Project site. No impacts would occur under NEPA because Project operations would not violate regulatory water quality standards at an existing production well.

*Mitigation Measures*

No mitigation is required.

*Residual Impacts*

With no mitigation required, there would be no residual impacts under NEPA.

#### 3.7.4.3.4 Summary of Impact Determinations

The following Table 3.7-2 summarizes the CEQA and NEPA impact determinations of the proposed Project and its alternatives related to Groundwater and Soils, as described in the detailed discussion in Sections 3.7.4.3.1 through 3.7.4.3.3. This table is meant to allow easy comparison between the potential impacts of the proposed Project and its alternatives with respect to this resource. Identified potential impacts may be based on Federal, State, or City of Los Angeles significance criteria, Port criteria, and the scientific judgment of the report preparers.

For each type of potential impact, the table describes the impact, notes the CEQA and NEPA 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. Note that impact descriptions for each of the alternatives are the same as for the proposed Project, unless otherwise noted.

### 3.7.4.4 Mitigation Monitoring

No mitigation measures developed in the Deep Draft FEIS/FEIR remain applicable to the proposed Project. Mitigation measures developed in this Draft SEIS/SEIR are as follows.

| | |
|---|---|
| **Impact GW-1.1: Construction activities may encounter toxic substances or other contaminants associated with historical uses of the Port, resulting in short-term exposure (duration of construction) to construction/operations personnel and/or long-term exposure to future site occupants.** | |
| **MM GW-1: Site Remediation.** | |
| Mitigation Measure | Unless otherwise authorized by the lead regulatory agency for any given site, the LAHD shall remediate all encountered contaminated soils or contamination within the excavation zones on the Project site boundaries prior to or during subsurface construction activities. Remediation shall occur in compliance with local, state, and federal regulations, as described in Section 3.7.3, and as directed by the Los Angeles Fire Department, DTSC, and/or LARWQCB.<br>Soil remediation shall be completed such that contamination levels in subsurface excavations are below health screening levels established by OEHHA and/or applicable action levels established by the lead regulatory agency with jurisdiction over the site. Only clean soil would be used as backfill. Soil contamination waivers may be acceptable as a result of encapsulation (i.e., paving) in backland areas and/or risk-based soil assessments but would be subject to the discretion of the lead regulatory agency.<br>Existing groundwater contamination throughout the proposed Project boundary shall continue to be monitored and remediated as encountered, simultaneous and/or subsequent to site development, and/or in accordance with direction provided by the LARWQCB.<br>Unless otherwise authorized by the lead regulatory agency for any given site, areas of excavation with soil contamination that shall be remediated prior to, or in conjunction with, Project construction. |
| Timing | Prior to or during grading activities. |
| Methodology | Soil and groundwater remediation shall be completed such that contamination levels are below health screening levels established by OEHHA 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) and/or risk-based soil assessments, but would be subject to the discretion of the lead regulatory agency. |
| Responsible Parties | LAHD, Los Angeles Fire Department, DTSC, and/or LARWQCB |
| Residual Impacts | Less than significant after mitigation. |

