MITIGATED NEGATIVE DECLARATION

Prepared in Accordance With:
California Environmental Quality Act of 1970, as Amended

APPLICATION SUMMARY REPORT

Prepared in Accordance With:
Certified Port Master Plan and California Coastal Act of 1976

Prepared for:
The Port of Long Beach

FORMER LONG BEACH NAVAL COMPLEX INSTALLATION RESTORATION SITE 7
DREDGING PROJECT

The narrative and attached documents, including the project description, site visit, and staff analysis, constitute a Mitigated Negative Declaration, prepared in accordance with the California Environmental Quality Act; and an Application Summary Report, with staff recommendations prepared in accordance with the certified Port Master Plan and the California Coastal Act. Based upon the data contained herein, the proposed project has been determined not to have significant adverse environmental impacts and conforms to the stated policies of the Port Master Plan. This document was circulated for public review and becomes effective upon adoption by the Long Beach Harbor Commission.

ISSUED FOR PUBLIC REVIEW: _____, 2008

BY: DIRECTOR OF ENVIRONMENTAL PLANNING: _____

APPLICATION SUMMARY REPORT ADOPTED ON: _____, 2008

BY: CITY OF LONG BEACH BOARD OF HARBOR COMMISSIONERS

Application No. [08-014]

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Acronyms

AOEC	Area of Ecological Concern
AOEC-CE	Area of Ecological Concern C-East
AOEC-CW	Area of Ecological Concern C-West
AQMP	Air Quality Management Plan
ARB	Air Resources Board
BMP	best management practice
BRAC	Base Re-alignment and Closure
CAAP	Clean Air Action Plan
Cal-OSHA	California Occupational Safety and Health Administration
CCA	California Coastal Act
CDFG	California Department of Fish and Game
CEQA	California Environmental Quality Act
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CHE	Cargo Handling Equipment
CMP	Congestion Management Program
CO	carbon monoxide
COEC	Chemicals of Ecological Concern
CRHR	California Register of Historic Resources
CWA	Clean Water Act
cy	cubic yards
dBA	A-weighted decibel
DDT	dichloro-diphenyl-trichloroethane
District 4	Terminal Island Harbor Planning District
DMMP	Dredged Material Management Program
DPM	diesel particulate matter
DTSC	Department of Toxic Substances Control
EFH	Essential Fish Habitat
ESA	Endangered Species Act
FS	Feasibility Study
IR Site 7	Installation Restoration Site 7
LARWQCB	Los Angeles Regional Water Quality Control Board
LBNC	Long Beach Naval Complex
LBNS	Long Beach Naval Shipyard
LIFOC	Lease In Furtherance of Conveyance

Acronyms

MLLW	mean lower low water
MND	Mitigated Negative Declaration
NAD	North American Datum
NAVSTA	Naval Station Long Beach
NHRP	National Register of Historic Places
NO_x	nitrogen oxides
PAH	polycyclic aromatic hydrocarbon
PCB	polychlorinated biphenyl
PM	particulate matter
PM_{10}	particulate matter – 10 microns
Port	Port of Long Beach
RDR	Remedial Design Report
RI	Remedial Investigation
ROD	Record of Decision
SCAG	Southern California Association of Governments
SCAQMD	Southern California Air Quality Management District
SMO	Sediment Management Objective
TSS	total suspended solids
USACE	U.S. Army Corps of Engineers
USCG	U.S. Coast Guard
USEPA	U.S. Environmental Protection Agency
USFWS	U.S. Fish and Wildlife Services
WDR	Waste Discharge Requirement
WQC	Water Quality Certification

1 INTRODUCTION

1.1 Project Background

Installation Restoration Site 7 (IR Site 7) comprises approximately 700 acres of submerged land in the Port of Long Beach's (Port's) West Basin and is adjacent to the former Long Beach Naval Complex (LBNC; Figure 1). Water depths in IR Site 7 range from 0 to -45 feet mean lower low water (MLLW).

Beginning in 1938, the U.S. Navy constructed and operated the LBNC for troop deployment and industrial uses, including ship construction and repair. The former LBNC housed two major naval entities, the Long Beach Naval Shipyard (LBNS) and the Naval Station Long Beach (NAVSTA). The LBNC provided logistical support for ships and performed work in connection with construction, conversion, overhaul, repair, alteration, dry-docking and fitting out of ships. From the early 1940s to the mid-1970s, various fuels, oils, and other organic and metal wastes were discharged at IR Site 7. As a result, the sediments within the site contain heavy metals, polycyclic aromatic hydrocarbons (PAHs), and polychlorinated biphenyls (PCBs) at levels predicted to cause ecological risks to the resident benthic communities. After more than 50 years of service, the NAVSTA was closed on September 30, 1994, under the Base Re-alignment and Closure Act (BRAC) II. On September 30, 1997, the LBNS was closed under BRAC IV. Site ownership for the majority of the submerged land within the West Basin was formally reverted to the Port under the BRAC program. Currently, a 100-foot annulus surrounding the West Basin remains under U.S. Navy ownership; however, the U.S. Navy plans to transfer this property to the Port.

In 1998, an Environmental Impact Statement/Environmental Impact Report (EIS/EIR) was prepared jointly by the U.S. Navy and the Port that described the reuse of the entire LBNS complex. The EIS/EIR described the proposed reuses for the various parts of the LBNS complex including the areas adjacent to the proposed dredging areas, a liquid bulk terminal on Pier Echo, and a neobulk/breakbulk terminal on the U.S. Navy Mole.

Following certification of the EIS/EIR, a Lease In-furtherance of Conveyance (LIFOC) was prepared to convey the property to the Port and laid out the restrictions under which the property could be transferred. In particular, the Port had the responsibility of performing all remediation necessary to protect human health and the environment with respect to any hazardous substances, which may exist in the West Basin.

As part of the site closure process, a Remedial Investigation/Feasibility Study (RI/FS), completed by Bechtel, International (Bechtel 2003) for the U.S. Navy pursuant to the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), investigated potential areas of contamination and evaluated options for remediation in an effort to reduce estimated ecological and human health risks. It should be noted that the Port removed contaminated sediments from much of the northern portion of the West Basin, as part of its redevelopment of the property into a commercial marine terminal. This work was conducted prior to the completion of the Navy's environmental investigations.

Investigations at IR Site 7 identified chemically-impacted Areas of Ecological Concern (AOECs) and identified Chemicals of Ecological Concern (COECs) with the potential to produce significant risk to benthic communities (Figure 2). A proposed plan was developed that provides the greatest level of protection to IR Site 7 benthic communities, achieves the remedial action objectives, provides the greatest level of long-term effectiveness and permanence, and is easily implemented. The plan contains Sediment Management Objectives (SMOs) which are described in detail in Section 1.4, and identifies the following remedies:

- AOEC-A and AOEC-C: removal and discharge of the AOEC sediments at off-site (outside IR Site 7) projects, thereby creating a clean substrate supporting the presence of an ecologically productive and diverse benthic community.
- AOEC-B: no remedial action necessary to protect the environment as chemical concentrations have not resulted in sediment toxicity or adverse effects on the benthic community.
- AOEC-E, AOEC-F, and AOEC-G (Pier AOECs): limited action necessary, institutional controls to be implemented for the purpose of preventing unauthorized or uncontrolled disturbance and/or exposure of beneath-pier chemically impacted sediments.
- AOEC-D was accepted as a no action area.

A subsequent Record of Decision (ROD) accepting the preferred remedy (bullet 1) was prepared and signed in September 2007.

As AOEC-B, AOEC-E, AOEC-F, and AOEC-G were accepted as no action or limited action areas based on ongoing institutional controls that don't result in any physical change to the environment, there are no activities therein requiring California Environmental Quality Act (CEQA) review; thus only AOEC-A and AOEC-C are addressed by this document. In 2007, the Port conducted additional, pre-remedial design sampling to further define the vertical and horizontal extent of contamination and

to aid in providing maximum resolution to engineering design efforts. As part of this effort, AOEC-C was divided into C-East (CE) and C-West (CW). The Port has separately prepared a Remedial Design Report (RDR) detailing the specific engineering plans and specifications to achieve the remedy.

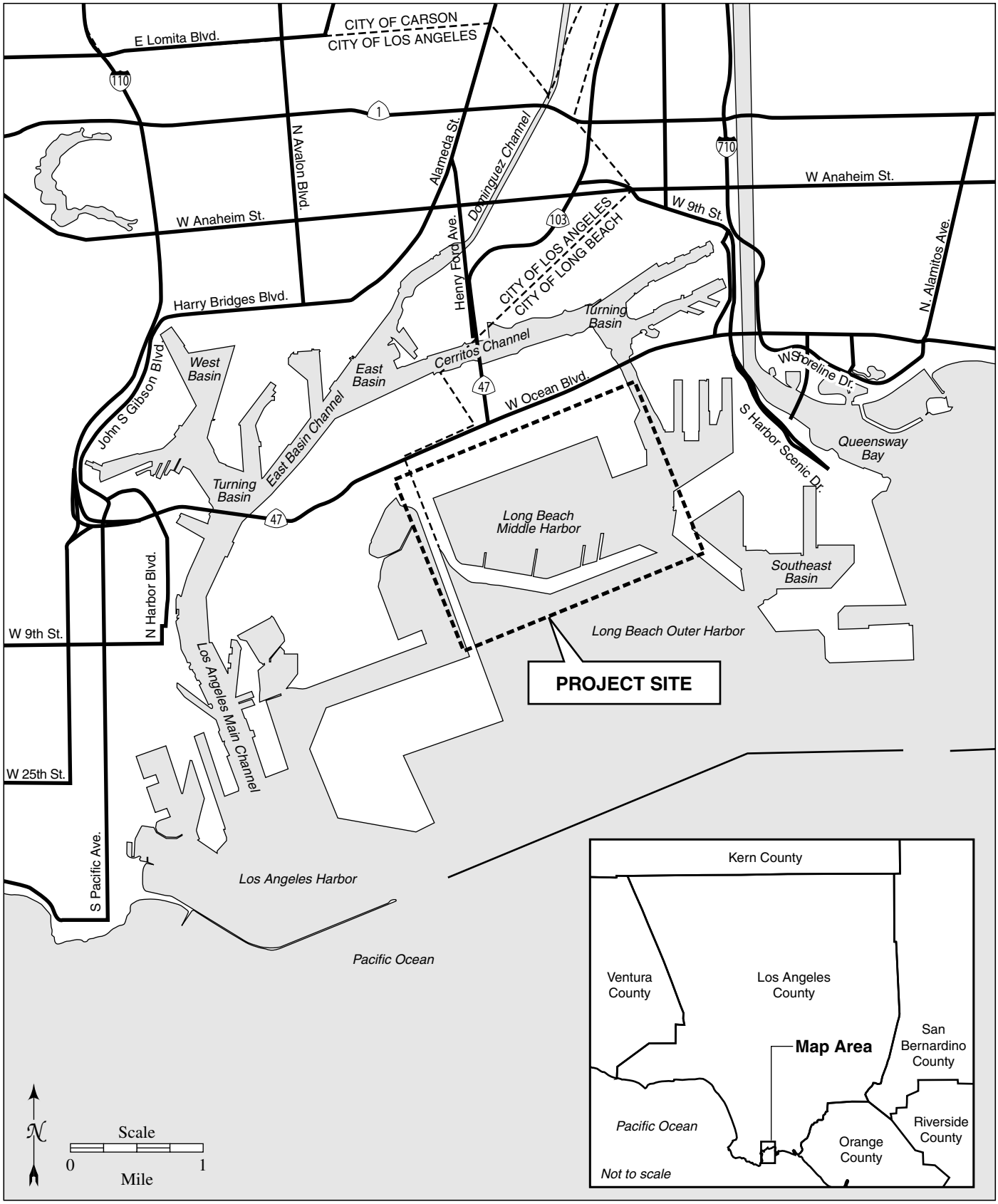
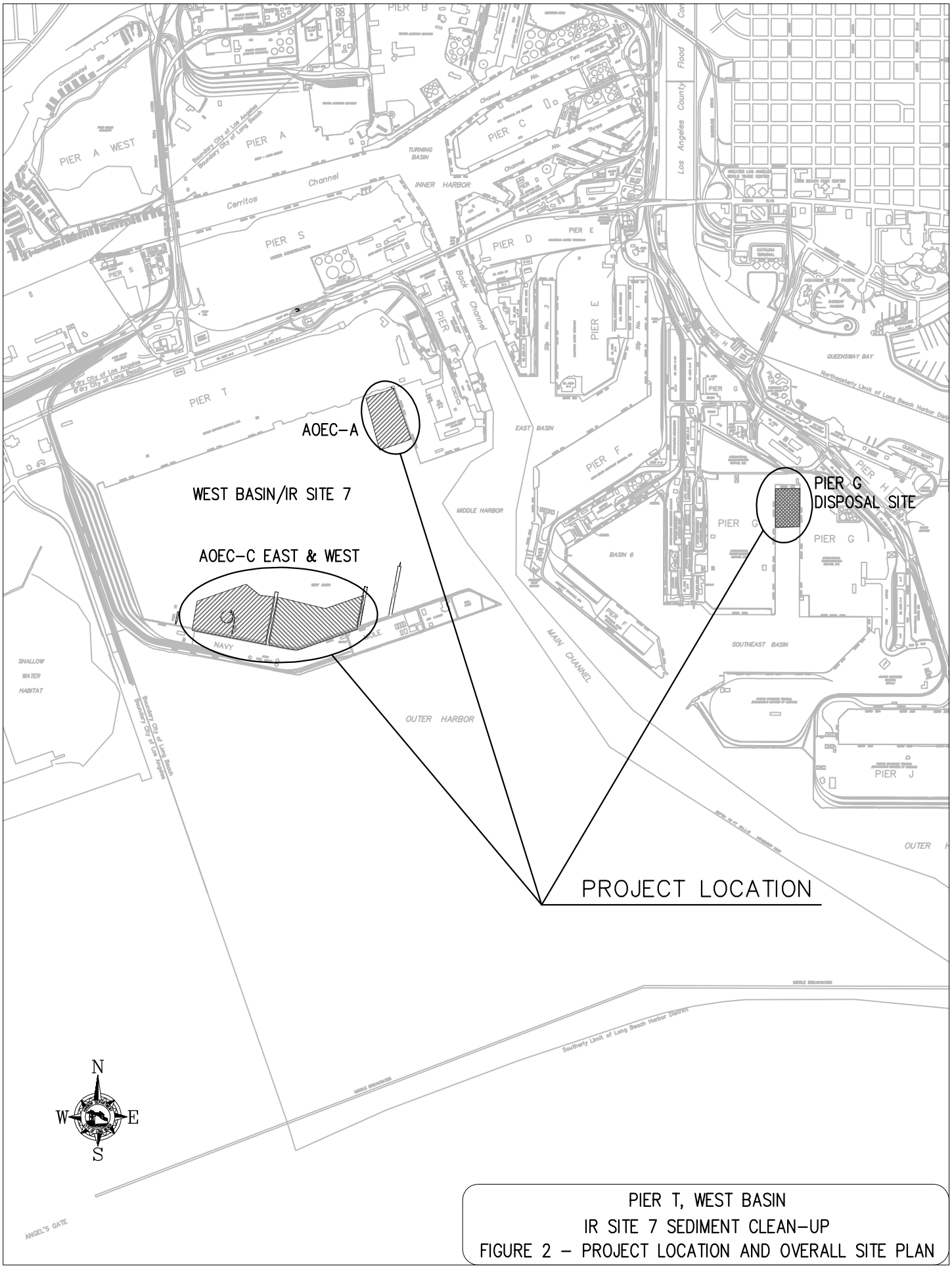


Figure 1. Project Vicinity Map


AOEC–A
WEST BASIN/IR SITE 7
AOEC–C EAST & WEST
PIER G
DISPOSAL SITE
PROJECT LOCATION
N
W
E
S
PIER T, WEST BASIN
IR SITE 7 SEDIMENT CLEAN–UP
FIGURE 2 – PROJECT LOCATION AND OVERALL SITE PLAN

1.2 Project Objective and Need

The objectives of the project are to:

- Implement the Navy's cleanup plan for the site as set forth in the ROD and required by the LIFOC; and
- Remediate contaminated sites in order to enhance the aquatic resources of the Port.

Specifically, in order to comply with the terms of the LIFOC, the Port must:

- Dredge, using either mechanical or hydraulic equipment, a sufficient volume of material from AOEC-A and AOEC-C to achieve the mandated target cleanup goals (estimated to be up to 800,000 cy) and transport that material to the approved Pier G fill site (POLB 2000).
- Ensure that the removal of sediments achieves the SMOs for metals and organics as described in the ROD through dredging of the contaminated material.

In addition to the remedies specified in the ROD, to facilitate the project, the Port must also remove the abandoned sonar calibration pier from AOEC-C and remove, abate, and dismantle four sunken barges also from AOEC-C. Please note that for purposes of remedial sampling AOEC-C was subdivided into a AOEC-CE and AOEC-CW, but for purposes of CEQA is treated as AOEC-C.

The proposed project meets a public need for remediation of contaminated sites and enhancement of aquatic resources and the Port's need to implement the terms of the LIFOC.

1.3 Project Location and Existing Conditions

The project site comprises approximately 700 acres of submerged land in the Port's West Basin and the fill site at Pier G. The Port is an active commercial and recreational harbor with land uses including marine container, break-bulk, and roll-on/roll-off cargo terminals; commercial fishing facilities; military use; commercial satellite launching services; automobile import; and public boat launches.

