CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD

SAN FRANCISCO BAY REGION

ORDER NO. 00-110

WASTE DISCHARGE REQUIREMENTS AND WATER QUALITY CERTIFICATION FOR:

UNITED STATES ARMY CORPS OF ENGINEERS

AND

PORT OF OAKLAND

OAKLAND HARBOR NAVIGATION IMPROVEMENT (50 FOOT) PROJECT,

OAKLAND, ALAMEDA COUNTY

The California Regional Water Quality Control Board, San Francisco Bay Region, hereinafter referred to as the Regional Board, finds that:

1. This order will serve as Waste Discharge Requirements and Water Quality Certification under Section 401 of the Clean Water Act for the Oakland Harbor Navigation Improvement Project (hereinafter, "the 50 Foot Project"). The 50 Foot Project will be carried out by the United States Army Corps of Engineers (hereinafter referred to as "the USACE") under Congressional authorization and funding pursuant to the Water Resources Development Act of 1999. The Port of Oakland (hereinafter, "the Port") is the local sponsor for this federal project. The term "Dischargers," when used in this Order, refers to both the USACE and the Port.

2. The order will provide receiving water limits and discharge specifications, as well as monitoring and reporting requirements for the project.

3. The project location is the Oakland Harbor, located on the east side of San Francisco Bay, in the City of Oakland, Alameda County, California (Figure 1).

4. The 50 Foot Project will deepen existing shipping channels and turning basins in the Oakland Harbor from –42 feet Mean Lower Low Water (MLLW) to –50 feet MLLW. The project will also create approximately 180 acres of shallow water habitats in the Middle Harbor Enhancement Area by using dredged material generated by the project to fill in a former berthing area.

5. The 50 Foot Project is related to the Port of Oakland's Vision 2000 Program of port improvements. The Port indicates that the purpose of the Vision 2000 program is to meet the anticipated demand for transportation services in the San

Francisco Bay Area and Northern California, and to serve markets in the Midwest and beyond. The specific purpose of the 50 Foot Project is to reduce tidal-caused delays associated with containership passages, to increase economies of scale for waterborne commerce, and to increase navigation safety at the Port of Oakland.

6. Other Vision 2000 projects related to the 50 Foot Project include the Berths 55-58 Project (marine terminals development), and the Joint Intermodal Terminal (railyards). The Berths 55-58 project was authorized by Board Order No. 99-055. The other related projects will be regulated by future Regional Board actions as appropriate.

7. The major construction features of the 50-Foot Project are described below (also, see Figure 2). Disposal of dredged material generated is addressed in separate findings. All depths mentioned below do not include overdredge allowance, which is two feet in all cases. The major construction features are:

   a. Deepening and widening of:

      - **Entrance Channel:** The Entrance Channel will be widened slightly, and deepened to –50 feet MLLW.
      - **Outer Harbor Channel:** The Outer Harbor Channel will be deepened to –50 feet MLLW, and widened to provide sufficient space for ships to navigate the Outer Harbor Channel without compromising structural stability at adjacent berths; and
      - **Inner Harbor Channel:** The Inner Harbor Channel will be deepened to –50 feet MLLW.

   b. Turning Basin Improvements:

      - **Outer Harbor Turning Basin**: The Outer Harbor Turning Basin will be deepened from -42 feet MLLW to -50 feet MLLW. The diameter will be widened from 1,480 feet to 1,650 feet.
      - **Inner Harbor Turning Basin**: This portion of the 50 Foot Project includes widening and deepening the turning basin from its existing dimensions (-42 feet MLLW, 1,200 feet in diameter) to a depth of -50 feet MLLW, and a diameter of 1,500 feet. The widening of the Turning Basin will include changes to the Alameda shoreline at two locations (see Figure 3): (1) the former Fleet and Industrial Supply Center annex, Alameda (FISC) and (2) at the Alameda Gateway Complex (formerly known as the Todd Shipyard). Activities at the FISC site will include: removal of 81,000 square feet of pile-supported wharf, as well as the portions of "Building 1" overlying this footprint. At the Alameda Gateway, Pier 4 and the Seaway Transportation Building will be demolished. Pier 2 will be cut back to a length of 75 feet, allowing for continued use of the pier by small vessels. The sheet metal shop, a pile-supported catwalk, and mooring dolphins will also

be demolished. The entire shoreline will be stabilized and protected from erosion by a cantilevered bulkhead. All debris generated by the demolition of structures will be removed and disposed of at an appropriate landfill facility.

The excavation of the shoreline will generate approximately 24,500 cubic yards (cy) of concrete, rock, wood, and fill from above the mean high water line. Excavation below mean high water will generate approximately 1,065,000 cy of concrete, rock, wood, artificial fill, bay mud, and Old Bay Mud/Merritt Sand.

c. Infrastructure modifications:

- Modification of the Bay Area Rapid Transit (BART) anode structure and cable (the project would not affect the BART tube itself); and
- Lowering or relocating all existing submarine utilities within the project area as necessary, including the Navy's Alameda sewer pipeline crossing the Inner Harbor Channel.

d. Middle Harbor Enhancement Area.

This portion of the 50 Foot Project will create approximately 180 acres of various shallow water habitats by using dredged material generated by the project to fill in a former berthing area (Figure 4, see detailed findings below).

8. Responsibilities of Dischargers

The USACE is responsible for work associated with improving the federal channels including all work required beyond the federal channel to construct and support the expansion of the Inner Harbor Turning Basin and any side slope stabilization of the channels (such as the construction of bulkheads and dikes), and for the disposal of all dredged material generated by this process, including the disposal of material and all construction activities necessary to complete and meet the goals of the Middle Harbor Enhancement Area. Therefore, the USACE is responsible for compliance with all provisions of this Order related to these activities as well as other provisions of this order, except as expressly conditioned or limited by this finding.

The Port owns the land underlying the Middle Harbor Enhancement Area, and therefore after completion of the initial construction of the Middle Harbor Enhancement Area the Port is required to share responsibility with the USACE for the success of this portion of the project, including the successful development of the habitat as expressly provided for in this finding. As between the USACE and the Port, after the USACE completes the initial construction, the USACE will assume exclusive control of a 10-year monitoring and adaptive management or remediation program, and the Port will assume exclusive control of maintenance and other replacement and rehabilitation requirements. Beyond the 10-year

program, the Port assumes all control and responsibility until such time as the management of the site is turned over to another public agency.

9. Additional portions of the 50 Foot Project are the sole responsibility of the Port, and will be authorized separately from this order. These portions are:

    - Berth deepening and necessary wharf strengthening
    - Sediment rehandling facility expansion, if necessary (existing Berth 10 sediment rehandling facility is currently authorized by Regional Board Order No. 98-019)
    - Infrastructure improvements at Alameda Gateway, if made necessary by the widening of the Inner Harbor Turning Basin, to allow continued operations at Bay Ship and Yacht, a commercial ship repair facility, or relocation of Bay Ship and Yacht.
    - Relocation of the Alameda Ferry stop, if made necessary by the widening of the Inner Harbor Turning Basin.

10. The 50 Foot Project will involve dredging and excavation of approximately 13.3 million cubic yards (mcy) of material. Approximately 5.8 mcy of the dredged material will be placed in the Middle Harbor, as part of the Middle Harbor Enhancement Area to create shallow water habitat. The remaining 7.5 mcy of sediments will be divided among several potential disposal options, which are discussed below. Material suitability for each disposal option is discussed in Findings 11 and 12, below.