| **MM GW-2: Soil, Slurry, and Groundwater Characterization in Areas of Known Contamination.** | |
|---|---|
| Mitigation Measure | The following sampling plan shall be implemented to address areas of known soil contamination during grading, trenching, HDD, and dewatering activities:<br>a. Excavated soil in areas of known contamination shall be systematically tested for contaminants, including but not limited to those listed in Table 3.7-1, for each project area.<br>b. HDD drilling waste shall be systematically tested for contaminants, and if present, segregated from clean soils and slurry.<br>c. The remedial option(s) of contaminated material shall 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 shall be determined on a site-specific basis.<br>d. On-site personnel handling or working in the vicinity of the contaminated material shall 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" shall receive a minimum of 40 hours of classroom training and a minimum of three days of field training. This training provides precautions and protective measures to reduce or eliminate hazardous materials/waste hazards at the work place.<br>e. Copies of hazardous waste manifests or other documents indicating the amount, nature, and disposition of such materials shall be submitted to the Chief Harbor Engineer within 30 days of soil/slurry sampling, remediation, and/or disposal. All excavations shall be filled with structurally suitable fill material which contains contaminant concentrations (if any) that are within permissible limits, as directed by the Los Angeles Fire Department, DTSC, and/or LARWQCB.<br>f. All excavations shall be filled with structurally suitable fill material which contains contaminant concentrations (if any) that are within permissible limits, as directed by the Los Angeles Fire Department, DTSC, and/or LARWQCB.<br>g. Any project-related dewatering activities shall either discharge into the sanitary sewer, under permit with the City of Los Angeles Sanitation Bureau, or comply with the NPDES permit regulations and an associated SWPPP regarding discharge into storm drains and/or directly into harbor waters. Such permit requirements typically include on-site treatment to remove pollutants prior to discharge. Effluent analyses should include, but not be limited to, contaminants summarized in Table 3.7-1. Alternatively, the water shall be temporarily stored onsite in holding tanks, pending off-site disposal at a disposal facility approved by the LARWQCB. An NPDES-mandated SWPPP shall include measures ensuring that potential pollutant-contaminated waters encountered during excavation would be isolated and collected for transportation to a hazardous waste treatment facility prior to their discharge into the storm drain system. |
| Timing | Prior to or during grading, excavation, and construction activities. |
| Methodology | The Port shall confirm the presence of the suspect contaminated soil and direct the contractor to remove, stockpile, or contain the suspect material identified within the boundaries of the construction area. Contaminated sediments shall either be treated on-site or trucked off-site for disposal at a California licensed facility approved for disposal of such waste.<br>Contaminated slurry shall be containerized, dewatered, and dried, pending remediation or off-site disposal. Contaminated groundwater, derived from the slurry dewatering process, shall be trucked off-site and disposed at a California licensed disposal facility.<br>The remedial option(s) of contaminated material shall 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 shall be determined on a site-specific basis. |
| Responsible Parties | LAHD, Los Angeles Fire Department, DTSC, and/or LARWQCB |
| Residual Impacts | Less than significant after mitigation. |

| **MM GW-3: Contamination Contingency Plan.** | |
|---|---|
| Mitigation Measure | The following contingency plan shall be implemented to address unknown contamination during grading, trenching, HDD, and dewatering activities:<br>a. All grading, trench excavation and filling operations, HDD, and dewatering operations shall be observed for the presence of free-phase petroleum products, chemicals, or contaminated soil/groundwater. Discolored soil or suspected contaminated soil shall be segregated from clean soil. In the event unexpected, contaminated soil or groundwater is encountered during construction, the contractor shall notify the Los Angeles Harbor Department's Chief Harbor Engineer, Director of Environmental Management, and Risk Management's Industrial Hygienist. The Port shall confirm the presence of the suspect material and direct the contractor to remove, stockpile or contain, and characterize the suspect material(s) identified within the boundaries of the construction area. Continued work at a contaminated site shall require the approval of the Chief Harbor Engineer.<br>b. A photoionization detector (or other organic vapor detecting device) shall be present during grading, excavation, and HDD through suspected chemically impacted soil.<br>c. Excavation of VOC-impacted soil will require obtaining and complying with a South Coast Air Quality Management District Rule 1166 permit.<br>d. The extent of removal actions shall be determined on a site-specific basis. At a minimum, the chemically impacted area(s) within the boundary of the tank farm construction area or pipeline trench shall be remediated to the satisfaction of the lead regulatory agency for the site. The Port Project Manager overseeing removal actions shall inform the contractor when the removal action is complete.<br>e. HDD drilling waste shall similarly be monitored for contaminants, and if present, segregated from clean soils and slurry. Contaminated slurry shall be containerized, dewatered, and dried, pending remediation or off-site disposal. Contaminated groundwater, derived from the slurry dewatering process, shall be trucked off-site and disposed at a California licensed disposal facility.<br>f. The remedial option(s) of contaminated material shall 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 shall be determined on a site-specific basis. Both off-site and on-site remedial options shall be evaluated.<br>g. Copies of hazardous waste manifests or other documents indicating the amount, nature, and disposition of such materials shall be submitted to the Chief Harbor Engineer within 30 days of project completion.<br>h. In the event that contaminated soil is encountered, all on-site personnel handling or working in the vicinity of the contaminated material shall 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" shall receive a minimum of 40 hours of classroom training and a minimum of three days of field training. This training provides precautions and protective measures to reduce or eliminate hazardous materials/waste hazards at the work place.<br>i. In cases where potential chemically impacted soil is encountered, a real-time aerosol monitor shall be placed on the prevailing downwind side of the impacted soil area to monitor for airborne particulate emissions during soil excavation and handling activities.<br>j. All excavations shall be filled with structurally suitable fill material which contains contaminant concentrations (if any) that are within permissible limits, as directed by the Los Angeles Fire Department, DTSC, and/or LARWQCB. k) Any project-related dewatering activities shall either discharge into the sanitary sewer, under permit with the City of Los Angeles Sanitation Bureau, or comply with the NPDES permit regulations and an associated SWPPP regarding discharge into storm drains and/or directly into harbor waters. Such permit requirements typically include on-site treatment to remove pollutants prior to discharge. Alternatively, the water shall be temporarily stored onsite in holding tanks, pending off-site disposal at a disposal facility approved by the LARWQCB. An NPDES-mandated SWPPP shall include measures ensuring that potential pollutant-contaminated waters encountered during excavation would be isolated and collected for transportation to a hazardous waste treatment facility prior to their discharge into the storm drain system. |
| Timing | Prior to or during grading, excavation, and construction activities. |

