

Harding Lawson Associates



February 10, 1988

8068,018.03

Regional Water Quality Control Board  
1111 Jackson Street, Room 6000  
Oakland, California 94607

Attention: Mr. Ken Theisen

Gentlemen:

Additional Analysis of Proposed Dredge Material  
Piers 2 and 3  
Alameda Naval Air Station  
Alameda, California

**RECEIVED**  
FEB 11 1988  
IN CODE 405

The Navy is planning to dredge the areas adjacent to Piers 2 and 3 at the Alameda Naval Air Station. The dredged soils were originally planned to be disposed of within the San Francisco Bay near Alcatraz or, depending on the timing of the dredging and the approval of an ocean disposal site, in the ocean. In addition to possible disposal in the ocean or at Alcatraz, the Navy is considering using the dredged soils as cover material for West Beach Landfill at Alameda Naval Air Station.

The Army Corps of Engineers has approved the testing program outlined in our letter dated December 1, 1987, included as Attachment A to this letter. In our phone conversation with you last week, we discussed additional chemical analysis that the Regional Water Quality Control Board (RWQCB) would require. We understand that the chemical analysis described below, in addition to the testing program presented in Attachment A, would meet your requirements.

Each boring from Area A and Area B, indicated in Plate 1 of Attachment A, will be divided into three sections: top, middle, and bottom. The sediments will be combined to yield one composite sample from each section. A total of six composite samples will be prepared, three from Area A and three from Area B.

Each composite sample will be analyzed for volatile and semi-volatile organics using GCMS Methods 8240 and 8270, respectively. Permeability and particle size analyses will be conducted on up to six remolded composite samples, three from the borings in Area A and three from the borings in Area B. The samples will be compacted to different densities prior to testing.

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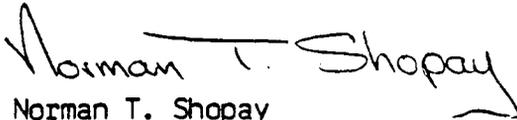
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Our field program is scheduled for February 24, 1988. If you will require any additional testing, please contact us before then.

Thank you for your time and consideration. If you have any questions, please call.

Yours very truly,

HARDING LAWSON ASSOCIATES



Norman T. Shopay  
Senior Environmental Specialist

NTS/nlh

Attachment A: - HLA Letter of December 1, 1987

cc: HLA Concord Office  
Attention: Claude Corvino  
Kevin Tillis

Santina and Thompson, Inc.  
Attention: Mr. Paris Tabor

Western Division  
Naval Facilities Engineering Command  
Attention: Mr. William Moore  
Ms. Julie Eaking  
Ms. Chloe Jue

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December 1, 1987

87-4746.04

Western Division  
 Naval Facilities Engineering Command  
 P.O. Box 727  
 San Bruno, California 94066

Attention: Mr. William Moore

Gentlemen:

Proposed Work Plan For  
 Environmental Study of  
 Proposed Dredge Material  
 Alameda Naval Air Station  
 Alameda, California

This letter presents a proposed work plan for Harding Lawson Associates (HLA) to perform an environmental analysis of proposed dredged material at the Alameda Naval Air Station (NAS) in Alameda, California. We understand that the Navy plans to dredge the areas adjacent to Piers 2 and 3 (see Plate 1) to Elevation -50\* to reduce the potential for drawing silt into the cooling systems of aircraft carriers and other deep draft ships. The areas are presently dredged periodically to about Elevation -42. Roughly 324,000 additional cubic yards will be removed. We understand that the Navy will dispose of the dredged soils within the bay near Alcatraz or, depending on the timing of the dredging and the approval of an ocean disposal site, in the ocean.

HLA previously performed a geotechnical investigation to evaluate the planned improvements at the NAS, consisting of:

1. Dredged areas adjacent to Piers 2 and 3
2. Constructing new breakwater to close an approximately 750-foot-long gap between two existing breakwaters.

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\* All elevations in this proposal are referenced to Mean Lower Low Water (MLLW) datum. Elevation 0.0 MLLW datum corresponds to Elevation 101.2 (NAS datum).

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This investigation included sampling of the proposed dredged materials to help assess the dredging and disposal alternatives. The results of our study were presented in a report dated September 7, 1984 (HLA Job No. 8068,014.03).

In 1982, HLA performed a geotechnical investigation to assess berthing requirements at Piers 2 and 3. Our report was part of a study by Vickerman Zachary Miller (VZM) entitled "Assessment of Dredge Depth Requirements for Planned Ship Berthing, Naval Air Station, Alameda, California" (Navy Contract No. N62474-81-C-8836) dated June 23, 1983.