11. The USACE distinguishes the different types of material that will be dredged (or excavated) in the Project as follows (they are described in order from the deeper and older materials to the more recently deposited or placed materials):

    a. The deepest material that will be impacted by the Project is the **Old Bay Mud/Merritt Sands (OM)** material. These materials were deposited and covered over by more recent sediments in pre-historical times, and therefore are expected to be free from anthropogenic contaminants. These sediments include Old Bay Mud, Merritt Sand, Posey Sand, and San Antonio Formation materials.

    b. On top of the OM material is the **Younger Bay Mud (YBM) formation** that was deposited beginning 10,000 years ago and was covered by hydraulic fill beginning in the 1880s. The USACE has divided this material into between one and three layers of four-foot thickness each, based on the expected risk of contamination. Four feet was chosen as a dredgeable unit that a contractor can be expected to dredge with reasonable accuracy. Young Bay Mud Surface (YS) consists of all Younger Bay Mud from the mudline down to a maximum of four feet below the mudline. Young Bay Mud Middle (YM) consists of all Younger Bay Mud from four feet below the mudline down to a maximum of eight feet below the mudline. Young Bay Mud Bottom (YB) consists

of all younger Bay Mud from eight feet below the mudline to the interface with OM material.

c. In certain areas of the Inner Harbor Turning Basin, **Artificial Fill (AF)** overlying the YBM will be impacted. This material will be discussed in more detail below. After excavation, the AF material will be stockpiled and tested for disposal at appropriate permitted landfill facilities.

12. The 7.5 mcy of material generated by the project that will not be used in the Middle Harbor Enhancement Area will be disposed of off site, with the final disposal sites to be determined in the future, based on logistical and cost issues at the time of disposal needs. The potential disposal sites are:

a. **Hamilton Wetlands Restoration Project**.

This project would involve creating wetlands on over 950 acres of subsided diked baylands at the former Hamilton Army Airfield, adjacent Navy ball fields, and the decommissioned Hamilton Army antenna field. Dredged materials would be used to raise elevations at the site to those suitable for the establishment of wetland vegetation. The project proponent (the California Coastal Conservancy) has stated its intent to accept only clean dredged material at the site. The Hamilton project has been authorized by Congress (WRDA 1999) and approved by the Coastal Conservancy. Preliminary environmental review is complete and the EIR/S for the project has been certified, but issues of site cleanup that may impact wetland creation are still unresolved. Eventual restoration of the site would require authorization by the Regional Board, as well as other state and federal agencies. Therefore, the project may not be available to accept dredged material from the 50 Foot Project during the appropriate time frame.

b. **Montezuma Wetlands Restoration Project**.

This project proposes to restore approximately 1,800 acres of tidal wetlands to subsided diked baylands by using dredged sediments to raise elevations at the site to those suitable for the establishment of wetland vegetation. The project proponents (Levine-Fricke Restoration Corporation and Montezuma Wetlands LLC) will accept both wetland cover and wetland non-cover quality dredged material at the site. This project is authorized by Regional Board Order No. 00-061, but other required permits have not yet been issued. Therefore, the Montezuma project may not be available to accept dredged material from the 50 Foot Project during the appropriate time frame.

c. **San Francisco Deep Ocean Disposal Site (SF-DODS)**.

Located approximately 50 miles offshore of the Golden Gate (and beyond the jurisdiction of the Regional Board), this disposal site was established by the USEPA in 1994, with publication of the final rule guiding its use

and management in the Federal Register in 1999. Only material determined to be suitable for ocean disposal could be disposed of at this site. The USACE only plans to use this site if the Hamilton or Montezuma wetland restoration sites were unavailable.

d. **Former Alameda Naval Air Station**.

Up to 750,000 cubic yards of material may be transported to the former Alameda Naval Air Station property to be dewatered and stockpiled for use is future development projects at this location. Only sediments designated suitable for in-Bay disposal would be transported to this site. Such use of the site would require authorization by the Regional Board. If this disposal option is used, the Project Sponsor will apply for a permit to undertake the placement and dewatering activities.

e. **Various Landfills**.

Some of the dredged sediments, particularly those with high levels of contaminants of concern, may be disposed of at a permitted Bay Area landfill. Debris from removal of structures during the widening of the Inner Harbor Turning Basin will also be disposed of at an appropriate permitted disposal facility. Sediments to be disposed of at a landfill would first be dewatered at the Port's Berth 10 facility, authorized by Regional Board Order No. 98-019.

13. **Sediment Suitability Determinations**

a. The dredged material to be generated by the project has been evaluated by Regional Board staff in conjunction with the inter-agency Dredged Material Management Office (DMMO), of which the Regional Board is a member. The DMMO reviews proposals to dredge and reuse or dispose of dredged material. After approving the sediment sampling and analysis plan, the DMMO participants review the results of the testing and make recommendations to their respective agencies regarding the suitability of sediments for proposed disposal and reuse locations.

b. Sediments to be dredged as part of the 50 Foot Project were characterized to determine their suitability for various disposal options: ocean disposal, in-Bay disposal, wetland creation (cover material and non-cover material), construction material, and landfill disposal. Much of the sediment tested was found to be suitable for more than one of the potential disposal options. None of the sediments were found to have levels of contaminants that would lead to their classification as hazardous waste, therefore requiring disposal in a landfill, however, landfill disposal or reuse of sediments as daily cover are potential disposal options for the sediments generated by the project.

c. The Regional Board finds that material determined to be suitable for in-Bay disposal (by the Regional Board, in conjunction with the DMMO), is

suitable for placement in the Middle Harbor Enhancement Area. The majority of the material has been determined to be suitable for aquatic disposal, based on pre-dredge testing. Additional testing may be completed to determine the final suitability of some material. While the DMMO also made suitability determinations relating to use of sediments in wetland restoration, each wetland restoration project will have sediment acceptance and testing criteria established by a site-specific Board action, which would be the final determinant of what sediments could be used at each site.

14. **Inner Harbor Turning Basin**

a. **Sediment Contamination in the Inner Harbor Turning Basin Widening Area along the Alameda Shoreline**: Based on past sediment characterizations conducted during the -42 foot Harbor Deepening Project, the Younger Bay Mud (YBM) in the Inner Harbor Turning Basin widening area along the Alameda shoreline was expected to be contaminated. This was confirmed by sediment characterization testing conducted for the 50 Foot Project. Many of the composite samples for test cells in the Inner Harbor Turning Basin widening area exceeded Wetland Non-Cover Criteria[1] for several constituents including heavy metals, PAHs, and PCBs. Contamination appears to increase with depth, down to the interface between the YBM and the Merritt Sand. To avoid leaving unacceptable levels of contaminants exposed in the Inner Harbor Turning Basin widening area, the USACE will remove all YBM material down to the Old Bay Mud/Merritt Sand layer throughout the entire Inner Harbor Turning Basin widening area.

b. **Site Control During Dredging of Inner Harbor Turning Basin Widening Area**: Computer modeling performed to evaluate the potential for dredging of the Inner Harbor Turning Basin Widening Area to adversely impact water quality indicated that water quality criteria exceedances would not occur with the use of a clamshell dredge. The USACE will dredge using a clamshell bucket no larger than 30 cubic yards.

Although it is not expected that water quality will be degraded by dredging sediment from the Inner Harbor Turning Basin Widening Area, additional precautions such as the use of silt curtains and absorbent booms are warranted due to the presence of petroleum hydrocarbon wastes, debris, and buried pilings in the YBM stratum. In order to better control the site and avoid discharges of oily sheens and debris, the USACE will

[1] As defined in the 1992 Regional Board staff report, "Interim Sediment Screening Criteria and Testing requirements for Wetland Creation and Upland Beneficial Reuse," Wetland Non-Cover material is a category of dredged material suitable for use in wetland creation projects, but that must be covered by at least three feet of cleaner, "Wetland Cover" material. Since this material exceeded the Non-Cover criteria, it was determined to be unsuitable for use in wetland creation projects.

use silt curtains and absorbent booms around the YBM material during dredging operations in the Inner Harbor Turning Basin Widening Area. Debris will be collected separately from dredged sediments and will be disposed of at an approved facility.

c. **Soil and Groundwater Contamination at FISC Annex and Alameda Gateway Complex**:

Although three borings sampled in the excavation footprint at FISC Annex on the easternmost shoreline appeared to contain little or no soil or groundwater contamination, a soil boring within 50 feet of this area sampled in 1997 as part of the -42 foot Harbor Deepening Project had a total PAH concentration of 519 mg/kg and a dibenzofuran concentration of 1.6 mg/kg at a depth of five feet.

