

**CALIFORNIA COASTAL COMMISSION**

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## STAFF REPORT AND RECOMMENDATION

### ON CONSISTENCY DETERMINATION

Consistency Determination No. **CD-094-98**  
Staff: JRR-SF  
File Date: 8/6/98  
45th Day: 9/20/98  
60th Day: 10/5/98  
Commission Meeting: 9/10/98

## FEDERAL AGENCY: **CORPS OF ENGINEERS**

### DEVELOPMENT

#### LOCATION:

Los Angeles River Estuary, City of Long Beach (Exhibit 1)

### DEVELOPMENT

#### DESCRIPTION:

Maintenance dredging of an existing navigation channel with ocean disposal at LA-2, an Environmental Protection Agency certified ocean disposal site (Exhibits 2 and 3)

### SUBSTANTIVE FILE DOCUMENTS:

1. Environmental Assessment for Los Angeles River Estuary maintenance dredging, Long Beach California, Department of the Army, Corps of Engineers, July 1998.
2. Consistency Determinations, CD-043-95 and CD-005-97, dredging and disposal of Los Angeles River navigational channel sediment by the U.S. Army Corps of Engineers.

## EXECUTIVE SUMMARY

The Corps of Engineers submitted a consistency determination for its proposed maintenance dredging of Los Angeles River estuary. The Corps proposes to dispose of material dredged from the estuary at LA-2, an Environmental Protection Agency (EPA) designated offshore disposal sites.

The dredging is necessary to protect navigational safety for the Catalina Ferry, a recreational boating activities located in Queen's Way Marina. The channel shoaling interferes with ferry navigation and the dredging would correct the problem. Therefore, the project is consistent with the recreational boating policies of the California Coastal Management Program (CCMP).

In past dredging projects, the Corps has tested sediment in the Los Angeles River channel and found it to contain elevated levels of contaminants. Based on these test results, the Corps has previously eliminated ocean disposal as an option for material dredged from the estuary. The Corps based this conclusion on preliminary physical and chemical tests and not on the toxicity tests required for ocean disposal. From a review of the bulk chemistry from those past tests, it is possible that the material previously dredged from the Los Angeles River estuary would have been suitable for ocean disposal. Since the Corps never conducted the required toxicity tests, it is unclear whether or not the sediment from the Los Angeles River Estuary would have been approved for ocean disposal. With respect to the current project, the Corps proposes to dispose of the material at LA-2, an EPA approved ocean disposal site. However, the Corps has not included the necessary analysis of sediment chemistry with the consistency determination for this project. The Corps has collected sediment and initiated the appropriate tests. The Corps expects to have the complete data by mid-September. Without these test results, the Commission cannot evaluate the project for consistency with the marine resource and water quality policies of the California Coastal Management Program (CCMP). Therefore, the Corps' consistency determination lacks sufficient information to determine the project's consistency with the water quality and habitat policies of the CCMP.

The project area supports habitat for the California brown pelican and the California least tern, both federally listed endangered species. Dredging in this area could result in re-suspension of contaminated sediment and accumulation of pollutants in the tissue of prey species for the pelican and tern. Thus the dredging could adversely affect these listed species. However, since the Corps has not completed its sediment testing, the Commission cannot fully assess the impact to endangered species. Therefore, the Corps' consistency determination lacks sufficient information to evaluate the project for consistency with the habitat policy of the CCMP.

The proposed project includes disposal of sediment in an area that will not support beach replenishment. In the past, sediment from the Los Angeles River estuary has been too fine to benefit sand resources. However, the proposed project does not include any data

on the grain size of the proposed dredge material. Without that data, the Commission cannot assess the impacts to sand supply or the project's consistency with the sand supply and recreational policies of the CCMP.

## **STAFF SUMMARY AND RECOMMENDATION:**

### **I. Project Description.**

The Corps proposes to dredge a channel within the Los Angeles River estuary to allow for unobstructed passage of vessels in and out of Queen's Way Marina. Approximately 105,000 cubic meters of sediment will need to be dredged to provide a minimum depth of approximately -5.8 meters MLLW. The proposed project extends from Queen's Way Marina to approximately 400 meters downstream of Queen's Way Bridge, within the same general boundaries that were dredged in previous episodes. This portion of the channel will be approximately 75 meters in width, when dredged. Although proposed project limits extend to -9.6 meters MLLW, the lack of both funds and a suitable disposal site preclude the Corps from dredging to that depth.

Dredging and disposal would be accomplished with a hopper dredge, clamshell/barge, or a combination of dredge types. A clamshell dredge, possibly in combination with a hopper dredge, would most likely be used. Operations would occur between September 15, 1998, and April 1, 1999, to avoid impacting the foraging habits of the California least tern.

