EXECUTIVE CHAMBERS

HONOLULU

JOHN WAIHEE
GOVERNOR

April 28, 1992

MEMORANDUM

TO: The Honorable Murray E. Towill, Director
Department of Business, Economic Development and Tourism

SUBJECT: Final Environmental Impact Statement for the Sand Island Marine Education and Training Center and Public Launch Facility

I am pleased to accept the Final Environmental Impact Statement for the Sand Island Marine Education and Training Center and Public Boat Launch Facility as satisfactory fulfillment of the requirement of Chapter 343, Hawaii Revised Statutes.

This environmental impact statement will be a useful tool in the process of deciding if the action described therein should be allowed to proceed. My acceptance of the statement is an affirmation of the adequacy of that statement under the applicable laws and does not constitute an endorsement of the proposed action.

When the decision is made regarding the proposed action itself, I expect the proposing agency to consider if the societal benefits justify the environmental impacts which will likely occur. These impacts are adequately described in the statement and, together with the comments made by reviewers, provide useful analysis of the proposed action.

JOHN WAIHEE

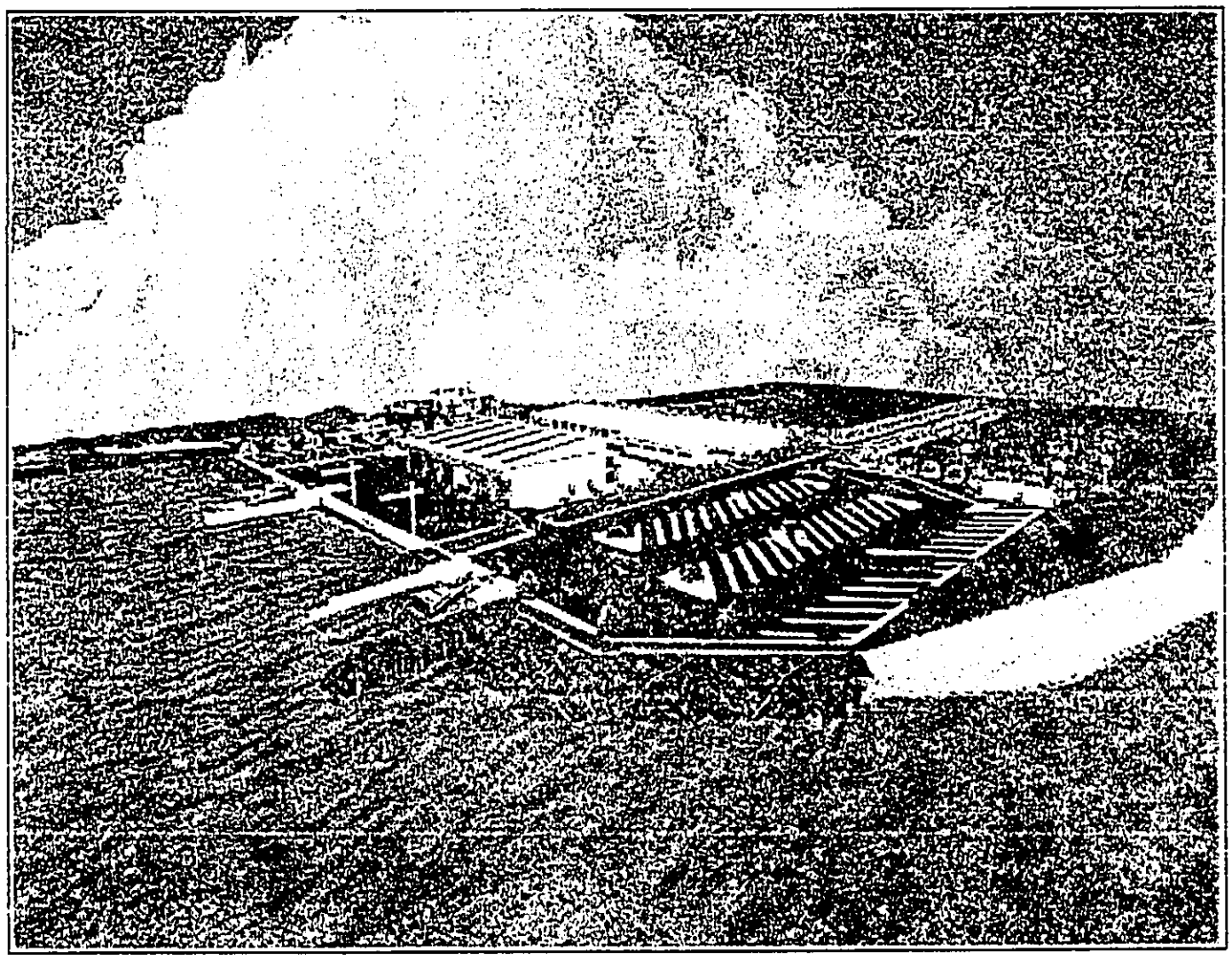
cc: Office of Environmental Quality Control

Final Environmental Impact Statement

for the

Marine Education and Training Center and Public Boat Launch Facility

Sand Island, Oahu



April 1992

MARINE EDUCATION AND TRAINING CENTER
AND
PUBLIC BOAT LAUNCH FACILITY

Final
Environmental Impact Statement

Sand Island, Oahu

This environmental document is prepared
pursuant to Chapter 343, Hawaii Revised Statutes

Proposing Agency:

STATE OF HAWAII
DEPARTMENT OF BUSINESS,
ECONOMIC DEVELOPMENT & TOURISM
HONOLULU WATERFRONT PROJECT

Accepting Authority:

GOVERNOR, STATE OF HAWAII

Responsible Official:

Murray E. Towill 4/15/92

Murray E. Towill, Director — Date

Prepared by:
Wilson Okamoto & Associates, Inc.

April 1992

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PROJECT SUMMARY

SUMMARY SHEET

Project:	Marine Education and Training Center (METC) and Public Boat Launch Facility
Proposing Agency:	State of Hawaii Department of Business, Economic Development and Tourism (DBED) Honolulu Waterfront Project
Accepting Authority:	Governor, State of Hawaii
Location:	Sand Island, Oahu, Hawaii
Tax Map Key:	1-5-41: portions of 6 and 130
Land Area:	Approximately 8 acres, including approximately 4.86 acres for the METC facility, and 3.14 acres for the Department of Transportation (DOT) Boat Launch facility.
Land Owner:	State of Hawaii
Existing Uses:	Undeveloped, construction storage and staging area.
Proposed Uses:	Training facilities for boat maintenance and marine propulsion, an inlet/pier and parking for about 60 cars and 10 boats. A boat launch facility will include a boat launching ramp, washdown area, comfort station and parking for about 47 boats/trailers.
State Land Use Classification:	Urban
Development Plan (DP) Land Use Designation:	Park and Public Facility
DP Public Facilities Designation:	Park and Recreation within 6 years
City and County of Honolulu Zoning:	P-2 General Preservation

This Environmental Impact Statement (EIS) was prepared to assess and disclose the environmental consequences of the development of a marine education training center and boat launching facility at Sand Island.

The Marine Education and Training Center (METC) is an educational facility proposed by the Honolulu Community College (HCC) to provide training programs for the repair and maintenance of marine vessels and engines. The project is sponsored by the State Department of Business, Economic Development and Tourism (DBED), which is charged with implementing the Honolulu Waterfront Master Plan. The METC is proposed to be located on a portion of an undeveloped eight-acre site on the northwest corner of Sand Island. Access to the facility will be off of the Sand Island Parkway where a new roadway will be developed to service the site at the existing signalized Matson Yard intersection.

The METC will consist of two major facilities on approximately 4.86 acres of land. The two-story boat maintenance facility will function predominantly as a maintenance and repair facility for boat exteriors, and will house shops and laboratories involving wood, metal and fiberglass hulls, sand blasting, painting, mast and rigging, and electrical/electronics. The marine propulsion facility will focus on the maintenance and repair of the internal functions of land and marine-based diesel engines, including power trains, outboard motors, and hydraulics. An inlet, finger pier and two jib cranes will be situated along the shoreline fronting the METC buildings for efficient access and maneuverability of marine craft between the water and the facility. Parking will be provided for approximately 60 cars at the METC facility and about 47 automobile/trailers at the boat launch facility.

Integrated within the METC facility will be the University of Hawaii Aquatics Program. An area of about 0.3 acres has been provided to accommodate boat parking and storage. Planned provisions also include a floating dock anchored along the shoreline fronting the Program. Currently located in temporary facilities on Sand Island, the Aquatics Program

is operated by the Outdoor Leisure Program of the UH's Campus Center Board, offering classes in windsurfing, sailing, and water safety.

Also sharing the use of the project site will be a public boat launch facility to be developed by the Department of Transportation (DOT) Harbors Division. Separated from the METC facility by a buffer strip and fence, the boat launch facility will occupy approximately 3.14 acres and will provide a boat ramp, automobile/trailer parking, comfort station, and washdown area.

Development of the METC is anticipated to occur in two phases. Phase I would include site preparation and infrastructure development, and construction of the Boat Maintenance Facility and public boat launch facility. Following the receipt of the required permits, construction is expected to take place from January 1993 to December 1994. The initial classes in Boat Maintenance and Repair are scheduled for Spring 1995. Phase II will involve the development of the Marine Propulsion Facility. This phase is scheduled to begin in 1997 and be completed by 1999. The initial Marine Mechanics and Marine Diesel programs will be accommodated, on a scaled-down basis, at the existing conventional diesel facility on the HCC campus. Once Phase II is completed, both the conventional and marine diesel programs will be relocated to the Sand Island METC facility. The METC is estimated to cost approximately $18.6 million ($11.8 million for Phase I), while the DOT Boat Launch Facility is estimated at about $1,060,000.

Major permits and approvals required for the project include a Department of the Army permit, a Hawaii Coastal Zone Management Program Federal Consistency Review, a Conservation District Use Application, a Special Management Area (SMA) Use Permit, a Shoreline Setback Variance and a Plan Review Use (PRU) approval. In addition, a Development Plan Public Facilities Map amendment to add a "College" symbol will be required for the project. A building height waiver will be required to accommodate the planned height of the Boat Maintenance Facility. Approval will also be required from the Director of the National Park Service and the Board of Land and Natural Resources (BLNR) to designate replacement lands for the portion of the project site not utilized for public outdoor recreation.

Short term impacts include temporary construction-related impacts of air quality, noise, water quality, and traffic. There are no threatened or endangered species of flora and fauna, and no archaeological resources on the project site. Air quality impacts, primarily from fugitive dust from construction, will be mitigated by watering exposed areas and covering dirt-hauling trucks. Construction noise impacts will comply with existing regulations. Water quality impacts from dredging and filling operations will result in temporary turbidity in the coastal waters. Silt curtains will be used to contain silt and debris, and water quality monitoring will be undertaken in conjunction with Department of Health (DOH) water quality approvals.

Long term impacts are anticipated for traffic, air quality and noise, water quality, hazardous materials, and coastal views. Roadway improvements are required at the intersection of the project driveway with Sand Island Parkway due to projected traffic volumes which include the Honolulu Corporation Yard traffic. The increase in traffic volumes, however, are not anticipated to significantly impact air quality in the vicinity due to the site's open location on the shoreline. Noise from aircraft overflights will be attenuated in the classroom and office areas using building materials which reduce interior noise levels. A hazardous materials management plan and a regulated waste management plan will be prepared to deal with the storage, use, and disposal of hazardous materials. Visual impacts have been mitigated with the siting of the METC buildings in the mauka portion of the project site and the incorporation of landscaping and buffer areas.

Alternatives to the proposed project include the no-action alternative, a scaled down marine propulsion facility, and siting the METC along the Keehi Lagoon shoreline. Three alternative project sites have also been considered including locations at: a) the confluence of Kalihi and Moanalua Streams; b) the Diamond Head side of Kapalama Canal between Nimitz Highway and Dillingham Boulevard; and c) the opposite side of the Kalihi Channel.

Although there will be some short-term impacts from construction, the proposed project will enhance specialized marine training services and increase future employment opportunities. There is an irreversible commitment of land in this area of Sand Island, along with capital, materials, and manpower. Unavoidable impacts are limited to short term water quality impacts.

Section 1

INTRODUCTION

SECTION 1
INTRODUCTION

1.1 Introduction and Background

This Final Environmental Impact Statement (FEIS) was prepared in support of the proposed Marine Education and Training Center (METC) at Sand Island, Oahu. The METC is an educational facility proposed by the Honolulu Community College (HCC) to provide training programs for the repair and maintenance of marine vessels and engines. Also planned within the 8-acre project site is a public boat launch facility to be developed by the State Department of Transportation, Harbors Division (DOT-H). The project site will also accommodate the University of Hawaii's (UH) Aquatics Program, which provides instruction in activities such as sailing, windsurfing and water safety. The project is sponsored by the DBED[1] which is charged with implementing the Honolulu Waterfront Master Plan.

The METC project is subject to the EIS requirements set forth by Chapter 343, Hawaii Revised Statutes (HRS) and Chapter 200 of Title 11, Administrative Rules, Subchapter 6(b), based on (A) the use of State land and funds, (B) the use of land in the Conservation District as classified under Chapter 205 HRS, and (C) use of land within the shoreline setback area as defined by Section 205A-41 HRS. The EIS is being processed as an agency action by the DBED.

This EIS is intended to satisfy the environmental assessment requirements of development permits, including the Special Management Area (SMA) Use Permit and Shoreline Setback Variance (SSV) of the City and County of Honolulu Department of Land Utilization, and the Conservation District Use Application of the State Department of Land and Natural Resources (DLNR).

In response to a need to provide formal training for the development of industrial skills associated with the State's rapidly-expanding commercial and recreational boating

[1] Administrative responsibility for the Honolulu Waterfront Project was transferred from the Office of State Planning (OSP) to DBED on July 1, 1991.

industry, the HCC has proposed that a METC be established at Sand Island at a site that provides access to Honolulu Harbor, proximity to HCC, and sufficient land area for the development of classrooms, shops, and ancillary facilities.

The Honolulu Waterfront Master Plan, prepared by the Office of State Planning (OSP) in 1989, incorporates the concept of a marine education and training center, and boat launching facility in the area makai of Sand Island Parkway. The educational center was envisioned to offer recreational, competitive, and instructional programs and serve as a training facility for hands-on application to students enrolled in the marine and ocean recreation industries.

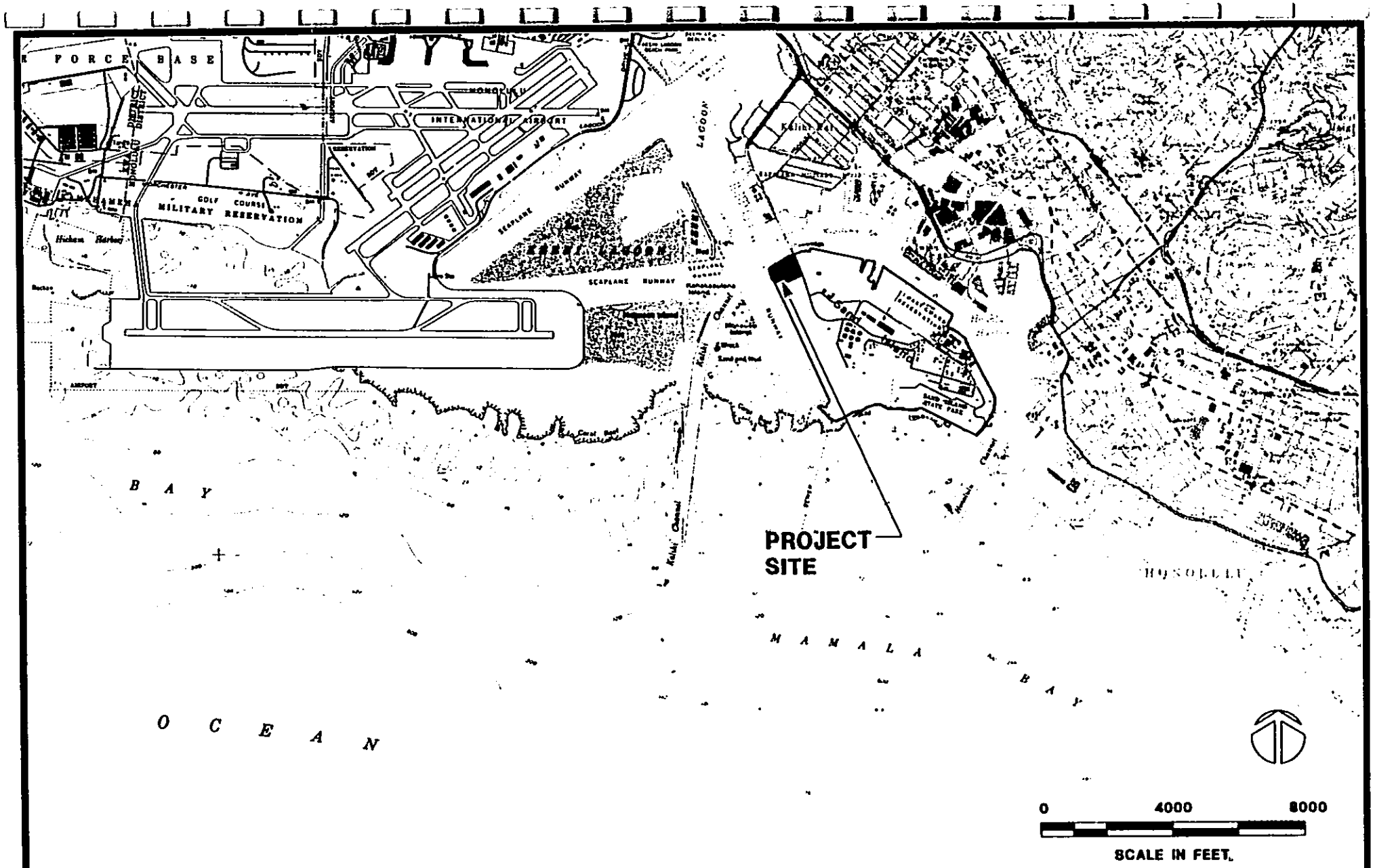
Development of such a centralized facility will provide some economies of scale in land use and development costs by locating three marine-related projects in a master planned development at a single site. Further, the facility will provide greater opportunities for educational and recreational use by the general public, while realizing a more efficient use of the land.

1.2 Project Location

The proposed project is situated on an undeveloped, rectangular-shaped, 8-acre site on the northwest corner of Sand Island. The project site is bounded by Sand Island Parkway and the shoreline fronting Kalihi Channel and Keehi Lagoon (See Figure 1-1). Access to the facility will be off of Sand Island Access Road, where a new roadway will need to be developed to service the site opposite the Matson yard entrance (See Figure 1-2). The site lies within the Honolulu Waterfront Master Plan's Sand Island Subarea, in an area designated for an ocean-related educational facility.

Locational attributes and advantages of the site include:

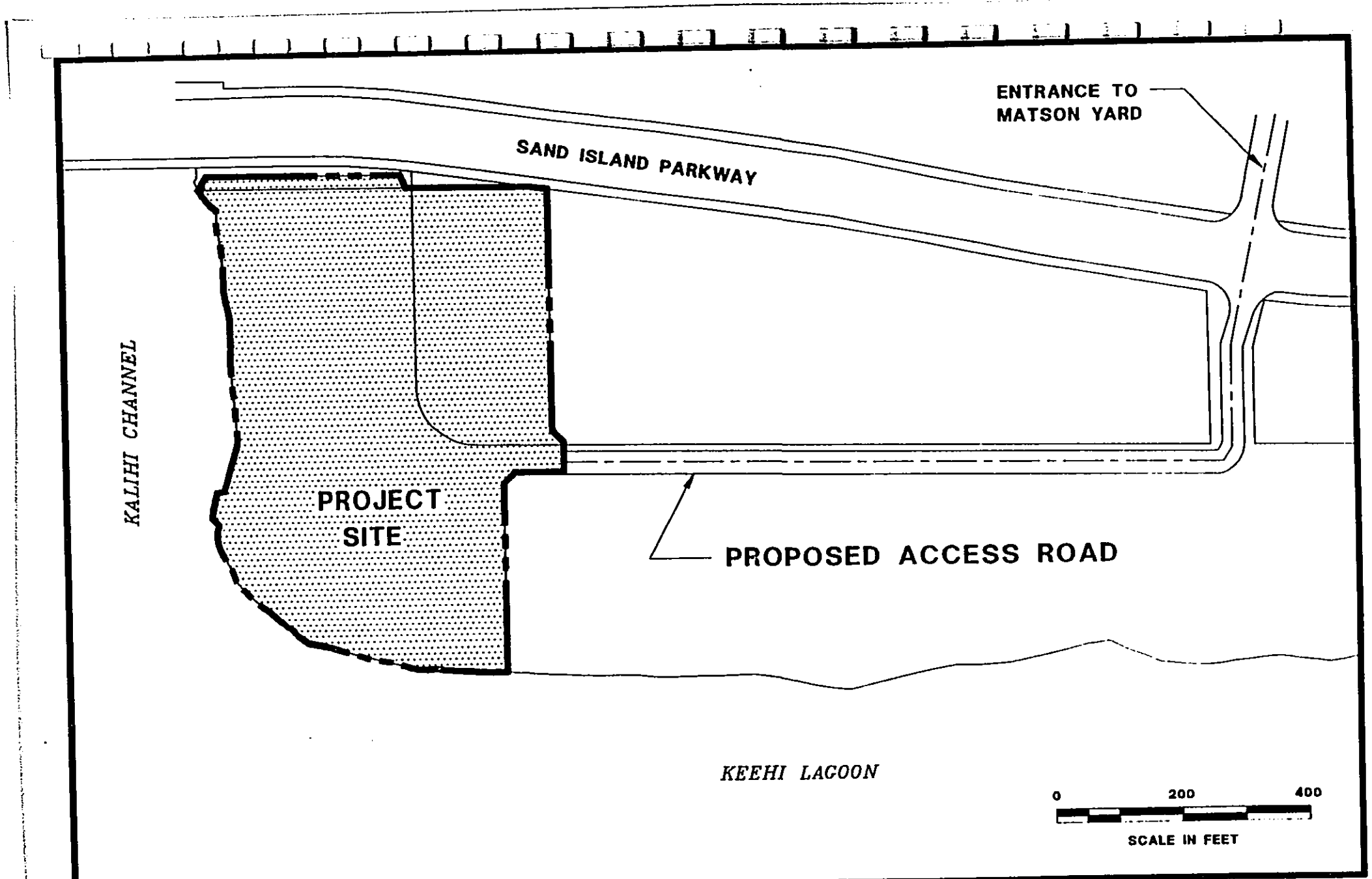
- Proximity of the site to marine and boating facilities;
- Proximity of the site to HCC;
- Open, undeveloped area; and
- A waterfront location surrounded by protected waters.



MARINE EDUCATION AND TRAINING CENTER

Fig. 1-1
LOCATION MAP

Prepared for :
HONOLULU WATERFRONT PROJECT
Prepared by :
Wilson Okamoto & Associates, Inc.



MARINE EDUCATION
AND
TRAINING CENTER

Fig. 1-2

PROPOSED ACCESS PLAN

Prepared for :
HONOLULU WATERFRONT PROJECT
Prepared by :
Wilson Okamoto & Associates, Inc.

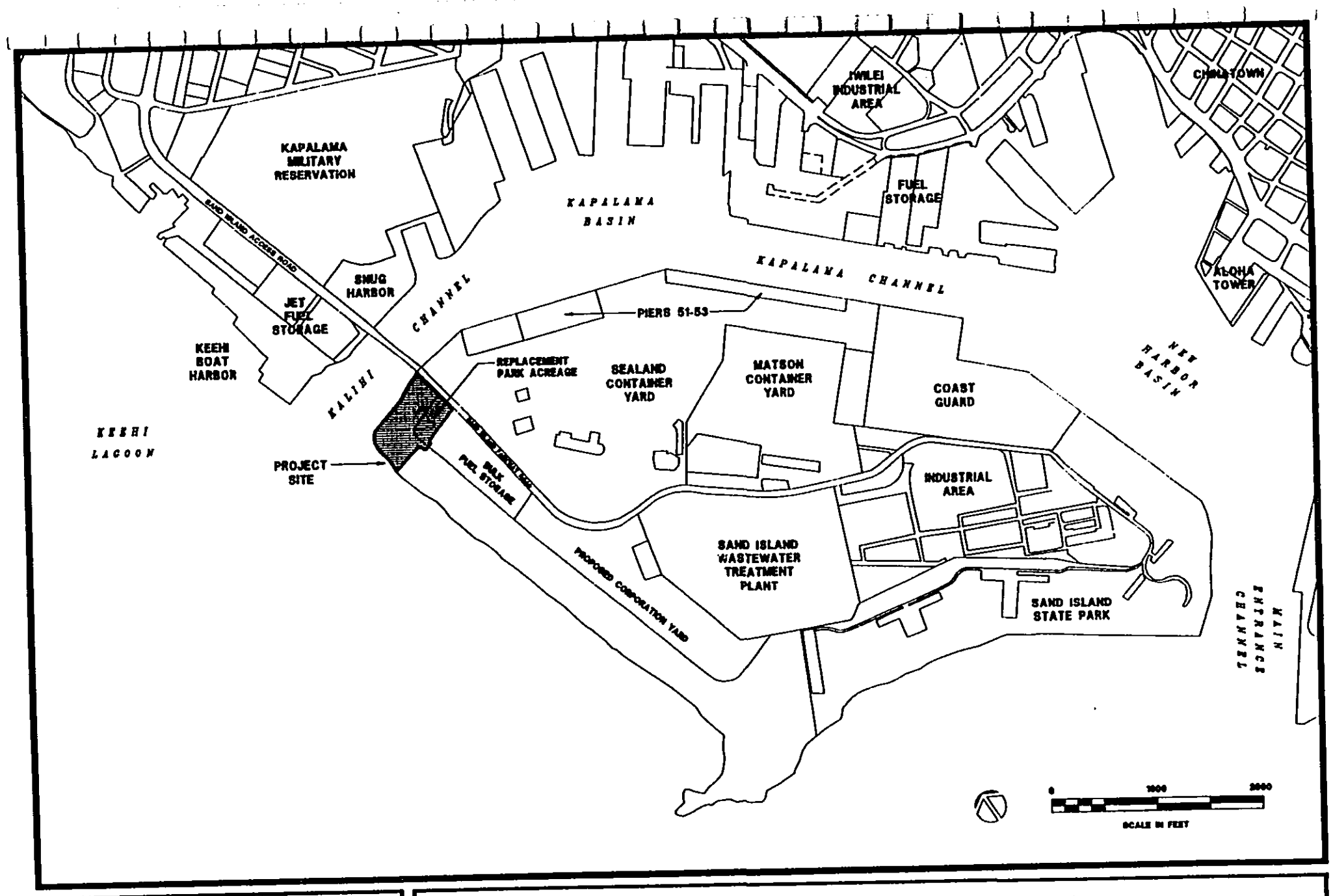
1.3 Existing Uses

Sand Island is a man-made island bordered on the east by the Honolulu Harbor main entrance channel (Fort Armstrong Channel), on the west by the Kalihi Channel, and on the north by the Kapalama Channel. The island was created from the deposition of material during the dredging of Honolulu Harbor and Keehi Lagoon. The project site is currently undeveloped but in temporary use as a construction storage and staging area.

At present, Kiewit Pacific operates a construction storage yard on-site. Materials stored include: scrap metal, marine markers, anchors, and metal staging. A large crane on a barge and a sail boat are docked on the northern beach. There are also six shipping containers, one mobile office, and seven automobiles located on the property. Located south of the site, coralline spoils are stockpiled from the Phase IA excavation at the new Honolulu Police Station on South Beretania Street. The City and County of Honolulu is currently investigating methods to treat and dispose of the soils. Additionally, there are three underground petroleum pipelines which cross the project site parallel to Sand Island Parkway. The Hawaii Fuel Facility Corporation (HFFC) owns a 12- and 18-inch diameter pipeline, while the Hawaiian Independent Refinery, Inc. (HIRI) owns a 12-inch diameter pipeline.

There are a number of different land uses on Sand Island, including the Sand Island State Park, the Matson and SeaLand container handling facilities which occupy State-owned land, the U.S. Coast Guard's Sand Island facility, and the City and County of Honolulu's Sand Island Wastewater Treatment Plant. Additionally, an industrial use area occupied by various individual business is located on the southern portion of the island (See Figure 1-3).

The City and County of Honolulu has also proposed to relocate its fleet maintenance and trade shops onto a centralized Corporation Yard on Sand Island. This move would implement an agreement negotiated between the State and the City in which the State has agreed to grant the use of a 26-acre parcel of land adjacent to the existing Sand Island Wastewater Treatment Plant. In return, the City will develop the final 53-acre phase of



MARINE EDUCATION AND TRAINING CENTER

Fig. 1-3

SURROUNDING LAND USES

Prepared for :
HONOLULU WATERFRONT PROJECT

Prepared by :
Wilson Okamoto & Associates, Inc.

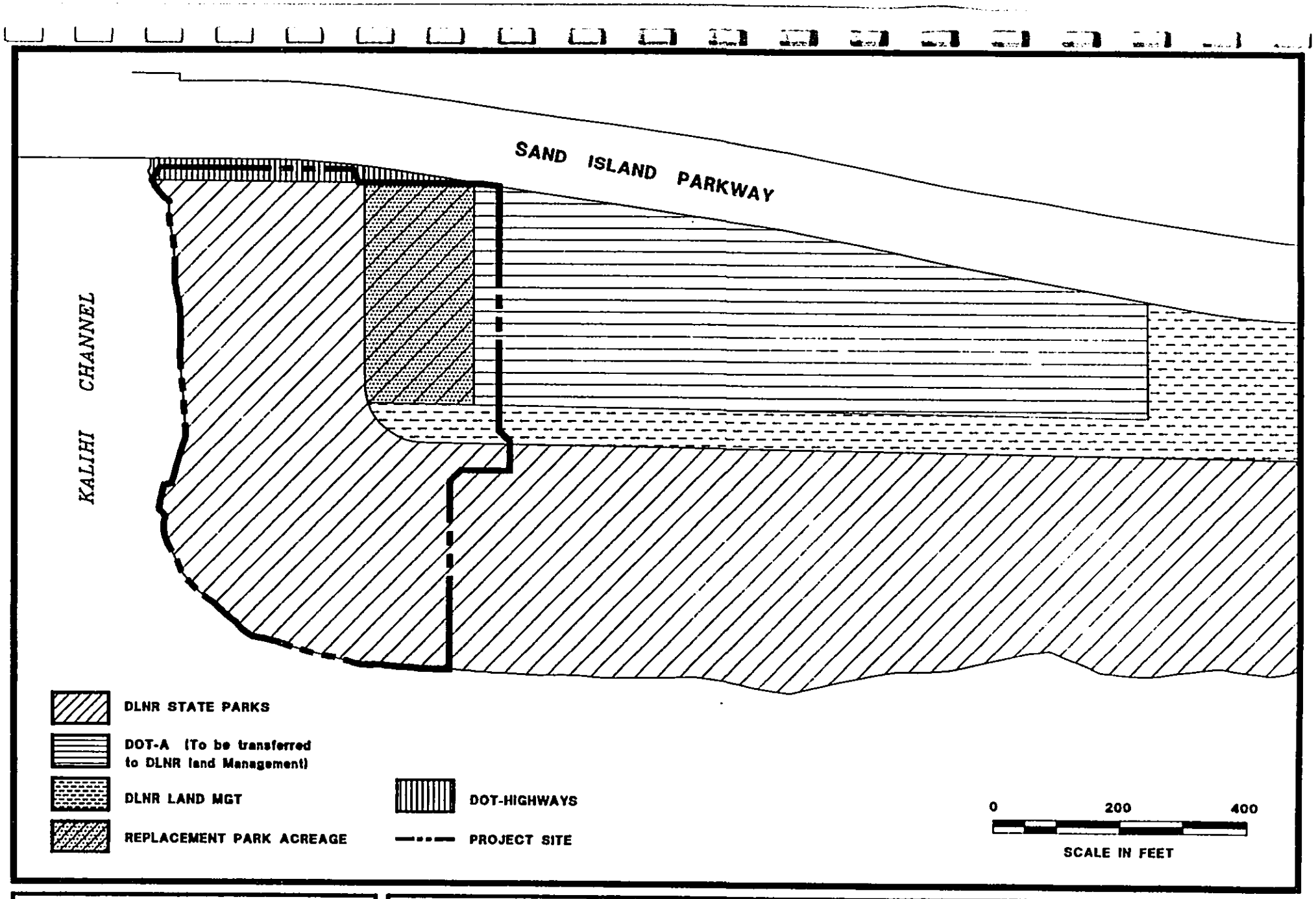
the Sand Island State Park and demolish and clear its baseyard facilities on the Kakaako Peninsula and its incinerator facility on Kokea Street. The developed portion of Sand Island Park currently occupies 87 acres, and the undeveloped portion about 53 acres. The developed portion of the park fronts the ocean and Honolulu Channel, while the undeveloped portion fronts Keehi Lagoon.

Adjacent to the project site is a 7.9-acre parcel which was intended for use by the DOT Airports Division (DOT-A) for future bulk fuel storage. Approximately 1.5 acres of this parcel have been released by DOT-A to serve as replacement acreage for the Sand Island Park in conjunction with the development of the AT&T Cable Ship Pier. DOT-A is currently processing the release of the remaining 6.4 acres from its Airport Grant Agreements in order to effect a transfer of this parcel to DLNR.

The near shore waters around Sand Island provide an assortment of water-oriented recreation opportunities. As a result of the creation of the seaplane runway, the sheltered waters in Keehi Lagoon are suitable for a number of water activities, including boating, sailing, water skiing, canoe racing and fishing.

1.4 Land Ownership

The project site will require the consolidation of portions of two state-owned parcels (See Figure 1-4). Approximately 6.04 acres of Tax Map Key (TMK) 1-5-41:6 are under the jurisdiction of the Department of Land and Natural Resources (DLNR) Division of State Parks. Portions of TMK 1-5-41:130, which total approximately 1.96 acres, are under the jurisdiction of the DLNR Division of State Parks (about 1.509 acres), DLNR Division of Land Management (about 0.25 acres), and DOT Airports Division (about 0.20 acres) as shown by Table 1-1. Of the 1.96 acres, about 1.509 acres was transferred from DOT-A to DLNR-P, and 0.20 acres will be transferred from DOT-A to DLNR-LM, as part of a Land Transfer Agreement. In addition to the 8-acre project site an easement will be sought from the DOT Highways Division for the use of a 0.25-acre area adjacent to the Sand Island Parkway to supplement the parking area.



MARINE EDUCATION AND TRAINING CENTER

Fig. 1-4

OWNERSHIP MAP

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Table 1-1
LAND JURISDICTION

Agency	Acreage	TMK
DLNR - State Parks	6.040	1-5-41:06
" " "	1.509	1-5-41:130
DLNR - Land Mgt.	0.250	1-5-41:130
DOT - Airports	0.200	1-5-41:130
TOTAL	7.999	

Section 2

DESCRIPTION OF THE PROPOSED PROJECT

SECTION 2
PROJECT DESCRIPTION

Planned facilities on the project site include the Marine Education and Training Center, public boat launch facility, and UH Aquatics Program storage building.

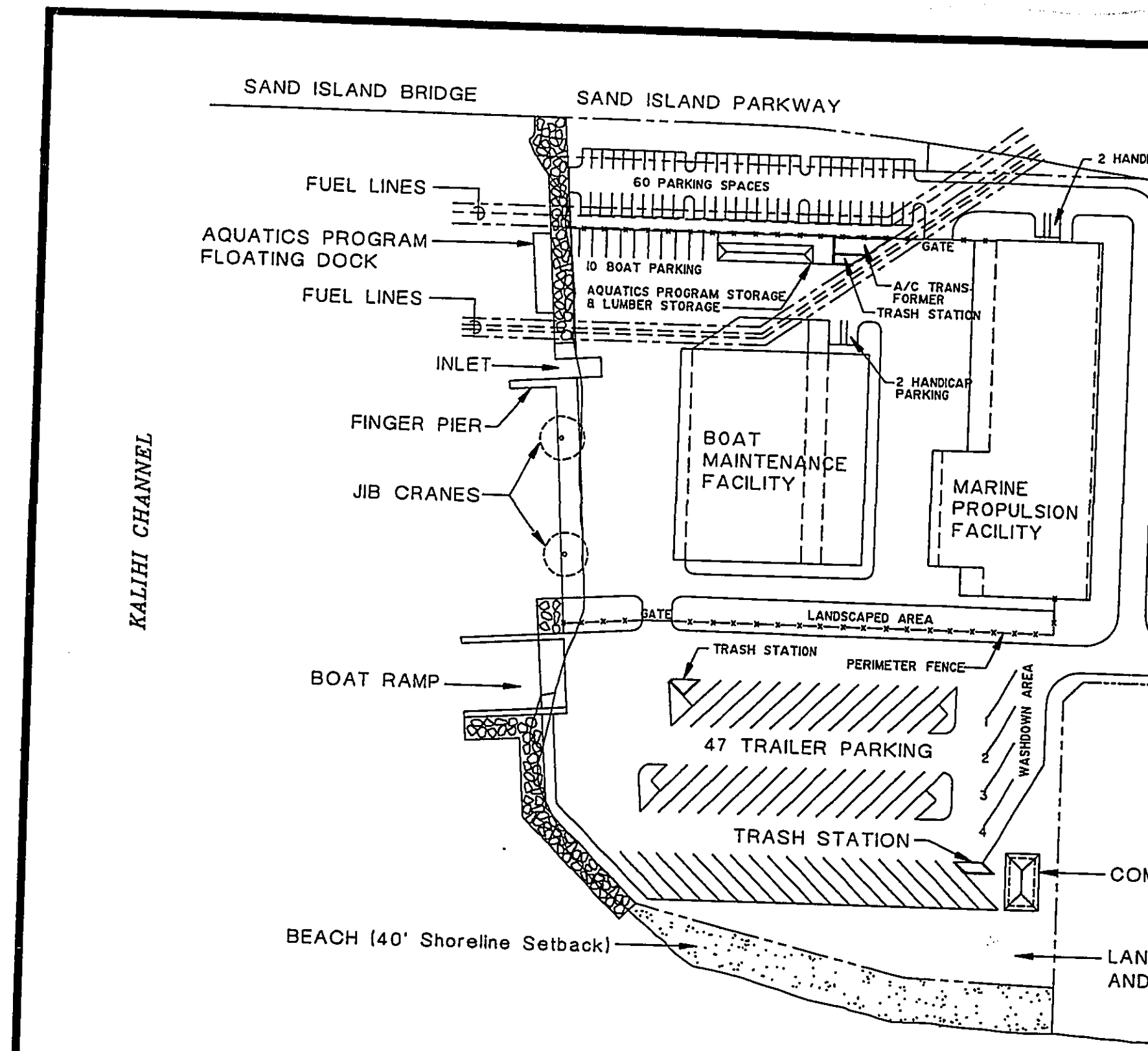
2.1 Marine Education and Training Center

The METC will consist of two major facilities on approximately 4.86 acres of land. The Boat Maintenance Facility will be located on the mauka portion of the site, near Sand Island Parkway, while the Marine Propulsion Facility will be situated adjacent and inland, about 60 feet to the southeast of the Boat Maintenance Facility. Parking for approximately 60 cars, including four handicapped stalls, will be situated adjacent to Sand Island Parkway.

The METC and Public Boat Launch Facility Master Plan was completed in September 1991 to provide a layout and conceptual design for the proposed facilities, as illustrated in Figure 2-1. The METC facilities are situated on the mauka portion of the site to minimize the development's impact on coastal views. A landscaped buffer area will be provided between the shoreline along Keehi Lagoon and the boat launch facility, as well as between the METC and boat launch facilities. Siting the boat launch facility closer to Keehi Lagoon allows for efficient ingress and egress by users of the facility to open waters without interrupting users of the METC facility.

The considerations influencing the siting and configuration of components within the METC facility included:

- Minimizing disruption to the shoreline;
- Minimizing the need for dredging and filling;
- Enhancing public access;
- Maintaining and enhancing the sandy beach area on the Keehi Lagoon side of the parcel;
- Minimizing the impact on views; and
- Integrating the project with future park development.



MARINE EDUCATION
AND
TRAINING CENTER

Fig. 2-1

SITE MASTER P

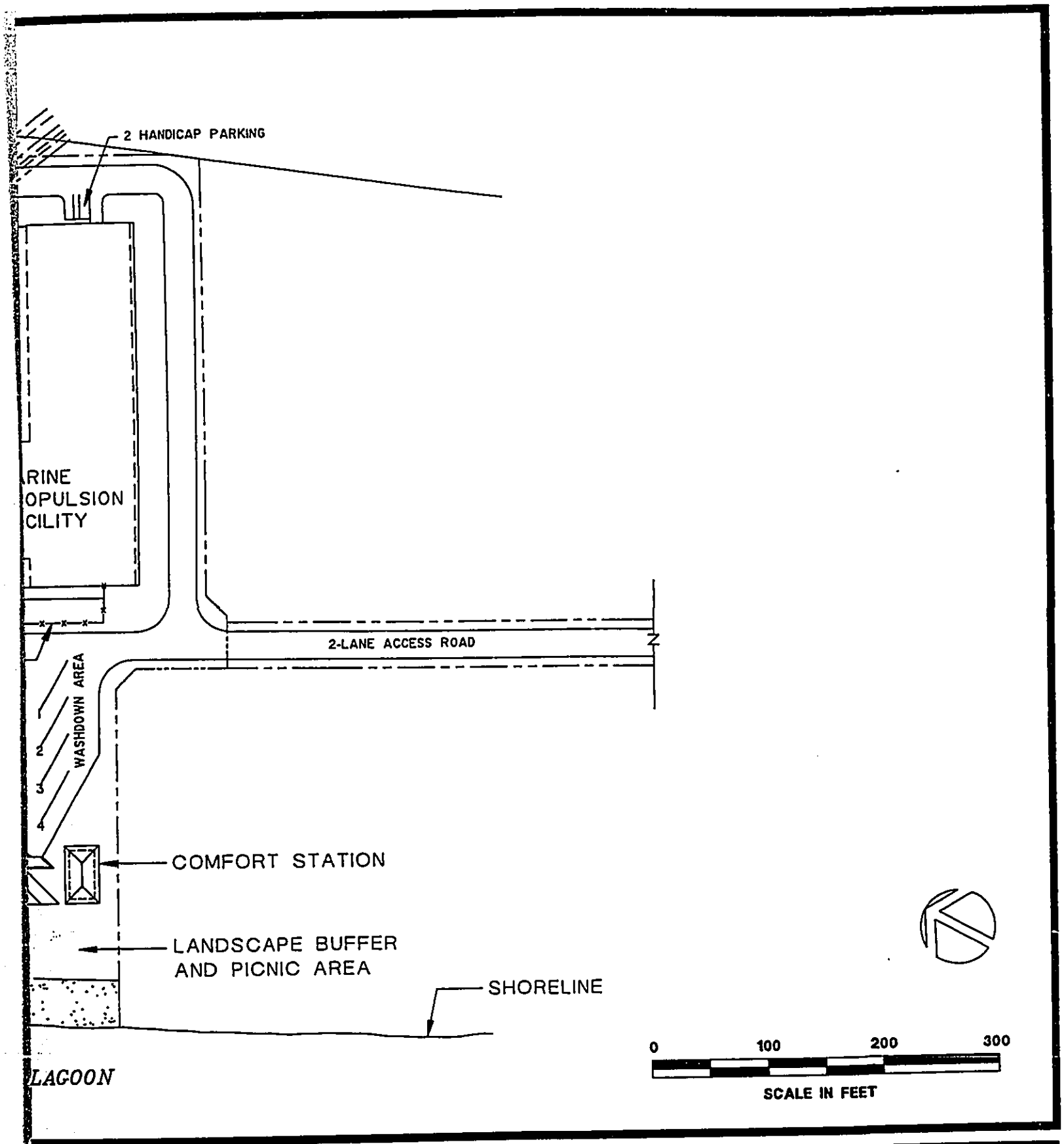


Fig. 2-1

MASTER PLAN

Prepared for :

HONOLULU WATERFRONT PROJECT

Prepared by :

Wilson Okamoto & Associates, Inc.

Facilities along the shoreline include a rock revetment or seawall extending along the Kalihi Channel shoreline, a concrete floating dock, a small inlet and finger pier, two 20-ton jib cranes and a double-lane boat launching ramp.

2.1.1 Boat Maintenance Facility

The Boat Maintenance Facility will function predominantly as a maintenance and repair facility (versus new design and construction) of boat exteriors. The two-story building, measuring about 33 feet at its highest point, will provide a total of about 42,000 square feet of floor area (First floor - 28,200 square feet, Second floor - 13,800 square feet) and will house multi-disciplinary shops and laboratories. Figures 2-2 through 2-4 illustrate first and second floor plans and a typical cross section of the facility.

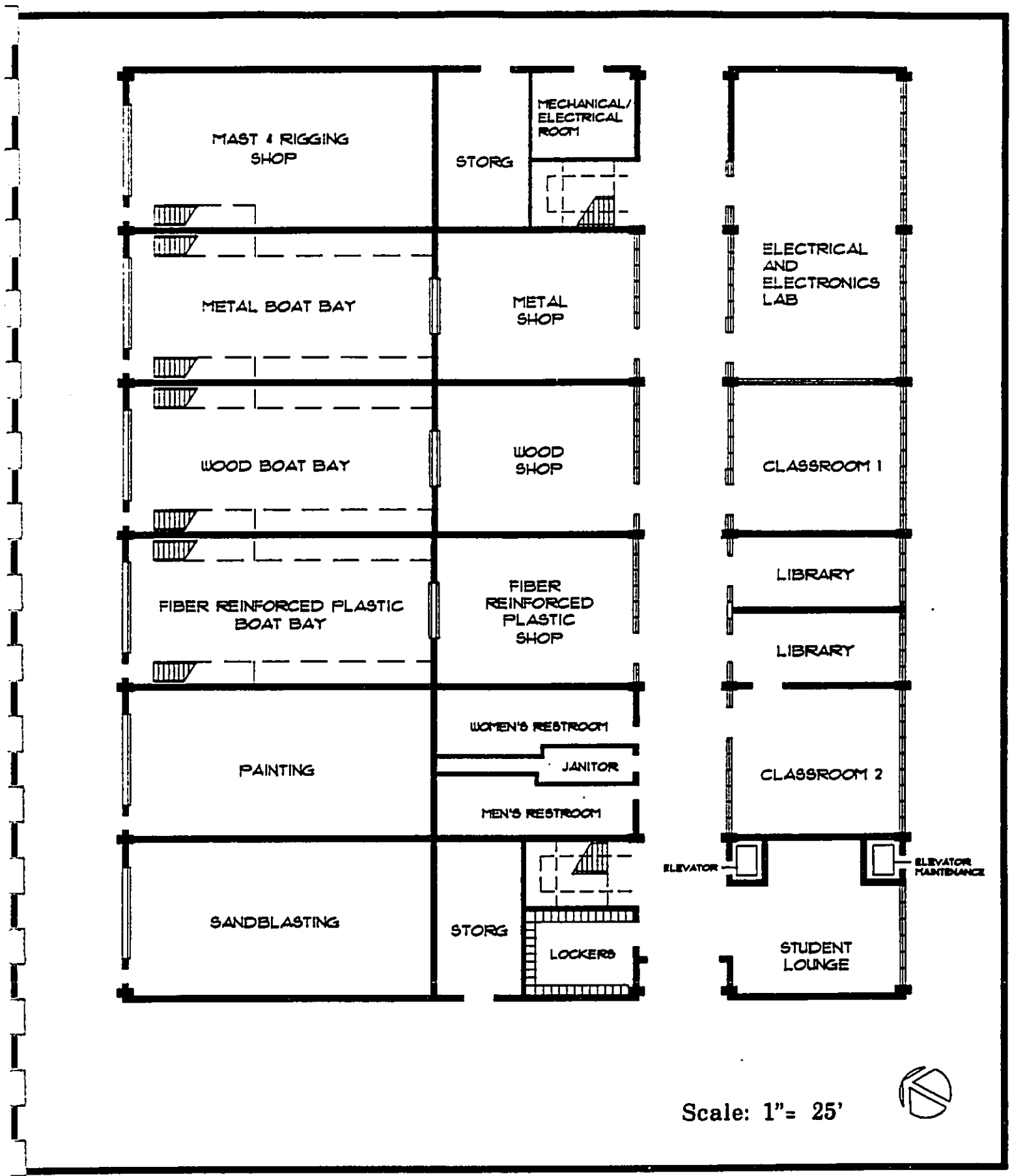
The first floor will be occupied by: a) bay and shop areas; b) storage space; c) restrooms, locker, janitorial and student lounge facilities; d) 2 classrooms and two libraries; and e) an electrical/electronics laboratory area. The primary uses on this floor will be the bay and shop area which will include seven areas of discipline: sandblasting; painting; fiberglass reinforced plastic (FRP); wood boat; metal boat; mast and rigging; and electrical and electronics. Each discipline will occupy 1,800 square feet of bay area to perform larger, space-intensive maintenance/repair tasks on individual boats.

The first floor will also include two classrooms, two libraries, two storage areas, restrooms, lockers, student lounge area, and the building's mechanical and electrical room.

The second floor will primarily accommodate loft spaces and storage for the FRP, wood boat and metal boat work bays. Loft space for the maintenance of sails will be located above the mast and rigging shop. In addition, there will be a mold shop, several supply storage areas, restroom facilities, and four faculty and staff offices.

2.1.2 Marine Propulsion Facility

Instruction and laboratory work conducted in this facility will relate primarily to the internal functions of land and marine-based gas diesel engines, including power trains,



MARINE EDUCATION AND TRAINING CENTER

Fig. 2-2

BOAT MAINTENANCE FACILITY (1ST FLR PLAN)

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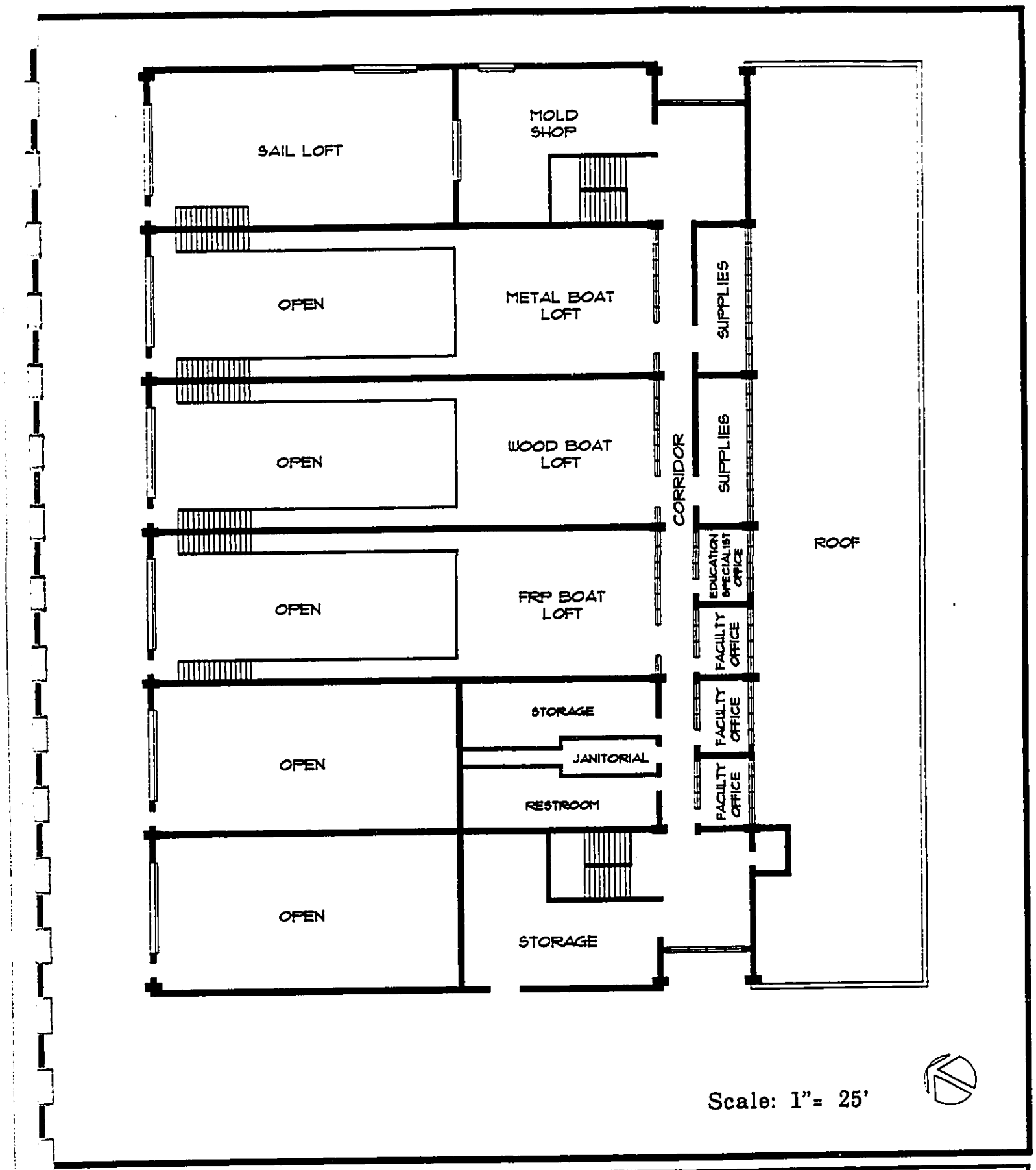

MARINE EDUCATION AND TRAINING CENTER

Fig. 2-3

BOAT MAINTENANCE FACILITY (2ND FLR PLAN)

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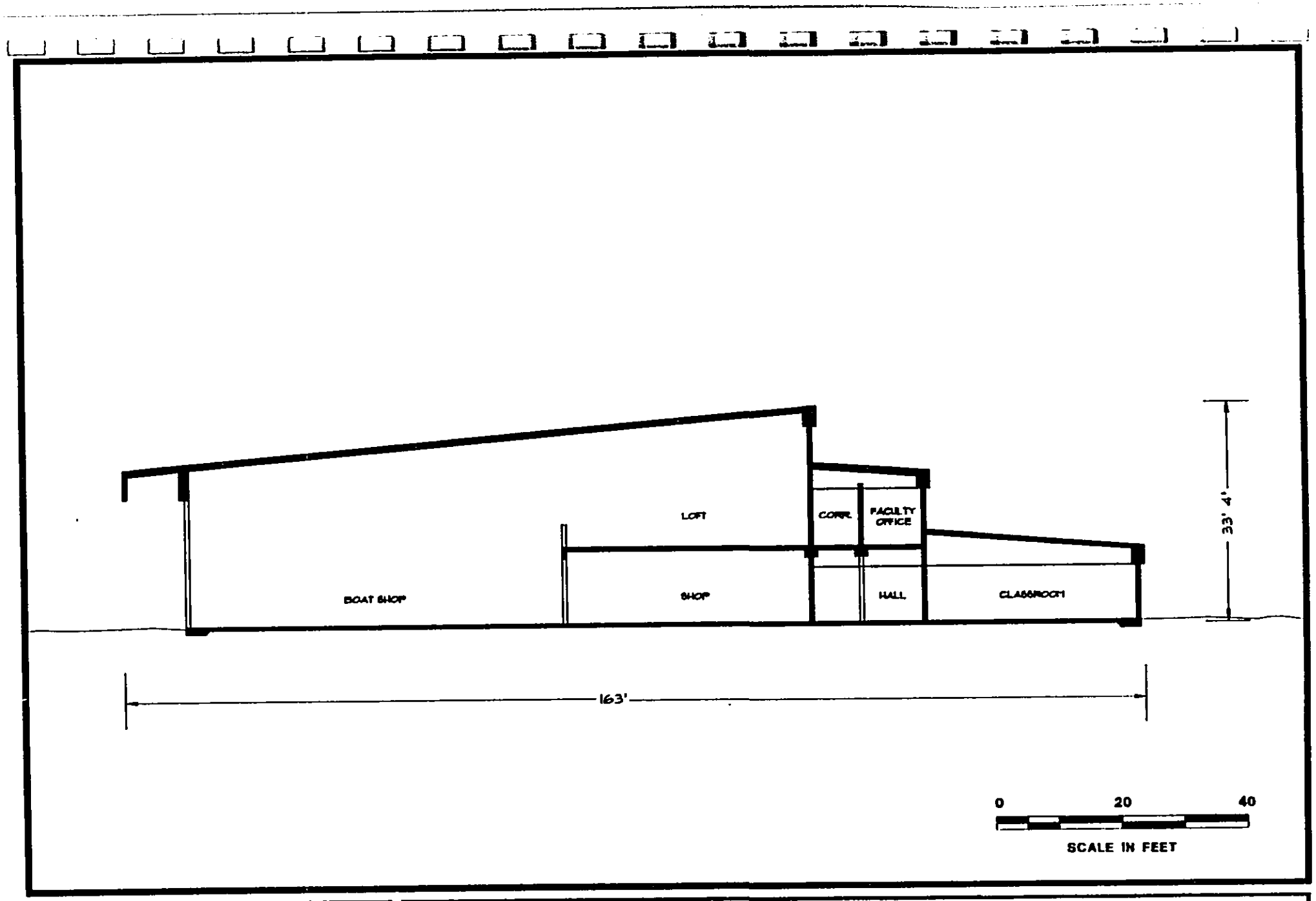


MARINE EDUCATION AND TRAINING CENTER

Fig. 2-4
BOAT MAINTENANCE FACILITY CROSS-SECTION

Prepared for :
HONOLULU WATERFRONT PROJECT
Prepared by :
Wilson Okamoto & Associates, Inc.

outboard motors, and hydraulics. Similar to the Boat Maintenance Facility, the focus of the Marine Propulsion Facility will be on maintenance and repair. The facility will be sited approximately 60 feet to the southeast of the Boat Maintenance Facility.