| | |
|---|---|
| **MM GW-3: Contamination Contingency Plan. (continued)** | |
| Methodology | The Port shall confirm the presence of the suspect contaminated soil and direct the contractor to remove, stockpile, or contain the suspect material identified within the boundaries of the construction area. Contaminated sediments shall either be treated on-site or trucked off-site for disposal at a California licensed facility approved for disposal of such waste.<br>Contaminated slurry shall be containerized, dewatered, and dried, pending remediation or off-site disposal. Contaminated groundwater, derived from the slurry dewatering process, shall be trucked off-site and disposed at a California licensed disposal facility.<br>The remedial option(s) of contaminated material shall 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 shall be determined on a site-specific basis. |
| Responsible Parties | LAHD, Los Angeles Fire Department, DTSC, and/or LARWQCB |
| Residual Impacts | Less than significant after mitigation. |
| **Impact GW-2.1: Project construction activities would potentially result in release of contaminants to soils and groundwater in such concentrations that existing local (LARWQCB), state, or federal statutes would be violated.** | |
| **MM GW-4: Aquifer Cross-Contamination Prevention.** | |
| Mitigation Measure | The following aquifer cross-contamination prevention measures shall be implemented to address HDD related operations:<br>a. Additional assessment of the hydrologic conditions of the semi-perched aquifer, Bellflower Aquiclude, and Gage Aquifer shall be performed in areas where cross-contamination could occur as a result of HDD operations.<br>b. An HDD plan shall be developed and implemented to prevent the introduction of contaminated groundwater from the semi-perched aquifer into deeper aquifers along the HDD routes. |
| Timing | Prior to construction |
| Methodology | Groundwater assessment would include groundwater well installation for sampling and constituent analysis, as well as pumping tests to evaluate aquifer characteristics, including storage, transmissivity, and hydraulic conductivity. Groundwater samples would be analyzed for TPH, VOCs, SVOCs, PAHs, pesticides, PCBs, and metals. Groundwater samples would also be analyzed for physical groundwater characteristics including pH, conductivity, general mineral content, and other parameters. At least one set of cluster wells shall be completed to evaluate the vertical gradient and potential for vertical flow between the semi-perched aquifer, Bellflower Aquiclude, and Gage Aquifer.<br>The HDD plan shall be developed based on the results of an assessment of the hydrologic conditions, as described above in "a". The plan may include using a conductor casing during HDD through the semi-perched aquifer into the underlying Bellflower Aquiclude. Use of such a conductor casing would likely be most appropriate at the entry point to Pipeline Segment 3 South, as much of Mormon Island is underlain by NAPL. |
| Responsible Parties | LAHD, Los Angeles Fire Department, DTSC, and/or LARWQCB |
| Residual Impacts | Less than significant after mitigation. |
| **MM GW-5: Frac-Out Prevention.** | |
| Mitigation Measure | The following frac-out prevention measures shall be implemented to address construction related frac-outs:<br>a. A preliminary, site-specific, geotechnical investigation shall be completed in areas proposed for HDD.<br>b. A frac-out contingency plan shall be completed, including measures for prevention, containment, clean up, and disposal of released drilling muds that might occur either on the ground surface or into harbor waters. |
| Timing | Prior to construction |
| Methodology | Preliminary geotechnical borings shall be drilled to verify that the proposed depth of HDD is appropriate to avoid frac-outs (i.e., the depth of finest grained sediments and least fractures) and to determine appropriate horizontal directional drilling methods (i.e., appropriate drilling mud mixtures for specific types of sediments). Preventative measures would include incorporation of the recommendations of the geotechnical investigation to determine the most appropriate HDD depth and drilling mud mixture. In addition, drilling pressures shall be closely monitored so that they do not exceed those needed to penetrate the formation. |
| Responsible Parties | LAHD, Los Angeles Fire Department, DTSC, and/or LARWQCB |
| Residual Impacts | Less than significant after mitigation. |