The dredging and sonar pier demolition sites are located in the West Basin, bordered on the north by the Pier T container terminal, on the south by a U.S. Navy fuel facility and Port uses, to the east by the Main Channel, and to the west by the Pier 400 causeway.

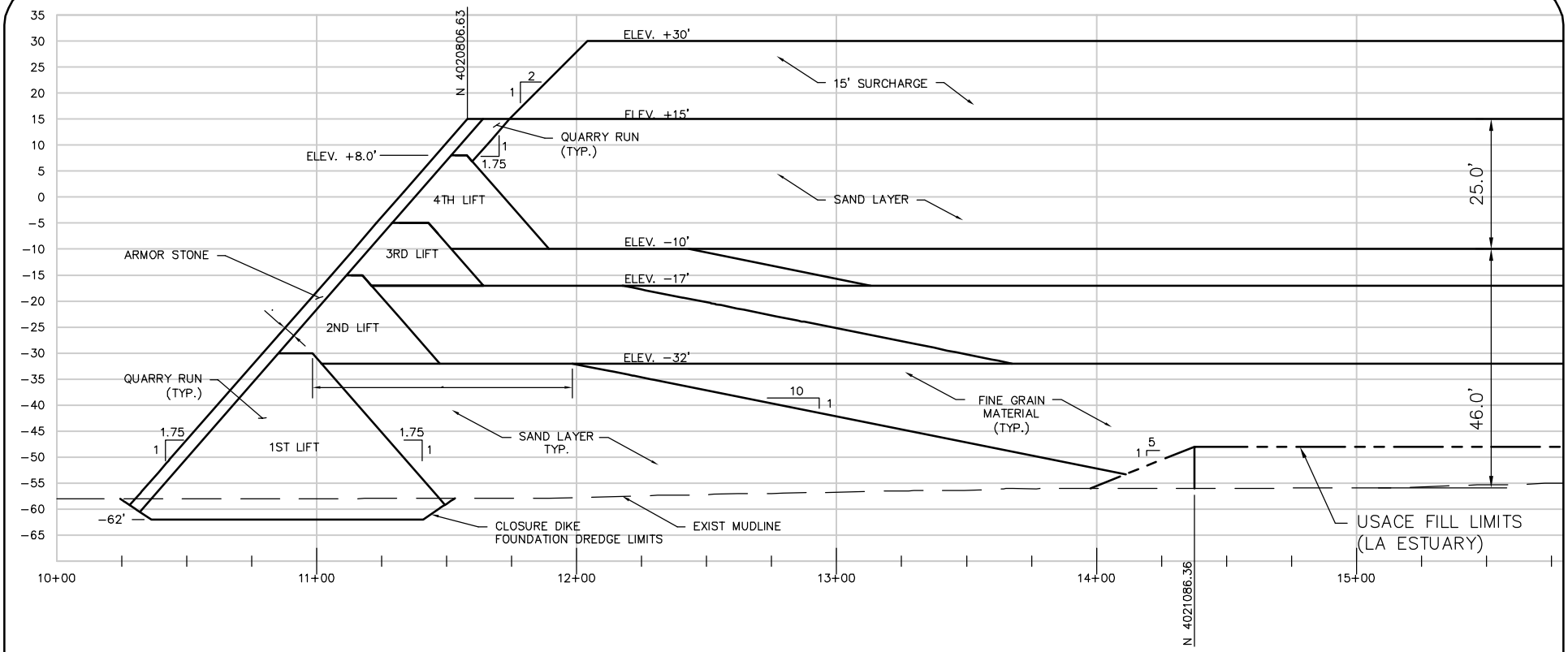
1.4 Project Description

The proposed project involves dredging up to approximately 800,000 cy of contaminated sediments from AOEC-A, AOEC-CE, and AOEC-CW and placing that material off site in an approved fill site at the Port's Pier G. The location of Pier G in relation to the AOECs is shown in Figure 2. A cross-section of the approved fill site is shown in Figure 3. Table 1.1 depicts the depth below ground surface, including overdredge, and volume of removal for each AOEC. Overdredge is defined as additional material included in the dredging profile to ensure that design-depth is achieved. Dredged material will be transported to and placed in the previously approved Pier G fill site.

Table 1.1
Volume of Depth Below Ground Surface

Dredge Area	Acreage (acres)	Depth of Remedial Removal (feet)	Allowed Contractor Overdredge (feet)	Maximum Dredge Volume (cy)
AOEC-A	16.33	4	2	181,000
AOEC-CW	33.20	4	2	371,000
AOEC-CE	33.38	2	2	248,000

The method of dredging will be either mechanical, with dredged material transported via split-hull barge to the landfill, or hydraulic pipeline, with dredged material pumped in slurry form to the disposal site. Dredging would require 62 workdays to complete. Contaminated sediments would be dredged using an electric-powered clamshell or hydraulic dredge drawing power from the regional grid. Dredged material would be loaded into bottom-dump barges and hauled to the Pier G fill site. Emissions during dredging would also be generated by diesel-powered tugboats and support boats. Dredged materials would be placed at the Pier G fill site, which is an in-water site.



HORIZONTAL GRAPHICAL SCALE

60' 0' 60' 120'

SCALE: 1''=60'

VERTICAL GRAPHICAL SCALE

30' 0' 30' 60'

SCALE: 1''=30'

VOLUMES (CU.YD)			
LIFT	ROCK	SAND	FINE GRAIN MATERIAL
1ST	37,462	88,169	332,009
2ND	13,356	47,492	270,894
3RD	9,962	17,895	139,205
4TH	12,028	614,570	–
5TH	2,757	–	–
TOTAL	75,565	768,126	742,108
TOTAL CAPACITY	1,585,799		
SURCHARGE	357,756		

PIER G, BERTHS G232 – G233
TERMINAL DEVELOPMENT PROJECT
FIGURE 3 – NORTH SLIP FILL CLOSURE DIKE – SECTION

Bottom-dump barges would drop their loads at the designated location. Dredging plans will be specifically designed to ensure that structures, such as the wharves, are not damaged.

Additionally, the Port intends to demolish the existing abandoned sonar calibration pier located within AOEC-CW (Figure 2). Removal of the dilapidated structure requires abatement of asbestos-wrapped above-water utilities, removal of the timber and steel superstructure, and removal of the concrete piling. Materials would be recycled or disposed of at an approved upland disposal site. The Port also intends to retrieve four sunken barges from AOEC-C and place them upland for hazardous material inspection, abatement, and dismantlement.

Demolition of the sonar calibration pier would generate an estimated 5,000 cy of debris during a 20-workday period. The pier would be demolished using in-water and on-land equipment, and the debris would be hauled by truck to a yet-to-be-determined existing permitted disposal site. Emissions would be generated by construction equipment at the demolition site, haul trucks taking debris to the disposal site, and commute vehicles. The debris disposal site would be an existing permitted facility; therefore, emissions at the disposal site are not included in this assessment.

The Pier G fill site has been designed to effectively contain chemically impacted materials and to control runoff of decant water from the settling of dredged material at the site. Impacts resulting from the construction and operation of the fill site were previously analyzed and authorized by the Port's Harbor Development Permit 00-007 (POLB 2000); Los Angeles Regional Water Quality Control Board (LARWQCB) Order No. 01-042, File No. 01-009; and Department of the Army Permit 2001-00395-AOA. Therefore, those impacts are not further considered in this document.

In order to ensure that removal of the sediments achieves the threshold SMOs for metals and organics as described in the ROD and shown in Table 1.2, the Port will implement a confirmation sampling program during construction.

Table 1.2
Sediment Management Objectives – IR Site 7, Port of Long Beach

Contaminant	Final SMO
Copper	254 mg/kg
Lead	100 mg/kg
Mercury	0.9 mg/kg
Silver	3.5 mg/kg
Zinc	307 mg/kg
Total PAH	5,400 µg/kg
Total PCBs	570 µg/kg
Total DDT	210 µg/kg

Note:
DDT = dichloro-diphenyl-trichloroethane
mg/kg = milligram per kilogram
µg/kg = microgram per kilogram

1.5 Anticipated Permits and Other Approvals

Table 1-3 lists the permits and approvals that the proposed project would require. This environmental document would be used by the Port when considering applications for Harbor Development Permits as well as by the Regional Water Quality Control Board (RWQCB) when considering an application for Clean Water Act (CWA) Section 401 Water Quality Certification (WQC) and Waste Discharge Requirements (WDRs) under the Porter-Cologne Act. The Department of Toxic Substance Control (DTSC), as a Responsible Agency under CEQA, would use this Mitigated Negative Declaration (MND), when considering approval of the RDR.

Table 1.3
Anticipated Permits and Approvals

Agency	Permit/Approval
Port	Harbor Development Permit
U.S. Army Corps of Engineers (USACE)	Rivers and Harbors Act Section 10 Permit and CWA Section 404 Permit
Department of Toxic Substances Control	RDR
LARWQCB	CWA Section 401 WQC and WDR under the Porter-Cologne Act

2 POTENTIALLY SIGNIFICANT EFFECTS CHECKLIST

2.1 Environmental Factors Potentially Affected

The environmental factor checked below would potentially be affected by this proposed project (i.e., the proposed project would involve at least one impact that is a "Potentially Significant Impact"), as indicated by the checklist on the following pages.

❒	Aesthetics	❒	Agricultural Resources	☑	Air Quality
❒	Biological Resources	❒	Cultural Resources	❒	Geology and Soils
❒	Hazards and Hazardous Materials	❒	Hydrology and Water Quality	❒	Land Use and Planning
❒	Mineral Resources	❒	Noise	❒	Population and Housing
❒	Public Services	❒	Recreation	❒	Transportation and Traffic
❒	Utilities and Service Systems	❒	Mandatory Findings of Significance		

2.2 Determination

On the basis of this initial evaluation:

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

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

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

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

❒ I find that although the proposed project could have a significant effect on the environment, because all potentially significant effects (a) have been analyzed adequately in an earlier ENVIRONMENTAL IMPACT REPORT or NEGATIVE DECLARATION pursuant to applicable standards and (b) have been avoided or mitigated pursuant to that earlier ENVIRONMENTAL IMPACT REPORT or NEGATIVE DECLARATION including revisions or mitigation measures that are imposed upon the project, nothing further is required.

Signature	Date
Stacey E. Crouch	Port of Long Beach

2.3 Evaluation of Environmental Impacts

2.3.1 Aesthetics

	Would the Project:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a.	Have a substantial adverse effect on a scenic vista?				X
b.	Substantially damage scenic resources including, but not limited to, trees, rock outcroppings, and historic buildings along a scenic highway?				X
c.	Substantially degrade the existing visual character or quality of the site and its surroundings?				X
d.	Create a new source of substantial light or glare that would adversely affect daytime or nighttime views in the area?				X

(a-d) No Impact. There are no project elements that would impact scenic resources, create new sources of light or glare, or degrade the existing visual character of the West Basin. While equipment used in dredging and disposal would be present on site, the entirety of the project's activities will occur within the West Basin; therefore, there are no impacts.

Mitigation Measures. None required.

2.3.2 Agricultural Resources

	Would the Project:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
	In determining whether impacts on agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997), prepared by the California Department of Conservation.				
a.	Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to nonagricultural use?				X
b.	Conflict with existing zoning for agricultural use or conflict with a Williamson Act contract?				X

Would the Project:		Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
c.	Involve other changes in the existing environment that, due to their location or nature, could result in conversion of Farmland to nonagricultural use?				X

(a-c) No Impact. There are no agricultural uses or farmland within the Port. Therefore, there would be no impact associated with the project.

Mitigation Measures. None required.

2.3.3 Air Quality

Would the Project:		Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
When available, the significance criteria established by the applicable air quality management or air pollution control district may be relied upon to make the following determinations.					
a.	Conflict with or obstruct implementation of the applicable air quality plan?		X		
b.	Violate any air quality standard or contribute substantially to an existing or projected air quality violation?		X		
c.	Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is a non-attainment area for an applicable federal or state ambient air quality standard (including releasing emissions that exceed quantitative thresholds for ozone precursors)?		X		
d.	Expose sensitive receptors to substantial pollutant concentrations?		X		
e.	Create objectionable odors affecting a substantial number of people?				X

(a-d) Less Than Significant Impact With Mitigation Incorporated. An assessment of the air quality impacts of the proposed project was conducted by Jones and Stokes in 2008 (Appendix A). Study analyses were based on the following assumptions regarding construction of the proposed project:

- Approximately 800,000 cy of material would be mechanically or hydraulically dredged and transported from IR Site 7, located in AOEC-A and AOEC-C, to the approved Pier G fill site. Dredging would require 62 workdays to complete.
- Contaminated sediments would be dredged using an electric-powered clamshell dredge drawing power from the regional grid. Dredged material would be loaded into bottom-dump barges and hauled to the Pier G fill site. Emissions during dredging would be generated by diesel-powered tug boats and support boats.
- Dredged materials would be placed at the Pier G fill site, which is an in-water site. Bottom-dump barges would drop their loads at the designated location.
- The sonar calibration pier and the sunken barges from the southern portion of IR Site 7 would be removed. Demolition would generate an estimated 5,000 cy of debris during a 20-workday period. The pier would be demolished using in-water and on-land equipment, and the debris would be hauled by truck to a yet-to-be-determined existing permitted disposal site. Emissions would be generated by construction equipment at the demolition site, haul trucks taking debris to the disposal site, and commute vehicles. The debris disposal site would be an existing permitted facility; therefore, emissions at the disposal site are not included in this assessment.

The assessment included a discussion of applicable significance criteria and analysis methodologies outlined in the following Southern California Air Quality Management District (SCAQMD) guidance documents:

- CEQA Air Quality Handbook (SCAQMD 2003)
- Localized Significance Threshold Methodology for CEQA Evaluations (SCAQMD 2003a)
- Particulate Matter (PM) 2.5 Significance Thresholds and Calculation Methodology (SCAQMD 2006)
- Off-road 2007 Mobile Source Emission Factors (ARB 2006)
- EMFAC 2007 (v2.3) Emission Factors (On-road)

The CEQA Guidelines also state that the significance criteria established by the applicable air quality management district or air pollution control district may be relied upon to make the determinations above.

Because of SCAQMD's regulatory role in the Port's West Basin, the significance thresholds and analysis methodologies outlined in the SCAQMD's CEQA Air Quality Handbook (SCAQMD 2003), Localized Significance Threshold Methodology for CEQA Evaluations (SCAQMD 2003a), and Final Methodology to Particulate Matter (PM) 2.5 Significance Thresholds and Calculation Methodology (SCAQMD 2006) guidance documents were used in evaluating project impacts.

For more information on methodology and calculations, see the final report in Appendix A.

Findings

- Unmitigated emissions of nitrogen oxides (NO_X) during construction would exceed SCAQMD regional thresholds.
- Unmitigated emissions of other air pollutants (reactive organic compounds, carbon monoxide, and PM) during construction would be less than the CEQA thresholds.
- On-site diesel particulate matter (DPM) emissions that would occur during construction would not result in a significant health risk to the closest sensitive-receptor locations. The air quality analyses determined that workers on site would not be adversely affected; therefore, there was no need to extend the analysis beyond the project perimeter.
- Greenhouse gas emissions associated with construction would be temporary and short term, lasting only 62 work days, and would therefore be an inconsequentially small fraction of the worldwide total emissions that are foreseen to cause global climate change. Greenhouse gas emissions associated with construction of the proposed project would not rise to the level of cumulatively significant.
- The project would be consistent with air quality policies set forth by SCAQMD and the Southern California Association of Governments (SCAG) as presented in the region's most recent Air Quality Management Plan (AQMP).
- Mitigation measures would be used to reduce NO_X emissions during construction.

Mitigation Measures. Consistent with San Pedro Bay Ports Clean Air Action Plan (CAAP) the Port will require the contractor to implement the following feasible mitigation measures for harbor crafts, on-road vehicles, and off-road equipment.

Construction Equipment

- **MM-Air-1.** Maintain equipment and vehicle engines in good condition and in proper tune in accordance with manufacturers' specifications.
- **MM-Air-2.** To the extent practicable based on equipment availability, the Port will, for all construction equipment, require construction contractors to use construction equipment with oxidation catalysts and particulate traps instead of gasoline- or diesel-powered engines alone. Diesel-powered equipment that has been retrofitted with after-treatment products reduces NOX by 40 percent. However, where diesel equipment has to be used because there are no practical alternatives, the Port will (to the extent practicable based on equipment availability) require construction contractors to use particulate filters and oxidation catalysts.
- **MM-Air-3.** To the extent practicable based on equipment availability, the Port will require construction contractors to use trucks supplying materials and supplies to the project site be fitted with oxidation catalysts or particulate traps. Demolition would generate an estimated 5,000 cy of debris during a 20-workday period, resulting in an estimated 40 net truck trips over a 62-day construction period. The pier would be demolished using in-water and on-land equipment, and the debris would be hauled by truck to a yet-to-be-determined existing permitted disposal site.
- **MM-Air-4.** Use electricity from power poles instead of temporary diesel- or gasoline-powered generators. Note the clamshell dredge proposed for this project will be electrically powered from an existing substation on Pier T or equivalent facility.
- **MM-Air-5.** Prohibit heavy-duty construction vehicles from idling in excess of 5 minutes, both on and off site, to be consistent with state law.