The Alameda Gateway Complex on the westernmost shoreline has a long history of maritime construction and maintenance activity. A substantial portion of the property is currently leased to Bay Ship and Yacht, which conducts ship maintenance and repair including the operation of a floating drydock facility. In 1990 a leaking underground storage tank was removed from the shoreline directly adjacent to the proposed excavation. A groundwater monitoring well was installed and monitored in 1992, but no further information was gathered between 1992 and August 2000. In order to ascertain the potential for groundwater contamination within or near the proposed excavation, the well was redeveloped and monitored in August 2000. A slight sheen and 140 mg/l of diesel range total petroleum hydrocarbons (TPH) were observed, along with 43 μg/l total PAHs and 660 μg/l gasoline range TPH, indicating that shallow groundwater is impacted by petroleum products.

d. **Site Control During Land Excavation of the Inner Harbor Turning Basin Widening Area**:

<u>Barrier Wall on Alameda Gateway Complex Property</u>: The USACE will install a physical barrier to groundwater migration (low permeability cutoff wall) along the shoreline of the Alameda Gateway Complex to prevent the discharge of contaminated groundwater to the Estuary during and after land excavation activities. Shoreline excavation, except that required for installation of the barrier wall, will not commence until installation of the barrier wall has been certified complete according to a Board staff-approved construction work plan (see Provision 2, Tasks #6 and #7). Investigation and cleanup of soil and groundwater contamination inboard of the barrier wall alignment is the responsibility of the property owner, not the Port, who is acquiring for the USACE only necessary real estate interests in the land outboard of the barrier that must be removed to widen the Inner Harbor Turning Basin. This order does not address investigation and cleanup of soil and groundwater that will be inboard of

the barrier wall. Alameda County is currently overseeing follow-up work related to the 1990 UST removal.

Procedures Applicable to all Inner Harbor Turning Basin Shoreline Excavation: Soil above Mean High Water that lies within the excavation footprint of the Inner Harbor Turning Basin will be removed by backhoes starting at the shoreline and working inland. The USACE will prevent excessive turbidity in the Estuary by deploying weighted silt curtains at least 5 feet in depth completely around the excavation area (shoreline to shoreline). Floating absorbent boom capable of controlling moderate to large spills for up to 24 hours will be on-hand. All construction staff will be trained in spill response procedures according to the Spill Response Plan required pursuant to Provision 2, Task #10 of this order. Any soil that is stockpiled on-site prior to disposal will be placed on plastic liners at least 100 feet from the shoreline and treated as contaminated until chemical analysis demonstrates otherwise. The USACE will contain the stockpiles to prevent windblown dust and stormwater runoff from leaving the site.

15. **Middle Harbor Enhancement Area**

a. Historically the Middle Harbor Enhancement Area site contained shallow tidal flats. During World War II the Navy dredged the harbor to a depth of approximately –36 feet to support a supply depot. The approximately 180-acre site will be restored to its historic shallow water depths of –4 to –8 feet MLLW by placing approximately 5.8 million cubic yards of clean dredged material generated from the channel deepening portion of the project at the site.

b. Eelgrass beds are important components of estuarine ecosystems, and have declined from historical levels both globally and in the San Francisco Bay. Eelgrass restoration projects should therefore be encouraged in the region in order to increase water clarity, reduce erosion, provide nurseries for fish, and increase habitat for invertebrates, in shallow water coastal habitats.

c. The Middle Harbor Enhancement Area conforms to mitigation measures required for the Oakland Harbor Navigation Improvement (50 Foot) Project Final Environmental Impact Statement/Environmental Impact Report (EIR/EIS), the U.S. Fish and Wildlife Service and National Marine Fisheries Service Endangered Species Act Section 7 Biological Opinions, and the First Phase Coastal Zone Management Consistency Determination.

d. Impacts to existing resources will include the elimination of 0.28 acres of existing eelgrass beds on the perimeter of the site and approximately 180

acres of deep water habitat considered to be of lesser ecological value than the shallow water habitat proposed to be created by the project.

e. The U.S. Fish and Wildlife Section 7 Consultation has been conducted and has resulted in the federal requirement that the Middle Harbor Enhancement Area will serve to offset impacts to listed species and biological resources by creating shallow subtidal flats, eelgrass beds, and shallow mudflats.

f. The project will involve construction of a containment dike, fill of the project area, a settlement period after filling, and final grading and planting. This construction phase is anticipated to take five to six years. The construction phase will be followed by a monitoring and adaptive management period lasting approximately 10 years.

g. Final habitat types will consist of shallow water habitats including salt marsh, mudflats, and eelgrass beds. Fish species expected to benefit from these habitats are: surfperch, gobies, silversides, sculpin, pipefish, sharks, rays, English sole, speckled sanddab, starry flounder, and California halibut. Bird species expected to benefit from these habitats are: endangered birds such as the California least tern and California brown pelican, and both migratory and resident wading and shore birds. Shallow water and intertidal invertebrates such as crustaceans and amphipods are also expected to benefit from these habitats. The shallow habitat to be created by the Middle Harbor Enhancement Area will provide more species diversity for desirable biological groups and will be more ecologically productive than the existing deep-water habitat.

h. Monitoring of the project will cover 5 periods:

Phase 1 -- Construction Restriction Compliance;

Phase 2 – Design Verification and Refinements;

Phase 3 – Site Suitability Evaluation/Warranty;

Phase 4 – Performance Evaluation; and

Phase 5 – Long-Term Management.

i. Public access to the Middle Harbor Enhancement Area will be provided through the adjacent Middle Harbor Shoreline Park. Only non-motorized vessels will be allowed in the project area, and the site will be dedicated in perpetuity for the protection of fish and wildlife and managed by an agency or organization capable of managing the site in accordance with the McAteer-Petris Act and the San Francisco Bay Conservation and Development Commission's *San Francisco Bay Plan*.

j. The Middle Harbor Enhancement Area design has been overseen by a Technical Advisory Committee consisting of representatives of the California Department of Fish and Game, National Marine Fisheries

Service, U.S. Fish and Wildlife Service, U.S. Army Corps of Engineers, Save San Francisco Bay Association, Bay Conservation and Development Commission, Sierra Club, Golden Gate Audubon, East Bay Regional Park District, Regional Water Quality Control Board, community representatives, the Port, and the Port's consultants.

k. The Middle Harbor Enhancement Area is consistent with the *Baylands Ecosystem Habitat Goals* (1999), which recommends that the harbor be restored to shallow bay, intertidal mudflat, and eelgrass beds.

l. The Middle Harbor Enhancement Area conforms to the Long Term Management Strategy goals of beneficial use of dredged material. The alternative to using this site would be to dispose of the material at the San Francisco Deep Ocean Disposal Site. It is estimated that it would take the Middle Harbor Enhancement Area site between 175 to 700 years to fill if natural sedimentation rates were relied upon exclusively. Reuse of dredged sediments generated by the channel deepening at Middle Harbor Enhancement Area site avoids disposal in the deep ocean and provides the raw materials for a productive shallow water restoration site.

m. The Middle Harbor Enhancement Area will receive only clean sediment classified as suitable for in-Bay disposal by the DMMO (see finding 12, above).