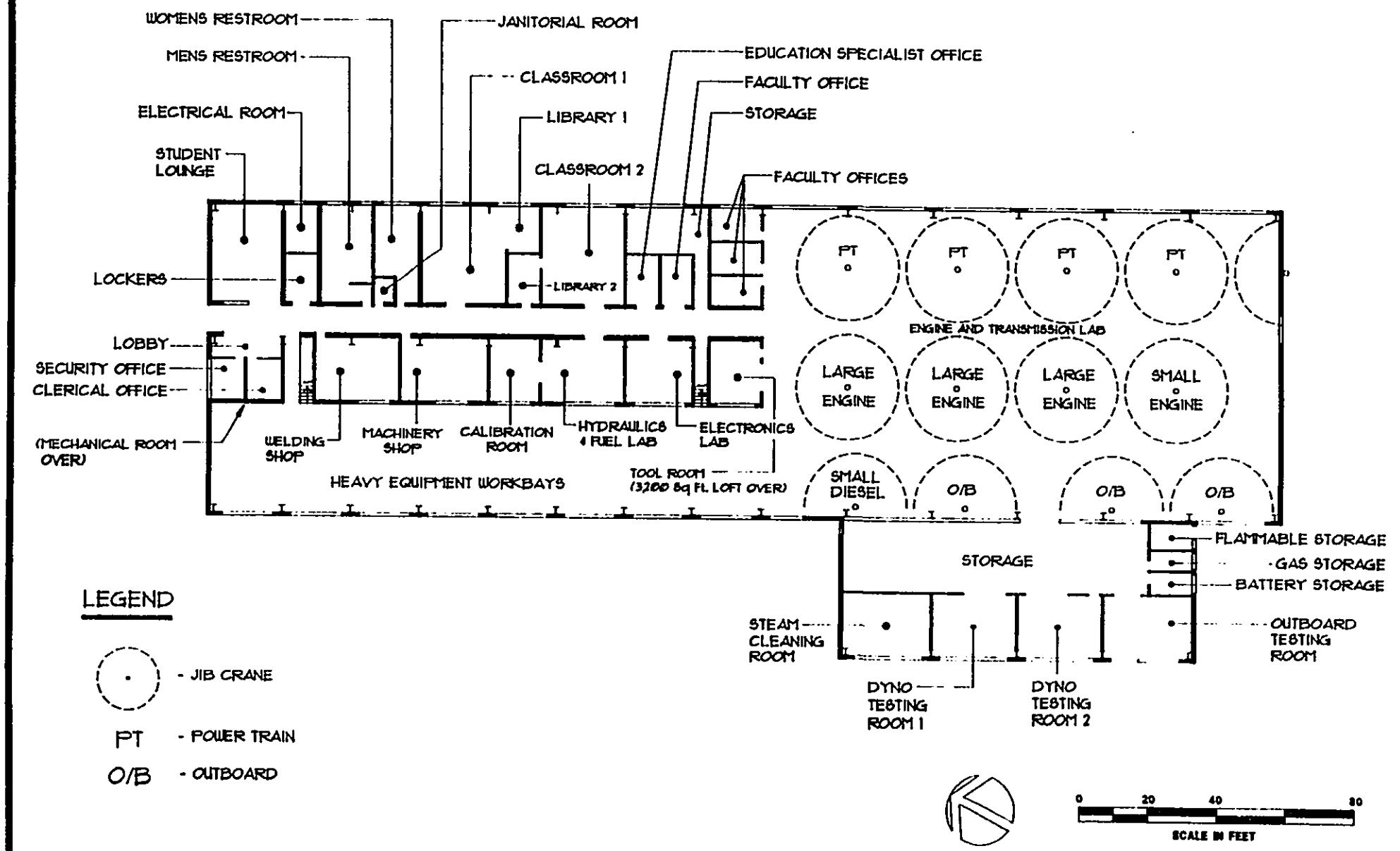
Measuring about 25 feet in height, this facility will offer a total of about 35,600 square feet of space (First floor - 32,400 square feet, Loft space - 3,200 square feet), and will be comprised of several major instructional spaces including: an engine and transmission laboratory; a heavy equipment workbay area; a steam cleaning and dyno/outboard testing area with adjacent storage areas; and a multi-use area with classrooms, libraries, faculty offices, student lounge, restrooms, and small-scale laboratory and shop spaces. Figures 2-5 and 2-6 depict the ground floor plan and typical cross-sections of the Marine Propulsion Facility.

2.2 DOT Boat Launch Facility

The boat launch facility will occupy approximately 3.14 acres of land on the southwestern portion of the site. A double-lane boat launching ramp, oriented toward Kalihi Channel, will be provided for the public's use in launching marine vessels, and an adjacent parking lot to be used primarily for trailer parking. The METC will also use the ramp to launch and recover boats, whereupon boats will be towed to the METC area via the gated access adjacent to the ramp. Conceptual plans for the boat launch area include provisions for an automobile/trailer parking area with approximately 47 stalls, a comfort station, and a washdown area which can accommodate up to four boat trailers. Lighting for evening use of the ramp facility is also planned. A comfort station which may include exterior showers, vending machines and a trash receptacle has been provided in the preliminary plans.

2.3 UH Aquatics Program

The Outdoor Leisure Program of the UH's Campus Center Board presently operates an Aquatics Education/Recreation Program in the Keehi Lagoon area. The Aquatics Program offers classes in windsurfing and sailing to those in the University system and the community. Although the program is based at UH Manoa, classes are presently conducted on Sand Island out of temporary facilities. The Aquatics Program will be



MARINE EDUCATION AND TRAINING CENTER

Fig. 2-5

MARINE PROPULSION FACILITY
GROUND FLOOR PLAN

Prepared for :
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Prepared by :
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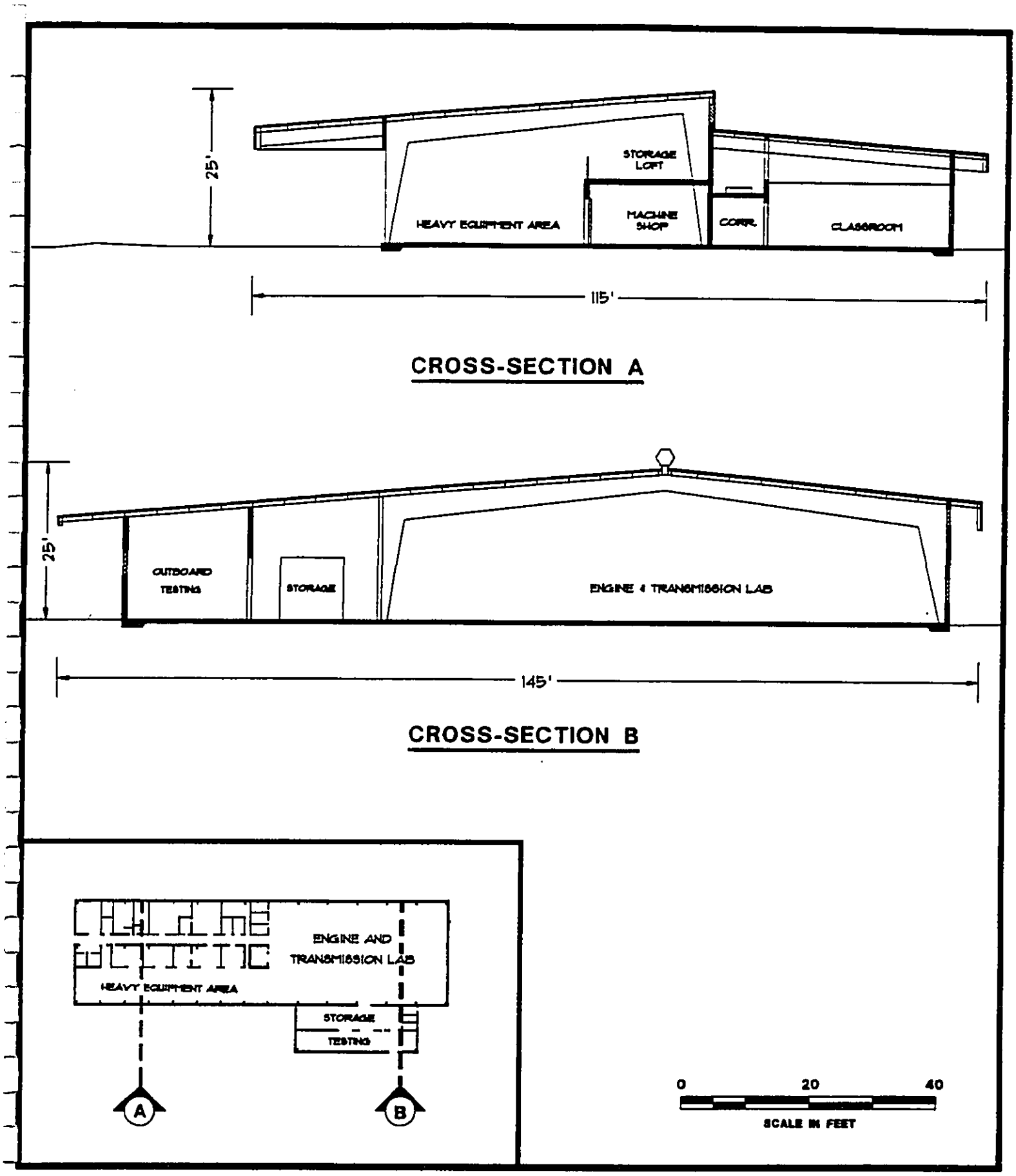

MARINE EDUCATION AND TRAINING CENTER

Fig. 2-6

MARINE PROPULSION FACILITY CROSS-SECTIONS

Prepared for : HONOLULU WATERFRONT PROJECT

Prepared by : Wilson Okamoto & Associates, Inc.

relocated from its present site near the southwestern portion of the project site to just makai of the proposed vehicular parking area of the METC facility. Approximately 0.3 acres has been provided to accommodate boat parking and a storehouse for equipment and supplies. In addition, a 12-foot by 60-foot floating dock will be anchored along the shoreline near the mauka portion of the project for use by the Aquatics Program to store sailboats and other small marine craft. Classroom/meeting areas are to be shared with those in the METC's Boat Maintenance Facility.

2.4 Planned Curriculum

A cluster of programs, options, and specializations relating to marine maintenance technologies are proposed by the HCC. The class offerings will include:

- Associate of Science Degree - Boat Maintenance and Repair
- Associate of Science Degree - Marine Mechanics
- Program Option in Heavy Equipment Maintenance and Repair - Marine Diesel Maintenance and Repair
- Program Option in Electronics - Marine Electricity and Electronics

HCC received authorization in March 1991 from the UH Board of Regents to offer a degree option to its current programs in: a) Conventional diesel mechanics (Heavy Equipment Maintenance and Repair) which would focus on marine diesel systems; and b) Electronics Technology which would focus on marine electricity and electronics. Additionally, new associate degree programs would be offered in: a) Boat Maintenance and Repair which would involve training in the repair and maintenance of wood, fiberglass, and metal boats; and b) Marine Mechanics which would concentrate on non-diesel marine propulsion systems.

2.5 Project Need

2.5.1 METC Facility

At the present time, there is no marine maintenance program at the HCC or at any other college in Hawaii or the Pacific. The METC will aid in the development of the maritime repair industry by providing a workforce of qualified personnel to staff the required positions anticipated for the boating industry, locally as well as in the Pacific Basin.

The educational program need for the METC is based on the rapidly-expanding maritime activities and facilities and anticipated industry demand for trained personnel in marine maintenance technologies.

The HCC conducted a survey of 29 companies listed as performing marine repairs in the areas of diesel, marine hulls, sailing craft, and marine electronics which yielded a portrait of a small, independent, undertrained industry. When asked if they saw a need for training programs in their fields, 22 of the 29 companies responded positively. Of the 22 responding companies, 13 expected to expand their operations, while 15 did not, and 1 was unsure. The entire marine maintenance field lacks facilities and infrastructure support, is deficient of affordable dry docks, and has encountered other growth-impeding problems. Based on the industry survey, the current need is for small numbers of new, skilled employees in specialized areas.

The HCC presently supports an Electronics Technology and Heavy Equipment and Maintenance and Repair programs which are specializations relating to marine maintenance technologies.

The Heavy Equipment Maintenance and Repair program has facilities adjacent to the automotive facilities at HCC. In addition to diesel engines, the facility contains dynamometers (devices which measure mechanical force), electronic testing equipment, engine mock-ups, fuel injection testers, and a vast array of tools exclusively for diesel mechanics training. The existing facility is approximately four years old, includes two open bays, and encompasses approximately 20,000 square feet. Transmission workstations are kept separate from engine and fuel injection workstations.

2.5.2 Boat Launch Facility

There is also a significant need for additional public boat launch facilities in the State. According to the State Comprehensive Outdoor Recreational Plan (SCORP), prepared by the DLNR Division of State Parks in December 1990, the issue of inadequate boating facilities is a priority for the State. On Oahu, the projected need for boat launching and

mooring facilities during the short-term (1990-95) and long-term (1995-2000) is "Medium" and "High", respectively.

The redevelopment of the Honolulu Waterfront is expected to revitalize and transform ocean-related maritime activities and provide greater recreational and economic opportunities for Oahu. Plans for Keehi Lagoon include 1,000 new berths for recreational vessels, a redeveloped Pier 60, a canoe race complex and approximately 250 acres of new land created in the triangle area of the lagoon that would contain a 50 percent recreation-education mix of uses and 50 percent marine- and airport-related commercial and light industrial uses. Statewide, proposed public and private marina developments could result in 4,000 new berths.

2.6 Enrollment Projections

Projections of student enrollment constitute the HCC's assessment based on existing enrollments in related programs; anticipated new industry created by commercial and recreational expansions in boating; and the potential national and international demand for marine-related maintenance training. Upon completion of the facilities by 1999, HCC projects the student enrollment to be between 160 and 180 students per year in the specialized programs listed in Table 2-1.

Table 2-1
PROJECTED STUDENT ENROLLMENT (By Program)

Boat Maintenance and Repair	48 students (24 per year)
Marine Mechanics	48 students (24 per year)
Marine Diesel Maintenance	48 students (24 per year)
Marine Electricity & Electronics	24 students (12 per year)
TOTAL	**168**

The maximum number which the METC would support based on facility design is 180 students. For planning purposes, the maximum population of students, faculty and staff which are expected to be at the facility at any given time of the day is 100 persons.

2.7 Development Schedule

Project implementation will occur in two phases as illustrated in Table 2-2 and Figure 2-7 below. The first phase to be pursued following the receipt of governmental permits includes site preparation and development of the Boat Maintenance Facility and boat ramp facility. The second phase, development of the Marine Propulsion Facility, is not expected to commence until 1997. The land area for this facility will be grassed and left open in the interim.

Table 2-2
DEVELOPMENT SCHEDULE

April 1992 - December 1992	Permit Processing, Procurement, and Detailed Design
January 1993 - December 1994	Phase I -- Site Preparation and Construction of Boat Maintenance Facility and Public Boat Launching Facility
Spring 1995	Start Initial Fall Classes - Boat Maintenance and Repair Program
1997 (Est.) to 1999	Phase II -- Construction of Marine Propulsion Facility

2.8 Project Costs

The total development cost for the METC is estimated at approximately $18.6 million, exclusive of design costs. Of this, about $11.8 million is attributable to Phase I which will include the site preparation and utilities, new access road, parking lot, pier and rip-rap wall, landscaping, and Boat Maintenance Facility. Phase II construction costs, which consists of the Marine Propulsion Facility, will total about $6.8 million. Facility development costs are expressed in 1993 dollars. The breakdown of these costs is summarized in Table 2-3. Based on the preliminary layout plan, construction of the DOT Boat Launch Facility is estimated at about $1,060,000. Detailed design and construction of the facility will be undertaken by DOT.

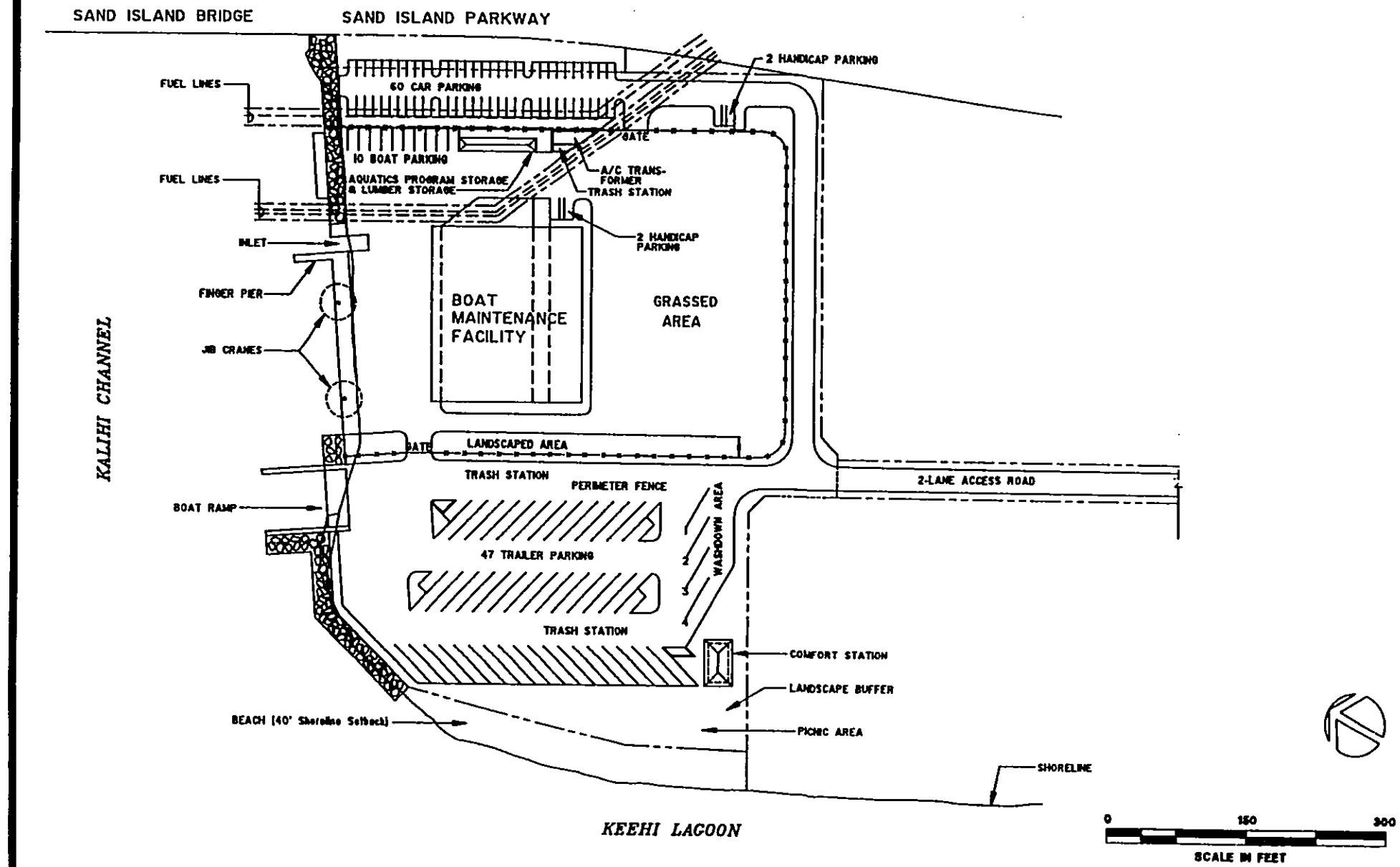

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Fig. 2-7

PHASE I PLAN

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Table 2-3
METC PROJECT COSTS

METC PHASE I:	
Site Preparation/Utilities	$2,203,000
Pier and Rip-Rap Wall	$662,000
Boat Maintenance Facility	$7,937,000
Aquatics Program Building/Dock	$140,000
Lumber Shed	$44,000
Landscaping	$299,700
Access Road	$403,000
METC Phase I Subtotal	$11,801,700
METC PHASE II:	
Marine Propulsion Facility	$6,762,000
TOTAL	**$18,563,700**

Section 3

DESCRIPTION OF THE EXISTING ENVIRONMENT

SECTION 3
DESCRIPTION OF THE EXISTING ENVIRONMENT

3.1 Physical Environment

3.1.1 Climate

The climate of Sand Island is characterized by persistent trade winds, relatively constant temperatures, and infrequent severe rainstorms. The prevailing northeasterly trade winds account for about 60 percent of the winds affecting the Island. The monthly range in temperature on Sand Island averages only seven degrees Fahrenheit between the warmest months (August and September) and the coolest months (January and February). Rainfall on Sand Island is relatively low, about 20 to 25 inches per year. Generally, about 50 percent of the total annual rainfall occurs during the three wettest months from December through February.

3.1.2 Topography

Sand Island was created on a shallow reef by incremental deposition of material from adjacent dredging in Honolulu Harbor and Keehi Lagoon. Except for intermittent small land forms and depressions in the undeveloped areas, the site for the METC and boat launch facility is relatively flat. The topography of the site ranges from near sea level at the shoreline to approximately eight feet at the existing Sand Island Parkway.

3.1.3 Geology

The Honolulu Harbor complex which includes Sand Island is located within the narrow coastal plain of Oahu's south central coast, geologically referred to as the Honolulu Plain. The Honolulu Plain and much of the rest of the southern edge of Oahu is underlain by a broad elevated coral reef, covered by alluvium carried out from the mountains. The Honolulu Plain ranges in elevation from zero to ten feet. Sand Island is underlain by a zone of low permeability known as caprock which extends along the coastline about 800 to 900 feet below sea level. The caprock layer prevents the seaward movement of potable water from the basaltic aquifers which underlie it.

Sand Island originally consisted of two separate islands surrounded by shallow coral reefs and mud flats. With the development of Honolulu Harbor and the dredging for

Kapalama Basin, the shallow areas surrounding the original two islands were filled with dredged materials and a causeway was constructed to connect the newly-formed Sand Island with Kalihi. The Sand Island Access Road crossed this causeway until it was replaced with the existing bascule bridge. Following the initial filling of the site, numerous other operations have gradually raised the area to its present levels.

3.1.4 Soils

According to the Soil Conservation Service, the land type of the project area is classified as fill land, mixed (FL) consisting of two general soil conditions. The first is a dredged fill resting upon one to two feet of mud upon a coral ledge. Second, along the outer perimeter and near Kapalama Channel, the coral ledge is absent and the dredged fill was placed upon soft lagoon deposits.

The Land Study Bureau classifies soils on the site with an overall agricultural productivity rating of E, the lowest rating. Soils series is classified as "man-made", well-drained, 0-10 percent slope, with variable soil properties.

A Soil Reconnaissance Report was prepared for the project by Fewell Geotechnical Engineering, Ltd. in February 1991 (See Appendix A). Subsurface investigations, through three test borings revealed that the southern and western edges of the project site are underlain by seven to eight feet of medium dense to dense fill over loose to very loose silty sands and gravel (See Figure 3-1). Harder material was encountered at depths ranging from 23 to 27 feet below the ground surface. Groundwater was encountered at a depth of five feet below the ground surface in all three borings, however, variations in the water level are anticipated due to tidal fluctuations and storm conditions.

3.1.5 Hazardous Materials

In October 1991, an assessment of the project site was conducted by Muranaka Environmental Consultants, Inc. (MECI) to determine the presence and extent of potential hazardous waste conditions (See Appendix B). Other specific areas of investigation in the assessment included: historical uses, gross surface contamination,

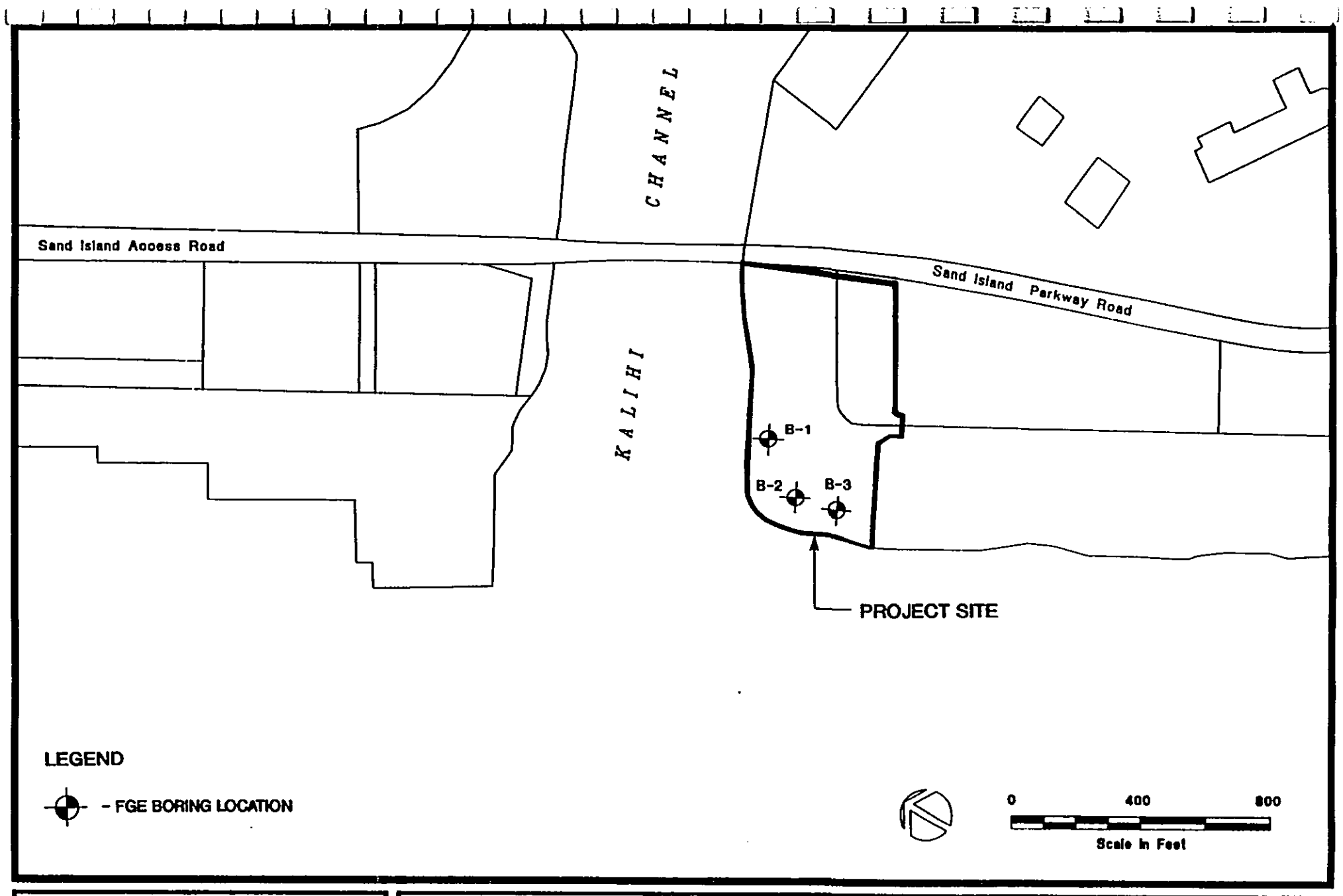

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Fig. 3-1
LOCATIONS OF SOIL BORINGS

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polychlorinated biphenyls (PCBs), transformers, and capacitors, underground storage tanks (USTs), and hazardous materials and wastes.

3.1.5.1 Historical Uses

Dredged material from Honolulu Harbor and Keehi Lagoon were deposited to create the 520-acre Sand Island from about 1900 to the mid-1940's. Past uses of the island include a quarantine station, coastal defense installation and an internment camp.

3.1.5.2 Gross Surface Contamination

Petroleum-discolored soil, limited to an area of about 4-feet by 4-feet, was observed adjacent to a barrel of waste oil that was stored on the south side of the mobile office. The source of the stained soil appeared to be from splashes during the transfer of used motor oil to the barrel. There are no Comprehensive Environmental Response Compensation Liability Act (CERCLA or "Superfund") or Comprehensive Environmental Response Compensation Liability Information System (CERCLIS) listed sites on Sand Island. The DOH has documented 15 hazardous material releases in the Sand Island area, although no such releases have been recorded at the project site.

3.1.5.3 PCB Items

PCBs are synthetic chemicals which were often used in the past as an additive to insulating and heat transfer fluids in electric equipment, particularly liquid-cooled electrical transformers. In 1979, the Environmental Protection Agency (EPA) banned the commerce of PCBs and promulgated the Toxic Substance Control Act (TSCA) to regulate the use and disposal of PCB items. No suspect PCB-containing dielectric fluid-filled transformers were observed on the project site.

3.1.5.4 UST Items

Owners and operators of regulated USTs are responsible for complying with all state and federal regulations which include, but are not limited to, leak detection,

corrosion protection, spill and overfill protection, and financial responsibility for corrective actions necessary due to releases from their tanks.

There were no indications of USTs such as fill pipes, dispenser pumps, or vent pipes on the property. There were, however, three underground petroleum pipelines which cross the property. Hawaii Fuel Facility Corporation (HFFC) owns a 12- and 18-inch diameter pipeline, while the Hawaiian Independent Refinery, Inc. (HIRI) owns a 12-inch diameter pipeline.

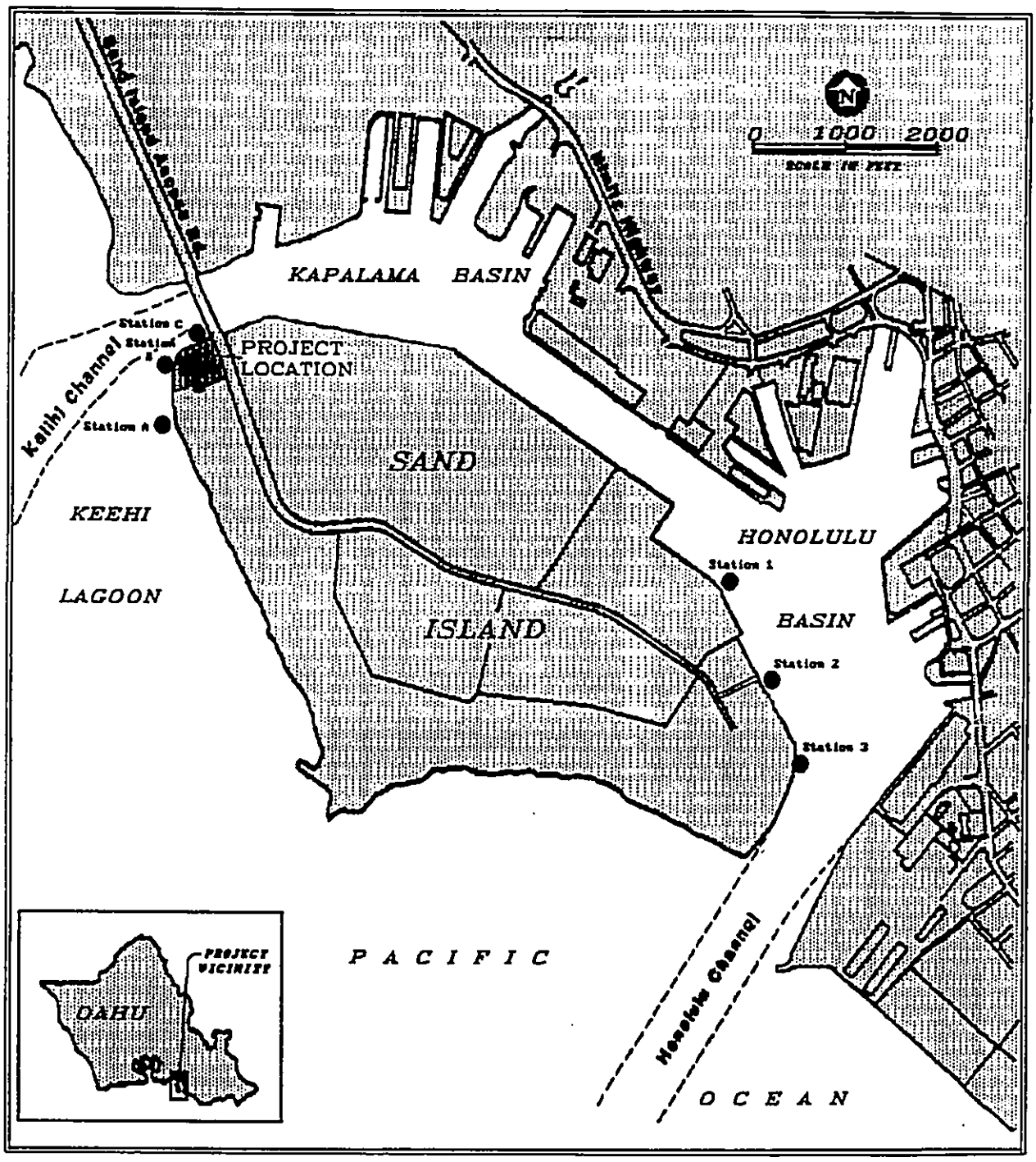
3.1.5.5 Other Hazardous Materials and Wastes

During inspection, a small amount (less than 10 gallons) of lubricating oil was stored near the dock structure for the crane barge along the north beach. No Resource Conservation Recovery Act (RCRA) regulated hazardous wastes appeared to be generated, treated, stored, or disposed of at the site. About ten 55-gallon drums of used oil and 15 used lead acid batteries were observed on-site.

3.1.6 Water Quality

The waters of Keehi Lagoon are designated Class "A" by the State DOH (Chapter 11-54, Water Quality Standards; Hawaii Administrative Rules). Class "A" waters are to be protected "for recreational purposes and aesthetic enjoyment." According to the standards for this class, discharges are not permitted in Keehi Lagoon's waters unless they have received the best degree of treatment or control compatible with the criteria established for this class.

In September 1991 a water quality survey was conducted for the project by AECOS, Inc. (See Appendix C). As shown by Figure 3-2, water quality samples were taken from a series of three stations which were established immediately off the shoreline of Sand Island near the METC site. In addition, water quality samples were taken from three stations at the east end of Sand Island which were established for an unrelated project. Two sample sets were collected during mid-morning and mid-afternoon hours corresponding to a predicted low and high tide, respectively. Non-nutrient analysis was conducted for pH, dissolved oxygen, salinity, temperature, and turbidity, while nutrient



Source: AECOS, Inc.
February 1992

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Fig. 3-2
LOCATIONS OF WATER QUALITY SAMPLING STATIONS

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analysis was conducted for nitrate+nitrite, ammonia, total nitrogen and total phosphorus. Analysis for chlorophyll *a* was also performed. Generally, values for non-nutrient analyses indicated little difference between low and high tide, and small spatial variation. Dissolved oxygen values at Stations B and C in the morning were greater than elsewhere. Turbidity showed great spatial variability with the highest values obtained at Stations B, C, and 1. Similarly, values for nutrient analyses and chlorophyll *a* analysis indicated a tendency for spatial variation rather than temporal variation. Slightly lower inorganic nitrate and ammonia concentrations were found close to and inside the harbor at Stations B, C and 1, where chlorophyll *a* values tended to be highest. This indicates that the phytoplankton is utilizing the inorganic nutrients for growth, as evidenced by longer residence time water mass of the harbor. No particular patterns were shown by total nitrogen and total phosphorus.

Water quality conditions in the study area generally exceeded water quality standards set by the State Water Quality Standards for Keehi Lagoon, with the exception of dissolved oxygen values, which fell below the standards. Values for turbidity, ammonia, chlorophyll *a*, and phosphorus typically exceeded the standards.

The September 7, 1991 survey findings revealed elevated levels of ammonia, total phosphorus, and chlorophyll *a* at most stations. Elevated levels of ammonia and chlorophyll *a*, and depressed dissolved oxygen are suggestive of stagnant waters.

Surveys of water quality conditions were also performed between September 1987 and April, 1988 for the Keehi Lagoon area. Conditions in the area were not, with few exceptions, different from the conditions described in the 1977-78 post-construction survey or 1986 survey of the lagoon and Hickam Harbor. The mean concentrations of nitrate, total nitrogen and total phosphorus were lower than the State water quality standard mean levels, while concentrations of ammonium and turbidity levels were greater than the mean standard level (OI Consultants, Inc., November 1988).

3.1.7 Marine Biological Resources

A shallow fringing reef flat, varying in width between 60 and 180 meters lies immediately to the west of Sand Island, and is comprised of rubble, sand, gravel, and scattered boulders. This reef is a remnant of the wider reef platform which was filled by the expansion of Sand Island. Part of the reef flat was dredged during World War II as part of a seaplane runway in Keehi Lagoon.

On the shallow reef flat west of Sand Island, algal assemblages include the red algae, *Acanthophora specifera*, *Gracilaria bursapastoris*, *G. coronopifolia*, *Hypnea cervicornis*, and the green "lettuce" algae, *Ulva*. Other less common algae include *Galaxaura sp.*, *Dictyota divariacata*, *Codium edule*, and *Codium arabicum*. Algal coverage averages 30 percent on the inner reef fronting Sand Island, but is likely to vary seasonally. Corals are sparse and include *Pocillopora meandrina*, *Leptastrea purpurea*, *Porites lobata* and *Montipora verrucosa*. Relatively few fishes inhabit the reef flat. Thirty-one species were recorded in one survey with *Acanthruus triostegus*, *Rhinecanthus rectangulus*, *Sufflamen bursa*, *S. frenatus*, and *Coris gaimard* generally the most abundant. (Marine Biological Resources, Opportunities and Constraints, Honolulu Waterfront Master Plan, February 1989).

In the vicinty of the seawall fronting Sand Island Park and the main harbor channel live coral was observed, including Pocillopora damicornis, *Pocillopora meandrina*, *Montipora verrucosa* and *Porites lobata*. Most of the area supports about 1/2 to 1 live coral head per square meter. A moderate number of fish were present, particularly around pilings or rock outcroppings. Fish species include the one-spot damselfish (*Dascyllus albisell*), moorish idol (*Zanclus canescens*), manini (*Acanthurus triostegus*), Nehu, Black spot weke (*Mulloidichthys samoensis*), maomao (*Abedefduf abdominalis*), and black-tailed snapper (*Lutianis fulvus*).

The fish species of principal commercial value is the nehu, or Hawaiian anchovy (*Stolephorus purpureus*), which occurs in Honolulu Harbor primarily near the mouths of Nuuanu and Kapalama Streams. The nehu are captured during daylight hours and used for bait by the Hawaiian skipjack tuna industry. Nehu can be found in shallow waters

in many areas around the state. But they are captured primarily in stream mouths where they presumably congregate to feed. Although bait-size (2-3 centimeters) nehu were seen in the harbor near the Sand Island Park sea wall, none were seen in the Kapalama Channel, and only a few juveniles were seen near the mouth of the Nuuanu Stream. Discussions with fishermen indicate that Honolulu Harbor has not been a productive baiting site for the past several years. During 1988 and 1989, Honolulu Harbor accounted for only about 11 percent of the Nehu captured (Oceanit Laboratories, Inc., 1990).

Several studies have been conducted on the triangular reef remnant located Keehi Lagoon. The soft bottom of the dredged areas around the reef support primarily infaunal polychaetes and crustacenas. Also, burrows of the snapping shrimp, *Alpheus malabraricus mackayi*, are numerous in the mud bottom of the channels and channel margins. Pilings were inhabited by oysters, *Ostrea sandvicensis*, and barnacles, *Balanus sp.* Many occurrences of cemented masses of *Ostrea sandvicensis* and tube worms, *Pomatoleios kraussi*, were recorded in hard-bottomed areas. On the south side of the triangular reef, the benthic community is fairly direverse, although dominated by sponges, *Halichondria sp.*, tunicates, *Ascidia sp.*, a large colonial bryozoan (probably *Schizoporella unicornis*, forming large, branching colonies or heads resembling corals), oysters and the fan worm, *Sabellastarte sanctijosephi*. Also present are hydrozoans, *Halocordyle disticha*, anemones, *Aiptasia pulchella*, and vermetid mollusks, *Vermetus alii*. Algal growth including *Dictyosphaeria versluysi* and *Acanthophora spicifera* were recorded.

Although not abundant, fish species occured in greater number and diversity along the southern margin that elsewhere around the triangle reef remnant. Recorded are, schools of juvenile *Dascyllus albisella*, eleotrid (*Asterropteryx semipunctatus*), weke (*Mulloidichthys flavolineatus*), aholehole (*Kuhlia sandvicensis*), porcupine fish (*Diodon hystrix*), acanthurid (*Acanthurus leucopareius*), and wrass (*Thalassoma duperrey*).

3.1.8 Currents and Tides

Circulation within Honolulu Harbor are complex. Calculated flow rates are greater than rates that would be generated by tidal exchange alone. Flow rates are comparable to those measured by Environmental Consultants in 1974, about 20 feet per minute in mid-channel, during the impact investigation of the outflow near HECO's plant. Circulation near the HECO power plant is driven by the intake and discharge of cooling water. Circulation through the plant is substantial amounting to approximately two-thirds of the average volumetric rate of the tide. Thus circulation, together with that contributed by Nuuanu Stream, storm drains, and possible flows from Keehi Lagoon can produce a relatively high rate of surface flow. The flow rates also indicate the possibility of stratified flow within the basin and Main Channel (Oceanit Laboratories, Inc., July 1990).

Tidal currents are generally weak with no dominant direction. A general west current exists along the coast between Honolulu Harbor and Barbers Point. Circulation currents in Honolulu Harbor varied in speed from 4 to 22 feet per minute. Available information indicates that the double entry configuration of the harbor results in the absence of serious circulation problems within the harbor. Thermal studies conducted by the Hawaiian Electric Company (HECO) estimated the harbor flushing time at about six hours.

The mean tide in Honolulu Harbor is 0.8 feet above Mean Lower Low Water (MLLW). The mean tidal range between MLLW and Mean Higher High Water (MHHW) is 2.0 feet. The tidal range in 1990 is -0.5 to +2.7 feet MLLW. Historically, tides have ranged from a minimum of -1.3 feet to a maximum of 3.5 feet.

3.1.9 Flood and Tsunami

According to the Flood Insurance Rate Map (FIRM, Community Panel Number 150001 0115 B revised September 4, 1990) prepared by the Federal Emergency Management Agency (FEMA), the entire project site is designated as Zone X, an area determined to be outside the 500-year flood plain (See Figure 3-3 which also shows the site's relationship to the City and County of Honolulu's Special Management Area boundary).

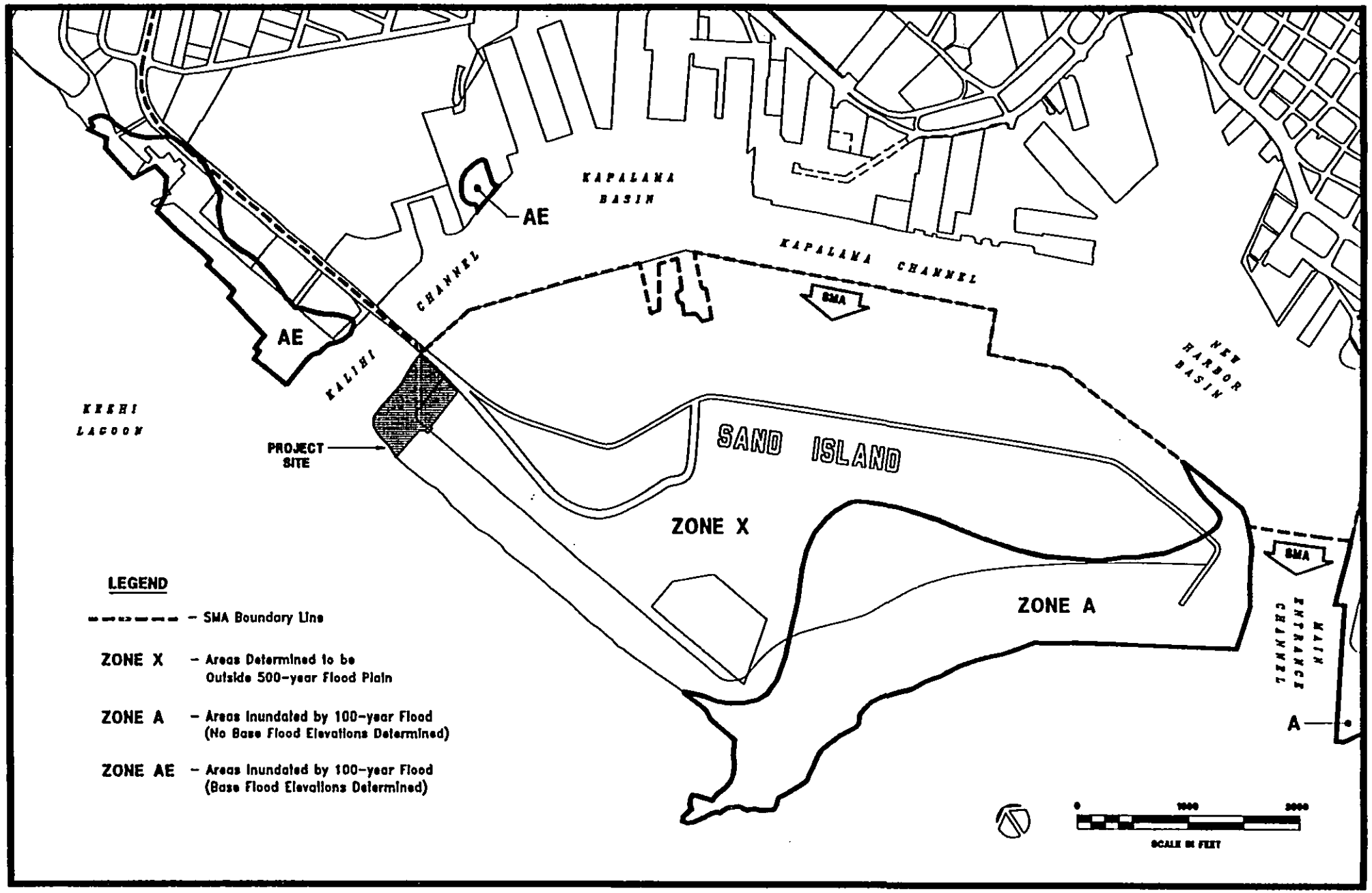

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Fig. 3-3

SPECIAL MANAGEMENT AREA (SMA) AND FLOOD HAZARD MAP

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The northwestern area of Sand Island is also outside of the 100-year tsunami inundation zone and the coastal high hazard zone. The area is well-protected by the broad coastal reefs extending seaward which minimize the potential impacts of tsunamis.

3.1.10 Flora

As the project is surrounded by industrial and improved parks, and is comprised of land created from dredged material, only a small variety of plant life occurs on Sand Island. Vegetation in the Sand Island area is influenced by generally low rainfall, saline soil, the man-made origin of the area, and the high degree of development and human activity. Consequently, the existing plant species are characterized as drought-resistant, highly salt tolerant, and hardy in dry areas. Most of the species would have been introduced during fill operations.

The inland portions of Sand Island are dominated by haole koa shrubs (*Leucocephala leucaena*) and kiawe trees (*Prosopis pallida*). The seaward areas have large sections of dry, brown desmanthus (*Desmanthus virgatas*) which grow several feet tall. Patches ofsourbrush (*Pluchea odorata*) and Indian pluchea (*Pluchea indica*), opiuma (*Pithecellobium dulce*) and ironwood trees (*Casuarina equisetifolia*) are scattered throughout the area. Three species of grass exist; manila grass (*Zoysia Metralla*), star grass (*Chloris divarcata and Chloris inflata*). No Federal or State listed or candidate threatened or endangered plant species are currently found on any areas of Sand Island.

3.1.11 Fauna

Wildlife on Sand Island is essentially limited to mammals and birds which have adapted to the urban environment. Mongooses, rats, mice, feral dogs and cats are common. Most of the existing wildlife can be found in the underutilized and more heavily-vegetated areas of the islands. A variety of migratory shore birds occur on Sand Island, especially the seaward shore areas, although Keehi Lagoon is frequented more commonly as a resting and feeding locale (OI Consultants, Inc. 1989). A number of migrating lowland and waterbirds have been recorded in the Keehi Lagoon area, including the 'ae'o or Hawaiian stilt (*Himantopus mexicanus knudseni*), approximately 3/4 of a mile to one mile from the project site. No known instances of indigenous or endemic bird species

nesting in the Keehi Lagoon area have been recorded. No Federal or State listed or candidate threatened or endangered bird or mammal species have been surveyed on the project site.

3.1.12 Air Quality

Ambient air quality in the Sand Island area is considered acceptable due to the presence of the northeast tradewinds which predominate throughout the year and blow pollutants from inland areas out to sea. Problems of poor air quality are more likely to occur when tradewinds diminish or give way to southerly winds. Localized problems of poor air quality may occur under adverse kona wind conditions in areas of intense industrial development or along heavily used vehicle corridors.

Air quality monitoring at selected sampling stations in Downtown Honolulu and Liliha showed measurements well within the State Air Quality Standards (AQS). In 1990, the average particulate matter concentration was approximately 30 micrograms per cubic meter (ug/m^3) in Downtown Honolulu and 32 ug/m^3 in Liliha, significantly below the 100 ug/m^3 State AQS for particulate matter. Sulfur dioxide concentrations (SO_2) also averaged well below the State AQS of 80 ug/m^3.

Long-term sampling data for carbon monoxide (CO) is available only from the survey station located at the State DOH building in downtown Honolulu, approximately one mile east of Sand Island. In 1989, the average CO level was 1.9 milligrams per cubic meter (mg/m^3) based on a maximum average during any one-hour period. The CO level was within the allowable limit of 10 mg/m^3).

Surveys of CO emissions near the Honolulu International Airport (HIA), located on the western shore of Keehi lagoon, revealed that at certain times, CO levels exceed State AQS along some heavily-traveled roadways near the airport. However, CO levels at monitoring stations located on the airport grounds did not exceed State AQS (Noda, 1989).

3.1.13 Noise

The two major sources of noise on Sand Island are from vehicular traffic and aircraft overflights. Of the two, aircraft noise levels have the greatest potential impact. Sand Island is in the path of tradewind aircraft departures, particularly from the Reef Runway (Runway 8R-26L) of Honolulu International Airport (HIA), which lies approximately 8,000 feet from the end of the runway.

Ambient noise levels, generated by aircraft and airport operations have been studied as part of the US Federal Aviation Administration's (FAA) Federal Aviation Regulations (FAR) Part 150 Noise Control and Compatibility Planning Program. The noise exposure analysis for the HIA indicated that, based on 1985 flight operations, aircraft mixes, and noise characteristics of aircraft, the northwestern corner of the island is within the 70 Ldn noise contour. Ldn is the day-night metric sound level which averages noise levels over a 24-hour period, with a penalty for evening noise. Industrial-type activities are generally compatible within the 70 Ldn noise contour.

3.1.14 Visual Resources

According to the 1987 Coastal View Study prepared for the City and County of Honolulu Department of Land Utilization, Keehi Lagoon, Honolulu Harbor, and the downtown skyline are interrelated in establishing the visual composition and quality of the area.

The variety of scenic vistas from Sand Island Park and park extension is one of the more significant features of the island's mauka side. At the Ewa end near the bascule bridge, where the seaplane runway and Kalihi Channel intersect, the view includes Honolulu International Airport, central Keehi Lagoon, and the Waianae Range. The offshore island of Mokauea and Kahakaaulana are visible along the Keehi Lagoon shore of Sand Island.

3.1.15 Archaeological Resources

Inasmuch as Sand Island was created by fill land in the early 1900's and 1940's when Honolulu Harbor and the seaplane runway was dredged, there are no known or listed archaeological features or remains. Further, there are no buildings, structures or other

man-made features of historical significance on the project site that will be demolished during construction.

3.2 Socio-Economic Environment

3.2.1 Population

Sand Island lies makai of Downtown Honolulu and is surrounded predominantly by maritime, commercial, and industrial uses. Residential neighborhoods in the vicinity of Sand Island include Downtown and Kalihi-Palama, but residences are mostly located further mauka of the waterfront and industrial areas.

In 1990, the resident population of Oahu was 836,231, of which 377,059 lived in urban Honolulu. Sand Island and much of Honolulu Harbor are included in the Kalihi-Palama District, which had a resident population of 40,147. This represents a negligible change from the 1980 population of 40,144, reflecting stability in this older Kalihi-Palama neighborhood.

Sand Island comprises Census Tract 57.99, a subclassification of Census Tract 57, which includes parts of Kalihi Kai. According to the 1990 Census, the total population of Sand Island was 298, all of which were military personnel in group quarters. The Sand Island population consists of 286 males and 12 females who are permanently stationed, enlisted personnel comprising the U.S. Department of Transportation Coast Guard. This represents a decrease from the 1980 population on Sand Island of 592. Not counted by the Census are a number of homeless families camped along the undeveloped western coast of Sand Island.

3.2.2 Recreational Resources

Recreational resources are located within the developed portion (approximately 87 acres) of Sand Island State Park, operated by the Department of Land and Natural Resources, Division of State Parks. The park is being developed incrementally as funding permits. Completed in 1976, Phase I of the park includes 13 acres of passive recreation area along the southeastern shoreline, while Phase II includes 30 acres of beach park along the

southern shore. Phase III includes camping, picnic and field areas, and ocean-oriented park facilities along the shoreline.

The park is open from 7:00 am to 7:45 pm from April 1 to Labor Day, and from 7:00 am to 6:45 pm from the day after Labor Day to March 31. Park facilities include camping areas, comfort station pavilions, showers, picnic tables, play equipment, and parking. Nearshore waters around Sand Island provide opportunities for sailing and boating, swimming, sunbathing, beach picnicking, camping, surfing, fishing, jogging, crabbing, and snorkeling.

The Keehi Small Boat Harbor, owned and operated by the State and located across Kalihi Channel from the project site, provides more than 302 berths for recreational boaters, as well as two boat launching ramps at opposite ends of the marina. There are approximately 300 additional vessels moored offshore on Keehi Lagoon. Two private marina facilities are also located in the lagoon, Keehi Marina Center (126 berths) and La Mariana Sailing Club (65 berths). Keehi Lagoon's marina facilities account for approximately 28 percent of Oahu's existing marina space (Keehi Lagoon Recreational Plan). Sand Island supports a large recreational fishery, consisting mainly of pole fishermen with occasional spearfishing, while Honolulu Harbor provides bait fish (nehu) for the Skipjack tuna fleet.

3.3 Transportation and Infrastructure Systems

3.3.1 Traffic and Access

A Traffic Impact Analysis was prepared in November 1991 by Wilbur Smith and Associates, Inc. to evaluate existing and future conditions in the project area and to ascertain possible impacts as a result of the proposed project (See Appendix D).

Currently under the jurisdiction of the State of Hawaii, Nimitz Highway is a six-lane highway which serves a primary route between Honolulu International Airport and the industrial areas around the airport to the downtown area of Honolulu. Sand Island Access Road, also under the jurisdiction of the State, is a four-lane roadway which provides access to Sand Island from Nimitz Highway via the bascule bridge. From the bascule bridge, Sand Island Access Road becomes Sand Island Parkway which extends from the bridge to the entrance of Sand Island State Park.

Road 51A is a two-lane, two-way roadway which provides access from Sand Island Parkway to the Matson and SeaLand Container Yard harbor facilities at Pier 51A. The makai leg of Road 51A, which lies across Sand Island Parkway, is presently a gravel-surface driveway which provides access to the open storage areas, and the unsurfaced employee parking area. A fully-activated traffic signal controls the intersection of Road 51A and Sand Island Parkway.

3.3.1.1 Existing Level-of-Service (LOS)

The Transportation Research Board (TRB), a division of the national Science Foundation, has developed the standard methods used in traffic impact analyses to evaluate the effectiveness and quality of transportation facilities. The concept of LOS describes facility operations on a letter basis from A to F, indicating a range of traffic conditions from excellent to unacceptable, respectively, Table 3-1 briefly illustrates the six LOSs and associated characteristics of each.

Calculations for LOS were prepared at the key intersection of Sand Island Parkway and Road 51A using the methodology presented in the 1985 Highway Capacity Manual. According to the analysis, the intersection is operating at LOS B during morning and afternoon peak hours.

Table 3-1
LEVELS OF SERVICE (LOS)

LOS	RANGE OF DELAY*	CHARACTERISTICS
A	Less than 5 seconds	Extremely favorable progression
B	5 to 15 seconds	Good progression or short cycles
C	15 to 25 seconds	Occasionally, vehicles may wait more than one red signal phase
D	25 to 40 seconds	Noticeable numbers of vehicles fail to clear the first green phase
E	40 to 60 seconds	Poor progression - vehicles often fail to clear the first green phase
F	More than 60 seconds	Oversaturation - arrival flow rates exceed the intersection capacity

* per vehicle

3.3.2 Public Services and Utilities

3.3.2.1 Water System

Water service to Sand Island is provided by the City and County of Honolulu Board of Water Supply (BWS) via two lines, a 12-inch line and a 16-inch line, which cross Kalihi Channel from Kapalama. On Sand Island, the 16-inch line serves as the primary high pressure line. Service to Sand Island State Park is provided via the 12-inch line which comes off of the 16-inch line near the bascule bridge and runs parallel to the shore to Sand Island State Park.

3.3.2.2 Wastewater System

The Sand Island Wastewater Treatment Plant provides advance primary sewage treatment for all wastewater generated in Honolulu. The Plant has a treatment design capacity of about 82 million gallons per day and currently handles flows of about 72 mgd. The effluent from the plant is disposed of through an 84-inch ocean outfall which discharges more than two miles offshore of Sand Island.

3.3.2.3 Drainage System

An existing 24-inch drain line is used to collect runoff along Sand Island Parkway. This system eventually connects with a 60-inch line which is routed to an outlet for disposal into Kalihi Channel near the bascule bridge.

3.3.2.4 Solid Waste Disposal System

Solid waste collection and disposal services for the Sand Island area are provided by the City's Department of Public Works, Division of Refuse Collection and Disposal. The waste may be transported for disposal at the H-POWER energy recovery incinerator facility at Campbell Industrial Park. Alternative disposal sites include the Kalaheo Landfill in Kailua, the Waimanalo Gulch landfill near the Kahe Power Plant and the Waipahu Incinerator.

3.3.2.5 Electrical and Communication Systems

Electrical service to Sand Island is provided by Hawaiian Electric Company. The existing system includes primary power at 12.5kV via an overhead line located along Sand Island Parkway Road.

Communication service to Sand Island is currently provided by GTE Hawaiian Telephone Company (GTE). Existing telephone lines originate from Kapalama via the Sand Island Bridge and Main Entrance Channel near the southern corner of Sand Island Park.

Section 4

RELATIONSHIP TO LAND USE PLANS, POLICIES AND CONTROLS

SECTION 4
RELATIONSHIP TO LAND USE PLANS, POLICIES AND CONTROLS

4.1 Federal Land, Water and Conservation Fund

Federal financial assistance from the Federal Land, Water and Conservation Fund (LWCF) was used in the planning and development of the Sand Island State Park. By law, land that receives such LWCF assistance must be retained for public outdoor recreation use. Conversion to a use other than public outdoor recreation requires approval from the Director of the National Park Service and subsequent approval from the Board of Land and Natural Resources (BLNR). To obtain approval, a land area of equal size and suitability must be designated as replacement recreation acreage.

While the project site is undeveloped, the area was designated as part of the Sand Island State Park according to the application which was filed for LWCF assistance. As a result, replacement acreage will be required for those components of the METC which are not recreational uses.