Harbor Craft for Temporary Dredging Projects

- **MM-Air-6.** The Port will require dredging contractors to use harbor craft meeting USEPA Tier-2 standards for harbor crafts, or meet equivalent reductions, as well as require (no later than 5 years or when they first become available) all previously re-powered harbor craft to retrofit with the most effective Air Resources Board (ARB) verified/verifiable NOX and PM emissions reduction technologies.
- **MM-Air-7.** Require low-sulfur fuel in the engines at the following annual participation rates:
  - 2007 to 2009 – use of marine fuel in all main engines with a maximum sulfur content of 0.2 percent

The above mitigation measures would reduce emissions of NO_X, carbon monoxide (CO), and $PM_{10,}$ and $PM_{2.5}$ to less than the SCAQMD CEQA thresholds. Therefore, the air quality impacts caused by the proposed project would be less than significant after mitigation. For tabular calculations, please see the Air Quality Study in Appendix A.

(e) No Impact. The project occurs at a substantial distance from any significant number of people that would be affected by any odors generated from the project. There would therefore be no impact.

2.3.4 Biological Resources

Would the Project:		Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a.	Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations or by the California Department of Fish and Game (CDFG) or U.S. Fish and Wildlife Service (USFWS)?			X	
b.	Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, or regulations or by the CDFG or USFWS?			X	
c.	Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the CWA (including, but not limited to, marshes, vernal pools, and coastal wetlands) through direct removal, filling, hydrological interruption, or other means?				X
d.	Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?				X
e.	Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?				X
f.	Conflict with the provisions of an adopted habitat conservation plan; natural community conservation plan; or other approved local, regional, or state habitat conservation plan?				X

(a) Less Than Significant Impact. The California least tern *(Sterna antillarum browni)* and the California brown pelican *(Pelecanus occidentalis)* are federally listed and state-listed as endangered under the Endangered Species Act (ESA) of 1973, and the peregrine falcon *(Falco peregrinus)* is state listed as endangered. The California least tern nests at a designated site approximately 2 miles away on Pier 400 in the Port of Los Angeles between April 1 and September 1 and is protected at this site pursuant to an interagency nesting site agreement. Areas in the outer harbor shallower than -6.1 meters (-20 feet) MLLW are considered important feeding sites for the California least tern during their nesting season. The areas to be dredged for the proposed project are all more than 6.1 meters (20 feet) deep and thus would not be considered essential foraging habitat for the California least tern. California brown pelicans use the harbor year-round for resting but do not breed there and may occasionally perch on structures in the project area. The peregrine falcon is state listed as endangered and was federally delisted in 1999. This species has recently nested on the Schuyler F. Heim Bridge over the Cerritos Channel and on the Gerald Desmond Bridge over the Back Channel, in the past. Peregrine falcons could fly or forage over the proposed project area, but these species are not expected to be adversely affected by project activities because disturbances would be short term, occur in only a limited area of the harbor, and the falcons are acclimated to harbor activities. Based on the distances to known nesting and foraging areas, the depth of the areas to be dredged, and the ongoing commercial use of the areas to be dredged, there would be a less than significant impact on candidate, sensitive, or listed species.

(b) Less Than Significant Impact. The Port is located within an area designated as an Essential Fish Habitat (EFH) for two Fishery Management Plans: Coastal Pelagics Plan and Pacific Groundfish Management Plan. Four coastal pelagic species and two Pacific groundfish species were found in the Port's Inner Harbor in 2000 (MECAS 2002). Of the coastal pelagics, only the northern anchovy (*Engraulis mordax*) were abundant. Of the groundfish, only Pacific sanddab (*Citharichthys sordidus*) and black rockfish (*Sebastes melanops*) were identified, and both species were found at the southern end of the Back Channel.

Dredging would likely result in temporary increases in turbidity and suspended solids at the dredging site, which could decrease light penetration causing a decline in primary productivity due to decreased photosynthesis by phytoplankton. Any appreciable turbidity increase may also cause clogging of gills and feeding apparatuses of fish and filter feeders. Direct impacts to benthic organisms include abrasion, entrainment, or mortality from the cutterhead dredge and clamshell bucket.

Impacts to biological resources are expected to be minimized due to the localized nature of dredge operations within the West Basin. Chambers (2001) suggests that Southern California harbor dredging projects would probably not generate turbidity levels at 100 meters or more from the dredge site that would have a significant effect on marine organisms. Although fish could be affected by turbidity from dredging activities, studies have shown that large-scale channel dredging and landfill operations in the 1980s and 1990s did not have long-term adverse effects on fish populations (MECAS 1988, SAIC and MECAS 1996), as fish are able to avoid the impact by simply swimming out of the area.

Noise and disturbance associated with project activities could have short-term adverse impacts on aquatic habitat. However, because noise and disturbance from boat traffic and other activities within the Port are part of the ambient conditions, and given the temporary nature of the project, impacts on fish in the proposed project vicinity are expected to be temporary and minor.

Dredging would remove chemically impacted sediments that were determined to pose an ecological risk. Dredging may create adverse short-term, less than significant impacts to benthic species and local fish populations (such as direct mortality of organisms, burial by settling of suspended sediments, reduced ingestion, or depressed filtration rates); however, these impacts are short term and less than significant, as following dredging of the impacted sediments, the benthic communities would immediately begin to re-colonize and should recover to a state of biomass and diversity that exceeds the pre-project condition. No permanent loss of benthic habitat would occur. Furthermore, these impacts are offset by the long-term benefits of the removal of contaminated sediments that pose an ecological risk and an ongoing detriment to the overall health of the ecosystem in the West Basin. Therefore, this would constitute a long-term benefit to managed EFH in the proposed project area.

(c-f) No Impact. There would be no impact to any riparian habitat or upland natural community including federally protected wetlands. The project would not interfere with the movement of native migratory species, as the project is localized within the area of the West Basin. There are no adopted local ordinances, plans, or policies regarding species that may be affected by the dredging at IR Site 7.

Mitigation Measures. None required.

2.3.5 Cultural Resources

Would the Project:		Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a.	Cause a substantial adverse change in the significance of a historical resource as defined in California Environmental Quality Act (CEQA) Section 15064.5?				X
b.	Cause a substantial adverse change in the significance of an archaeological resource pursuant to CEQA Section 15064.5?				X
c.	Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?				X
d.	Disturb any human remains, including those interred outside of formal cemeteries?				X

(a-d) No Impact. The proposed project consists entirely of a temporary dredging activity to remove submerged sediments from the Port's West Basin and remove an existing sonar pier and sunken barges. There are no known historical resources within the boundaries of the project eligible for listing either in the National Register of Historic Places (NHRP) or the California Register of Historic Resources (CRHR). There are no known historical or modern cemeteries located on or in the vicinity of the proposed project site. Therefore, the construction of the proposed project is not expected to disturb any human remains including those interred outside of formal cemeteries. Therefore, there are no project elements that would impact cultural resources.

Mitigation Measures. None required.

2.3.6 Geology and Soils

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

(a-e) No Impact. The dredging and demolition have no potential to result in or increase the risk of seismic activity, landslides, soil erosion, loss of topsoil, or any other factors mentioned above. The proposed project would have no effect on septic systems or uses of alternative waste treatment systems. All dredge cuts will be designed to ensure that nearby structures are stable.

The risk of seismic events exists in this area, but because there are no buildings within the project area, there would be no change in the risk of seismic impacts.

Mitigation Measures. None required.

2.3.7 Hazards and Hazardous Materials

Would the Project:		Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a.	Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?			X	
b.	Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?				X
c.	Emit hazardous emissions or involve handling hazardous or acutely hazardous materials, substances, or waste within a 0.25 mile of an existing or proposed school?				X
d.	Be located on a site that is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?				X
e.	Be located within an airport land use plan area or, where such a plan has not been adopted, be within 2 miles of a public airport or public use airport and result in a safety hazard for people residing or working in the project area?				X
f.	Be located within the vicinity of a private airstrip and result in a safety hazard for people residing or working in the project area?				X
g.	Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?				X
h.	Expose people or structures to a significant risk of loss, injury, or death involving wildland fires including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?				X

(a) Less Than Significant Impact. The proposed project entails using heavy equipment to dredge sediments, demolish a sonar pier, and remove sunken barges within the Port. Some of these activities are expected to require routine use, transport, or disposal of potentially hazardous materials such as gasoline and diesel fuel. These activities would take place within the Port, and would be of a relatively short duration; however, accidental release of hazardous materials during construction (e.g., a fuel spill) could create hazardous conditions for Port employees and on-site construction workers. The potential for accidental releases of hazardous materials can be reduced with appropriate plans and procedures. The likelihood of such a spill or release is extremely small; contractors would be required to obey all standard construction best management practices (BMPs) and be prepared to deal with any accidental spill or release.

While the material being dredged is defined as "contaminated" from an aquatic receptor standpoint, the actual chemical properties of the sediments are well below federal and state hazardous waste criteria. See Table 2.1 below, which demonstrates that none of the material is hazardous waste under California Title 22.

Table 2.1
IR Site 7 Title 22 Threshold Limit Concentrations versus Sampling Concentration Levels

SMO Containment	Title 22 Total Threshold Limit Concentration (mg/kg)	Maximum Detected Concentration Level (mg/kg)
Copper	2,500	603
Lead	1,000	449
Mercury	20	3.04
Silver	500	1.57
Zinc	5,000	1,590
Total PAH	N/A	6.7
Total DDT	1.0	0.3
Total PCB	50	1.9

As such, no hazardous materials are being affected or transported by the proposed dredging project. To minimize the potential impact from any chemically impacted sediment being accidentally released during transport from the study area to the fill site, the contractor would employ the use of sealed bottom-dump or flat-deck barges containing perimeter barriers such as k-rails.

The demolished sonar pier and the recovered barges may involve some asbestos abatement. If asbestos is encountered, a licensed contractor employing all BMPs and regulatory requirements for asbestos abatement would conduct the removal.

Prior to commencing field work, the contractor would also be required to submit for approval by the Port, a site-specific Health and Safety Plan, prepared in accordance with industry standards.

Based on employing the above controls as part of the project, there would be a less than significant impact.

Mitigation Measures. None required.

(b-h) No Impact. While the material being dredged is defined as "contaminated" from an aquatic receptor standpoint, the actual chemical properties of the material are well below California State Hazardous Waste Guidelines. As such, no hazardous materials are being affected or transported by the proposed dredging project. To minimize the potential impact from any chemically impacted sediment being accidentally released during transport from the study area to the fill site, the contractor would employ the use of sealed bottom-dump or flat-deck barges containing perimeter barriers such as k-rails. The project is not located near any public or private airport. The proposed project also does not have any relationship to wildland fires. Finally, the proposed project will take place on and over submerged lands and therefore would not interfere with any emergency response plans.

Mitigation Measures. None required.

2.3.8 Hydrology and Water Quality

	Would the Project:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a.	Violate any water quality standards or waste discharge requirements?			X	
b.	Substantially deplete groundwater supplies or interfere substantially with groundwater recharge, resulting in a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level that would not support existing land uses or planned uses for which permits have been granted)?				X
c.	Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner that would result in substantial erosion or siltation on-site or off-site?				X
d.	Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner that would result in flooding on-site or off-site?				X
e.	Create or contribute runoff water that would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?				X
f.	Otherwise substantially degrade water quality?			X	
g.	Place housing within a 100-year flood hazard area, as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map?				X
h.	Place within a 100-year flood hazard area structures that would impede or redirect flood flows?				X
i.	Expose people or structures to a significant risk of loss, injury, or death involving flooding, including flooding as a result of the failure of a levee or dam?				X
j.	Contribute to inundation by seiche, tsunami, or mudflow?				X

(a; f) Less Than Significant Impact. Potential water column impacts at the dredge site include increased turbidity, increased oxygen demand, and slightly elevated levels of contaminants and nutrients. Dredging would likely result in temporary increases in turbidity and suspended solids at the dredging site.

It is well understood that as dredging occurs, sediments are suspended in the water column. Usually water quality changes are only measurable in a relatively small area—often less than 20 to 50 meters from the point of dredging (Thackston and Palermo 2000). The magnitude of these water quality changes tends to decrease rapidly with increasing distance from the point of dredging (MBCAES 2000). Thus, increased turbidity may be obvious and pronounced a few meters from the dredge site but difficult to discern at slightly greater distances. Measurable water quality changes are typically for a short duration after dredging activity ceases, with the vast majority of sediments settling back to the bottom within 24 hours (DiGiano et al. 1995).

Suspended particulates would increase turbidity and could reduce dissolved oxygen concentrations in the water column. These effects are all expected to be localized and transient—the length of time it takes for the suspended material to settle combined with the current direction and velocity would determine the size and duration of the turbidity plume. Chambers (2001) suggests that Southern California harbor dredging projects would probably not generate turbidity levels at 100 meters or more from the dredge site that would have a significant effect on marine organisms. Turbidity can be expected to dissipate in a period of 20 to 30 minutes as was recently demonstrated at the Dredged Material Management Program (DMMP) Pilot Capping Project in Long Beach (USACE 2002). Dredging would be conducted in accordance with LARWQCB and U.S. Army Corps of Engineers (USACE) permit conditions.

Mitigation Measures. None required.

(b-e; g-j) No Impact. The proposed project entails using heavy equipment to dredge sediments, demolish a sonar pier, and remove sunken barges within the Port. The dredging and demolition have no potential to impact groundwater supplies or recharge, affect surface drainage patterns, create or contribute to stormwater runoff, pose a flooding risk to housing, expose people or structures to risk of losses due to flooding, or otherwise generally degrade water quality other than as already described in (a) above.

Mitigation Measures. None required.

2.3.9 Land Use and Planning

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

(a-c) No Impact. The project is located in the Terminal Island Harbor Planning District (District 4) as defined in the Port's Master Plan, as amended (POLB 1999). Consistent with Goal 2 for District 4, the proposed project would provide for cleanup of sediments associated with operation of the former U.S. Navy complex. The dredging and demolition activities have no potential impact on established communities, land use plans or policies, or applicable conservation or natural resource plans.

Mitigation Measures. None required.

2.3.10 Mineral Resources

Would the Project:		Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a.	Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?				X
b.	Result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan, or other land use plan?				X

(a-b) No Impact. Dredging would be limited to sediments within 6 feet of the mudline plus overdredge. The only mineral resources in the project area are oil and gas deposits located several thousand feet below the surface. Therefore, the dredging and demolition activities would have no potential impact on mineral resources.

Mitigation Measures. None required.

2.3.11 Noise

Would the Project:		Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a.	Expose persons to or generate noise levels in excess of standards established in a local general plan or noise ordinance or applicable standards of other agencies?			X	
b.	Expose persons to or generate excessive ground borne vibration or ground borne noise levels?				X
c.	Result in a substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?				X
d.	Result in a substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?			X	
e.	Be located within an airport land use plan area or, where such a plan has not been adopted, within 2 miles of a public airport or public use airport and expose people residing or working in the project area to excessive noise levels?				X
f.	Be located in the vicinity of a private airstrip and expose people residing or working in the project area to excessive noise levels?				X

(a; d) Less Than Significant Impact. Project noise would be temporary in nature, lasting only as long as the duration of the dredging. Proposed project activities would temporarily increase noise levels in the immediate area of activity. The proposed project site is located in an active industrial area with ambient noise levels typical of such an area (i.e., 60 to 85 decibels [dBA]). There are no residences or sensitive receptors, such as schools or hospitals, within 0.75 mile of the proposed project site. Noise levels generated by typical construction equipment range from

approximately 70 to 95 dBA at a distance of 50 feet (Harris 1979). As noise levels decrease at a rate of approximately 6 dBA per every doubling of distance through geometric spreading losses at a distance of 500 feet, the noise levels would be reduced to the range of 50 to 70 dBA. This is less than background noise levels in an industrial area. Based on the distances to sensitive receptors and the ongoing use of the area to be dredged as a heavily trafficked industrial area, the proposed project would not result in significant noise increases nor would it expose people to severe noise levels.

Although noise impacts would be less than significant, all proposed project activities would comply with California Occupational Safety and Health Administration (Cal-OSHA) occupational noise protection requirements. In addition, standard good practice would be employed to ensure that all equipment, including noise reduction devices and components, are properly maintained in good working order.

Mitigation Measures. None required.

(b-c; e-f) No Impact. Dredging and removal of the sonar pier and barges are not expected to produce discernible ground-borne vibrations. Project noise would be temporary in nature, lasting only as long as the duration of the dredging, material storage, rock placement, and other related project construction activities. The project is not located near any public or private airport.

Mitigation Measures. None required.

2.3.12 Population and Housing

Would the Project:		Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a.	Induce substantial population growth in an area, either directly (e.g., by proposing new homes and businesses) or indirectly (e.g., through extension of roads or other infrastructure)?				X
b.	Displace a substantial number of existing housing units, necessitating the construction of replacement housing elsewhere?				X
c.	Displace a substantial number of people, necessitating the construction of replacement housing elsewhere?				X

(a-c) No Impact. The proposed project therefore does not include or involve any elements related to housing or other end uses that may result in direct or indirect growth in the local population. There is no effect upon the local population such that the proposed project may temporarily or permanently displace any people or homes, or necessitate any construction of replacement housing.

Mitigation Measures. None required.

2.3.13 Public Services

Would the Project:		Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a.	Result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities or a need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, to maintain acceptable service ratios, response times, or other performance objectives for any of the following public services: i. Fire protection?				X
	ii. Police protection?				X
	iii. Schools?				X
	iv. Parks?				X
	v. Other public facilities?				X

(a) No Impact. The Long Beach Police Department, Port Harbor Patrol, and Long Beach Fire Department currently provide police, fire protection, and emergency services for the Port including the proposed project site. As the construction activities are located entirely over submerged lands in the West Basin, there would be no effect on emergency access requirements in the vicinity of the proposed project, and the construction activities at the site would not affect existing fire or police services currently available to the site and vicinity. Additionally, the proposed project would not increase population and, therefore, would not increase demand that would impact the performance of these agencies.