16. The USACE have analyzed the project for consistency with Section 404(b)(1) Guidelines (40 CFR 230 *et seq.*), promulgated by the USEPA, for disposal of dredged or fill material into waters of the US. The USACE found that the project complies with the applicable provisions of the Guidelines in that the project is the practicable alternative with the least adverse impact on the aquatic ecosystem, and includes appropriate practical steps to minimize adverse impacts of the discharge of dredged materials on the aquatic ecosystem. The Regional Board concurs with this assessment.

a. Mitigation is not required for loss of deep water habitat because there will be a net increase of deep water habitat as a result of the widening and deepening in all aspects of the 50 Foot Project.

b. Mitigation is not required for the fill of approximately 180 acres of deep water habitat in the Middle Harbor Enhancement Area because:

i. it will create 55 acres of habitat suitable for eelgrass habitat development and approximately 125 acres of shallow water and other habitat types;

ii. the current site has been disturbed by dredging about every 3 years;

iii. the restoration project will return the site to its natural state of shallow water, intertidal mudflat, and eelgrass beds;

iv. shallow water, intertidal mudflat, and eelgrass bed habitats have been adversely impacted over the last 150 years in San Francisco Bay and only a small percentage of the original extent of these habitats remains;

v. restoration of this site to shallow bay, intertidal mudflat, and eelgrass beds has been recommended for this site by the *Baylands Ecosystem Habitat Goals*; and

vi. a comprehensive and detailed monitoring program will be implemented to ensure that these habitats are realized; if they are not realized by the end of the 10-year Performance Evaluation phase, then the Regional Board will require mitigation for the fill in waters of the State.

17. Beneficial Uses

a. Groundwater: The existing and potential beneficial uses for groundwater in the vicinity of the 50 Foot Project include municipal and domestic water supply, industrial process water supply, industrial service water supply and agricultural water supply. The Project overlies the East Bay Plain Groundwater Basin. Shallow groundwater to a depth of about 100 feet below ground surface is brackish. Furthermore there is no historical, current, or planned use of the shallow brackish groundwater as source of drinking water. However, the deeper aquifers beneath the site are a potential source of drinking water. The East Bay Plain Groundwater Basin is being evaluated for the storage of imported surface waters by East Bay Municipal Utilities District.

The potential for the 50 Foot Project to increase saltwater intrusion into the underlying groundwater aquifers was evaluated by Subsurface Consultants, Inc., and Todd Engineers, 1998, (*Hydrogeologic Investigation Oakland Harbor Navigation Improvement (-50 Foot) Project Port of Oakland, Oakland and Alameda, California*). The evaluation included a compilation of information on hundreds of existing wells, drilling 11 onshore borings and 19 offshore borings, preparing isopach maps of the underlying geologic units, conducting aquifer tests of selected wells, collecting water quality data, and modeling potential saltwater intrusion due to the harbor deepening using the U.S. Geological Survey's SUTRA model.

This evaluation found that the harbor deepening could increase the vertical flux of groundwater by approximately 4% in the Inner Harbor and 5% in the Outer Harbor. Simulations of total dissolved solids concentrations over time in the Alameda Formation sand layers indicate an increase of up to 5% after channel deepening. They also indicate travel times of 125 years in the Inner Harbor and 470 years in the Outer Harbor channel associated with vertical transport of water and TDS from the channels to

the top sand layers of the Alameda Formation. These long transport times reflect the significant capacity of the underlying aquitards to delay vertical transport of water and TDS. Therefore, the Board finds that the proposed channel improvements have the potential to result in minimal impacts to a potential source of drinking water by increasing TDS levels in the underlying aquifers. The Board finds that this minimal impact is acceptable. However, because it may be necessary to manage the groundwater basin to protect its long-term beneficial use, it will be necessary to monitor the groundwater impacts to make sure that the actual impacts are within the range predicted in the simulation.

The Port has, and will continue to monitor water quality, including long-term changes in TDS levels, in the groundwater aquifers. Task 8 has therefore been established to require a monitoring program that demonstrates that the actual impacts of the project on groundwater are within the range predicted in the reports cited above. Existing wells and monitoring of groundwater quality, particularly TDS and electroconductivity data, may be used to assemble sufficient data to determine whether or not any trends can be detected.

b. Surface Water: The beneficial uses of the waters of the Central San Francisco Bay as set forth in the Basin Plan are as follows:

   i. Water Contact Recreation
   ii. Non-Contact Water Recreation
   iii. Wildlife Habitat
   iv. Industrial Service Supply
   v. Industrial Process Supply
   vi. Preservation of Rare and Endangered Species
   vii. Fish Migration and Spawning
   viii. Navigation
   ix. Ocean and Commercial Sport Fishing
   x. Fish Spawning
   xi. Estuarine Habitat
   xii. Shellfish Harvesting

18. To comply with the provisions of the National Environmental Policy Act (NEPA) and the California Environmental Quality Act (CEQA), the USACE and Port jointly prepared the Oakland Harbor Navigation Improvement (-50 Foot) Project Environmental Impact Statement (EIS)/Environmental Impact Report (EIR) dated May 1998. The USACE issued a Record of Decision (ROD) on October 8, 1999. On February 1, 2000, the Board of Port Commissioners certified the EIR. An

Addendum to the EIS/EIR was certified by the Board of Port Commissioners on July 18, 2000.

19. The Port has voluntarily agreed to augment the existing California State Lands Commission's ballast water treatment program by providing an additional $150,000 for that program. This augmentation is not a requirement of this Order, but is a voluntary, "good neighbor" commitment of the Port.

20. The Board finds that the EIS/EIR properly identified all potentially significant impacts and, with the possible exception of ballast water exotic species impacts, all identified impacts have been, or with compliance with the terms and conditions of this permit will be, fully mitigated. Commenters have raised concerns that the EIS/EIR does not fully mitigate for all potential impacts from exotic species discharged with ballast water. The Board, however, is explicitly prohibited by law from requiring additional mitigation relating to exotic species in ballast water. (Pub. Resources Code, § 71207, sub d.(a).) A public agency may require only that mitigation which it has the power to require under law other than CEQA. (Pub. Resources Code, § 21004.) Under the same legislation that prohibits the Board from imposing additional requirements regarding exotic species from ballast water, all ships are required to employ specified ballast water management practices. (Pub. Resources Code, § 71204.) To the extent that compliance with this law may not fully mitigate exotic species impacts from ballast water, the Board finds that these impacts are not mitigatable under law, and that the vital importance of the project to environmental restoration and the national, regional and local navigational and shipping interests are overriding considerations.

21. The Board adopted a revised Water Quality Control Plan for the San Francisco Bay Basin (Basin Plan) on June 21, 1995. This plan was approved by the State Water Resources Control Board and the Office of Administrative Law on July 20 and November 13, 1995, respectively. A summary of regulatory provisions is contained in Title 23 of the California Code of Regulations, section 3912. The Basin Plan defines beneficial uses and water quality objectives for waters of the State, including surface waters and groundwaters. This order is in compliance with the Basin Plan.

22. Effluent limitations in these requirements are based on the plans, policies, and water quality objectives of the Basin Plan, Quality Criteria for Water (EPA440/5-86-001, 1986; Gold Book and 63 Federal Register 68354, December 10, 1998), Applicable Federal Regulations (40 CFR Parts 122 and 131), the National Toxics Rule (57 FR 60848, 22 December, 1992; NTR), and Best Professional Judgment.

23. This certification action is subject to modification or revocation upon administrative or judicial review, including review and amendment pursuant to Section 13330 of the CWC and Section 3867 of Title 23 of the California Code of Regulations (23 CCR).

24. This certification action is not intended and shall not be construed to apply to any discharge from any activity involving a hydroelectric facility requiring a Federal Energy Regulatory Commission (FERC) license or an amendment to a FERC license unless the pertinent certification application was filed pursuant to 23 CCR Subsection 3855(b) and that application specifically identified that a FERC license or amendment to a FERC license for a hydroelectric facility was being sought; and,

25. Certification is conditioned upon total payment of the full fee required in State regulations (23 CCR Section 3833) and owed by the applicant. The issue of the USACE paying application fees to the Board is a matter of dispute between the USACE and the Regional Boards. The matter is currently before the federal Ninth Circuit Court of Appeals. The Board will act consistently with the decision of this Court.

26. The Regional Board has notified the Dischargers and interested agencies and persons of its intent to prescribe waste discharge requirements for this discharge.

27. The Regional Board, in a public meeting on October 18, 2000, heard and considered all comments pertaining to the discharge.