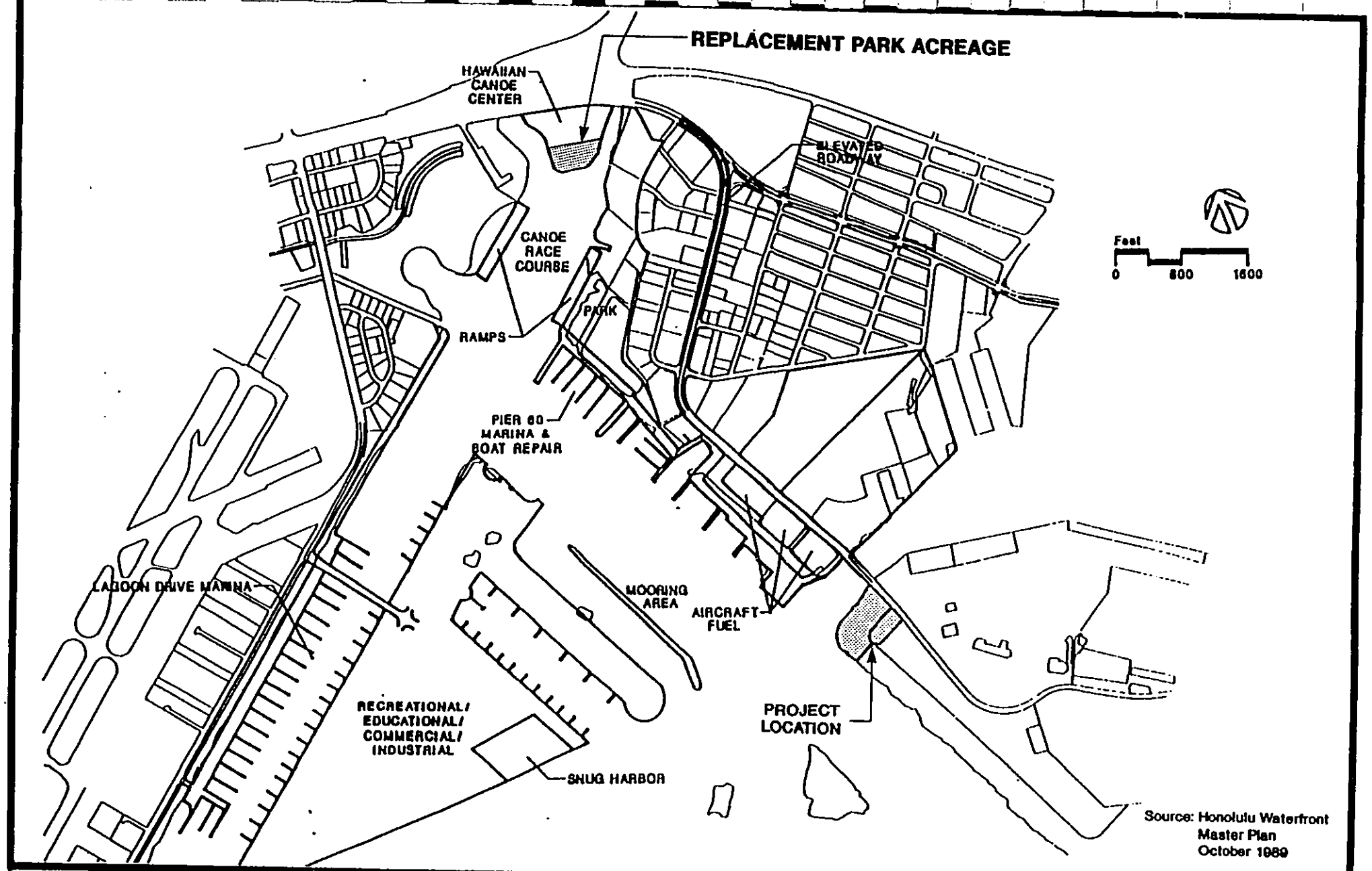
Based on the current Master Plan for the METC, approximately 4.3 acres of land currently designated for park use will be displaced. Phase III of the Keehi Lagoon Canoe Complex (See Figure 4-1) is planned to be used as replacement acreage for the park land which will be displaced by the METC.

Phase III of the Keehi Lagoon Canoe Complex is a 15-acre peninsula located on the northeast corner of Keehi Lagoon between Kalihi and Moanalua Streams. Under the current development scenario, five acres at the tip of the peninsula will be developed for recreational use. The remaining mauka acreage is planned for commercial/light industrial use.

4.2 State of Hawaii

4.2.1 Hawaii State Plan

The Hawaii State Plan is a statewide planning system which provides goals, objectives, and policies that address priority directions and concerns of the State



MARINE EDUCATION AND TRAINING CENTER

Fig. 4-1

LOCATION OF REPLACEMENT PARK ACREAGE

(Keehi Lagoon Subarea)

Prepared for :

HONOLULU WATERFRONT PROJECT

Prepared by :

Wilson Okamoto & Associates, Inc.

of Hawaii. The proposed METC facility is consistent with the following State objective and policies:

> *§ 226-21. Objective and policies for socio-cultural advancement -- education. (a) Planning for the State's socio-cultural advancement with regard to education shall be directed towards achievement of the objective of the provision of a variety of educational opportunities to enable individuals to fulfill their needs, responsibilities, and aspirations.*
>
> *(b) To achieve the education objective, it shall be the policy of this State to: (1) Support educational programs and activities that enhance personal development, physical fitness, recreation, and cultural pursuits of all groups; (2) Ensure the provision of adequate and accessible educational services and facilities that are designed to meet individual and community needs; (5) Provide higher educational opportunities that enable Hawaii's people to adapt to changing employment demands; and (8) Emphasize quality educational programs in Hawaii's institutions to promote academic excellence.*

4.2.2 State Functional Plans

The Hawaii State Plan directs appropriate State agencies to prepare Functional Plans which address statewide needs, problems and issues, and recommends policies and actions to mitigate those problems. State Functional Plans are intended to act in a coordinated fashion with County General Plans and Development Plans in order to implement the Hawaii State Plan.

4.2.2.1 Higher Education Functional Plan

The State Higher Education Functional Plan is one of fourteen plans designated by Chapter 226, Hawaii Revised Statutes (HRS), originally enacted in 1978 and amended in 1986 and 1987. The Plan is intended to provide all qualified people of Hawaii an equal opportunity for quality post-secondary education through public and independent educational institutions. The proposed project is consistent with the following objectives and policies:

A. OBJECTIVE: A number and variety of post-secondary education institutions sufficient to provide the diverse range of programs required to satisfy individual and societal needs and interests.

A(1). Policy: Maintain and strengthen institutional distinctiveness and develop programs in ways that enrich diversity of educational opportunity without unnecessary duplication.

A(2). Policy: Provide professional and job-related training which responds to the needs of, and opportunities within, the State of Hawaii.

B. OBJECTIVE: The highest level of quality, commensurate with its mission and objectives, of each educational, research, and public service program offered in Hawaii by an institution of higher education.

B(2) Policy: Identify for program enrichment and emphasis those programs considered important in terms of State needs and emphases, those programs for which special advantages in Hawaii provide an opportunity for national or international prominence, and those programs which have already achieved such prominence.

E. OBJECTIVE: Increase program effectiveness and efficiency through better coordination of educational resources.

E(1) Policy: Increase cooperation and consultation between the public and independent sectors in order to coordinate delivery of the most diverse range of educational opportunities within the total resources available.

E(2) Policy: Improve articulation among programs with the University of Hawaii system to provide students with increased mobility and educational options.

E(3) Policy: Improve coordination of individual and institutional planning to facilitate a better match of skills (supply) and opportunities (demand)in Hawaii's labor market.

4.2.2.2 Recreation Functional Plan

The purpose of the State Recreation Functional Plan is to coordinate the acquisition, development, conservation, and utilization of Hawaii's

recreational resources. Six Issue Areas regarding state-wide recreational resources are identified under this plan as follows: I. Ocean and Shoreline Recreation; II. Mauka, Urban, and Other Recreation Opportunities; III. Public Access to the Shoreline and Upland Recreation Areas; IV. Resource Conservation and Management; V. Management of Recreation Programs, Facilities, and Areas; and IV. Wetlands Protection and Management.

The project is consistent with the following issue area and associated objective, policy, and implementing action:

ISSUE AREA I: OCEAN AND SHORELINE RECREATION

OBJECTIVE I-D: Provide adequate boating facilities. Balance the demand for boating facilities against the need to protect the marine environment from potential adverse impacts.

Policy I-D(1): Provide moorings and boat launching facilities for recreational boats.

Implementing Action I-D(1)c: Develop additional boat launching facilities.

4.2.3 Honolulu Waterfront Master Plan

The Honolulu Waterfront Master Plan, prepared by the OSP in 1989, represents a comprehensive, long range vision for the Honolulu Waterfront. It recognizes the importance of the Port of Honolulu as the lifeline of statewide commerce and, simultaneously provides for the recreational, cultural, and economic needs of a growing population. The plan addresses major planning issues concerning public access and use of the waterfront, long-term integrity of commercial maritime operations, plan implementation, relocation needs and financial feasibility.

As mentioned in Section 1, the purpose of the plan is three-fold:

a. To identify and articulate a long-range vision for the Honolulu Waterfront that is fiscally responsible but also innovative, challenging and responsive to the current and future needs of Hawaii's residents.

b. To assure a logical, orderly and achievable phasing of improvements in a manner that minimizes social, environmental and economic disruption.

c. To maximize public benefits associated with the improvement of the significant state owned lands located within the waterfront planning area.

The planning area for the Honolulu Waterfront Master Plan spans from Magic Island/Ala Moana Park in the east, to Keehi Lagoon in the west, and includes the nearshore waters lying roughly mauka of a line from Magic Island to the Reef Runway. On the mauka side, the area is bounded by Nimitz Highway, Ala Moana Boulevard and Lagoon Drive. Barbers Point Harbor in Ewa is also included within the planning scope because of its important functional relationship with the commercial maritime operations of Honolulu Harbor.

The planning area encompasses a total land area of approximately 1,550 acres and stretches along nearly six miles of coastline. Of the total acreage, nearly 76 percent is owned by the State, while 13 percent is owned privately, 11 percent is owned by the Federal government and one percent by the City and County of Honolulu.

For inventory, evaluation and planning purposes, nine subareas were defined within the overall waterfront study area. These areas include: Ala Moana, Kewalo, Kakaako, Downtown, Iwilei/Kapalama, Kalihi Kai, Sand Island, Keehi Lagoon and Barbers Point. Subarea boundaries were established based on functional and geographical relationships.

The following is excerpted from the discussion in the Master Plan regarding the "Overview of Recommended Development Plan Phases" for the Sand Island Subarea:

> *"... incorporated within this area would be the proposed Marine Education and Training Center along with a boat launching ramp and related parking, restroom and washdown facilities located on approximately 6 to 8 acres just makai of the access bridge to Sand Island. The center ... is envisioned to offer recreational, competitive and instructional programs providing hands-on experience in ocean recreation-related fields for both residents and visitors. It is envisioned to function as a training facility for University- or Community College-sponsored classes for hands-on application of students enrolled in programs in the marine and ocean recreation industries. It is intended to enhance the enjoyment of marine recreation by offering orientation sessions for a wide variety of water activities, acquainting individuals with proper use of ocean recreation equipment, instructing users on appropriate forms of recreational conduct and ocean safety procedures."*

4.2.4 Keehi Lagoon Recreation Plan

The Department of Transportation has prepared a Recreation Development Plan for Keehi Lagoon (December, 1989 Final EIS) to provide major recreational and other improvements supporting economic growth in the State. The major proposed improvements include:

- Hawaiian Canoe Center recreational and commercial improvements in the northeast corner of Keehi Lagoon. Support facilities are planned for the canoe racing community with the capability to handle international canoe regattas.

- Pier 60 marina located off of Sand Island Access Road adjacent to La Mariana Sailing Club.

- Lagoon Drive Marina along Lagoon Drive adjacent to the HIA South Ramp area. Includes a ferry transit terminal that will be part of the intra-island ferry system.

- Triangle Development located in the central triangular portion of the Lagoon which will be filled to provide a mixed-use development consisting of a marina, parks, Yacht Race/Ocean Sports complex, maritime commercial facilities, industrial/commercial space and the proposed relocation of the U.H. Marina Expeditionary Center (Snug Harbor).

- Sheltered swimming beach adjacent to Sand Island State Park at the southwest tip of Sand Island. The shallow reef flat in this area would be improved to provide a sheltered swimming area and a shore-connected breakwater, while a 1,000-foot long, 150-foot wide sand beach area would be created on-shore.

4.2.5 Sand Island Park Plan

In 1973, the Sand Island State Park Final Report was issued by the State Department of Land and Natural Resources to serve as the master plan to guide development of the Park. The Plan included the entire shoreline from the State Fisheries Station to the Bascule Bridge, encompassing 140 acres. To date, 87 acres of the eastern and southern shoreline of Sand Island have been developed with landscaped picnic and camping areas, pedestrian and bicycle paths, play areas, sandy beach swimming areas, and parking. In the vicinity of the project site, the northwestern end of the Park was reserved for a boat launching ramp facility with a car and trailer parking area.

In 1989, a master plan was prepared for the Sand Island park extension, the remaining 57 acres of undeveloped western shoreline of Sand Island (Wilson Okamoto and Associates, Inc.). The City and County of Honolulu proposed to develop this area for park use in partial return for adjacent State-owned lands to develop its Corporation Yard. The site development plan for the Park extension shows the rectangular northwestern end of the extension area from the Bascule Bridge to the Keehi Lagoon shoreline as reserved for "Future Maritime Use". This is consistent with the presently proposed use in this area.

4.2.6 State Land Use Classification

Pursuant to the Hawaii Land Use Law (Chapter 205, HRS), all lands in the State are classified by the State Land Use Commission (LUC) into four land use districts: Urban, Agricultural, Conservation and Rural. The proposed METC and boat ramp facility are located in the Urban District, while submerged lands seaward of the shoreline lie in the Conservation District. As the proposed development is permitted under the Urban designation, no boundary amendment to reclassify the site is required. Development in those portions of the site within the Conservation District will be reviewed under the Conservation District Use Application (CDUA) process discussed in the subsequent discussion on Shoreline and Environmental Permits.

4.3 City and County of Honolulu

4.3.1 *Oahu General Plan*

First adopted in 1977, the City and County of Honolulu General Plan specifies long-range objectives and policies to guide both the quantity and quality of future growth on Oahu. The Plan is a statement of the long-range social, economic, environmental, and design objectives for the general welfare and prosperity of the people of Oahu and also provides broad policies which facilitate the attainment of the objectives of the Plan.

The project is consistent with the following General Plan objectives and policies:

HEALTH AND EDUCATION
Objective B: *To provide a wide range of educational opportunities for the people of Oahu.*

Policy 1: *Support education programs that encourage the development of employable skills.*

Policy 3: *Encourage the after-hours use of school buildings, grounds, and facilities.*

Policy 4: *Encourage the construction of school facilities that are designed for flexibility and high levels of use.*

Policy 5: Facilitate the appropriate location of learning institutions from the preschool through the university levels.

Objective C: To make Honolulu the center of higher education in the Pacific.

Policy 1: Encourage the continuing improvement in the quality of higher education in Hawaii.

Policy 2: Encourage the development of diverse opportunities in higher education.

4.3.2 Development Plan (DP)

Eight DPs were established by the City and County of Honolulu to provide detailed schemes for "*implementing and accomplishing the objectives and policies of the General Plan.*" The DPs guide the desired sequence, patterns and characteristics of future development.

Consistency with Common Provisions

The Development Plan Common Provisions establish general urban design principles and controls applicable to all Development Plan amendments and proposed developments. The proposed project respects the preservation of public views and shoreline open space by concentrating buildings on the mauka area of the site furthest removed from the Keehi Lagoon shoreline. Landscaping will be provided to minimize the visual impacts of structures and paved surfaces.

Consistency with Special Provisions

The proposed project is located in the Primary Urban Center (PUC) DP area which extends from the Waialae-Kahala area to Pearl City. The project is consistent with the following Urban Design Principles and controls as discussed in Section 32-2.2 of the Special Provisions for the PUC.

a.1. Open Space
The visibility, preservation, enhancement and accessibility of open space areas, as defined in Section 32-1.4 of the development plan common provisions, shall be given high priority in the design of adjacent and

nearby developments in the Primary Urban Center. These areas include, but are not limited to the steep slopes of valley and ridge areas, streams and the shoreline areas, Diamond Head, Punchbowl, Ala Wai Canal, Kewalo Basin, and Ala Wai Yacht Harbor.

a.2. Public Views
In order to promote pleasing and attractive urban living environments, and to protect and enhance the remaining natural environment from public places may be identified and protected by the Department of Land Utilization. Important views to be protected include, but are not limited to the following: Panoramic, mauka and makai, and continuous views of the Koolau and Waianae mountain ranges, ridges, valleys, and coastline and the sea, etc.

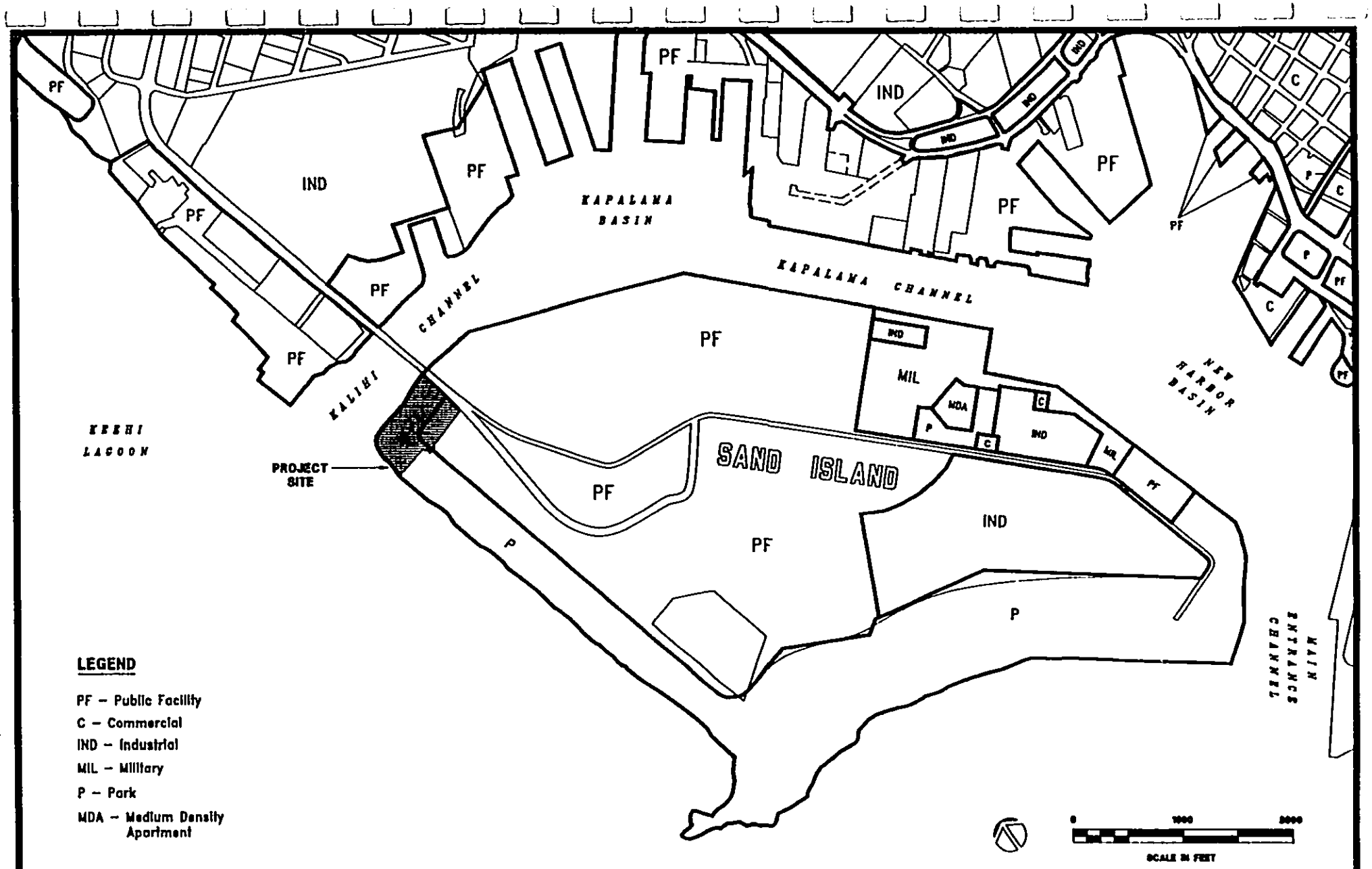
In terms of development priorities in the PUC, the Honolulu Waterfront development is mentioned in the list of priorities for planning, funding, and construction of public projects.

Consistency with DP Land Use (DPLU) Map for PUC

The DPLU map depicts a land use pattern that is consistent with the objectives of the General Plan and is used as the basis for public facility planning. As illustrated by Figure 4-2, the DPLU map designates the entire project site as Park. Based on preliminary discussions with the Department of General Planning (DGP) staff, a DPLU amendment is not required for the public educational facility proposed. The land use map change may be processed Administratively, upon submission of a letter of completion.

Consistency with DP Public Facilities (DPPF) Map for PUC

The DPPF map for the PUC identifies public and private proposals for parks, streets and highways, major public buildings, utilities, terminals, and drainage. Further, the DPPF maps designate proposed facilities required to accommodate the growth objectives of the DP by providing adequate public facilities to meet existing and projected needs. Figure 4-3 shows the general locations of proposed public and private facilities such as roads, parks, and utilities. The entire project

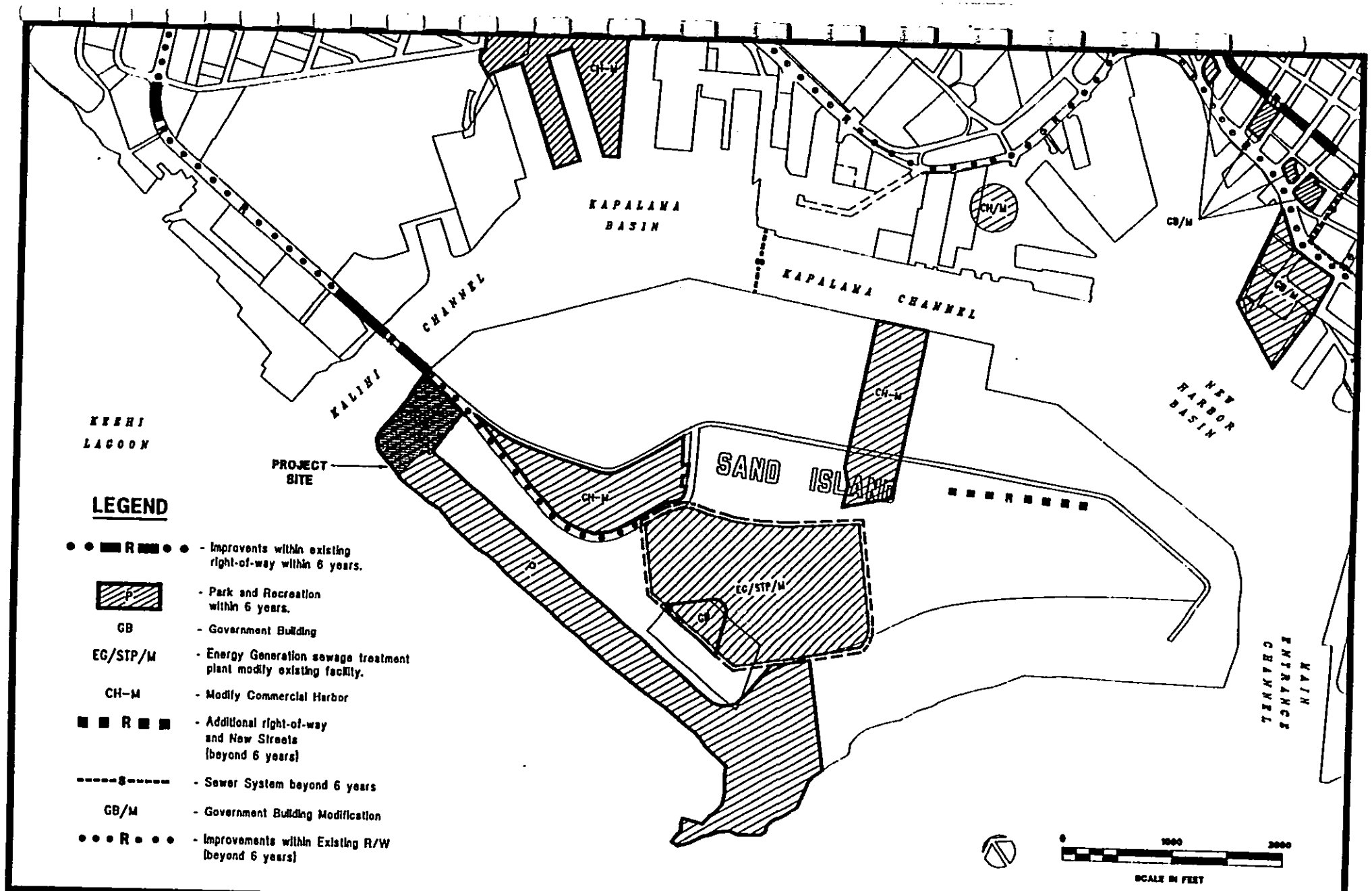


MARINE EDUCATION AND TRAINING CENTER

Fig. 4–2

DEVELOPMENT PLAN
LAND USE MAP

Prepared for :
HONOLULU WATERFRONT PROJECT
Prepared by :
Wilson Okamoto & Associates, Inc.



MARINE EDUCATION AND TRAINING CENTER

Fig. 4-3
DEVELOPMENT PLAN
PUBLIC FACILITIES MAP

Prepared for :
HONOLULU WATERFRONT PROJECT
Prepared by :
Wilson Okamoto & Associates, Inc.

site is designated for Park improvements. A DPPF map amendment to add a "College" symbol will be required for the project.

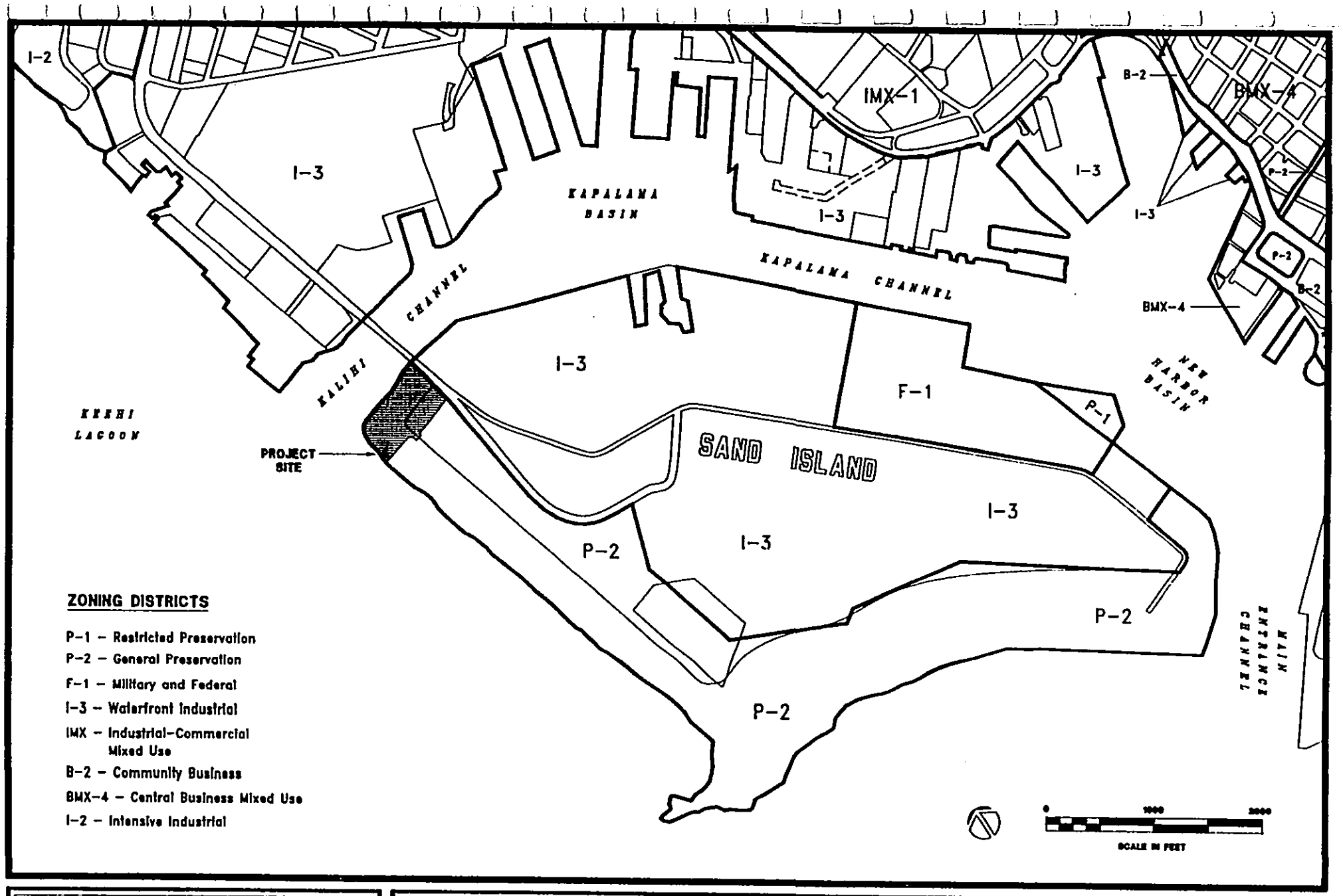
4.3.3 Land Use Ordinance (LUO)

The City and County of Honolulu LUO regulates land use in accordance with adopted land use policies, including the Oahu General Plan and DP. Under the current LUO zoning, the proposed project site is designated P-2 (General Preservation District) which preserves and manages major open spaces and recreation lands and lands of scenic and other natural resource value (See Figure 4-4). The maximum height allowed in the General Preservation District is up to 25 feet, if setbacks are provided. A building height waiver will be required to accommodate higher structures, as with the Boat Maintenance Facility.

The Department of Land Utilization has determined that the proposed METC facility, as part of the HCC campus, is subject to Article 3, Section 3.160 of the LUO which requires Plan Review Use (PRU) approval. HCC is currently preparing an update of its master plan, which will include the main campus together with the METC and other satellite facilities. The Master Plan is anticipated for completion by June 1993, with the PRU application to be submitted thereafter by HCC by July 1993.

4.3.4 Waiver of Requirements for Public Uses and Utility Installations

Uses conducted by, or structures owned or managed by the State of Hawaii to fulfill a governmental activity or service for the public benefit and in accordance with public policy may deviate from zoning requirements through a waiver. Under the P-2 zoning designation, the standard maximum building area is 5 percent of the zoning lot. Since both the Boat Maintenance Facility and the Marine Propulsion Facility would occupy more than this percentage, a Waiver for Requirements for Public Uses and Utility Installations must be submitted to the DLU and approved by its Director. The Boat Maintenance Facility will also require approval to exceed the 25-foot height limit under the P-2 zoning, as the proposed building height is approximately 33 feet.



MARINE EDUCATION AND TRAINING CENTER

Fig. 4-4

ZONING MAP

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4.4 Additional Permits Required

4.4.1 Department of the Army Permit

The Department of the Army permit is administered by the U.S. Army Corps of Engineers, Honolulu District under Section 10 of the Rivers and Harbors Act (33 USC 403), Section 404 of the Clean Water Act (33 USC 1344) and Section 103 of the Marine Protection, Research and Sanitation Act of 1972 (33 USC 1413). The permit is required for all work within waters of the United States, including ocean and coastal waters, inland and tidal waters, tidal ponds, fishponds, rivers, streams, and adjacent wetlands, perched wetlands, and intermittent streams.

Issuance of the permit is based on an evaluation of the probable impacts of the proposed activity on the public interest, reflecting national concern for both protection and utilization of important resources.

A Department of the Army permit will be required for dredging and construction of the boat ramp, finger pier, concrete pier, and inlet on the Kalihi Channel side of the project site.

4.4.2 Hawaii Coastal Zone Management (CZM) Program Federal Consistency Review

Section 307 of the National CZM Act of 1972 (16 USC 111451 et. seq.) provides for State review of federal actions or permits affecting the coastal zone of states with approved CZM Programs. Hawaii's CZM Program, established pursuant to Chapter 205A, HRS, is administered by the OSP and provides for the beneficial use, protection, and development of the State's coastal zone.

The CZM federal consistency review is required in conjunction with the Department of the Army Permit requirements. The proposed project's relationship to the CZM objectives and policies are summarized below.

Recreational Resources: The proposed project will increase recreational opportunities by providing additional public boat launching facilities and accommodating the U.H. Aquatics Program. Public shoreline access will be

precluded only in the METC portion of the project area, which is the least usable area of shoreline from the recreational standpoint.

Historic Resources: None affected.

Coastal Ecosystems: No biologically significant coastal ecosystems are affected. Mitigating measures will be incorporated to ensure that coastal water quality is not degraded, including the use of oil-water separators, enclosed boatworks repair facilities, and contained washdown areas for the METC.

Economic Uses: The proposed METC will serve to stimulate the maritime repair industry and is an appropriate coastal dependent development located in an area of high use for berthing marine vessels.

Coastal Hazards: The project site is outside of the flood and tsunami inundation zones.

4.4.3 Conservation District Use Application (CDUA)

Any use of lands, including submerged land within the State's Conservation District as established by the State Land Use Commission, is subject to review pursuant to Chapter 183, HRS and Title 13, Chapter 2 of the Department of Land and Natural Resources (DLNR) Regulations. The area beyond the shoreline, defined as *"the upper reaches of the wash of waves, other than storm and tidal waves, usually evidenced by the edge of vegetation growth, or the upper line of debris left by the wash of waves,"* is subject to review as a use in the Resource (R) subzone of the State Conservation District (Section 13-2-13, Administrative Rules of the DLNR). The objective of the Resource (R) subzone is to develop, with proper management, areas to ensure sustained use of the natural resources of those areas. Approval by the State Board of Land and Natural Resources (BLNR) will be required through a CDUA for all dredging and construction seaward of the shoreline.

Conservation lands to be used by the METC include the shoreline and submerged lands for the boat ramp, concrete pier, jib cranes, finger pier, and inlet which run along the southwest face of Sand Island along Kalihi Channel. Any proposed use

of Conservation lands requires the satisfaction of environmental requirements pursuant to Chapter 343, HRS.

The delineation of the shoreline has been determined by a shoreline survey certified by the BLNR in May 1991.

The placement of facilities beyond the shoreline involves the use of State lands and requires the permission of the BLNR. Approval for the use of State land may be sought in conjunction with the CDUA.

4.4.4 Special Management Area (SMA) Use Permit

The Hawaii CZM Law (Chapter 205A, HRS) charged the Counties with designating and administering special management areas along the State's coasts. Any "development" within the SMA boundary requires an SMA Use permit administered by the City and County of Honolulu DLU pursuant to Ordinance No. 84-4, 85-105. Approval of an SMA Use permit is by the Honolulu City Council.

Sand Island is within the SMA boundary and is subject to review under the SMA Use permit procedures. Guidelines for review include coastal and environmental considerations as flood hazards, recreational resources, coastal ecosystems, public shoreline access, wastewater management, and coastal views. An environmental assessment or environmental impact statement is required.

4.4.5 Shoreline Setback Variance

The State's Shoreline Setback Law, (Chapter 205A, HRS, Part III) prohibits virtually any development or related activity including the removal of sand, rocks and soil from the shoreline setback area. The shoreline setback area is a 40-foot strip of land mauka of the shoreline. The counties are authorized to grant variances for construction that would encroach in the setback area. The City and County of Honolulu DLU administers this variance under its shoreline setback regulations.

Variances may be granted based on consideration of a structure or activity being in the public interest, hardship to the applicant (if the proposed activity is not allowed), and the effect a structure or activity would have on natural shoreline processes, particularly with regard to shoreline erosion.

The METC will require a shoreline variance for the boat ramp, jib cranes, concrete and finger piers, and inlet. The shoreline variance request may be processed concurrently with the SMA Use Permit with simultaneous decision-making by the City Council.

4.4.6 Major Permits and Approvals Required

The following is summary of the major permits and approvals required prior to project construction:

<u>Federal</u>

U.S. Army Corps of Engineers

- Department of the Army Permit

National Park Service

- Approval of Replacement Outdoor Recreation Acreage

<u>State of Hawaii</u>

Department of Land and Natural Resources

- Conservation District Use Application (CDUA) Permit
- Use of State Lands
- Approval of Replacement Outdoor Recreation Acreage (Concurrent with National Park Service)

Office of Environmental Quality Control

- Environmental Impact Statement

Office of State Planning

- Coastal Zone Management (CZM) Program Federal Consistency Review

Department of Health

- Section 401 Water Quality Certification
- National Pollutant Discharge Elimination System (NPDES) Permit

City and County of Honolulu

Department of General Planning

- Development Plan Public Facilities Map Amendment

Department of Land Utilization

- Special Management Area (SMA) Permit
- Shoreline Setback Variance for construction in the shoreline area
- Waiver of Requirements for Public Uses and Utility Installations
- Plan Review Use (PRU) Approval (to be processed by HCC)

Section 5

PROBABLE IMPACTS AND MITIGATION MEASURES

SECTION 5
PROBABLE IMPACTS OF THE PROPOSED ACTION AND MITIGATION MEASURES

5.1 Overview

Short and long-term impacts to the physical and socio-economic environments and infrastructure system are anticipated as result of the proposed project. The following sections provide further discussion on the probable impacts and recommended mitigation measures.

5.2 Physical Environment

Short-term impacts to land and water elements of the physical environment will primarily occur from construction-related activities and are anticipated to be temporary. Long-term impacts, however, will relate to the permanent alteration of the landward and marine environments as a result of developing the project.

5.2.1 Short-term - Landward Environment

5.2.1.1 Flora and Fauna Resources

During construction, grading and grubbing of the project site is not anticipated to result in adverse impacts to terrestrial flora and fauna. There are no Federal or State-listed or candidate threatened or endangered plant or mammal species on the project area which would be displaced.

5.2.1.2 Air Quality

Ambient air quality is expected to temporarily decrease during construction activity. The principal pollutants anticipated are hydrocarbon emissions or exhaust fumes. Sources of these pollutants include excavation activities, hauling of construction materials and debris, construction vehicles and equipment, addition of vehicles owned by construction employees, and traffic congestion. Emissions from construction vehicles and equipment will be minimized through proper maintenance procedures.

The short-term effects on air quality during construction will be mitigated by compliance with the Department of Health Administrative Rules, Title 11, Chapter 60, Air Pollution Control. Control measures to reduce fugitive dust include frequent wetting down of loose soil areas with water, and covering of dirt-hauling trucks. Watering the area twice a day is estimated to reduce dust emissions by up to 50 percent. Paving of the parking areas and establishment of landscaping early in the construction schedule will also help to control dust.

5.2.1.3 Soils and Geology

Hazardous Materials

A hazardous materials study was conducted in October 1991 by Muranaka Environmental Consultants, Inc. (MECI). The study identified sources of hazardous substances in the project site and possible sources of hazardous substances from the proposed activities.

MECI recommends that Kiewit Pacific consolidate all containers of waste motor oil into one area. To mitigate any future spills of waste oil onto the ground, the waste oil containers should be placed in a secondary containment system. All waste oil that meets specification standards should be recycled off-site with the assistance of a DOH-approved used oil transporter. Precautions should be taken to avoid any contamination of used oil, in order that the waste oil may be recycled and not disposed of as hazardous waste. Possible waste oil contaminants are: chlorinated solvents, low flash point and leaded fuels, paint wastes, metal finishes, and water.

Spent lead acid batteries should be delivered to a battery recycler. However, damaged batteries may require particular shipping and disposal requirements, therefore, all batteries should be carefully stored in a resilient secondary containment system.

Kiewit should be required to remove all hazardous materials and wastes from the site upon termination of their lease agreement with DLNR. Additionally, prior

to any excavation of the site for the proposed development, the exact locations of the underground fuel pipelines will be determined to prevent accidental rupture of the pipelines.

In the event of accidental fuel line ruptures during construction activity, every effort will be made to mitigate potential leakage problems. Appropriate precautionary measures will be requested of the contractor, such as: a) informing fuel line owners of proposed action and submitting construction plans for their review and feedback; b) notifying fuel line owners prior to any excavation activity near the existing fuel lines; and c) assuming financial responsibility for hiring personnel (from or representing the fuel companies) to monitor excavation activities (personnel will be equipped with a radio to request immediate shut-off of pumps). A hazardous materials management company will also be contracted for proper clean-up procedures, in the event that rupture of the fuel lines should occur.

5.2.1.4 Noise and Vibration

During the short-term, development of the project will involve clearing and grading activities on land, dredging activities along the shoreline, and construction of infrastructure and buildings. These activities will create a temporary increase in noise levels in the project area.

It shall be the contractor's responsibility to minimize construction noise impacts through compliance with all applicable regulations. In this regard, the contractor will be responsible for providing and maintaining noise attenuating equipment. Should noise levels exceed the allowable levels specified under Title 11, Chapter 43 (Administrative Rules, Department of Health), the contractor is required to obtain a noise permit. Since the project area is generally surrounded by industrial and outdoor recreational use and is already subject to high levels of noise from aircraft overflights, construction noise is not anticipated to be disruptive.

5.2.1.5 Archaeological Resources

Since Sand Island was created from dredge and fill activities, the uncovering of archaeological features or remains is not anticipated. In the event that any archaeological features or remains are uncovered during construction, work will cease immediately and the State Historic Preservation Division will be notified to determine and direct the proper course of action. Further, there are no buildings, structures or other man-made features of historical significance on the project site that will be demolished during construction. The State Historic Preservation Division of DLNR has concurred that the project will have no effect on historic sites.

5.2.2 Short-term - Marine Environment

5.2.2.1 Water Quality Impacts

Construction will result in a temporary increase in turbidity in the water surrounding the project site. Temporary and localized turbidity may result from dredging and filling to construct the revetment, inlet/pier and boat ramp along the shoreline fronting the Kalihi Channel. Additionally, on-site clearing and grading operations may increase the potential for short-term erosion and runoff may occur. Once construction is completed, however, the amount of sediment runoff into Kalihi Channel and Keehi Lagoon will decrease proportionately as the project site is planted with permanent landscape material.

Appropriate construction management practices and erosion control measures, such as the use of silt curtains around the dredge area, will be incorporated to mitigate turbidity impacts. To the extent possible, construction activities will be conducted during low periods of rainfall. Where such activity is necessary during higher rainfall periods, every effort will be taken to minimize potential impacts associated with erosion and storm runoff. Potential erosion impacts will be minimized via landscaping and an erosion control plan which will be prepared prior to land clearing and construction. The project will be required to comply with DOH Water Quality Certification and National Pollutant Discharge

Elimination System (NPDES) regulations governing construction activities and point source discharges.

5.2.2.2 Marine Biological Resources

During construction, increased turbidity levels may temporarily impact extant intertidal, reef flat, channel wall and channel bottom, benthic and fish communities. Silt curtains will be used to mitigate turbidity impacts.

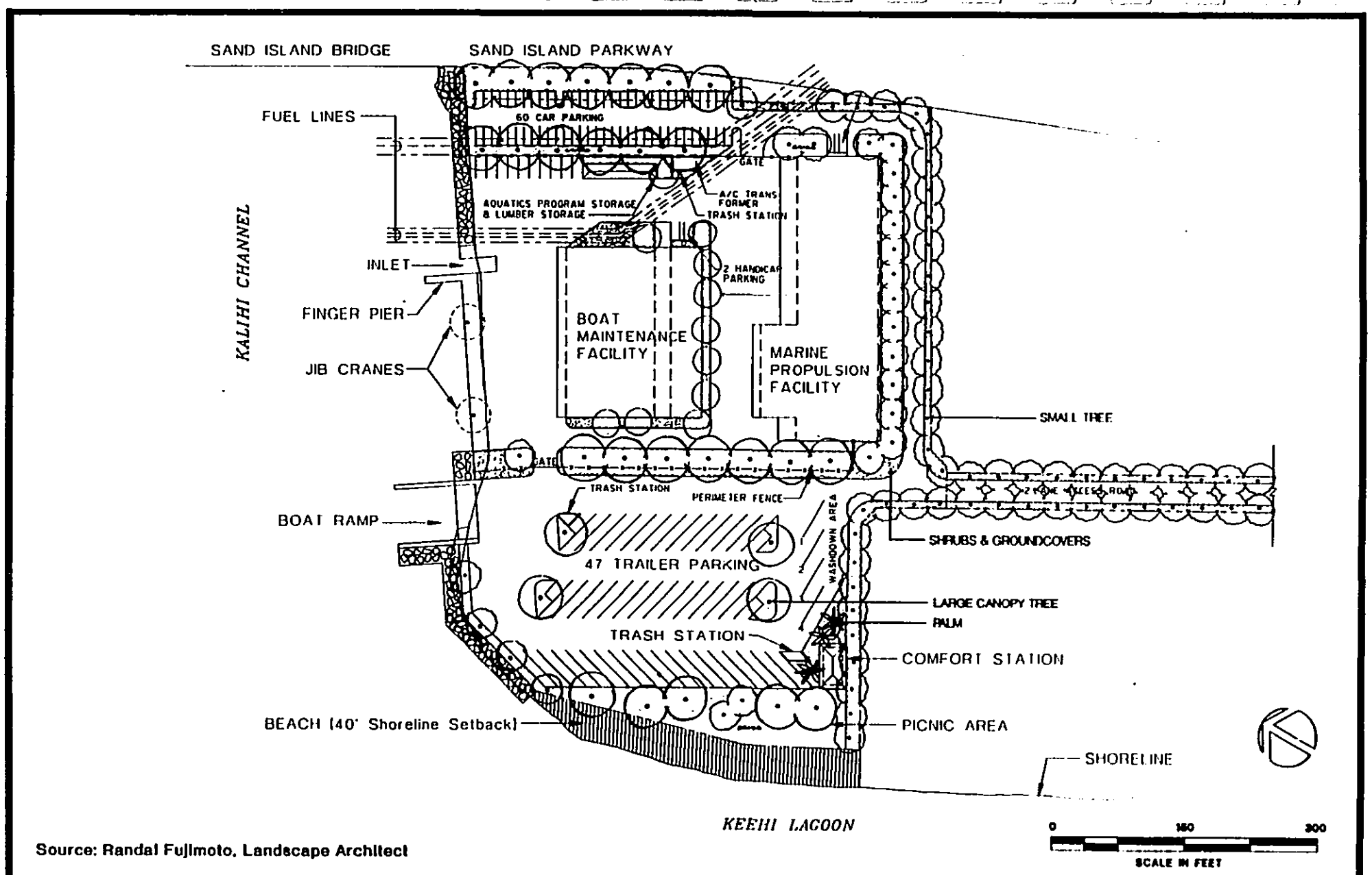
5.2.3 Long-term - Landward Environment

5.2.3.1 Flora and Fauna Resources

No negative long-term impact to flora or fauna is expected to occur with the development of the project, as there are no endangered species on Sand Island.

Aesthetic improvements are anticipated as a result of landscaping which will be sensitive to the existing environment. To maintain continuity with the adjoining park extension area, the trees and landscaping will be designed to use the same types of vegetation as that currently found in the Sand Island State Park (See Figure 5-1).

A landscaped buffer area has been set aside just mauka of the shoreline setback area fronting Keehi Lagoon. The buffer area is proposed to be planted with shrubbery such as beach naupaka and shoreline trees such as milo. Small canopy trees (Indian Coral) and shrubbery (spider lily) would line the access road continuously through the trailer parking area, as well as the southern project boundary, whereas large canopy trees (monkeypod) would be established in both the trailer parking area and the METC parking area adjacent to Sand Island Parkway. Large canopy trees would also be located between the Boat Maintenance and Marine Propulsion Facilities. The landscape strips abutting Sand Island Parkway and the washdown area are proposed to be planted with small shade trees (Kou), while the comfort station planting areas adjacent to both buildings may be landscaped with small palms (manila palm).



Source: Randal Fujimoto, Landscape Architect

MARINE EDUCATION AND TRAINING CENTER

Fig. 5-1

PRELIMINARY LANDSCAPE DEVELOPMENT PLAN

Prepared for :
HONOLULU WATERFRONT PROJECT
Prepared by :
Wilson Okamoto & Associates, Inc.

Although not reflected on the Preliminary Landscape Development Plan, the final landscape plan will be modified to prohibit landscaping, such as trees with aggressive root characteristics, over and near existing fuel line easements. In this way, possible impacts to fuel lines associated with tree roots will be avoided.

5.2.3.2 Air Quality

Long-term air quality impacts will result from increased vehicular traffic and associated increases in levels of carbon monoxide. The volumes of project traffic generated are fairly low even with full development of the facility (280 vehicle trips per day, 48 during the morning peak hour and 96 during the afternoon peak hour). The project's location on the shoreline along with proposed roadway and intersection improvements will mitigate any long-term adverse effects on air quality.

The METC facilities will generate air pollutants primarily from activities associated with the Boat Maintenance Facility. Areas within the sand blasting and fiberglass work areas will be susceptible to high levels of dust and other particles in the air, while the painting workbay will be subject to paint fumes and overspray. The potential impact to those outside the work areas will be fully mitigated through enclosure and the facility's mechanical ventilation system. Further, students and faculty will be instructed to adhere to Occupational Safety and Health Administration (OSHA) requirements for proper safety procedures and equipment.

5.2.3.3 Soils and Geology

Design for the METC will consider on-site operations that will minimize the impacts of hazardous materials and regulated wastes. Although underground containment systems are approved for use by the EPA, DOH and HFD, an above ground containment system will be employed to reduce the probability of a release of hazardous materials into the soil or ground water. Design characteristics of hazardous materials and regulated waste storage areas include: limited access; impervious ground surfaces; bermed containments; and weather

protection. Consideration must also be given to the placement of floor drains and storm water catch basins to reduce the probability of spills entering the wastewater system.

Hazardous Materials

Students and instructors of the proposed METC facility will be in contact with hazardous materials for those courses involving hands-on instruction. Common hazardous materials are substances that are flammable, reactive, corrosive, explosive, toxic, or compressed gases. Federal and State agencies will regulate all hazardous waste generated by the proposed METC. Such waste streams include air emissions, sanitary waste water, solid waste, Environmental Protection Agency (EPA) Resource Conservation and Recovery Act (RCRA) regulated hazardous wastes, polychlorinated biphenyl (PCB) containing wastes, asbestos containing materials (ACM), motor oil, and chemical wastes. The probable sources of ACM wastes may be construction materials and insulation from older boats, while PCBs are usually associated with electrical equipment such as liquid-cooled transformers and capacitors.

The projected inventory for Federally- and State-regulated hazardous materials, shown as Table 5-1, was compiled for three areas of study: boat maintenance and repair, marine mechanics and marine diesel and repair. (Note: Solid waste, air emissions and sanitary waste water are not included in the inventory.)

Hazardous Materials Management Plan

A hazardous materials management plan (HMMP) and a regulated waste management plan will be prepared prior to commencing the facility's operations. Engineering controls for hazardous material storage will also be designed for the METC facility. The HMMP is expected to include procedures for appropriate hazardous material storage and use, involving integrated elements such as a hazard communication program, a hazardous materials use and application program, and a hazard materials storage program.

Table 5-1 REGULATED HAZARDOUS MATERIALS TO BE USED AT METC	
I. Boat Maintenance and Repair	ACMs; Hazardous material containers; Lead paint sludge; Paint pigments; Spent parts washer solvents; Spent paint solvents; Surplus paints; Surplus resins and catalysts; Used lubricants; and Used blasting grits.
II. Marine Mechanics	ACM; Bilge water; Oils; PCBs; Spent coolants; Spent cleaners; Spent parts washer solvents; Surplus hazardous materials; and Used crankcase oil.
III. Marine Diesel Maintenance and Repair	Oils; Spent coolants; Spent cleaners; Spent parts washer solvents; Surplus hazardous materials; and Used crankcase oil.

Regulated Waste Management Plan

A regulated waste management plan will include programs for: a) Waste Minimization - which will reduce the amount of waste generated by the METC; b) Recycling - which will analyze waste streams, identify recyclable and reusable waste materials, and instituting a logistics plan for recycling these materials; c) RCRA Hazardous Waste - by which non-hazardous materials will be substituted for hazardous materials, and wastes which are RCRA-regulated will be segregated from those which are non-RCRA-regulated; and Used Motor Oil Recycling - whereby a collection and containment system will be used to preclude any contamination of used oil.

5.2.3.4 Noise

Noise impacts from the operation of METC facility will be generated by vehicular and equipment traffic, as well as power equipment to be used by shops, bay areas and laboratories. In consideration of the industrial character of the area, noise created by the METC facility is not anticipated to be significant.

Additionally, the project area is affected by aircraft operations at HIA, creating a relatively high ambient noise environment, between 70 to 75 Ldn, in the project area. Aircraft noise levels are expected to impact METC facility operations, particularly in classroom and office settings. These noise impacts can be mitigated by designing enclosed, air-conditioned instructional and work areas, and using noise attenuating building materials, including CMU (hollow tiles), metal doors, concrete roofs, and double-glazed windows. Although the number of aircraft operations is projected to increase by 2005, the noise level is expected to decrease to approximately 70 Ldn and below at the project site, due to the use of quieter aircraft and more efficient operating procedures.

5.2.3.5 Visual Resources

A view study was prepared by Lacayo Visualizations and Wilson Okamoto and Associates in January 1992 to determine possible impacts to visual resources in the project vicinity. In order to conduct a comprehensive visual impact analysis, six existing views were selected to reflect potential public vantage points. Subsequent computer simulations based on conceptual design schemes were created to graphically-depict future visual impacts from the development of the project.

Of the six views, two were determined as the most commonly observed and are illustrated in Figures 5-2 to 5-5. Relative to existing structures in the project vicinity, the proposed METC buildings will not be visually obtrusive. The METC buildings have been sited towards the mauka end of the project site and away from Keehi Lagoon. Shoreline setbacks will minimize intrusion to view planes toward and along the shoreline, with building setbacks of approximately 80 feet from the shoreline fronting Kalihi Channel and approximately 375 feet from the shoreline fronting Keehi Lagoon. A variety of landscaping such as canopy and shade trees, grass and shrubbery will further mitigate views of the project site from public areas.

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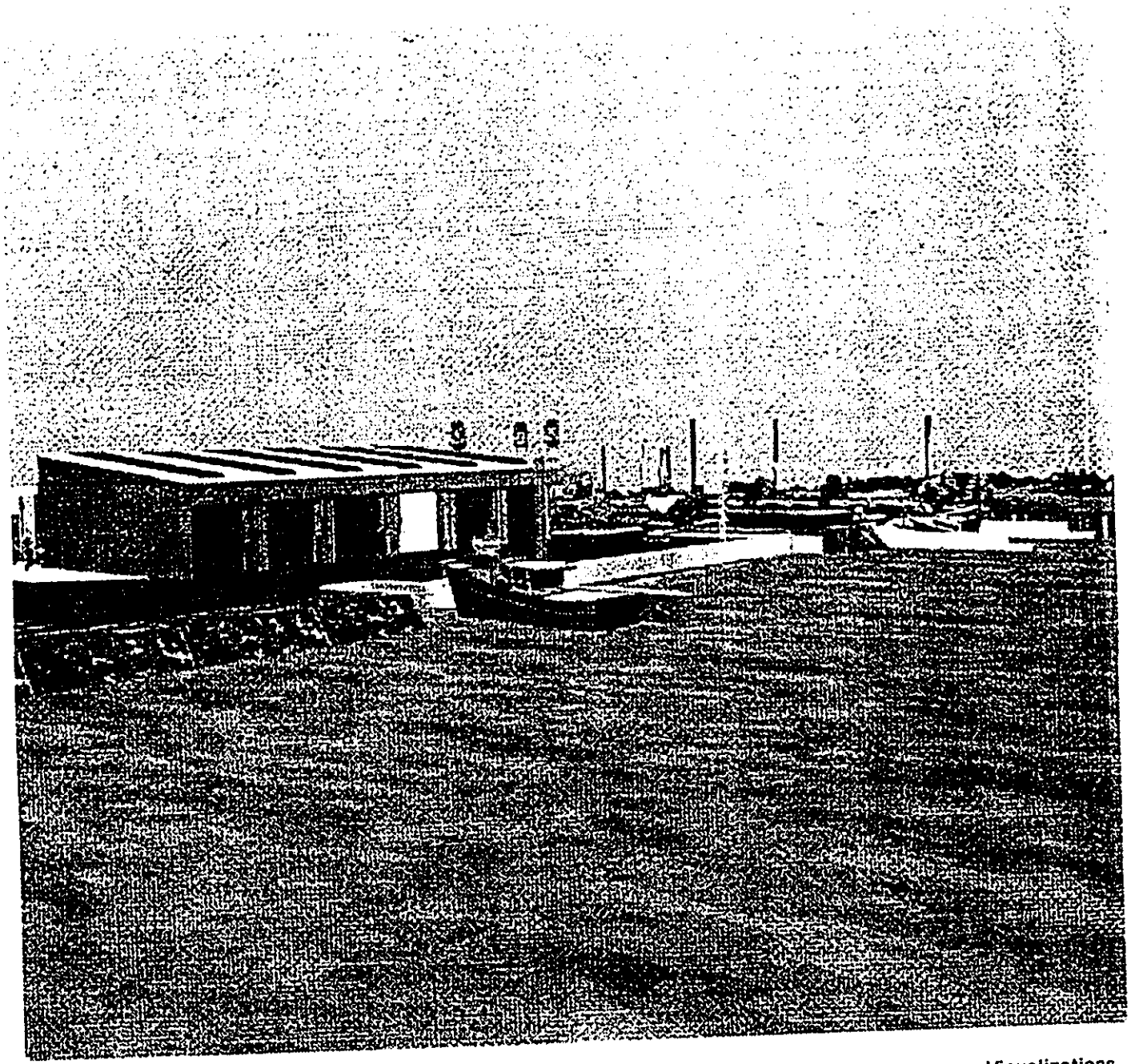
Fig. 5-2

EXISTING VIEW #1.
(From Sand Island Bridge, facing southwest)

Prepared for : HONOLULU WATERFRONT PROJECT

Prepared by : Wilson Okamoto & Associates, Inc.



Source : Lacayo Visualizations
December 1991

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Fig. 5-3

PROPOSED VIEW #1
(From Sand Island Bridge, facing southwest)

Prepared for :
HONOLULU WATERFRONT PROJECT

Prepared by :
Wilson Okamoto & Associates, Inc.