Mitigation Measures. None required.

2.3.14 Recreation

	Would the Project:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a.	Increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?				X
b.	Include recreational facilities or require the construction or expansion of recreational facilities that might have an adverse physical effect on the environment?				X

(a-b) No Impact. Due to the ongoing use of the West Basin as a commercial shipping area, there is little opportunity for recreational boating or other recreational activities in the proposed project vicinity. The proposed construction activities would have no measurable effect on recreational opportunities in the West Basin.

Mitigation Measures. None required.

2.3.15 Transportation

	Would the Project:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a.	Cause an increase in traffic that is substantial in relation to the existing traffic load and capacity of the street system (i.e., result in a substantial increase in the number of vehicle trips, the volume-to-capacity ratio on roads, or congestion at intersections)?			X	
b.	Cause, either individually or cumulatively, exceedance of a level-of-service standard established by the county congestion management agency for designated roads or highways?				X
c.	Result in a change in vessel traffic patterns including either an increase in traffic levels or a change in location that results in substantial safety risks?			X	
d.	Substantially increase hazards because of a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?				X

Would the Project:		Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
e.	Result in inadequate emergency access?				X
f.	Result in inadequate parking capacity?				X
g.	Conflict with adopted policies, plans, or programs supporting alternative transportation (e.g., bus turnouts, bicycle racks)?				X

(a) Less Than Significant Impact. Potential transportation impacts associated with dredging and demolition would almost exclusively be limited to marine transit. Most work associated with this activity would occur in the water. Demolition and barge removal would generate an estimated 5,000 cy of debris during a 20-workday period, resulting in an estimated 40 net truck trips over the estimated 62-day construction period, or an average of less than 1 trip per day. The debris would be hauled to a yet-to-be-determined existing permitted disposal site. Because of the limited volume of debris expected to be encountered, this impact is expected to be negligible.

Mitigation Measures. None required.

(b) No Impact. The addition of 40 trips during peak hours on the surrounding roadway system does not warrant analysis of the Congestion Management Program's (CMP's) monitoring locations. Further analysis is required when there are at least 50 project-related vehicles at a CMP monitoring intersection and 150 vehicles on a CMP monitoring freeway segment (*Congestion Management Program for Los Angeles County 2004*).

Mitigation Measures. None required.

(c) Less Than Significant Impact. Because the dredging and disposal vessels would traverse portions of the Port during construction, temporary minor adverse impacts to vessel navigation may occur for the duration of the proposed project. During dredging and demolition activities in the West Basin, it is likely that some vessel traffic may need to be diverted to avoid dredging equipment mobilized within the proposed project vicinity. If hydraulic dredging is utilized to transport the dredged material to the Pier G fill site, the hydraulic pipeline could pose a navigation risk. However, the USACE permit would require the contractor to inform both the US

Coast Guard and commercial vessels of the construction activities, so that navigational safety would not be adversely affected.

Mitigation Measures. None required.

(d-g) No Impact. There will be no changes in roadway design features, emergency access to landside areas, or parking related to the proposed project. There is no potential for conflict with any adopted policy or plan relating to alternative transportation.

Mitigation Measures. None required.

2.3.16 Utilities and Service Systems

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

(a-g) No Impact. The proposed project entails using heavy equipment to dredge sediments, demolish a sonar pier, and remove sunken barges within the Port. All dredge spoils are being placed at the Pier G fill site. There would be no new or increased demand on potable water, wastewater, or septic systems resulting from the proposed project. While it is possible that the contractors may encounter debris (such as tires, ropes, and stumps) that must be removed from the dredged material prior to transport to the Pier G fill site, the anticipated volume of such debris, combined with debris from demolition of the sonar pier and barges, would be small enough to be readily accommodated by local landfills. Accordingly, there would be no impacts to utilities and service systems.

Mitigation Measures. None required.

2.3.17 Mandatory Findings of Significance

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

(a) No Impact. The proposed project entails using heavy equipment to dredge sediments, demolish a sonar pier, and remove sunken barges within the Port. The temporary, localized impacts relating to dredging and demolition of the sonar pier do not have the potential to adversely affect environmental quality, biological resources, or cultural resources. In the long term, the project would enhance the quality of the aquatic environment in the Port.

Dredged material is being placed at the Pier G fill site. The Pier G project has been previously approved and authorized by the Port's Harbor Development Permit 00-007 (POLB 2000); LARWQCB Order No. 01-042, File No. 01-009; and Department of the Army Permit 2001-00395-AOA. These authorizations included analyses of the construction of the fill as well as operational impacts of the fill as part of container terminal operations. Therefore, this document need not consider the significance of any environmental effect relating to the placement of dredged material at Pier G or the subsequent operation of the fill site as a container terminal.

(b) Less than Significant with Mitigation Incorporated. Impacts to biological resources, water quality, and air quality as a result of the project would be less than significant with incorporation of the mitigation measures identified in this document. Due to the limited scope of the construction project and the application of mitigation measures described above, the project would not have cumulatively considerable impacts.

(c) No Impact. The analysis of the construction of the proposed project indicates that the project would not have environmental effects that would directly or indirectly result in substantial adverse effects on human beings.

3 APPLICATION SUMMARY REPORT

3.1 Port Master Plan and California Coastal Act Issues

3.1.1 **Port Master Plan Issues**

The project is located in the District 4 as defined in the Port Master Plan, as amended (POLB 1999). Implementation of the proposed project is consistent with Goal 2 for District 4, which is to redevelop excess U.S. Navy property for development of Port facilities.

The project is in conformance with the Port's Risk Management Program (POLB 1981).

3.1.2 California Coastal Act Issues

Relevant sections of the California Coastal Act (CCA) are listed below, with a brief discussion of each.

Section 30604

Conformance with Local Coastal Plan

The proposed project conforms to the Port Master Plan.

Section 30708

(a) Minimize substantial adverse environmental impacts

The Mitigated Negative Declaration prepared pursuant to CEQA has shown no significant adverse environmental impacts.

Section 30715

(a) Appealable Development

The proposed project is not appealable to the California Coastal Commission; the Board of Harbor Commissioners' (Board's) action is final.

3.2 Proposed Staff Recommendations

The staff recommends that the Board of Harbor Commissioners take the following actions on this proposed project.

3.2.1 Findings and Declaration

The Board of Harbor Commissioners finds and adopts as its findings that the project description, project background, and analysis of Port's planning issues and related projects are as set forth in the Negative Declaration/Application Summary Report attached hereto, which are incorporated by reference as if fully set forth herein. The Board of Harbor Commissioners finds and adopts as its findings that the analyses contained in this Negative Declaration/Application Summary Report reflect the independent judgment of the Board of Harbor Commissioners acting as the governing board of the City of Long Beach Harbor Department.

3.2.2 Approval with Conditions

The Board of Harbor Commissioners grants a Level II Harbor Development Permit subject to the conditions below for the proposed project on the grounds that the proposed project, as conditioned, would be in conformance with the CCA and the permitted uses of District 4.

3.1.1.1 Standard Conditions

The permit is subject to the standard Harbor Development Permit conditions.

3.1.1.2 Special Conditions – General

1. The Port shall notify the Commander, the Eleventh Coast Guard District, and the U.S. Coast Guard (USCG; Sector Long Beach) not less than 14 calendar days prior to commencing work and as project information changes. The notification, either by letter, fax, or email, shall include as a minimum the following information:
    A) Project description including the type of operation (dredging, diving, or construction)
    B) Location of operation including latitude/longitude (North American Datum [NAD] 83)
    C) Work start and completion dates and the expected duration of operations
    D) Equipment and vessels involved in the operation (name, size, and type)

E) VHF-FM radio frequencies monitored by vessels on scene
F) Name of company, point of contact, and 24-hour phone number
G) Potential hazards to navigation
H) Chart number for the area of operation

2. The Port and its contractors shall install and maintain any safety lights and signals prescribed by the USCG, through regulations or otherwise, on their authorized facilities.

3.1.1.3 Special Conditions – Air Quality

Consistent with San Pedro Bay Ports CAAP, the lead agency will require the contractor to implement the following feasible mitigation measures for harbor craft, on-road vehicles, and off-road equipment.

Construction Equipment

1. Maintain equipment and vehicle engines in good condition and in proper tune as per manufacturers' specifications.
2. To the extent practicable based on equipment availability, the Port will, for all construction equipment, require construction contractors to use construction equipment with oxidation catalysts and particulate traps instead of gasoline- or diesel-powered engines. Diesel-powered equipment that has been retrofitted with after-treatment products reduces NO_X by 40 percent. However, where diesel equipment has to be used because there are no practical alternatives, the Port will (to the extent practicable based on equipment availability) require construction contractors to use particulate filters and oxidation catalysts.
3. To the extent practicable based on equipment availability, the Port will require construction contractors to use trucks supplying materials and supplies to the project site be fitted with oxidation catalysts or particulate traps.
4. The Port will require the contractor to use electricity from power poles instead of temporary diesel- or gasoline-powered generators for any on-land activities and will be required to use a dredge powered by electricity from either a mobile source permitted by the SCAQMD or from a landside source connected to the regional power grid. Note the clamshell dredge proposed for this project will be electrically powered from an existing substation on Pier T.

5. Prohibit heavy-duty construction vehicles from idling in excess of 5 minutes, both on and off site, to be consistent with state law.

Harbor Craft for Temporary Dredging Projects

6. The Port will require dredging contractors to use harbor craft meeting USEPA Tier-2 standards for harbor crafts or meet equivalent reductions, as well as require no later than 5 years or when they first become available, all previously re-powered harbor craft to retrofit with the most effective ARB verified/verifiable NO_X and PM emissions reduction technologies.
7. The Port will require dredging contractors to use low-sulfur fuel in the engines at the following annual participation rates:
   - 2007 to 2009 – use of marine fuel in all main engines with a maximum sulfur content of 0.2 percent

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APPENDIX A
AIR QUALITY STUDY

Final Report (April 2008)
Air Quality Assessment Report for Installation Restoration Site 7 Dredging and Demolition Project

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ICF Jones & Stokes. 2008. Final Report Air Quality Assessment Report for Installation Restoration Site 7 Dredging and Demolition Project. April. (J&S 01005.07.) Irvine, CA.

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Tables

Acronyms and Abbreviations

$\mu g/m^3$	micrograms per cubic meter
AB 32	Assembly Bill 32
AOEC	Areas of Ecological Concern
AQMP	Air Quality Management Plan
AQMPs	air quality management plans
ARB	California Air Resources Board
Basin	South Coast Air Basin
CAA	Clean Air Act
CAAQS	California Ambient Air Quality Standards
CCAA	California Clean Air Act
CEQA	California Environmental Quality Act
CO	carbon monoxide
CO_2	carbon dioxide
cy	cubic yards
DPM	diesel particulate matter
GHG	greenhouse gas
IR	Installation Restoration
LBNC	Long Beach Naval Complex
LIFOC	Lease in Furtherance of Conveyance
LST	Localized Significance Threshold
MATES II	*Multiple Air Toxics Exposure Study*
MLLW	mean lower low water
MPO	metropolitan planning organization
NAAQS	National Ambient Air Quality Standards
NO_2	nitrogen dioxide
NO_X	nitrogen oxides
O_3	Ozone
Pb	Lead
PM_{10}	inhalable particulate matter
$PM_{2.5}$	fine particulate matter
ppm	parts per million by volume
RCPG	Regional Comprehensive Plan and Guide
ROD	Record of Decision
SCAG	Southern California Association of Governments
SCAQMD	South Coast Air Quality Management District
SIP	State Implementation Plan
SO_2	sulfur dioxide
TAC	toxic air contaminant
USEPA	U.S. Environmental Protection Agency

Final Report
Air Quality Assessment Report for Installation Restoration Site 7 Dredging and Demolition Project

Port of Long Beach
Long Beach, CA

Executive Summary

Findings

This report provides an analysis of potential air quality impacts related to the Port of Long Beach Installation Restoration Site 7 Contaminated Sediment Dredge project, located on the waterfront at the Port of Long Beach.

All analyses have been conducted to comply with the South Coast Air Quality Management District (SCAQMD) requirements for air quality assessments to satisfy California Environmental Quality Act (CEQA) requirements. The analyses findings are as follows.

- Unmitigated emissions of nitrogen oxides (NO_X) during construction would exceed SCAQMD regional thresholds.
- Unmitigated emissions of other air pollutants (reactive organic compounds, carbon monoxide, and particulate matter) during construction would be less than the CEQA thresholds.
- The project's onsite diesel particulate matter (DPM) emissions that would occur during construction would not result in a significant health risk to the closest sensitive-receptor locations.
- The project's temporary emissions of greenhouse gases would be an inconsequentially small fraction of the worldwide total emissions that are foreseen to cause global climate change. Therefore, greenhouse gas emissions would be less than significant.

- The project would be consistent with air quality policies set forth by SCAQMD and the Southern California Association of Governments (SCAG) as presented in the region's most recent Air Quality Management Plan (AQMP).
- Mitigation measures are proposed to reduce NO_X emissions during construction. The Port will require all marine vessels and harbor craft working on the project to be equipped with EPA Tier 2 compliant engines. The mitigation would reduce emissions to less than the SCAQMD CEQA thresholds. Therefore, the air quality impacts caused by the proposed project would be less than significant after mitigation.

Introduction

Purpose

The basic project purpose is sediment remediation. The project meets a public need for remediation of contaminated sites and enhancement of aquatic resources. In 2003, the Navy completed its feasibility study for remediation of Installation Restoration (IR) Site 7 of the formal Long Beach Naval Complex (LBNC). IR Site 7 comprises approximately 700 acres of the Port of Long Beach, with water depths to -45 mean lower low water (MLLW). Under the Lease in Furtherance of Conveyance (LIFOC), executed between the Navy and the Port in August 1998, the Port assumes responsibility for the design and implementation of a suitable remediation for IR Site 7 contaminants of concern.

Project Site Location

The proposed demolition and dredging site is located on the waterfront at the Port of Long Beach. The site location is shown in Figure 1.

Project Description

In order to fulfill the requirements of the LIFOC and the clean-up goals as outlined in the U.S. Navy's Final Record of Decision (ROD) for the property, the Port intends to dredge approximately 600,000 cubic yards (cy) of chemically impacted sediments from the West Basin (IR Site 7) and place that material in the approved Pier G fill site. Specifically, in order to fulfill the project purpose, the Port must:

- Mechanically or hydraulically dredge and transport approximately 600,000 cy of material from IR Site 7 located in Areas of Ecological Concern (AOEC) A and C to the approved Pier G fill site. Dredging would require 62 workdays to complete. Contaminated sediment will be dredged using an

electric-powered clamshell dredge using line power from the regional grid. Dredge spoil will be loaded into bottom-dump barges, and hauled to the Pier G disposal site. Emissions during dredging will be generated by diesel-powered tugs and support boats.

- Drop dredged materials at the Pier G disposal area, which is an in-water site. Bottom-dump barges will drop their loads at the designated location. There would be minimal use of diesel-powered equipment at the disposal site.
- Remove the sonar calibration pier from the Navy mole on the southern portion of IR Site 7. Demolition would generate an estimated 5,000 cubic yards of debris during a 20-workday period. The pier will be demolished using on-water and on-land equipment, and the debris will be hauled by truck to a yet to be determined existing permitted disposal site. Emissions would be generated by construction equipment at the demolition site, haul trucks taking debris to the disposal site, and commute vehicles. The debris disposal site would be an existing permitted facility, so emissions at the disposal site are not included in this assessment.

Table 1 lists the diesel-powered equipment to be used for dredging, dredge spoil hauling, pier demolition, and demolition debris hauling. As listed in Table 1, some of the largest pieces of equipment would be powered by line electrical power rather than diesel engines. As described later, Port policy requires that all marine vessels be equipped with engines satisfying EPA's Tier-2 air emission standards.

Table 1. Emission-Generating Construction Equipment

Equipment Type	Number of Pieces	Hours per Day	No. Workdays	Default HP	Default Load Factor
Contaminated Sediment Dredging Equipment					
Electric-Powered Clamshell Dredge Engine	1	12	62	2500	0 (Electric)
Aux Generator on Dredge	1	12	62	75	0.1
Bottom Dump Scow	2	1	62	250	0.05
Tug Boat	1	4	62	4000	0.4
Work Tug	1	2	62	750	0.35
Work Boat	1	2	62	400	0.45
Crew Boat - Small	1	4	62	80	0.5
Crew Commute Vehicles	11-person work force, each commutes 50 miles round trip				
Pier Demolition Equipment					
Electric-Powered Derrick Barge	1	8	20	600	0 (Electric)
Work Tug	1	4	20	750	0.4
Crew Survey Boat - Small	1	4	20	80	0.5
Excavators	1	8	20	428	0.5
Flatbed Truck	1	8	20	230	0.5
End Dump Truck	1	8	20	310	0.45
Debris Hauling	25 truck loads per day for 20 workdays. Each truckload assumed to require a 50 mile round trip to the disposal facility.				
Crew Commute Vehicles	8-person work force, each commutes 50 miles round trip				

Air Quality Assessment

This air quality assessment includes a discussion of applicable significance criteria and analysis methodologies outlined in the following SCAQMD guidance documents:

- CEQA Air Quality Handbook,[1]

[1] SCAQMD. 2003. 2003 Air Quality Management Plan. Adopted August 1.