The Corps proposes to dispose of the material at LA-2, an EPA designated ocean dredged material disposal site. Chemical and biological testing is currently underway to verify compatibility of the material with the LA-2 disposal site. Final results from this year's testing will not be available until September 1998. Material will not be dredged and discharged at LA-2 until the Environmental Protection Agency, California Regional Water Quality Control Board, and California Coastal Commission staff concur that it is suitable for ocean disposal, based on bioassay and bioaccumulation test results. If the material is not suitable for ocean disposal, new environmental documentation will be prepared if and when funding is available to pursue upland or confined disposal sites.

### **II. Status of Local Coastal Program.**

The standard of review for federal consistency determinations is the policies of Chapter 3 of the Coastal Act, and not the Local Coastal Program (LCP) of the affected area. If the Commission certified the LCP and incorporated it into the CCMP, the LCP can provide guidance in applying Chapter 3 policies in light of local circumstances. If the Commission has not incorporated the LCP into the CCMP, it cannot guide the Commission's decision, but it can provide background information. The Commission has incorporated the City of Long Beach LCP into the CCMP.

### **III. Federal Agency's Consistency Determination.**

The Corps of Engineers has determined the project to be consistent to the maximum extent practicable with the California Coastal Management Program.

### **IV. Staff Recommendation:**

The staff recommends that the Commission adopt the following motion:

*MOTION. I move that the Commission concur with the Corps of Engineers' consistency determination.*

The staff recommends a NO vote on this motion. Failure to receive a majority vote in the affirmative will result in adoption of the following resolution:

#### **A. Objection**

The Commission hereby objects to the consistency determination made by the Corps of Engineers for the proposed project, finding the project does not contain enough information to determine if the proposed project is consistent to the maximum extent practicable with the California Coastal Management Program.

### **V. Federal Agency Responsibility:**

Section C(a)(i) of Chapter 11 of the CCMP requires federal agencies to inform the Commission of their response to a Commission objection. This section provides that:

*If the Coastal Commission finds that the Federal activity or development project ... is not consistent with the management program, and the federal agency disagrees and decides to go forward with the action, it will be expected to (a) advise the Coastal Commission in writing that the action is consistent, to the maximum extent practicable, with the coastal management program, and (b) set forth in detail the reasons for its decision. In the event the Coastal Commission seriously disagrees with the Federal agency's consistency determination, it may request that the Secretary of Commerce seek to mediate the serious disagreement as provided by Section 307(h) of the CZMA, or it may seek judicial review of the dispute.*

### **VI. Necessary Information:**

Section 930.42(b) of the federal consistency regulations (15 CFR Section 930.42(b)) requires that, if the Commission's objection is based on a lack of information, the

Commission must identify the information necessary for it to assess the project's consistency with the CCMP. That section states that:

*If the State agency's disagreement is based upon a finding that the Federal agency has failed to supply sufficient information (see Section 930.39(a)), the State agency's response must describe the nature of the information requested and the necessity of having such information to determine the consistency of the Federal activity with the management program.*

As described fully in the Habitat, Water Quality, and Sand Supply sections below, the Commission has found this consistency determination to lack the necessary information to determine if the proposed project is consistent with Sections 30230, 30231, 30233, and 32040(a) of the Coastal Act. In order to evaluate the project's consistency with the CCMP, the Commission needs the following information:

1. Bulk Chemistry analysis of proposed dredge material;
2. Grain Size analysis of proposed dredge material; and
3. Toxicity and bioaccumulation testing of proposed dredge material conducted in compliance with EPA's requirements as described in the document titled *Ecological Evaluation of Proposed Discharge of Dredged Material into Ocean Waters* (also known as the "Green Book").

## **VII. Findings and Declarations:**

The Commission finds and declares as follows:

**A. Recreational Boating.** Section 30220 of the Coastal Act provides that:

*Coastal areas suited for water-oriented recreational activities that cannot readily be provided at inland water areas shall be protected for such uses.*

Section 30224 of the Coastal Act provides, in part, that:

*Increased recreational boating use of coastal waters shall be encouraged....*

Shoaling of Los Angeles River estuary interferes with recreational boating at the Queen's Way Marina. The design depth of the Los Angeles River estuary's channels is 9.6 meters below mean lower low water (MLLW). In its consistency determination, the Corps describes the then current situation as follows:

*The mouth of the Los Angeles River serves as part of the transportation corridor for coastal cruise liners transiting from Queen's Way Marina, in the City of Long Beach, to Santa Catalina Island. The Los Angeles District, Corps of Engineers (COE-LAD) is responsible for maintaining navigable depths in the channels and basins within Los Angeles and Long Beach Harbors. The Corps is also responsible for maintaining a navigable channel within the river to provide waterborne access to Queen's Way Marina. However, the presence of contaminants in the LAR and the lack of suitable disposal sites for contaminated dredged sediments has prohibited development of a routine maintenance dredging cycle for this area.*