IT IS HEREBY ORDERED that the Dischargers, in order to meet the provisions contained in Division 7 of the California Water Code and regulations adopted thereunder, shall comply with the following in meeting their respective responsibilities as described in finding number 8 of this order:

A. Discharge Prohibitions:

1. The direct discharge of wastes to surface waters or surface water drainage courses is prohibited, except as authorized in this Order.
2. The discharge shall not cause degradation of any water supply.
3. The dredged material shall remain within all the designated disposal areas at all times.
4. The dredging, excavation, filling and disposal activities subject to these requirements shall not cause a condition of pollution or nuisance as defined in Sections 13050 (l) and (m), respectively, of the California Water Code.

B. Discharge Specifications

1. The USACE shall ensure to the extent practicable that the suspended solids generated by construction activities (including dredging, excavation and placement in the Bay of solid materials permitted by this order) do not exceed 1500 mg/L more than 100 feet beyond the Project Boundary for the Inner Harbor Turning Basin widening area and for the Middle Harbor Enhancement Area. The Project Boundary for the Inner Harbor Turning Basin widening area is defined to be the silt curtain. In the Middle Harbor Enhancement Area,

the Project Boundary is defined as the outer limit (the "toe") of the containment dike buttress.

2. In accordance with Section13260 of the California Water Code, the USACE shall file a report with this Regional Board of any material change or proposed change in the character, location, or volume of the discharge. Any proposed material change in the operation shall be reported to the Executive Officer at least 7 days in advance of implementation of any such proposal.

3. The responsible representative of the USACE shall immediately notify the Regional Board staff by telephone whenever an adverse condition occurs as a result of this discharge. An adverse condition includes, but is not limited to, a violation or threatened violation of the conditions of this Order, significant spill of petroleum products or toxic chemicals, or damage to control facilities that could affect compliance. Pursuant to Section 13267(b) of the California Water Code, a written notification of the adverse condition shall be submitted to the Regional Board within 30 days of occurrence. The written notification shall identify the adverse condition, describe the actions necessary to remedy the condition, and specify a timetable, subject to the modifications of the Regional Board, for the remedial actions.

C. Effluent Limitations

1. Wastewater discharged as any part of the project shall not exceed the following limits of quality at any time. It is anticipated that there will be no wastewater discharged as part of the project.

   a. pH: 6.5 - 8.5

   b. Settleable matter: 1.0 mL/L/hr

   c. Dissolved sulfide: 0.1 mg/L

   d. Suspended solids 100 mg/L

D. Receiving Water Limitations

1. The dredging and/or disposal of sediments and/or return water shall not cause:

   a. Floating, suspended or deposited macroscopic particulate matter or foam in waters of the State at any place more than 100 feet from the Project Boundary or point of discharge of the return flow, except as authorized under Section B, Discharge Specifications, of this Order.

   b. Visible floating, suspended, or deposited oil or other products of petroleum origin in waters of the State at any place.

c. Waters of the State to exceed the following quality limits at any point *except* within the Middle Harbor Enhancement Area and Inner Harbor Turning Basin widening area Project Boundaries during construction activities:

i)	Dissolved Oxygen:	5.0 mg/l minimum. When natural factors cause lesser concentrations, then this discharge shall not cause further reduction in the concentration of dissolved oxygen.
ii)	Dissolved Sulfide:	0.1 mg/l maximum.
iii)	pH:	A variation of natural ambient pH by more than 0.5 pH units.
iv)	Toxic or other deleterious substances:	None shall be present in concentrations or quantities which may cause deleterious effects on aquatic biota, wildlife, or waterfowl, or which render any of these unfit for human consumption either at levels created in the receiving waters or as a result of biological concentrations.

2. The groundwater shall not be degraded as a result of the fill or sediment disposal, reuse, or handling.
3. The total suspended solids in the top 5 feet of the water column shall not exceed 1500 mg/L for more than 10% of the measurements or exceed 750 mg/L for more than 50% of the measurements during a 24-hour period (midnight to midnight) taken no more than 100 feet beyond either the Inner Harbor Turning Basin or the Middle Harbor Enhancement Area Project Boundaries.
4. The concentrations of chemicals of concern, as found in grab samples taken no more than 100 feet beyond the Inner Harbor Turning Basin Project Boundary, shall not exceed the Receiving Water Limits in Table A-1 of the attached Self-Monitoring Program, unless it can be shown that site concentrations are not significantly different from ambient concentrations of those chemicals (as measured in the approach channel to Oakland Harbor).

E. Provisions

1. The Dischargers shall comply with all the Prohibitions, Specifications and Provisions of this Order, pursuant to the responsibilities of each Discharger, described earlier in this Order, immediately upon adoption of this Order or as provided below.

2. **Permit Tasks:**

Task #1: Quality Assurance Project Plan

The USACE shall submit a technical report acceptable to the Executive Officer that contains a site-specific Quality Assurance Project Plan (QAPP) for all data collection associated with this Order. The QAPP will outline *in situ* monitoring methods, the collection of soil, sediment, and water samples, analysis of the samples, and reporting of the results. The plan will specifically address project organization, quality assurance objectives, sampling procedures, sample handling and custody, laboratory analyses and quality control procedures, audits, corrective action, data reduction, management, reporting and validation.

REPORT DUE DATE: At least 60 days prior to commencement of construction activities associated with any portion of the project

Task #2: Receiving Water Monitoring and Contingency Plan

The USACE shall submit a Receiving Water Monitoring Plan acceptable to the Executive Officer that describes how the USACE will comply with the requirements set forth in the Self Monitoring and Reporting Plan (SMP) associated with this order. The plan shall include a description of how the USACE will continuously monitor turbidity within 100 feet of the Project Boundaries for the Inner Harbor Turning Basin widening area and the Middle Harbor Enhancement Area. The plan shall also describe how the turbidity meters will be calibrated to estimate total suspended solids and how ambient (pre-project) conditions will be evaluated. The plan shall describe how the grab samples required in the SMP will be taken and how the USACE will keep Regional Board staff informed of the compliance with Receiving Water Limits. The Plan will also describe how the USACE will take action if the Receiving Water Limits are exceeded (Contingency Plan).

REPORT DUE DATE: At least 60 days prior to commencement of construction activities associated with any portion of the project

Task #3: Post Placement Confirmation Sampling Plan

The USACE shall submit a technical report acceptable to the Executive Officer that contains a Post Placement Confirmation Sampling Plan for sediments placed in the Middle Harbor Enhancement Area.

REPORT DUE DATE: July 20, 2001

Task #4: Results of Post Placement Confirmation Sampling

The USACE shall submit a technical report acceptable to the Executive Officer that contains the results of the Post Placement Confirmation Sampling at the Middle Harbor Enhancement Area.

REPORT DUE DATE: Within 120 days of completion of final grading of Middle Harbor Enhancement Area

Task #5: Dredging, Excavation and Filling Final Report

The USACE shall submit a report acceptable to the Executive Officer that summarizes compliance of the Project with requirements in this order related to dredging, excavation, and filling. This report shall include a comprehensive discussion of: the compliance record of the project and corrective actions taken; the effectiveness of the receiving water monitoring methods; the effectiveness of dredging, excavating, and filling methods used for minimizing water quality impacts; estimates of the volumes of material dredged, excavated and placed during the project and estimates of total volume of decant water (if any) generated by the project.

REPORT DUE DATE: Within 120 days of completion of the dredging and filling operations

Task # 6: Alameda Shoreline Structural Bulkhead and Barrier Wall Design and Construction Work Plan

The USACE shall submit a work plan and schedule acceptable to the Executive Officer that provides design and construction specifications for the structural bulkhead to be placed along the Alameda shoreline and for a low permeability barrier wall to be installed at the Alameda Gateway Complex on the westernmost shoreline of the Inner Harbor Turning Basin widening area. The minimum performance requirements for the barrier wall are:

In situ hydraulic conductivities of 1×10^{-6} cm/s or less; and

A minimum key-in depth of four feet into the Young Bay Mud or other stratum of equally low permeability.