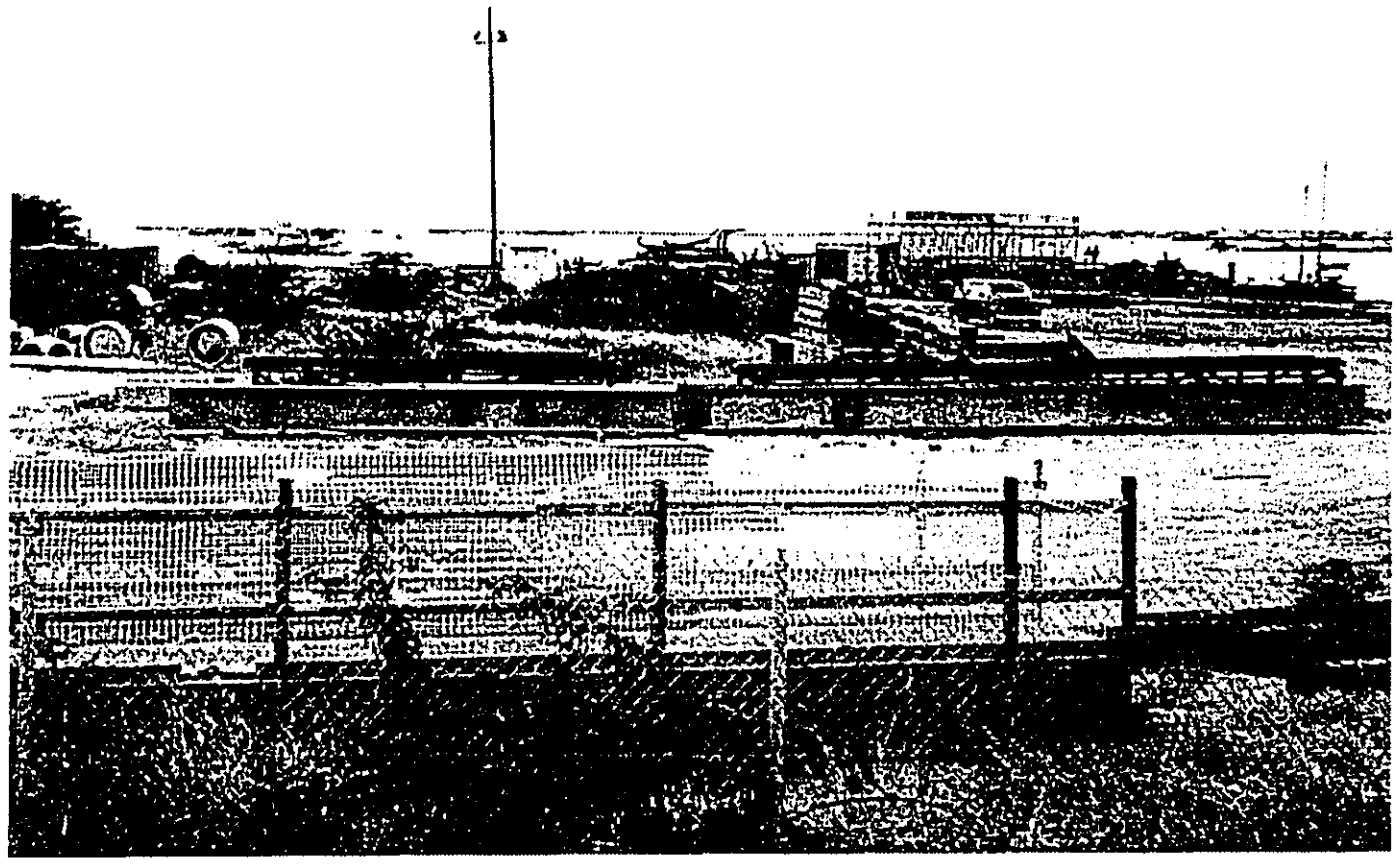

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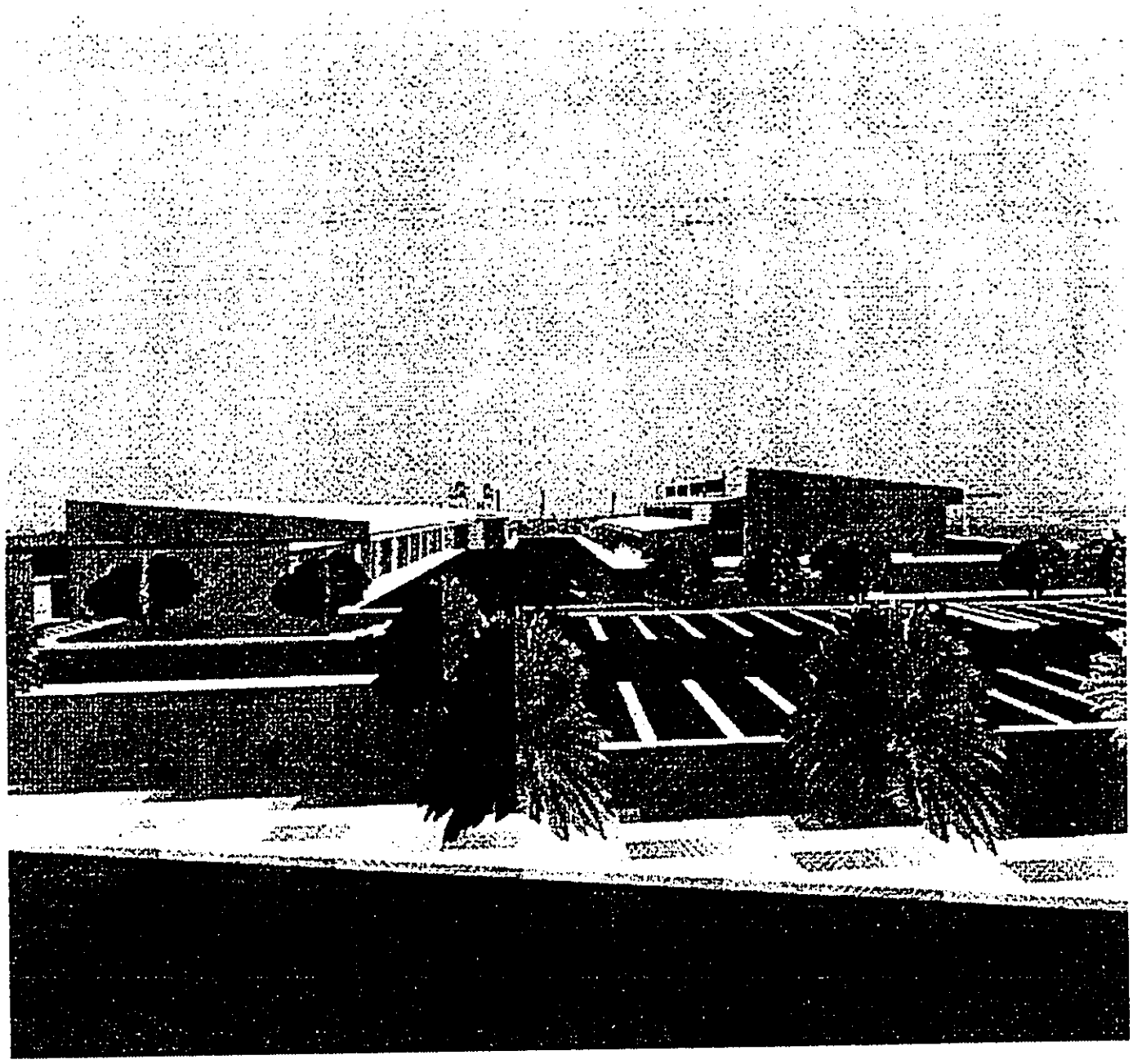
Fig. 5-4

EXISTING VIEW #2
(From Sand Island Parkway, facing west)

Prepared for :
HONOLULU WATERFRONT PROJECT

Prepared by :
Wilson Okamoto & Associates, Inc.



Source : Lacayo Visualizations
December 1991

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Fig. 5-5

PROPOSED VIEW #2
(From Sand Island Parkway, facing west)

Prepared for :
HONOLULU WATERFRONT PROJECT

Prepared by :
Wilson Okamoto & Associates, Inc.

5.2.4 Long-term - Marine Environment

5.2.4.1 Water Quality

Ongoing development of the project will lead to increased storm runoff, although the project will not contribute industrial effluent to Kalihi Channel or Keehi Lagoon. METC facilities will employ oil-water separators to remove petroleum prior to discharge into the municipal sewer system. METC washdown areas will also be contained under roofed areas to limit discharges in the sewer system.

As part of the Clean Water Act Section 401 Water Quality Certification process, a detailed analysis of the water quality impacts of project construction and operation, as well as a proposed monitoring program will be submitted to DOH for review and approval. Water quality samples will be taken prior to construction to establish the baseline for monitoring impacts.

5.2.4.2 Bathymetry, Currents, and Littoral Processes

The long-term environmental impacts of shoreline improvements on the marine environment are expected to be negligible, despite minor short-term impacts related to construction. The proposed improvements along Kalihi Channel would stabilize an existing, eroding shoreline. Stabilization of the shoreline would also prevent the recurring exposure of coastal material which might otherwise pose a potential public safety hazard. Any improvements in water circulation associated with the shoreline upgrades would improve water quality along the shoreline reaches of the park and facilitate flushing within the Keehi Lagoon area.

The primary impact of the Hawaiian Electric Company, Inc. power plant's alteration of harbor circulation patterns through its intake and effluent is a biological one based on the findings of Oceanit Laboratories for the Aloha Tower Development (July 1990). Specifically, in proximity to the plant's inlet and outlet, coral, invertebrate and sea life are abundant and diverse in these areas (Piers 7 and 8) compared to other areas of the harbor. Because of the distance from the project site, the biological effects of the HECO plant from circulation can be considered negligible with respect to the METC project.

5.3 Socio-Economic Environment

5.3.1 Short-term

5.3.1.1 Employment and Economy

The project will generate short-term direct employment, both on-and off-site, during the construction period. Construction activity further contributes to the State economy, generating indirect and induced employment opportunities and multiplier effects, as local material suppliers and retail businesses also benefit from the increased construction.

The number of construction jobs generated may be roughly estimated from the construction costs involved in the proposed development. In 1989, there was one direct construction job per year for each $107,000 of construction, based on construction job counts and the State general excise tax base for contracting (DBED, 1990). The estimated construction cost for the Phase I development (including site infrastructure, METC Boat Maintenance Facility, and boat launch facility) is $12,736,000. The direct employment to be generated by the proposed development is therefore approximately 60 construction jobs per year, assuming a two-year construction timetable.

5.3.1.2 Recreational Resources

Access to, and enjoyment of, land-based recreational activities at Sand Island Beach Park will not be significantly impacted during the short-term. On the other hand, marine-related recreation, fishing in particular, may be hindered during the short-term as water quality impacts associated with dredging, clearing and excavation activities may diminish the local benthic habitat within the immediate project area. Tidal and current conditions permitting, however, turbidity impacts should be minimal and temporary.

5.3.1.3 Public Safety

As public safety will be a major concern, safety precautions will be utilized in all phases of construction to minimize potential hazards to pedestrians and motorists. During evenings, weekends and holidays when there is no construction,

construction areas will be secured by barricades, signs and, if necessary, security personnel as required by State and City and County of Honolulu regulations.

5.3.1.4 Offshore Residents

A small multi-ethnic group of families resides on Mokauea Island located about 1,000 feet offshore in Keehi Lagoon. A long-term lease for Mokauea Island was granted by the State DLNR with an agreement that those occupying the island would provide a facility to educate individuals about traditional Hawaiian fishing practices. Currently, the fishing community lifestyle is perpetuated by a number of families living on the island.

During the short-term, temporary noise and fugitive dust and emissions associated with construction activities may impact residents. Construction noise and air quality impacts should not be significant however, and will be minimized through compliance with applicable DOH regulations. It should be noted that the residents are currently subject to high noise levels from aircraft overflights.

5.3.2 Long-term

5.3.2.1 Employment and Economy

To provide instructional and operational support for the new programs and facilities, an estimated 13 additional faculty and support personnel are required. Faculty requirements include six instructors for the Boat Maintenance and Repair, Marine Mechanics, Marine Diesel, and Marine Electronics programs. Also required are three educational specialist positions for the mechanics lab, boat lab, and for tools and equipment. Operating personnel include four positions that are necessary for clerical, building and grounds maintenance functions.

The training of personnel in marine maintenance technologies could encourage the expansion of the marine repair industry which is currently experiencing a shortage of trained workers. State-wide, public and private marina developments could result in 4,000 new berths which would require an expanded marine repair

industry. In Keehi Lagoon, approximately 1,000 new berths for recreational vessels are planned at Pier 60 and along Lagoon Drive.

5.3.2.2 Recreational Resources

According to the State Recreation Functional Plan, the Kalihi-Palama area lacks adequate coastal recreation opportunities, and the public boat launch facility will help fill this demand in the long-term. Also, the shoreline beach area situated adjacent to the boat launch facility will be preserved for continued recreational use and shoreline access upon eventual completion of the Sand Island Park extension. No significant long-term impacts are expected to baitfish and recreational fishing as a result of the project.

5.3.2.3 Public Safety and Access

Facilities and operations at the METC site will comply with Federal and State standards for occupational and public safety. A perimeter fence will provide security for the METC facility and prevent the general public from potentially hazardous areas within the facility, particularly during evening and weekend periods. Within the building, students and faculty will adhere to Occupational Safety and Health Administration (OSHA) requirements for proper safety procedures and equipment.

5.3.2.4 Offshore Residents

No significant long-term impacts to the residents of Mokauea Island are anticipated as a result of the project. There will be an increase in boat activity in the project area due to the new boat launch facility. Lighting of the ramp facility will be designed to minimize off-site visual impacts. To the extent possible, air, noise and water pollution associated with the operation of the project will be contained on-site. The majority of activities will occur inside the facilities and therefore noise and light pollution should be minimal.

For those activities which cause pollution such as painting, sand blasting, and fiberglass, provisions have been made in the facilities to contain such pollution. Each of these facilities has been designed to be completely enclosed and has appropriate environmental waste containment equipment. The effects of activities in these areas on the surrounding environment should be minimal.

5.4 Transportation and Infrastructure Systems

5.4.1 Roadway Systems

Short-term construction impacts to traffic are not anticipated to be significant. Construction equipment and vehicles will enter and exit the project area from Nimitz Highway, Sand Island Access Road, and Sand Island Parkway primarily during off-peak hours. To minimize potential traffic impacts, all movement of heavy construction vehicles will be scheduled during off-peak hours, and if necessary, personnel will be employed to ensure traffic safety.

5.4.2 Traffic

A traffic impact study was conducted by Wilbur Smith and Associates in November 1991 to assess localized impacts along adjacent roadway sections for the year 1999, when the project is scheduled for completion and full operation. Findings from the study indicated that the METC and public boat ramp would generate an estimated 280 vehicle trips during each weekday, of which 96 trips would occur in the afternoon peak hour. Overall, this would increase peak hour volumes on Sand Island Parkway by 3 to 5 percent depending on the peak hour (morning or afternoon) and location. This increase, however, would not significantly affect traffic conditions along Sand Island Parkway.

5.4.2.1 1999 Traffic Volumes Without the Project

The undeveloped area south of the project site is planned for development as the Corporation Yard for the City and County of Honolulu. The City plans to consolidate the maintenance and servicing of vehicles for several of its departments to this site. These vehicles are currently maintained at several locations in other areas. The Corporation Yard is planned for construction with

the same general time frame as the METC, and thus is assumed to be fully operational by 1999.

The adjacent section of waterfront is also planned for improvements as part of the Sand Island Beach Park. This is expected to include a parking area that will share the same access road as the METC.

The traffic generation for these two projects was developed from forecasts presented in the traffic study for these two planned projects. The number of vehicle trips generated by these projects is estimated in Table 5-2. An additional traffic increase of two percent per year has also been incorporated to reflect general growth due to increased economic growth due to increased economic activity in the harbor area and other infill development.

Table 5-2
1999 TRAFFIC VOLUMES WITHOUT PROJECT

	To Project	From Project
AM Peak Hour		
Corporation Yard	339	167
Beach Park	14	0
Total	**353**	**167**
PM Peak Hour		
Corporation Yard	167	339
Beach Park	14	14
Total	**181**	**353**

5.4.2.2 1999 LOS Without the Project

It was estimated that under conditions with general growth and approved projects the intersection would operate at LOS F, as indicated in Table 5-3. This impact, however, can be mitigated with the addition of a left turn lane to the eastbound approach.

Table 5-3
1999 LOS WITHOUT PROJECT

Signalized Intersection	1999 Background Traffic Without the Project				
	AM Peak Hour		PM Peak Hour		Daily V/C
	LOS	V/C	LOS	V/C	
Sand Island Parkway & Road 51A	F	0.95	F	1.15	0.13

5.4.2.3 1999 Traffic Volumes With the Project

An estimated 280 daily trips, with 48 morning peak hour trips and 96 afternoon peak hour trips, would be generated by the project. The estimated volume of trips are summarized in Table 5-4.

Table 5-4
1999 TRAFFIC VOLUMES WITH PROJECT

Facility	Trip Generation						
	AM Peak Hour			PM Peak Hour			Daily Total (VPD)
	Inbound (VPH)	Outbound (VPH)	Total (VPH)	Inbound (VPH)	Outbound (VPH)	Total (VPH)	
Public Boat Launch	28	0	28	0	24	24	100
Education Center	15	5	20	24	48	72	180
Total	43	5	48	24	72	96	280

VPH = Vehicles per hour
VPD = Vehicles per day

Traffic volumes were distributed in accordance with the pattern of the existing traffic on the Road 51A approach opposite the planned project access road. This distribution averages 10 percent southbound and 90 percent northbound. The traffic assignments include the sum of normal background traffic, project traffic, and other cumulative growth.

5.4.2.4 1999 LOS With the Project

Future 1999 intersection LOS were calculated with the proposed project and other anticipated traffic increases (See Table 5-5). It is estimated that under conditions with the project and cumulative growth, the LOS categories at the intersection would not change relative to cumulative growth without the project. The intersection, however will be operating at an unacceptable LOS during the peak traffic hours.

Table 5-5
1999 LOS WITH PROJECT

Signalized Intersection	1999 Background Traffic With the Project								Daily V/C
	Without Improvements				With Improvements				
	AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour		
	LOS	V/C	LOS	V/C	LOS	V/C	LOS	V/C	
Sand Island Parkway & Road 51A	F	0.95	F	1.26	C	0.82	C	0.92	0.15

The impact to LOS can be mitigated with the addition of a left turn lane in the eastbound direction and by changing the designated through-lane to allow left and right turns in addition to the through movement (See Figure 5-6). Both eastbound lanes will need to be a minimum of 12 feet wide to accommodate boat trailers accessing the public boat launch facility. This will result in an acceptable LOS C for the intersection.

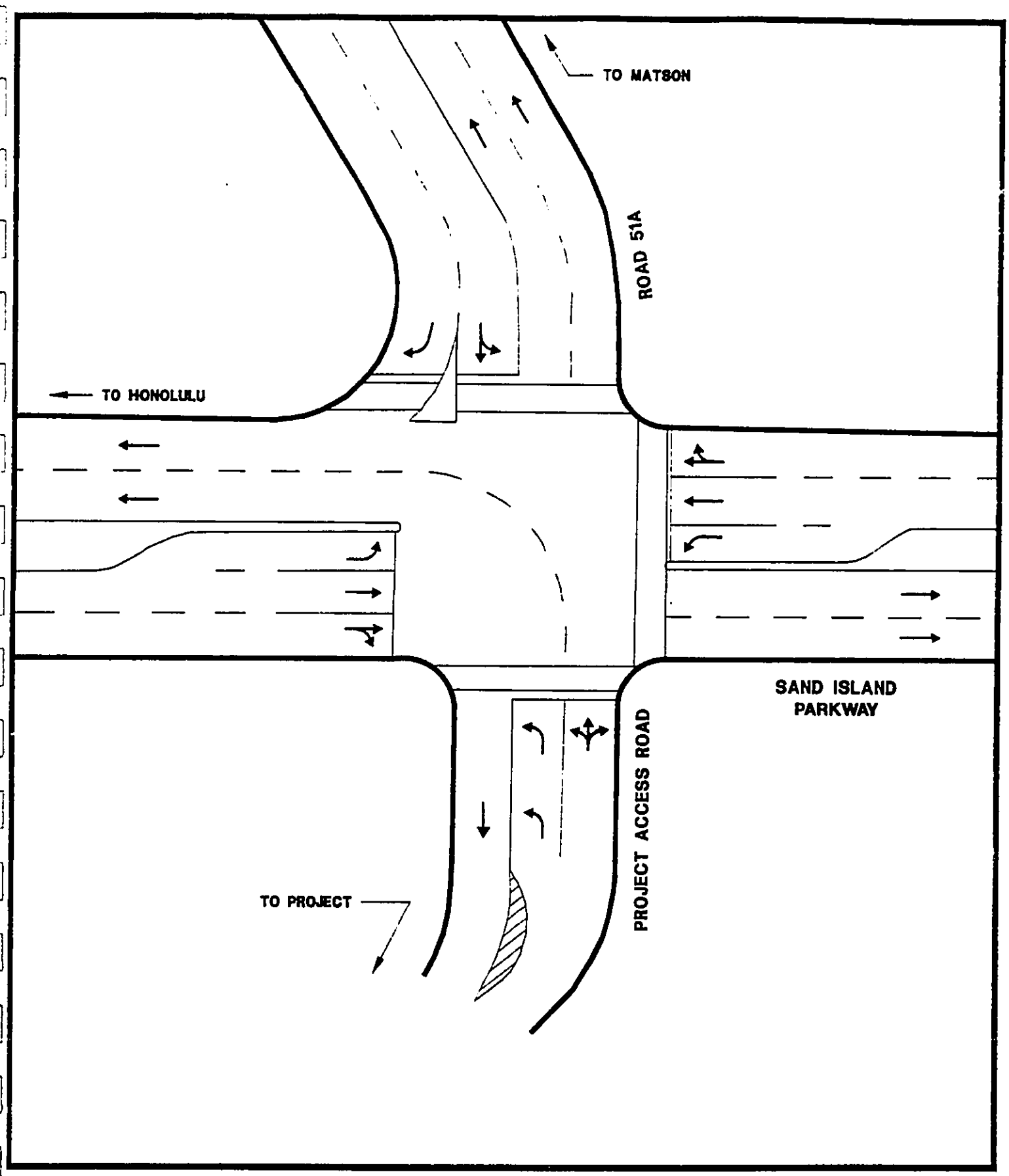

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Fig. 5-6
PROPOSED
INTERSECTION IMPROVEMENTS

Prepared for :
HONOLULU WATERFRONT PROJECT

Prepared by :
Wilson Okamoto & Associates, Inc.

5.4.3 Public Services and Utilities

Construction of the METC and public boat launch facilities is not anticipated to impact existing utilities serving Sand Island. However, if service must be temporarily disrupted during the course of construction, it shall be the responsibility of the contractor to obtain the necessary permits and clearances.

The project's development phase will be coordinated with appropriate agencies and organizations to minimize potential disruption of utility services to area businesses during construction. To ensure proper coordination with utility companies, construction plans shall be submitted for review and approval.

5.4.3.1 Water System

Based on the water system standards of the BWS, the estimated average daily demand for the METC and boat launch facilities is 19,500 gallons, with a maximum daily demand of 29,200 gallons. The existing 16-inch main has a minimum fireflow of 4,000 gallons per minute (gpm), which will satisfy the BWS minimum fire flow standard of 4,000 gpm for industrial land. Placement and installation of reduced pressure principle backflow prevention assemblies will be executed in compliance with BWS requirements.

- As shown in Figure 5-7, the 12-inch service line to the Park will be tapped to provide service to the project site via a new 8-inch line. Three 4-inch lateral connections to the proposed 8-inch line will be required from the Marine Propulsion Facility, the Boat Maintenance Facility, and the comfort station in the boat launch facility. The washdown area will be serviced by means of the lateral connection to the comfort station. Alignment of the 12-inch service line will be designed to preclude potential conflicts with the Marine Propulsion facility and existing underground fuel lines. An alternative alignment would traverse between the facility and fuel lines, thus avoiding future interference with either.

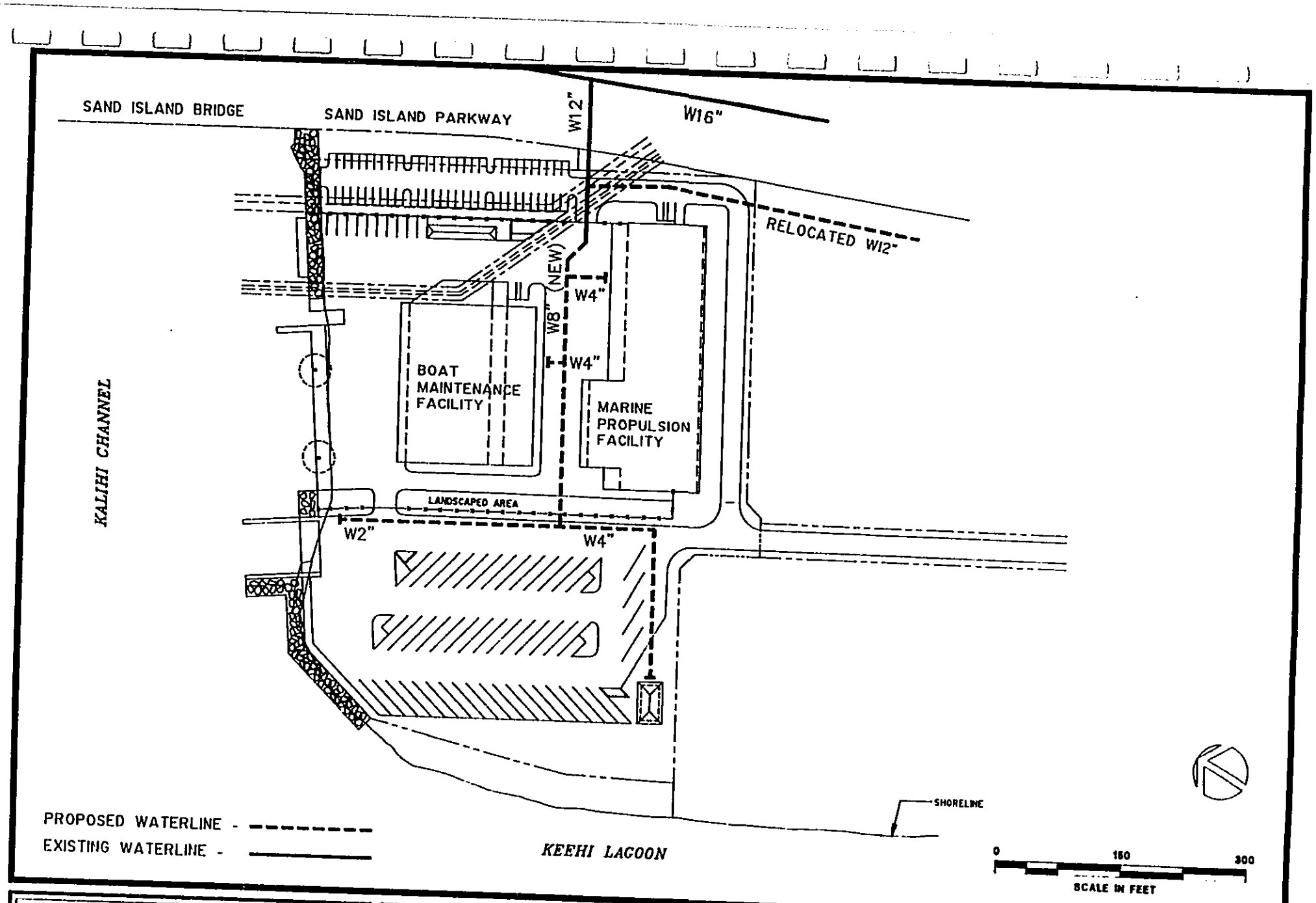

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Fig. 5-7

PROPOSED WATER SYSTEM

Prepared for :
HONOLULU WATERFRONT PROJECT
Prepared by :
Wilson Okamoto & Associates, Inc.

5.4.3.2 Wastewater System

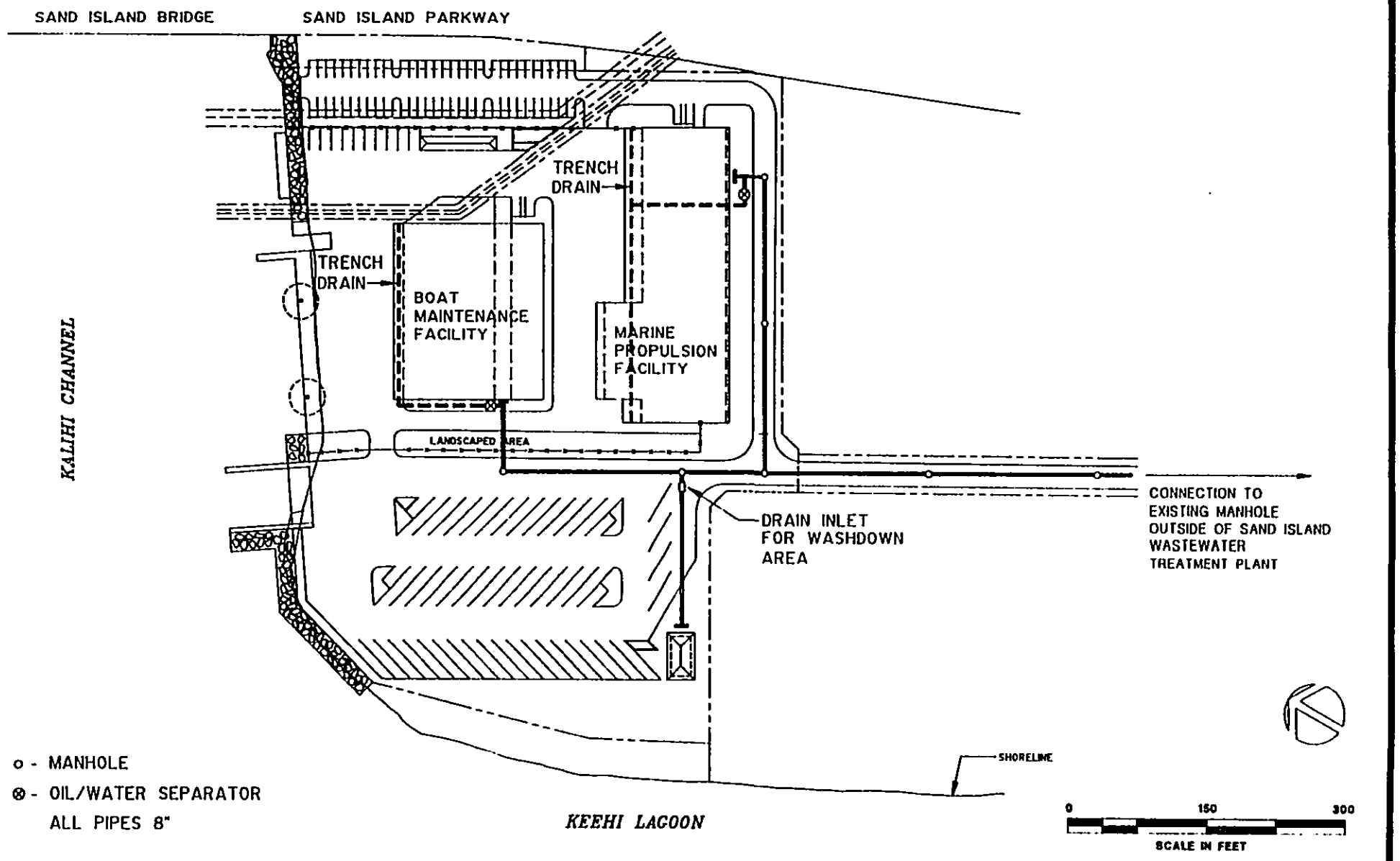
Sewage from the METC will be conveyed to the Sand Island Wastewater Treatment Plant for treatment and disposal. Maximum peak flows of 49,000 gallons per day are estimated based on the student and faculty population at the METC and the placement of the sewer line below the water table. Preliminary consultation with the City and County of Honolulu Department of Public Works indicates that the Plant has sufficient remaining capacity to accommodate the anticipated wastewater flows generated by the project.

The proposed collection system will use a combination of 8-inch gravity lines from the Marine Propulsion Facility, Boat Maintenance Facility, washdown area, and comfort station, to collect and convey the wastewater flow to an existing manhole located directly outside of the plant's main entrance (See Figure 5-8). A new drain inlet will be provided for the washdown area and will be designed to exclude storm runoff from the adjacent parking area. Additionally, trench drains and an oil/water separator designed for adequate capacity will be installed in both the Marine Propulsion Facility and the Boat Maintenance Facility, thereby preventing oil and other hazardous substances from reaching the municipal sewerlines. A hazardous waste management company will be contracted to properly dispose of waste oil substances off-site.

5.4.3.3 Drainage System

The parking lots and roadways proposed for the project will create impervious surface areas, thereby increasing the anticipated runoff from these surfaces onto nearby areas. The soil conditions of the project area are characterized by high porosity and permeability, which will minimize problems of flooding and ponding on adjacent areas.

As most of the surface area of the project will be paved to accommodate necessary functions, the proposed drainage system will be designed to collect surface runoff prior to eventual discharge into Keehi Lagoon. As determined by the Department of Health Clean Water Branch, no new industrial effluent will be



MARINE EDUCATION AND TRAINING CENTER

Fig. 5-8

PROPOSED SEWER SYSTEM

Prepared for :
HONOLULU WATERFRONT PROJECT
Prepared by :
Wilson Okamoto & Associates, Inc.

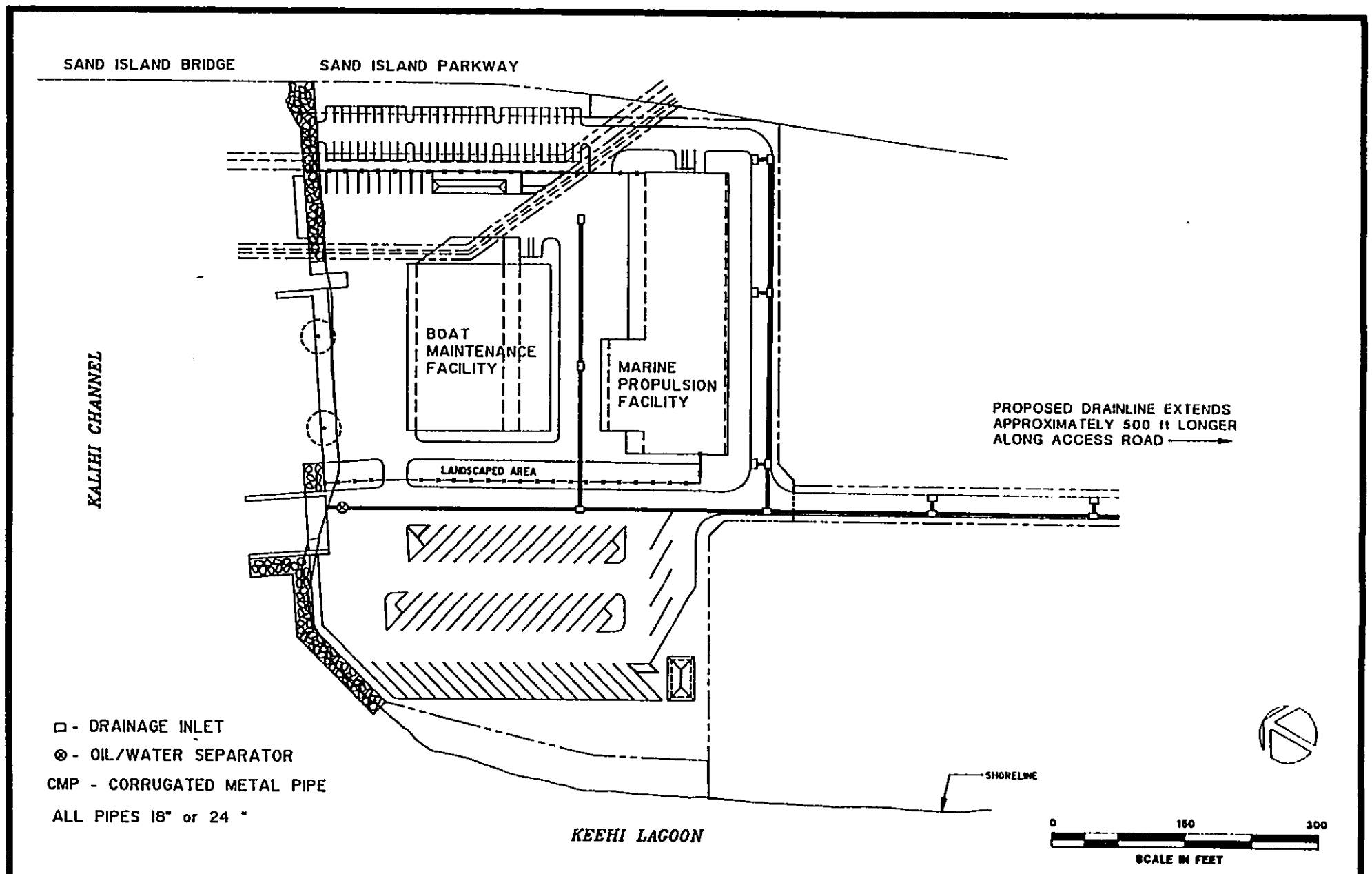
allowed into the drainage system for discharge into Kalihi Channel or Keehi Lagoon. Industrial discharge will be conveyed to oil/water separators whereupon wastewater will be conveyed to the wastewater system. Waste oil from the oil/water separator will be collected by a hazardous waste management company for proper disposal off-site.

Runoff within the METC parking area will be collected by catch basins which would then convey the water into the Kalihi Channel via a system of 18- and 24-inch drainlines (See Figure 5-9). The boat launch area will be graded to facilitate sheet flows to drainage inlets. As required by the City and County of Honolulu Department of Public Works, the washdown areas proposed for the project are planned for connection to the municipal sewer system to preclude discharge to the open ocean via storm drains. Storm runoff from the parking lot will also be designed to preclude entry to the drain inlet provided for the washdown area.

Surface runoff during the design storm is estimated at between approximately 1.1 to 3.8 cubic feet per second for various areas within the site. A National Pollutant Discharge Elimination System (NPDES) Permit for Stormwater Discharge will be required for the new drainage system.

5.4.3.4 Solid Waste Disposal

Solid waste generated from the project will likely be transported by private refuse collection service and either landfilled or disposed of at the H-Power Plant at Campbell Industrial Park. Alternative disposal sites include the Kalaheo Landfill in Kailua, the Waimanalo Gulch landfill near the Kahe Power Plant and the Waipahu Incinerator. Dedicated drop-off containers for aluminum, glass, and paper recycleables will be considered in the project's design. Since the METC and boat launch facilities will operate as separate entities, provisions for drop-off areas would be planned separately at or near the common refuse locations in each area. Where possible, locally-produced soil amendments such as top soil will be used for landscaping to divert material from the waste stream.



MARINE EDUCATION AND TRAINING CENTER

Fig. 5-9

PROPOSED DRAINAGE SYSTEM

Prepared for :
HONOLULU WATERFRONT PROJECT
Prepared by :
Wilson Okamoto & Associates, Inc.

Hazardous materials such as waste oil and waste solvent substances will be properly disposed of off-site by an authorized hazardous waste management company. Solvents which are used to clean engine parts will be collected and recycled off-site, whereupon solvents will be distilled and reused. Solvents used as paint thinners will be channeled through a recycler, forming a solid cake from impurities which are filtered from spent solvents. The solid cake is then discarded via proper procedures and the thinner may then be reused. Such recycling practices will preclude the entry of spent solvents into the sewer system. The use of chlorinated solvents such as TCE (trichloroethylene) and PCE (perchloroethylene) for the METC facility are not anticipated at this time.

5.4.3.5 Power and Communication Systems

Electrical service to Sand Island is provided by Hawaiian Electric Company. The existing system includes primary power at 12.5kV via an overhead line located along Sand Island Parkway Road. Electrical service within the METC will be provided throughout the site, and will be provided via underground lines.

Communication service to Sand Island is currently provided by GTE Hawaiian Telephone Company (GTE). Existing telephone lines originate from mainside via the Sand Island Bridge and Main Entrance Channel near the southern corner of Sand Island Park. A new remote office, however, is being planned to accommodate future development on the island. Additionally, improvements to the existing telephone system are anticipated to commence in 1994 or 1995, according to GTE.

Section 6

ALTERNATIVES TO THE PROPOSED ACTION

SECTION 6
ALTERNATIVES TO THE PROPOSED ACTION

6.1 Alternatives Considered

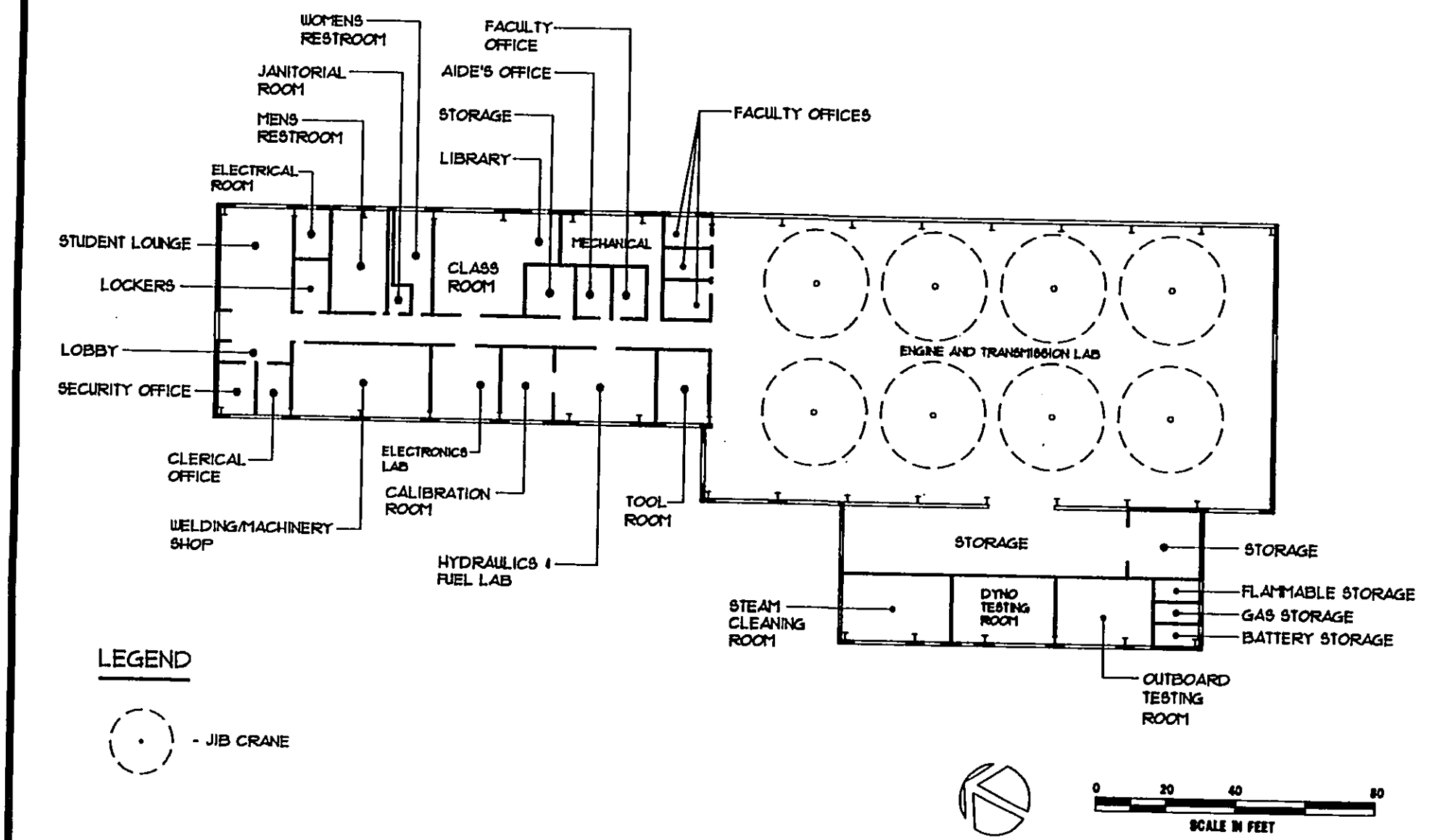
6.1.1 No-Action Alternative

The no-action alternative would maintain the project site in its current unimproved condition. Under this alternative the eventual development of the project site for an expanded boat launching facility and car/trailer parking area could occur as indicated in the original Sand Island Park plan, or an alternative type of marine educational use pursuant to the Honolulu Waterfront Master Plan.

The no-action alternative would preclude permit approvals, as well as costs for design and construction which would otherwise be required for the facility. The overall environmental impacts to the area would be avoided, but the area would continue to be under-utilized. Additionally, this alternative would not help fulfill governmental policies expressed in the Higher Education Functional Plan to provide post-secondary educational opportunities and resources, and in the Recreational Functional Plan to provide additional boat launching facilities. Further, the objectives stated in the Honolulu Waterfront Master Plan to incorporate a Marine Education and Training Center and boat launch facility would not be realized.

6.1.2 Marine Propulsion Facility Alternative Floor Plan

The currently-planned Marine Propulsion Facility has been designed to accommodate the HCC's existing Heavy Equipment Maintenance and Repair Program, which would be relocated to Sand Island upon development of the METC. An alternative to the proposed master plan is the notion of a *marine-only* facilities scheme for the Marine Propulsion Facility, shown in Figure 6-1. This scheme would retain the boat maintenance facility as proposed in the master plan, but would provide for a smaller marine propulsion facility. Under a marine-only scheme the Heavy Equipment Maintenance and Repair program, which deals primarily with land-based diesel equipment would be eliminated.



MARINE EDUCATION AND TRAINING CENTER

Fig. 6-1
MARINE PROPULSION FACILITY
ALTERNATE FLOOR PLAN

Prepared for :
HONOLULU WATERFRONT PROJECT
Prepared by :
Wilson Okamoto & Associates, Inc.

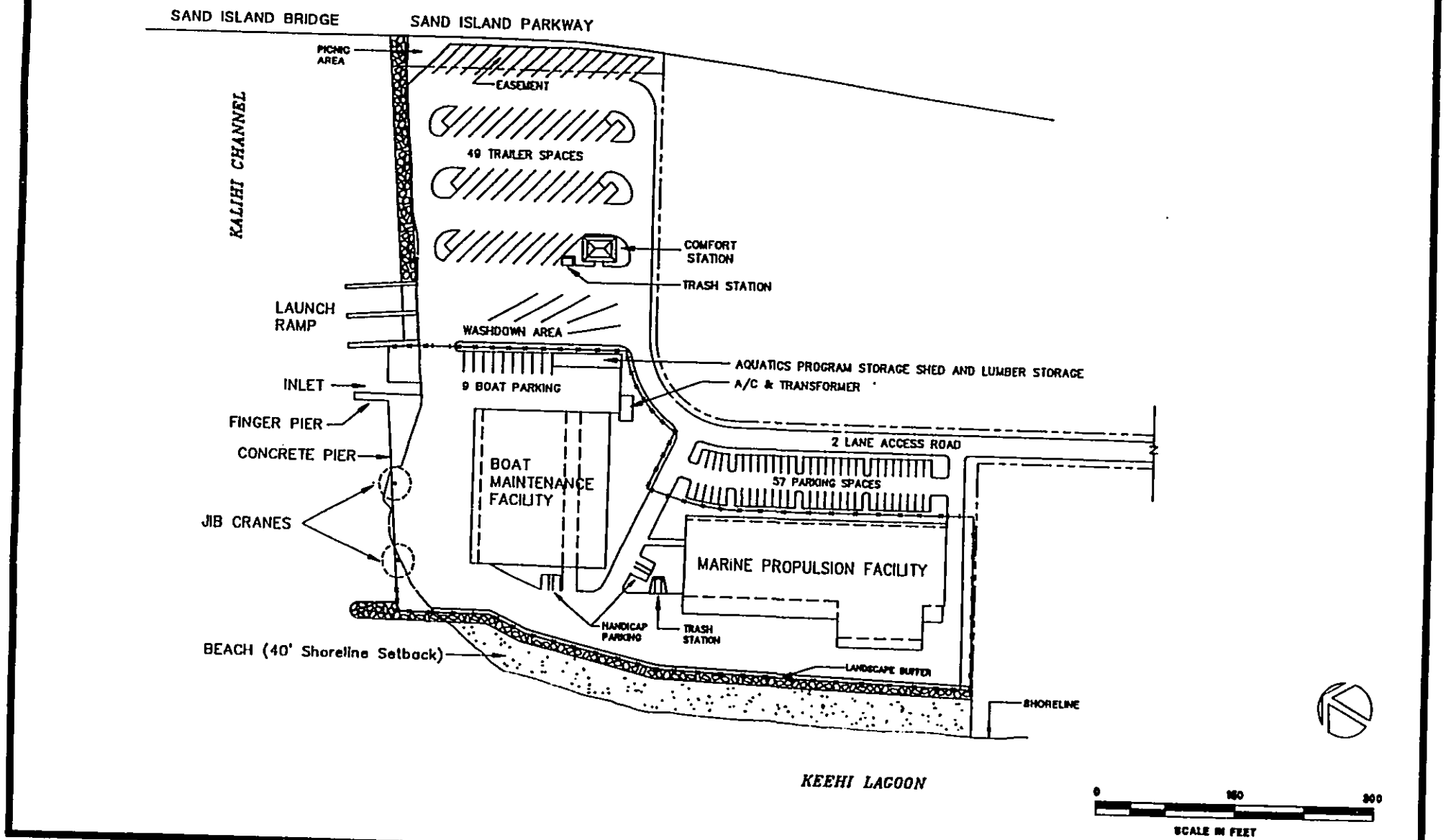
The heavy equipment diesel program would remain on the HCC campus in its present facility.

The marine-only propulsion facility would have a reduced building footprint but would still require approximately 25,700 square feet of floor area. The reduced floor area would result in an approximate savings of $2 million in construction costs. This would be offset, however, by the need to provide the facility with similar staff, tools, furniture, and support equipment currently used in the conventional diesel program. Thus, the advantages of consolidation would amount to disadvantages under this scenario and, as such, this alternative was not selected.

6.1.2 Alternative Site Configuration

A second alternative to the proposed master plan involves altering the configuration of the site as illustrated by Figure 6-2. The boat launch facility would be closer to Sand Island Parkway, and the METC facility on the southwestern corner of the project site. The METC automobile parking area would be located near the main entrance. Total project area would remain at eight acres, of which the boat launch facility would comprise about 2.5 acres and the METC facility would comprise 5.4 acres.

An advantage to this reconfiguration is that the siting of buildings would not be constrained by two existing easements containing fuel lines which span across the bulk fuel storage site. The disadvantage of this configuration is that buffer area between the shoreline and Marine Propulsion Facility would be reduced, and the building would be situated closer to the shoreline, thus increasing view impacts from offshore. Additionally, public access to the shore would be reduced, and circulation within the boat launch facility would not be as efficient, particularly in the washdown area. Moreover, concerns regarding safety and interference would arise as there would be greater potential for conflict, in and near the water, between users of the boat launch facility and the METC.



MARINE EDUCATION AND TRAINING CENTER

Fig. 6-2

ALTERNATIVE SITE CONFIGURATION

Prepared for :
HONOLULU WATERFRONT PROJECT
Prepared by :
Wilson Okamoto & Associates, Inc.

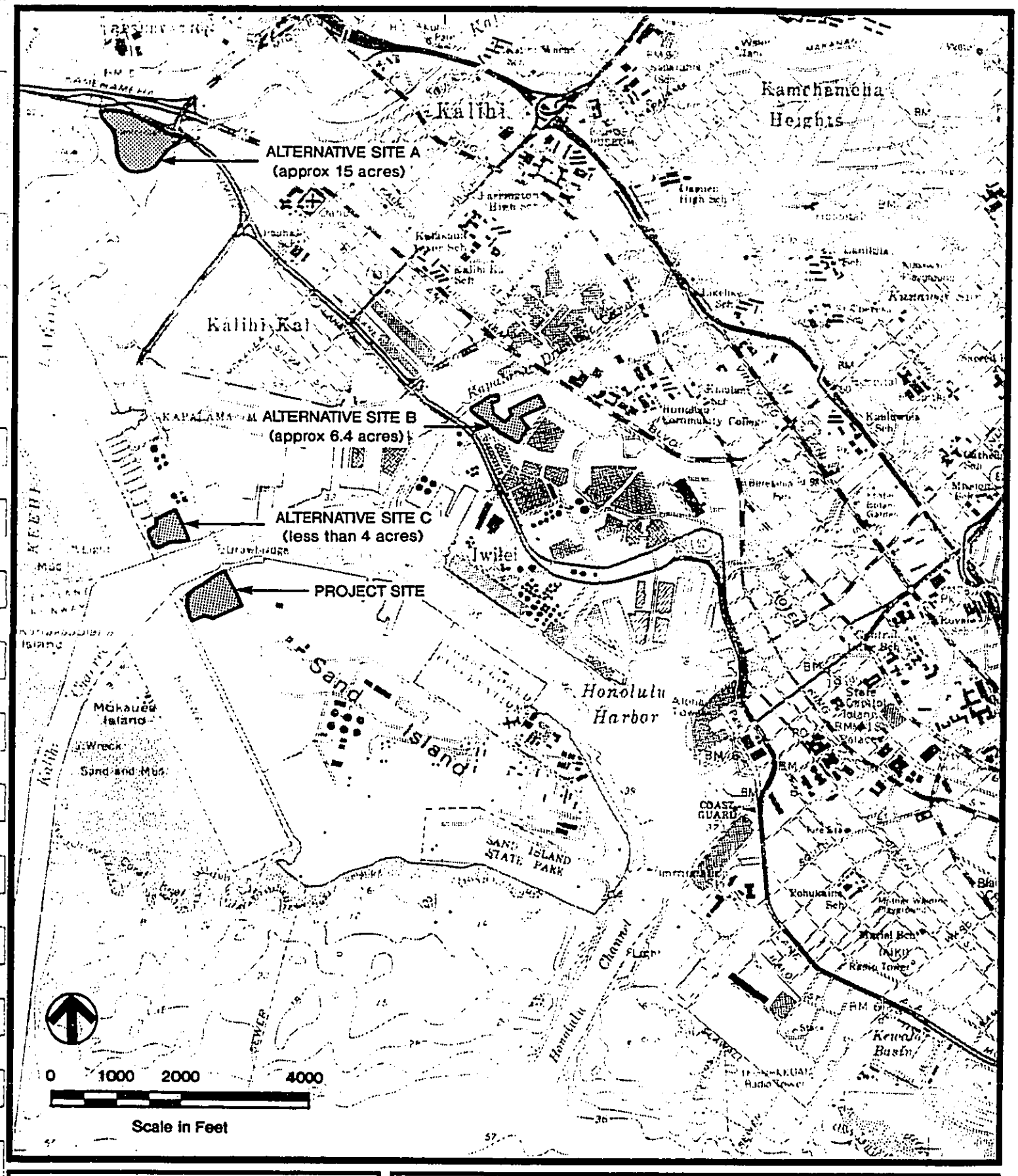
Following the initial planning phase of the Master Plan in 1991, DBED consulted with interested parties, including DOT-Harbors Division, DLNR Land Management and State Parks Divisions, Kalihi-Palama Neighborhood Board, and Kalihi-Palama Community Council. The consensus of these consultations was that this alternative configuration was undesirable primarily because of potential impacts to views and problems with public access, circulation and safety. The proposed master site plan was favored since it minimized view impacts particularly along the shoreline, increased interior buffer zones, and improved access, circulation and safety.

6.1.4 Alternative Project Sites

During the early planning stages of the project three alternative project sites illustrated in Figure 6-3 were considered including: A) an approximately 15-acre parcel under the jurisdiction of the Department of Land and Natural Resources at the confluence of Kalihi and Moanalua Streams (Tax Map Key 1-1-03:03); B) an estimated 6.4-acre parcel under the jurisdiction of the HCC on the Diamond Head side of Kapalama Canal between Dillingham Boulevard and Nimitz Highway (Tax Map Key 1-5-20:09); and C) a parcel less than 4 acres, under the jurisdiction of the Department of Transportation located on the Ewa side of Kalihi Channel juncture with the Keehi Lagoon Small Boat Harbor (TMK 1-2-25:por. 24).

Site A has considerable land area and is vacant, however access to the site via Nimitz Highway which is hampered due to one-way high speed traffic. In addition, the sewer system currently serving the area is at-capacity and would require significant improvements. There is currently no immediately access to deep water and its development would likely require significant dredging of Keehi Lagoon.

Site B offered sufficient land area and the infrastructure serving the site is considered adequate. However, the primary disadvantage of the site is the lack of access to the ocean. The Nimitz Highway bridge structure impedes traversing the Canal, and the Kapalama Canal would require significant dredging to achieve adequate depths. Vessels accessing the site would also pose a potential hazard to commercial harbor traffic.



MARINE EDUCATION
AND
TRAINING CENTER

Fig. 6-3

ALTERNATIVE PROJECT SITES

Prepared for :
HONOLULU WATERFRONT PROJECT

Prepared by :
Wilson Okamoto & Associates, Inc.

Site C would offer convenient access from Sand Island Access Road, and presents ready access to deep water. However, the site was not pursued mainly because of the limited available land area and its existing use. The site would provide less than four acres of land, which is less than that needed for the METC facility. Also, the site is occupied by an existing boat launch facility and the proposed project would displace a heavily-used water-related recreational resource. Further, the infrastructure serving the site is considered inadequate.

Sections 7 - 10

SHORT-TERM USES VS. LONG-TERM PRODUCTIVITY

IRREVERSIBLE AND IRRETRIEVABLE COMMITMENT OF RESOURCES

UNAVOIDABLE IMPACTS

UNRESOLVED ISSUES

SECTION 7
RELATIONSHIP BETWEEN LOCAL SHORT-TERM USES OF HUMANITY'S ENVIRONMENT AND THE MAINTENANCE AND ENHANCEMENT OF LONG-TERM PRODUCTIVITY

Implementation of the proposed project will involve short-term tradeoffs associated with environmental impacts during construction phases. While temporary impacts such as noise and dust generation, soil runoff and construction traffic will be minimized through appropriate mitigation measures, they may create minor disruptions in the vicinity of the project site. Also in conjunction with construction phases, temporary economic benefits will result from the construction expenditure and employment opportunities.

In the long-term, the METC facility will enhance provisions for specialized educational services provided by the State, and further increase employment opportunities for students enrolled in the facility. The public boat launch facility will supplement marine recreational resources in the Primary Urban Center by providing additional recreational boating capacity and services.

SECTION 8
IRREVERSIBLE AND IRRETRIEVABLE COMMITMENT OF RESOURCES THAT WOULD BE INVOLVED IN THE PROPOSED ACTION SHOULD IT BE IMPLEMENTED

Construction and operation of the proposed development will involve the irretrievable and irreversible commitment of a number of natural and fiscal resources. These resources will include land, capital, materials, manpower, and energy.

The development of the METC and boat launch facility will result in a commitment of land along this area of the shoreline for a long-term period. Once in a higher density developed state, it is unlikely that the land will be reverted to a lower usage in the near future. As paved open areas occupy most of the site in the vicinity of the boat launch facility, however, possibilies for future options are maintained.

Capital, material and manpower resources will be irretrievably committed to the planning, design and construction of the improvements. Energy and water are other valuable resources which will be required for the completion and operation of the project.

SECTION 9
PROBABLE ADVERSE ENVIRONMENTAL IMPACTS WHICH ARE UNAVOIDABLE

The development of the METC and boat launch ramp facility will not result in any significant adverse environmental impacts which cannot be avoided. The METC facility is consistent with State and County plans for the area, which intended marine education and boat launching uses for the site. The adverse environmental impacts, particularly to offshore coastal water quality, will be mitigated through compliance with State water quality regulations to minimize degration of coastal waters. Short-term water quality impacts during construction are unavoidable, but will be minimized to the extent practicable.

SECTION 10
SUMMARY OF UNRESOLVED ISSUES

Detailed design features of the project remain to be finalized and may undergo revisions in response to public and agency input and to conform to applicable land and water use permit requirements. Governmental financial resources may also affect the scope and timing of improvements.

Section 11

PARTIES CONSULTED FOR THE PREPARATION OF THE DEIS

SECTION 11
LIST OF PARTIES CONSULTED IN THE PREPARATION OF THE DEIS

The agencies, organizations, and individuals listed below were sent copies of EISPN with a request for their comments on the the project. Of those who formally replied, some had no comments while others provided substantive comments as indicated by the ✓ and ✓✓, respectively. All written comments and responses are reproduced herein.