*Winter storms regularly cause shoaling in the Queen's Way Marina area. The water in this area at such times becomes extremely shallow, and can cause significant disruptions to boat traffic, which necessitates dredging. When shoaling occurs to the degree it did in 1995, the resultant temporary closure of the Marina area affects businesses in the Marina and on Catalina Island, which depend on tourist trade; particularly during the winter whale-watching season.*

*The proposed maintenance dredging activities within the Los Angeles River Estuary will serve a three-fold purpose: (1) as a preventative measure to alleviate the need for emergency dredging of this area; while (2) assuring continued safe navigation for various commercial harbor crafts entering and traversing Queen's Way Marina; and, at the same time (3) avoiding or minimizing impacts to natural resources and the environment.*

The main boating activity in the Queen's Way Marina is the Catalina Ferry. . Within the LA/LB Harbor complex, several major charter boat companies provide charter service to Avalon and Isthmus Cove on Santa Catalina Island, including Catalina Cruises in Queen's Way Marina. These recreation charters also serve specialized activities, including sportfishing, scuba diving, whale watching, and harbor touring. The proposed dredging will improve navigation within the Los Angeles River estuary, and thus support and protect recreational boating. Therefore, the Commission finds that the proposed project is consistent with the recreational boating policies of the CCMP.

**B. Water Quality and Biological Resources.** Section 30230 of the Coastal Act provides that:

*Marine resources shall be maintained, enhanced, and where feasible, restored. Special protection shall be given to areas and species of special biological or economic significance. Uses of the marine environment shall be carried out in a manner that will sustain the biological*

*productivity of coastal waters and that will maintain healthy populations of all species of marine organisms adequate for long-term commercial, recreational, scientific, and educational purposes.*

Section 30231 of the Coastal Act provides that:

*The biological productivity and the quality of coastal waters, streams, wetlands, estuaries, and lakes appropriate to maintain optimum populations of marine organisms and for the protection of human health shall be maintained and, where feasible, restored through, among other means, minimizing adverse effects of waste water discharges and entrainment, controlling runoff, preventing depletion of ground water supplies and substantial interference with surface water flow, encouraging waste water reclamation, maintaining natural vegetation buffer areas that protect riparian habitats, and minimizing alteration of natural streams.*

The proposed project includes disposal of dredged material at LA-2, an EPA designated dredged material disposal site. The technical guidance for determining the suitability of dredged material involves a tiered-testing procedure, which includes four levels of testing. Tiers I and II apply to existing or easily obtained information and require limited chemical testing to predict effects. If these predictions indicate that the dredged material has any potential for significant adverse effects, EPA will elevate the sediment analysis to a higher tier. Tiers III and IV use water column and benthic bioassay and bioaccumulation tests to determine effects on representative marine organisms. Specifically, EPA requires bioassay tests on suspended particulate and solid phases of the material before allowing the disposal (Tier III testing). (40 C.F.R. Section 227.6[c].) These tests allow EPA to evaluate the acute and chronic toxicity of the contaminated material on biological resources. EPA also measures bioaccumulation potential of contaminants. The intent of that test is to determine if organisms are concentrating chemicals in their tissues to levels that might prove harmful to either themselves or their predators. Both the bioassay and the bioaccumulation tests measure the biological effect of contaminated dredge spoils. Although these tests are not precise predictors of environmental effects, they provide quantitative estimators of impacts. The Commission also uses the results from the EPA process to evaluate ocean disposal activities for consistency with the CCMP. These tests allow the Commission to determine if the ocean disposal activity will adversely affect water quality or biological resources of the coastal zone.

In past dredging projects, the Corps has tested sediment in the Los Angeles River channel and found it to contain elevated levels of contaminants. Based on these test results, the Corps has eliminated ocean disposal as an option for material dredged from the estuary. The Corps based this conclusion on preliminary physical and chemical tests and not on the toxicity bioaccumulation tests required for ocean disposal. From a review of the bulk chemistry from those past tests, it is possible that the material previously dredged from the

Los Angeles River estuary would have been suitable for ocean disposal. Since the Corps never conducted the required toxicity tests, it is unclear whether or not the sediment from the Los Angeles River Estuary would have been approved for ocean disposal. The Corps of Engineers has not submitted any physical, chemical, toxicity analysis of the sediment proposed for dredging. Without this information, the Commission cannot determine if the material is contaminated, if it is suitable for ocean disposal, or affects water quality resources and habitat resources of the coastal zone. Therefore, the Commission finds that the Corps' consistency determination lacks sufficient information to determine consistency with the water quality policies of the CCMP.