More recently, Dames & Moore performed some predredged sediment testing for Western Division Naval Facilities Engineering Command. This study consisted of drilling and sampling borings and performing laboratory tests on selected samples to evaluate physical and chemical characteristics. The results are contained in a report dated February 12, 1987.

This testing plan has been developed with the assistance of Mr. Dean Smith and Ms. Sandy Lemlich of the Army Corps of Engineers in a meeting on November 18, 1987. This program complies with the Tier 2 requirements as described in Public Notice 87-1, incorporating revisions as of this date addressed in the Inter-Agency Dredge Sediment Testing Protocol for San Francisco Bay to Public Notice 87-1.

#### SCOPE OF SERVICES

We propose to divide the site into two areas, as shown on Plate 1. Test borings or cores will be drilled and samples obtained at the approximate locations shown within each area. These stations will be located with an appropriate electronic positioning device capable of an accuracy of +10 feet. The cores from each of the six areas will be composited and sub-sampled for physical characteristics and bulk sediment analysis. The specific constituents for these tests are shown in Attachment 1. The bioassay tests will be conducted from composite sediment samples from Area A and Area B. Samples for the bioaccumulation tests will be prepared and preserved by freezing, should bioaccumulation analysis be necessary. The bioassay tests will include replicate suspended particulate phase and solid phase tests as defined in Table 1. The bioaccumulation tests will include chemical analysis of the tissue of the species used in the bioassay tests. The samples will be obtained using a drill rig mounted on a barge. The cores will extend from the mudline to the proposed dredge depth, with continual samples being taken. The samples will be composited and divided appropriately for the performance of the above-described tests. Sample collection, handling, and testing will be performed using the most current published and accepted EPA/Corps of Engineers test methods for evaluating soil and water. Duplicate and

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blank samples will be obtained and tested to provide quality control for the study. A single laboratory will perform each type of analysis to provide overall consistency.

The results of the field and laboratory testing will be presented in a written report containing core locations, logs of the individual cores, and physical, chemical, and biological test results. In addition, we will compare the results from the proposed dredge site to those from the disposal site, using the acceptable limits set by the Corps of Engineers.

Since this project is being sampled and evaluated concurrently with the Oakland Supply Center dredging and pier improvement project by the same field and laboratory personnel, we are requesting that the results from the reference sites obtained from the Oakland Supply Center project be utilized in evaluating the chemical data from this project.

In summary, our testing program will consist of two physical characterization tests, two bulk sediment tests, and one bioassay test. Table 2 presents a list of samples from the proposed dredge areas to be used for each test.

Below is a proposed time schedule for our sampling, analysis, report preparation, and submission.

SUBMIT THIS PROPOSAL TO THE NAVY FOR APPROVAL .....	December 1, 1987
RECEIVE SIGNED CONTRACT AND NOTICE TO PROCEED FROM THE NAVY .....	December 11, 1987
RECEIVE APPROVAL OF SAMPLING AND TESTING PROGRAM BY THE ARMY CORPS OF ENGINEERS .....	December 11, 1987
COMMENCE SAMPLING PROGRAM .....	January 4, 1988
COMPLETE SAMPLING PROGRAM .....	January 13, 1988
COMPLETE LABORATORY ANALYSIS .....	February 15, 1988
PREPARE REPORT AND SUBMIT TO NAVY FOR APPROVAL .....	March 15, 1988
RECEIVE APPROVAL OF PERMIT TO DREDGE FROM THE ARMY CORPS OF ENGINEERS .....	June 15, 1988

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We trust that this plan meets with your approval. If you have any questions or would like more details, please call.

Yours very truly,

HARDING LAWSON ASSOCIATES



Norman T. Shopay  
Senior Environmental Specialist



Donald E. Bruggers  
Civil Engineer

NTS/DES/nlh/sjp

Attachments: Plate 1 - Site Plan  
Attachment 1 - Testing Requirements to Determine Dredge Material  
Acceptability for Open-Water Disposal

cc: Santina & Thompson, Inc.  
1040 Oak Grove Road  
Concord, California 94518  
Attention: Mr. Paris Tabor

Claude Corvino  
HLA Concord Office

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Table 1.  
Toxicity Testing

Replicate suspended particulate bioassays shall be conducted using the following species: Acanthomysis sculpta, Citharichthys stigmaeus, and Mytilus edulis, Strongylocentrotus purpuratus, or Crassostrea gigas for the larval development bioassay.