Federal Agencies

✓ Department of the Army, Pacific Ocean Division
Department of the Interior, Fish and Wildlife Service
✓ Department of the Interior, Geological Survey, Water Resources Division
Department of the Interior, National Park Service
U.S. Coast Guard
National Marine Fisheries Service
Federal Aviation Administration, Airport District Office

State Agencies

✓ Department of Accounting and General Services
✓✓ Department of Land and Natural Resources
✓✓ Department of Health
✓✓ Department of Transportation, Airports, Highways, and Harbors Divisions
Office of State Planning

University of Hawaii

University of Hawaii Environmental Center
✓ University of Hawaii Campus Center Board (Aquatics Program)
Honolulu Community College

City and County of Honolulu Agencies

✓✓ Department of General Planning
✓✓ Department of Land Utilization
✓✓ Department of Parks and Recreation
✓ Department of Transportation Services
✓✓ Board of Water Supply
✓✓ Department of Public Works
✓ Fire Department
✓ Police Department

Public Utility Agencies

✓ Hawaiian Electric Company, Inc.
GTE Hawaiian Telephone
Hawaiian Independent Refinery, Inc.
✓✓ Lockheed Air Terminal, Inc.
(on behalf of Hawaii Fueling Facilities Corporation)

Other Interested Parties

Downtown Neighborhood Board #13
Kalihi - Palama Neighborhood Board #15
Kalihi - Palama Community Council

United States Department of the Interior

GEOLOGICAL SURVEY
WATER RESOURCES DIVISION
677 Ala Moana Boulevard, Suite 415
Honolulu, Hawaii 96813

October 24, 1991

Honolulu Waterfront Project
Department of Business,
Economic Development & Tourism
Attn: Ed Marcus
P.O. Box 2359
Honolulu, Hawaii 96804

Dear Mr. Marcus:

Subject: Sand Island Marine Education and Training Center, and Public Boat Launch Facility Environmental Impact Statement (EIS)

The U.S. Geological Survey, Water Resources Division, Honolulu District Office has reviewed the subject EIS and has no comments.

Thank you for the opportunity to review this document.

Sincerely,

William Meyer,
District Chief

JOHN WAIHEE
Governor
MURRAY E. TOWILL
Director
BARBARA KIM STANTON
Deputy Director
RICE EGGED
Deputy Director
TAKESHI YOSHIHARA
Deputy Director

DEPARTMENT OF BUSINESS, ECONOMIC DEVELOPMENT & TOURISM

Central Pacific Plaza, 220 South King Street, 11th Floor, Honolulu, Hawaii
Mailing Address: P.O. Box 2359, Honolulu, Hawaii 96804 Telephone: (808) 586-2406 Fax: (808) 586-2377

Ref. No. W-1075

December 6, 1991

Mr. William Meyer, District Chief
Honolulu District Office
U. S. Geological Survey
Water Resources Division
United States Department of the Interior
677 Ala Moana Boulevard, Suite 415
Honolulu, Hawaii 96813

Dear Mr. Meyer:

Subject: Sand Island Marine Education and Training Center
and Public Boat Launch Facility
Environmental Impact Statement Preparation Notice
Tax Map Key 1-5-41: por. 6 and 130
Sand Island, Oahu, Hawaii

Thank you for your October 24, 1991 letter indicating that you have no comments regarding the subject project. Your letter will be included in the forthcoming Draft Environmental Impact Statement.

We appreciate you interest and participation in the consultation phase of the environmental review process. If you should have any questions regarding the project, please contact Ed Marcus, Waterfront Project Manager, at 586-2532.

Sincerely,

Murray E. Towill
Director

cc: Office of Environmental Quality Control

DEPARTMENT OF THE ARMY
U S ARMY ENGINEER DISTRICT, HONOLULU
FT SHAFTER, HAWAII 96858-5440

REPLY TO ATTENTION OF

November 15, 1991

Planning Division

Honolulu Waterfront Project
Department of Business, Economic
Development & Tourism
Attention: Mr. Ed Marcus
P.O. Box 2359
Honolulu, Hawaii 96804

Dear Sir/Madam:

We have reviewed the Environmental Impact Statement Preparation Notice (EISPN) for the proposed Marine Education and Training Center and Public Boat Launch Facility, Sand Island, Oahu. The following comments are provided pursuant to Corps of Engineers authorities to disseminate flood hazard information under the Flood Control Act of 1960 and to issue Department of the Army (DA) permits under the Clean Water Act; the Rivers and Harbors Act of 1899; and the Marine Protection, Research and Sanctuaries Act.

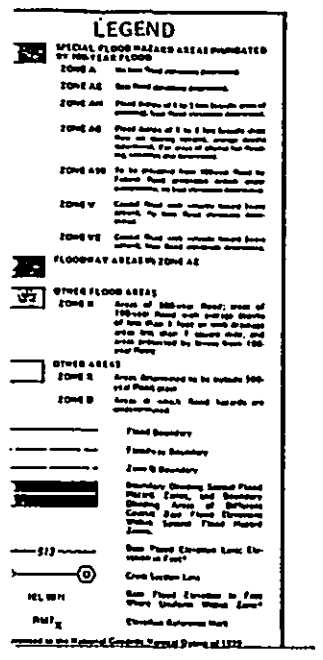
a. All work in the waters will require a DA permit. Contact Operations Division (telephone 438-9258) for further information.

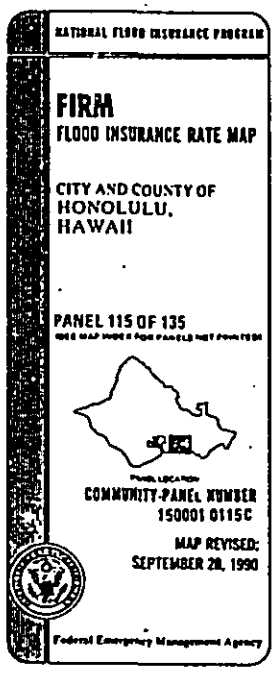
b. The flood hazard information presented on page 3-3 of the EISPN is correct; however, the current Flood Insurance Rate Map (FIRM) dated September 28, 1990 (copy enclosed) should be cited instead of the September 4, 1987 FIRM. The citation of the FIRM on page 8-1 should also be updated.

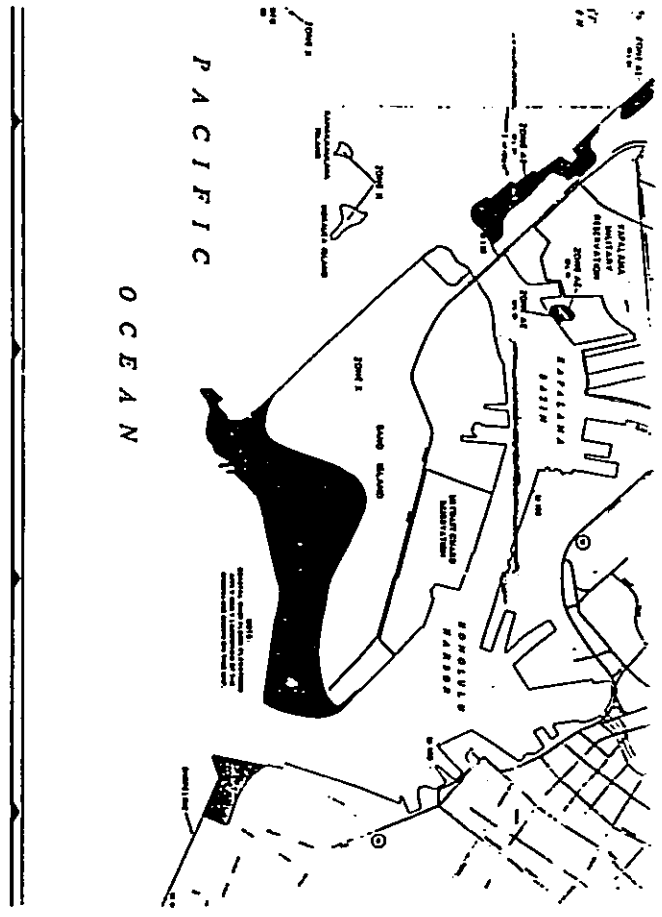
Sincerely,

Eisuk Cheung, P.E.
Director of Engineering

Enclosure







JOHN WAIHEE
Governor
MURRAY E. TOWILL
Director
BARBARA KIM STANTON
Deputy Director
RICK EGGED
Deputy Director
TAKESHI TOSHIHARA
Deputy Director

DEPARTMENT OF BUSINESS,
ECONOMIC DEVELOPMENT & TOURISM

Central Pacific Plaza, 220 South King Street, 11th Floor, Honolulu, Hawaii
Mailing Address: P.O. Box 2359, Honolulu, Hawaii 96804 Telephone: (808) 586-2408 Fax: (808) 586-2377

Ref. No. W-1071

December 6, 1991

Mr. Kisuk Cheung, P.E.
Director of Engineering
Department of the Army
U. S. Army Engineer District, Honolulu
Fort Shafter, Hawaii 96858-5440

Dear Mr. Cheung:

Subject: Sand Island Marine Education and Training Center
and Public Boat Launch Facility
Environmental Impact Statement Preparation Notice
Tax Map Key 1-5-41: por. 6 and 130
Sand Island, Oahu, Hawaii

Thank you for your November 15, 1991 letter regarding the subject project. We understand that all work in waters surrounding the project will require a Department of the Army permit. The updated citation for the Flood Insurance Rate Map will be reflected in the forthcoming Draft Environmental Impact Statement.

Your letter will be included in the Draft Environmental Impact Statement. We appreciate you interest and participation in the consultation phase of the environmental review process. If you should have any questions regarding the project, please contact Ed Marcus, Waterfront Project Manager, at 586-2532.

Sincerely,

Murray E. Towill
Director

cc: Office of Environmental Quality Control

JOHN WAIHEE
GOVERNOR

STATE OF HAWAII
DEPARTMENT OF ACCOUNTING AND GENERAL SERVICES
DIVISION OF PUBLIC WORKS
P. O. BOX 119, HONOLULU, HAWAII 96810

RUSSEL S. NAGATA
COMPTROLLER
ROBERT O. YAMASHITA
DEPUTY COMPTROLLER

LETTER NO. (P)2183.1

NOV 5 1991

Honolulu Waterfront Project
Department of Business,
Economic Development and Tourism
State of Hawaii
Honolulu, Hawaii

Attention: Mr. Ed Marcus

Gentlemen:

Subject: Sand Island Marine Education and Training Center, and Public Boat Launch Facility EIS Preparation Notice

Thank you for the opportunity to review the subject document. We have no comments to offer.

If there are any questions, please have your staff contact Mr. Ralph Yukumoto of the Planning Branch at 548-7192.

Very truly yours,

TEUANE TOMINAGA
State Public Works Engineer

RY:jk

JOHN WAIHEE
Governor

DEPARTMENT OF BUSINESS, ECONOMIC DEVELOPMENT & TOURISM

MURRAY E. TOWILL
Director

BARBARA KIM STANTON
Deputy Director

RICK EGGED
Deputy Director

TAKEMI YOSHINAGA
Deputy Director

Central Pacific Plaza, 220 South King Street, 11th Floor, Honolulu, Hawaii
Mailing Address: P.O. Box 2359, Honolulu, Hawaii 96804 Telephone: (808) 586-2408 Fax: (808) 586-2377

Ref. No. W-1072

December 6, 1991

Mr. Teuane Tominaga
State Public Works Engineer
Division of Public Works
Department of Accounting and General Services
P. O. Box 119
Honolulu, Hawaii 96810

Dear Mr. Tominaga:

Subject: Sand Island Marine Education and Training Center
and Public Boat Launch Facility
Environmental Impact Statement Preparation Notice
Tax Map Key 1-5-41: por. 6 and 130
Sand Island, Oahu, Hawaii

Thank you for your November 5, 1991 letter indicating that you have no comments regarding the subject project. Your letter will be included in the forthcoming Draft Environmental Impact Statement.

We appreciate you interest and participation in the consultation phase of the environmental review process. If you should have any questions regarding the project, please contact Ed Marcus, Waterfront Project Manager, at 586-2532.

Sincerely,

Murray E. Towill
Director

cc: Office of Environmental Quality Control

University of Hawaii at Manoa

Bureau of Student Activities
Campus Center • 2465 Campus Road
Honolulu, Hawaii 96822

November 14, 1991

Mr. Ed Marcus
Honolulu Waterfront Project
Department of Business, Economic
Development & Tourism
P. O. Box 2359
Honolulu, Hawaii 96804

Dear Mr. Marcus:

After reviewing the EIS Preparation Notice sent to us on October 15, 1991, Andy Johnson, Assistant Director of Leisure Programs, and I concur that the plan's provisions more than adequately addresses the programmatic needs of the University's Campus Center Board Outdoor Leisure Program. One suggestion we have is to provide running water to wash down boats on the floating dock and boat parking areas. We are very happy to be part of this planning process and appreciate the opportunity to comment.

Sincerely,

Jan Javinar
Associate Director - Leadership
Development Programs

JMJ:cf

AN EQUAL OPPORTUNITY EMPLOYER

JOHN WAIHEE
Governor
MURRAY E. TOWILL
Director
BARBARA KIM STANTON
Deputy Director
RICK EGGED
Deputy Director
TAKESHI YOSHIHARA
Deputy Director

DEPARTMENT OF BUSINESS, ECONOMIC DEVELOPMENT & TOURISM

Central Pacific Plaza, 220 South King Street, 11th Floor, Honolulu, Hawaii
Mailing Address: P.O. Box 2359, Honolulu, Hawaii 96804 Telephone: (808) 586-2408 Fax: (808) 586-2377

Ref. No. W-1070

December 6, 1991

Mr. Jan Javinar, Associate Director
Leadership Development Programs
Bureau of Student Activities
University of Hawaii at Manoa
2465 Campus Center Road
Campus Center, Room 211
Honolulu, Hawaii 96822

Dear Mr. Javinar:

Subject: Sand Island Marine Education and Training Center
and Public Boat Launch Facility
Environmental Impact Statement Preparation Notice
Tax Map Key 1-5-41: por. 6 and 130
Sand Island, Oahu, Hawaii

Thank you for your November 14, 1991 letter indicating that the subject document adequately addresses your program needs. The suggestion to provide a water line to service the Aquatic Program's floating dock and boat parking area will be incorporated in the facility design.

Your letter will be included in the forthcoming Draft Environmental Impact Statement. We appreciate you interest and participation in the consultation phase of the environmental review process. If you should have any questions regarding the project, please contact Ed Marcus, Waterfront Project Manager, at 586-2532.

Sincerely,

Murray E. Towill
Director

cc: Office of Environmental Quality Control

JOHN WAIHEE
GOVERNOR OF HAWAII

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
P. O. BOX 621
HONOLULU, HAWAII 96809

WILLIAM W. PATY, CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES

DEPUTIES
KEITH W. AHUE
MANABU TAGOMORI
Dan T. Kochi

AQUACULTURE DEVELOPMENT PROGRAM
AQUATIC RESOURCES
CONSERVATION AND ENVIRONMENTAL AFFAIRS
CONSERVATION AND RESOURCES ENFORCEMENT
CONVEYANCES
FORESTRY AND WILDLIFE
HISTORIC PRESERVATION PROGRAM
LAND MANAGEMENT
STATE PARKS
WATER AND LAND DEVELOPMENT

FILE NO.: 92-251
DOC. NO.: 2089E

NOV 25 1991

MEMORANDUM

TO: The Honorable Murray E. Towill, Director
Department of Business, Economic Development & Tourism

FROM William W. Paty, Chairperson
Board of Land and Natural Resources

SUBJECT: Environmental Impact Statement Preparation Notice (EISPN)
for Sand Island Marine Education and Training Center, and
Public Boat Launch Facility

Thank you for giving our Department the opportunity to comment on this matter. We have reviewed the submitted EISPN for a Marine Training and Education Center and have the following comments.

Brief Description:

This Environmental Impact Statement Preparation Notice was prepared in support of a proposed Marine Education and Training Center (METC) at Sand Island, Oahu. The METC is an educational facility proposed by the Honolulu Community College (HCC) to provide training programs for the repair and maintenance of marine vessels and engines. Also planned within the 8-acre project site is a public boat launch facility to be developed by the State Department of Transportation, Harbors Division. The METC project site will also accommodate the University of Hawaii's Aquatics Program, which provides instruction in activities such as sailing, windsurfing and water safety. The project is sponsored by the DBEDT which is charged with implementing the Honolulu Waterfront Master Plan.

DIVISION OF AQUATIC RESOURCES COMMENTS:

In order to properly evaluate the project from an aquatic resources standpoint, the forthcoming EIS should address the impact of the project on the baitfish and recreational fisheries in Keehi Lagoon.

DIVISION OF STATE PARKS COMMENTS:

On October 17, 1991, we sent a memorandum to the Office of State Planning regarding the "Marine Education and Training Center Master Plan" dated July 1991. We supported the alternate site configuration (Fig. 4-13) as shown within the planning report, which was also supported by the Kalihi Palama Community Council at their meeting of October 7, 1991.

HISTORIC PRESERVATION DIVISION COMMENTS:

These parcels are fill land. Therefore, we believe that this project will have "no effect" on historic sites.

OFFICE OF CONSERVATION AND ENVIRONMENTAL AFFAIRS COMMENTS:

As stated in section 6.5.3 of the submitted EISPN, a Conservation District Use Application (CDUA) is required for the use of submerged land pursuant to Chapter 183, HRS and Title 13, Chapter 2 of the Department's Administrative Rules.

Conservation lands to be used by the METC include the shoreline and submerged lands for the boat ramp, concrete pier, jib cranes finger pier, and inlet which will run along the southwest face of Sand Island along Kalihi Channel.

Because the CDUA process can run as long as six months, we recommend that you submit an application upon completion of the Draft Environmental Impact Statement or sooner.

Thank you for your cooperation in this matter. Please feel free to call me or Sam Lemmo at our Office of Conservation and Environmental Affairs, at 587-0377, should you have any questions.

WILLIAM W. PATY

cc: Honolulu Waterfront Project
DBED&T

JOHN WAIHEE
Governor
MURRAY E. TOWILL
Director
BARBARA KIM STANTON
Deputy Director
RICK EGGED
Deputy Director
TAKESHI YOSHIHARA
Deputy Director

DEPARTMENT OF BUSINESS, ECONOMIC DEVELOPMENT & TOURISM

Central Pacific Plaza, 220 South King Street, 11th Floor, Honolulu, Hawaii
Mailing Address: P.O. Box 2359, Honolulu, Hawaii 96804 Telephone: (808) 586-2408 Fax: (808) 586-2377

Ref. No. W-1094

December 31, 1991

MEMORANDUM

TO: The Honorable William W. Paty, Director
Department of Land and Natural Resources

SUBJECT: Sand Island Marine Education and Training Center and Public Boat Launch Facility Environmental Impact Statement Preparation Notice
Tax Map Key 1-5-41: por. 6 and 130
Sand Island, Oahu, Hawaii

Thank you for your November 25, 1991 memorandum regarding the subject project. We offer the following response to your comments.

1) As recommended by the Division of Aquatic Resources, the impact of the project on baitfish and recreational fisheries in Keehi Lagoon will be addressed in the Draft Environmental Impact Statement (DEIS).

2) The Division of State Parks support for the then "alternative site configuration" in our draft master plan report led to our changing the proposed site plan to reflect this alternative, which we agree would have less adverse aesthetic impact on the adjacent park and shoreline area.

3) The Historic Preservation Division's comment that the project is expected to have "no effect" on historic sites is duly noted.

4) As recommended by the Office of Conservation and Environmental Affairs, the Conservation District Use Application for shoreline activities will be submitted as soon as practical upon completion of the DEIS.

We appreciate your participation in the consultation phase of the environmental review process. Your memorandum will be included in the forthcoming Draft Environmental Impact Statement. If you should have any questions regarding the project, please have your staff contact Ed Marcus, Waterfront Project Manager, at 586-2532.

Murray E. Towill
Director

cc: Office of Environmental Quality Control

JOHN WAIHEE
GOVERNOR

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
869 PUNCHBOWL STREET
HONOLULU, HAWAII 96813-5097

REX D. JOHNSON
DIRECTOR

DEPUTY DIRECTORS
JOYCE T. OMINE
AL PANG
JEANNE K. SCHULTZ
CALVIN M. TSUDA

IN REPLY REFER TO:

December 12, 1991 HAR-EP 1554.92

To: The Honorable Murray E. Towill, Director
Department of Business, Economic Development
and Tourism

From: Rex D. Johnson, Director
Department of Transportation

Subject: SAND ISLAND MARINE EDUCATION AND TRAINING CENTER, AND PUBLIC BOAT LAUNCH FACILITY EIS PREPARATION NOTICE

Thank you for your memo of October 15, 1991, requesting our review and comments on the subject project.

Our comments are as follows:

1. Figure 4 SITE MASTER PLAN

   The ramp should be located further makai so that tow vehicle and boat trailers can be straightened out prior to backing down the ramp.

   The washdown area should be located closer to the water to avoid drainage in the parking lot, comfort station and picnic area.

   Additional space should be provided for passenger car parking adjacent to the comfort station.

   A strip of the proposed project that runs along Sand Island Parkway appears to be on the highway right-of-way and will require an easement.

2. SUMMARY, Pages i-ii, fourth paragraph, first sentence, should be revised to read:

   "Access to the facility will be off of the Sand Island Parkway Road at the first traffic light after the bridge."

3. PROJECT DESCRIPTION, 2.2.3.1 DOT Boat Launch Facility, second sentence should be revised to read:

"The DOT will provide a double lane ramp for launching marine vessels, and an adjacent parking lot to be used primarily for trailer parking."

4. PROJECT DESCRIPTION, 2.3.3 Drainage System, EPA storm water permit requirement will have to be met.

5. EXISTING CONDITIONS, 3.2.1 Surrounding Uses, first sentence should be revised to read:

   "There are a number of different land uses on Sand Island, including the Sand Island State Park, State container handling facilities, U.S. Coast Guard facility, and Sand Island Wastewater Treatment Plant."

JOHN WAIHEE
Governor
MURRAY E. TOWILL
Director
BARBARA KIM STANTON
Deputy Director
NICK EGGED
Deputy Director
TAKESHI YOSHIHARA
Deputy Director

DEPARTMENT OF BUSINESS, ECONOMIC DEVELOPMENT & TOURISM

Central Pacific Plaza, 220 South King Street, 11th Floor, Honolulu, Hawaii
Mailing Address: P.O. Box 2359, Honolulu, Hawaii 96804 Telephone: (808) 586-2408 Fax: (808) 586-2377

Ref. No. W-1112

February 6, 1992

MEMORANDUM

TO: The Honorable Rex D. Johnson, Director
Department of Transportation

SUBJECT: Sand Island Marine Education and Training Center and Public Boat Launch Facility Environmental Impact Statement Preparation Notice
Tax Map Key 1-5-41: por. 6 and 130
Sand Island, Oahu, Hawaii

Thank you for your December 12, 1991 memorandum regarding the subject project. We offer the following response to your comments:

1) Preparation of the site master plan for the boat launch facility was coordinated with the Department of Transportation (DOT) prior to it being finalized. The location of the washdown area and parking was based on previous input provided by DOT. To eliminate the direct discharge of water from the washdown area into Keehi Lagoon, the washdown area was sited over a proposed wastewater line to allow connection to the municipal sewer system via a drainage inlet. Your design suggestions will be addressed during the design phase and will be closely coordinated with DOT.

2) The Draft Environmental Impact Statement (DEIS) will incorporate your suggested language changes regarding vehicle access and the boat launch facility.

3) The requirement for a National Pollutant Discharge Elimination System (NPDES) Permit for the project is acknowledged and will be referenced in the DEIS.

4) As recommended, the discussion of surrounding uses will reflect that the Matson and Sea-Land container facilities are on State-owned land.

We appreciate your interest and participation in the consultation phase of the environmental review process. Your letter will be included in the forthcoming DEIS. If you should have any questions regarding the project, please have your staff contact Ed Marcus, Waterfront Project Manager, at 586-2532.

Murray E. Towill
Director

cc: Calvin Tsuda
Office of Environmental Quality Control

JOHN WAIHEE
GOVERNOR OF HAWAII

STATE OF HAWAII
DEPARTMENT OF HEALTH
P. O. BOX 3378
HONOLULU, HAWAII 96801

JOHN C. LEWIN, M.D.
DIRECTOR OF HEALTH

December 18, 1991

In reply, please refer to:
91-394/epo

To: The Honorable Murray E. Towill, Director
Department of Business, Economic Development and Tourism

Attention: Ed Marcus
Honolulu Waterfront Project

From: John C. Lewin, Director
Department of Health

Subject: COMMENTS ON THE ENVIRONMENTAL IMPACT STATEMENT PREPARATION NOTICE FOR THE SAND ISLAND MARINE EDUCATION AND TRAINING CENTER AND PUBLIC BOAT LAUNCH FACILITY

Thank you for the opportunity to review and comment on the subject project. We have the following comments to offer:

Water Pollution

1. A stormwater National Pollutant Discharge Elimination System (NPDES) permit application is required for construction activities which involve the clearing, grading, and evacuation of more than five (5) acres of total land area. This application should be submitted to the Director of Health at least 90 days before the date on which construction is to commence.

2. The document should describe the point source discharge(s) that will require an NPDES permit. The document should also discuss the treatment or control measures to be applied.

3. The document should describe the proposed action that will involve a Clean Water Act Section 401 Water Quality Certification from the Department of Health. Associated treatment or control measures should also be discussed.

4. The proposed project site is located adjacent to marine waters, namely: Honolulu Harbor and Keehi Lagoon. The Honolulu Harbor and Keehi Lagoon are both classified as a Class A Embayment under Hawaii Administrative Rules, Chapter 11-54, Water Quality Standards, Section 11-54-06(a)(2)(B). The Class A water uses to be protected include recreation, aesthetic enjoyment, and the protection and propagation of fish, shellfish and wildlife. Section 11-54-03(c)(2) specifies that no new industrial discharges shall be permitted within the Honolulu Harbor and Keehi Lagoon Marina Area, with the exception of acceptable non-contact thermal and floating drydock or marine railway discharges. The specific and recreational water quality criteria applicable to the Honolulu Harbor and Keehi Lagoon are

listed in Sections 11-54-06(a)(3) and 11-54-08(b), respectively. Honolulu Harbor and Keehi Lagoon have been identified as water quality-limited segments in Hawaii's Assessment of Nonpoint Source Pollution Water Quality Problems (Hawaii State Department of Health, November 1990). This means that nitrogen, phosphorus, and turbidity levels have been found to regularly exceed the State water quality standards.

The document should address the anticipated impacts of the proposed action with respect to the above applicable water quality standards and concerns.

If you should have any questions on this matter, please contact Mr. Mark Tomomitsu, Engineering Section of the Clean Water Branch at 586-4309.

Wastewater

It has been determined that the subject area is located within the County sewer service system. As such, we have no objections to the proposed education and training center and launch facility provided that the project is connected to the public sewer.

If you should have any questions on this matter, please contact Ms. Lori Kajiwara of the Wastewater Branch at 586-4290.

Underground Storage Tanks

1. It is not clear whether underground storage tanks (USTs) are to be installed at the proposed facility. It has been our experience that USTs are commonly installed at maintenance facilities in order to store petroleum and used (waste) oil.

2. If USTs are to be installed at the proposed facility, the applicant should realize that owners and operators of USTs used to store petroleum products are subject to the federal UST rules and regulations as set forth in Title 40 of the Code of Federal Regulations Part 280 (Attachment A). These regulations include requirements for:

   A. Design, construction, installation, and notification;
   B. General operating requirements;
   C. Release detection;
   D. Release reporting, investigation, and confirmation;
   E. Release response and corrective action;
   F. Changes-in-service and closure; and
   G. Financial responsibility requirements.

3. The applicant should also be aware that the Department of Health must be notified of the existence of new tanks within 30 days of bringing the system into use. Notification is made by completing and submitting the enclosed "Notification for Underground Storage Tank" EPA Form 7530-1 (Attachment B).

4. The installation of UST systems containing flammable and combustible liquids is also subject to regulation by the City and County of Honolulu Fire Department. The Honolulu

Fire Prevention Bureau should be contacted regarding any county requirements that may exist governing UST systems.

If you should have any questions on this matter, please contact our Storage Tank Section, Solid and Hazardous Waste Branch, at 586-4224.

Hazardous Wastes

1. Page 2-2 of the document describes the proposed "Boat Maintenance and Marine Propulsion Facilities" to be built, along with shop areas. Although the shop areas will be used for educational purposes by the Honolulu Community College to provided training programs for the repair and maintenance of marine vessels and engines, hazardous wastes is commonly generated in these types of activities. Potential hazardous waste may include sandblast grit contaminated with lead, paints, oils, strippers and other solvents.

2. Future operators of the above facilities should realize that hazardous waste generated by these shops may be subject to the federal rules and regulations as set forth in Title 40 of the Code of Federal Regulations Part 260 to 268. Once the facilities are operational, facility managers should determine whether their waste is hazardous and notify the U.S. Environmental Protection Agency of their hazardous waste activities, and obtain an EPA ID identification number.

If you should have any questions regarding hazardous wastes and the identification number, please contact Mr. Jose Ruiz of 586-4226.

Noise

Activities associated with the construction phase of the project must comply with the provisions of Department of Health Administrative Rules, Chapter 11-43, Community Noise Control for Oahu.

1. The contractor must obtain a noise permit if the noise levels from the construction and landscaping activities are expected to exceed the allowable levels of the rules.

2. Construction equipment and on-site vehicles requiring an exhaust of gas or air must be equipped with mufflers.

3. The contractor must comply with the requirements specified in the rules and conditions issued with the permit.

If you should have any questions on this matter, please contact Mr. Jerry Haruno of the Noise and Radiation Branch at 548-3075.

Attachments

c: Wastewater Branch
Solid and Hazardous Waste Branch
Clean Water Branch

JOHN WAIHEE
Governor
MURRAY E. TOWILL
Director
BARBARA KIM STANTON
Deputy Director
RICE EGGED
Deputy Director
TAKESHI YOSHIHARA
Deputy Director

DEPARTMENT OF BUSINESS, ECONOMIC DEVELOPMENT & TOURISM

Central Pacific Plaza, 220 South King Street, 11th Floor, Honolulu, Hawaii
Mailing Address: P.O. Box 2359, Honolulu, Hawaii 96804 Telephone: (808) 586-2408 Fax: (808) 586-2377

Ref. No. W-1113

February 6, 1992

MEMORANDUM

TO: The Honorable John C. Lewin, Director
Department of Health

SUBJECT: Sand Island Marine Education and Training Center and Public Boat Launch Facility Environmental Impact Statement Preparation Notice
Tax Map Key 1-5-41: por. 6 and 130
Sand Island, Oahu, Hawaii

Thank you for your December 18, 1991 memorandum regarding the subject project. We offer the following response to your comments:

Water Pollution

The requirement for a storm water National Pollutant Discharge Elimination System (NPDES) permit for clearing, grading, and excavation activities associated with the proposed project is acknowledged and will be referenced. The Draft Environmental Impact Statement (DEIS) will discuss point source discharge(s) which would require an NPDES permit as well as applicable control measures. Additionally, the DEIS will address the requirement for a Clean Water Act, Section 401 Water Quality Certification, and associated treatment or control measures. A water quality study has been conducted for the DEIS. The study will address anticipated impacts with regard to Hawaii Administrative Rules, Chapter 11-54, Water Quality Standards.

Underground Storage Tanks

The use of an underground storage tank (UST) for the proposed project is not anticipated. However, we appreciate you informing us of UST regulations and notification requirements. The DEIS will discuss facilities to be used to store fuel and used oil.

Hazardous Wastes

As cautioned, the handling of hazardous waste materials and the overall operation of the Marine Education and Training Center will be conducted in accordance with Title 40 of the Code of Federal Regulations (CFR), parts 260 to 268. Additionally, the facility's manger will be advised to comply with EPA notification requirements as deemed necessary. A Hazardous Materials and Regulated Wastes Survey was prepared for the project and will be included in the forthcoming DEIS.

Noise

Activities associated with the construction phase of the project will comply with the provisions of DOH Administrative Rules, Chapter 11-43. The contractor will be directed to obtain a noise permit and equip construction equipment and on-site vehicles with noise mufflers, as may be necessary.

We appreciate your interest and participation in the consultation phase of the environmental review process. Your letter will be included in the forthcoming DEIS. If you should have any questions regarding the project, please have your staff contact Ed Marcus, Waterfront Project Manager, at 586-2532.

Murray E. Towill
Director

cc: Office of Environmental Quality Control

POLICE DEPARTMENT
CITY AND COUNTY OF HONOLULU

FRANK F. FASI
MAYOR

OUR REFERENCE ES-LK

MICHAEL S. NAKAMURA
CHIEF

HAROLD M. KAWASAKI
DEPUTY CHIEF

October 29, 1991

Mr. Murray E. Towill, Director
Department of Business, Economic
Development & Tourism
P. O. Box 2359
Honolulu, Hawaii 96804

Attention: Mr. Ed Marcus, Waterfront Project Manager

Dear Mr. Towill:

We have reviewed the environmental impact statement preparation notice for the Marine Education and Training Center and Public Boat Launch Facility planned for Sand Island. The statement addresses the concerns that we normally have about safety and traffic problems. We have nothing to add at this time.

Thank you for the opportunity to comment.

Sincerely,

MICHAEL S. NAKAMURA
Chief of Police

By
CHESTER E. HUGHES
Assistant Chief of Police
Support Services Bureau

JOHN WAIHEE
Governor
MURRAY E. TOWILL
Director
BARBARA KIM STANTON
Deputy Director
RICK EGGED
Deputy Director
TAKESHI YOSHIHARA
Deputy Director

DEPARTMENT OF BUSINESS, ECONOMIC DEVELOPMENT & TOURISM

Central Pacific Plaza, 220 South King Street, 11th Floor, Honolulu, Hawaii
Mailing Address: P.O. Box 2359, Honolulu, Hawaii 96804 Telephone: (808) 586-2406 Fax: (808) 586-2377

Ref. No. W-1074

December 6, 1991

Mr. Michael S. Nakamura, Chief of Police
Police Department
City and County of Honolulu
1455 South Beretania Street
Honolulu, Hawaii 96814

Dear Mr. Nakamura:

Subject: Sand Island Marine Education and Training Center
and Public Boat Launch Facility
Environmental Impact Statement Preparation Notice
Tax Map Key 1-5-41: por. 6 and 130
Sand Island, Oahu, Hawaii

Thank you for your October 29, 1991 letter indicating that you have no comments regarding the subject project. Your letter will be included in the forthcoming Draft Environmental Impact Statement.

We appreciate you interest and participation in the consultation phase of the environmental review process. If you should have any questions regarding the project, please contact Ed Marcus, Waterfront Project Manager, at 586-2532.

Sincerely,

Murray E. Towill
Director

cc: Office of Environmental Quality Control

FIRE DEPARTMENT
CITY AND COUNTY OF HONOLULU
1455 SOUTH BERETANIA STREET ROOM 305
HONOLULU HAWAII 96814

FRANK F. FASI
MAYOR

LIONEL E. CAMARA
FIRE CHIEF

DONALD S.M. CHANG
DEPUTY FIRE CHIEF

October 30, 1991

Honolulu Waterfront Poject
Department of Business, Economic
Development & Tourism
P. O. Box 2359
Honolulu, Hawaii 96804

ATTENTION: ED MARCUS

Gentlemen:

We have reviewed the subject material provided and have no additional comments.

Should you have any questions, please call Acting Assistant Chief Attilio Leonardi of our Administrative Services Bureau at 943-3838.

Sincerely,

Lionel E Camara

LIONEL E. CAMARA
Fire Chief

AKL:ny

JOHN WAIHEE
Governor

MURRAY E. TOWILL
Director

SAMARA KIM STANTON
Deputy Director

RICK EGGED
Deputy Director

TAKESHI YOSHIHARA
Deputy Director

DEPARTMENT OF BUSINESS, ECONOMIC DEVELOPMENT & TOURISM

Central Pacific Plaza, 220 South King Street, 11th Floor, Honolulu, Hawaii
Mailing Address: P.O. Box 2359, Honolulu, Hawaii 96804 Telephone: (808) 586-2400 Fax: (808) 586-2377

Ref. No. W-1073

December 6, 1991

Mr. Lionel E. Camara, Fire Chief
Fire Department
City and County of Honolulu
1455 South Beretania Street, Room 305
Honolulu, Hawaii 96814

Dear Mr. Camara:

Subject: Sand Island Marine Education and Training Center
and Public Boat Launch Facility
Environmental Impact Statement Preparation Notice
Tax Map Key 1-5-41: por. 6 and 130
Sand Island, Oahu, Hawaii

Thank you for your October 30, 1991 letter indicating that you have no comments regarding the subject project. Your letter will be included in the forthcoming Draft Environmental Impact Statement.

We appreciate you interest and participation in the consultation phase of the environmental review process. If you should have any questions regarding the project, please contact Ed Marcus, Waterfront Project Manager, at 586-2532.

Sincerely,

Murray E Towill

Murray E. Towill
Director

cc: Office of Environmental Quality Control

DEPARTMENT OF PUBLIC WORKS
CITY AND COUNTY OF HONOLULU
650 SOUTH KING STREET
HONOLULU, HAWAII 96813

FRANK F. FASI
MAYOR

SAM CALLEJO
DIRECTOR AND CHIEF ENGINEER

C. MICHAEL STREET
DEPUTY DIRECTOR

ENV 91-232

November 7, 1991

Mr. Murray E. Towill, Director
Department of Business, Economic
Development & Tourism
State of Hawaii
P. O. Box 2359
Honolulu, Hawaii 96804

Attention: Mr. Ed Marcus

Dear Mr. Towill:

Subject: Environmental Impact Statement Preparation Notice (EISPN)
Marine Education and Training Center and Public Boat Launch Facility, Honolulu Waterfront Project,
TMK:1-5-41:Por. 6 and 130

We have reviewed the subject EISPN and have the following comments:

1. The number of proposed parking stalls seems inadequate to accommodate the anticipated enrollment.

2. Before connection to the municipal sewer system, the following requirements need to be met:

   a. Submittal of construction plans to the Division of Wastewater Management for review and approval.

   b. Submittal of an Industrial Waste Certificate Application if wastewater discharges from the proposed development are not domestic in nature. (It should be noted that the sewer system and the pretreatment facilities for the proposed project should be designed to exclude any rainwater in flow.)

   c. Submittal of an Application for Sewer Connection form to determine whether the existing municipal sewer system is adequate to support the proposed project.

Very truly yours,

C. Michael Street for

SAM CALLEJO
Director and Chief Engineer

JOHN WAIHEE
Governor
MURRAY E. TOWILL
Director
BARBARA KIM STANTON
Deputy Director
RICK EGGED
Deputy Director
TAKESHI YOSHIHARA
Deputy Director

DEPARTMENT OF BUSINESS, ECONOMIC DEVELOPMENT & TOURISM

Central Pacific Plaza, 220 South King Street, 11th Floor, Honolulu, Hawaii
Mailing Address: P.O. Box 2359, Honolulu, Hawaii 96804 Telephone: (808) 586-2406 Fax: (808) 586-2377

Ref. No. W-1076

December 6, 1991

Mr. Sam Callejo
Director and Chief Engineer
Department of Public Works
City and County of Honolulu
650 South King Street
Honolulu, Hawaii 96813

Dear Mr. Callejo:

Subject: Sand Island Marine Education and Training Center and Public Boat Launch Facility Environmental Impact Statement Preparation Notice
Tax Map Key 1-5-41: por. 6 and 130, Sand Island, Oahu, Hawaii

Thank you for your November 7, 1991 letter regarding the subject project. The following is provided in response to your comments:

1) The number of proposed parking spaces was determined in consultation with Honolulu Community College and operators of similar facilities on the Mainland. Based on their experience and expectations relative to parking needs for this type of facility, the proposed number of parking spaces is expected to adequately meet the Marine Education and Training Center's needs. It should also be noted that the proposed number of spaces is over twice the number required by the Land Use Ordinance for this type of facility.

2) The project will comply with all applicable requirements for connection to the municipal wastewater system.

We appreciate you interest and participation in the consultation phase of the environmental review process. Your letter will be included in the forthcoming Draft Environmental Impact Statement. If you should have any questions regarding the project, please contact Ed Marcus, Waterfront Project Manager, at 586-2532.

Sincerely,

Murray E. Towill
Director

cc Office of Environmental Quality Control

DEPARTMENT OF PARKS AND RECREATION
CITY AND COUNTY OF HONOLULU
650 SOUTH KING STREET
HONOLULU, HAWAII 96813

FRANK F. FASI
MAYOR

WALTER M. OZAWA
DIRECTOR

ALVIN C. AU
DEPUTY DIRECTOR

November 19, 1991

Honolulu Waterfront Project
Department of Business and
Economic Development and Tourism
P. O. Box 2359
Honolulu, Hawaii 96804

Attention: Ed Marcus

Gentlemen:

Subject: Environmental Impact Statement (EIS) Preparation Notice for the Marine Education and Training Center and Public Boat Launch Facility

Thank you for the opportunity to review and comment on the subject EIS Preparation Notice.

A heavy industrial use like the proposed Marine Education and Training Center is not appropriate in a shoreline area planned for expansion of Sand Island Park. It was our understanding that the State had made a commitment to Kalihi-Palama residents to reserve the shoreline west of the Sand Island Bridge for recreational use including boating classes and other recreational boating activities, but not boat repair and maintenance activities.

Sincerely,

WALTER M. OZAWA, Director

WMO:ei

cc: Department of General Planning
Department of Land Utilization
Kalihi Palama Neighborhood Board No. 15
Kalihi Palama Community Council
Office of State Planning

JOHN WAIHEE
Governor

MURRAY E. TOWILL
Director

BARBARA KIM STANTON
Deputy Director

RICK EGGED
Deputy Director

TAKESHI YOSHIHARA
Deputy Director

DEPARTMENT OF BUSINESS, ECONOMIC DEVELOPMENT & TOURISM

Central Pacific Plaza, 220 South King Street, 11th Floor, Honolulu, Hawaii
Mailing Address: P.O. Box 2359, Honolulu, Hawaii 96804 Telephone: (808) 586-2408 Fax: (808) 586-2377

Ref. No. W-1093

December 31, 1991

Mr. Walter M. Ozawa
Director
Department of Parks and Recreation
City and County of Honolulu
650 South King Street
Honolulu, Hawaii 96813

Dear Mr. Ozawa:

Subject: Sand Island Marine Education and Training Center and Public Boat Launch Facility Environmental Impact Statement Preparation Notice
Tax Map Key 1-5-41: por. 6 and 130
Sand Island, Oahu, Hawaii

Thank you for your November 19, 1991 letter regarding the subject project. The Honolulu Waterfront Master Plan completed in 1989 designates the project site for marine education and water recreation purposes. We consider the Marine Education and Training Center (METC) and the public boat launch facility to be appropriate uses. Both uses are water dependent activities requiring direct access to the shore. The combined facilities will help to fulfill elements of the community's educational needs by providing quality post-secondary marine instruction and training, as well as enhancing marine recreational opportunities via a public boat launch facility. The project will also include facilities to support the University of Hawaii's Outdoor Leisure Program which provides boating and water safety instruction.

The proposed use is also consistent with the City and County of Honolulu's Master Plan for the Sand Island Park Extension, Volume 2, August 1989, which designates the project site for future maritime use.

The METC and the public boat launch facility has been, and will continue to be, coordinated closely with the Kalihi-Palama Neighborhood Board and the Kalihi-Palama Community Council. The project will be developed in a manner sensitive to the shoreline and the nearby recreational uses.

We appreciate your interest and participation in the consultation phase of the environmental review process. Your letter will be included in the forthcoming Draft Environmental Impact Statement. If you should have any questions regarding the project, please contact Ed Marcus, Waterfront Project Manager, at 586-2532.

Sincerely,

Murray E. Towill
Director

cc: Office of Environmental Quality Control
Kalihi-Palama Neighborhood Board No. 15
Kalihi-Palama Community Council

DEPARTMENT OF TRANSPORTATION SERVICES
CITY AND COUNTY OF HONOLULU
HONOLULU MUNICIPAL BUILDING
650 SOUTH KING STREET
HONOLULU HAWAII 96813

FRANK F. FASI
MAYOR

JOSEPH M. MAGALDI, JR.
DIRECTOR

AMAR SAPPAL
DEPUTY DIRECTOR

TE-5403
PL91.1.355

December 2, 1991

Honolulu Waterfront Project
Department of Business, Economic Development
and Tourism
State of Hawaii
P. O. Box 2359
Honolulu, Hawaii 96804

Attention: Mr. Ed Marcus

Gentlemen:

Subject: Marine Education Training Center and
Public Boat Launch Facility
EIS Preparation Notice
TMK: 1-5-41: Portions 6 and 130

This is in response to your letter dated October 15, 1991 requesting our review and comments on the subject project. We have no objections or recommendations to offer at this time.

Should you have any questions, please contact Wayne Nakamoto of my staff at 523-4190.

JOSEPH M. MAGALDI, JR.

JOHN WAIHEE
Governor
MURRAY E. TOWILL
Director
BARBARA KIM STANTON
Deputy Director
RICK EGGED
Deputy Director
TAKESHI YOSHIHARA
Deputy Director

DEPARTMENT OF BUSINESS,
ECONOMIC DEVELOPMENT & TOURISM

Central Pacific Plaza, 220 South King Street, 11th Floor, Honolulu, Hawaii
Mailing Address: P.O. Box 2359, Honolulu, Hawaii 96804 Telephone: (808) 586-2406 Fax: (808) 586-2377

Ref. No. W-1078

December 6, 1991

Mr. Joseph M. Magaldi, Jr.
Director
Department of Transportation Services
City and County of Honolulu
650 South King Street
Honolulu, Hawaii 96813

Dear Mr. Magaldi:

Subject: Sand Island Marine Education and Training Center
and Public Boat Launch Facility
Environmental Impact Statement Preparation Notice
Tax Map Key 1-5-41: por. 6 and 130
Sand Island, Oahu, Hawaii

Thank you for your December 2, 1991 letter indicating that you have no comments regarding the subject project. Your letter will be included in the forthcoming Draft Environmental Impact Statement.

We appreciate you interest and participation in the consultation phase of the environmental review process. If you should have any questions regarding the project, please contact Ed Marcus, Waterfront Project Manager, at 586-2532.

Sincerely,

Murray E. Towill
Director

cc: Office of Environmental Quality Control

DEPARTMENT OF LAND UTILIZATION
CITY AND COUNTY OF HONOLULU
650 SOUTH KING STREET
HONOLULU, HAWAII 96813 • (808) 523-4432

FRANK F. FASI
MAYOR

DONALD A. CLEGG
DIRECTOR

LORETTA K.C. CHEE
DEPUTY DIRECTOR

LU10/91-8396(AC)

December 6, 1991

Mr. Ed Marcus
Honolulu Waterfront Project
Department of Business, Economic
Development and Tourism
P.O. Box 2359
Honolulu, Hawaii 96804

Dear Mr. Marcus:

Environmental Impact Statement Preparation Notice (EISPN)
for the Marine Education Training Center and Public Boat
Launch Facility, Sand Island, Oahu

Thank you for allowing the Department of Land Utilization (DLU) the opportunity to review the above-referenced EISPN. We offer the following comments.

Special Management Area/Shoreline Setback

The draft EIS should contain sufficient information for the processing of an SMA Permit and a Shoreline Setback Variance. Information related to this project should include, but is not limited to:

1. A Certified Shoreline Survey;
2. Drawings of all shoreline structures such as the proposed boat ramp, seawalls, finger pier and floating dock;
3. An analysis of the shoreline structures' impact on natural coastal processes; and
4. An impact analysis of the facility on adjacent water quality, particularly in relation to existing aquatic recreational activities at Sand Island Park.

Plan Review Use

The draft EIS should discuss the requirement for Plan Review Use approval for Honolulu Community College and the Marine Education Training Center. The Plan Review Use process was established to provide a review and approval mechanism for uses of a permanent and institutional nature which, because of characteristics fundamental to the nature of the use, provide essential community services but which could also have a major adverse impact on surrounding land uses. Colleges and universities require Plan Review Use approval.

If you have any questions, please call Mr. Art Challacombe of our staff at 523-4107.

Very truly yours,

Donald Clegg

DONALD A. CLEGG
Director of Land Utilization

DAC:cct

eispnels.ec

JOHN WAIHEE
Governor
MURRAY E. TOWILL
Director
BARBARA KIM STANTON
Deputy Director
RICK EGGED
Deputy Director
TAKESHI YOSHIHARA
Deputy Director

DEPARTMENT OF BUSINESS,
ECONOMIC DEVELOPMENT & TOURISM

Central Pacific Plaza, 220 South King Street, 11th Floor, Honolulu, Hawaii
Mailing Address: P.O. Box 2359, Honolulu, Hawaii 96804 Telephone: (808) 586-2408 Fax: (808) 586-2377

Ref. No. W-1110

February 6, 1992

Mr. Donald A. Clegg
Director
Department of Land Utilization
City and County of Honolulu
650 South King Street
Honolulu, Hawaii 96813

Dear Mr. Clegg:

Subject: Sand Island Marine Education and Training Center and Public Boat Launch Facility Environmental Impact Statement Preparation Notice
Tax Map Key 1-5-41: por. 6 and 130
Sand Island, Oahu, Hawaii

Thank you for your December 6, 1991 letter regarding the subject project. The following is provided in response to your comments on the Special Management Area (SMA) and Shoreline Setback requirements:

1) A Certified Shoreline Survey for the project was approved in May 1991. A copy of the survey will be submitted with the application for an SMA Permit and Shoreline Setback Variance.

2) Schematic plans of all shoreline structures will be submitted for review and approval in conjunction with required SMA Permit and Shoreline Setback Variance.

3) The Draft Environmental Impact Statement (DEIS) will contain a discussion of potential impacts to natural coastal processes.

4) The DEIS will address the potential impact on adjacent water quality.

Additionally, the requirement for Plan Review Use Approval will be discussed.

We appreciate your interest and participation in the consultation phase of the environmental review process. Your letter will be included in the forthcoming DEIS. If you should have any questions regarding the project, please have your staff contact Ed Marcus, Waterfront Project Manager, at 586-2532.

Sincerely,

Murray E. Towill
Director

cc: Office of Environmental Quality Control

DEPARTMENT OF GENERAL PLANNING
CITY AND COUNTY OF HONOLULU
650 SOUTH KING STREET
HONOLULU, HAWAII 96813

FRANK F. FASI
MAYOR

BENJAMIN B. LEE
CHIEF PLANNING OFFICER

ROLAND D. LIBBY, JR.
DEPUTY CHIEF PLANNING OFFICER

TH 10/91-3258

December 12, 1991

The Honorable Murray E. Towill, Director
Department of Business, Economic Development
and Tourism
State of Hawaii
P.O. Box 2359
Honolulu, Hawaii 96804

Attn: Mr. Ed Marcus
Waterfront Project Manager

Dear Mr. Towill:

Environmental Impact Statement Preparation
Notice (EISPN) for the Marine Education and Training
Center and Public Boat Launch Facility, Sand Island, Oahu

In response to your letter of October 15, 1991, we have reviewed the subject EISPN and have the following comments and recommendations:

1. The project site is currently designated Park and Public Facility on the Development Plan Land Use (DPLU) Map. The proposed Public Facility use would encroach into an area designated Park. Accordingly, the DPLU Map should be amended to reflect the intended uses of the subject area, based on adequate justification for withdrawing this area from Park use.

2. The proposed project will preclude lateral access along the shoreline fronting Kalihi Channel and should be addressed in the Draft Environmental Impact Statement (DEIS).

3. We recommend that the proposed project comply with the "General Urban Design Principles and Controls" of our Development Plan Common Provisions by preserving existing open space and park land along the shoreline. The applicant should explore options to reconfigure the trailer parking area shown on the site plan to increase the amount of open space along the shoreline.

4. Furthermore, we recommend that the DEIS address alternative sites considered for the proposed project.

We have attached the Department of Parks and Recreation comments dated November 19, 1991 on this project for your information.

Thank you for the opportunity to comment on this matter. Should you have any questions, please contact Tim Hata of our staff at 527-6070.

Sincerely,

BENJAMIN B. LEE
Chief Planning Officer

BBL:js

Attachment

November 19, 1991

Honolulu Waterfront Project
Department of Business and
Economic Development and Tourism
P. O. Box 2359
Honolulu, Hawaii 96804

Attention: Ed Marcus

Gentlemen:

Subject: Environmental Impact Statement (EIS) Preparation Notice for the Marine Education and Training Center and Public Boat Launch Facility

Thank you for the opportunity to review and comment on the subject EIS Preparation Notice.

A heavy industrial use like the proposed Marine Education and Training Center is not appropriate in a shoreline area planned for expansion of Sand Island Park. It was our understanding that the State had made a commitment to Kalihi-Palama residents to reserve the shoreline west of the Sand Island Bridge for recreational use including boating classes and other recreational boating activities, but not boat repair and maintenance activities.

Sincerely,

WALTER M. OZAWA, Director

WMO:ei

cc: Department of General Planning
Department of Land Utilization
Kalihi Palama Neighborhood Board No. 15
Kalihi Palama Community Council
Office of State Planning

JOHN WAIHEE
Governor
MURRAY E. TOWILL
Director
BARBARA KIM STANTON
Deputy Director
RICK EGGED
Deputy Director
TAKESHI YOSHIHARA
Deputy Director

DEPARTMENT OF BUSINESS,
ECONOMIC DEVELOPMENT & TOURISM

Central Pacific Plaza, 220 South King Street, 11th Floor, Honolulu, Hawaii
Mailing Address: P.O. Box 2359, Honolulu, Hawaii 96804 Telephone: (808) 586-2400 Fax: (808) 586-2377

Ref. No. W-1111

February 6, 1992

Mr. Benjamin Lee
Chief Planning Officer
Department of General Planning
City and County of Honolulu
650 South King Street
Honolulu, Hawaii 96813

Dear Mr. Lee:

Subject: Sand Island Marine Education and Training Center and Public Boat Launch Facility Environmental Impact Statement Preparation Notice
Tax Map Key 1-5-41: por. 6 and 130
Sand Island, Oahu, Hawaii

Thank you for your December 12, 1991 letter regarding the subject project. The following is provided in response to your comments:

1) Although the proposed uses are not reflected on the existing Development Plan (DP) Land Use Map, it is our understanding that we can proceed with the development, subject to applicable City, State and Federal permit requirements, and subsequently request an administrative change to the DP Land Use Map upon completion of the project.

2) Continuous lateral access along the Sand Island side of Kalihi Channel will be interrupted between the western boundary of the Marine Education and Training Center and the Sand Island Parkway. Access to approximately 400 feet of pier frontage will be limited to participants in the METC's programs and those attending the University of Hawaii's Outdoor Leisure Program (both of these programs will be open to the public). Fencing is a necessary precaution to provide for security of equipment and avoid the injury of unsupervised individuals in and around the METC. For the remainder of the project site, lateral shoreline access to the public boat launch facility and shoreline area fronting Keehi Lagoon will not be restricted.

3) Every effort will be made to insure that the proposed project will comply with the "General Urban Design Principles and Controls" as stated in the Development Plan Common Provisions. The proposed master site plan configuration reflects a substantial increase in open space along the shoreline in comparison to an alternative site configuration which was initially considered. As illustrated in Figure 6 of the EISPN, the Alternative Site Configuration provides a limited open space area of approximately 80 feet (including the 40-foot shoreline setback) between the shoreline and the METC facilities. Under the current plan, the METC facilities are located on the mauka portion of the project site in an effort to preserve open space along the entire shoreline area fronting Keehi Lagoon.

4) The DEIS will discuss an alternative site located across Kalihi Channel which was considered for the proposed project.

We appreciate your interest and participation in the consultation phase of the environmental review process. Your letter will be included in the forthcoming DEIS. If you should have any questions regarding the project, please have your staff contact Ed Marcus, Waterfront Project Manager, at 586-2532.

Sincerely,

Murray E. Towill
Director

cc: Office of Environmental Quality Control

BOARD OF WATER SUPPLY
CITY AND COUNTY OF HONOLULU
630 SOUTH BERETANIA STREET
HONOLULU, HAWAII 96843

December 27, 1991

Mr. Murray E. Towill
Department of Business,
Economic Development and Tourism
State of Hawaii
P.O. Box 2359
Honolulu, Hawaii 96804

Attention: Ed Marcus

Dear Mr. Towill:

Subject: Your Environmental Impact Statement Preparation Notice (EISPN) of October 15, 1991 Regarding the Proposed Sand Island Marine Education and Training Center and Public Boat Launch Facility, TMK: 1-5-41: Por. 6 and 130

Thank you for the opportunity to review and comment on the EISPN for the proposed marine facility. We have the following comments to offer:

1. There is an existing 6-inch meter currently serving the area. A second service (S/N 704-12991) was ordered off on February 21, 1991. Reactivation by February 21, 1996 will be credited for applicable Water System Facilities Charges.

2. The proposed project will require a water allocation from the State Department of Land and Natural Resources if additional water is required.

3. If a three-inch or larger meter is required, the construction drawings showing the installation of the meter should be submitted for our review and approval.

If you have any questions, please contact Bert Kuioka at 527-5235.

Very truly yours,

FO2 KAZU HAYASHIDA
Manager and Chief Engineer

Pure Water . . . man's greatest need – use it wisely

DEPARTMENT OF BUSINESS, ECONOMIC DEVELOPMENT & TOURISM
Central Pacific Plaza, 220 South King Street, 11th Floor, Honolulu, Hawaii
Mailing Address: P.O. Box 2359, Honolulu, Hawaii 96804 Telephone: (808) 586-2408 Fax: (808) 586-2377

Ref. No. W-1119

February 13, 1992

Mr. Kazu Hayashida
Manager and Chief Engineer
Board of Water Supply
City and County of Honolulu
630 South Beretania Street
Honolulu, Hawaii 96813

Dear Mr. Hayashida:

Subject: Sand Island Marine Education and Training Center and Public Boat Launch Facility Environmental Impact Statement Preparation Notice
Tax Map Key 1-5-41: por. 6 and 130
Sand Island, Oahu, Hawaii

Thank you for your December 27, 1991 letter regarding the subject project. The following is provided in response to your comments:

1) Your comments on the credit for Water System Facilities Charges and additional water allocation are duly noted. The projected water demand for the project has been included in the update of the State Water Projects Plan.

2) As requested, construction drawings for the installation of any meters, three inches or larger, will be submitted for your review and approval.

We appreciate your interest and participation in the consultation phase of the environmental review process. Your letter will be included in the forthcoming Draft Environmental Impact Statement. If you should have any questions regarding the project, please contact Ed Marcus, Waterfront Project Manager, at 586-2532.

Sincerely,

Murray E. Towill

cc: Office of Environmental Quality Control

Hawaiian Electric Company, Inc. • PO Box 2750 • Honolulu, HI 96840-0001

William A. Bonnet
Manager
Environmental Department

November 15, 1991

Mr. Ed Marcus
Honolulu Waterfront Project
Department of Business, Economic
Development & Tourism
P.O. Box 2359
Honolulu, Hawaii 96804

Dear Mr. Marcus:

Subject: Environmental Impact Statement (EIS) for
Sand Island Marine Education and Training Center,
and Public Boat Launch Facility

We have reviewed the subject EIS, and have no comments at this time on the proposed project. HECO shall reserve further comments pertaining to the protection of existing powerlines bordering and servicing the area until construction plans are finalized.