## Table 3.7-2. Summary Matrix of Potential Impacts and Mitigation Measures for Groundwater and Soils Associated with the Proposed Project and Alternatives

| *Alternative* | *Environmental Impacts* | *Impact Determination* | *Mitigation Measures* | *Impacts after Mitigation* |
|---|---|---|---|---|
| **3.7 Groundwater and Soils** | | | | |
| Proposed Project | **GW-1.1:** Construction activities may encounter toxic substances or other contaminants associated with historical uses of the Port, resulting in short-term exposure (duration of construction) to construction/operations personnel and/or long-term exposure to future site occupants. | CEQA: **Significant** impact<br><br>NEPA: **Significant** impact | **MM GW-1:** Site Characterization and Remediation of Tank Farm Site 2<br>**MM GW-2:** Soil, Slurry, and Groundwater Characterization in Areas of Known Contamination<br>**MM GW-3:** Contamination Contingency Plan<br><br>**MM GW-1**<br>**MM GW-2**<br>**MM GW-3** | CEQA: Less than significant impact<br><br>NEPA: Less than significant impact |
| | **GW-2.1:** Project construction activities would potentially result in release of contaminants to soils and groundwater in such concentrations that existing local (LARWQCB), state, or federal statutes would be violated. | CEQA: **Significant** impact<br><br>NEPA: **Significant** impact | **MM GW-4:** Aquifer Cross-Contamination Prevention<br>**MM GW-5:** Frac-Out Prevention<br><br>**MM GW-4**<br>**MM GW-5** | CEQA: Less than significant impact<br><br>NEPA: Less than significant impact |
| | **GW-3.1:** Project construction could locally change the rate or direction of movement of existing contaminants, and would potentially expand the area affected by contaminants or increase the level of groundwater contamination. | CEQA: **Significant** impact<br><br>NEPA: **Significant** impact | **MM GW-2(g):** Soil, Slurry, and Groundwater Characterization in Areas of Known Contamination<br>**MM GW-4**<br>**MM GW-5**<br>**MM GW-2(g)**<br>**MM GW-4**<br>**MM GW-5** | CEQA: Less than significant impact<br><br>NEPA: Less than significant impact |
| | **GW-4.1:** Project construction would not result in a substantial change to potable water levels. | CEQA: No impact<br><br>NEPA: No impact | Mitigation not required<br><br>Mitigation not required | CEQA: No impact<br><br>NEPA: No impact |
| | **GW-5.1:** Project construction would not result in a demonstrable and sustained reduction in groundwater recharge capacity. | CEQA: No impact<br><br>NEPA: No impact | Mitigation not required<br><br>Mitigation not required | CEQA: No impact<br><br>NEPA: No impact |