- Localized Significance Threshold Methodology for CEQA Evaluations,[2]
- Particulate Matter (PM) 2.5 Significance Thresholds and Calculation Methodology,[3]
- Off-Road 2007 Mobile Source Emission Factors,[4] and
- EMFAC 2007 (v2.3) Emission Factors (On-Road).

Based on these above-referenced guidance documents, this assessment evaluates the short-term construction-period impacts on localized and regional air quality that would result with implementation of the proposed project.

Environmental Setting

Regulatory Setting

A number of statutes, regulations, plans, and policies have been adopted that address air quality issues. The proposed project site and vicinity are subject to air quality regulations developed and implemented at the federal, state, and local levels. At the federal level, the U.S. Environmental Protection Agency (USEPA) is responsible for implementation of the federal Clean Air Act (CAA). Some portions of the CAA (e.g., certain mobile-source and other requirements) are implemented directly by the USEPA. Other portions of the CAA (e.g., stationary-source requirements) are implemented by state and local agencies.

Authority for Current Air Quality Planning

A number of plans and policies have been adopted by various agencies that address air quality concerns. Those plans and policies that are relevant to the proposed project are discussed below.

Federal Clean Air Act

The CAA was first enacted in 1955 and has been amended numerous times in subsequent years (1963, 1965, 1967, 1970, 1977, and 1990). The CAA establishes federal air quality standards, known as National Ambient Air Quality Standards (NAAQS), and specifies future dates for achieving compliance. The CAA also mandates that the state submit and implement a State Implementation

[2] SCAQMD. 2003. SCAQMD Air Quality Significance Thresholds. Available: <http://www.aqmd.gov/ceqa/handbook/signthres.doc>

[3] SCAQMD. 2006. Final Methodology to Calculate Particulate Matter (PM) 2.5 and PM 2.5 Significance Thresholds.

[4] ARB. 2006. Combined California ARB and USEPA standards for off-road compression ignition engines. Available: <http://www.arb.ca.gov/msprog/ordiesel/documents/Off-Road%20Diesel%20Stds.xls>.

Plan (SIP) for local areas not meeting those standards. The plans must include pollution control measures that demonstrate how the standards will be met. The City of Long Beach is within the South Coast Air Basin (Basin) and, as such, is in an area designated a nonattainment area for certain pollutants that are regulated under the CAA.

The 1990 amendments to the CAA identify specific emission-reduction goals for areas not meeting the NAAQS. These amendments require both a demonstration of reasonable further progress toward attainment and incorporation of additional sanctions for failure to attain or meet interim milestones. The sections of the CAA that would most substantially affect the development of the proposed project include Title I (Nonattainment Provisions) and Title II (Mobile-Source Provisions).

Title I provisions were established with the goal of attaining the NAAQS for criteria pollutants. Table 1 shows the NAAQS currently in effect for each criteria pollutant. The NAAQS were amended in July 1997 to include an 8-hour standard for ozone (O_3) and adopt a NAAQS for fine particulate matter ($PM_{2.5}$). The Basin fails to meet national standards for O_3, inhalable particulate matter (PM_{10}), and $PM_{2.5}$, and therefore is considered a federal nonattainment area for those pollutants. Table 2 lists each criteria pollutant and their related attainment status.

Emission Standards for Off-road Diesel Engines

To reduce emissions from off-road diesel equipment, USEPA established a series of cleaner emission standards for new off-road diesel engines.[5] Tier 1 standards were phased in from 1996 to 2000 (year of manufacture), depending on the engine horsepower category. Tier 2 standards were phased in from 2001 to 2006. Tier 3 standards will be phased in from 2006 to 2008. Tier 4 standards, which likely will require add-on emission control equipment to attain them, will be phased in from 2008 to 2015. These standards apply to construction and off-road equipment, but not marine vessels.

Emission Standards for Marine Diesel Engines

To reduce emissions from Category 1 (at least 50 horsepower [hp] but less than 5 liters per cylinder displacement) and Category 2 (5 to 30 liters per cylinder displacement) marine diesel engines, USEPA established emission standards for new engines, referred to as Tier 2 marine engine standards. The Tier 2 standards will be phased in from 2004 to 2007 (year of manufacture), depending on the engine size.[6] For the proposed project, this rule is assumed to affect harbor craft but not oceangoing vessel auxiliary engines because the latter would likely be manufactured overseas and, therefore, would be exempt from the rule.

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[5] USEPA. 2004. Regulatory Announcement - Clean Air Nonroad Diesel Rule. EPA420-F-04-032. May 2004.

[6] USEPA. 1999. Control of Emissions of Air Pollution From New Marine Compression-Ignition Engines at or Above 37 kW; Final Rule. *Federal Register* 64(249):73,300-–73,373.

California Clean Air Act

The California Clean Air Act (CCAA), signed into law in 1988, requires all areas of the state to achieve and maintain the California Ambient Air Quality Standards (CAAQS) by the earliest practical date. The CAAQS incorporate additional standards for most of the NAAQS criteria pollutants and set standards for other pollutants recognized by the state. In general, the California standards are more health protective than the corresponding NAAQS. California has also set standards for sulfates, hydrogen sulfide, vinyl chloride, and visibility-reducing particles. The Basin is in compliance with these California standards for sulfates, hydrogen sulfide, visibility-reducing particles, and vinyl chloride. Table 2 details the current NAAQS and CAAQS, while Table 3 provides the Basin's attainment status with respect to federal and state standards.

Global Warming Solutions Act of 2006 (AB 32)

On June 1, 2005, Governor Arnold Schwarzenegger signed Executive Order S-3-05. The goal of this Executive Order is to reduce California's greenhouse gas (GHG) emissions to: 1) 2000 levels by 2010; 2) 1990 levels by the 2020; and 3) 80% below the 1990 levels by the year 2050. In 2006, this goal was further reinforced with the passage of Assembly Bill 32 (AB 32), the Global Warming Solutions Act of 2006. AB 32 sets the same overall GHG emissions reduction goals while further mandating that the California Air Resources Board (ARB) create a plan, which includes market mechanisms, and implement rules to achieve "real, quantifiable, cost-effective reductions of greenhouse gases." Executive Order S-20-06 further directs state agencies to begin implementing AB 32, including the recommendations made by the state's Climate Action Team.

Table 2. Federal and State Ambient Air Quality Standards

Pollutant	Averaging Time	CAAQS[a]	NAAQS[b]
Ozone (O_3)	1 hour	0.09 ppm[c]	--
	8 hour	0.07 ppm	0.08 ppm
Carbon Monoxide (CO)	1 hour	20 ppm	35 ppm
	8 hour	9.0 ppm	9 ppm
Nitrogen Dioxide (NO_2)	1 hour	0.18 ppm	--
	Annual	0.030 ppm	0.053 ppm
Sulfur Dioxide (SO_2)	1 hour	0.25 ppm	--
	3 hour	--	0.5 ppm
	24 hour	0.04 ppm	0.14 ppm
	Annual	--	0.030 ppm
Inhalable Particulate Matter (PM_{10})	24 hour	50 µg/m^3[c]	150 µg/m^3
	Annual	20 µg/m^3	--
Fine Particulate Matter ($PM_{2.5}$)	24 hour	--	35 µg/m^3
	Annual	12 µg/m^3	15 µg/m^3
Sulfates	24 hour	25 µg/m^3	--
Lead (Pb)	30 day	1.5 µg/m^3	--
	Calendar quarter	--	1.5 µg/m^3
Hydrogen Sulfide	1 hour	0.03 ppm	--
Vinyl Chloride	24 hour	0.01 ppm	--

Notes:

[a] The CAAQS for O_3, CO, SO_2 (1-hour and 24-hour), NO_2, PM_{10}, and $PM_{2.5}$ are values not to be exceeded. All other California standards shown are values not to be equaled or exceeded.

[b] The NAAQS, other than O_3 and those based on annual averages, are not to be exceeded more than once a year. The O_3 standard is attained when the expected number of days per calendar year with maximum hourly average concentrations above the standard is equal to or less than one.

[c] ppm = parts per million by volume; µg/m^3 = micrograms per cubic meter.

Source: California Air Resources Board, February 22, 2007.

Table 3. Federal and State Attainment Status for South Coast Air Basin

Pollutants	Federal Classification	State Classification
O_3 (1-hour standard)	—	Nonattainment
O_3 (8-hour standard)	Nonattainment, Severe-17	—
PM_{10}	Serious Nonattainment	Nonattainment
$PM_{2.5}$	Nonattainment	Nonattainment
CO	Attainment	Attainment
NO_2	Unclassified/Attainment	Attainment
SO_2	Attainment	Attainment

Source: California Air Resources Board, compiled by Jones & Stokes, September 2007.

Heavy Duty Diesel Truck Idling Regulation

This ARB rule became effective in February 1, 2005, and it prohibits heavy-duty diesel trucks from idling for longer than 5 minutes at a time. Truck idling for longer than 5 minutes while queuing is allowed, however, provided the queue is located beyond 100 feet from any homes or schools.[7]

California Diesel Fuel Regulations

This rule sets sulfur limitations for diesel fuel sold in California for use in on-road and off-road motor vehicles.[8] Harbor craft were originally excluded from the rule, but were later included by a 2004 rule amendment.[9] Under this rule, diesel fuel used in motor vehicles except harbor craft has been limited to 500-ppm sulfur since 1993. The sulfur limit was reduced to 15 ppm beginning September 1, 2006. (A federal diesel rule similarly limited sulfur content nationwide for on-road vehicles to 15 ppm beginning October 15, 2006.) Diesel fuel used in harbor craft in the SCAQMD also was limited to 500 ppm sulfur starting January 1, 2006, and 15 ppm sulfur by September 1, 2006.

Statewide Portable Equipment Registration Program (PERP)

The PERP establishes a uniform program to regulate portable engines and portable engine-driven equipment units.[10] Once registered in the PERP, engines and equipment units may operate throughout California without the need to

[7] ARB. 2006. Commercial Idling Restrictions. Available: <http://www.arb.ca.gov/toxics/idling/idling.htm>.

[8] ARB. 2004. California Diesel Fuel Regulations. Title 13, California Code of Regulations, Sections 2281-2285 and Title 17, California Code of Regulations, Section 93114. August 14, 2004.

[9] ARB. 2005. Final Regulation Order. Proposed Extension of the California Standards for Motor Vehicle Diesel Fuel to Diesel Fuel Used for Intrastate Diesel-Electric Locomotives and Harbor Craft. August 4.

[10] ARB. 2005. Regulation to Establish a Statewide Portable Equipment Registration Program. Effective September 1, 2005.

obtain individual permits from local air districts. The PERP generally would apply to proposed dredging and barge equipment.

South Coast Air Quality Management District

The SCAQMD has jurisdiction over an area of approximately 10,743 square miles. This area includes all of Orange County, all of Los Angeles County except for the Antelope Valley, the nondesert portion of western San Bernardino County, and the western and Coachella Valley portions of Riverside County. The Basin is a subregion of the SCAQMD jurisdiction. While air quality in this area has improved, the Basin requires continued diligence to meet air quality standards.

SCAQMD has adopted a series of air quality management plans (AQMPs) to meet the CAAQS and NAAQS. These plans require, among other emissions-reducing activities, control technology for existing sources; control programs for area sources and indirect sources; a SCAQMD permitting system designed to allow no net increase in emissions from any new or modified (i.e., previously permitted) emission sources; and transportation control measures.

The SCAQMD adopted a comprehensive AQMP update, the 2007 Air Quality Management Plan for the South Coast Air Basin, on June 1, 2007.[11] The Final 2007 AQMP addresses several federal planning requirements and incorporates significant new scientific data, primarily in the form of updated emissions inventories, ambient measurements, new meteorological episodes, and new air quality modeling tools. The 2007 AQMP builds upon the approaches taken in the 2003 Basin AQMP for the attainment of the federal air quality standards. Additionally, the 2007 air plan highlights the significant amount of reductions needed and the urgent need to identify additional strategies, especially in the area of mobile sources, to meet federal criteria pollutant standards within the timeframes allowed under federal CAA. After the 2007 AQMP is received and approved by the ARB, it will be sent to the USEPA for its final approval. Until the 2007 AQMP is approved by the USEPA, the 2003 AQMP remains in effect.

SCAQMD adopts rules and regulations to implement portions of the AQMP. Several of these rules may apply to construction or operation of the project. For example, SCAQMD Rule 403 requires implementing the best available fugitive dust control measures during active operations capable of generating fugitive dust emissions from onsite earth-moving activities, construction/demolition activities, and construction equipment travel on paved and unpaved roads. SCAQMD has published a handbook (CEQA Air Quality Handbook, November 1993) to help local governments analyze and mitigate project-specific air quality impacts. This handbook provides standards, methodologies, and procedures for conducting air quality analyses in environmental impact reports and was used extensively in the preparation of this report. In addition, SCAQMD has

[11] South Coast Air Quality Management District. 2007. Air Quality Management Plans. Last updated: October 2007. Available: < http://www.aqmd.gov/aqmp/AQMPintro.htm>. Accessed: November 8, 2007.

published two additional guidance documents (Localized Significance Threshold Methodology for CEQA Evaluations, June 2003, and Particulate Matter (PM) 2.5 Significance Thresholds and Calculation Methodology, October 2006) that provide guidance in evaluating localized effects from mass emissions during construction. Both were used in the preparation of this analysis.

Through the attainment planning process, the SCAQMD develops the *SCAQMD Rules and Regulations* to regulate sources of air pollution in the South Coast Air Basin.[12] The SCAQMD rules most pertinent to the proposed project are listed below. With the possible exception of dredging equipment during construction, the emission sources associated with the proposed project are considered mobile sources. Therefore, they are not subject to the SCAQMD rules that apply to stationary sources, such as Regulation XIII (New Source Review), Rule 1401 (New Source Review of Toxic Air Contaminants), or Rule 431.2 (Sulfur Content of Liquid Fuels).

SCAQMD Rule 402 – Nuisance. This rule prohibits discharge of air contaminants or other material that 1) cause injury, detriment, nuisance, or annoyance to any considerable number of persons or to the public; 2) endanger the comfort, repose, health, or safety of any such persons or the public; or 3) cause, or have a natural tendency to cause, injury or damage to business or property.

SCAQMD Rule 403 – Fugitive Dust. This rule prohibits emissions of fugitive dust from any active operation, open storage pile, or disturbed surface area that remains visible beyond the emission source property line. During proposed project construction, best available control measures identified in the rule would be required to minimize fugitive dust emissions from proposed earth-moving and grading activities. These measures would include site pre-watering and re-watering as necessary to maintain sufficient soil moisture content. Additional requirements apply to construction projects on property with 50 or more acres of disturbed surface area, or for any earth-moving operation with a daily earth-moving or throughput volume of 5,000 cubic yards or more three times during the most recent 365-day period. These requirements include submittal of a dust control plan, maintaining dust control records, and designating a SCAQMD-certified dust control supervisor.

SCAQMD Rule 1403 – Asbestos Emissions from Demolition/Renovation Activities. The purpose of this rule is to limit emissions of asbestos, a toxic air contaminant, from structural demolition/renovation activities. The rule requires people to notify the SCAQMD of proposed demolition/renovation activities and to survey these structures for the presence of asbestos-containing materials (ACMs). The rule also includes notification requirements for any intent to disturb ACM; emission control measures; and ACM removal, handling, and disposal techniques. All proposed structural demolition activities associated with

[12] SCAQMD. 2007. South Coast Air Quality Management District Rules and Regulations.

proposed project construction would need to comply with the requirements of Rule 1403.

Regional Comprehensive Plan and Guide

SCAG is the regional planning agency for Los Angeles, Orange, Ventura, Riverside, San Bernardino, and Imperial Counties. It addresses regional issues relating to transportation, economy, community development, and environment. SCAG is the federally designated metropolitan planning organization (MPO) for the majority of the southern California region and is the largest MPO in the nation. With respect to air quality planning, SCAG has prepared the Regional Comprehensive Plan and Guide (RCPG) for the SCAG region, which includes Growth Management and Regional Mobility chapters, which form the basis for the land use and transportation components of the AQMP. These chapters are utilized in the preparation of air quality forecasts and the consistency analysis that is included in the AQMP.

Port of Long Beach Clean Air Policy

The Port of Long Beach has had a Clean Air Program in place since 2001 and began monitoring and measuring air quality in surrounding communities in 2004. Through this process, the Port has been able to identify emission sources and their relative contributions in order to develop effective emissions reduction strategies. The Port's Clean Air Program has included progressive programs such as alternative maritime power (AMP) and use of emulsified fuel and diesel oxidation catalysts (DOCs) in off-road equipment permanently operating at the Port.

The Port, in conjunction with the Port of Los Angeles and with guidance from SCAQMD, ARB, and USEPA, has adopted the San Pedro Bay Ports Clean Air Action Plan (SPBP CAAP) to expand upon existing and develop new emission-reduction strategies. The SPBP CAAP was initiated in response to the Board of Harbor Commissioners. The SPBP CAAP was released as a draft plan for public review on June 28, 2006, and was approved by both the Los Angeles and Long Beach Board of Harbor Commissioners on November 20, 2006. The SPBP CAAP focuses on reducing emissions with two main goals: 1) reduce port-related air emissions in the interest of public health; and 2) accommodate growth in trade. The CAAP includes near-term measures implemented largely through the CEQA/NEPA process, tariffs, and new leases at both ports.