**C. Endangered Species.** Section 30240 of the Coastal Act provides that:

*(a) Environmentally sensitive habitat areas shall be protected against any significant disruption of habitat values, and only uses dependent on those resources shall be allowed within those areas.*

*(b) Development in areas adjacent to environmentally sensitive habitat areas and parks and recreation areas shall be sited and designed to prevent impacts which would significantly degrade those areas, and shall be compatible with the continuance of those habitat and recreation areas.*

The proposed project potentially affects habitat for several federally listed species. These species include California brown pelican (*Pelecanus occidentalis californicus*), California least tern (*Sterna antillarum browni*), peregrine falcon (*Falco peregrinus*), marbled murrelet (*Brachyramphus marmoratus*), and the western snowy plover (*Charadrius alexandrinus nivosus*). Several species of marine mammals and sea turtles may be transient visitors to the harbor and the LA-2 disposal site, but the project will not affect these species. In its environmental assessment, the Corps describes the habitat needs of the federally listed species as follows:

*1. **California Brown Pelican.** California brown pelicans (*Pelecanus occidentalis californicus*) frequent San Pedro Bay, and have been observed resting and feeding within the harbor complex. Pelicans occur year-round in the project area, although their numbers fluctuate seasonally due to an influx of post-breeding birds in the summer. The highest densities of brown pelicans occur between July and November. Brown pelicans primarily forage on surface-feeding fish in nearshore waters. This species is considered to be very tolerant of human activity near its daytime roosts, and readily utilizes various man-made shoreline structures (i.e., piers, breakwaters, groins, marine vessels, buoys) as roosting sites. The California brown pelican has been designated as endangered by the U.S. Department of Interior and the State of California because of reproduction failures caused by the collapse of thin-shelled eggs during incubation. These thin-walled eggs have been attributed to*



*food chain accumulation of DDT. Breeding areas are on Islas Coronados (Coronado Islands), Anacapa Island, Santa Barbara Island and Scorpion Rock off Santa Cruz Island.*

**2. California Least Tern.** *The Federally- and State-listed endangered California least tern (Sterna antillarum browni) is a migratory bird that frequents the southern California coast from April to mid-September. The birds breed in open, unvegetated sandy areas, and forage on small fish such as topsmelt and anchovy in nearshore waters near their breeding colonies. Breeding adults catch and deliver small fish to the newly hatched flightless young. Reproductive success is closely related to the availability of undisturbed nest sites and nearby waters with adequate supplies of prey. The least tern is endangered because most of its breeding areas have been disturbed by human use of beaches and by predation on nests from cats, foxes, and other predators.*

*The tern is known to forage along the banks of the LAR, but no suitable habitat is located in this area for nesting. Of the three tern colonies in the region, the closest one is located on Terminal Island, approximately 4 miles from the proposed dredging and disposal areas. This site was located in the southeastern corner of Pier 300 in 1987 but was then moved northward, near the Seaplane Anchorage. A permanent relocation of the colony away from areas to be developed is still being considered. The other two colonies are located at Seal Beach National Wildlife Refuge and the Bolsa Chica State Ecological Reserve. Terminal Island is sometimes used as a re-nesting site for least terns from other colonies and occasionally serves as a post-breeding congregation area (Massey and Atwood 1985).*

**3. Peregrine Falcon.** *Peregrine falcons, which are listed on both Federal and State of California endangered species lists, forage in the project area. Since 1987, peregrines have nested in the City of Long Beach. Three or four pairs nest within one mile of Los Angeles Harbor. The nesting season for peregrine falcons extends from January to July. Falcons maintain distinct territories, and forage over vast areas in both wetland and upland locations. They are primarily hunters of birds. DDT-caused eggshell thinning remains a problem for the peregrine falcon. Other mortality factors include collisions with power lines, shootings, and poaching.*

**4. Marbled Murrelet.** *This small seabird, listed as threatened by the USFWS, occasionally winters in southern California, but is not known to nest south of Santa Cruz (USFWS, 57 FR 45328, 10/1/92). Its habitat includes coastal waters and bays, where it feeds on fish and invertebrates.*

*It breeds inland on mountains near the coast, mainly high on limbs of mossy conifers. The marbled murrelet is threatened by the loss and modification of its nesting habitat, primarily due to commercial timber harvesting. Mortality associated with oil spills and gill-net fisheries (in Washington) are lesser threats adversely affecting the marbled murrelet. This bird is not expected to be affected by this project.*

**5. Western Snowy Plover.** *The western snowy plover is listed as threatened by the USFWS (U.S. Department of the Interior, 1993). Nest sites typically occur in flat, open areas with sandy or saline substrates. Vegetation and driftwood are usually sparse or absent. Nest site selection and pair bond formation occur from early to mid-March, and eggs of the first clutch are usually laid by early April. Snowy plovers forage on invertebrates in the wet sand and amongst surf-cast kelp within the intertidal zone; in dry, sandy areas above the high tide; on salt pans; and along the edges of salt marshes and salt ponds.*