Replicate solid phase bioassays shall be conducted using the following species: Acanthomysis sculpta, Macoma nasuta, Nephtys caecoides.

Replicate bioaccumulation evaluations shall be conducted using the following species: Macoma nasuta and Nephtys arenaceodentata.

The bioassay and bioaccumulation tests listed above will be conducted using composite sediment samples collected from dredge site Areas 1 and 2 (combined), Area 3, Areas 4, 5, and 6 (combined), and the reference sites.

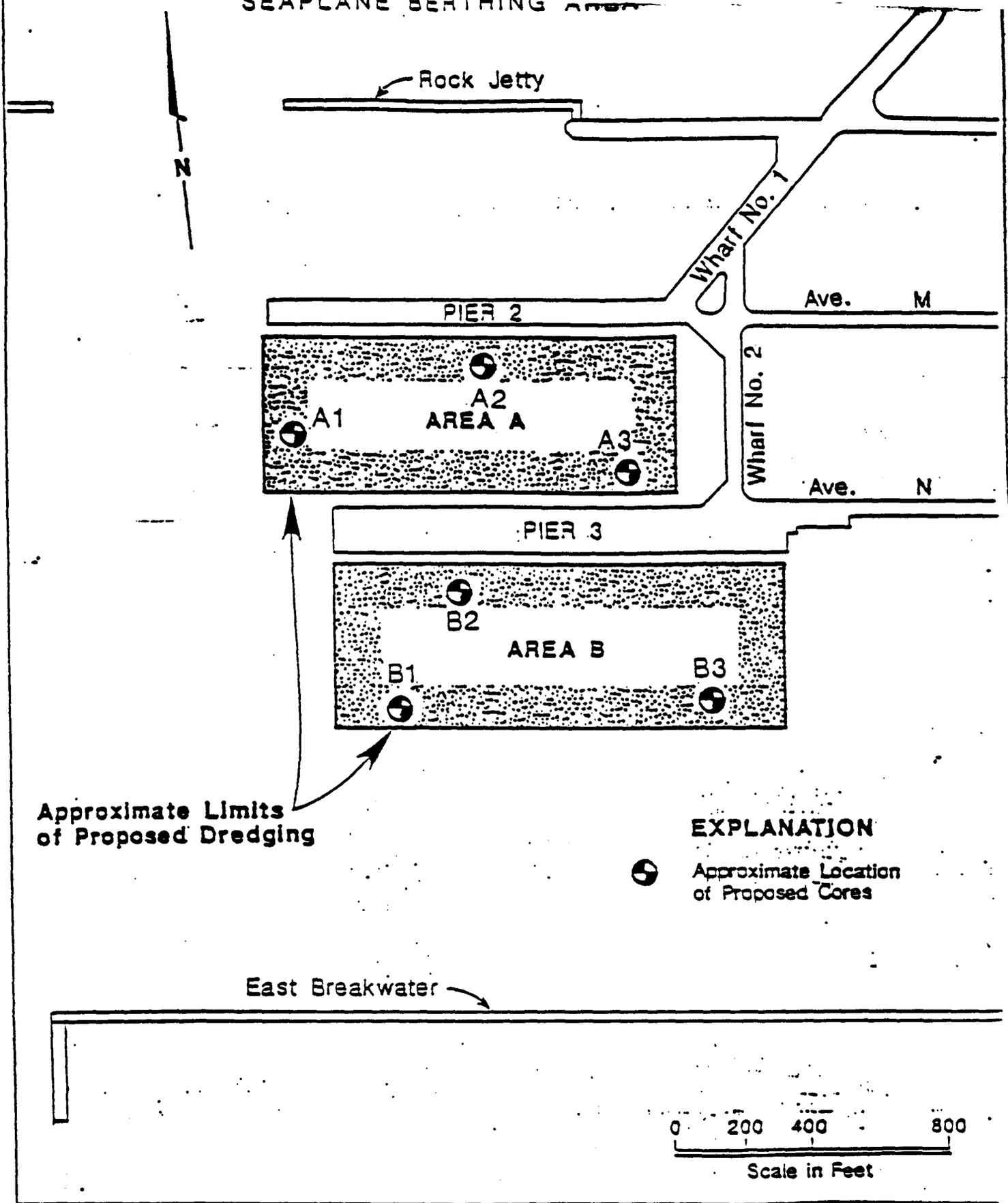
The ocean disposal site will also serve as the control site.