The work plan shall also include procedures for conducting and documenting construction quality analysis inspections and a procedure for post-placement performance testing to demonstrate that the wall achieves a hydraulic conductivity of 1×10^{-6} cm/s or less.

Prevention of hydraulic pressure head build-up from groundwater inboard of the barrier wall and potential contaminated groundwater releases due to breakthrough, overtopping, and/or diversion around the ends of wall must also be addressed in this work plan. Plans for constructing a groundwater

extraction system shall be included if hydraulic pressure build-up is determined to be a potential problem. Appropriate treatment and disposal of extracted groundwater, if necessary, shall also be discussed.

Lastly, the work plan shall discuss the construction sequencing of the two projects and how construction of the structural bulkhead may impact the structural integrity and functioning of the barrier wall.

REPORT DUE DATE: At least 60 days prior to start of shoreline excavation activities

Task #7: Structural Bulkhead and Barrier Wall Construction Completion Report

The USACE shall submit a report acceptable to the Executive Officer documenting completion of construction of the structural bulkhead and the low permeability barrier wall to be installed along the Alameda shoreline of the Inner Harbor Turning Basin. The report shall include as-built drawings, post-placement permeability testing results, construction quality analysis inspection results, and any other documentation necessary to demonstrate that the wall was installed according to the approved workplan submitted pursuant to Task #6 of this order.

REPORT DUE DATE: Within 120 days of completion of Inner Harbor Turning Basin construction activities

Task #8: Oakland Harbor Groundwater Monitoring Plan

The Dischargers shall submit a plan acceptable to the Executive Officer describing proposed groundwater monitoring activities on property impacted by the 50 Foot Project and related projects. The plan shall include monitoring for saltwater intrusion due to deepening of the harbor channel and turning basins. This task can be satisfied by the Port of Oakland by including a saltwater intrusion monitoring plan in the existing groundwater monitoring plan required for the ongoing Port of Oakland Berth 55-58 Project.

REPORT DUE DATE: February 15, 2001

Task #9: Floating and Non-Floating Debris Management Plan

The USACE shall submit a plan acceptable to the Executive Officer for preventing building, pier and wharf demolition waste generated during widening of the Inner Harbor Turning Basin from adversely impacting beneficial uses of the Bay. The plan shall address both prevention of debris from falling into the Bay, and collection of debris from the Bay in the event

that prevention measures fail, as well as disposal procedures for the debris once it has been broken into manageable pieces and collected.

REPORT DUE DATE: At least 60 days prior to commencement of construction activities associated with any portion of the project

Task #10: Spill Response Plan

The USACE shall submit a plan acceptable to the Executive Officer for responding to and cleaning up visible releases of contaminants, including, but not limited to, releases of petroleum product "sheens" during dredging operations.

REPORT DUE DATE: At least 60 days prior to commencement of construction activities associated with any portion of the project

Task #11: Inner Harbor Turning Basin Widening Area Sediment Removal Confirmation Sampling Plan

The USACE shall submit a plan acceptable to the Executive Officer to confirm the removal of contaminated sediment from the Inner Harbor Turning Basin widening area and demonstrate that the sediment remaining in the biologically active layer (top 3 feet) after completion of dredging activities is substantially similar in physical and chemical characteristics to Merritt Sands/Old Bay Muds, as characterized in the report, Tier I Evaluation of Dredged Material (EVS Environmental Consultants, 1997), or that the sediments do not pose an unacceptable risk to biological receptors. The plan shall include, but not be limited to, a procedure for estimating the appropriate number and distribution of samples, a map showing proposed sample locations, a list of constituents to be analyzed, and a description sample collection and analysis methods.

REPORT DUE DATE: At least 60 days prior to the start of dredging in the Inner Harbor Turning Basin

Task #12: Inner Harbor Turning Basin Widening Area Sediment Removal Confirmation Sampling Results

The USACE shall submit a report acceptable to the Executive Officer documenting the results of the Inner Harbor Turning Basin widening area sediment removal confirmation sampling. The report shall provide results of the sediment analyses and an evaluation of the potential risk to biological receptors of the remaining sediments in the widening area.

REPORT DUE DATE: Within 120 days of completion of sediment removal in the Inner Harbor Turning Basin widening area

3. The USACE shall conduct monitoring activities according to the Self-Monitoring and Reporting Program (SMP) attached to this order and as may be amended by the Executive Officer. At any time after adoption of this order, the Dischargers may file a written request proposing modifications to the attached SMP. If the proposed modifications are acceptable, the Executive Officer may issue a letter of approval incorporating the revisions into the SMP.

4. Each discharger shall notify the Regional Board immediately whenever violations of this order (for which the discharger is responsible) are detected.

5. The USACE will continuously estimate total suspended solids concentration using turbidity meters during excavation of the Inner Harbor Turning Basin widening area and during the placement of material at the Middle Harbor Enhancement Area, which will be calibrated with enough grab samples to reduce the error in any measurement to less than 100 mg/L.

6. The USACE will use silt curtains (or an equivalent method) when dredging using a clamshell dredge or excavating in water less than 20 feet deep.

7. During herring spawning season, a monitor, trained by California Department of Fish and Game staff, will observe the construction area and if spawning is observed, will redirect construction activities away from areas of active spawning.

8. Return water overflow from dredging barges shall be limited to no longer than 15 minutes at the dredge site when sediments that have been determined to be suitable for unconfined aquatic disposal are being dredged.

9. In order to minimize resuspension, the USACE will use a clamshell dredge (or equivalent method) for the Inner Harbor Turning Basin widening. The USACE may be required to use alternative construction methods to move the Merritt Sand materials if the suspended solids generated by hydraulic dredging cannot meet the Receiving Water Limits.

10. The USACE shall use a clamshell dredge with a closed (watertight) bucket no larger than 30 cubic yards or the equivalent when dredging or excavating Young Bay Muds in the Inner Harbor Turning Basin widening area. No return water shall be discharged from the disposal barge when dredging in this area.

11. The USACE shall use silt curtains and absorbent booms (or equivalent methods) when dredging or excavating offshore in the Inner Harbor Turning Basin widening area. Both containment and absorbent booms shall be deployed during demolition of concrete and creosote-treated piles. During shoreline excavation, the USACE shall deploy weighted silt curtains, at least 5 feet in depth, completely around the excavation (shoreline to shoreline). If sheens or other visible signs of contaminant releases originating from the excavation and within the silt curtain are detected in surface water, the USACE shall report the spill to Board staff and implement response actions according to the plan submitted pursuant to Task #10 of this Order.

12. Any building, wharf, or pier demolition debris or excavated soil from land above MHW that is stockpiled onshore prior to offsite disposal shall be stored in a manner that utilizes BMPs for construction operations and is in compliance with the NPDES General Construction Stormwater Permit. No runoff of non-stormwater shall be allowed to enter the Bay. All such material shall be disposed of at an appropriate, permitted facility.

13. The USACE and the Port, in accordance with each of the dischargers responsibilities, will follow the proposed plan described in the *Middle Harbor Enhancement Area Construction Period and Long-term Monitoring, Maintenance, and Adaptive Management Program* (Winzler & Kelley and Merkel & Associates, August 2000) and the *Middle Harbor Enhancement Area Construction Period and Long-Term Monitoring Protocols* (Winzler & Kelley and Merkel & Associates, August 2000), as modified per Table 1 (see attachments).

14. The Middle Harbor Enhancement Area will provide the following environmental benefits and habitat types:
    - 3-5 acres of new salt marsh habitat;
    - a minimum of 15 acres of eelgrass habitat within 10 years not including that planted in the previous 3 years;
    - in addition to the 15 acres of eelgrass habitat, above, a minimum of 40 acres of habitat suitable for eelgrass habitat development and 110 acres of other shallow water habitat;
    - new public access beach area;
    - four avian islands, each being a maximum of 5,000 square feet;
    - a protected area for birds along the UP Mole shoreline;
    - 4-8 acres of artificial reef habitat containing some existing hard bottom surfaces such as concrete (4 acres already exist);
    - an estuarine community and habitat that has a higher productivity and greater diversity than the existing community and habitat of Middle Harbor;
    - increased habitat benefits for aquatic birds, especially for the least tern, by increasing the productivity of fish prey; and,
    - a greater number of fish than the existing site.