Existing Conditions

Regional Context

The project site is located within the Basin, an approximately 6,745-square-mile area bounded by the Pacific Ocean to the west and the San Gabriel, San Bernardino, and San Jacinto Mountains to the north and east. The Basin includes all of Orange County and the nondesert portions of Los Angeles, Riverside, and San Bernardino Counties, in addition to the San Gorgonio Pass area in Riverside County. The terrain and geographical location determine the

distinctive climate of the Basin, which is a coastal plain with connecting broad valleys and low hills.

The southern California region lies in the semi-permanent high-pressure zone of the eastern Pacific. As a result, the climate is mild, tempered by cool sea breezes. The usually mild climatological pattern is interrupted infrequently by periods of extremely hot weather, winter storms, or Santa Ana winds. The extent and severity of the air pollution problem in the Basin is a function of the area's natural physical characteristics (weather and topography) as well as man-made influences (development patterns and lifestyle). Factors such as wind, sunlight, temperature, humidity, rainfall, and topography all affect the accumulation and dispersion of pollutants throughout the Basin, making it an area of high pollution potential.

The greatest air pollution impacts throughout the Basin occur from June through September. This condition is generally attributed to the large amount of pollutant emissions, light winds, and shallow vertical atmospheric mixing. This frequently reduces pollutant dispersion, thus causing elevated air pollution levels. Pollutant concentrations in the Basin vary with location, season, and time of day. Ozone concentrations, for example, tend to be lower along the coast, higher in the near inland valleys, and lower in the far inland areas of the Basin and adjacent desert. Over the past 30 years, substantial progress has been made in reducing air pollution levels in southern California.

The SCAQMD has published a Basin-wide air toxics study (MATES II, *Multiple Air Toxics Exposure Study*, March 2000). The MATES II study represents one of the most comprehensive air toxics studies ever conducted in an urban environment. The study was aimed at determining the cancer risk from toxic air emissions throughout the Basin by conducting a comprehensive monitoring program, an updated emissions inventory of toxic air contaminants, and a modeling effort to fully characterize health risks for those living in the Basin. The study concluded the average carcinogenic risk in the Basin is approximately 1,400 in one million. Mobile sources (e.g., cars, trucks, trains, ships, aircraft, etc.) represent the greatest contributors. Approximately 70% of all risk is attributed to diesel particulate emissions, approximately 20% to other toxics associated with mobile sources (including benzene, butadiene, and formaldehyde), and approximately 10% of all carcinogenic risk is attributed to stationary sources (which include industries and certain other businesses, such as dry cleaners and chrome plating operations). The SCAQMD is in the process of updating the MATES II study with a MATES III study.

Local Area Conditions

Local Climate

Data from the Western Regional Climate Center's Long Beach climate monitoring station was used to characterize project vicinity climate conditions because it is nearest to the project site. The average project area summer (August) high and low temperatures are 80.6°F and 62.5°F, respectively, while

the average winter (January) high and low temperatures are 65.2°F and 45.6°F, respectively. The average annual rainfall is 12.60 inches.[13]

The wind monitoring station located nearest to the project site is also in Long Beach; therefore, data from the Long Beach wind monitoring station was used to characterize study area wind conditions. Wind patterns in the project vicinity display a nearly unidirectional flow, primarily from the west, at an average speed of 3.2 miles per hour. Calm wind conditions are present 17.5 percent of the time.[14]

Existing Pollutant Levels at Nearby Monitoring Station

The SCAQMD has divided the Basin into air monitoring areas and maintains a network of air quality monitoring stations located throughout the Basin. The project site is located in the South Los Angeles County Coastal Monitoring Area (i.e., Source Receptor Area [SRA] Number 4). This SRA is served by the North Long Beach Monitoring Station, which is located approximately 5 miles north of the port in the city of Long Beach. All criteria pollutants are monitored at the Long Beach Station, including O_3, CO, NO_X, PM_{10}, and $PM_{2.5}$.

Monitoring data, shown in Table 4, show the following pollutant trends: neither state nor national O_3 standards were exceeded during the 3-year period. CO and NO_2 concentrations are low, and also recorded no exceedances during the 3-year reporting period. Particulate (PM_{10} and $PM_{2.5}$) concentrations are largely affected by meteorology and show some variability during the 3-year reporting period. The state 24-hour PM_{10} standard was exceeded four times in 2004, four times in 2005, and five times in 2006, while the national standard not exceeded during the 3-year reporting period. The national $PM_{2.5}$ standard was exceeded once in 2004.

[13] Western Regional Climate Center. 2007. Los Angeles Area, California Climate Summaries. Long Beach, California (045082). Available: <http://www.wrcc.dri.edu/cgi-bin/cliMAIN.pl?ca5082>. Accessed: October 10, 2007.

[14] South Coast Air Quality Management District. Regional air quality monitoring data. Available: <ftp://ftp.aqmd/pub/metdatalongbch.exe>. Accessed: October 10, 2007.

Table 4. Air Quality Data from North Long Beach Station (ARB 70072)

Pollutant Standards	2004	2005	2006
Ozone (O_3)			
State standard (1-hour average = 0.09 ppm)			
National standard (8-hour average = 0.08 ppm)			
Maximum concentration 1-hour period (ppm)	0.090	0.091	0.081
Maximum concentration 8-hour period (ppm)	0.074	0.069	0.058
Days state 1-hour standard exceeded	0	0	0
Days national 8-hour standard exceeded	0	0	0
Carbon Monoxide (CO)			
State standard (8-hour average = 9 ppm)			
National standard (8-hour average = 9 ppm)			
Maximum concentration 8-hour period (ppm)	3.37	3.51	3.36
Days state/national 8-hour standard exceeded	0	0	0
Nitrogen Dioxide (NO_2)			
State standard (1-hour average = 0.18 ppm)			
Maximum 1-hour concentration	0.121	0.136	0.102
Days state standard exceeded	0	0	0
Suspended Particulates (PM_{10})			
State standard (24-hour average = 50 µg/m^3)			
National standard (24-hour average = 150 µg/m^3)			
Maximum state 24-hour concentration	72.0	66.0	78.0
Maximum national 24-hour concentration	72.0	66.0	78.0
Days exceeding state standard	4	4	5
Days exceeding national standard	0	0	0
Suspended Particulates ($PM_{2.5}$)			
National standard (24-hour average = 35 µg/m^3)			
Maximum 24-hour concentration	66.6	53.8	58.5
Days exceeding national standard[a]	1	0	0

Notes:

[a] Number of exceedances based on NAAQS applicable during period shown (65 µg/m^3). Standard was changed to 35 µg/m^3 in November 2006, to be applied to 2007.

Source: California Air Resources Board, compiled by Jones & Stokes, October 2007.

Existing Health Risk in the Surrounding Area

Because of the local meteorology and the site's vicinity to the coast, the cancer risk of the surrounding area varies substantially from 50 to 750 in one million. According to ARB cancer inhalation risk data, the project area is within a cancer risk zone of approximately 250 to 500 in one million.[15] This is largely due to diesel particulates directly emitted from the ports themselves.

Sensitive Receptors and Locations

The proposed dredging and pier demolition projects are within the heavily industrialized portions of the Port of Long Beach. For this analysis it was assumed *sensitive receptors* include Port tenants working within their leased facilities. The tenant facility nearest the project site is the Hanjin Terminal, north of the project site on Terminal Island. That tenant is approximately 0.5 mile from the project site.

Significance Thresholds

Appendix G of the CEQA Guidelines presents guidance for making significance determinations. Appendix G states that a project would normally have a significant effect on the environment if it would:

- conflict with or obstruct implementation of the applicable air quality management plan;
- violate any air quality standard or contribute substantially to an existing or projected air quality violation;
- result in a cumulatively considerable net increase of any criteria pollutant for which the project region is in non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions that exceed quantitative thresholds for ozone precursors);
- expose sensitive receptors to substantial pollutant concentrations; or,
- create objectionable odors affecting a substantial number of people.

The CEQA Guidelines also state that the significance criteria established by the applicable air quality management district or air pollution control district may be relied upon to make the determinations above.

Because of SCAQMD's regulatory role in the Basin, the significance thresholds and analysis methodologies outlined in the SCAQMD *CEQA Air Quality Handbook*, *Localized Significance Threshold Methodology for CEQA Evaluations,* and *Particulate Matter (PM) 2.5 Significance Thresholds and*

[15] California Air Resources Board. Cancer Inhalation Risk: Local Maps by Category, 2007. Available: <http://www.arb.ca.gov/toxics/cti/hlthrisk/cncrinhl/riskmapviewfull.htm

Calculation Methodology guidance documents were used in evaluating project impacts.

Construction Emissions

According to criteria set forth in the SCAQMD CEQA Air Quality Handbook, Localized Significance Threshold Methodology for CEQA Evaluations, and Particulate Matter (PM) 2.5 Significance Thresholds and Calculation Methodology guidance documents, the project would have a significant impact on construction emissions if any of the following were to occur.

- Regional emissions from both direct and indirect sources (including offsite haul trucks and worker commute vehicles) exceed any of the following SCAQMD prescribed threshold levels: (1) 75 pounds a day for ROC, (2) 100 pounds per day for NO_X, (3) 550 pounds per day for CO, (4) 150 pounds per day for PM_{10} or SO_X, and (5) 55 pounds per day for $PM_{2.5}$.
- For purposes of screening potential ambient air quality impacts at the nearest sensitive receptors, the localized emissions from onsite construction equipment (not including offsite hauling or worker commute vehicles) would be significant if they exceed any of the following SCAQMD prescribed threshold levels: (1) 394 pounds per day for NO_X, (2) 8,924 pounds per day for CO, (3) 46 pounds per day for PM_{10}, and (4) 25 pounds per day for $PM_{2.5}$.[16]

Toxic Air Contaminants

According to guidelines provided in the SCAQMD *CEQA Air Quality Handbook*, the project would have a significant impact from toxic air contaminants if:

- Onsite sources emit carcinogenic or toxic air contaminants that individually or cumulatively exceed the maximum individual cancer risk of 10 in one million (1.0×10^{-5}) or an acute or chronic hazard index of 1.0;[17] or
- Hazardous materials associated with onsite stationary sources result in an accidental release of air toxic emissions or acutely hazardous materials, posing a threat to public health and safety.

[16] Derived from SCAQMD Localized Significance Threshold Tables – SRA 4 (South Coastal LA County), 5-acre site, 500-meter receptor distance.

[17] SCAQMD Risk Assessment Procedures for Rules 1401 and 212, November 1998.

Methodology

Construction Emissions

Mass daily tailpipe emissions were estimated based on the equipment inventory listed in Table 1. The equipment inventory and construction schedule were provided by the applicant.[18]

Emission factors for on-road haul trucks and worker commute vehicles were based on SCAQMD EMFAC 2007 emission factors (www.aqmd.gov/ceqa/handbook/onroad/onroad.html), assuming a 2008 construction year. Emission factors for off-road, on-road, and construction equipment were based on SCAQMD's off-road emission factor data[19], using an assumed 2008 construction year.

Uncontrolled tailpipe emission factors for diesel-powered marine tugs and support boats were developed based on USEPA's guidance document "Analysis of Commercial Marine Vessel emissions and Fuel Consumption Data (USEPA 2000).[20] Mitigated tailpipe emission factors for marine vessels were derived by assuming all marine vessels contracted by the Port must satisfy EPA's Tier 2 emission standards (40 CFR Part 89, Control of Emissions of Air Pollution from New Marine Compression-Ignition Engines Above 37 kW).

Fugitive dust PM_{10} emissions generated during demolition of the pier were estimated based on an emission factor of 0.00042 lbs per cubic foot, derived from Table A9-9-H of SCAQMD's 1993 CEQA Handbook.

Toxic Air Contaminants Impacts during Construction

The proposed action consists of a temporary dredging and demolition project using diesel-powered equipment. The dominant toxic air contaminant (TAC) generated by diesel-powered construction equipment is diesel particulate matter (DPM), which is a suspected carcinogen. Particulate emissions from construction equipment tailpipes were estimated using the methodology described previously. For this assessment, it was assumed that all particulate matter emitted by diesel-powered equipment is DPM.

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[18] Crouch, Stacey. Port of Long Beach. August 28, 2007—email to Kris Bonner, Jones & Stokes.

19 South Coast Air Quality Management District. 2007. Off-road Mobile Source Emission Factors. Last updated: June 2007. Available: <www.aqmd.gov/ceqa/handbook/offroad/offroad.html>. Accessed: November 8, 2007.

[20] USEPA. 2000. Analysis of Commercial Marine Vessel Emissions and Fuel Consumption Data. EPA Report 4-20-R-08-002. February 2000.

Climate Change/Greenhouse Gas Emissions during Construction

The proposed action consists of a temporary dredging and demolition project using diesel-powered equipment. Project-related GHG emissions were estimated by the following methods:

- The number of horsepower hours per year of construction equipment usage was estimated based on the equipment inventory listed in Table 1.
- The number of gallons of diesel fuel used to operate diesel-powered construction equipment was estimated using a factor of 0.05 gallons per horsepower-hour using USEPA's NONROAD2005 model.[21]
- The number of gallons of gasoline used by worker commute vehicles was estimated assuming an average passenger vehicle fuel economy of 20 miles per gallon.
- The following carbon dioxide emission factors for mobile source fuel combustion were used:[22]
  - Diesel fuel: 22.4 lbs per gallon.
  - Gasoline: 19.6 lbs per gallon.

Air Quality Impact Analysis

Construction Impacts

Regional Construction Emissions

Construction of the proposed project has the potential to create air quality impacts through the use of heavy-duty construction equipment, through on-road haul trucks shipping demolition debris to the local disposal site, and through vehicle trips generated from construction workers commuting to and from the project site. In addition, fugitive dust emissions would result from pier demolition activities.

Overall, construction is anticipated to begin and end during 2008. The total amount of construction, the duration of construction, and the intensity of

[21] USEPA. 2005. User's Guide to Final NONROAD2005 Emission Model. EPA Report EPA/420-R-05-013. Last updated: December 2005. Available: <http://www.epa.gov/otaq/nonrdmdl.htm>. Accessed: June 2007.

[22] Energy Information Agency. 2007. Voluntary Reporting of Greenhouse Gases Program, Fuel and Energy Source Codes and Emission Coefficients. Available: <http://www.eia.gov.oiaf/1605/coefficients.html>. Accessed: June 2007.

construction activity could have a substantial effect upon the amount of construction emissions, the concentrations, and the resulting impacts occurring at any one time. As such, the emission forecasts provided herein reflect a specific set of conservative assumptions based on the expected construction scenario wherein a relatively large amount of construction is occurring in a relatively intensive manner. Because of this conservative assumption, actual emissions could be less than those forecasted. If construction is delayed or occurs over a longer time period, emissions could be reduced because of (1) a more modern and cleaner burning construction equipment fleet mix, and/or (2) a less intensive buildout schedule (i.e., fewer daily emissions occurring over a longer time interval).

Table 5a shows estimated unmitigated regional emissions generated by on-water equipment and worker commute vehicles during dredging, barging, and disposal of contaminated sediment. The uncontrolled emission estimates assume that none of the on-water equipment uses EPA Tier 2-compliant engines. The maximum daily NOx emissions would be 132 pounds per day (lbs/day), which exceeds the SCAQMD regional significance threshold. Forecast unmitigated daily emissions of ROC, CO, PM_{10}, and $PM_{2.5}$ are less than the SCAQMD CEQA thresholds. Mitigation to reduce NOx emissions is warranted based on the exceedance of the SCAQMD threshold. Table 5b shows the mitigated regional emissions for the dredging activity after applying the Port's mitigation measure of requiring all marine vessels to use Tier 2 compliant engines. The mitigated emissions for all pollutants during the dredging activity would be less than the respective SCAQMD CEQA thresholds. Therefore, the air quality impacts during the dredging activity would be less than significant after mitigation.

Table 5a. Unmitigated Regional Construction Emissions during Contaminated Sediment Dredging, Barging, and Disposal (pounds per day)

Project Component	ROC	NO_X	CO	SO_X	PM_{10}[a]	$PM_{2.5}$[a]
On-Water Marine Vessel Emissions	0.9	131	11	11	3	3
Worker Commute Vehicles	0.8	0.6	6	Negligible	0.05	0.05
Maximum Project Emissions	1.7	**132**	17	11	3	3
Regional Significance Threshold	75	100	550	150	150	55
Exceed Threshold?	**No**	**YES**	**No**	**No**	**No**	**No**

Notes:

Emissions calculation worksheets are included in Appendix A.

[a] All particulate matter emitted from marine vessel tailpipes was assumed to consist of PM_{10} and $PM_{2.5}$.

Table 5b. Mitigated Regional Construction Emissions during Contaminated Sediment Dredging, Barging, and Disposal (pounds per day)

Project Component	ROC	NO_X	CO	SO_X	PM_{10}[a]	$PM_{2.5}$[a]
On-Water Marine Vessel Emissions (EPA Tier-2 Emission Standards)	0.9	88	61	11	2.5	2.5
Worker Commute Vehicles	0.8	0.6	6	Negligible	0.05	0.05
Maximum Project Emissions	1.7	89	67	11	2.5	2.5
Regional Significance Threshold	75	100	550	150	150	55
Exceed Threshold?	**No**	**No**	**No**	**No**	**No**	**No**

Notes:

Emissions calculation worksheets are included in Appendix A.

[a] All particulate matter emitted from marine vessel tailpipes was assumed to consist of PM_{10} and $PM_{2.5}$.