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Table 2

		<u>Physical Characterization Analysis</u>	<u>Bulk Sediment Analysis</u>	<u>Toxicity Analysis</u>
<u>Dredge Area A</u>				
A-1	Composite Sample	*	*	
A-2				
A-3				
<u>Dredge Area B</u>				
B-1	Composite Sample			<u>Composite</u> *
B-2		*	*	
B-3				

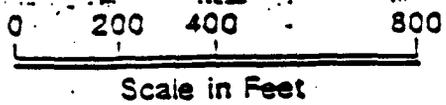
# SEAPLANE BERTHING AREA



Approximate Limits of Proposed Dredging

### EXPLANATION

⊙ Approximate Location of Proposed Cores



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 Engineers and Geoscientists

Site Plan  
 Naval Air Station  
 Alameda, California

DRAWN RS	JOB NUMBER PW87-4746.03	APPROVED C	DATE 7/87	REVISED	DATE
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Attachment 1  
 TESTING REQUIREMENTS TO DETERMINE  
 DREDGED MATERIAL ACCEPTABILITY FOR OPEN-WATER DISPOSAL<sup>1</sup>

A. Physical Characterization

Grain Size Analysis & Wet Unit Weight  
 Total Solids/Water Content  
 Total Organic Carbon (0.1%)<sup>2</sup>  
 Oil & Grease (20 parts per million [ppm]) - IR Method  
 Sulfides: Total (0.1 ppm) and Water Soluble (0.1 ppm)

B. Bulk Sediment Chemistry Analysis<sup>3</sup>

1. Metals:

Antimony (1.0 ppm)	Mercury (0.2 ppm)
Arsenic (0.1 ppm)	Nickel (0.1 ppm)
Cadmium (0.1 ppm)	Silver (0.1 ppm)
Chromium (VI) (0.1 ppm)	Zinc (2.0 ppm)
Copper (0.1 ppm)	Selenium (0.1 ppm)
Lead (0.1 ppm)	Thallium (1.0 ppm)
Organotin Compounds: (mono-, di-, and tributyltin: 1.0 parts per billion [ppb])	

2. Pesticides:

Aldrin (0.5 ppb)  
 Dieldrin (0.5 ppb)  
 Chlordane and derivatives (5.0 ppb)  
 DDT and derivatives (1.0 ppb)  
 4,4' DDE (0.5 ppb)  
 Endrin (0.5 ppb)  
 Hexachlorocyclohexane isomers (0.5 - 1.0 ppb)  
 Toxalphen (30.0 ppb)  
 Endosulfan and derivatives, including:  
 Endosulfan I (2.0 ppb)  
 Endosulfan II (0.5 ppb)  
 Endosulfan sulphate (10.0 ppb)

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## Attachment 1 (Concluded)

3. Other Contaminants:

PCBs: Total (20.0 ppb)

Aroclor 1242 (20.0 ppb)

Aroclor 1248 (20.0 ppb)

Aroclor 1254 (20.0 ppb)

Aroclor 1260 (20.0 ppb)

Cyanide (0.02 ppm)

Total Pthalates (10.0 ppb)

Phenols, total chlorinated and nonchlorinated (20.0 - 100.0 ppb)

Phenol (20.0 ppb)

Pentachlorophenol (100.0 ppb)

2,4-dimethylphenol (100.0 ppb)

2,4-dichlorophenol (20.0 ppb)

Polynuclear Aromatic Hydrocarbons (PAHs): (20.0 ppb)

(L) <sup>4</sup>	Acenaphthene	(H) Benzo (k) fluoranthene	(L) Fluorene
(L)	Acenaphthylene	(H) Benzo (b) fluoranthene	(H) Chrysene
(L)	Anthracene	(H) Fluoranthene	(L) Phenanthrene
(H)	Benzo (a) anthracene	(H) Dibenzo (a,h) anthracene	(H) Pyrene
(H)	Benzo (a) pyrene	(L) Naphthalene	
(H)	Benzo (ghi) perylene	(H) Indeno (1,2,3,-gd) pyrene	

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1 Army Corps of Engineers Public Notice No. 87-1, November 1987.

2 Detection limits are in parentheses: The results are to be expressed on a dry and wet weight basis.

3 All analyses will be conducted using EPA-approved methodologies that are suitable for marine sediments and that yield the required detection limits with good precision and accuracy.

4 (L) = Low Molecular Weight; (H) = High Molecular Weight.