15. Performance Standards for these benefits will be measured after construction of the site is completed. Monitoring will continue for not less than 10 years and will include the following measurements carried out according to the Middle Harbor Enhancement Area Monitoring Plan documents cited above and as modified per Table 1 in the attachments: surveys of elevation, bathymetry, topography, water depths and velocities, hydrologic turnover rates, sediment size, vegetation, birds, invertebrates, fish; and assessment of physical conditions such as settlement, erosion, and deposition, and monitoring for hydrodynamics and water quality. Monitoring data will be compared to both baseline studies conducted at the Middle Harbor site prior to the restoration project and to reference site data.

While some flexibility in achieving the diverse habitat goals for the Middle Harbor Enhancement Area site should be allowed, performance standards are required to ensure that the desired habitats are provided. Those performance standards are presented in the attached Table 1 and summarized below. Assessment of overall habitat progress will be made on an annual basis, and a final determination of success will be made at the end of the tenth year of monitoring by the Executive Officer.

a. The 3-5 acres of new salt marsh habitat will consist of a complex of habitats including high, middle, and low elevation salt marsh, mudflats, salt pannes, salt ponds, and tidal channels. The Regional Board's decision on habitat success will depend on the number of shorebirds and marsh birds using the site compared to reference sites, as well as the overall number of people that visit the marsh annually.

b. 15 acres of eelgrass habitat will have at least 5% cover of eelgrass and eelgrass density comparable to the selected reference sites.

c. In addition to the 15 acres above, 40 additional acres of habitat suitable for eelgrass habitat development will be constructed at depths ranging from –6 feet to +1 foot MLLW, water velocities between 1 to 20 cm/sec, hydrologic turnover rates for the entire harbor area of no less than once/week, and median sediment grain sizes between 0.1 to 0.3 millimeters. The presence of eelgrass is desired, but not required on these 40 acres. Approximately 120 acres of other shallow water habitat will be created and defined by depths ranging from –18 feet MLLW to intertidal depths.

d. Four avian islands, each being a maximum of 5,000 square feet, will have maximum vegetation cover of 20% and will have avian use comparable to the selected reference sites.

e. Higher productivity and greater diversity of the native estuarine community and habitat in the restored Middle Harbor Enhancement Area will be realized by the following increases in abundance and/or diversity compared to baseline measurements taken in 1997 and 1999:
    1) Benthic Community: abundance will increase by at least 10% and polychaete numbers will decrease in favor of other taxonomic groups;
    2) Avian Community: abundance will increase by at least 10% for shore birds and wading birds; the abundance of other birds such as pelicans and least terns will not decrease; and,
    3) Fish Community: abundance will increase by at least 15%
    Prey species for aquatic birds, especially for the Least Tern, will increase by at least 15%.

16. During construction of the Middle Harbor Enhancement Area, TSS will be monitored continuously and silt curtains will be deployed if TSS concentrations exceed 1,500 mg/L measures at 100 feet from the Project Boundary more than 10% of the time. Also, herring spawns, will be monitored during construction of

the project and, if they occur within the Middle Harbor Enhancement Area, discharges will cease for two weeks.

17. The USACE and the Port, in accordance with their respective responsibilities, will provide a Program Manager who will oversee phases 1 through 4 of the Middle Harbor Enhancement Area project and be responsible for implementing a quality assurance program, coordinating with the Technical Advisory Committee, coordinating all data analysis, and producing all reports.

18. The USACE and the Port, in accordance with their respective responsibilities, will submit annual reports describing the activities associated with the first three phases of construction at the Middle Harbor Enhancement Area.

19. The USACE and the Port, in accordance with their respective responsibilities, will monitor the Middle Harbor Enhancement Area over a 10-year Performance Evaluation phase after construction is completed to ensure that standards are met for the eelgrass habitat, salt marsh, avian islands, benthic infauna, epifauna, fish, and birds.

20. Annual reports on the post-construction monitoring of the Middle Harbor Enhancement Area portion of the project will be submitted by the USACE and the Port, in accordance with their respective responsibilities to the Executive Officer beginning one year after final construction, grading, and planting operations have ceased. Annual reports will be submitted each year of the ten-year monitoring period. These reports will include descriptions of monitoring methods used, locations sampled, representative photographs, results of monitoring, reference site data and analysis, condition of sensitive species, wildlife use, aquatic invertebrate and invertebrate community development, management actions taken, responsible parties, recommendations, and other appropriate items. These reports will be due on January 31 of each year, unless another date is approved by the Executive Officer. The USACE and the Port, in accordance with their respective responsibilities, shall notify the Board in writing of the actual start dates of each phase of the project. Any substantive future changes to the Final Construction and Monitoring Plan must be approved in writing in advance by the Executive Officer.

21. To determine the quality of the Middle Harbor Enhancement Area after placement of dredged sediment and after planting of the eelgrass the USACE and the Port, in accordance with their respective responsibilities, will provide and carry out a sediment/water monitoring sampling plan acceptable to the Executive Officer.

22. The USACE and the Port, in accordance with their respective responsibilities, will provide sufficient financing for the Middle Harbor Enhancement Area to include construction, implementation, monitoring, corrective actions, maintenance, and contingencies. The USACE and the Port have made commitments in the Consistency Determination that BCDC will take up in December 2000. Those commitments provide financial assurances going beyond a conventional bond, through adaptive management of the Middle Harbor Enhancement Area to ensure

that the project achieves its restoration objectives. In addition, the Port will establish a $2 million corrective action contingency escrow account. The amount of funding in this account will in no way limit the USACE's or the Port's obligations for corrective actions or restoration obligations.

23. The Port will provide the necessary legal instruments and financial commitments to ensure permanent preservation and management of Middle Harbor Enhancement Area as a wildlife habitat.

24. The USACE or the Port will either relocate all storm drains currently draining into the Middle Harbor Enhancement Area or provide a treatment system for those outfalls.

25. The Port will provide replacement habitat for any proposed habitat that does not meet the goals or performance criteria after 10 years of monitoring. Replacement habitat may include mitigation for temporal habitat losses and will be left to the discretion of the Executive Officer. If replacement habitat is required, the ten year monitoring program will begin again for that replacement habitat.

26. When the USACE has determined that the Middle Harbor Enhancement Area has achieved its success criteria after 10 years of monitoring, it shall submit a notice of project completion, acceptable to the Executive Officer. The notice of project completion shall include a plan for long-term maintenance and management, including funding in perpetuity for these management activities, which is acceptable to the Executive Officer. After acceptance by the Executive Officer of the notice of completion, submittal of annual reports for the construction and monitoring phases is no longer required.

27. For construction activities, the USACE and the Port, in accordance with their respective responsibilities and their contractors will be held responsible for compliance with the General Construction Stormwater Permit. The contractors will be held responsible for implementing the Storm Water Pollution Prevention Plan (SWPPP) under the Permit. For ongoing operations at the project site, the Port's tenants will be held responsible for compliance with the General Industrial Stormwater Permit and implementation of the SWPPP.

28. During the startup of any phase of the proposed work that may increase turbidity in the Bay, the USACE and the Port, in accordance with their respective responsibilities shall download continuously-monitored turbidity data daily and file with the Regional Board self-monitoring reports on the fifth day. The Dischargers may request less frequent sampling (of the Executive Officer) if the Receiving Water Limits are being met.

29. All reports pursuant to these Provisions shall be prepared under the supervision of a registered civil engineer or certified engineering geologist.

30. The USACE and the Port, in accordance with their respective responsibilities shall install any additional monitoring devices required to fulfill the terms of any

Self-Monitoring Program issued to the Discharger in order that the Regional Board may evaluate compliance with the conditions of this order.