*Studies in California, Oregon, and Washington indicate that the coastal breeding population has declined significantly in recent years (Page and Stenzel 1981; Wilson 1984). Fewer than 1500 birds, and 28 nesting sites, remain in the three states. The subspecies of plover has disappeared as a breeding bird from most of California beaches in and south of Los Angeles. Development has eliminated the plover as a breeding species from many other coastal areas, as well. No nesting has been documented in the project area, although small numbers of wintering or migrant birds may occur in the vicinity (Chambers Group, 1996). Dune stabilization by introduced beach grass has also modified much formerly open coastal sand flat habitat. Evidence exists that human activity (i.e. recreation, beach cleaning), is responsible for some of the coastal decline, as well as predation by pet dogs, crows, foxes, skunks, and other animals (Federal Register Vol. 57, January 14, 1992).*

The two species most likely affected by the proposed project are the California least tern and the California brown pelican. Both of these species forage in the Los Angeles River estuary and could be affected by increases in turbidity and resuspension of contaminated sediment. Although the Corps proposes to complete the dredging before the beginning of the tern nesting season, April 1, the consistency determination allows for contingency dredging to occur after the April 1 deadline provided the Corps conducts turbidity monitoring. Additionally, the brown pelican forages in the area most of the year. Therefore, the Commission is concerned that the proposed project could affect both of these species. The primary concern is that the project could result in resuspension of contaminated sediment making the pollutants more available to these sensitive species. However, as described above, the Corps did not provide the Commission with the information necessary to evaluate the water quality effects from the proposed dredging.

Without this data, the Commission cannot determine if the project would adversely affect listed species. Therefore, the Commission finds that the consistency determination for the proposed project does not contain enough information to evaluate the project's consistency with the environmentally sensitive habitat policies of the CCMP.

**D. Dredging.** Section 30233(a) of the Coastal Act provides, in part, that:

*(a) The diking, filling, or dredging of open coastal waters, wetlands, estuaries, and lakes shall be permitted in accordance with other applicable provisions of this division, where there is no feasible less environmentally damaging alternative, and where feasible mitigation measures have been provided to minimize adverse environmental effects, and shall be limited to the following:*

....

*(2) Maintaining existing, or restoring previously dredged, depths in existing navigational channels, turning basins, vessel berthing and mooring areas, and boat launching ramps.*

Section 30233(a) of the Coastal Act imposes a three-part test on dredging and filling projects: (1) an allowable use test; (2) an alternatives test; and (3) a mitigation test. The project complies with the first test because maintenance dredging of existing navigation channels is an allowable use for dredging and filling.

The Commission finds that the consistency determination for the project does not contain enough information to evaluate the project's consistency with the alternatives and mitigation tests of Section 30233(a). As described above, the Corps' consistency determination does not include physical, chemical, and toxicity analysis of the sediment. Without this information, the Commission cannot determine the full effects from the proposed dredging, and therefore, the Commission cannot determine if the proposed project is the least damaging feasible alternative or if additional mitigation is necessary to reduce or eliminate environmental effects. Therefore, the Commission finds that the Corps' consistency determination lacks sufficient information to evaluate the project for consistency with the dredge and fill policy of the CCMP.

**E. Sand Supply.** Section 30233(b) of the Coastal Act provides that:

*Dredging and spoils disposal shall be planned and carried out to avoid significant disruption to marine and wildlife habitats and water circulation. Dredge spoils suitable for beach replenishment should be transported for such purposes to appropriate beaches or into suitable long shore current systems.*

In the past, sediment dredged from the Los Angeles River estuary was too fine to use for sand supply purposes. That conclusion was made based on an evaluation of the physical characteristics of the sediment. As described above, the consistency determination for the proposed project does not include a similar evaluation. This assessment is necessary to determine if the disposal of this material at LA-2 will affect sand supply. Therefore, the Commission finds that the consistency determination for the proposed project does not contain enough information to assess the project's consistency with the sand supply policies of the CCMP.

# MAINTENANCE DREDGING LOS ANGELES RIVER ESTUARY LOS ANGELES COUNTY, CALIFORNIA

FIGURE 1

E	TITLE	SHEET NO.
1	LOCATION MAP, VICINITY MAP, AND INDEX TO DRAWINGS	1
2	GENERAL PLAN, SURVEY CONTROL PLAN	2
3	CONDITION SURVEY	3
4	CROSS SECTIONS AND PROFILE	4
5	CROSS SECTIONS STA 10+000 TO STA 10+200	5
6	CROSS SECTIONS STA 10+225 TO STA 10+425	6
7	CROSS SECTIONS STA 10+450 TO STA 10+600	7
8	PLAN OF EXPLORATION	8
9	LOGS OF EXPLORATION	9
10	LOGS OF EXPLORATION	10