**Table 3.7-2. Summary Matrix of Potential Impacts and Mitigation Measures for Groundwater and Soils Associated with the Proposed Project and Alternatives (continued)**

| *Alternative* | *Environmental Impacts* | *Impact Determination* | *Mitigation Measures* | *Impacts after Mitigation* |
|---|---|---|---|---|
| **3.7 Groundwater and Soils (continued)** | | | | |
| Proposed Project (continued) | **GW-6.1:** Project construction would not violate regulatory water quality standards at an existing production well. | CEQA: No impact<br>NEPA: No impact | Mitigation not required<br>Mitigation not required | CEQA: No impact<br>NEPA: No impact |
| | **GW-1.2:** 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. | CEQA: Less than significant impact<br>NEPA: Less than significant impact | Mitigation not required<br>Mitigation not required | CEQA: Less than significant impact<br>NEPA: Less than significant impact |
| | **GW-2.2:** Operational activities would not result in release of crude oil to soils and groundwater in such concentrations that existing local (LARWQCB), state, or federal statutes would be violated. | CEQA: Less than significant impact<br>NEPA: Less than significant impact | Mitigation not required<br>Mitigation not required | CEQA: Less than significant impact<br>NEPA: Less than significant impact |
| | **GW-3.2:** The Project would not change the rate or direction of movement of existing contaminants; and would not expand the area affected by contaminants or increase the level of groundwater contamination. | CEQA: Less than significant impact<br>NEPA: Less than significant impact | Mitigation not required<br>Mitigation not required | CEQA: Less than significant impact<br>NEPA: Less than significant impact |
| | **GW-4.2:** Project operations would not result in a substantial change to potable water levels. | CEQA: No impact<br>NEPA: No impact | Mitigation not required<br>Mitigation not required | CEQA: No impact<br>NEPA: No impact |
| | **GW-5.2:** Project operations would not result in a demonstrable and sustained reduction in groundwater recharge capacity. | CEQA: No impact<br>NEPA: No impact | Mitigation not required<br>Mitigation not required | CEQA: No impact<br>NEPA: No impact |
| | **GW-6.2:** Project operations would not violate regulatory water quality standards at an existing production well. | CEQA: No impact<br>NEPA: No impact | Mitigation not required<br>Mitigation not required | CEQA: No impact<br>NEPA: No impact |

**Table 3.7-2. Summary Matrix of Potential Impacts and Mitigation Measures for Groundwater and Soils Associated with the Proposed Project and Alternatives (continued)**

| *Alternative* | *Environmental Impacts* | *Impact Determination* | *Mitigation Measures* | *Impacts after Mitigation* |
|---|---|---|---|---|
| **3.7 Groundwater and Soils (continued)** | | | | |
| No Federal Action/No Project Alternative | **GW-1.1:** The No Federal Action/No Project Alternative 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. | CEQA: No impact<br>NEPA: No impact | Mitigation not required<br>Mitigation not required | CEQA: No impact<br>NEPA: No impact |
| | **GW-2.1:** No Federal Action/No Project Alternative construction activities would not result in release of crude oil to sediments and groundwater in such concentrations that existing local (LARWQCB), state, or federal statutes would be violated. | CEQA: No impact<br>NEPA: No impact | Mitigation not required<br>Mitigation not required | CEQA: No impact<br>NEPA: No impact |
| | **GW-3.1:** The No Federal Action/No Project Alternative would not change the rate or direction of movement of existing contaminants, expand the area affected by contaminants, or increase the level of groundwater contamination. | CEQA: No impact<br>NEPA: No impact | Mitigation not required<br>Mitigation not required | CEQA: No impact<br>NEPA: No impact |
| | **GW-4.1:** The No Federal Action/No Project Alternative would not result in a change to potable water levels. | CEQA: No impact<br>NEPA: No impact | Mitigation not required<br>Mitigation not required | CEQA: No impact<br>NEPA: No impact |
| | **GW-5.1:** The No Federal Action/No Project Alternative would not result in a demonstrable and sustained reduction in groundwater recharge capacity. | CEQA: No impact<br>NEPA: No impact | Mitigation not required<br>Mitigation not required | CEQA: No impact<br>NEPA: No impact |
| | **GW-6.1:** The No Federal Action/No Project Alternative would not result in violation of regulatory water quality standards at an existing production well. | CEQA: No impact<br>NEPA: No impact | Mitigation not required<br>Mitigation not required | CEQA: No impact<br>NEPA: No impact |