Table 6a shows estimated unmitigated regional emissions generated by demolition of the sonar calibration pier. Equipment included in the regional emission estimate includes marine vessels and support boats, on-land construction equipment, on-road highway trucks used to haul demolition debris to the disposal site, and worker commute vehicles. The uncontrolled emission estimates assume that none of the on-water equipment uses EPA Tier 2-compliant engines. The maximum daily NOx emissions would be 105 pounds per day (lbs/day), which exceeds the SCAQMD regional significance threshold. Forecast unmitigated daily emissions of ROC, CO, PM_{10}, and $PM_{2.5}$ are less than the SCAQMD CEQA thresholds. Mitigation to reduce NOx emissions is warranted based on the exceedance of the SCAQMD threshold. Table 6b shows the mitigated regional emissions for the pier demolition activity, after applying the Port's mitigation measure of requiring all marine vessels to use Tier 2 compliant engines. The mitigated emissions for all pollutants during the pier demolition activity would be less than the respective SCAQMD CEQA thresholds. Therefore, the air quality impacts during the pier demolition activity would be less than significant after mitigation.

Table 6a. Unmitigated Regional Construction Emissions during Pier Demolition and Debris Hauling (pounds per day)

Project Component	ROC	NO_X	CO	SO_X	PM_{10}[a]	$PM_{2.5}$[a]
On-Water Demolition Equipment	0.1	23.7	1.9	1.9	0.6	0.6
Demolition Fugitive Dust	0	0	0	0	5	2.5
On-Land Pier Demolition Equipment	2	24	7	0.04	1	1
Demolition Debris Haul Trucks	4	56	17	0.05	3	3
Worker Commute Vehicles	1	1	5	Negligible	0.03	0.03
Maximum Project Emissions	7	**105**	31	2	10	10
Regional Significance Threshold	75	100	550	150	150	55
Exceed Threshold?	**No**	**YES**	**No**	**No**	**No**	**No**

Notes:

Emissions calculation worksheets are included in Appendix A.

[a] Fugitive PM_{10} and $PM_{2.5}$ emissions estimates take into account compliance with SCAQMD Rule 403 requirements for fugitive dust suppression, which require that no visible dust be present beyond the site boundaries.

Table 6b. Mitigated Regional Construction Emissions during Pier Demolition and Debris Hauling (pounds per day)

Project Component	ROC	NO_X	CO	SO_X	PM_{10}[a]	$PM_{2.5}$[a]
On-Water Demolition Equipment (EPA Tier-2 Emission Standards)	0.1	15.9	11	1.9	0.4	0.4
Demolition Fugitive Dust	0	0	0	0	5	2.5
On-Land Pier Demolition Equipment	2	24	7	0.04	1	1
Demolition Debris Haul Trucks	4	56	17	0.05	3	3
Worker Commute Vehicles	1	1	5	Negligible	0.03	0.03
Maximum Project Emissions	7	97	40	2	9	9
Regional Significance Threshold	75	100	550	150	150	55
Exceed Threshold?	**No**	**No**	**No**	**No**	**No**	**No**

Notes:

Emissions calculation worksheets are included in Appendix A.

[a] Fugitive PM_{10} and $PM_{2.5}$ emissions estimates take into account compliance with SCAQMD Rule 403 requirements for fugitive dust suppression, which require that no visible dust be present beyond the site boundaries.

Local Construction Ambient Concentration Impacts

The SCAQMD has developed a set of mass emissions rate look-up tables that can be used to evaluate localized impacts that may result from construction-period emissions. If the onsite emissions from proposed construction activities are below the localized significance threshold (LST) emission levels found in the LST mass rate look-up tables for the project site's SRA, then project emissions would not have the potential to cause a significant localized air quality impact.

When quantifying mass emissions for LST analysis, only emissions that occur *on site* are considered. Consistent with SCAQMD LST guidelines, emissions related to offsite delivery/haul truck activity and employee trips are not considered in the evaluation of localized impacts.

The SCAQMD screening analysis requires consideration of the closest *sensitive receptor*. The proposed dredging and demolition site is within the industrial portion of the Port, surrounded by Port operations and tenant facilities. For this ambient air quality screening analysis, the closest sensitive receptor was defined as the nearest port tenant: the Hanjin Terminal, on Terminal Island approximately 0.5 mile north of the dredging site.

A conservative estimate of the project's construction-period onsite mass emissions is presented in Table 7 (dredging activity) and Table 8 (pier demolition activity). These mitigated emission rates account for the Port's mitigation measure of requiring all marine vessels used for the proposed project to use Tier 2 compliant engines. Forecast mitigated daily emissions of all pollutants are less than the SCAQMD CEQA thresholds for both the dredging activity and the pier demolition activity. Therefore, the ambient air quality impacts at the closest sensitive receptor location would be less than significant after mitigation.

The maximum daily emission rates for CO, PM_{10}, and $PM_{2.5}$ are less than their respective thresholds. Therefore, no mitigation measures are necessary beyond the required compliance with SCAQMD Rule 403, which is integral to the project and not CEQA mitigation, for pollutants other than NO_X.

Table 7. Mitigated, Localized On-Water Dredging Emissions Compared to Ambient Concentration Impact Thresholds (pounds per day)

Project Component	NO_X	CO	PM_{10}	PM_{25}
On-Water Marine Vessel Emissions (EPA Tier-2 Marine Vessels)	88	61	2.5	2.5
Localized Significance Threshold[a]	394	8,924	46	25
Exceed Threshold?	**No**	**No**	**No**	**No**

Notes:

Emissions calculation worksheets are included in Appendix A.

(a) The project site is located in SCAQMD SRA No. 4 (South Central LA County). These LSTs are based on the site location SRA, distance to the nearest sensitive-receptor location from the project site (more than 500 meters), and the project area (5 acres).

Table 8. Mitigated, Localized Pier Demolition Emissions Compared to Ambient Concentration Impact Thresholds (pounds per day)

Project Component	NO_X	CO	PM_{10}[a]	PM_{25}[a]
On-Water Demolition Equipment (EPA Tier-2 Marine Vessels)	16	11	0.4	0.4
Demolition Fugitive Dust	0	0	5	2.5
On-Land Pier Demolition Equipment	24	7	1	1
Maximum Onsite Emissions	40	18	6	4
Localized Significance Threshold[b]	394	8,924	46	25
Exceed Threshold?	**No**	**No**	**No**	**No**

Toxic Air Contaminants

The greatest potential for TAC emissions would be related to diesel particulate emissions associated with heavy equipment operations during site grading activities. The SCAQMD does not consider diesel-related cancer risks from construction equipment to be an issue due to the short-term nature of construction activities. Construction activities associated with the proposed project would be sporadic, transitory, and short term in nature (approximately 80 to 90 days of construction). The assessment of cancer risk is typically based on a 70-year exposure period. The closest sensitive receptors are industrial workers at a Port of Long Beach tenant facility (Hanjin Terminal, approximately 0.5 mile away). Because exposure to diesel exhaust would occur only for durations well below the 70-year exposure period, construction of the proposed project is not anticipated to result in an elevated cancer risk to exposed persons due to the

short-term nature of construction. As such, project-related toxic emission impacts during construction would not be significant.

Climate Change/Greenhouse Gas Emissions

Because the emission sources associated with the proposed project are internal combustion engines, the predominant greenhouse gas emitted by the project would be carbon dioxide (CO_2). Table 9 presents the estimated fuel usage and the estimated construction emissions of CO_2. The GHG emissions listed in Table 9 would occur only during the brief construction period. The proposed project would not include any operational emissions.

Because quantitative GHG guidelines including thresholds have not been developed by the SCAQMD, these emissions are provided for information purposes only. According to a recent white paper by the Association of Environmental Professionals, "an individual project does not generate enough GHG emissions to significantly influence global climate change. Global climate change is a cumulative impact; a project participates in this potential impact through its incremental contribution combined with the cumulative increase of all other sources of GHG emissions." The temporary GHG emissions generated by the proposed construction project would be an inconsequentially small fraction of the worldwide GHG emissions during the brief construction period. Therefore, project-related impacts are expected to be less than significant because climate change would not occur directly from project emissions.

Table 9. Estimate of Regional Operational Greenhouse Gas Emissions (Tons, total project)

Project Component	Project Total Gallons of Fuel	Project Total CO_2 Emissions (Tons)
On-water diesel equipment	23,000	260
On-land diesel construction equipment	1,400	41
On-road diesel haul trucks	5,000	56
On-road worker commute vehicles (gasoline)	2,100	21
Total Project	**31,500**	**378**
SCAQMD Significance Threshold		No current threshold
Exceed Significance Threshold?		**NA**

Objectionable Odors

Operation of the proposed project would increase air pollutants due to the combustion of diesel fuel. Some individuals may feel that diesel combustion emissions are objectionable, although quantifying the odorous impacts of these emissions to the public is difficult. The mobile nature of most project emission sources would help disperse proposed project emissions. Additionally, the distance between proposed project emission sources and the nearest residents is expected to be far enough to allow for adequate dispersion of these emissions to below objectionable odor levels.

Project Consistency with Regional AQMP

SCAG is the regional planning agency for Los Angeles, Orange, Ventura, Riverside, San Bernardino, and Imperial Counties, and addresses regional issues relating to transportation, economy, community development, and environment. With regard to air quality planning, SCAG has prepared the RCPG, which includes Growth Management and Regional Mobility chapters that form the basis for the land use and transportation control portions of the AQMP. These documents are utilized in the preparation of the air quality forecasts and consistency analysis included in the AQMP. Both the RCPG and AQMP are based, in part, on projections originating with County and City General Plans.[23]

The proposed project is one component of the Port of Long Beach's long-term development strategy. SCAG included the operations of regional marine terminals, including the Port of Long Beach, in its regional emission estimates for the RCPG. To be consistent with the recently approved SPBP CAAP and the regional air quality plan, the air quality analysis assumes proposed project compliance with the SPBP CAAP. Project mitigation measures applied to reduce air emissions and public health impacts are largely consistent with, and in some cases exceed, the emission-reduction strategies of the SPBP CAAP. Therefore, it is concluded the proposed project is consistent with the AQMP.

Cumulative Impacts

Cumulative impacts to air quality could occur as a result of air pollutant emissions from mobile, area, and stationary sources attributed to the proposed project's temporary construction emissions in combination with other cumulative projects throughout the Basin. However, cumulative thresholds for air quality are the same as those used when considering a project-specific air quality impact because the thresholds are related to a project's contribution to the regional air

[23] SCAG serves as the federally designated metropolitan planning organization (MPO) for the Southern California region.

quality baseline (as determined by SCAQMD's modeling that considers general plan land use designations for the jurisdictions within its borders). If a project would result in exceedances of daily regional emission limits, then it can be considered to contribute to cumulatively considerable air quality impacts.

The proposed mitigation measures would reduce construction emissions for all pollutants to less than the SCAQMD CEQA thresholds. Therefore, the cumulative air quality impacts would be less than significant after mitigation.

Mitigation Measures

Consistent with SPBP CAAP, the lead agency will require the contractor to implement the following feasible mitigation measures for harbor craft, on-road vehicles, and off-road equipment.

Construction Equipment and Trucks

- Maintain equipment and vehicle engines in good condition and in proper tune as per manufacturers' specifications.
- To the extent practicable based on equipment availability, the Port will, for all construction equipment, require construction contractors to use construction equipment with oxidation catalysts and particulate traps instead of gasoline- or diesel-powered engines. Diesel-powered equipment that has been retrofitted with after-treatment products reduces NO_X by 40%. However, where diesel equipment has to be used because there are no practical alternatives, the Port will (to the extent practicable based on equipment availability) require construction contractors to use particulate filters and oxidation catalysts.
- To the extent practicable based on equipment availability, the Port will require construction contractors to use trucks supplying materials and supplies to the project site be fitted with oxidation catalysts or particulate traps.
- Use electricity from power poles instead of temporary diesel- or gasoline-powered generators. Note the clamshell dredge proposed for this project will be electrical powered.
- Prohibit heavy-duty construction vehicles from idling in excess of 5 minutes, both on and off site, to be consistent with state law.

Harbor craft for temporary dredging projects

- The Port will require dredging contractors to use harbor craft meeting USEPA Tier-2 standards for harbor craft or meet equivalent reductions, as well as require no later than 5 years or when they first become available, all

previously re-powered harbor craft to retrofit with the most effective ARB verified/verifiable NO_X and PM emissions reduction technologies.

- Require low-sulfur fuel in the engines at the following annual participation rates:
  - 2007 to 2009 – use of marine fuel in all main engines with a maximum sulfur content of 0.2%.
  - 2010 and after – use of marine fuel in all main engines with a maximum sulfur content of 0.1%.
- Implement vessel speed reductions of 12 knots within the port.

The above mitigation measures would reduce emissions of NO_X, CO, PM_{10} and $PM_{2.5}$ to less than the SCAQMD CEQA thresholds. Therefore, the air quality impacts caused by the proposed project would be less than significant after mitigation.

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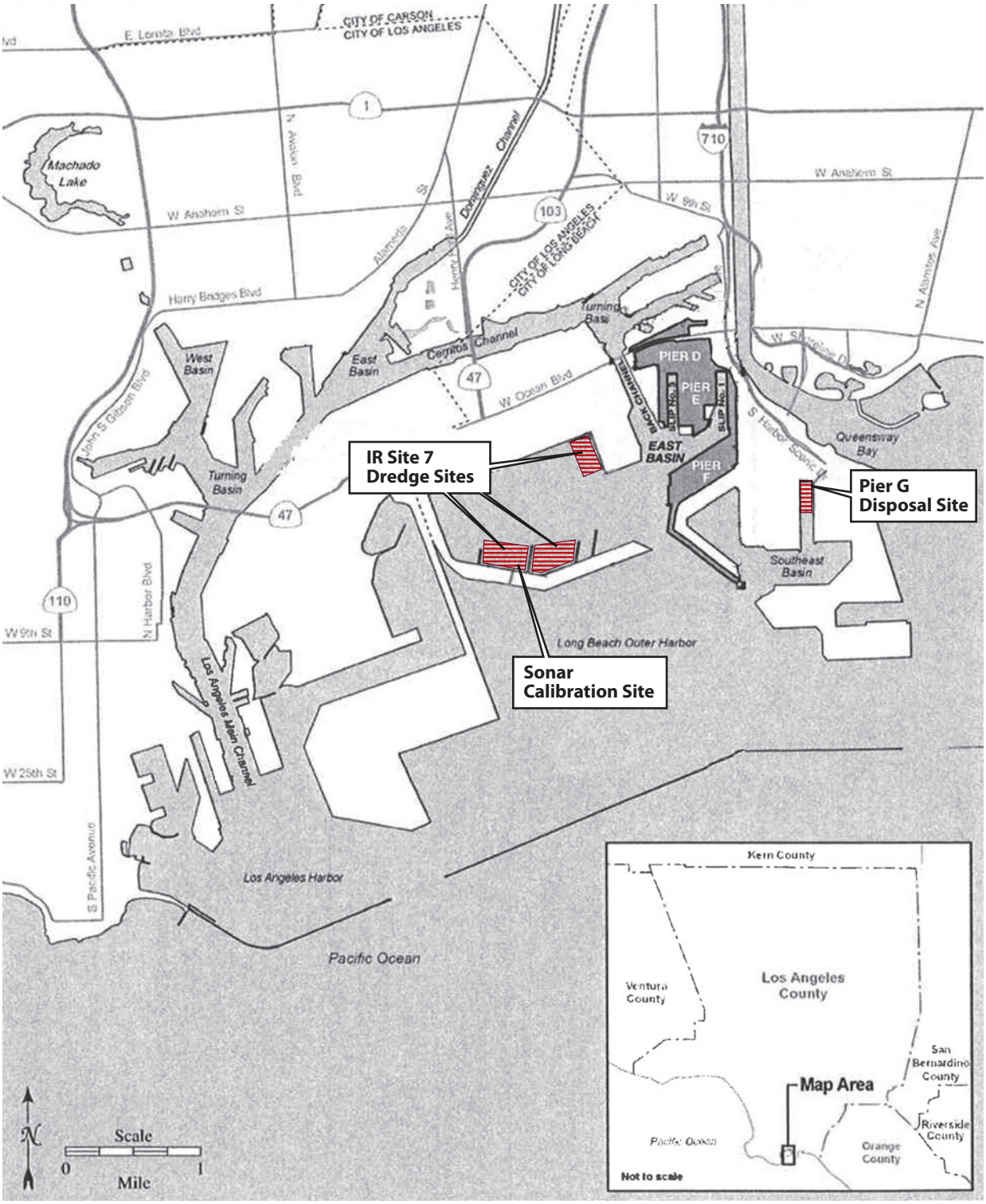

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Jones & Stokes

Figure 1
Vicinity Map

Appendix A

Emission Calculation Worksheets

Port of Long Beach IR Site 7; Dredging Max-Daily Emissions for Unregulated (Tier-0) Marine Diesel Engines: (SCAQMD EFs) DAILY

Construction Site Fugitive PM-10 Emission Factors

Construction days/year	==>	1	
Fugitive Dust Emmission Factor From Soil Loading & Dumping (lbs/ton)	==>	0.011	AP-42 for material dumping (50% reduction for large rock size)
Earthwork Volume/year (cys/day)	==>	0	cy/day
Average Daily Acres of Construction	==>	0.00	Applies SCAQMD fugitive dust factor of 10 lbs/acre/day (Jones & Stokes 2003)
Dozer Hours/Year for Fugitive Dust Calcs		0	Applies AP-42 fugitive dust factor
Building volume to be demolished, cubic feet		0	Applies SCAQMD emission factor of 0.00042 lbs PM10/cf