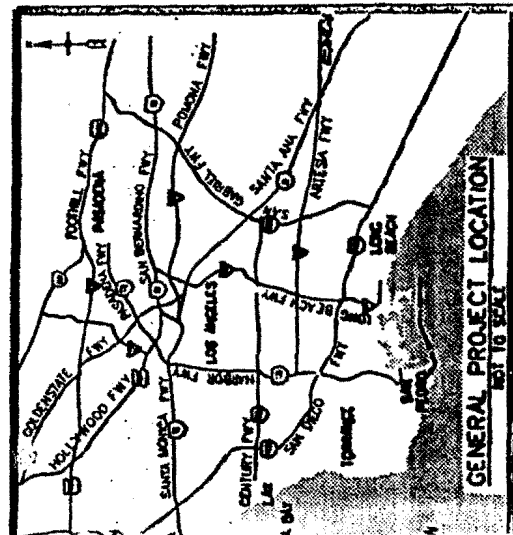
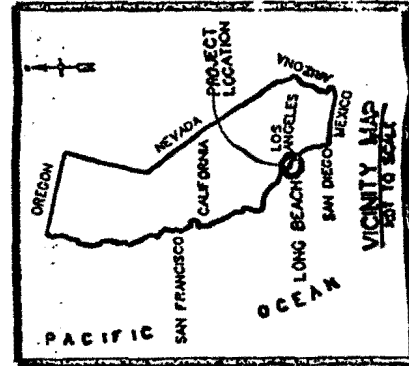
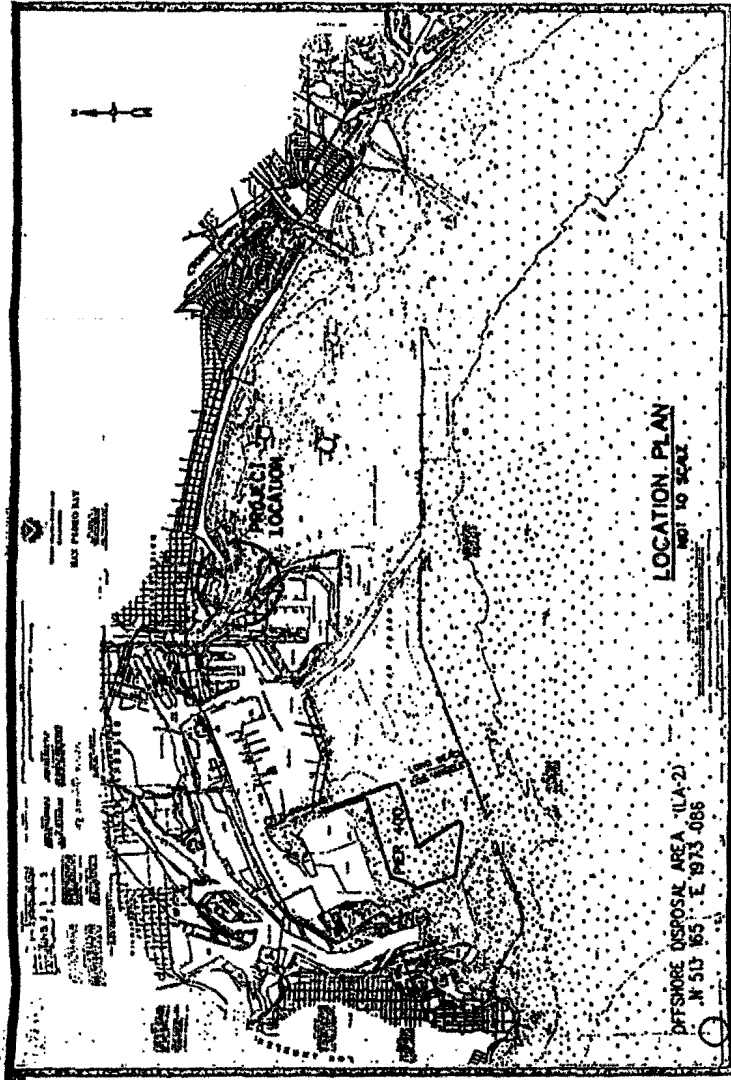


EXHIBIT NO. 1  
APPLICATION NO. CD-94-98

California Coastal Commission

DATE APPROVED	DESCRIPTIONS	SYMBOL

NAVIGATION IMPROVEMENTS  
LOS ANGELES COUNTY, CALIFORNIA  
MAINTENANCE DREDGING  
LOS ANGELES RIVER ESTUARY

DESIGNED BY: SBR	CHECKED BY: SBR	DATE
LOS ANGELES	LOS ANGELES	
COMPS OF ENGINEERS	COMPS OF ENGINEERS	
APPROVED BY: DATE	APPROVED BY: DATE	