31. The USACE shall remove and properly dispose of any wastes, which are discharged at this site in violation of these Requirements.

32. The USACE and the Port, in accordance with their respective responsibilities shall file with the Regional Board a report of any material change or proposed change in the character, location, or quantity of this waste discharge. For the purpose of these requirements, this includes any proposed change in the boundaries of the disposal areas or the ownership of the site.

33. The Dischargers shall maintain a copy of this Order at the site so as to be available at all times to site operating personnel.

34. The USACE and the Port, in accordance with their respective responsibilities are considered to have full responsibility for correcting any and all problems, which arise in the event of a failure, which results in an unauthorized release of waste or wastewater.

35. The USACE and the Port, in accordance with their respective responsibilities shall maintain all devices or designed features installed in accordance with this Order such that they function without interruption for the life of the operation.

36. The Dischargers shall permit the Regional Board or its authorized representative, upon presentation of credentials:

    a. Entry on to the premises on which wastes are located or in which records are kept.

    b. Access to copy any records required to be kept under the terms and conditions of this Order.

    c. Inspection of any treatment equipment, monitoring equipment, or monitoring method Sampling of any discharge or surface water covered by this Order.

37. These Requirements do not authorize commission of any act causing injury to the property of another or of the public; do not convey any property rights; do not remove liability under federal, state or local laws, regulations or rules of other programs and agencies nor do these Requirements authorize the discharge of wastes without appropriate permits from other agencies or organizations.

I, Lawrence Kolb, Acting Executive Officer, do hereby certify that the foregoing is a full, complete and correct copy of an Order adopted by the California Regional Water Quality Control Board, San Francisco Bay Region, on October 18, 2000.

Lawrence P. Kolb
Acting Executive Officer

Attachments:

Table

Table 1 – Performance standards and commitments for the Middle Harbor Enhancement Area

Figures

Figure 1 – Site Location Map

Figure 2 – Components of the Oakland Harbor Navigation Improvement (50 Foot) Project

Figure 3 – Inner Harbor Turning Basin Widening Area: Conceptual Demolition and Excavation Plan

Figure 4 - Middle Harbor Enhancement Area Habitat Design Plan

Appendix

Self Monitoring and Reporting Program

Table 1. Performance standards and commitments for the Middle Harbor Enhancement Area[2].

NO	GOALS & OBJECTIVES	WHEN AND HOW DETERMINED	PERFORMANCE CRITERIA
1	Provide a new 3-5 acre marsh to provide bird, fish, benthic and epifaunal foraging opportunities and educational/interpretive benefits.	When: 1) completion of final construction; 2) 10 years after completion of final construction. How: 1) topographic survey (at construction); 2) assessment of vegetation and avian use (over 10 year)	Overall habitat will consist of high, middle, and low elevation salt marsh, mudflats, salt panes, salt ponds, and tidal channels[3]. For wildlife, especially birds: use comparable to wetland reference sites comparable to sites located at the San Leandro Bay complex of Martin Luther King Restoration Marsh, Arrowhead, and Damon Slough (depending the final habitat type(s) restored). For education: metric will be the total number of annual visitors/year but no performance criteria set. Importance will be assessed at the end of the monitoring period.

[2] Note: some combination of these performance criteria may be met to achieve success of the project. Success will be determined by the Technical Advisory Committee and regulatory agencies after the 10 year monitoring program is completed.

[3] No vegetation cover criteria is required since the goals of bird use and education can be met with only mudflats if that is the final habitat type.

NO	GOALS & OBJECTIVES	WHEN AND HOW DETERMINED	PERFORMANCE CRITERIA
2	Create a minimum of • 55 acres of habitat suitable for eelgrass habitat development, 15 acres of which must have eelgrass (see #6, Below) and • 110 acres of other shallow water,	When: 1) completion of final construction 2) completion of site suitability evaluation and warranty period How: 1) topographic survey (at construction); 2) assessment of physical conditions developed	<u>Eelgrass Habitat</u> Water Depths: Target: -4 to 0 feet MLLW Acceptable Range: -6 feet to +1 foot MLLW Velocities: Target: 10-16 cm/sec Acceptable Range: 1 to 20 cm/sec Hydrologic Turnover Rates for Middle Harbor Basin: Target: once/day Acceptable Range: once/week Sediment Grain Size: Target: 0.25 mm median size Acceptable Range: 0.1 to 0.3 mm median size <u>Shallow Water Habitat</u> Water Depths: Range: -18 feet MLLW to Intertidal [4]

[4] Note: performance criteria for shallow water habitat reflect only the design criteria because the increases in floral and faunal species expected in this habitat are covered in Performance Criteria Number 7 (i.e., increases in benthic invertebrates, birds, and fish).

NO	GOALS & OBJECTIVES	WHEN AND HOW DETERMINED	PERFORMANCE CRITERIA
3	Provide new public access beach area that will also provide storm refuge to birds.	When: 1) To be completed as part of Berths 55-58/Middle Harbor Shoreline Park work. How: 1) Confirm beach construction under Port's project.	No performance criteria.
4	Provide improved bird habitat, with reduced predators and human disturbance (a) through construction of four avian islands, each being a maximum size of 5,000 sq. ft. and with a gull population of no more than 50%, and (b) by providing a protected area along the shoreline of the UP Mole.	When: 1) completion of final construction; 2) 10 years after completion of final construction. How: 1) topographic survey (at construction); 2) assessment of vegetation and avian use (over 10 year)	Avian Use comparable to wetland reference sites located at San Leandro Bay complex of Martin Luther King Restoration Marsh, Arrowhead, and Damon Slough Vegetation: maximum percent cover of 20%
5	Provide 4-8 acres of artificial reef habitat containing some existing hard bottom concrete surfaces (approximately 4 acres presently exist)	When: 1) completion of final construction. How: 1) site survey at completion.	No performance criteria.

NO	GOALS & OBJECTIVES	WHEN AND HOW DETERMINED	PERFORMANCE CRITERIA
6	Create a minimum of 15 acres of eelgrass habitat within 10 years after initiation (start of dredging) of project not including that planted in the previous 3 years.	When: 1) completion of 10-year post-construction monitoring program. How: 1) annually evaluate eelgrass cover and density throughout site and reference areas using side-scan sonar and diver verification; 2) compare eelgrass cover with reference areas to control for natural interannual variability in eelgrass.	1) 5% cover after 10 years [5] 2) density comparable to reference sites located at Crown Beach and Bay Farm Island after 10 years
7	Provide an estuarine community within Middle Harbor Enhancement Area that is of higher productivity and greater diversity than the existing community of Middle Harbor. Provide a habitat that is more highly productive than existing conditions and provides a net increase in habitat value.	When: 1) completion of 10 year post-construction monitoring program. How: 1) evaluation of plant, invertebrate, fish, and avian communities relative to baseline Middle Harbor conditions reported in prior studies.	Benthic community: At least 10% increase in overall density and a decrease in polychaete numbers [6] Avian community (includes all habitat types created by the project): Aerial birds (pelicans, terns other than the least tern, etc.): Abundance equal to or greater baseline numbers. Shore birds: at least a 10% increase in abundance and diversity Wading birds: at least a 10% increase in abundance and diversity Fish community: At least a 15% in abundance.

[5] Note: low criterion based on Merkel & Associates inventories of eelgrass beds in the SF Bay.

NO	GOALS & OBJECTIVES	WHEN AND HOW DETERMINED	PERFORMANCE CRITERIA
8	Increase habitat benefits for aquatic birds and most particularly the least tern colony, by providing more tern prey sized forage species.	When: 1) completion of 10 year post-construction monitoring program. How: 1) evaluate availability of forage species and size classes consumed by avifauna, and specifically least terns.	At least a 15% increase in fish that are prey species for the endangered least tern, compared to baseline measures

[6] Note: benthic diversity may decline by supporting fewer polychaete and oligochaete species, but overall diversity of the estuarine community will improve with increased numbers of amphipods, mollusks, and other shallow water species.