Sincerely,

An HEI Company

JOHN WAIHEE
Governor
MURRAY E. TOWILL
Director
BARBARA KIM STANTON
Deputy Director
RICK EGGED
Deputy Director
TAKESHI YOSHIHARA
Deputy Director

DEPARTMENT OF BUSINESS,
ECONOMIC DEVELOPMENT & TOURISM

Central Pacific Plaza, 220 South King Street, 11th Floor, Honolulu, Hawaii
Mailing Address: P.O. Box 2359, Honolulu, Hawaii 96804 Telephone: (808) 586-2408 Fax: (808) 586-2377

Ref. No. W-1077

December 6, 1991

Mr. William A. Bonnet
Manager
Environmental Department
Hawaiian Electric Company, Inc.
P. O. Box 2750
Honolulu, Hawaii 96840-0001

Dear Mr. Bonnet:

Subject: Sand Island Marine Education and Training Center
and Public Boat Launch Facility
Environmental Impact Statement Preparation Notice
Tax Map Key 1-5-41: por. 6 and 130
Sand Island, Oahu, Hawaii

Thank you for your November 15, 1991 letter indicating that you have no comments regarding the subject project. Your letter will be included in the forthcoming Draft Environmental Impact Statement.

We appreciate you interest and participation in the consultation phase of the environmental review process. If you should have any questions regarding the project, please contact Ed Marcus, Waterfront Project Manager, at 586-2532.

Sincerely,

Murray E. Towill
Director

cc: Office of Environmental Quality Control

Lockheed Air Terminal Inc

3071 Aolele Street
Honolulu, Hawaii 96819
(808) 836-1381

20 November 1991

Honolulu Waterfront Project
Department of Business, Economic
Development & Tourism
Attn: Ed Marcus
P. O. Box 2359
Honolulu, HI 96804

RE: (EIS) for the proposed Sand Island Marine Education and Training Center, and Public Boat Launch Facility.

Dear Sir:

Please refer to attached letter from McCarter, Inc., for our comments.

Sincerely,

Stanley T. Ambo
Manager - Airport Services

Attachment - McCarter letter

McCARTER, INC.
P.O. BOX 10279 HONOLULU, HAWAII 96816 (808) 922 5743 FAX (808) 922 5840

November 7, 1991

Lockheed Air Terminal, Inc.
3071 Aolele Street
Honolulu, Hawaii 96819

ATTENTION: Mr. Stanley T. Ambo
Manager, Airport Services

Dear Stan,

I have reviewed the EIS Preparation Notice for the Marine Education and Training Center and Public Boat Launch Facility located on Sand Island and over HFFC Easement F-6, a portion of Governor's Executive Order No. 2704. Following are additional comments.

Although the EIS is not a specific planning document it implies development that may be objectionable to HFFC and the underground pipeline. The following should be brought to the attention of the State and their planners.

1. **FIG 4 SITE MASTER PLAN** ... Both buildings are relatively close to the pipelines and subject to possible damage during construction. Because of the size of the buildings and with recent experience of soils conditions in this area we would assume that driven piling will be required. Piles driven close to pipelines can cause damage, failures and/or loosening any scale in the pipe causing contamination. We recommend resiting the buildings to be at least 25 feet away with any driven piles.

   Another concern is a boat dock of any kind over the pipelines because of possibilities of damage to the lines. This comment would be applicable to any activity or structure installed over or near the pipelines.

   We would recommend moving the transformer away from the pipelines because of possible stray grounding currents that could negate the piping cathodic protection system.

2. **LANDSCAPING PLAN** ... Trees should not be planned for over the pipelines or within the access easement.

3. **FIG. 6 ALTERNATIVE SITE** .. This may be a better plan when considering the impact on the fuel lines.

The above should be considered as more definitive plans are received for comment.

Respectfully,
Bill McCarter

MAREK MANOR 409 LEWERS STREET SUITE 129

JOHN WAIHEE
Governor
MURRAY E. TOWILL
Director
BARBARA KIM STANTON
Deputy Director
BECK EGGED
Deputy Director
TAKESHI YOSHIHARA
Deputy Director

DEPARTMENT OF BUSINESS, ECONOMIC DEVELOPMENT & TOURISM

Central Pacific Plaza, 220 South King Street, 11th Floor, Honolulu, Hawaii
Mailing Address: P.O. Box 2359, Honolulu, Hawaii 96804 Telephone: (808) 586-2400 Fax: (808) 586-2377

Ref. No. W-1109

February 6, 1992

Mr. Stanley Ambo, Manager
Airport Services
Lockheed Terminal, Inc.
3071 Aolele Street
Honolulu, Hawaii 96819

Dear Mr. Ambo:

Subject: Sand Island Marine Education and Training Center and Public Boat Launch Facility Environmental Impact Statement Preparation Notice
Tax Map Key 1-5-41: por. 6 and 130
Sand Island, Oahu, Hawaii

Thank you for your November 20, 1991 letter regarding the subject project. The following is provided in response to your comments:

1) Site Master Plan -- Based on your expressed concern for potential damage to underground pipelines due to the proximity of the Marine Education and Training Center, the structure will be set back a minimum of 25 feet as you have recommended. The planned floating dock will be situated between the two sets of pipelines traversing the shoreline and will only be used to store kayaks and light sailcraft.

2) Landscaping Plan -- The landscaping plan will be modified to eliminate the planting of trees over pipelines and in the access easements.

3) Alternative Site Plan -- While the alternative site plan is preferable from the standpoint of potential impacts on the pipelines, the proposed structures are more visually prominent and less compatible with the adjacent park and shoreline area. As a result, this plan was not supported by the community.

We appreciate your interest and participation in the consultation phase of the environmental review process. Your letter will be included in the forthcoming Draft Environmental Impact Statement. If you should have any questions regarding the project, please contact Ed Marcus, Waterfront Project Manager, at 586-2532.

Sincerely,

Murray E. Towill
Director

cc: Office of Environmental Quality Control

Section 12

PARTIES COMMENTING ON THE DEIS

SECTION 12
PARTIES COMMENTING ON THE DEIS

The agencies, organizations, and individuals listed below were sent copies of DEIS with a request for their comments on the the project. Of those who formally replied, some had no comments while others provided substantive comments as indicated by the ✓ and ✓✓, respectively. All written comments and responses are reproduced herein.

Federal Agencies
✓ Department of the Navy
✓ Department of Agriculture, Soil Conservation Service
✓✓ Department of the Army, Pacific Ocean Division
Department of the Interior, Fish and Wildlife Service
Department of the Interior, Geological Survey, Water Resources Division
Department of the Interior, National Park Service
U.S. Coast Guard
National Marine Fisheries Service
Federal Aviation Administration, Airport District Office

State Agencies
✓ Department of Defense
✓✓ Department of Accounting and General Services
✓ Office of Environmental Quality Control
✓ Housing Finance and Development Corporation
✓✓ Department of Transportation, Airports, Highways, and Harbors Divisions
✓✓ Department of Land and Natural Resources
✓✓ Department of Health
Office of State Planning

University of Hawaii
✓✓ University of Hawaii, Marine Option Program
✓✓ University of Hawaii Environmental Center
University of Hawaii Campus Center Board (Aquatics Program)
Honolulu Community College

City and County of Honolulu Agencies
✓ Building Department
✓ Department of Transportation Services
✓✓ Department of Public Works
✓✓ Department of General Planning
✓✓ Department of Land Utilization
✓ Honolulu Police Department
✓✓ Board of Water Supply
✓✓ Department of Parks and Recreation
Honolulu Fire Department

Public Utility Agencies

✓ Hawaiian Electric Company, Inc.
✓✓ Lockheed Air Terminal, Inc.
(on behalf of Hawaii Fueling Facilities Corporation)
GTE Hawaiian Telephone
Hawaiian Independent Refinery, Inc.

Other Interested Parties

Downtown Neighborhood Board #13
Kalihi - Palama Neighborhood Board #15
Kalihi - Palama Community Council

DEPARTMENT OF THE NAVY
COMMANDER
NAVAL BASE PEARL HARBOR
BOX 110
PEARL HARBOR, HAWAII 96860-5020

IN REPLY REFER TO
11011
Ser 00F2/0544
04 MAR 1992

State of Hawaii
Office of Environmental Quality Control
220 South King Street, 4th Floor
Honolulu, HI 96813

Gentlemen:

SAND ISLAND MARINE EDUCATION AND TRAINING CENTER
AND PUBLIC BOAT LAUNCH FACILITY

We have reviewed the subject DEIS and have no comments to offer. Since we have no further use for the DEIS, it being returned to your office.

Thank you for the opportunity to review the draft.

Sincerely,

W. K. LIU
Assistant Base Civil Engineer
By direction of
the Commander

Enclosure

Copy to: (w/o encl)
Dept of Business, Economic
Development and Tourism
(Mr. Edgar Marcus)
Wilson Okamoto & Associates, Inc.
(Mr. Rodney Funakoshi)

DEPARTMENT OF BUSINESS,
ECONOMIC DEVELOPMENT & TOURISM

JOHN WAIHEE
Governor
MURRAY E. TOWILL
Director
BARBARA KIM STANTON
Deputy Director
RICK EGGED
Deputy Director
TAKESHI YOSHIHARA
Deputy Director

Central Pacific Plaza, 220 South King Street, 11th Floor, Honolulu, Hawaii
Mailing Address: P.O. Box 2359, Honolulu, Hawaii 96804 Telephone: (808) 586-2406 Fax: (808) 586-2377

Ref. No. W-1162

April 13, 1992

Mr. W. K. Liu
Assistant Base Civil Engineer
Naval Base Pearl Harbor
Box 110
Pearl Harbor, HI 96860-5020

Dear Mr. Liu:

Subject: Sand Island Marine Education and Training Center
and Public Boat Launch Facility
Draft Environmental Impact Statement
Tax Map Key 1-5-41: por. 6 and 130
Sand Island, Oahu, Hawaii

Thank you for your letter of March 4, 1992 (Ref. 11011, Ser 00F2/0544) indicating that you have no comments regarding the subject project. We appreciate your time and effort in reviewing the Draft Environmental Impact Statement.

If you should have any questions, please contact Ed Marcus, Waterfront Project Manager, at 586-2532.

Sincerely,

Murray E. Towill

cc: Office of Environmental Quality Control

UNITED STATES DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE
P. O. BOX 50004 HONOLULU, HAWAII 96850

March 25, 1992

The Honorable John Waihee
Governor, State of Hawaii
c/o Office of Environmental Quality Control
220 South King Street, 4th Floor
Honolulu, Hawaii 96813

Dear Governor Waihee:

Subject: Draft Environmental Impact Statement (DEIS) - Sand Island Marine Education and Training Center and Public Boat Launch Facility, Honolulu, HI

We have reviewed the DEIS for the Sand Island Marine Education and Training Center and Public Boat Launch Facility and have no comments to offer at this time.

Thank you for the opportunity to review this document.

Sincerely,

WARREN M. LEE
State Conservationist

cc:
Mr. Edgar Marcus, Department of Business, Economic Development and Tourism, Honolulu Waterfront Project, P.O. Box 2359, Honolulu, Hawaii 96804
Mr. Rodney Funakoshi, Wilson Okamoto and Associates, Inc., 1150 South King Street, Suite 8800, Honolulu, HI 96814

JOHN WAIHEE
Governor
MURRAY E. TOWILL
Director
BARBARA KIM STANTON
Deputy Director
RICK EGGED
Deputy Director
TAKESHI YOSHIHARA
Deputy Director

DEPARTMENT OF BUSINESS, ECONOMIC DEVELOPMENT & TOURISM

Central Pacific Plaza, 220 South King Street, 11th Floor, Honolulu, Hawaii
Mailing Address: P.O. Box 2359, Honolulu, Hawaii 96804 Telephone: (808) 586-2406 Fax: (808) 586-2377

Ref. No. W-1162

April 13, 1992

Mr. Warren M. Lee
State Conservationist
U. S. Department of Agriculture
Soil Conservation Service
P. O. Box 50004
Honolulu, HI 96850

Dear Mr. Lee:

Subject: Sand Island Marine Education and Training Center
and Public Boat Launch Facility
Draft Environmental Impact Statement
Tax Map Key 1-5-41: por. 6 and 130
Sand Island, Oahu, Hawaii

Thank you for your letter of March 25, 1992 indicating that you have no comments regarding the subject project. We appreciate your time and effort in reviewing the Draft Environmental Impact Statement.

If you should have any questions, please contact Ed Marcus, Waterfront Project Manager, at 586-2532

Sincerely,

Murray E. Towill

cc: Office of Environmental Quality Control

DEPARTMENT OF THE ARMY
U. S. ARMY ENGINEER DISTRICT, HONOLULU
BUILDING 230
FT SHAFTER HAWAII 96858-5440

April 2, 1992

REPLY TO
ATTENTION OF:

Planning Division

Mr. Brian J. J. Choy, Director
Office of Environmental Quality Control
220 South King Street, 4th Floor
Honolulu, Hawaii 96813

Dear Mr. Choy:

We have reviewed the Draft Environmental Impact Statement (DEIS) for the proposed Sand Island Marine Education and Training Center and Public Boat Launch Facility, Oahu. Our previous comments (letter dated November 15, 1991) have been incorporated into the DEIS. We have no additional comments.

Sincerely,

/s/ Fujii

Kisuk Cheung, P.E.
Director of Engineering

Copies Furnished:

Department of Business, Economic
Development and Tourism
Honolulu Waterfront Project
Attention: Mr. Edgar Marcus
P. O. Box 2359
Honolulu, Hawaii 96804

Wilson Okamoto and Associates, Inc.
Attention: Mr. Rodney Funakoshi
1150 South King Street, Suite 800
Honolulu, Hawaii 96814

JOHN WAIHEE
Governor
MURRAY E. TOWILL
Director
BARBARA KIM STANTON
Deputy Director
RICK EGGED
Deputy Director
TAKESHI YOSHIHARA
Deputy Director

DEPARTMENT OF BUSINESS,
ECONOMIC DEVELOPMENT & TOURISM

Central Pacific Plaza, 220 South King Street, 11th Floor, Honolulu, Hawaii
Mailing Address: P.O. Box 2359, Honolulu, Hawaii 96804 Telephone: (808) 586-2408 Fax: (808) 586-2377

Ref. No. W-1162

April 13, 1992

Mr. Kisuk Cheung, P. E.
Director of Engineering
Department of the Army
U. S. Army Engineer District, Honolulu
Building 230
Ft. Shafter, HI 96858-5440
Attn: Planning Division

Dear Mr. Cheung:

Subject: Sand Island Marine Education and Training Center
and Public Boat Launch Facility
Draft Environmental Impact Statement
Tax Map Key 1-5-41: por. 6 and 130
Sand Island, Oahu, Hawaii

Thank you for your letter of April 2, 1992 indicating that your previous comments have been included in the DEIS for the subject project. We appreciate your time and effort in reviewing the Draft Environmental Impact Statement.

If you should have any questions, please contact Ed Marcus, Waterfront Project Manager, at 586-2532.

Sincerely,

Murray E. Towill

cc Office of Environmental Quality Control

JOHN WAIHEE
Governor

STATE OF HAWAII
DEPARTMENT OF DEFENSE
OFFICE OF THE ADJUTANT GENERAL
3949 DIAMOND HEAD ROAD HONOLULU, HAWAII 96816-4495

EDWARD V. RICHARDSON
MAJOR GENERAL
ADJUTANT GENERAL

MYLES M. NAKATSU
COLONEL
DEPUTY ADJUTANT GENERAL

March 4, 1992

Engineering Office

Office of Environmental Quality Control
220 South King Street, 4th Floor
Honolulu, Hawaii 96813

Subject: Sand Island Marine Education and Training Center and Public Boat Launch Facility

Dear Sir:

Thank you for providing us the opportunity to review the above mentioned Sand Island Marine Education and Training Center and Public Boat Launch Facility.

We have no comments to offer at this time regarding the project.

Sincerely,

Jerry M. Matsuda
Lieutenant Colonel
Hawaii Air National Guard
Contracting and Engineering Officer

Enc.

c: Department of Business, Economic Development and Tourism
Wilson Okamoto and Associates, Inc.

NATIONAL GUARD
Americans At Their Best

JOHN WAIHEE
Governor

MURRAY E. TOWILL
Director

BARBARA KIM STANTON
Deputy Director

RICK EGGED
Deputy Director

TAKESHI YOSHIHARA
Deputy Director

DEPARTMENT OF BUSINESS, ECONOMIC DEVELOPMENT & TOURISM

Central Pacific Plaza, 220 South King Street, 11th Floor, Honolulu, Hawaii
Mailing Address: P.O. Box 2359, Honolulu, Hawaii 96804 Telephone: (808) 586-2408 Fax: (808) 586-2377

Ref. No. W-1162

April 13, 1992

Mr. Jerry M. Matsuda, Lieutenant Colonel
Hawaii Air National Guard
Department of Defense
Office of the Adjutant General
3949 Diamond Head Road
Honolulu, HI 96816-4495

Dear Mr. Matsuda:

Subject: Sand Island Marine Education and Training Center
and Public Boat Launch Facility
Draft Environmental Impact Statement
Tax Map Key 1-5-41: por. 6 and 130
Sand Island, Oahu, Hawaii

Thank you for your letter of March 4, 1992 indicating that you have no comments regarding the subject project. We appreciate your time and effort in reviewing the Draft Environmental Impact Statement.

If you should have any questions, please contact Ed Marcus, Waterfront Project Manager, at 586-2532.

Sincerely,

Murray E. Towill

cc: Office of Environmental Quality Control

(P)1198.2

The Honorable John Waihee
Governor, State of Hawaii
c/o Office of Environmental
  Quality Control
220 South King Street, 4th Floor
Honolulu, Hawaii

Dear Governor Waihee:

Subject: Sand Island Marine Education and Training Center and Public Boat Launch Facility Draft EIS

Thank you for the opportunity to review the subject document. We have no comments to offer.

Should there be any questions, please have your staff contact Mr. Ralph Yukumoto of the Public Works Division at 586-0488.

Respectfully,

RUSSEL S. NAGATA
State Comptroller

RY:jk
cc: Department of Business, Economic Development and Tourism
Wilson Okamoto and Associates, Inc.
OEQC

JOHN WAIHEE
Governor
MURRAY E. TOWILL
Director
BARBARA KIM STANTON
Deputy Director
RICK EGGED
Deputy Director
TAKESHI YOSHIHARA
Deputy Director

DEPARTMENT OF BUSINESS,
ECONOMIC DEVELOPMENT & TOURISM

Central Pacific Plaza, 220 South King Street, 11th Floor, Honolulu, Hawaii
Mailing Address: P.O. Box 2359, Honolulu, Hawaii 96804 Telephone: (808) 586-2408 Fax: (808) 586-2377

Ref. No. W-1162

April 10, 1992

Mr. Russel S, Nagata, Comptroller
Department of Accounting and General Services
1151 Punchbowl Street
Honolulu, HI 96813

Dear Mr. Nagata:

Subject: Sand Island Marine Education and Training Center and Public Boat Launch Facility
Draft Environmental Impact Statement
Tax Map Key 1-5-41: por. 6 and 130
Sand Island, Oahu, Hawaii

Thank you for your letter of March 9, 1992 (Ref. (P) 1198.2) indicating that you have no comments regarding the subject project. We appreciate your time and effort in reviewing the Draft Environmental Impact Statement.

If you should have any questions, please contact Ed Marcus, Waterfront Project Manager, at 586-2532.

Sincerely,

Murray E. Towill

cc: Office of Environmental Quality Control

JOHN WAIHEE
Governor

BRIAN J. J. CHOY
Director

STATE OF HAWAII
OFFICE OF ENVIRONMENTAL QUALITY CONTROL
220 SOUTH KING STREET
FOURTH FLOOR
HONOLULU, HAWAII 96813
TELEPHONE (808) 586-4185

March 16, 1992

Department of Business, Economic Development & Tourism
Attn: Edgar Marcus
Honolulu Waterfront Project
P.O. Box 2359
Honolulu, Hawaii 96813

Dear Mr. Marcus:

Subject: Draft EIS for the Sand Island Marine Education and Training Center and Public Boat Launch Facility

Thank you for the opportunity to review the subject document. We have no comments to offer.

If you have any questions, please call Margaret Wilson at 586-4185. Thank you.

Sincerely,

Brian J.J. Choy

Brian J.J. Choy
Director

c: Wilson Okamoto and Associates, Inc.

BC:mw

JOHN WAIHEE
Governor

MURRAY E. TOWILL
Director

BARBARA KIM STANTON
Deputy Director

RICK EGGED
Deputy Director

TAKESHI YOSHIHARA
Deputy Director

DEPARTMENT OF BUSINESS,
ECONOMIC DEVELOPMENT & TOURISM

Central Pacific Plaza, 220 South King Street, 11th Floor, Honolulu, Hawaii
Mailing Address: P.O. Box 2359, Honolulu, Hawaii 96804 Telephone: (808) 586-2406 Fax: (808) 586-2377

Ref. No. W-1162

April 13, 1992

Mr. Brian J. J. Choy, Director
Office of Environmental Quality Control
220 South King Street, 4th Floor
Honolulu, HI 96813

Dear Mr. Choy:

Subject: Sand Island Marine Education and Training Center
and Public Boat Launch Facility
Draft Environmental Impact Statement
Tax Map Key 1-5-41: por. 6 and 130
Sand Island, Oahu, Hawaii

Thank you for your letter of March 16, 1992 indicating that you have no comments regarding the subject project. We appreciate your time and effort in reviewing the Draft Environmental Impact Statement.

If you should have any questions, please contact Ed Marcus, Waterfront Project Manager, at 586-2532.

Sincerely,

Murray E. Towill

JOHN WAIHEE
GOVERNOR

STATE OF HAWAII
DEPARTMENT OF BUDGET AND FINANCE
HOUSING FINANCE AND DEVELOPMENT CORPORATION
SEVEN WATERFRONT PLAZA, SUITE 303
500 ALA MOANA BOULEVARD
HONOLULU, HAWAII 96813
FAX (808) 587-0600

JOSEPH K. CONANT
EXECUTIVE DIRECTOR

IN REPLY REFER TO
92:PPE/1166mo

March 18, 1992

To: The Honorable John Waihee, Governor, State of Hawaii
c/o Office of Environmental Quality Control
220 South King Street, Fourth Floor
Honolulu, Hawaii 96813

From: Joseph K. Conant
Executive Director

Subject: Sand Island Marine Education and Training Center and Public Boat Launch Facility Draft Environmental Impact Statement

Thank you for the opportunity to review the subject DEIS preparation notice. We have no comments to offer.

Attached is the DEIS report we reviewed.

c: Mr. Edgar Marcus,
Department of Business, Economic Development and Tourism
Mr. Rodney Funakoshi,
Wilson Okamoto and Associates, Inc.

JOHN WAIHEE
Governor
MURRAY E. TOWILL
Director
BARBARA KIM STANTON
Deputy Director
RICK EGGED
Deputy Director
TAKESHI YOSHIHARA
Deputy Director

DEPARTMENT OF BUSINESS,
ECONOMIC DEVELOPMENT & TOURISM

Central Pacific Plaza, 220 South King Street, 11th Floor, Honolulu, Hawaii
Mailing Address: P.O. Box 2359, Honolulu, Hawaii 96804 Telephone: (808) 586-2406 Fax: (808) 586-2377

Ref. No. W-1162

April 13, 1992

Mr. Joseph Conant, Executive Director
Housing Finance and Development Corporation
Seven Waterfront Plaza, Suite 303
500 Ala Moana Blvd.
Honolulu, HI 96813

Dear Mr. Conant:

Subject Sand Island Marine Education and Training Center
and Public Boat Launch Facility
Draft Environmental Impact Statement
Tax Map Key 1-5-41: por. 6 and 130
Sand Island, Oahu, Hawaii

Thank you for your letter of March 18, 1992 (Ref. 92:PPE/1166mo) indicating that you have no comments regarding the subject project. We appreciate your time and effort in reviewing the Draft Environmental Impact Statement.

If you should have any questions, please contact Ed Marcus, Waterfront Project Manager, at 586-2532.

Sincerely,

Murray E. Towill

cc: Office of Environmental Quality Control

JOHN WAIHEE
GOVERNOR

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
869 PUNCHBOWL STREET
HONOLULU, HAWAII 96813-5097

REX D. JOHNSON
DIRECTOR

DEPUTY DIRECTORS
JOYCE T. OMINE
AL PANG
JEANNE K. SCHULTZ
CALVIN M. TSUDA

IN REPLY REFER TO

March 18, 1992 HAR-EP 5583.92

To: The Honorable John Waihee
Governor, State of Hawaii

From: Rex D. Johnson
Director of Transportation

Subject: DEIS FOR SAND ISLAND MARINE EDUCATION AND TRAINING CENTER AND PUBLIC BOAT LAUNCH FACILITY

Thank you for your letter requesting our review and comments on the subject project.

Our comments are as follows:

1. Figure 2-1 SITE MASTER PLAN

   The ramp should be located in line with the middle row of trailer parking stalls for easier access to and from the parking stalls. Adequate tow vehicle and trailer turning area should be incorporated in the final design plans to permit easy alignment of tow vehicle and trailer with the ramp for launching and retrieval of boats.

2. PROJECT DESCRIPTION, Section 2.2, DOT Boat Launch Facility, should note that a loading dock will run along the center of the ramp.

c: DBEDT - Edgar Marcus
Wilson Okamoto & Assoc. - Rodney Funakoshi

JOHN WAIHEE
Governor

MURRAY E. TOWILL
Director

BARBARA KIM STANTON
Deputy Director

PAUL EGGID
Deputy Director

TAKESHI YOSHIHARA
Deputy Director

DEPARTMENT OF BUSINESS,
ECONOMIC DEVELOPMENT & TOURISM

Central Pacific Plaza, 220 South King Street, 11th Floor, Honolulu, Hawaii
Mailing Address: P.O. Box 2359, Honolulu, Hawaii 96804 Telephone: (808) 586-2486 Fax: (808) 586-2377

Ref. No. W-1165

April 13, 1992

MEMORANDUM

TO: Rex D. Johnson, Director
Department of Transportation

FROM: Murray E. Towill, Director
Department of Business, Economic Development & Tourism

SUBJECT: Sand Island Marine Education and Training Center
and Public Boat Launch Facility
Draft Environmental Impact Statement
Tax Map Key 1-5-41: por. 6 and 130
Sand Island, Oahu, Hawaii

Thank you for your letter of March 18, 1992 (Ref. HAR-EP 5583.92) regarding the subject project. Plans for the public boat launch facility have previously been coordinated between the Department of Business, Economic Development and DOT-Harbors. We will continue to coordinate with DOT-Harbors during the design stage and revise plans as may be necessary to maximize the utility of the limited space available, including consideration of a loading dock along the center of the ramp.

The concept of a loading dock along the center of the ramp was included in the preliminary plan for the facility, but was subsequently deleted based on comments made by DOT-Harbors.

We appreciate your time and effort in reviewing the Draft Environmental Impact Statement. If you should have any questions regarding the project, please contact Ed Marcus at 586-2530.

cc: Office of Environmental Quality Control
Calvin Tsuda (DOT-Harbors)

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES

WILLIAM W. PATY, CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES

DEPUTIES
John P. Keppeler, II
Dona L. Hanaike

AQUACULTURE DEVELOPMENT PROGRAM
AQUATIC RESOURCES
CONSERVATION AND ENVIRONMENTAL AFFAIRS
CONSERVATION AND RESOURCES ENFORCEMENT
CONVEYANCES
FORESTRY AND WILDLIFE
HISTORIC PRESERVATION PROGRAM
LAND MANAGEMENT
STATE PARKS
WATER AND LAND DEVELOPMENT

REF:OCEA:SKK

MAR 25 1992

FILE NO.: 92-524
DOC. ID.: 405

Governor John Waihe'e
State of Hawaii
c/o Office Environmental Quality Control
220 South King Street, 4th floor
Honolulu, Hawaii 96813

Dear Governor:

SUBJECT: Draft Environmental Impact Statement for Sand Island Marine Education and Training Center and Public Boat Launch Facility, Oahu

Thank you for giving our Department the opportunity to comment on this matter. We have reviewed the submitted Draft EIS and have the following comments.

Brief Description:

The applicant is proposing to construct an educational center for the training of individuals in boat maintenance and marine propulsion. Also planned within the 8-acre project site is a public boat launch facility to be developed by the State Department of Transportation, Harbors Division. The METC site will also accommodate the University of Hawaii's Aquatics Program, which provides instruction in activities such as sailing, windsurfing and water safety. The project will be developed in a series of phases.

Division of Aquatic Resources Comments:

The draft EIS addresses most of the potential impacts that could occur on aquatic resources in the area. It is suggested that the following precautions, as stated in the draft EIS, be made a requirement: using oil-water separators to prevent petroleum derivatives from being discharged into the municipal sewer system; contracting a hazardous waste management company to dispose of waste oil; using silt curtains as necessary; establishing a water quality monitoring program.

In addition, we suggest that construction activities be conducted during periods of low rainfall and graded lands be replanted as soon as possible to reduce erosion.

The draft EIS proposes to connect the wastewater system to the existing Sand Island Sewage Treatment Plant (STP), which has had chronic problems handling the sewage load it currently processes. A concern would be the ability of the STP to accept this additional sewage load.

HISTORIC PRESERVATION DIVISION COMMENTS:

These parcels are fill lands in the Keehi Lagoon. This project will have "no effect" on historic sites.

OFFICE OF CONSERVATION AND ENVIRONMENTAL AFFAIRS COMMENTS:

Conservation lands to be used by the project include shoreline and submerged lands for a public boat launch facility, concrete pier, jib cranes, finger piers, and seawalls. A Conservation District Use Application (CDUA) would be required for these activities.

Thank you for your cooperation in this matter. Please feel free to call Sam Lemmo at our Office of Conservation and Environmental Affairs, at 587-0377, should you have any questions.

Very truly yours,

John P. Keppeler II

WILLIAM W. PATY

cc: DBEDT, Attn: Edgar Marcus
Wilson Okamoto and Associates, Inc., Attn: Rodney Funakoshi

JOHN WAIHEE
Governor
MURRAY E. TOWILL
Director
BARBARA KIM STANTON
Deputy Director
RICK EGGED
Deputy Director
TAKEMI YOSHIHARA
Deputy Director

DEPARTMENT OF BUSINESS,
ECONOMIC DEVELOPMENT & TOURISM

Central Pacific Plaza, 220 South King Street, 11th Floor, Honolulu, Hawaii
Mailing Address: P.O. Box 2359, Honolulu, Hawaii 96804 Telephone: (808) 586-2406 Fax: (808) 586-2377

Ref. No. W-1165

April 13, 1992

MEMORANDUM

TO: William W. Paty, Director
Department of Land and Natural Resources

FROM: Murray E. Towill, Director
Department of Business, Economic Development & Tourism

SUBJECT: Sand Island Marine Education and Training Center
and Public Boat Launch Facility
Draft Environmental Impact Statement
Tax Map Key 1-5-41: por. 6 and 130
Sand Island, Oahu, Hawaii

Thank you for your letter of March 25, 1992 (File No. 92-524) regarding the subject project. We provide the following in response to your comments.

Division of Aquatic Resources

The proposed METC facility is committed to minimizing impacts from construction and operation activities on aquatic resources. Oil-water separators are currently incorporated in the proposed design of the waste water system for the project. A hazardous waste management company will be contracted to properly dispose of collected hazardous wastes. Where necessary to mitigate turbidity impacts to aquatic resources, silt curtains will be employed during construction activities. A water quality monitoring program will be prepared in compliance with permit requirements for the Department of Health's Water Quality Certification and National Pollutant Discharge Elimination System permit.

To the extent possible, construction activities will be conducted during low periods of rainfall. Where such activity is necessary during higher rainfall periods, every effort will be taken to minimize potential impacts associated with erosion and storm runoff. Potential erosion impacts will be minimized via landscaping and an erosion control plan which will be prepared prior to land clearing and construction.

Regarding the capacity of the Sand Island Wastewater Treatment Plant, our preliminary consultation with the City and County of Honolulu Department of Public Works indicates that the Plant has sufficient remaining capacity to accommodate the anticipated wastewater flows generated by the project.

Historic Preservation Division

Historic Preservation Division comments that the project will have "no effect" on historic sites are duly noted.

Office of Conservation and Environmental Affairs

We appreciate your informing us of the specific shoreline development activities which will require a Conservation District Use Application. As recommended, we will submit all required materials for review and approval by your office.

We appreciate your time and effort in reviewing the Draft Environmental Impact Statement. If you should have any questions regarding the project, please contact Ed Marcus at 586-2530.

Murray E. Towill

cc: Office of Environmental Quality Control

JOHN WAIHEE
GOVERNOR OF HAWAII

STATE OF HAWAII
DEPARTMENT OF HEALTH
P. O. BOX 3378
HONOLULU, HAWAII 96801

JOHN C. LEWIN, M.D.
DIRECTOR OF HEALTH

In reply, please refer to:
91-391/epo

April 1, 1992

TO: The Honorable John Waihee
Governor, State of Hawaii
c/o Director, Office of Environmental Quality Control

FROM: John C. Lewin, M.D.
Director of Health

SUBJECT: Draft Environmental Impact Statement (DEIS)
Marine Education and Training Center and
Public Boat Launch Facility
Sand Island, Oahu
TMK: 1-5-41: por. 6 and 130

Thank you for allowing us to comment on the subject document.

Besides our letter of December 18, 1991, addressing the EIS Preparation Notice, which is found in this DEIS in Section 11, we have one additional comment to add:

Solid Waste

As the facility will be utilizing public funds, we recommend that drop-off containers for recyleables (aluminum, glass, paper) be included with the oil and battery recovery systems. We also feel that the use of locally-produced soil amendments should be addressed in any landscaping.

If you should you have any questions, please call Mr. John Harder of the Office of Solid Waste at 586-4240.

c: Office of Solid Waste
Department of Business, Economic Development and Tourism
Wilson Okamoto and Associates, Inc.

JOHN WAIHEE
Governor
MURRAY E. TOWILL
Director
BARBARA KIM STANTON
Deputy Director
RICE EGGTD
Deputy Director
TAKESHI YOSHIHARA
Deputy Director

DEPARTMENT OF BUSINESS,
ECONOMIC DEVELOPMENT & TOURISM

Central Pacific Plaza, 220 South King Street, 11th Floor, Honolulu, Hawaii
Mailing Address: P.O. Box 2359, Honolulu, Hawaii 96804 Telephone: (808) 586-2408 Fax: (808) 586-2377

Ref. No. W-1168

April 14, 1992

MEMORANDUM

TO: Dr. John C. Lewin, Director
Department of Health

FROM: Murray E. Towill, Director
Department of Business, Economic Development & Tourism

SUBJECT: Sand Island Marine Education and Training Center
and Public Boat Launch Facility
Draft Environmental Impact Statement
Tax Map Key 1-5-41: por. 6 and 130
Sand Island, Oahu, Hawaii

Thank you for your letter of April 1, 1992 (Ref. 91-391/epo) regarding the subject project. As recommended, dedicated drop-off containers for aluminum, glass, and paper recyclables will be considered in the project's design. Since the METC and boat launch facilities will operate as separate entities, provisions for drop-off areas would be planned separately at or near the common refuse locations in each area.

As recommended, every attempt will be made to utilize locally-produced soil amendments such as top-soil for landscaping. Such practice will help to divert material from the waste stream and may encourage the development of a local market for bio-conversion products. Your previous comments regarding the Environmental Impact Statement Preparation Notice are also acknowledged.

We appreciate your time and effort in reviewing the Draft Environmental Impact Statement. If you should have any questions regarding the project, please contact Ed Marcus at 586-2530.

cc: Office of Environmental Quality Control

University of Hawaii at Manoa

Marine Option Program
School of Ocean and Earth Science and Technology
1000 Pope Road, Room 229 • Honolulu, Hawaii 96822 USA
Telephone: (808) 956-6431 • Facsimile: (808) 956-2858 • Omnet: J.DAVIDSON • BITNET: uhmop@uhccvx.bitnet
INTERNET: uhmop@uhccvx.uhcc.hawaii.edu • Telex: 7430050 (ITT), 7238409 (RCA)

March 31, 1992

John Waihee, Governor
State of Hawaii
c/o Office of Environmental Quality Control
220 South King Street, 4th Floor
Honolulu, HI 96813

Dear Governor Waihee:

I have reviewed the DEIS for the State's Sand Island Marine Education and Training Center. Overall the project seems worthwhile and the statement comprehensive. I have the following concerns:

Mokauea Island

1) No consideration has been given to the impacts of the facility/programs on the residents of Mokauea Island, just across from the site. Increased boat traffic, noise, lights, air pollution, and waterborne debris might be expected to affect the residents as they are downwind, downstream, and in sight of the project. Improved water access may result in an increase in "uninvited guests" to the island and increased fishing pressure on the residents' traditional grounds.

Handicap

2) No mention is made of providing handicapped access to the facilities - these accommodations might affect the siting, size and or design of developments on the site.

Aquatics

3) The letter from J. Javinar of 11/14/91 notwithstanding, the space allocation for the UH Aquatics Program does not appear large enough to meet their long range needs to develop an extensive water recreation program (sailing, wind surfing, kayaking, water skiing, diving, etc.). Perhaps a reconsideration of their inclusion, or plans for only temporary accommodation should be made.

Traffic/Transportation

4) The traffic analysis does not address the impact of the UH Aquatics Program. In addition, the analysis for the Honolulu Community College programs does not appear realistic. Students do not come and go on the basis of hourly averages. Rather they travel in pulses to arrive at the beginning of a scheduled class and depart upon its completion. This may result in significantly greater congestion on Sand Island Access Road. Given this, students will arrive for a "10 a.m. class" before the students from the "9 a.m. class" have left the parking lot. It seems unlikely that the number of parking stalls is adequate to accommodate projected users (aquatics, HCC, plus those accompanying boat users in cars without trailers).

A portion of students travel by motorcycle, moped and bicycle - where will these be parked? Hopefully bus service will be provided to Sand Island in the near future. This might alleviate some parking problems. What are MTL's long term plans, and how will the nearest bus stop(s) be accessed from the proposed facility?

HCC Buildings

5) Building design and phasing of construction does not appear to provide the most efficient, environmentally responsible use of space. As I read the plans, faculty and staff will be divided between two buildings, libraries will be in two buildings/four separate rooms, and there will be two student lounges. Consolidation seems in order. This could either reduce the size of the building(s) or be put to better use in support of the programs.

Freshwater Impact

6) What volume of fresh water from washing will enter the ocean, and what will the impacts be?

The project is sound the above concerns should be easily handled.

Thank you for the opportunity to comment.

Sincerely,

Sherwood Maynard
Director

cc: DBEDT
WOA

JOHN WAIHEE
Governor
MURRAY E. TOWNS
Director
BARBARA KIM STANTON
Deputy Director
RICK EGGTD
Deputy Director
TAKESHI YOSHIHARA
Deputy Director

DEPARTMENT OF BUSINESS,
ECONOMIC DEVELOPMENT & TOURISM

Central Pacific Plaza, 220 South King Street, 11th Floor, Honolulu, Hawaii
Mailing Address: P.O. Box 2359, Honolulu, Hawaii 96804 Telephone: (808) 586-2408 Fax: (808) 586-2377

Ref. No. W-1171

April 14, 1992

Mr. Sherwood Maynard, Director
University of Hawaii
Marine Option Program
School of Ocean and Earth Science and Technology
1000 Pope Road, Room 229
Honolulu, HI 96822

Dear Mr. Maynard:

Subject: Sand Island Marine Education and Training Center (METC)
and Public Boat Launch Facility
Draft Environmental Impact Statement
Tax Map Key 1-5-41: por. 6 and 130
Sand Island, Oahu, Hawaii

Thank you for your letter of March 31, 1992 regarding the subject project. We provide the following in response to your comments:

Mokauea Island

Reference to the potential impacts of the project on residents of Mokauea Island will be incorporated in the Final Environmental Impact Statement. There will be an increase in boat traffic due to the new boat launch facility. Lighting of the ramp facility will be designed to minimize off-site visual impacts. Anticipated air emissions and noise associated with the facility will be contained on-site as much as practicable. Work bays will be enclosed and mechanically-ventilated to minimize the impact on adjacent land uses. Industrial discharges from the facility will not be allowed into open coastal water.

Development of the subject facility will increase public access to Keehi Lagoon and surrounding recreational waters. However, this increased access is not

expected to result in a substantial increase in the amount of "uninvited guests" going to Mokauea Island.

Provisions for the Handicapped

The subject project will be designed according to guidelines established for persons with disabilities by the Americans With Disabilities Act (ADA, updated January 1992). According to the ADA, all buildings anticipated for occupancy from January 1993 must be designed in compliance with its regulations. Handicapped parking, lateral circulation, and vertical access and movement have been considered and will be included in the design of the facility.

Aquatics Program

The primary purpose of the METC facility is to function as an education and training college for boat exteriors and engines. Accommodations for the UH Aquatics Program were provided as best as possible given the limitations of site and space availability. Facilities such as classrooms and restrooms will be shared between the programs. The facility does not provide for significant expansion of the Aquatics Program, but with proper scheduling of classroom space and efficient use of the storage area and floating dock, the program's needs can be adequately accommodated.

Traffic/Transportation

In relation to the METC facility, the UH Aquatics Program is anticipated to contribute a relatively small number of vehicles to overall traffic conditions in the project vicinity. Although the number of people attending classes varies each season, between 4 and 14 cars can be expected during summer months (from the end of May to mid-August) when classes are held daily. The estimated maximum of 14 cars would primarily occur on weekends during which time boat maintenance classes run by the HCC are not expected to be held. About 3 to 4 cars may be expected during winter months (mid-August to the end of May) when the Aquatics Program classes are held exclusively during weekends. A van provided by the Aquatics Program also transports U.H. students when necessary, thereby reducing the number of individual cars drawn to the instruction site.

Anticipated traffic patterns and parking stalls needed were developed in consultation with Honolulu Community College (HCC) officials. Schedules for courses such as those proposed for the facility are planned in two 4-hour intervals - one in the morning and one in the afternoon. Based on the class schedule and their

experience with parking requirements at the main campus, HCC expects the estimated 60 parking spaces will suffice for their needs. Combined vehicular, boat and trailer parking for users of the Department of Transportation public boat launch facility is provided in the adjacent area. It should also be noted that the number of spaces proposed for the METC is twice the number required by the City's Land Use Ordinance (LUO).

Parking areas for motorcycles, mopeds and bicycles will be considered in the project's design phase. While provisions for increased bus service to Sand Island could alleviate some parking problems, the City's Honolulu Public Transit Authority (public transportation authority as of January 1992) has no immediate plans for such expansion. the City plans to conduct a Comprehensive Operational Analysis to determine public transportation needs for the island. At such time, a Sand Island route may be established if there is sufficient ridership demand to justify doing so.

HCC Buildings

The Boat Maintenance and Marine Propulsion facilities were designed for instruction and training in boat works and boat engines. Although they are inter-related, these functions are also independent and distinct from each other, from faculty and staff resources to equipment and material requirements. As a result, consolidation of faculty, staff, and student resource areas was not determined to be appropriate.

Freshwater Impacts

The washdown areas are planned to be connected to the municipal sewer system to preclude discharge to the open ocean.

We appreciate your time and effort in reviewing the Draft Environmental Impact Statement. If you should have any questions regarding the project, please contact Ed Marcus at 586-2530.

Sincerely,

Murray E. Towill

cc Office of Environmental Quality Control

University of Hawaii at Manoa

Environmental Center
A Unit of Water Resources Research Center
Crawford 317 • 2550 Campus Road • Honolulu, Hawaii 96822
Telephone: (808) 956-7361

April 8, 1992
RE:0600

Governor, State of Hawaii
c/o Office of Environmental Quality Control
220 South King Street, Fourth Floor
Honolulu, Hawaii 96813

Dear Governor Waihee:

Draft Environmental Impact Statement (DEIS)
Sand Island Marine Education and Training Center
and Public Boat Launch (METC)
Honolulu, Oahu

The referenced project proposes development of an eight acre waterfront site on the northwest corner of Sand Island as an educational facility to provide training programs for the repair and maintenance of marine vessels and engines. Also sharing the site will be the Department of Transportaion's public boat launch facility. The two major facilities will be developed on approximately 4.86 acres. The Boat Maintenance Facility will function predominately as a maintenance and repair facility for boat exteriors. The Marine Propulsion Facility will house multi-disciplinary courses on the internal functions of land and marine based diesel engines. Parking will be provided for approximately 60 cars. The 3.14-acre public boat launch facility will include a double ramp, washdown area, comfort station, and approximately 47 stalls.

The Environmental Center has reviewed the METC DEIS and comments were provided with the assistance of Hans-Jurgen Krock, Ocean Engineering; Paul Ekern (Emeritus), Henry Gee and Yu-Si Fok, Water Resources Research Center; Richard Brock, Hawaii Institute of Marine Biology/Sea Grant; and Alex Buttaro, Environmental Center.

Building Design

High sunlight and relatively low wind velocities (see Figure 5, Ramage, 1979. B AMS. 60(5):430-438) should warrant serious attention to the "comfort factor" in the design of the building. The internal microclimate of the building may have an insolation load high enough to cause evaporation of hazardous vapors. Building design should therefore include air conditioning and carefully located ventillation.

This same insolation is an unrealized asset, because hot water will probably be a necessity for the proposed operations. The State's emphasis on energy conservation may soon mandate the use of solar heaters and it would therefore be appropriate for the EIS to discuss the possibility of implementing such technology.

Currents and Tides

Our reviewers note that section 3.1.8 (pages 3-9 to 3-10) describing electric plant water circulation should more explicitly explain the significance of existing circulation patterns.

Water System

The relationship between washdown and handling of storm drains and runoff from intense winter rain should be discussed in terms of the expected rainfall intensity (Giambelluca et al 1984. Rainfall Frequency Report r-73. DLNR, DWLD).

Drainage System and Solid Waste Disposal

The EIS should more thoroughly discuss the specific types of solvents and cleaners to be used at the METC facility. Will some method of treatment be used to prevent these compounds from entering the sewage system such as ultraviolet light and ozone? We note that solvents such as TCE and PCE have been found in sewage and drinking water supplies in Oahu, and these solvents are not removed by conventional oil/water separators. If these solvents are discharged into a sewer system, any further use of wastewater effluent such as for golf course irrigation may lead to contamination of the groundwater aquifer.

Alternatives

Why do all three alternatives listed in the EIS include the METC facility, thereby neglecting to consider alternatives substantially different than the proposed METC facility? Because of the range of possibilites for this public waterfront site, the EIS should not soley commit the METC to the site. Why was a public park not considered?

Public Recreation

What will be the project's impacts on baitfish and recreational fishing?

Our reviewers found the response to The Department of Parks and Recreation's (DPR) question of the inappropriateness of a heavy industrial use, and previous committments to Kalihi-Palama residents, to be

inadequate. DPR claims that the State has made a commitment to Kalihi-Palama residents "to reserve the shoreline west of the Sand Island Bridge for recreational use including boating activities, but not boat repair and maintenance activities." How does the Department of Business, Economic Development and Tourism's (DBEDT) response that both the METC and public boat launch facilities "are water dependent activities requiring direct access to the shore," address the DPR's question of the appropriateness of this potentially heavy industrial use?

We note that a Development Plan Public Facilities Map Amendment from "Park" to "Public Facility" will be required for the project. What is the justification for withdrawing this land from "Park" use?

Thank you for the opportunity to review this document and we hope our comments are helpful.

Sincerely,

Jacqueline M. Miller for

John T. Harrison, Ph.D.
Environmental Coordinator

cc: Edgar Marcus, DBEDT
Rodney Funakoshi, Wilson Okamoto and Associates
Roger Fujioka
Paul Ekern
Henry Gee
Yu-Si Fok
Alex Buttaro

JOHN WAIHEE
Governor
MURRAY E. TOWILL
Director
BARBARA KIM STANTON
Deputy Director
RICK EGGID
Deputy Director
TAKESHI YOSHIHARA
Deputy Director

DEPARTMENT OF BUSINESS, ECONOMIC DEVELOPMENT & TOURISM

Central Pacific Plaza, 220 South King Street, 11th Floor, Honolulu, Hawaii
Mailing Address: P.O. Box 2359, Honolulu, Hawaii 96804 Telephone: (808) 586-2406 Fax: (808) 586-2377

Ref. No. W-1176

April 15, 1992

Mr. John T. Harrison, PH.D.
Environmental Coordinator
Environmental Center
University of Hawaii at Manoa
2550 Campus Road, Crawford 317
Honolulu, HI 96822

Dear Mr. Harrison:

Subject: Sand Island Marine Education and Training Center
and Public Boat Launch Facility
Draft Environmental Impact Statement
Tax Map Key 1-5-41: por 6 and 130
Sand Island, Oahu, Hawaii

Thank you for your letter of April 8, 1992 (Ref. RE:0600) regarding the subject project. The following is provided in response to your comments.

Building Design

The building designs for both the Boat Maintenance and Marine Propulsion facilities have been designed to incorporate air conditioning and proper ventilation. Classrooms, offices and libraries will be air conditioned, while workbays, shops, and laboratories will be naturally and mechanically ventilated. As recommended, the incorporation of a solar water heating system into the building design will be considered in the project's design stage.

Currents and Tides

The primary impact of the Hawaiian Electric Company, Inc. power plant's alteration of harbor circulation patterns through its intake and effluent is a biological one based on the findings of Oceanit Laboratories for the Aloha Tower

Development (July 1990). Specifically, in proximity to the plant's inlet and outlet, coral, invertebrate and sea life are abundant and diverse in these areas (Piers 7 and 9) compared to other areas of the harbor. Because of the distance from the project site, the biological effects of the HECO plant from circulation can be considered negligible with respect to the METC project.

Water System

As required by the City and County of Honolulu Department of Public Works, the washdown areas proposed for the project are planned for connection to the municipal sewer system to preclude discharge to the open ocean via storm drains. Storm runoff from the parking lot will also be designed to preclude entry to the drain inlet provided for the washdown area.

Drainage and Solid Waste Disposal

The proposed METC facility is committed to minimizing impacts from hazardous materials to the environment. A hazardous waste management company will be contracted to properly collect all hazardous materials including spent solvents used as parts cleaners and paint thinners. Solvents which are used to clean engine parts will be collected and recycled off-site, whereupon solvents will be distilled and reused. Solvents used as paint thinners will be channeled through a recycler, forming a solid cake from impurities which are filtered from spent solvents. The solid cake is then discarded via proper procedures and the thinner may then be reused. Such recycling practices will preclude the entry of spent solvents into the sewer system. The use of chlorinated solvents such as PCE and TCE for the METC facility are not anticipated at this time.

As recommended jn the Hazardous Materials and Regulated Waste Survey prepared for the project, (see Appendix B of the DEIS) all hazardous materials will be stored in a manner to prevent spills, in a secure area, in the manufacturer's approved container, and away from floor drains or other routes to the environment.

Alternatives

As recommended, the FEIS will include a discussion of an alternative other than the METC. Essentially, the no-action alternative could lead to eventual development of the project site for an expanded boat launching facility and car/trailer parking area as indicated in the original Sand Island State Park plan. We

would note, however, that a boat launching facility which meets the needs of the boating public is already incorporated in the current plans.

Public Recreation

During the short-term construction period, temporary increases in turbidity levels may affect baitfish and recreational fishing. However, no significant long-term effects are anticipated to these activities as a result of the project.

The commitment to reserve the shoreline in this area for recreational use preceded the formulation of the Honolulu Waterfront Master Plan, which is the current expression of the State's desires for comprehensively-addressing recreational as well as beneficial maritime development. We disagree with the characterization of the METC as a heavy industrial as opposed to an educational facility, and believe its location is appropriate for the intended use.

We appreciate your time and effort in reviewing the Draft Environmental Impact Statement. If you should have any questions regarding this project, please contact Ed Marcus at 586-2530.

Sincerely,

Murray E. Towill

cc Office of Environmental Quality Control

PB 92-217

March 4, 1992

Honorable John Waihee, Governor
State of Hawaii
c/o Office of Environmental
Quality Control
220 South King Street, 4th Floor
Honolulu, Hawaii 96813

Dear Governor Waihee:

Subject: Sand Island Marine Education and Training
Center and Public Boat Launch Facility
Draft Environmental Impact Statement (DEIS)

We have reviewed the DEIS for the subject project and have no comments to submit.

Very truly yours,

HERBERT K. MURAOKA
Director and Building Superintendent

JH:jo
cc: J. Harada
Dept. of Business, Economic Develop.
and Tourism (E. Marcus)
Wilson Okamoto & Assoc. (R. Funakoshi)

JOHN WAIHEE
Governor
MURRAY E. TOWILL
Director
BARBARA KIM STANTON
Deputy Director
RICE EGGID
Deputy Director
TAKESHI YOSHIHARA
Deputy Director

DEPARTMENT OF BUSINESS,
ECONOMIC DEVELOPMENT & TOURISM

Central Pacific Plaza, 220 South King Street, 11th Floor, Honolulu, Hawaii
Mailing Address: P.O. Box 2359, Honolulu, Hawaii 96804 Telephone: (808) 586-2406 Fax: (808) 586-2377

Ref. No. W-1162

April 13, 1992

Mr. Herbert K. Muraoka
Director and Building Superintendent
City and County of Honolulu
Building Department
650 South King Street
Honolulu, HI 96813

Dear Mr. Muraoka:

Subject: Sand Island Marine Education and Training Center
and Public Boat Launch Facility
Draft Environmental Impact Statement
Tax Map Key 1-5-41: por. 6 and 130
Sand Island, Oahu, Hawaii

Thank you for your letter of March 4, 1992 (Ref. PB 92-217) indicating that you have no comments regarding the subject project. We appreciate your time and effort in reviewing the Draft Environmental Impact Statement.

If you should have any questions, please contact Ed Marcus, Waterfront Project Manager, at 586-2532.

Sincerely,

Murray E. Towill

cc: Office of Environmental Quality Control

DEPARTMENT OF TRANSPORTATION SERVICES
CITY AND COUNTY OF HONOLULU

HONOLULU MUNICIPAL BUILDING
650 SOUTH KING STREET
HONOLULU, HAWAII 96813

FRANK F. FASI
MAYOR

JOSEPH MAGALDI JR.
DIRECTOR

ANAN GAPPAL
DEPUTY DIRECTOR

TE-0809
PL92.1.069

March 16, 1992

The Honorable John D. Waihee
Governor
State of Hawaii
c/o Office of Environmental Quality Control
220 South King Street, Fourth Floor
Honolulu, Hawaii 96813

Dear Governor Waihee:

Subject: Sand Island Marine Education and Training Center and Public Boat Launch Facility
Draft Environmental Impact Statement
TMK: 1-5-41: Portions 6 and 130

This is in response to the Draft Environmental Impact Statement submitted to us for review by the Office of Environmental Quality Control.

We understand that the project access roadway will connect to Sand Island Parkway Road, which is a State Department of Transportation facility and is not intended to be dedicated to the City. This being the case, we have no comments or objections to the proposed development.

Should you have any questions, please contact Hel Hirayama of my staff at 523-4119.

Sincerely,

JOSEPH H. MAGALDI, JR.
Director

cc: Department of Business, Economic Development and Tourism
Wilson Okamoto and Associates, Inc.

JOHN WAIHEE
Governor
MURRAY E. TOWILL
Director
BARBARA KIM STANTON
Deputy Director
RICK EGGED
Deputy Director
TAKESHI YOSHIHARA
Deputy Director

DEPARTMENT OF BUSINESS, ECONOMIC DEVELOPMENT & TOURISM

Central Pacific Plaza, 220 South King Street, 11th Floor, Honolulu, Hawaii
Mailing Address: P.O. Box 2359, Honolulu, Hawaii 96804 Telephone: (808) 586-2406 Fax: (808) 586-2377

Ref. No. W-1162

April 13, 1992

Mr. Joseph Magaldi Jr., Director
Department of Transportation Services
City and County of Honolulu
650 South King Street
Honolulu, HI 96813

Dear Mr. Magaldi:

Subject: Sand Island Marine Education and Training Center
and Public Boat Launch Facility
Draft Environmental Impact Statement
Tax Map Key 1-5-41: por. 6 and 130
Sand Island, Oahu, Hawaii

Thank you for your letter of March 16, 1992 (Ref. TE-0809 PL92.1.069) indicating that you have no comments or objections regarding the subject project. We appreciate your time and effort in reviewing the Draft Environmental Impact Statement.

If you should have any questions, please contact Ed Marcus, Waterfront Project Manager, at 586-2532.

Sincerely,

Murray E. Towill

cc: Office of Environmental Quality Control

DEPARTMENT OF PUBLIC WORKS

CITY AND COUNTY OF HONOLULU

650 SOUTH KING STREET
HONOLULU, HAWAII 96813

FRANK F. FASI
MAYOR

C. MICHAEL STREET
Acting Director and Chief Engineer

'92 MAR 20 P2:57 ENV 92-67

OFC. OF ENVIRONMENTAL QUALITY CONTROL

March 17, 1992

The Honorable John Waihee
Governor
State of Hawaii
c/o Office of Environmental Quality
Control
220 South King Street, 4th Floor
Honolulu, Hawaii 96813

Dear Governor Waihee:

Subject: Draft Environmental Impact Statement (DEIS)
Sand Island Marine Education and Training Center and
Public Boat Launch Facility
TMK:1-5-41:Por. 6 & 130

We have reviewed the subject DEIS and have the following comments:

1. The oil/water separators for the Marine Propulsion Facility and the Boat Maintenance Facility shall be designed to accommodate the proposed quantity of waste discharge.

2. No discharge of hazardous wastes into the municipal sewer system is permitted.

3. A grease trap shall be provided if food preparation facilities are planned.

4. The drain inlet for washdown area shall be designed to exclude rain runoff from the proposed adjacent parking lots.

Very truly yours,

C. Michael Street

C. MICHAEL STREET
Acting Director and Chief Engineer

cc: DBED, Edgar Harcus
Wilson Okamoto and Associates, Inc., Rodney Funakoshi

DEPARTMENT OF BUSINESS, ECONOMIC DEVELOPMENT & TOURISM

JOHN WAIHEE
Governor
MURRAY E. TOWILL
Director
BARBARA KIM STANTON
Deputy Director
RICK EGGED
Deputy Director
TAKESHI YOSHIHARA
Deputy Director

Central Pacific Plaza, 220 South King Street, 11th Floor, Honolulu, Hawaii
Mailing Address: P.O. Box 2359, Honolulu, Hawaii 96804 Telephone: (808) 586-2408 Fax: (808) 586-2377

Ref. No. W-1173

April 14, 1992

Mr. C. Michael Street
Acting Director and Chief Engineer
Department of Public Works
City and County of Honolulu
650 South King Street
Honolulu, HI 96813

Dear Mr. Street:

Subject: Sand Island Marine Education and Training Center
and Public Boat Launch Facility
Draft Environmental Impact Statement
Tax Map Key 1-5-41: por. 6 and 130
Sand Island, Oahu, Hawaii

Thank you for your letter of March 17, 1992 (Ref. ENV 92-67) regarding the subject project. We provide the following in response to your comments:

- As recommended, oil/water separators planned for the METC facility will be designed with sufficient capacity to accommodate the anticipated discharge.