PROJECT WAS DESIGNED BY THE LOS ANGELES DISTRICT OF THE U.S. ARMY ENGINEER DISTRICT  
LOS ANGELES  
DRAWN BY: SBR  
CHECKED BY: SBR  
DATE:  

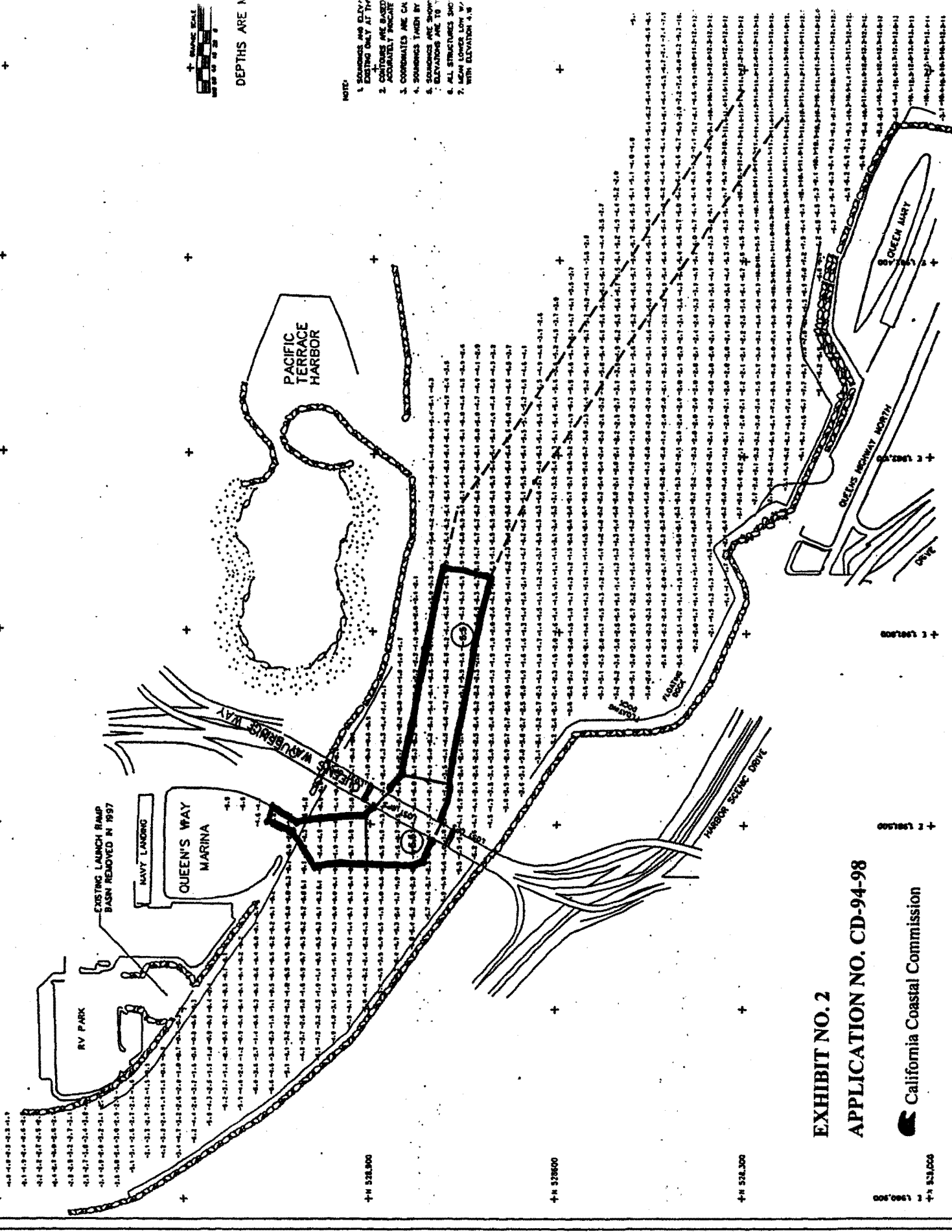
RESERVED HEREON INDICATE OFFICIAL RECOMMENDATION AND  
ALL OF ALL THE DRAWINGS IN THIS SET.

1-8152  
WITHIN THE SCOPE OF THEIR EMPLOYMENT AS REQUIRED BY  
INDIVIDUALS OR FIRMS APPEAR ON THESE PROJECTS  
OR ENGINEERS, THE INITIALS OR SIGNATURES AND  
TITLES OF ENGINEERS OR ARCHITECTS APPEAR ON THESE PROJECTS



DEPTHS ARE IN FEET

- NOTE:
1. SOUNDINGS AND ELEVATIONS ARE BASED ON THE MEAN LOW WATER SURFACE OF THE PACIFIC OCEAN.
  2. SOUNDINGS ARE BASED ON THE MEAN LOW WATER SURFACE OF THE PACIFIC OCEAN.
  3. COORDINATES ARE IN UTM.
  4. SOUNDINGS TAKEN BY THE U.S. NAVY.
  5. SOUNDINGS ARE SHOWN AT 10' INTERVALS.
  6. ALL STRUCTURES SHOWN ARE BASED ON MEAN LOW WATER SURFACE WITH ELEVATION 4.8.