In-Water Dredging Exhaust Emission Factors (SCAQMD Efs for Non-Road; EPA Efs for Marine Diesel)

		Number of	Hours	No.	Default	Default	2008 SCAQMD EF (gm/bhp-hr)				
Equipment Type		Vehicles	per Day	of days	HP	Load Factor	VOC	CO	NOx	PM10	Total HP
Electric Clamshell Dredge Engine	==>	1	12	1	2500	0	0.22	0.87	2.38	0.075	2500
Aux Generator on Dredge	==>	1	12	1	75	0.1	0.59	1.94	3.75	0.29	75
Bottom Dump Scow	==>	2	1	1	250	0.05	0.05	0.62	7.89	0.19	500
Tug Boat	==>	1	4	1	4000	0.4	0.05	0.62	7.89	0.19	4000
Work tug	==>	1	2	1	750	0.35	0.05	0.62	7.89	0.19	750
Work Boat	==>	1	2	1	400	0.45	0.05	0.62	7.89	0.19	400
	==>	0	0	1	400	0.3	0.05	0.62	7.89	0.19	0
Crew Boat - Small	==>	1	4	1	80	0.5	0.05	0.62	7.89	0.19	80
		8	Total Equip		8305	Total HP	0.46				

HP-hr	Gallons (0.05 gal/hp-hr)	Fuel S ppm	lbs SO2
0	0	0	0.000
90	5	15	0.001
25	1	2000	0.035
6400	320	2000	8.960
525	26	2000	0.735
360	18	2000	0.504
0	0	2000	0.000
160	8	2000	0.224
7560	**378**		**10.4589**

Port of Long Beach IR Site 7; Dredging Max-Daily Emissions for Unregulated (Tier-0) Marine Diesel Engines: (SCAQMD EFs)

Worker Commute Tailpipe Emissions

Miles/round trip	==>	50
trips/day	==>	11
Number of Light Duty Trucks	==>	1
Number of Days	==>	1

	ROG	CO	NOx	PM10
EMFAC EFs (grams/mile)	0.49	4.8	0.499	0.039
Start Emission Rate (grams/trip)	1.8	22.88	0.84	0.02
Hot Soak (grams/trip)	0.22			
Evaporative Running Loss (grams/mile)	0.09			

	Emissions (lbs/day)				
Daily Emissions	VOC	CO	NOx	PM10	SO2
Construction Vehicle Exhaust Emissions	0.9	10.6	131	3.2	10.5
Worker Commute Tailpipe Emissions	0.752	6.4	0.63	0.048	
Total Daily Emissions (lbs/day)	**1.7**	**17.0**	**131**	**3.2**	**10.5**

C:\PC01087\JMW Temp\POLB-Dredge_10-07\Dec-2007-Calcs\[POLB-Dredge-Tier-0_Daily- Emission_Dec2007.xls]Dredging In-Water

Port of Long Beach IR Site 7; Dredging Max-Daily Emissions for Mitigated (EPA Tier-2) Marine Diesel Engines

DAILY

Construction Site Fugitive PM-10 Emission Factors

Construction days/year	==>	1	
Fugitive Dust Emmission Factor From Soil Loading & Dumping (lbs/ton)	==>	0.011	AP-42 for material dumping (50% reduction for large rock size)
Earthwork Volume/year (cys/day)	==>	0	cy/day
Average Daily Acres of Construction	==>	0.00	Applies SCAQMD fugitive dust factor of 10 lbs/acre/day (Jones & Stokes 2003)
Dozer Hours/Year for Fugitive Dust Calcs		0	Applies AP-42 fugitive dust factor
Building volume to be demolished, cubic feet		0	Applies SCAQMD emission factor of 0.00042 lbs PM10/cf

In-Water Dredging Exhaust Emission Factors (SCAQMD Efs for Non-Road; EPA EFs for Tier-2-Controlled Marine Diesel)

		Number of	Hours	No.	Default	Default	Tier-2 EF (gm/bhp-hr)				
Equipment Type		Vehicles	per Day	of days	HP	Load Factor	VOC	CO	NOx	PM10	Total HP
Electric Clamshell Dredge Engine	==>	1	12	1	2500	0	0.22	0.87	2.38	0.075	2500
Aux Generator on Dredge	==>	1	12	1	75	0.1	0.59	1.94	3.75	0.29	75
Bottom Dump Scow	==>	2	1	1	250	0.05	0.22	0.87	2.38	0.075	500
Tug Boat	==>	1	4	1	4000	0.4	0.05	3.70	5.30	0.148	4000
Work tug	==>	1	2	1	750	0.35	0.05	3.70	5.30	0.148	750
Work Boat	==>	1	2	1	400	0.45	0.05	3.70	5.30	0.148	400
	==>	0	0	1	400	0.3	0.05	3.70	5.30	0.148	0
Crew Boat - Small	==>	1	4	1	80	0.5	0.05	3.70	5.30	0.148	80
		8	Total Equip		8305	Total HP	0.47				

HP-hr	Gallons (0.05 gal/hp-hr)	Fuel S ppm	lbs SO2
0	0	0	0.000
90	5	15	0.001
25	1	2000	0.035
6400	320	2000	8.960
525	26	2000	0.735
360	18	2000	0.504
0	0	2000	0.000
160	8	2000	0.224
7560	**378**		**10.4589**

Port of Long Beach IR Site 7; Dredging Max-Daily Emissions for Mitigated (EPA Tier-2) Marine Diesel Engines

Worker Commute Tailpipe Emissions

Miles/round trip	==>	50
trips/day	==>	11
Number of Light Duty Trucks	==>	1
Number of Days	==>	1

	ROG	CO	NOx	PM10
EMFAC EFs (grams/mile)	0.49	4.8	0.499	0.039
Start Emission Rate (grams/trip)	1.8	22.88	0.84	0.02
Hot Soak (grams/trip)	0.22			
Evaporative Running Loss (grams/mile)	0.09			

	Emissions (lbs/day)				
Daily Emissions	VOC	CO	NOx	PM10	SO2
Construction Vehicle Exhaust Emissions	0.9	61.2	88	2.5	10.5
Worker Commute Tailpipe Emissions	0.752	6.4	0.63	0.048	
Total Daily Emissions (lbs/day)	**1.7**	**67.5**	**88**	**2.5**	**10.5**

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Port of Long Beach IR Site 7; Demolition Uncontrolled (Tier-0) In-Water Max-Daily Construction Emissions: (SCAQMD EFs) DAILY

Construction Site Fugitive PM-10 Emission Factors

Construction days/year	==>	1	
Fugitive Dust Emmission Factor From Soil Loading & Dumping (lbs/ton)	==>	0.011	AP-42 for material dumping (50% reduction for large rock size)
Earthwork Volume/year (cys/day)	==>	0	cy/day
Average Daily Acres of Construction	==>	0.00	Applies SCAQMD fugitive dust factor of 10 lbs/acre/day (Jones & Stokes 2003)
Dozer Hours/Year for Fugitive Dust Calcs		0	Applies AP-42 fugitive dust factor
Building volume to be demolished, cubic feet		0	Applies SCAQMD emission factor of 0.00042 lbs PM10/cf

In-Water Dredging Exhaust Emission Factors (SCAQMD Efs for Non-Road; EPA Efs for Marine Diesel)

		Number of	Hours	No.	Default	Default	2008 SCAQMD EF (gm/bhp-hr)				
Equipment Type		Vehicles	per Day	of days	HP	Load Factor	VOC	CO	NOx	PM10	Total HP
Electric-Powered Derrick Barge	==>	1	8	1	600	0	0.05	0.62	7.89	0.19	600
Work Tug	==>	1	4	1	750	0.4	0.05	0.62	7.89	0.19	750
Crew Survey Boat - Small	==>	1	4	1	80	0.5	0.05	0.62	7.89	0.19	80
		3	Total Equip		1430	Total HP	0.47				

HP-hr	Gallons (0.05 gal/hp-hr)	Fuel S ppm	lbs SO2
0	0	2000	0.000
1200	60	2000	1.680
160	8	2000	0.224
1360	**68**		**1.9040**

Port of Long Beach IR Site 7; Demolition Uncontrolled (Tier-0) In-Water Max-Daily Construction Emissions: (SCAQMD EFs)

	Emissions (lbs/day)				
Daily Emissions	VOC	CO	NOx	PM10	SO2
Construction Vehicle Exhaust Emissions	0.1	1.9	23.7	0.6	1.9
Worker Commute Tailpipe Emissions	0.0	0.0	0.0	0.00	
Total Daily Emissions (lbs/day)	**0.1**	**1.9**	**23.7**	**0.6**	**1.9**

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Port of Long Beach IR Site 7; Demolition, Mitigated (Tier-2) In-Water Equipment Max-Daily Emissions: (EPA Tier-2 EFs)

DAILY

Construction Site Fugitive PM-10 Emission Factors

Construction days/year	==>	1	
Fugitive Dust Emmission Factor From Soil Loading & Dumping (lbs/ton)	==>	0.011	AP-42 for material dumping (50% reduction for large rock size)
Earthwork Volume/year (cys/day)	==>	0	cy/day
Average Daily Acres of Construction	==>	0.00	Applies SCAQMD fugitive dust factor of 10 lbs/acre/day (Jones & Stokes 2003)
Dozer Hours/Year for Fugitive Dust Calcs		0	Applies AP-42 fugitive dust factor
Building volume to be demolished, cubic feet		0	Applies SCAQMD emission factor of 0.00042 lbs PM10/cf

In-Water Dredging Exhaust Emission Factors (EPA Controlled Tier-2 EFs for Marine Diesel)

		Number of	Hours	No.	Default	Default	Tier-2 EF (gm/bhp-hr)				
Equipment Type		Vehicles	per Day	of days	HP	Load Factor	VOC	CO	NOx	PM10	Total HP
Electric-Powered Derrick Barge	==>	1	8	1	600	0	0.05	3.70	5.30	0.15	600
Work Tug	==>	1	4	1	750	0.4	0.05	3.70	5.30	0.15	750
Crew Survey Boat - Small	==>	1	4	1	80	0.5	0.05	3.70	5.30	0.15	80
		3	Total Equip		1430	Total HP	0.47				

HP-hr	Gallons (0.05 gal/hp-hr)	Fuel S ppm	lbs SO2
0	0	2000	0.000
1200	60	2000	1.680
160	8	2000	0.224
1360	**68**		**1.9040**

Port of Long Beach IR Site 7; Demolition, Mitigated (Tier-2) In-Water Equipment Max-Daily Emissions: (EPA Tier-2 EFs)

	Emissions (lbs/day)				
Daily Emissions	VOC	CO	NOx	PM10	SO2
Construction Vehicle Exhaust Emissions	0.1	11.1	15.9	0.4	1.9
Worker Commute Tailpipe Emissions	0.0	0.0	0.0	0.00	
Total Daily Emissions (lbs/day)	**0.1**	**11.1**	**15.9**	**0.4**	**1.9**

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POLB IR-7 Dredging: Annual Mitigated (Tier-2) In-Water Equipment (EPA Tier-2 EFs)

Construction Site Fugitive PM-10 Emission Factors

Construction days/year	==>	62	
Fugitive Dust Emmission Factor From Soil Loading & Dumping (lbs/ton)	==>	0.011	AP-42 for material dumping (50% reduction for large rock size)
Earthwork Volume/year (cys/yr)	==>	0	
Average Daily Acres of Construction	==>	0.00	Applies SCAQMD fugitive dust factor of 10 lbs/acre/day (Jones & Stokes 2003)
Dozer Hours/Year for Fugitive Dust Calcs		0	Applies AP-42 fugitive dust factor
Building volume to be demolished, cubic feet		0	Applies SCAQMD emission factor of 0.00042 lbs PM10/cf

Construction Vehicle Exhaust Emission Factors (EPA Tier-2)

Equipment Type		Number of Vehicles	Hours per Day	No. of days	Default HP	Default Load Factor	2008 SCAQMD and Tier-2 EF (gm/bhp-hr) VOC	CO	NOx	PM10	SO2	Total HP	HP-hr	Gallons (0.05 gal/hp-hr)	Fuel S ppm	lbs SO2
Electric-Poowered Clamshell Dredge Engine	==>	1	12	62	2500	0	0.22	0.87	2.38	0.075	0.76	2500	0	0	15	0.000
Aux Generator on Dredge	==>	1	12	62	75	0.1	0.59	1.94	3.75	0.29	0.85	75	5580	279	15	0.059
Bottom Dump Scow	==>	2	1	62	250	0.05	0.05	3.70	5.30	0.148	0.76	500	1550	78	15	0.016
Tug Boat	==>	1	4	62	4000	0.4	0.05	3.70	5.30	0.148	0.76	4000	396800	19840	15	4.166
Work tug	==>	1	2	62	750	0.35	0.05	3.70	5.30	0.148	0.76	750	32550	1628	15	0.342
Work Boat	==>	1	2	62	400	0.45	0.05	3.70	5.30	0.148	0.76	400	22320	1116	15	0.234
Crew Boat - Big	==>	1	0	62	400	0.3	0.05	3.70	5.30	0.148	0.76	400	0	0	15	0.000
Crew Boat - Small	==>	1	4	62	80	0.5	0.05	3.70	5.30	0.148	0.76	80	9920	496	15	0.104
		9	Total Equip		8705	Total HP	0.46				0.80		**468720**	**23436**		**4.9216**

POLB IR-7 Dredging: Annual Mitigated (Tier-2) In-Water Equipment (EPA Tier-2 EFs)

Worker Commute Tailpipe Emissions

Miles/round trip	==>	50
trips/day	==>	11
Number of Light Duty Trucks	==>	1
Number of Days	==>	62

	ROG	CO	NOx	PM10
EMFAC EFs (grams/mile)	0.49	4.8	0.499	0.039
Start Emission Rate (grams/trip)	1.8	22.88	0.84	0.02
Hot Soak (grams/trip)	0.22			
Evaporative Running Loss (grams/mile)	0.09			

	Emissions (tpy)				
Annual Emissions	VOC	CO	NOx	PM10	SO2
Construction Vehicle Exhaust Emissions	0.0	1.9	2.7	0.1	0.002
Worker Commute Tailpipe Emissions	0.023	0.20	0.019	0.001	
Total Emissions (tpy)	**0.1**	**2.1**	**2.7**	**0.1**	**0.00**

Citation: Software Uer's guid, URBEMIS2002 with Enhanced Construction Module. Prepared for Yolo-Solano AQMD. Jones & Stokes Stokes, Sacramento CA, 2003.

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POLB Pier-11 Demolition: Annual In-Water Mitigated (Tier-2) Equipment (SCAQMD EFs)

Construction Site Fugitive PM-10 Emission Factors

Construction days/year	==>	20	
Fugitive Dust Emmission Factor From Soil Loading & Dumping (lbs/ton)	==>	0.011	AP-42 for material dumping (50% reduction for large rock size)
Earthwork Volume/year (cys/yr)	==>	0	
Average Daily Acres of Construction	==>	0.00	Applies SCAQMD fugitive dust factor of 10 lbs/acre/day (Jones & Stokes 2003)
Dozer Hours/Year for Fugitive Dust Calcs		0	Applies AP-42 fugitive dust factor
Building volume to be demolished, cubic feet		0	Applies SCAQMD emission factor of 0.00042 lbs PM10/cf

Marine Vessel Exhaust Emission Factors (EPA Tier-2)

		Number of	Hours	No.	Default	Default	(Tier-2) EF (gm/bhp-hr)					
Equipment Type		Vehicles	per Day	of days	HP	Load Factor	VOC	CO	NOx	PM10	SO2	Total HP
Electric-Powered Derrick Barge	==>	1	8	20	600	0	0.05	3.70	5.30	0.148	0.76	600
Work Tug	==>	1	4	20	750	0.4	0.05	3.70	5.30	0.148	0.76	750
Crew Survey Boat - Small	==>	1	4	20	80	0.5	0.05	3.70	5.30	0.148	0.76	80
		3	Total Equip		1430	Total HP	0.46				0.80	

HP-hr	Gallons (0.05 gal/hp-hr)	Fuel S ppm	lbs SO2
0	0	15	0.000
24000	1200	15	0.252
3200	160	15	0.034
27200	**1360**		**0.2856**

POLB Pier-11 Demolition: Annual In-Water Mitigated (Tier-2) Equipment (SCAQMD EFs)

	Emissions (tpy)				
Annual Emissions	VOC	CO	NOx	PM10	SO2
Construction Vehicle Exhaust Emissions	0.0	0.1	0.2	0.0	0.000
Demolition Fugitive Dust	---	---	---	0.0	
General Construction Fugitive Dust	---	---	---	0.0	
Soil Loading & Dumping (Double-handled)	---	---	---	0.0	
Dozer Work	---	---	---	0.0	
Unpaved Road Fugitive PM-10	---	---	---	0.0	
Paving Off-Gas	0.00	---	---	---	
Architectural Painting (VOC = 500 g/L)	0.0	---	---	---	
Dump Truck Tailpipe Emissions	0.0	0.0	0.0	0.0	0.000
Worker Commute Tailpipe Emissions	0.000	0.00	0.000	0.000	
Total Emissions (tpy)	**0.001**	**0.111**	**0.159**	**0.00**	**0.0001**

Citation: Software Uer's guid, URBEMIS2002 with Enhanced Construction Module. Prepared for Yolo-Solano AQMD. Jones & Stokes Stokes, Sacramento CA, 2003.

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