**Table 3.7-2. Summary Matrix of Potential Impacts and Mitigation Measures for Groundwater and Soils Associated with the Proposed Project and Alternatives (continued)**

| *Alternative* | *Environmental Impacts* | *Impact Determination* | *Mitigation Measures* | *Impacts after Mitigation* |
|---|---|---|---|---|
| **3.7 Groundwater and Soils (continued)** | | | | |
| No Federal Action/No Project Alternative (continued) | **GW-1.2:** No Federal Action/No Project Alternative 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. | CEQA: No impact<br><br>NEPA: No impact | Mitigation not required<br><br>Mitigation not required | CEQA: No impact<br><br>NEPA: No impact |
| | **GW-2.2:** No Federal Action/No Project Alternative activities would not result in release of crude oil to sediments, surface waters, and groundwater in such concentrations that existing local (LARWQCB), state, or federal statutes would be violated. | CEQA: Less than significant impact<br><br>NEPA: No impact | Mitigation not required<br><br>Mitigation not required | CEQA: Less than significant impact<br><br>NEPA: No impact |
| | **GW-3.2:** The No Federal Action/No Project Alternative would not change the rate or direction of movement of existing contaminants, expand the area affected by contaminants, or increase the level of groundwater contamination. | CEQA: Less than significant impact<br><br>NEPA: No impact | Mitigation not required<br><br>Mitigation not required | CEQA: Less than significant impact<br><br>NEPA: No impact |
| | **GW-4.2:** The No Federal Action/No Project Alternative would not result in a change to potable water levels. | CEQA: No impact<br><br>NEPA: No impact | Mitigation not required<br><br>Mitigation not required | CEQA: No impact<br><br>NEPA: No impact |
| | **GW-5.2:** The No Federal Action/No Project Alternative would not result in a demonstrable and sustained reduction in groundwater recharge capacity. | CEQA: No impact<br><br>NEPA: No impact | Mitigation not required<br><br>Mitigation not required | CEQA: No impact<br><br>NEPA: No impact |
| | **GW-6.2:** The No Federal Action/No Project Alternative would not result in violation of regulatory water quality standards at an existing production well. | CEQA: No impact<br><br>NEPA: No impact | Mitigation not required<br><br>Mitigation not required | CEQA: No impact<br><br>NEPA: No impact |

**Table 3.7-2. Summary Matrix of Potential Impacts and Mitigation Measures for Groundwater and Soils Associated with the Proposed Project and Alternatives (continued)**