**EXHIBIT NO. 2**  
**APPLICATION NO. CD-94-98**

 California Coastal Commission

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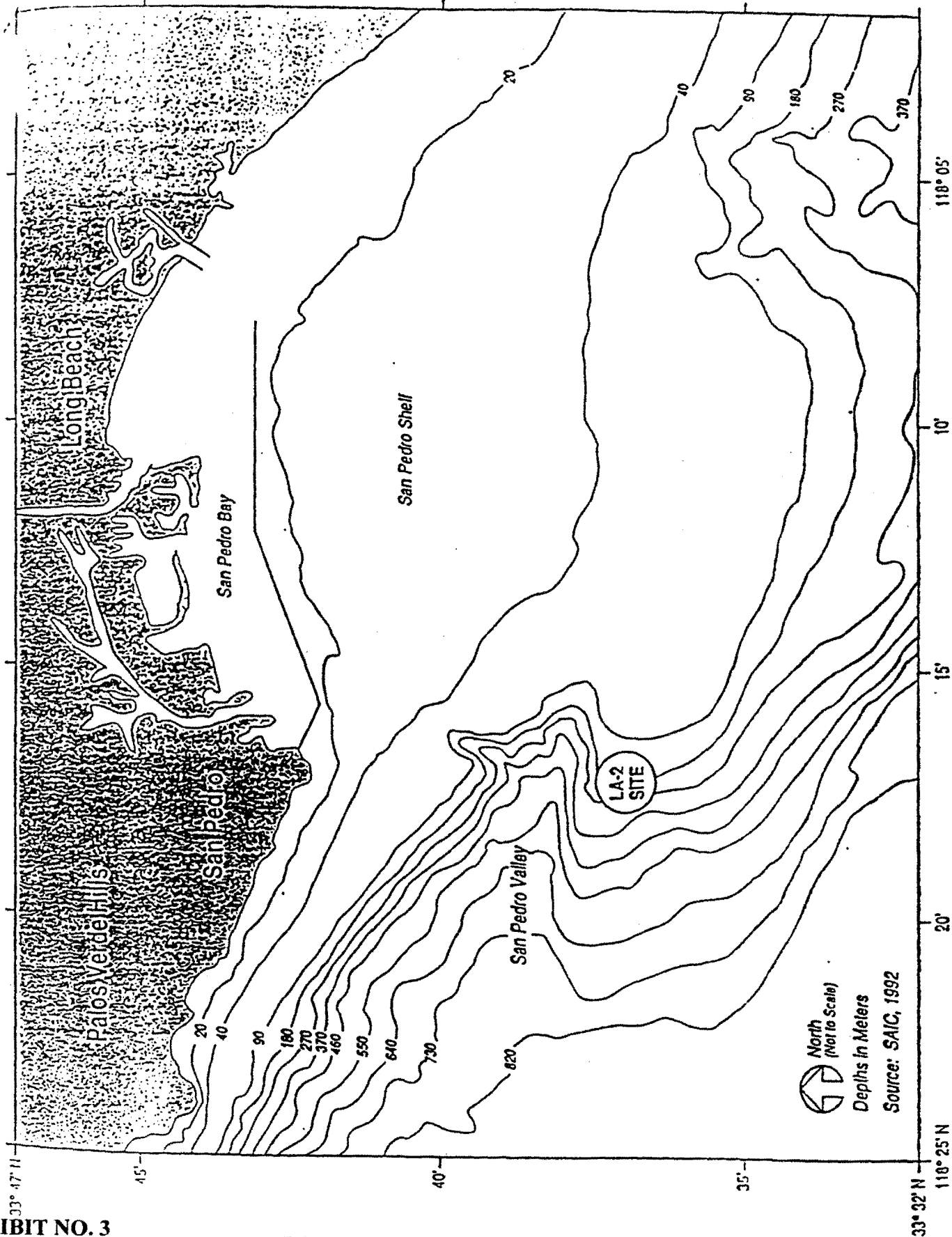


FIGURE 3. LA-2 ALTERNATIVE DISPOSAL SITE

EXHIBIT NO. 3

APPLICATION NO. CD-94-98

tems, Inc.

Draft August 16, 1994

California Coastal Commission

LA-2 ALTERNATIVE DISPOSAL SITE