- The discharge of hazardous wastes from the proposed project into the municipal sewer system will not be permitted. Hazardous substances will avoid the municipal sewer lines through a system of trench drains and oil-water separators.

- Food preparation facilities are not planned for the proposed project.

- As required, storm runoff from the parking lot will be designed to preclude entry to the drain inlet provided for the washdown area.

We appreciate your time and effort in reviewing the Draft Environmental Impact Statement. If you should have any questions regarding the project, please contact Ed Marcus at 586-2530.

Sincerely,

Murray E. Towill

cc: Office of Environmental Quality Control

DEPARTMENT OF GENERAL PLANNING
CITY AND COUNTY OF HONOLULU
650 SOUTH KING STREET
HONOLULU, HAWAII 96813

FRANK F. FASI
MAYOR

BENJAMIN B. LEE
CHIEF PLANNING OFFICER

ROLAND D. LIBBY, JR.
DEPUTY CHIEF PLANNING OFFICER

TH 2/92-568

March 25, 1992

The Honorable John D. Waihee, III
Governor of Hawaii
c/o Office of Environmental Quality Control
State of Hawaii
Central Pacific Plaza
220 South King Street, 4th Floor
Honolulu, Hawaii 96813

Dear Governor Waihee:

Draft Environmental Impact Statement (DEIS)
for the Marine Education and Training Center
and Public Boat Launch Facility,
Sand Island, Honolulu, Oahu, Hawaii,
Tax Map Key: 1-5-41: por. of 6 and 130

In response to the request for comments on the subject DEIS we offer the following comments.

1. The project site is currently designated Park and Public Facility on the Development Plan Land Use Map (DPLUM). The DEIS indicates that a Development Plan Public Facilities Map (DPPFM) amendment is required to change the existing "Park" symbol to "Public Facility" (p. 4-14). That is incorrect. A DPPFM amendment will be required to add a "College" symbol. Once the proposed project is completed and a letter of completion is submitted to our department, the DPLUM will be administratively changed to reflect a Public Facility designation.

2. The DEIS mentioned only one alternate project site which was summarily dismissed as lacking sufficient land area and infrastructure. The EIS should consider a minimum of three feasible alternate sites and should also discuss the criteria by which the candidate sites are selected. Consideration of a site which is too small is not a meaningful investigation of alternatives.

Thank you for the opportunity to comment on this matter. Should you have any questions, please contact Tim Hata of our staff at 527-6070.

Sincerely,

BENJAMIN B. LEE
Chief Planning Officer

BBL:lh

cc: Department of Business, Economic Development and Tourism
Wilson Okamoto and Associates, Inc.

JOHN WAIHEE
Governor
MURRAY E. TOWILL
Director
BARBARA KIM STANTON
Deputy Director
RICK EGGED
Deputy Director
TAKESHI YOSHIHARA
Deputy Director

DEPARTMENT OF BUSINESS, ECONOMIC DEVELOPMENT & TOURISM

Central Pacific Plaza, 220 South King Street, 11th Floor, Honolulu, Hawaii
Mailing Address: P.O. Box 2359, Honolulu, Hawaii 96804 Telephone: (808) 586-2466 Fax: (808) 586-2377

Ref. No. W-1165

April 13, 1992

Mr. Benjamin B. Lee, Chief Planning Officer
Department of General Planning
City and County of Honolulu
650 South King Street
Honolulu, HI 96813

Dear Mr. Lee:

Subject: Sand Island Marine Education and Training Center
and Public Boat Launch Facility
Draft Environmental Impact Statement
Tax Map Key 1-5-41: por. 6 and 130
Sand Island, Oahu, Hawaii

Thank you for your letter of March 25, 1992 (ref. TH 2/92-568) regarding the subject project. Your correction if reference to the Development Plan Public Facilities Map amendment to add a "College" symbol will be reflected in the forthcoming Final Environmental Impact Statement (FEIS).

In response to your concerns regarding alternative sites, the discussion of project alternatives will be expanded in the FEIS to include two additional project sites that were considered during the early planning stages of the project. The alternatives consist of: a) an approximately 12.2-acre parcel, currently under the jurisdiction of the Department of Land and Natural Resources at the confluence of Kalihi and Moanalua Streams (tax Map Key 1-1-03:03); and b) an estimated 6.4-acre parcel, under the jurisdiction of the Honolulu Community College on the Diamond Head side of Kapalama Drainage Channel between Dillingham Boulevard and Nimitz Highway (Tax Map Key 1-5-20:09). The no-action alternative will also be discussed in the FEIS.

We appreciate your time and effort in reviewing the Draft Environmental Impact Statement. If you should have any questions regarding the project, please contact Ed Marcus at 586-2530.

Sincerely,

Murray E. Towill

cc: Office of Environmental Quality Control

POLICE DEPARTMENT
CITY AND COUNTY OF HONOLULU

FRANK F. FASI
MAYOR

MICHAEL S. NAKAMURA
CHIEF

HAROLD M. HAMASEKI
DEPUTY CHIEF

OUR REFERENCE ES-LK

March 30, 1992

The Honorable John Waihee
Governor of Hawaii
c/o Office of Environmental Quality Control
220 South King Street, 4th Floor
Honolulu, Hawaii 96813

Dear Governor Waihee:

Subject: Sand Island Marine Education and Training Center and Public Boat Launch Facility

We have reviewed the draft environmental impact statement for the Sand Island Marine Education and Training Center and Public Boat Launch Facility. The statement addresses the concerns that we would normally have, especially about traffic flow. We have no additional comments.

Thank you for the opportunity to review this draft.

Sincerely,

MICHAEL S. NAKAMURA
Chief of Police

By CHESTER E. HUGHES
Assistant Chief of Police
Support Services Bureau

cc: Mr. Edgar Marcus
Mr. Rodney Funakoshi

JOHN WAIHEE
Governor

MURRAY E. TOWILL
Director

BARBARA KIM STANTON
Deputy Director

NICK EGGED
Deputy Director

TAKESHI YOSHIHARA
Deputy Director

DEPARTMENT OF BUSINESS,
ECONOMIC DEVELOPMENT & TOURISM

Central Pacific Plaza, 220 South King Street, 11th Floor, Honolulu, Hawaii
Mailing Address: P.O. Box 2359, Honolulu, Hawaii 96804 Telephone: (808) 586-2408 Fax: (808) 586-2377

Ref. No. W-1162

April 13, 1992

Mr. Michael S. Nakamura
Chief of Police
Police Department
City and County of Honolulu
1455 South Beretania Street
Honolulu, HI 96814

Dear Mr. Nakamura:

Subject: Sand Island Marine Education and Training Center
and Public Boat Launch Facility
Draft Environmental Impact Statement
Tax Map Key 1-5-41: por 6 and 130
Sand Island, Oahu, Hawaii

Thank you for your letter of March 30, 1992 (Ref. ES-LK) indicating that your comments on the subject project have been addressed in the DEIS. We appreciate your time and effort in reviewing the Draft Environmental Impact Statement.

If you should have any questions, please contact Ed Marcus, Waterfront Project Manager, at 586-2532.

Sincerely,

Murray E. Towill

cc: Office of Environmental Quality Control

BOARD OF WATER SUPPLY
CITY AND COUNTY OF HONOLULU

COPY

March 31, 1992

Mr. Brian J. J. Choy, Director
Office of Environmental Quality Control
State of Hawaii
220 South King Street
Fourth Floor
Honolulu, Hawaii 96813

Dear Mr. Choy:

Subject: Draft Environmental Impact Statement (DEIS) of February 1992 Regarding the Proposed Sand Island Marine Education and Training Center and Public Boat Launch Facility, TMK: 1-5-41: Por. 6 and 130

Thank you for the opportunity to review and comment on the DEIS for the proposed marine facility.

We have the following comments to offer:

1. There is an existing six-inch meter currently serving the area. A second service (S/N 704-12991) can be reactivated by February 21, 1996. Thereafter, the developer will be required to pay the applicable Water System Facilities Charges.

2. If additional water is required, the proposed project will require a water allocation from the State Department of Land and Natural Resources. The availability of water will be confirmed when the building permits are submitted for our review and approval. If additional water is made available, the developer will be required to pay our Water System Facilities Charges for transmission and daily storage.

3. If a three-inch or larger meter is required, the construction drawings showing the installation of the meter should be submitted for our review and approval.

BOARD OF WATER SUPPLY
CITY AND COUNTY OF HONOLULU

COPY

4. The Board of Water Supply approved reduced pressure principle backflow prevention assemblies should be installed on the property side of the property line as close to the domestic water meters as physically possible.

If you have any questions, please contact Bert Kuioka at 527-5235.

Very truly yours,

KAZU HAYASHIDA
Manager and Chief Engineer

cc: Department of Business, Economic Development and Tourism
Wilson Okamoto and Associates

JOHN WAIHEE
Governor
MURRAY E. TOWILL
Director
BARBARA KIM STANTON
Deputy Director
RICE EGGED
Deputy Director
TAKESHI YOSHIHARA
Deputy Director

DEPARTMENT OF BUSINESS, ECONOMIC DEVELOPMENT & TOURISM

Central Pacific Plaza, 220 South King Street, 11th Floor, Honolulu, Hawaii
Mailing Address: P.O. Box 2359, Honolulu, Hawaii 96804 Telephone: (808) 586-2408 Fax: (808) 586-2377

Ref. No. W-1165

April 13, 1992

Mr. Kazu Hayashida
Manager and Chief Engineer
Board of Water Supply
City and County of Honolulu
630 South Beretania Street
Honolulu, HI 96813

Dear Mr. Hayashida:

Subject: Sand Island Marine Education and Training Center
and Public Boat Launch Facility
Draft Environmental Impact Statement
Tax Map Key 1-5-41: por. 6 and 130
Sand Island, Oahu, Hawaii

Thank you for your letter of March 31, 1992 regarding the subject project. Your comments on credit for Water System Facility Charge, and additional water allocation will be complied with as required. As requested, construction drawing for the installation of any meters, three inches or larger, will be submitted for your review and approval. Placement and installation of reduced pressure principle backflow prevention assemblies will also be executed in compliance with BWS requirements, We appreciate your time and effort in reviewing the Draft Environmental Impact Statement.

If you should have any questions regarding the project, please contact Ed Marcus at 586-2530.

Sincerely,

Murray E. Towill

cc: Office of Environmental Quality Control

DEPARTMENT OF LAND UTILIZATION
CITY AND COUNTY OF HONOLULU
650 SOUTH KING STREET
HONOLULU HAWAII 96813 • PHONE: 523-4432

FRANK F. FASI
MAYOR

DONALD A. CLEGG
DIRECTOR

LORETTA K.C. CHEE
DEPUTY DIRECTOR

LU2/92-1087(JT)

April 3, 1992

The Honorable John D. Waihee
Governor of Hawaii
c/o Office of Environmental Quality Control
220 South King Street, 4th Floor
Honolulu, Hawaii 96813

Dear Governor Waihee:

Draft Environmental Impact Statement (DEIS)
for the Sand Island Marine Education and Training Center
and Public Boat Launch Facility
Tax Map Keys: 1-5-41: por. 6 and 130

Thank you for the opportunity to comment on the above project. We have reviewed the DEIS and offer the following comments:

Plan Review Use

The DEIS cites as unresolved whether the proposed development will be subject to a Plan Review Use approval by the City and County of Honolulu. The Marine Education and Training Center will be a part of the educational services provided by the Honolulu Community College. In addition, the project includes boat parking, an equipment storehouse and a 12-foot by 60-foot floating dock for use by the University of Hawaii Aquatics Program. Therefore the Environmental Impact Statement (EIS) should state that a Plan Review Use approval will be required.

Soils

The EIS should include cleanup measures in the event of accidental rupture of any of the three existing underground fuel pipelines which cross the property.

Water Quality

The EIS should describe the methods in which oils, solvents and other potential contaminants will be prevented from entering into coastal waters during repair and maintenance training activities.

If you have any questions, please contact Joan Takano of our staff at 527-5038.

Very truly yours,

Donald Clegg

DONALD A. CLEGG
Director of Land Utilization

DAC:cct

a:eismetc.jht

c: Edgar Marcus, DBED, & Tourism
Rodney Funakoshi, Wilson Okamoto and Associates, Inc.

JOHN WAIHEE
Governor
MURRAY E. TOWILL
Director
BARBARA KIM STANTON
Deputy Director
RICK EGGED
Deputy Director
TAKESHI YOSHIHARA
Deputy Director

DEPARTMENT OF BUSINESS,
ECONOMIC DEVELOPMENT & TOURISM

Central Pacific Plaza, 220 South King Street, 11th Floor, Honolulu, Hawaii
Mailing Address: P.O. Box 2359, Honolulu, Hawaii 96804 Telephone: (808) 586-2408 Fax: (808) 586-2377

Ref. No. W-1172

April 14, 1992

Mr. Donald A. Clegg, Director
Department of Land Utilization
City and County of Honolulu
650 South King Street
Honolulu, HI 96813

Dear Mr. Clegg:

Subject: Sand Island Marine Eduction and Training Center
and Public Boat Launch Facility
Draft Environmental Impact Statement
Tax Map Key 1-5-41: por. 6 and 130
Sand Island, Oahu, Hawaii

Thank you for your letter of April 3, 1992 (Ref. LU2/92-1087(JT)) regarding the subject project. Your clarification of the project's requirement for a Plan Review Use (PRU) approval is appreciated. The Final Environmental Impact Statement will be revised to reflect that the proposed METC facility, as part of the Honolulu Community College campus, is subject to Article 3, Section 3, 160 of the Land Use Ordinance relating to the requirement for PRU approval.

Regarding your concerns about clean-up procedures in the event of accidental fuel line ruptures, every effort will be made to mitigate potential leakage problems. Appropriate precautionary measures will be requested of the Contractor, such as: a) informing fuel line owners of proposed action and submitting construction plans for their review and feedback, b) notifying fuel line owners prior to any excavation activity near the existing fuel lines; and c) assuming financial responsibility for hiring personnel (from or representing the fuel companies) to monitor excavation activities (personnel should be equipped with a radio to request immediate shut-off of pumps). A hazardous materials management company will

also be contracted for proper clean-up procedures, in the event that rupture of the fuel lines should occur.

The proposed METC will be designed to minimize the impacts of hazardous materials and regulated wastes on land and marine environments. Mitigative design measures include: collection and storage of hazardous substances in designated areas, limited access, impervious ground surfaces, bermed containments, and weather protection. Further, discharge of hazardous wastes from the proposed project into the drainage systems will not be permitted. Hazardous substances will avoid the municipal system through a system of trench drain and oil-water separators. Wastewater which has been cleansed of waste oil will be conveyed to the Sand Island Wastewater Treatment Plant.

We appreciate your time and effort in reviewing the Draft Environmental Impact Statement. If you should have any questions regarding this project, please contact Ed Marcus at 586-2530.

Sincerely,

Murray E. Towill

cc: Office of Environmental Quality Control

DEPARTMENT OF PARKS AND RECREATION
CITY AND COUNTY OF HONOLULU
650 SOUTH KING STREET
HONOLULU, HAWAII 96813

FRANK F. FASI
MAYOR

WALTER M. OZAWA
DIRECTOR

ALVIN K. C. AU
DEPUTY DIRECTOR

April 6, 1992

The Honorable John Waihee
Governor
State of Hawaii
c/o Office of Environmental
Quality Control
220 South King Street, 4th Floor
Honolulu, Hawaii 96813

Dear Governor Waihee:

Subject: Draft Environmental Impact Statement (DEIS)
Sand Island Marine Education and Training Center
and Public Boat Launching Facility
Tax Map Key 1-5-41: Por. 6 & 130

We have reviewed the DEIS for the proposed Sand Island Marine Education and Training Center (METC) and Public Boat Launching Facility and offer the following comments.

We accept the Department of Business, Economic Development and Tourism's statement that the Kalihi-Palama Neighborhood Board and the Kalihi-Palama Community Council will be continuously involved in the planning of the boat maintenance and marine propulsion facilities adjacent to the proposed Sand Island Park expansion.

Thank you for the opportunity to comment on the DEIS.

Sincerely,

WALTER M. OZAWA, Director

WMO:ei

cc: Department of Business, Economic
Development and Tourism
Wilson Okamoto and Associates, Inc.
Kalihi-Palama Community Council
Kalihi-Palama Neighborhood Board No. 15

DEPARTMENT OF BUSINESS,
ECONOMIC DEVELOPMENT & TOURISM

JOHN WAIHEE
Governor
MURRAY E. TOWILL
Director
BARBARA KIM STANTON
Deputy Director
RICK EGGED
Deputy Director
TAKESHI YOSHIHARA
Deputy Director

Central Pacific Plaza, 220 South King Street, 11th Floor, Honolulu, Hawaii
Mailing Address: P.O. Box 2359, Honolulu, Hawaii 96804 Telephone: (808) 586-2408 Fax: (808) 586-2377

Ref. No. W-1170

April 14, 1992

Mr. Walter M. Ozawa, Director
Department of Parks and Recreation
City and County of Honolulu
650 South King Street
Honolulu, HI 96813

Dear Mr. Ozawa:

Subject: Sand Island Marine Education and Training Center
and Public Boat Launch Facility
Draft Environmental Impact Statement
Tax Map Key 1-5-41: por. 6 and 130
Sand Island, Oahu, Hawaii

Thank you for your letter of April 6, 1992 regarding the subject project. We intend to continue our consultation with the Kalihi-Palama Neighborhood Board and Kalihi-Palama Community Council as we proceed with the design and development of the project.

We appreciate your time and effort in reviewing the Draft Environmental Impact Statement. If you should have any questions about the project, please contact Ed Marcus at 586-2530.

Sincerely,

Murray E. Towill

cc Office of Environmental Quality Control

Hawaiian Electric Company, Inc. • PO Box 2750 • Honolulu, HI 96840-001

March 9, 1992

William A. Bonnet
Manager
Environmental Department

The Honorable John Waihee
Governor of Hawaii
Office of Environmental Quality Control
220 South King Street, 4th floor
Honolulu, HI 96813

Dear Governor:

Subject: Draft Environmental Impact Statement (DEIS)
Sand Island Marine Education and Training Center
and Public Boat Launch Facility
Sand Island, Oahu

We have reviewed the subject DEIS, and have no comments at this time on the proposed project. HECO shall reserve further comments pertaining to the protection of existing powerlines bordering and servicing the area until construction plans are finalized.

Sincerely,

cc: Mr. Edgar Marcus, Dept. of Business
Economic Development and Tourism
Mr. Rodney Funakoshi, Wilson Okamoto and Associates, Inc.

DEPARTMENT OF BUSINESS,
ECONOMIC DEVELOPMENT & TOURISM
Central Pacific Plaza, 220 South King Street, 11th Floor, Honolulu, Hawaii
Mailing Address: P.O. Box 2359, Honolulu, Hawaii 96804 Telephone: (808) 586-2404 Fax: (808) 586-2377

Ref. No. W-1162

April 13 1992

Mr. William A. Bonnet, Manager
Environmental Department
Hawaiian Electric Company, Inc.
P. O. Box 2750
Honolulu, HI 96804-0001

Dear Mr. Bonnet:

Subject: Sand Island Marine Education and Training Center
and Public Boat Launch Facility
Draft Environmental Impact Statement
Tax Map Key 1-5-41: por. 6 and 130
Sand Island, Oahu, Hawaii

Thank you for your letter of March 9, 1992 indicating that you have no comments on the subject project at this time. We appreciate your time and effort in reviewing the Draft Environmental Impact Statement.

If you should have any questions, please contact Ed Marcus, Waterfront Project Manager, at 586-2532.

Sincerely,

Murray E. Towill

cc Office of Environmental Quality Control

CORRECTION

THE PRECEDING DOCUMENT(S) HAS BEEN REPHOTOGRAPHED TO ASSURE LEGIBILITY
SEE FRAME(S)
IMMEDIATELY FOLLOWING

Hawaiian Electric Company, Inc. • PO Box 2750 • Honolulu, HI 96840-001

William A. Bonnet
Manager
Environmental Department

March 9, 1992

The Honorable John Waihee
Governor of Hawaii
Office of Environmental Quality Control
220 South King Street, 4th floor
Honolulu, HI 96813

Dear Governor:

Subject: Draft Environmental Impact Statement (DEIS)
Sand Island Marine Education and Training Center
and Public Boat Launch Facility
Sand Island, Oahu

We have reviewed the subject DEIS, and have no comments at this time on the proposed project. HECO shall reserve further comments pertaining to the protection of existing powerlines bordering and servicing the area until construction plans are finalized.

Sincerely,

cc: Mr. Edgar Marcus, Dept. of Business
Economic Development and Tourism
Mr. Rodney Funakoshi, Wilson Okamoto and Associates, Inc.

DEPARTMENT OF BUSINESS,
ECONOMIC DEVELOPMENT & TOURISM

Central Pacific Plaza, 220 South King Street, 11th Floor, Honolulu, Hawaii
Mailing Address: P.O. Box 2359, Honolulu, Hawaii 96804 Telephone: (808) 586-2404 Fax: (808) 586-2377

JOHN WAIHEE
Governor
MURRAY E. TOWILL
Director
BARBARA KIM STANTON
Deputy Director
RICK EGGED
Deputy Director
TAKESHI TOSHINAGA
Deputy Director

Ref. No. W-1162

April 13 1992

Mr. William A. Bonnet, Manager
Environmental Department
Hawaiian Electric Company, Inc.
P. O. Box 2750
Honolulu, HI 96804-0001

Dear Mr. Bonnet:

Subject: Sand Island Marine Education and Training Center
and Public Boat Launch Facility
Draft Environmental Impact Statement
Tax Map Key 1-5-41: por. 6 and 130
Sand Island, Oahu, Hawaii

Thank you for your letter of March 9, 1992 indicating that you have no comments on the subject project at this time. We appreciate your time and effort in reviewing the Draft Environmental Impact Statement.

If you should have any questions, please contact Ed Marcus, Waterfront Project Manager, at 586-2532.

Sincerely,

Murray E. Towill

cc: Office of Environmental Quality Control

Lockheed Air Terminal

3071 Aolele Street
Honolulu, Hawaii 96819
(808) 836-1381

2 April 1992

The Honorable John D. Waihee III
Governor
State of Hawaii
c/o Office of Environmental Quality Control
220 South Queen Street, 4th Floor
Honolulu, HI 96813

SUBJECT: REVIEW OF EIS FOR THE SAND ISLAND MARINE EDUCATION AND TRAINING CENTER AND PUBLIC BOAT LAUNCH FACILITY

Dear Governor Waihee:

Mr. A. W. McCarter, Consulting Engineer of the Hawaii Fueling Facilities Corporation (HFFC), has reviewed the above EIS for the Sand Island Marine Facility and attached are his comments which we concur with as operators of the HFFC facility.

If you have any questions regarding those comments, please call Mr. McCarter at 922-5743 or this office of Lockheed Air Terminal.

Very truly yours,

Stanley T. Ambo
Manager - Airport Services

cc: Department of Business, Economic & Tourism
Honolulu Waterfront Project
P. O. Box 2359
Honolulu, HI 96804

Wilson, Okamoto & Associates, Inc.
1150 South King Street, Suite 800
Honolulu, HI 96814
ATTN: Mr. Rodney Funakoshi

ADM 8-5
John Thatcher (HFFC)
J. Harmon (LAT)

McCARTER, INC.
P.O. BOX 10279 HONOLULU, HAWAII 96816 (808) 922 5743 FAX (808) 922 5840

March 24, 1992

Lockheed Air Terminal, Inc.
3071 Aolele Street
Honolulu, Hawaii 96819

ATTN: Mr. Stanley T. Ambo,
Manager - Airport Services

SUBJECT: Review Draft EIS for Marine Education & Training Center

Dear Mr Ambo:

I have reviewed the Draft Environmental Impact Statement for the Marine Education and Training Center and Public Boat Launch Facility proposed to be located on Sand Island. A portion of the facility is to be constructed over Hawaii Fueling Facilities Corp. (HFFC) easement which has one (1) eighteen (18) inch fuel line and two (2) twelve (12) inch fuel lines. One of the twelve (12) inch fuel lines is owned by Hawaiian Independent Refinery Inc. (HIRI).

The separated easements shown on the various Figures are each 15 feet wide and when they join together it is 31.28 feet wide.

Following are the comments of the Draft EIS:

Page 1-5

Honolulu Fueling Facility Corporation should be changed to Hawaii Fueling Facility Corporation.

HFFC owns a 12-inch and an 18-inch diameter pipeline and HIRI owns a 12-inch diameter pipeline.

Page 3-5

Same changes as shown for page 1-5.

Page 5-5

Figure 5-1, Landscape Plan shows trees within and over the easement that has a 18-inch diameter fuel line. Future roots from these trees will damage the corrosion protection coating on this line and eventually promising a possibility of a fuel leak.

Page 5-23

Figure 5-7, Water System Plan shows a connection over (or may be under) the existing lines. We would suggest making the line connection at some other point to preclude later access problems and problems with cathodic protection interference which we continually experience on crossings of other independently protected systems.

Change Honolulu Fueling Facilities Corp. To Hawaii Fueling Facilities Corporation.

In general the comments are minor and although we understand this is for planning purposes we are concerned with showing certain work over the pipelines that may become a problem and eventually cause a line failure. Preliminary planning should not include work that will cause future problems or problems during design if they can be avoided.

Respectfully,

A. W. McCarter, P.E.
Lic. No. 3104-M

JOHN WAIHEE
Governor
MURRAY E. TOWILL
Director
BARBARA KIM STANTON
Deputy Director
NICK EGGED
Deputy Director
TAKESHI YOSHIHARA
Deputy Director

DEPARTMENT OF BUSINESS,
ECONOMIC DEVELOPMENT & TOURISM

Central Pacific Plaza, 220 South King Street, 11th Floor, Honolulu, Hawaii
Mailing Address: P.O. Box 2359, Honolulu, Hawaii 96804 Telephone: (808) 586-2406 Fax: (808) 586-2377

Ref. No. W-1165

April 13, 1992

Mr. Stanley T. Ambo
Manager Airport services
Lockheed Air Terminal, Inc.
3071 Aolele Street
Honolulu, HI 96819

Dear Mr. Ambo:

Subject: Sand Island Marine Education and Training Center
and Public Boat Launch Facility
Draft Environmental Impact Statement
Tax Map Key 1-5-41: por 6 and 130
Sand Island, Oahu, Hawaii

Thank you for your letter of April 2, 1992 regarding the subject project. We provide the following in response to your comments:

- Pages 1-5 and 3-5 — The Final Environmental Impact Statement will be revised to reflect HFFC as "Hawaii Fueling Facility Corporation", and the correct diameters for fuel lines owned by HFFC and HIRI. 1
- Page 5-5 — We concur with your concerns that locating trees over the existing fuel line easement may cause difficulties associated with the tree roots. As such, the landscape development plan will be modified to prohibit landscaping, such as trees with aggressive root characteristics, over and near existing fuel line easements.

- Page 5-23 — As recommended, the proposed location of the 12-inch relocated water line will be re-evaluated. The alignment illustrated in Figure 5-7 was selected in order to avoid the proposed Marine Propulsion facility. We will consider an alternative which would traverse between the Marine Propulsion facility and existing fuel lines, thus avoiding future interference with either. Revisions to the proposed water system will be incorporated during the design stage of the project.

- Page 11-2 — Honolulu Fueling Facilities Corporation will be changed to Hawaii Fueling Facilities Corporation.

We appreciate your time and effort in reviewing the Draft Environmental Impact Statement. If you should have any questions regarding the project, please contact Ed Marcus at 586-2530.

Sincerely,

Murray E. Towill

cc: Office of Environmental Quality Control

Sections 13 and 14

LIST OF PREPARERS

REFERENCES

SECTION 13
LIST OF EIS PREPARERS

EIS CONSULTANT

Wilson Okamoto and Associates, Inc.	Rodney Funakoshi, Project Manager Laura Fujioka, Planner Russell Okita, Engineer Walter Leu, AIA

TECHNICAL CONSULTANTS

AECOS, Inc.	Eric B. Guinther, President
Fewell Geotechnical Engineering, Ltd.	Timothy Cavanaugh, P.E.
Lacayo Visualizations	Richard Childers, President
Muranaka Environmental Consultants, Inc.	Mark Muranaka, Principal Mike Coyle, Senior Environmental Scientist
Wilbur Smith and Associates	Bryant Brothers, Senior Traffic Engineer

SECTION 14
REFERENCES

Chu, Michael S., and Robert B. Jones. *Coastal View Study*. Prepared for the City and County of Honolulu, Department of Land Utilization. Honolulu, Hawaii. 1987.

City and County of Honolulu, Department of General Planning. *Development Plan Primary Urban Center*. Honolulu, Hawaii.

City and County of Honolulu, Department of Land Utilization. *Land Use Ordinance*. Honolulu, Hawaii, December 1990.

Edward K. Noda and Associates, Inc. *Keehi Lagoon Recreational Plan Final Environmental Impact Statement*. Honolulu, Hawaii. December 1989.

Federal Emergency Management Agency. *FIRM Flood Insurance Rate Map City and County of Honolulu*. Prepared for the National Flood Insurance Program. Revised September 1990.

Helber, Hastert and Kimura, Planners, and R.M. Towill Corporation. *Honolulu Waterfront Master Plan Final Report*. Honolulu, Hawaii. October 1989.

KFC Airport, Inc. and Edward K. Noda and Associates, Inc. *Honolulu International Airport Master Plan Update & Noise Compatibility Program Volume 2 Parts I and II*. Honolulu, Hawaii. October 1989.

Land Study Bureau, University of Hawaii. *Detailed Land Classification - Island of Oahu*. L.S.B. Bulletin No. 11. December 1972.

Oceanit Laboratories, Inc. *Marine Environmental Assessment for the Waterfront at Aloha Tower*. Prepared for the State of Hawaii Aloha Tower Development Corporation. July 1990.

State of Hawaii, Department of Business and Economic Development and Tourism. *The State of Hawaii Data Book 1990; A Statistical Abstract*. Honolulu, Hawaii. November 1990.

State of Hawaii, Department of Land and Natural Resources. *State Recreation Functional Plan Technical Reference Document and State Comprehensive Outdoor Recreation Plan*. Honolulu, Hawaii. December 1990.

United States Army Corps of Engineers Honolulu District. *Sand Island Shore Protection A Detailed Project Report and Environmental Impact Statement*. Honolulu Hawaii. October 1983.

United States Department of Agriculture Soil Conservation Service. *Soil Survey of Islands of Kauai, Oahu, Maui, Molokai, and Lanai, State of Hawaii*. In cooperation with the University of Hawaii Agricultural Experiment Station. August 1972.

William A. Brewer & Associates. *Honolulu Waterfront Master Plan Technical Report Series Marine Biological Resources, Opportunities and Constraints*. Prepared for Helber, Hastert & Kimura Planners and R.M. Towill Corporation, A Joint Venture. Honolulu, Hawaii. February 1989.

Wilson Okamoto and Associates, Inc. *Marine Education and Training Center and Public Boat Launch Facility Master Plan*. Honolulu, Hawaii. September 1991.

Wilson Okamoto and Associates, Inc. *Final Environmental Impact Statement for Proposed Honolulu Corporation Yard Sand Island and Sand Island Park Extension*. Honolulu, Hawaii. July 1989.

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Edward K. Noda and Associates, Inc. *Keehi Lagoon Recreational Plan Final Environmental Impact Statement*. Honolulu, Hawaii. December 1989.

Federal Emergency Management Agency. *FIRM Flood Insurance Rate Map City and County of Honolulu*. Prepared for the National Flood Insurance Program. Revised September 1990.

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State of Hawaii, Department of Business and Economic Development and Tourism. *The State of Hawaii Data Book 1990; A Statistical Abstract*. Honolulu, Hawaii. November 1990.

State of Hawaii, Department of Land and Natural Resources. *State Recreation Functional Plan Technical Reference Document and State Comprehensive Outdoor Recreation Plan*. Honolulu, Hawaii. December 1990.

United States Army Corps of Engineers Honolulu District. *Sand Island Shore Protection A Detailed Project Report and Environmental Impact Statement*. Honolulu Hawaii. October 1983.

United States Department of Agriculture Soil Conservation Service. *Soil Survey of Islands of Kauai, Oahu, Maui, Molokai, and Lanai, State of Hawaii*. In cooperation with the University of Hawaii Agricultural Experiment Station. August 1972.

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Wilson Okamoto and Associates, Inc. *Marine Education and Training Center and Public Boat Launch Facility Master Plan*. Honolulu, Hawaii. September 1991.

Wilson Okamoto and Associates, Inc. *Final Environmental Impact Statement for Proposed Honolulu Corporation Yard Sand Island and Sand Island Park Extension*. Honolulu, Hawaii. July 1989.

Appendix A

SOIL RECONNAISSANCE REPORT MARINE EDUCATION AND TRAINING CENTER SAND ISLAND, OAHU, HAWAII

FEWELL
GEOTECHNICAL
ENGINEERING, LTD.

Soil Reconnaissance Report
Marine Education and Training Center
Sand Island, Oahu, Hawaii

for

Wilson Okamoto and Associates, Inc.

by

FEWELL GEOTECHNICAL ENGINEERING, LTD.

February 14, 1991

96-1416 Waihona Place • Pearl City, Hawaii 96782-1973 • (808) 455-6569 • FAX 456-7062

FEWELL
GEOTECHNICAL
ENGINEERING, LTD.

File 995-1
February 14, 1991

Wilson Okamoto and Associates, Inc.
P.O. Box 3530
Honolulu, Hawaii 96811

Attention: Mr. Rodney Funakashi

Subject: Soil Reconnaissance Report
Marine Education and Training Center
Sand Island, Oahu, Hawaii

Gentlemen:

We have completed a soil reconnaissance for the Marine Education and Training Center at Sand Island, Oahu, Hawaii. This letter summarizes our findings and conclusions and outlines the anticipated soil conditions and their effect on the proposed development.

The development of specific design recommendations was not included within the scope of this report and a separate subsurface investigation may be needed to develop detailed geotechnical recommendations once the scope of the project has been better defined.

Project Description - It is our understanding that the proposed center will be situated on the western side of Sand Island Access Road in the northwestern corner of Sand Island adjacent to Kapalama Channel. The general area is shown on the Project Location Map, Figure 1.

Although the planning for the project is in the preliminary stages, it is our understanding that the development will consist of low-rise, relatively lightly-loaded classrooms and workshops. A boat-launching ramp is planned in the northern portion of the site near Sand Island Access Road. With the exception of the boat-launching ramp, the locations of the center's remaining structures have not been determined at this time.

Presently, the site of the proposed Marine Education & Training Center is relatively level with the surface soils consisting primarily of coral sand and gravel fill. An abundance of debris remaining from previous uses is present throughout the site.

Site Conditions - Sand Island originally consisted of two separate islands surrounded by shallow coral reefs and mud flats. With the development of Honolulu Harbor and the dredging for Kapalama Basin, the shallow areas surrounding the original two islands were filled with dredged materials and a causeway was constructed to connect the newly formed Sand Island with Kalihi. The Sand Island Access Road crossed this causeway until it was replaced with the existing bascule bridge. Following the initial filling of the site, numerous other operations have gradually raised the area to its present levels.

Previous experience indicates that two general soil conditions are likely present at the proposed site of the Marine Training and Education Center. The first, which is prevalent

96-1416 Waihona Place • Pearl City, Hawaii 96782-1973 • (808) 455-6569 • FAX 456-7062

throughout most of the island, consists of dredged fill resting upon 1 to 2 feet of mud upon a coral ledge. In some areas, particularly along the outer perimeter and near Kapalama Channel, the coral ledge is absent and the dredged fill was placed upon soft lagoon deposits. These areas are generally not suited for the construction of any buildings sensitive to vertical movements.

Subsurface Investigation - Three test borings were drilled on January 24, 1991 at the approximate locations shown on the Site and Boring Location Plan, Figure 2. The boring locations were selected to investigate whether the shallow coral ledge which underlies most of Sand Island is present in this area. The borings were extended to depths of 17 feet below the existing ground surface using standard auger drilling, wash boring, and soil sampling methods. Continuous penetration probes were then used to determine the thickness of the loose deposits. The probes were discontinued at depths where penetration refusal was encountered. The materials encountered in the borings are shown in the Boring Logs, Figure 3 through 5. A Boring Log Legend has been included as Figure 6.

General Subsurface Conditions - The test borings indicate that the western and southern edges of the site are underlain by 7 to 8 feet of medium dense to dense fill over loose to very loose silty sands and gravels. The continuous penetration sampler indicated that these loose sands and gravels are underlain by harder material at depths ranging from 23 to 27 feet below the existing ground surface.

The surface fill is probably a dredged material from the harbor, mixed with debris remaining from previous land uses. The underlying loose sands and gravels appears to be a combination of natural lagoon deposits and dredged material which has migrated down through the looser natural deposits. The harder material encountered by the continuous penetration probing can be either a dense granular layer or possibly a coral ledge.

Although, not encountered in any of these preliminary borings, previous borings have encountered a thinner surface fill of between 2 to 5 feet thick over a 1.5- to 2.5-foot thick layer of soft organic clay. This was underlain by a thin coral ledge over the loose lagoonal sands. This condition is likely in the inner portions of the site.

Groundwater was encountered at a depth of 5 feet below the existing ground surface in all of the borings but variations in the water level should be anticipated due to tidal fluctuations and storm conditions.

Discussion - The soils at the site will not provide adequate support for any heavily loaded structures without special site grading or deep foundations. The latest test borings indicate the ocean front perimeter of the site is underlain by up to 8 feet of relatively competent fill over loose lagoon deposits. Previous experience indicates this surface fill decreases to as thin as 2 to 3 feet thick in the more inland portions of the site and is underlain by a thin compressible organic clay layer over a thin coral ledge.

The site's soils can support lightly loaded structures with foundation contact pressures of less than 1500 p.s.f. if they are not susceptible to differential settlements. Column and wall loads should be limited to a maximum of 30 kips and 3 kips per foot, respectively, for the soils in their present condition. Even at these loads, however, some differential settlement should be anticipated.

For more heavily loaded structures, deep foundations will be required. The recent test borings, along with previous borings in the area, indicate a more competent bearing strata is present at depths of between 22 and 33 feet below the existing ground surface. If heavier structures are proposed, a subsurface investigation should be performed to evaluate this lower layer and its supportive characteristics.

The boat ramp can be supported upon the near surface soils since the pavement loads will be very light. Any associated docks or piers will most likely require pile foundations extending to the lower coral ledge.

Summary - The subsurface investigation indicates that the site is generally underlain by unfavorable soil conditions which may have a significant impact on the cost of the foundations for all but very lightly-loaded structures. Additional subsurface investigations should be undertaken for the actual building locations to properly estimate the anticipated settlements and to determine adequate foundation bearing levels. The findings and conclusions contained in this report are intended to be used for planning purposes only and should not be used for construction without additional investigations and analysis.

Where practical, the structures should be designed for low bearing pressures of less than 1,500 p.s.f. and should be constructed of wood or steel systems not sensitive to differential settlements. More heavily loaded foundations, or structures constructed of concrete or masonry, will require special foundations.

Limitations - This report has been prepared for the exclusive use of Wilson Okamoto and Associates, Inc. for the proposed Marine Education and Training Center on Sand Island, Oahu, Hawaii in accordance with generally accepted soil and foundation engineering practices. No other warranty, expressed or implied, is made.

Unanticipated soil conditions are commonly encountered and cannot be fully determined by soil samples, test borings, or test pits. Such unexpected conditions frequently require that additional expenditures be made to attain a properly constructed project. some contingency funds are recommended to accommodate such potential extra costs.

Water level readings have been made at the times and under conditions stated on the boring logs. It must be noted that fluctuations in the level of the groundwater may occur due to variations in rainfall, tides, temperature, and other factors not present at the time the measurements were made.

Respectfully submitted,

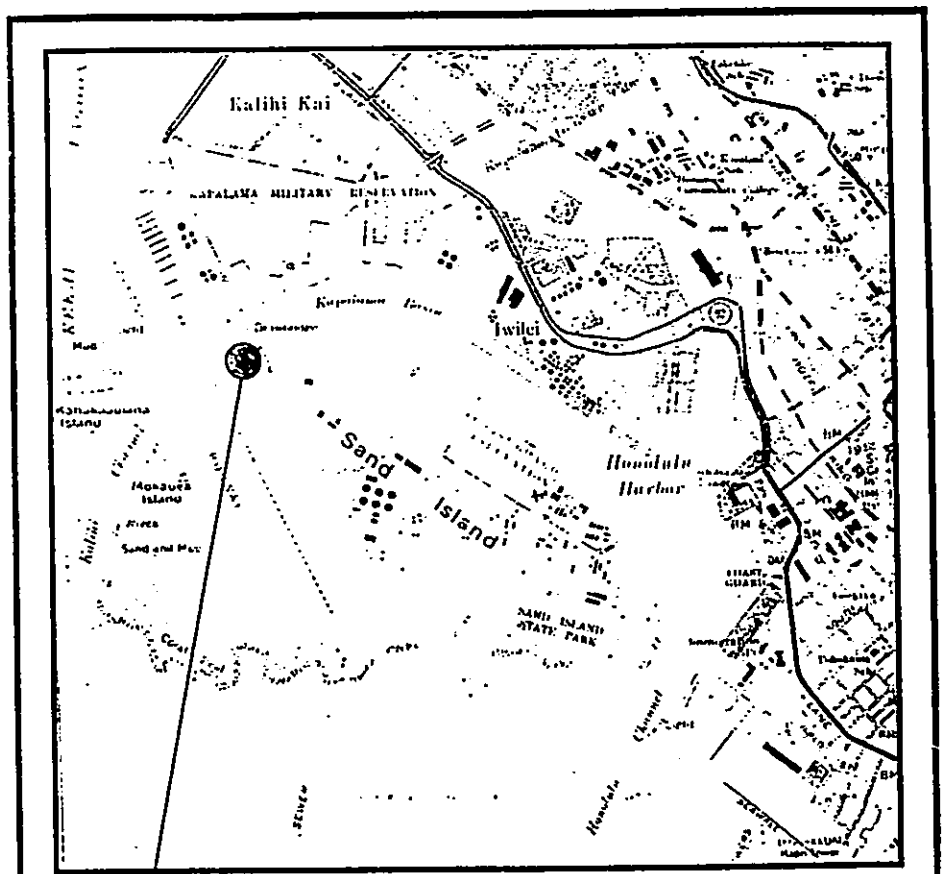
FEWELL GEOTECHNICAL ENGINEERING, LTD.

By Timothy J. Cavanaugh, P.E.

TIMOTHY J. CAVANAUGH
REGISTERED PROFESSIONAL ENGINEER
No. 6619-C
HAWAII, U.S.A.

TJC/slp

Enclosures



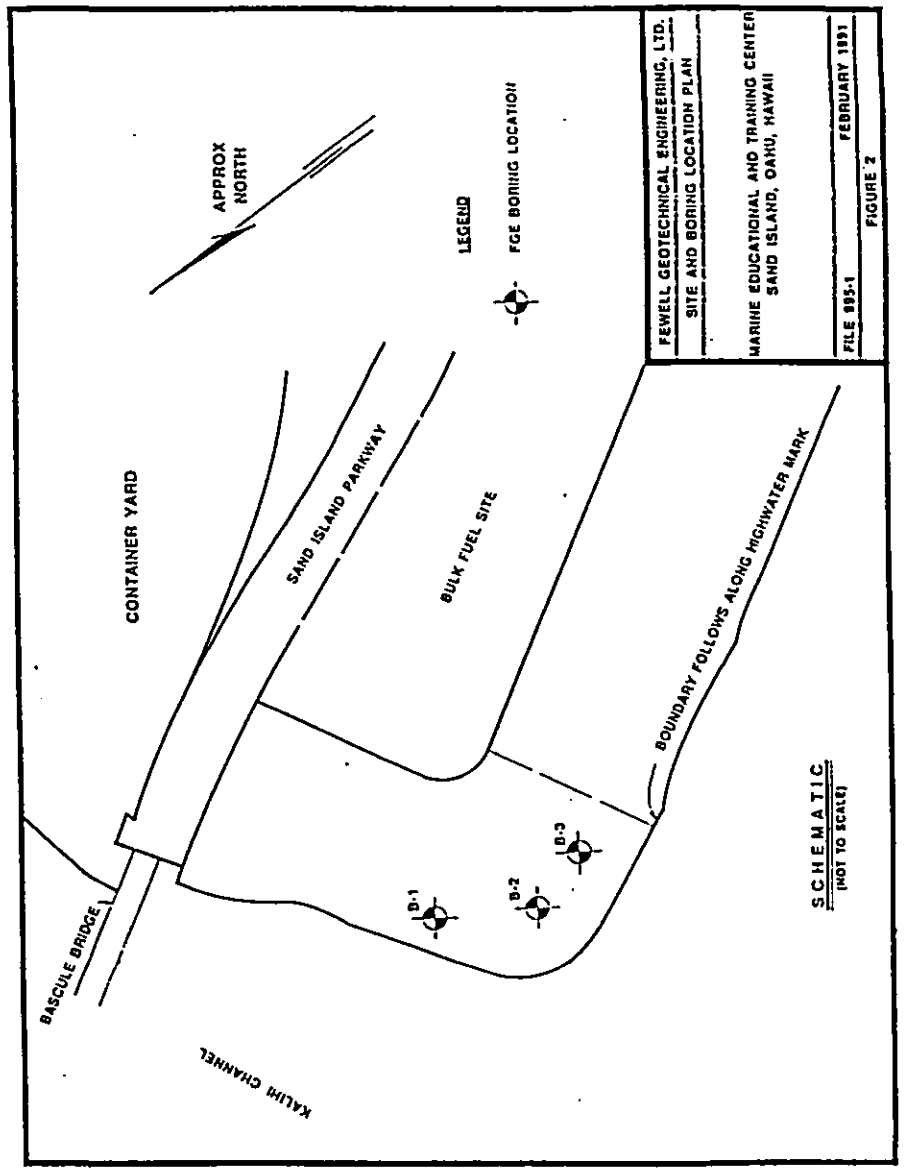
MARINE EDUCATIONAL AND TRAINING CENTER,
SAND ISLAND, OAHU, HAWAII

PROJECT LOCATION MAP
1" = 2000'

REFERENCE:
HONOLULU QUADRANGLE
U.S.G.S. TOPOGRAPHIC MAP

GENERAL AREA:
SAND ISLAND, OAHU, HAWAII

FEWELL GEOTECHNICAL ENGINEERING, LTD.
FILE 995-1 FIGURE 1



BORING: 1
FILE: 995-1
DATE: 1-24-91

PROJECT: Marine Educational and Training Center
SURFACE ELEV.:
DEPTH TO WATER: 5.0 ' (1-24-91 9:45 AM)

LAB TEST RESULTS	MOIST CONT %	DRY WT. PCF	BLOWS PER FT.	SAMPLE	DEPTH	CLASSIFICATION
	14	88	50/0.4' R	1		Brown Silty SAND (SM) with gravel, very dense, damp (FILL)
	20	90	26	2		
	26	97	31	3	5	Tan Silty SAND (SP), medium dense, moist to saturated
	26	101	20	4		Gray/White Silty SAND (SM) with gravel, medium dense, saturated
	12		5	5	10	Gray Silty SAND (SM) with coral gravel, loose, saturated
	10		6	6	15	
	10		Cont.			Gray Silty Coral GRAVEL (GM) with sand, very loose, saturated
	2		Pene-		20	
	5		tration			
	2					White Fresh CORAL, hard
	2/0.5'					BOH @ 23.0'
	70/0.8' R				25	
					30	
					35	

FIGURE 3

BORING: 2
FILE: 995-1
DATE: 1-24-91

PROJECT: Marine Educational and Training Center
SURFACE ELEV.:
DEPTH TO WATER: 5.0 ' (1-24-91 11:30 AM)

LAB TEST RESULTS	MOIST CONT %	DRY WT. PCF	BLOWS PER FT.	SAMPLE	DEPTH	CLASSIFICATION
LL=43, PI=19	29	93	36	1		Brown Clayey SILT (MH) with sand, hard, moist (FILL)
0% Swell	21	94	20/0' R	2		Brown Silty SAND (SW) with gravel, dense, damp (FILL)
Gradation: 3% Gravel 86% Sand 11% Silt/Clay	26		46	3	5	Gray White Silty SAND (SM-SW) with trace gravel, medium dense, saturated
	27	109	20	4		
	8		8	5	10	Gray Silty SAND (SM) with coral gravel, loose, saturated
	6		6	6	15	
	4		Cont.			Gray Silty Coral GRAVEL (GM) with sand, very loose, saturated
	3		Pene-		20	
	1		tration			
	2					
	2					White Fresh CORAL, hard
	4					BOH @ 27.0'
	7				25	
	5					
	11				30	
	2/0.5'					
	80/0.8'				35	

FIGURE 4

BORING: 3 PROJECT: Marine Educational and Training Center
FILE: 995-1 SURFACE ELEV.:
DATE: 1-24-91 DEPTH TO WATER: 5.0' (1-24-91 2:00 PM)

LAB TEST RESULTS	MOIST CONT %	DRY WT. PCF	BLOWS PER FT.	SAMPLE	DEPTH	CLASSIFICATION
Gradation: 23% Gravel 64% Sand 13% Silt/Clay	11	84	51	1		Brown Silty SAND (SM) with gravel, dense, damp (FILL)
			30	2		Tan Silty SAND (SP) with gravel, medium dense, moist to saturated
	34	87	42	3	5	Gray/White Silty SAND (SP-SM) with gravel, medium dense, saturated
Gradation: 4% Gravel 70% Sand 26% Silt/Clay	29	93	24	4		
			3	5	10	Gray Silty SAND (SM) with trace coral gravel, loose, saturated
			7	6	15	
			4			
			4			
			3	Cont.	20	Gray Silty Coral GRAVEL (GM), very loose, saturated
			3	Pene-		
			2	tration		
			4			
			3			
			5		25	
			10			
			13			White Fresh CORAL, hard
			50/0.3' R		30	BOH @ 27.0'
					35	

FIGURE 5

BORING LOG LEGEND

MAJOR ROCK TYPES

- BASALT
- TUFF
- DECOMPOSED ROCK
- CORAL

MAJOR SOIL TYPES

- GRAVEL
- SAND
- SILT
- CLAY
- PEAT/ORGANICS

SECONDARY CLASSIFICATION

- GRAVELLY
- SANDY
- SILTY
- CLAYEY

SAMPLING SYMBOLS

- 3" O.D. UNDISTURBED SAMPLE
- 3" O.D. DISTURBED SAMPLE
- 2" O.D. STANDARD PENETRATION SAMPLE
- NO RECOVERY
- SHELBY TUBE
- NX-CORE
- WATER LEVEL

FEWELL GEOTECHNICAL ENGINEERING, LTD
FILE 995-1 FIGURE 6

Appendix B

PHASE I REPORT
PROPERTY ENVIRONMENTAL ASSESSMENT
PROPOSED MARINE EDUCATION TRAINING CENTER
SAND ISLAND, HAWAII

AND

HAZARDOUS MATERIALS
AND REGULATED WASTE SURVEY
FOR MARINE EDUCATION TRAINING CENTER

MURANAKA
ENVIRONMENTAL CONSULTANTS, INC.
P.O. Box 4341 • Honolulu, Hawaii 96812
(808) 531-8877 • Fax (808) 523-8082

[redacted]

PHASE I REPORT
PROPERTY ENVIRONMENTAL ASSESSMENT
PROPOSED MARINE EDUCATIION TRAINING CENTER
SAND ISLAND, HAWAII

[redacted]

Prepared for:

WILSON OKAMOTO & ASSOCIATES, INC.
P.O. BOX 3530
HONOLULU, HAWAII 96811

Prepared by:

Muranaka Environmental Consultants, Inc.
1130 N. Nimitz Highway
Honolulu, Hawaii 96817

PHASE I REPORT
PROPERTY ENVIRONMENTAL ASSESSMENT

PROPOSED MARINE EDUCATION AND TRAINING CENTER
SAND ISLAND, HAWAII

Prepared for:

WILSON OKAMOTO & ASSOCIATES, INC.
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Prepared by:

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Project No. 91597

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1.0 EXECUTIVE SUMMARY

Muranaka Environmental Consultants, Inc. (MECI) has completed the site inspection and research for a Phase I Environmental Assessment of the property designated for the Sand Island Marine Education & Training Center (METC). The site is an eight acre parcel of ocean front land. The property encompasses six acres of tax map key (TMK) 1-5-41-06 and two acres of TMK 1-5-41-130. Kiewit Pacific operates a construction storage yard on-site.

MECI performed the assessment to determine the presence and the extent of potential conditions or situations at the site which may result in present real, or potential hazards, or environmental liabilities as dictated by federal, state, and local statutes or regulations.

At the time of the investigation, MECI personnel observed approximately 15 used 12 volt marine batteries, and eight, 55 gallon drums of used oil. Adjacent to one of the drums of used oil was an area approximately 4' by 4' that was stained with petroleum products. The source of the stained soil appeared to be splashes and spills from transferring used oil to 55 gallon steel barrel that was present in the area. Kiewit Pacific should improve their waste oil and used battery management. All used oil and batteries should be recycled.

Located south of the site, coralline spoils are stockpiled from the Phase IA excavation at the new Honolulu Police Station. According to an article in the Honolulu

Advertiser, these spoils may be contaminated with petroleum products. The City and County of Honolulu is currently investigating methods to treat and dispose of the soils.

MECI personnel did not observe any suspect polychlorinated biphenyl (PCB) containing transformers at the site. Likewise, MECI personnel did not observe any underground storage tank (UST) indicators such as caps, fill pipes, or dispenser pumps at the subject site. There are no USTs registered with the DOH underground storage tank division for the project site. However, there are ten USTs within a one-half mile radius of the site. The DOH does not have records of any of these tanks leaking.

The potable water wells at the US Army, Schofield Barracks, is the only Comprehensive Environmental Response Compensation Liability Act (CERCLA or "Superfund") site on Oahu. The site is located within ten miles from the subject site. There are no Comprehensive Environmental Response Compensation Liability Information System (CERCLIS) listed sites on Sand Island. The Hawaii State Department of Health (DOH) has documented 15 hazardous material releases in the Sand Island area. The incidents consisted of: 11 releases into the waterways, three airborne releases, and one ground release. On October 4, 1991, MECI requested records of any past or pending environmental regulatory actions at the subject site from the DOH Department of Environmental Management. The DOH generally responds within thirty days; MECI will forward a copy of the response as soon as it is available.

2.0 INTRODUCTION

MECI has completed a Phase I Environmental Assessment of an eight acre parcel of land located on the northwest corner of Sand Island. The property is owned by the State of Hawaii, Department of Land and Natural Resource (DLNR). The property is made up of a portions of tax map keys (TMK) 1-5-41:06 and 1-5-41-130. The State is in the process of redistributing the property and the surrounding area into new TMK parcels. The site is designated for the proposed METC.

This assessment was performed to determine the presence and the extent of potential conditions or situations at the site which may result in present real, or potential hazards, or environmental liabilities as dictated by federal, state, and local statutes or regulations. Specific areas investigated include: historical uses, gross surface contamination, PCB-containing switches, transformers, and capacitors, USTs, and hazardous materials and wastes.

The Phase I Assessment consisted of a visual inspection of present surface conditions, a review of plans and maps of the site, a review of pertinent historical records kept by private sources as well as the DOH, and the Environmental Protection Agency (EPA), and interviews with people knowledgeable with the site.

3.0 MATERIALS AND METHODS

Introduction

The Phase I.Environmental Assessment of the proposed METC site was performed to investigate potential environmental liabilities associated with the property. The methods by which the assessment was performed were: site reconnaissance visits, a review of historical data, interviews with people knowledgeable with the site, and preparation of a written report. Particular areas investigated included: past historical uses, PCB containing items, USTs, hazardous materials and wastes, and gross surface contamination. A discussion of each method used, and each area investigated follows.

Site Reconnaissance

On October 4, 1991, MECI personnel visually inspected all grounds and tenant spaces of the project area for evidence of: past releases of oil or hazardous material or any other condition that may constitute a threat of release of oil or hazardous material, items which were suspected to contain PCBs, surficial evidence of USTs, on-site hazardous materials use and storage practices, and hazardous waste handling and disposal practices. Any observable evidence of soil or water contamination, PCB items, USTs, or hazardous materials and wastes was documented through written notes as well as photographs.

Review of Historical Data

The historical records review focused on identifying previous landowners and their land uses. This information is usually provided through historic tax records, DOH records, historic cartography, and interviews. Specific areas of interest included: on-site manufacturing and operating practices, facility development plans, and adjacent land uses from the initial utilization of the site to the present day.

Historic tax records indicate past owners and lessors of the site. Information (if available) provided by the DOH, Division of Environmental Management, consists of known environmental incidents (solid and hazardous wastes, waste water discharges, chemical spills, citations or inspections by the regulatory authorities), and current operating permits. Historic cartography presents graphic illustrations of past site uses. Finally, other resources such as past environmental audits, maintenance records for existing underground storage tanks, and any other documents which could give a more detailed picture of current and potential liabilities for the client were reviewed.

Interviews

Oral interviews with people knowledgeable of the site are valuable sources of past and present site uses; some of which may not be contained in municipal records.

Areas of Investigation

Gross Surface Contamination

Gross surface contamination is often an indication of an ongoing or past release of oil or hazardous materials and may only indicate a small fraction of surface or subsurface soil and water contamination. Gross surface contamination is usually observed in the field as stained or discolored soils, stressed vegetation, or unusual odors.

Subsurface Contamination

To further investigate gross contamination of soil and ground water of the site and the area, MECI reviewed the following federal and state data bases.

i) EPA "Superfund" list of uncontrolled hazardous waste sites to be remediated with federal funds

ii) EPA National Priorities List (NPL) of hazardous waste sites to be considered for remediation with federal funds

iii) EPA CERCLIS list of Superfund activities

iv) DOH, Hazard Evaluation and Emergency Response (HEER) list of hazardous material releases.

v) DOH, Solid and Hazardous Waste Branch, Leaking Underground Storage Tank List

PCB Items

Polychlorinated biphenyls (PCBs) are synthetic chemicals which were frequently used in the past as an additive to insulating and heat transfer fluids in electric

equipment, particularly liquid-cooled electrical transformers. In 1979, the EPA banned the commerce of PCBs and promulgated the Toxic Substance Control Act (TSCA) to regulate the use and disposal of PCB items.

As part of the assessment, an inventory of all electrical transformers on the subject site was made. Nearly all transformers in Oahu are owned by Hawaiian Electric Company (HECO). HECO maintains an extensive database of their transformers, which includes information concerning their PCB status. According to HECO, as of March 31, 1991, over 10,000 transformers have been tested for PCBs. The analytical data indicate 94.2% of the transformers are non-PCB (<50 ppm), 5.3% are PCB contaminated (50-499 ppm), and 0.5% are PCB transformers (>500 ppm). HECO considers all transformers purchased after the 1979 ban in commerce of PCBs to be "PCB free". EPA regulations contained in Title 40 of the Code of Federal Regulations (CFR) Part 761.30 state "PCBs at any concentration may be used in transformers...for the remainder of their useful lives subject to...conditions." At this time, HECO believes all their transformers are in compliance with applicable state and federal regulations.