| *Alternative* | *Environmental Impacts* | *Impact Determination* | *Mitigation Measures* | *Impacts after Mitigation* |
|---|---|---|---|---|
| **3.7 Groundwater and Soils (continued)** | | | | |
| Reduced Project Alternative | **GW-1.1:** Reduced Project Alternative construction activities may encounter toxic substances or other contaminants associated with historical uses of the Port, resulting in short-term exposure (duration of construction) to construction/operations personnel and/or long-term exposure to future site occupants. | CEQA: **Significant** impact<br><br>NEPA: **Significant** impact | **MM GW-1**<br>**MM GW-2**<br>**MM GW-3**<br>**MM GW-1**<br>**MM GW-2**<br>**MM GW-3** | CEQA: Less than significant impact<br><br>NEPA: Less than significant impact |
| | **GW-2.1:** Reduced Project Alternative construction activities would not result in release of contaminants to soils, surface waters, and groundwater in such concentrations existing local (LARWQCB), state, or federal statutes would be violated. | CEQA: **Significant** impact<br><br>NEPA: **Significant** impact | **MM GW-4**<br>**MM GW-5**<br><br>**MM GW-4**<br>**MM GW-5** | CEQA: Less than significant impact<br><br>NEPA: Less than significant impact |
| | **GW-3.1:** Reduced Project Alternative construction could change the rate or direction of movement of existing contaminants, expand the area affected by contaminant, or increase the level of groundwater contamination. | CEQA: **Significant** impact<br><br>NEPA: **Significant** impact | **MM GW-2(g)**<br>**MM GW-4**<br>**MM GW-5**<br>**MM GW-2(g)**<br>**MM GW-4**<br>**MM GW-5** | CEQA: Less than significant impact<br><br>NEPA: Less than significant impact |
| | **GW-4.1:** Reduced Project Alternative construction would not result in a substantial change to potable water levels. | CEQA: No impact<br><br>NEPA: No impact | Mitigation not required<br><br>Mitigation not required | CEQA: No impact<br><br>NEPA: No impact |
| | **GW-5.1:** Reduced Project construction would not result in a demonstrable and sustained reduction in groundwater recharge capacity. | CEQA: No impact<br><br>NEPA: No impact | Mitigation not required<br><br>Mitigation not required | CEQA: No impact<br><br>NEPA: No impact |
| | **GW-6.1:** Reduced Project Alternative construction would not violate regulatory water quality standards at an existing production well. | CEQA: No impact<br><br>NEPA: No impact | Mitigation not required<br><br>Mitigation not required | CEQA: No impact<br><br>NEPA: No impact |
| | **GW-1.2:** Reduced 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. | CEQA: Less than significant impact<br><br>NEPA: Less than significant impact | Mitigation not required<br><br>Mitigation not required | CEQA: Less than significant impact<br><br>NEPA: Less than significant impact |

**Table 3.7-2. Summary Matrix of Potential Impacts and Mitigation Measures for Groundwater and Soils Associated with the Proposed Project and Alternatives (continued)**

| *Alternative* | *Environmental Impacts* | *Impact Determination* | *Mitigation Measures* | *Impacts after Mitigation* |
|---|---|---|---|---|
| **3.7 Groundwater and Soils (continued)** | | | | |
| Reduced Project Alternative (continued) | **GW-2.2:** Reduced Project operational activities would not result in release of crude oil to soils and groundwater in such concentrations that existing local (LARWQCB), state, or federal statutes would be violated. | CEQA: Less than significant impact<br>NEPA: Less than significant impact | Mitigation not required<br>Mitigation not required | CEQA: Less than significant impact<br>NEPA: Less than significant impact |
| | **GW-3.2:** The Reduced Project would not change the rate or direction of movement of existing contaminants; and would not expand the area affected by contaminants or increase the level of groundwater contamination. | CEQA: Less than significant impact<br>NEPA: Less than significant impact | Mitigation not required<br>Mitigation not required | CEQA: Less than significant impact<br>NEPA: Less than significant impact |
| | **GW-4.2:** Reduced Project operations would not result in a substantial change to potable water levels. | CEQA: No impact<br>NEPA: No impact | Mitigation not required<br>Mitigation not required | CEQA: No impact<br>NEPA: No impact |
| | **GW-5.2:** Reduced Project operations would not result in a demonstrable and sustained reduction in groundwater recharge capacity. | CEQA: No impact<br>NEPA: No impact | Mitigation not required<br>Mitigation not required | CEQA: No impact<br>NEPA: No impact |
| | **GW-6.2:** Reduced Project operations would not violate regulatory water quality standards at an existing production well. | CEQA: No impact<br>NEPA: No impact | Mitigation not required<br>Mitigation not required | CEQA: No impact<br>NEPA: No impact |

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