Underground Storage Tank Systems

Underground storage tank system management is strictly regulated by the U.S. EPA under 40 CFR Part 280, and by the State of Hawaii under Section 342 of the Hawaii Revised Statutes. Regulations include registering all underground storage tank systems with the DOH. Underground storage tanks currently in use must meet rigorous leak detection, corrosion protection, and spill and overfill prevention

performance standards. In addition, tank systems which are abandoned or no longer to be used in their present capacity must undergo a proper closure; upon closure, an assessment of soil or ground water contamination must be performed.

Hazardous Materials

Proper use and storage of hazardous materials is necessary to ensure a safe work place and prevent possible environmental damage due to spills or leaks of hazardous materials to the environment. Material Safety Data Sheets (MSDS) for all hazardous materials provide information about the material pertaining to its chemical composition, storage recommendations and first aid for human exposure. MSDS are required to prepare a Hazard Communication Program for all people working with or around hazardous materials. As part of the assessment, inventories of all hazardous materials were compiled and methods of uses and storage were also noted.

Hazardous Waste

Hazardous waste is strictly regulated by the EPA under the Resource Conservation and Recovery Act (RCRA). Waste generators are responsible for determining whether their waste is a hazardous waste as defined by 40 CFR Part 261, Subpart D. The degree to which a generator is regulated is dependent upon the type and amount of waste generated. Firms that improperly generate, treat, store, dispose, or transport hazardous waste may be subject to large fines imposed by the State of Hawaii and the EPA. In addition, poor management of hazardous waste can also contribute to contamination of the air, soil, and surface and groundwater of the

generator's site and surrounding sites. Clean-up of uncontrolled hazardous waste sites can be a costly and lengthy process.

In the course of the site reconnaissance, waste management practices were inspected. In addition, available records from the EPA pertaining to permitted hazardous waste generators within the project area and in the surrounding area were reviewed.

Disclaimer

Conclusions reached, and observations and recommendations made in this report are based upon the conditions of the property at the time of the inspection. MECI disclaims any and all liability for any representation, whether expressed or implied, or for omissions or inaccuracies in any part of this report which may be attributable to inaccessible, not readily accessible, or obscured areas, or from incomplete or inaccurate information provided by Wilson Okamoto & Associates, or from missing or unobtainable information beyond our control. Please note that negative findings developed during this survey cannot absolutely confirm the absence of environmental contamination.

4.0 SITE SPECIFIC OBSERVATIONS AND RESULTS

Property Description

The property is a basically rectangular lot of eight acres of waterfront land. The site is comprised of six acres from TMK 1-5-41:06 and two acres from TMK 1-5-4:130. The Kalihi Channel is located north of the site; further north across the channel is the Hawaiian Independent Refinery, Inc. ("HIRI") petroleum tank farm. A former seaplane runway and the Pacific Ocean are located west of the site. The east portion of the site abuts Sand Island Access Road; the Matson Container Yard is situated further east, across Sand Island Access Road. Undeveloped land is south of the site. The City and County of Honolulu has used a portion of this undeveloped land to store coralline spoils excavated during Phase IA construction of the New Police Station (located at the corner of Beretania Street and Alapai Street). These spoils may be contaminated with petroleum products. The City and County is currently investigating treatment and disposal methods for the coral.

Kiewit Pacific operates a construction equipment storage facility on-site. Materials stored on-site include: scrap metal, marine markers, anchors, and metal staging. A large crane on a barge and a sail boat are docked on the northern beach. There are six shipping containers, one mobile office, and seven automobiles located on the property. MECI personnel were unable to gain access to the shipping containers and the mobile office at the time of the inspection.

Three underground petroleum pipelines cross the site. Honolulu Fuel Facility Corporation owns a 10 inch diameter pipeline, while HIRI owns two, six inch diameter

pipelines. The pipelines run parallel to Sand Island Access Road. The approximate locations of the pipelines are sketched on a map that may be found in Appendix I.

The soil at the site is classified by the United States Department of Agriculture (USDA) as mixed fill land. The topography of the site is flat to gently sloping toward the ocean.

According to the Mr. Terrance Teruya of DOH, Clean Water Branch (CWB), the CWB rates ocean waters either Class AA or Class A. Class AA waters are pristine waters. The CWB does not permit discharges of any kind into Class AA waters. Discharges are allowed into Class A waters with an approved discharge permit. The CWB has classified the waters off Sand Island as Class A. In addition, the CWB performs sampling and analysis of waters off Sand Island for biological pathogens.

Property History

Historical maps of the site and interviews with people knowledgeable with the site were used to compile a brief history of past operations of the project site and the surrounding area. From approximately 1900 to the mid 1940's, dredged materials from Honolulu Harbor and Keehi Lagoon were deposited to create the 520 acre Sand Island. Past uses of Sand Island have included a quarantine station, coastal defense installation, and an internment camp.

Gross Surface Contamination

At the time of the inspection, MECI personnel observed petroleum discolored soil adjacent to a barrel of waste oil that was stored on the south side of the mobile office. The stained soil was limited to an area of approximately 4' by 4'. The source of the stained soil appeared to be from splashes during transferring used motor oil to the barrel.

To further investigate gross contamination of soil and ground water of the site and the area, MECI reviewed the following federal and state data bases listed on page 7.

The potable water wells at the US Army, Schofield Barracks are the only "Superfund" site currently in the process of evaluation in Hawaii. The wells are located approximately ten miles from the site. There are no NPL uncontrolled hazardous waste sites in the State of Hawaii. There are no CERCLIS listed sites on Sand Island. The DOH has documented 15 release incidents of hazardous materials for the Sand Island area. There have been no documented releases at the subject site. The incidents consisted of: 11 releases into waterways, three airborne releases, and one ground release. Table 4.1 summarizes the information available about these releases. There DOH has no records of any underground storage tank leaking on Sand Island. On October 4, 1991, MECI requested records of any past or pending environmental regulatory actions at the subject site from the DOH Environmental Management Division. The DOH generally responds within thirty days. MECI will forward a copy of the response as soon as it is available.

TABLE 4.1

HEER Documented Hazardous Material Releases

DATE	LOCATION	DESCRIPTION
4/13/88	Sand Island Access Rd.	1000 gallons aviation fuel spilled on the ground
9/13/88	Lockheed Tank Yard	JP-4 jet fuel vapors released into air
12/13/88	Keehi Lagoon	unknown quantity of solvent released into the lagoon
2/25/88	Lot #2 Sand Island Access Rd.	1700 gallons of Jet A-1 fuel spilled on the ground
3/28/89	Sand Island Bridge	oil released into the water from leaking ship
4/16/89	Keehi Lagoon	oil and solvent released into the water from sunken boat
10/12/89	415 Sand Island Access Rd.	150 gallons of acetone released into the air during a fire at Fabricated Marble of Hawaii
1/2/90	Keehi Lagoon	oily sheen visible under Sand Island Bridge
3/27/90	Pacific Ocean off Sand Island	oil slick observed off Sand Island
4/19/90	Reef Runway area off Sand Island	green fluid observed in the water near the reef runway

TABLE 4.1 cont.

HEER Documented Hazardous Material Releases

DATE	LOCATION	DESCRIPTION
6/29/90	Keehi small boat harbor	propane released into the air
10/21/90	Sand Island	6 quarts of cooking oil spilled into the ocean by the USCG
10/25/90	Pacific Ocean off Sand Island	oil slick observed off Sand Island
3/6/91	Keehi Lagoon	1.5 gallons of oil sheen observed at Keehi Lagoon
3/11/91	Pacific Ocean off Sand Island	diesel oil sheen observed off Sand Island

PCB Items

In the course of a site reconnaissance, MECI personnel did not observe any suspect PCB containing dielectric fluid filled transformers on the subject site.

Underground Storage Tanks

Owners and operators of regulated USTs are responsible for complying with all state and federal underground storage tank regulations, which include, but are not limited to, leak detection, corrosion protection, spill and overfill protection, and financial responsibility for corrective actions necessary due to releases from their tanks.

During the site reconnaissance, MECI personnel did not observe any indications of USTs, such as fill pipes, dispenser pumps, or vent pipes on the property. However, there are three underground petroleum pipelines which cross the property. The pipeline locations and owners are included on a map of the site that may be found in Appendix I.

The DOH has records of ten underground storage tank systems within one half mile of the site; two of the tank systems have been closed. The DOH does not have any records of these tanks leaking. Table 4.2 summarizes the information available on these tanks.

TABLE 4.2

USTs Located within One-Half Mile of Site

Owner\Location	Number	Volume (gal)	Age (yrs)	Contents
Allied Pacific Company* 232 Sand Island Parkway Road	1	550	39	gasoline
Bill's Crane Service, Inc. 212 Hookahi Way	1	1,000	20	gasoline
Coast and Coast Service* 122 Adams Way	1	1,100	23	diesel
Commercial Electric, Inc 516 Grant Way	2	1,000	6	gasoline
Economy Plumbing & Sheetmetal 410-B Ekolu Way	1	500	31	gasoline
Fujishige Trucking Co. 117 Adams Way	2 1	1,000 1,000	19 19	gasoline diesel
James L.K. Tom, Inc. 125 Adams Way	1 1	500 2,000	11 11	gasoline diesel
Okazaki & Sugai Plasterers Lot 111-A Sand Island	1	550	10	gasoline

TABLE 4.2 cont.

USTs Located within One-Half Mile of Site

Owner\Location	Number	Volume (gal)	Age (yrs)	Contents
Sand Isle Parkway Waste Water Division 16-1 Sand Island Road	1	1,000	9	diesel
U.S. Coast Guard Base	1	350	23	diesel
Sand Island	1	1,000	20	gasoline
	1	1,000	29	diesel
	1	2,000	20	gasoline
	2	4,000	27	gasoline
	4	6,000	1	gasoline
U.S. Post Office	nia			

* tank has been closed
nia no information available

Hazardous Materials and Wastes

At the time of the inspection, a small volume (less than 10 gallons) of lubricating oil was stored near the dock strucure for the crane barge along the north beach. Kiewit Pacific should obtain Material Safety Data Sheets ("MSDS") for the lubricants and all other hazardous materials used on-site. All hazardous materials should be stored in a manner to prevent spills, in a secure area, in the manufacturer's approved container, and away from floor drains or other routes to the environment. For hazardous materials stored in containers larger than 25 gallons or for large quantities of smaller containers, secondary containment should be considered.

At the time of inspection, no Resource Conservation Recovery Act ("RCRA") regulated hazardous wastes appeared to be generated, treated, stored, or disposed of at the site. The EPA strictly regulates hazardous waste management under RCRA. Generators of hazardous waste are responsible for determining whether their operations comply with EPA waste regulations. The hazardous waste generators on Sand Island that are registered with the EPA are listed in Table 4.3.

MECI personnel observed approximately 10, 55 gallon drums of used oil and 15 used lead acid batteries on-site. Used oil that meets specification standards for flash point, and concentrations of halogens and metals is not a RCRA regulated hazardous waste, and should be recycled. Used oil that does not meet specification standards, may have to be disposed of as a RCRA hazardous waste. The lead acid batteries should be recycled at a permitted battery recycler.

TABLE 4.3

Hazardous Waste Generators Located On Sand Island

Facility ID #	Facility Name\Address	Generator Type
HID9824772383	Sand Island Waste Water Treatment Plant 161 Sand Island Parkway	2
HID8690390036	United States Coast Guard Sand Island Base Yard	1

1 - Large Quantity Generator
2 - Small Quantity Generator
3 - Conditionally Exempt, Small Quantity Generator
n/a - no information available from the DOH

5.0 Findings and Recommendations

MECI recommends that Kiewit Pacific consolidate all containers of waste motor oil into one area. To mitigate any future spills of waste oil onto the ground, the waste oil containers should be placed in a secondary containment system. All waste oil that meets specification standards should be recycled off-site with the assistance of a DOH permitted used oil transporter, such as MECI. Kiewit Pacific should take precautions to avoid any contamination of used oil, in order that the waste oil may be recycled and not disposed of as hazardous waste. Possible waste oil contaminants are: chlorinated solvents, low flash point and leaded fuels, paint wastes, metal finishes, and water.

Spent lead acid batteries should be delivered to a battery recycler. Since recyclers may not accept damaged batteries, Kiewit should carefully store all batteries in a resilient secondary containment system. Damaged batteries may require particular shipping and disposal requirements.

Since there are plans to develop the site in the future, the State Office of Planning should require that the Kiewit Pacific remove all hazardous materials and wastes from the site upon termination of the lease agreement. In addition, before any excavation of site for future development, the exact locations of the underground pipelines must be determined to prevent accidental rupture of the pipelines.

6.0 References

The following documents were examined during the course of this assessment. Copies were not retained nor included herein:

City and County of Honolulu, 1981. Environmental Impact Statement for Proposed Sand Island Access Road Widening.

City and County of Honolulu, Real Property Assessment Division. Field Book, Real Property Ownership Records Tax Map Key 1-5-41, First Tax Division City and County of Honolulu. 1991.

Environmental Communications, Inc., 1990. Environmental Assessment for Proposed Infrastructure Improvements Sand Island Business Association.

Foote, Donald E., et al. 1972. Soil Survey of Islands of Kauai, Oahu, Maui, Molokai, and Lanai, State of Hawaii. United States Department of Agriculture, Soil Conservation Service, in cooperation with the University of Hawaii.

Helber, Hastert & Kimura, Planners, and R.M. Towell Corp. Honolulu Waterfront Master Plan, Final Report. 1989.

State of Hawaii Department of Health, Leaking Underground Storage Tank Section. State of Hawaii. Leak Log. July 7, 1991.

State of Hawaii Department of Health, Underground Storage Tank Program. State of Hawaii. Underground Storage Tank Registration List. April 17, 1990.

U.S. Department of Interior Geological Survey. 1983. Honolulu Quadrangle 7.5 Minute Series (Topographic Map).

U.S. Environmental Protection Agency. 1987. EPA National Priority List. Title 40 CFR Part 300, Appendix B. Washington, D.C., 9 pp.

U.S. Environmental Protection Agency. 1990. EPA Region IX RCRA Database.

U.S. Environmental Protection Agency. 1990. Superfund Program CERCLIS Site/Event listing.

Zapka, Manfred. 1984. Sand Island Sediment Accumulation Study.

7.0 Signatures

This document was prepared by me and by personnel under my supervision during the period September 27, 1991, to October 30, 1991.

William N. Albrecht, Ph.D., CIH
Diplomate, American Board of Toxicology
Vice President

Michael D. Coyle, B.S.
Senior Environmental Scientist

David K. Kawahara, B.S.
Environmental Scientist

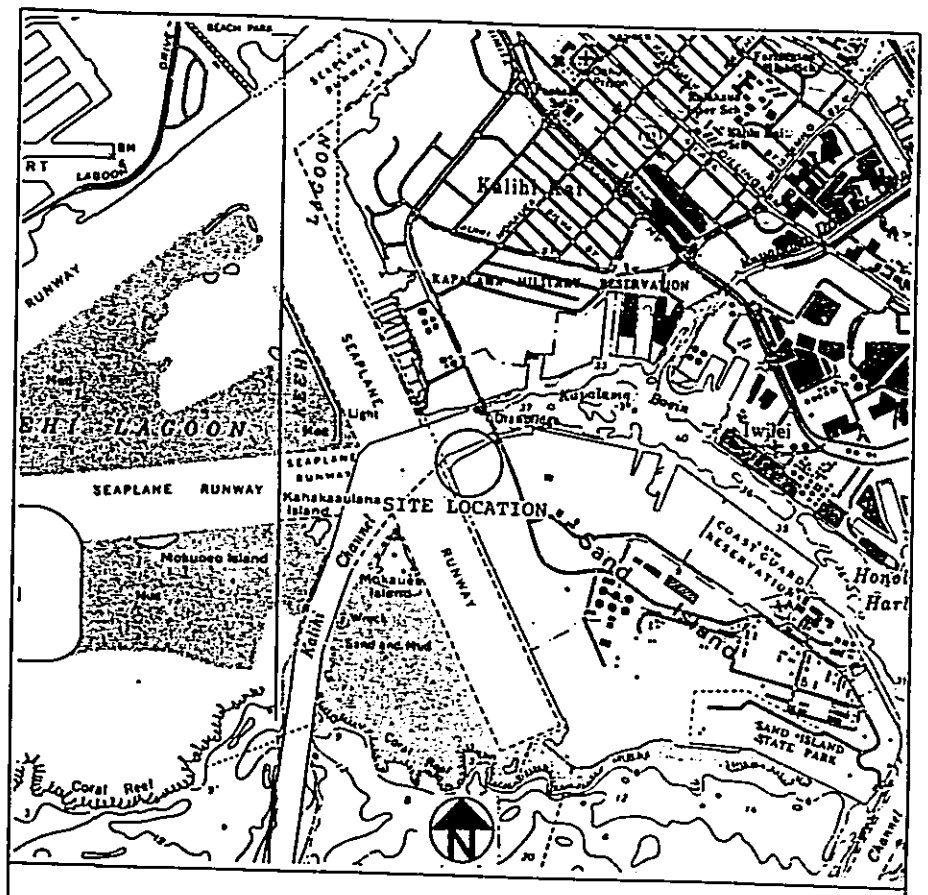
8.0 APPENDICES

Appendix I	Site Maps
Appendix II	Site Photographs
Appendix III	Correspondence

APPENDIX I.

SITE MAPS

MURANAKA ENVIRONMENTAL CONSULTANTS, INC.
1130 NORTH NIMITZ HIGHWAY
HONOLULU, HAWAII 96817



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Scale: 1:24000	Project #: 91597
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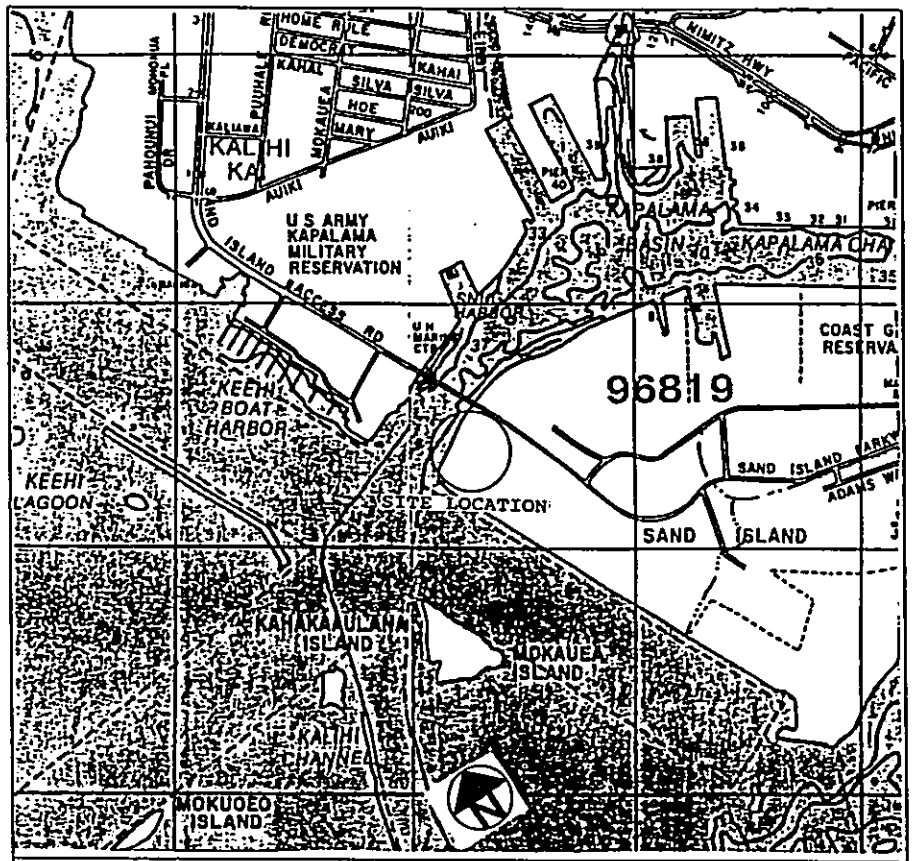

SAND ISLAND	
STREET MAP	Date: 1991
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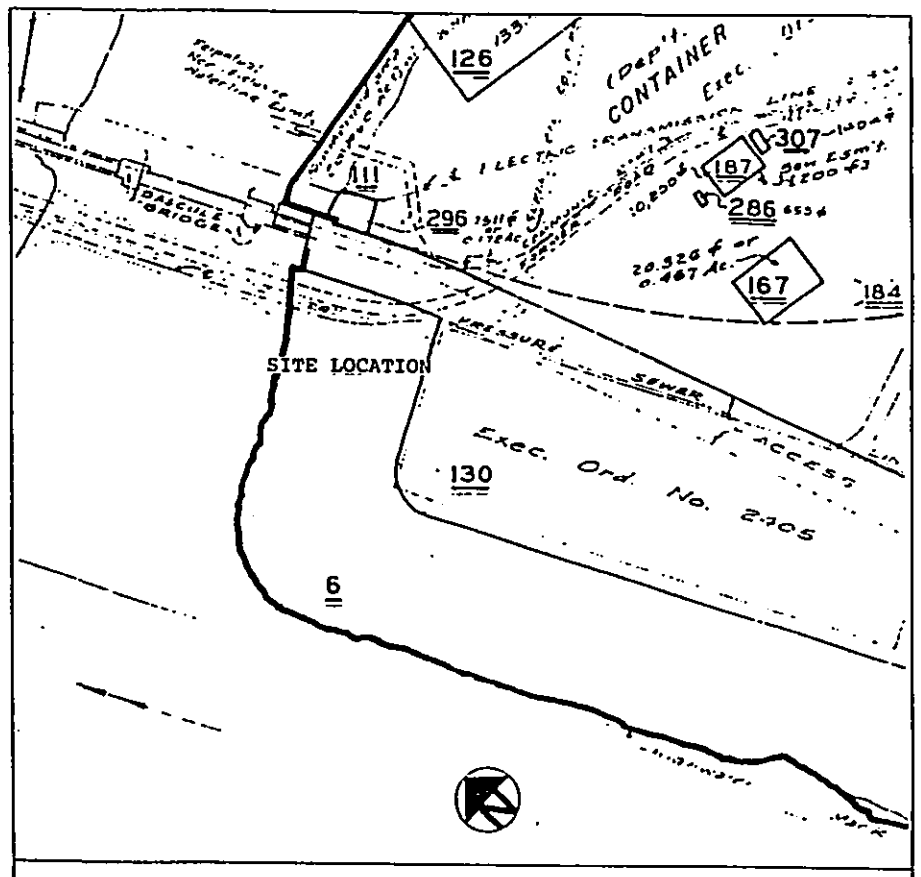

SAND ISLAND	
TAX MAP	Date: 1991
Source: REDI	Drawn: N/A
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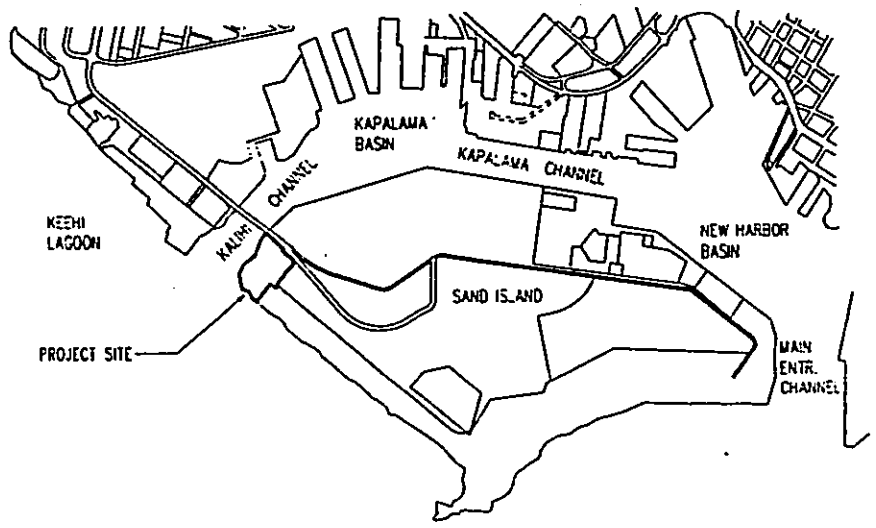
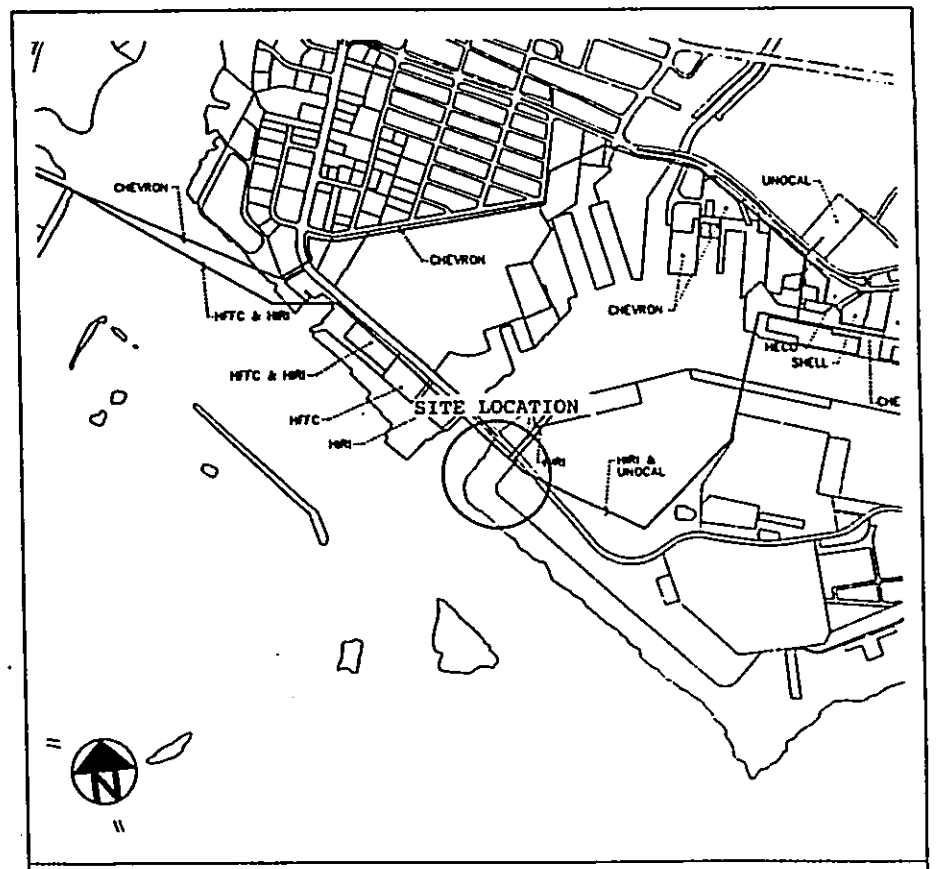
MURANAKA ENVIRONMENTAL CONSULTANTS, INC.	



LOCATION MAP
NOT TO SCALE

MURANAKA ENVIRONMENTAL CONSULTANTS INC			
MARINE EDUCATION & TRAINING CENTER HONOLULU OAHU HAWAII			
LOCATION MAP			
DRAWN BY DF	CHECKED BY MTM	DATE OCT 1991	JOB NO 91597



SAND ISLAND/METC			
APPROXIMATE LOCATION OF PETROLEUM PIPELINES		Date:	OCTOBER 1989
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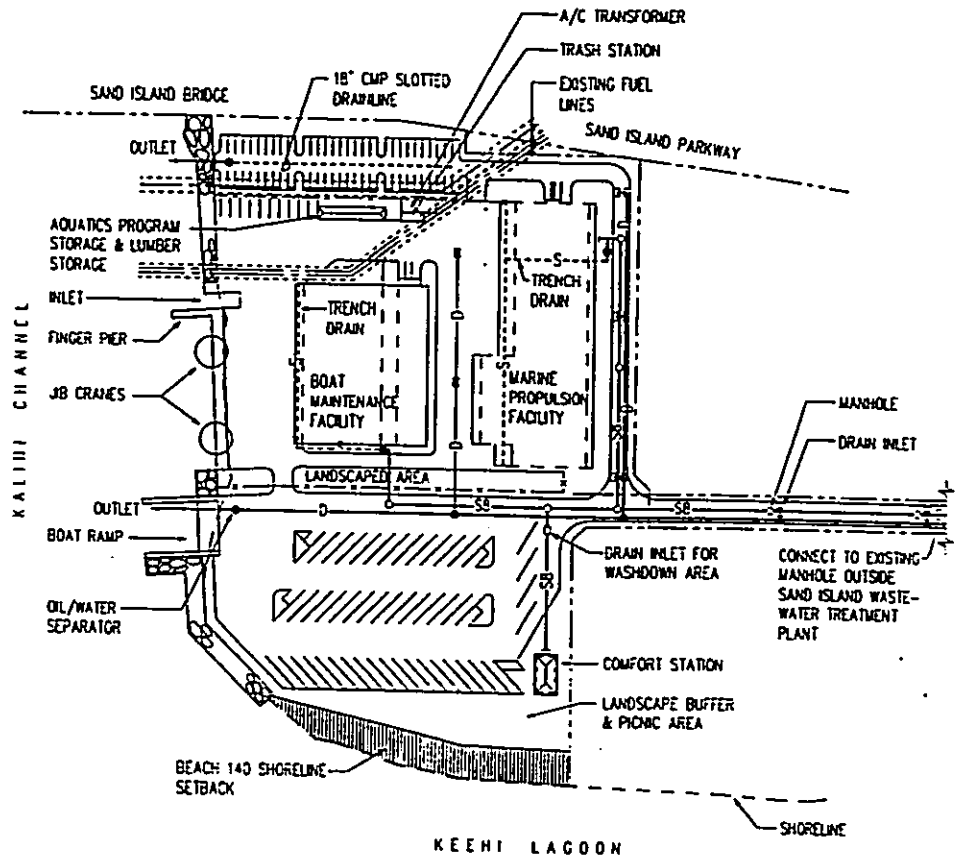


SITE MASTER PLAN
NOT TO SCALE

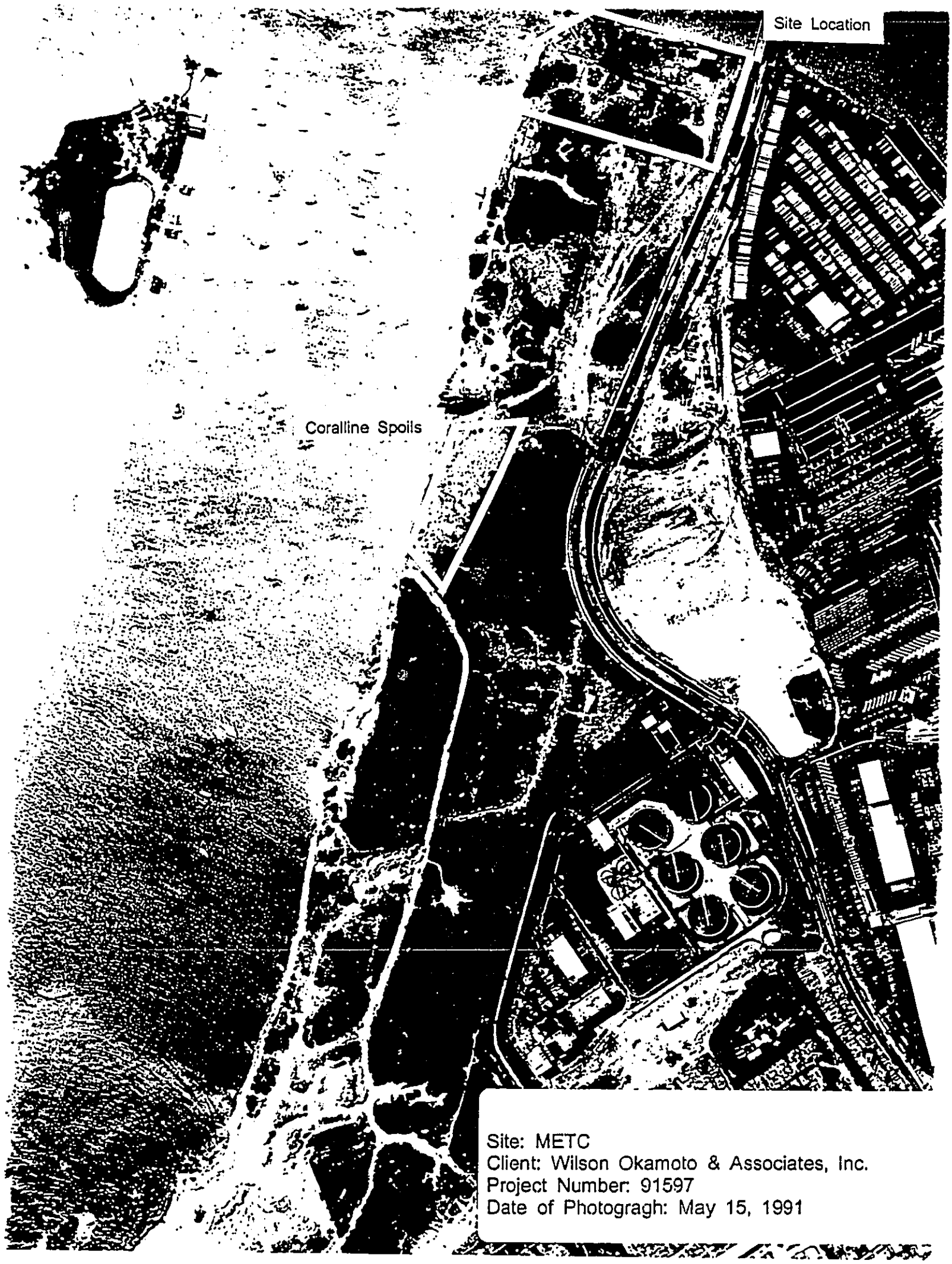
MURANAKA ENVIRONMENTAL CONSULTANTS INC			
MARINE EDUCATION & TRAINING CENTER HONOLULU, OAHU, HAWAII			
SITE MASTER PLAN			
DF	MTM	OCT 1991	91457

APPENDIX II.

SITE PHOTOGRAPHS

MURANAKA ENVIRONMENTAL CONSULTANTS, INC.
1130 NORTH NIMITZ HIGHWAY
HONOLULU, HAWAII 96817

RECEIVED AS FOLLOWS

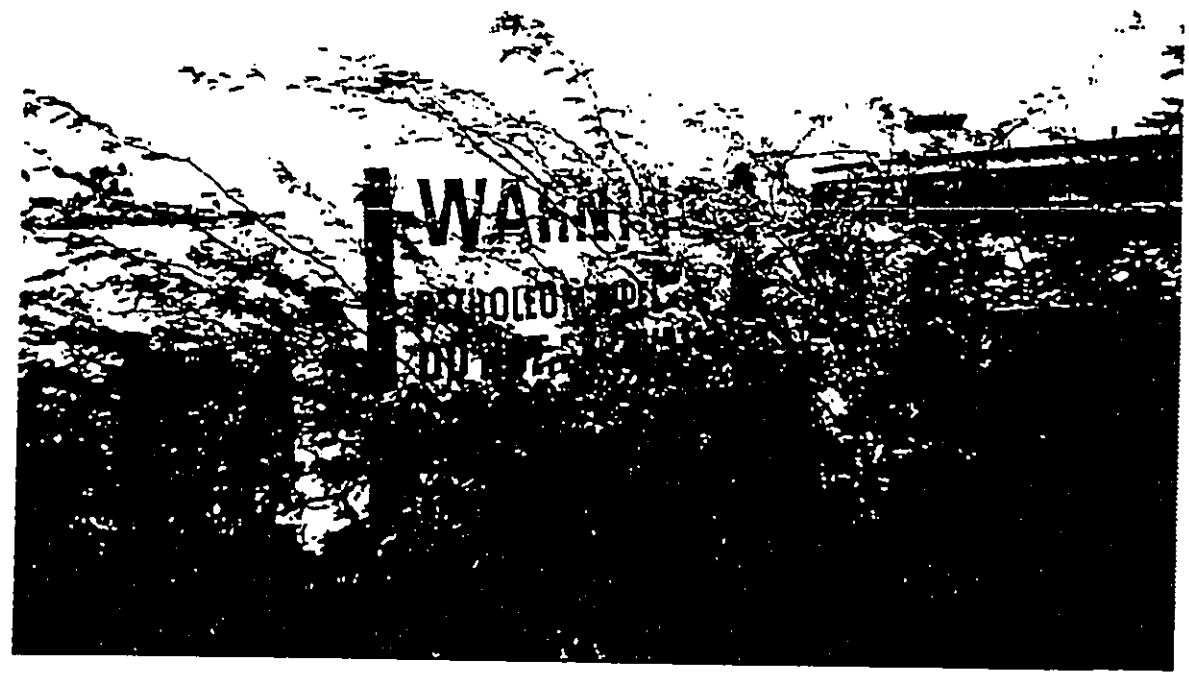


Site: METC
Client: Wilson Okamoto & Associates, Inc.
Project Number: 91597
Date of Photogragh: May 15, 1991

Photo Log: Project No. 91597

Photo No.	Description
Photo No. 1	HIRI petroleum tank farm across Keehi Channel.
Photo No. 2	Warning sign for petroleum pipelines.
Photo No. 3	Kiewit Pacific Company crane.
Photo No. 4	Abandoned car and buoy on-site.
Photo No. 5	Scrap metal and 55 gallon drums on-site.
Photo No. 6	Drum storage on-site.
Photo No. 7	Drum storage on-site.
Photo No. 8	Drum storage on-site.
Photo No. 9	Drum storage and stained soil.
Photo No. 10	Battery storage on-site.

Photo No. 01



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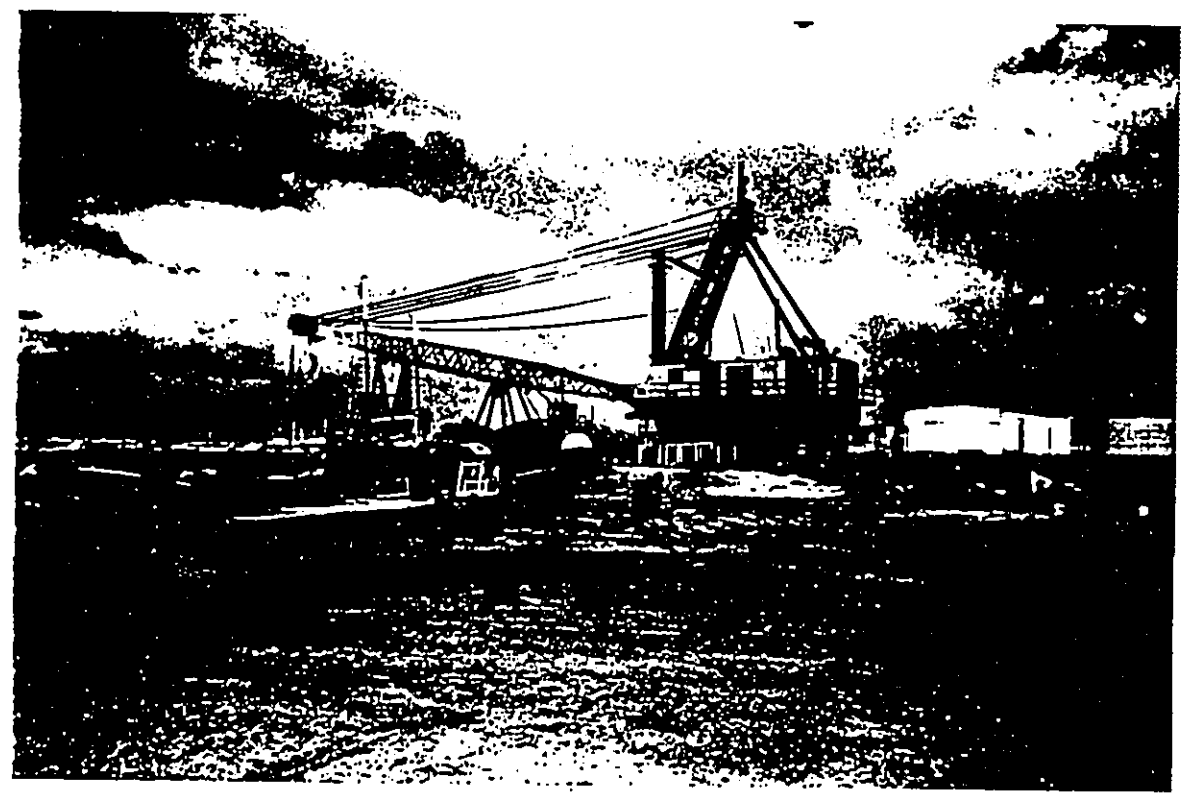

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Photo No. 04

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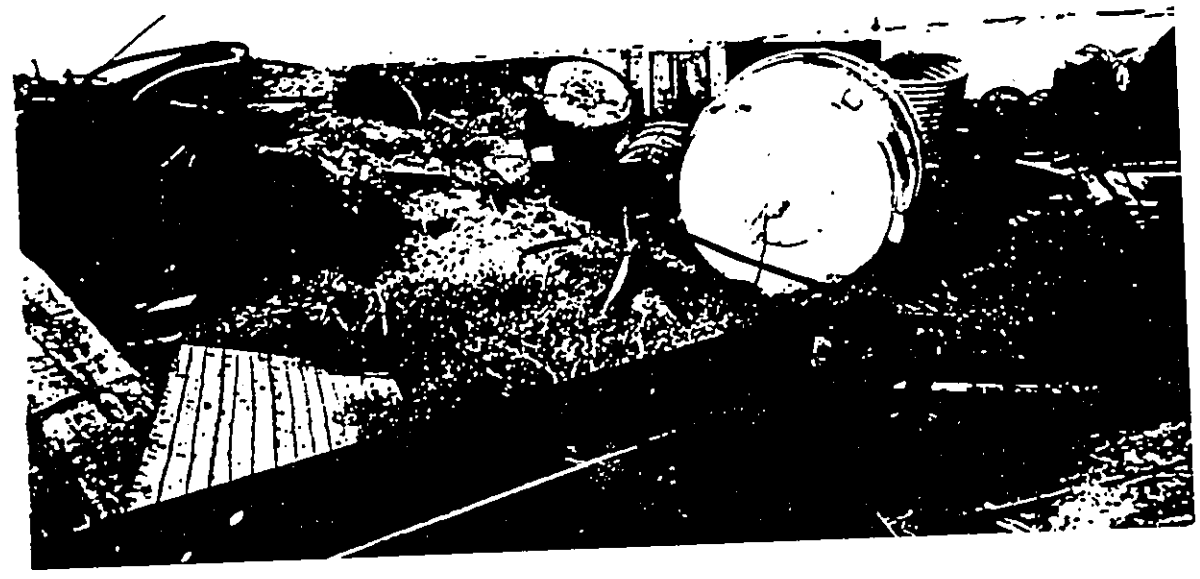

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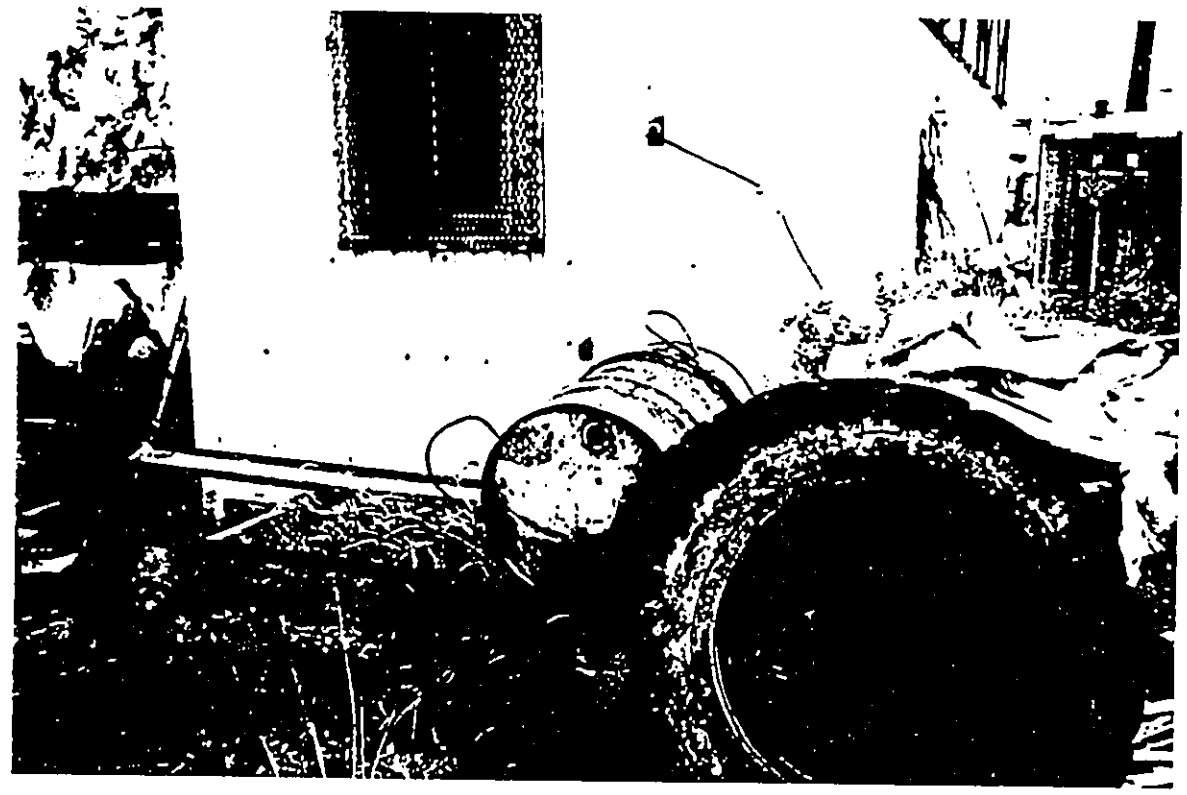
Photo No. 06



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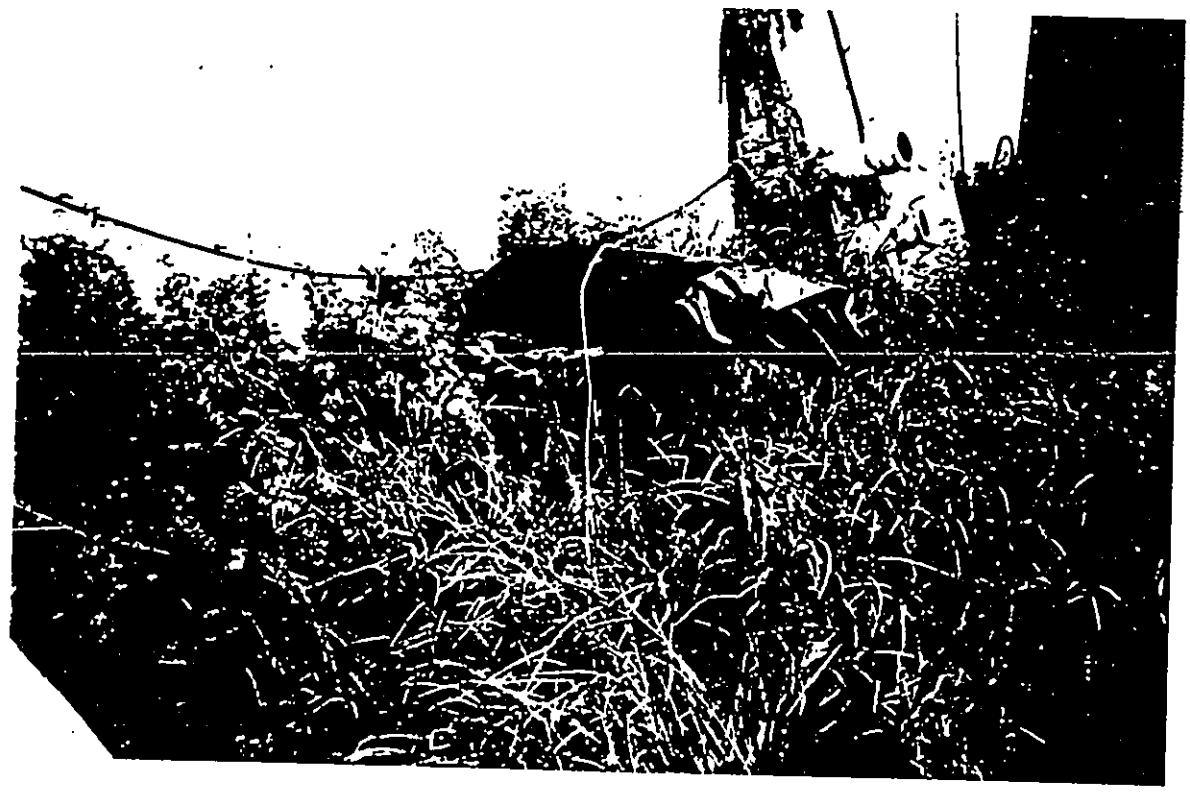

Photo No. 08

Photo No. 09

Photo No. 10

APPENDIX III.

CORRESPONDENCE

MURANAKA ENVIRONMENTAL CONSULTANTS, INC.
1130 NORTH NIMITZ HIGHWAY
HONOLULU, HAWAII 96817

MURANAKA
ENVIRONMENTAL CONSULTANTS, INC.
P.O. Box 4341 • Honolulu, Hawaii 96812
(808) 531-8877 • Fax (808) 523-8082

October 4, 1991

State of Hawaii
Department of Health: Environmental Management Division
Five Waterfront Plaza, Suite 250
500 Ala Moana Boulevard
Honolulu, Hawaii 96813

Attn: Thomas Arizumi

Re: Request for Public Records MECI Project Number:91597

Dear Mr. Arizumi:

We are requesting information on any past or pending environmental regulatory actions for four parcels of land located at Sand Island, tax map key number 1-5-41:3, 1-5-41:6, 1-5-41:22 & 1-5-41:130.

Thank you for your assistance. If you have any questions concerning this matter please do not hesitate to call me at 531-8877.

Very truly yours,

David Kawahara

David Kawahara
Environmental Scientist
Muranaka Environmental Consultants

REQUEST FOR PUBLIC RECORDS
(Use Ink or Typewriter)

To: Director of Health
Department of Health

The following Department of Health records are hereby requested
(Identify or describe character of record):

1) Records: any past or pending environmental regulatory actions for four parcels of land located on Sand Island, tax map key numbers 1-5-41:3, 1-5-41:6, 1-5-41:22, & 1-5-41:130.

2) Purpose: an environmental assessment of the property.

3) Anticipated Use: as part of a report generated for our client.

David Kawahara
Name of Requester or
Duly Authorized Agent

Muranaka Environmental Consultants
P.O. Box 4341
Honolulu, Hawaii 96812
531-8877
Address and Phone Number

David Kawahara 10/4/91
Signature Date

(For Department Use Only)

List or Describe records reviewed/copied by above:

Deputy Director for Environmental Health

Date:

MURANAKA
ENVIRONMENTAL CONSULTANTS, INC.
P.O. Box 4341 • Honolulu, Hawaii 96812
(808) 531-8877 • Fax (808) 523-8082

HAZARDOUS MATERIALS AND REGULATED WASTE SURVEY FOR MARINE EDUCATION TRAINING CENTER

Prepared for:

WILSON OKAMOTO AND ASSOCIATES
1150 SOUTH KING STREET
HONOLULU, HAWAII 96814

Prepared by:

Muranaka Environmental Consultants, Inc.
1130 N. Nimitz Highway
Honolulu, Hawaii 96817

HAZARDOUS MATERIALS AND REGULATED WASTE SURVEY
FOR
MARINE EDUCATION TRAINING CENTER
SAND ISLAND, HAWAII

Prepared for:

WILSON OKAMOTO AND ASSOCIATES
1150 SOUTH KING STREET
HONOLULU, HAWAII 96814

Prepared by:

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Project No. 91366

TABLE OF CONTENTS

1.0 INTRODUCTION

The Honolulu Community College has proposed the planning construction, and implementation of a Marine Education and Training Center ("METC"). The intent of the METC is to provide a vocational training program and facility for boat maintenance and marine mechanics. The METC project is sponsored by the Office of State Planning and is a component of the Honolulu Waterfront Master Plan. The proposed site is on the north side of Sand Island.

2.0 PURPOSE

The purpose of the Hazardous Materials and Regulated Wastes Survey ("HMRWS") for the proposed METC is to:

1) review and summarize the proposed curriculum for the METC;
2) Identify the hazardous materials that students and faculty would use at the proposed facility;
3) Identify regulated waste materials that the facility operations would generate;
4) make recommendations for hazardous material and regulated waste management.

3.0 PROPOSED CURRICULUM

The proposed curriculum will concentrate on three areas: boat maintenance and repair, marine mechanics, and marine diesel maintenance and repair. Course work will

focus on specialized disciplines, within each of the three areas. The requirements for marine mechanics are:

i) machining
ii) welding
iii) marine blueprint reading
iv) carpentry
v) fiberglass and composite materials fabrication
vi) sheet metal working
vii) upholstery
viii) painting and coating

The requirements of marine mechanics are:

i) four and two cycle engine repair
ii) electrical and cranking systems
iii) outboard and sterndrive motor systems
iv) fuel cooling, and lubrication systems

The requirements of marine diesel maintenance and repair are:

i) big block engine repair
ii) chassis repair
iii) heavy equipment repair.

4.0 HAZARDOUS MATERIALS

Students and instructors will use hazardous materials in many hands-on instruction courses offered at METC. For purposes of this survey, hazardous materials will be defined as a material which presents a physical hazard or a health hazard. Common hazardous materials are substances that are flammable, reactive, corrosive, explosive, toxic, or compressed gases. MECI has prepared a projected inventory of hazardous

materials for each discipline pertaining to boat maintenance and repair, marine mechanics, and marine diesel maintenance and repair. The inventory is an estimate of hazardous material use. Actual hazardous material use at the METC will vary. Table 1 summarizes the projected hazardous material use.

TABLE 1

Projected Hazardous Materials Use
for
HCC Marine Education Training Center

Discipline	Area of Study	Hazardous Materials
I. Boat Maintenance and Repair		
	carpentry	adhesives asbestos containing materials tool maintenance chemicals
	fiberglass and composite materials fabrication	adhesives epoxy resin polyester resin resin catalysts solvents
	machining	cleaning solvents cutting lubricants
	marine blueprint reading	ammonia developer
	painting and coating	alcohol and mineral spirits blasting grits chemical strippers oils paints polishes varnishes solvents
	sheet metal and welding	compressed gases fluxes solders
	upholstery	adhesives polishes surface coats

TABLE 1 continued

Projected Hazardous Materials Use
for
HCC Marine Education Training Center

Discipline	Area of Study	Hazardous Materials
II. Marine Mechanics		
	electrical and cranking systems	asbestos containing materials polychlorinated biphenyls lead acid batteries
	four and two cycle engine repair	cleaners de-greasers fuels lubricants solvents
	fuel, cooling, and lubrication systems	fuels coolants freon petroleum lubricants
	outboard and stern drive motor systems	cleaners de-greasers fuels hydraulic fluids lubricants solvents

TABLE 1 continued

Projected Hazardous Materials Use
for
HCC Marine Education Training Center

Discipline	Area of Study	Hazardous Materials
III. Marine Diesel Maintenance and Repair		
	Big Block Engine Repair	cleaners de-greasers fuels lubricants solvents
	Chassis Repair	compressed gases fluxes solders
	Heavy Equipment Repair	cleaners de-greasers fuels hydraulic fluids lubricants solvents

5.0 REGULATED WASTE MATERIALS

State and federal agencies will regulate all wastes generated by the METC to some degree. METC will generate are the following waste streams: air emissions, sanitary waste water, solid waste, EPA Resource Conservation and Recovery Act ("RCRA") regulated hazardous wastes, polychlorinated biphenyl containing wastes ("PCBs"), asbestos containing material ("ACM") wastes, and other regulated wastes such as used motor oil, and non-RCRA listed chemical wastes.

Although it is unlikely that regulated waste air emissions would be generated during the proposed painting and coating operations, air quality will be a concern. Occupational safety and health considerations for instructors and students will include an air monitoring program. The proposed design for the METC includes elimination of waste water generated on-site via Honolulu City and County sanitary sewer system. Solid wastes, such as paper, wood, and food waste, will be consolidated on-site and disposed at an off-site location.

On-site operations at the METC will generate EPA regulated RCRA wastes, used motor oil, and non-RCRA listed chemical wastes. On-site operations may also generate PCB wastes and ACM wastes. However, PCB wastes and ACM wastes will probably not be generated in as large quantities as other regulated wastes. The sources of ACM waste may be older boat construction materials and insulations, while PCBs are usually associated with electrical equipment, such as liquid cooled transformers and capacitors. MECI has compiled a list of regulated waste items that operations at the METC may generate. Table 2 summarizes the list of waste items. The Table includes the waste item

and the probable area of study that would generate it. The Table precludes solid waste, air emissions, and sanitary waste water.

TABLE 2

Projected Regulated Waste Generated
by
HCC Marine Education Training Center

Area of Study	Regulated Waste
Boat Maintenance and Repair	ACM hazardous material containers lead paint sludge oils paint pigments spent parts washer solvents spent paint solvents surplus paints surplus resins and catalysts used lubricants used blasting grits
Marine Mechanics	ACM bilge water oils PCBs spent coolants spent cleaners spent parts washer solvents surplus hazardous materials used crankcase oil
Marine Diesel Maintenance and Repair	oils spent coolants spent cleaners spent parts washer solvents surplus hazardous materials used crankcase oil

6.0 RECOMMENDATIONS

Conscientious hazardous materials management will promote a safe work and study place, and reduce the probability of a release of hazardous materials into the environment. State and federal law requires proper regulated waste management. Resourceful regulated waste management by the METC can reduce waste disposal demands, and waste disposal fees. MECI recommends that the METC prepare a hazardous materials management plan, and a regulated waste management plan. In addition, MECI recommends that engineering controls for hazardous material storage should be designed for the METC.

Hazardous Materials Management Plan

A hazardous material management plan ("HMMP") should include procedures for appropriate hazardous material storage and use. Elements of a HMMP should include a hazard communication program, a hazardous materials use and application program, and a hazard materials storage program. The communication, use and application, and storage programs will overlap to create an integrated HMMP. A brief discussion of each element of an integrated HMMP follows.

The Department of Labor and Industrial Relations, Division of Occupational Safety and Health (OSHA) under part 8 chapter 203, requires all employers to provide information to their employees about the hazardous chemicals to which they are exposed.

The chemical information must be given to the employees by the communication program, container labels and warnings, material safety data sheets ("MSDS"), and information and training. Baseline data on occupational exposure to hazardous materials are required to determine a health and safety program for exposure to hazardous chemicals.

To augment the hazard communication program, all faculty and students should be trained in hazardous materials awareness. The hazardous materials training may be incorporated into a core curriculum course. The training should encompass hazardous materials chemistry, regulations, transportation, personal protective equipment, emergency response for releases, hazardous materials disposal, and asbestos and lead paint worker training.

The MSDSs for a hazardous material provides information about the material pertaining to its chemical composition, storage recommendations and first aid for human exposure. All hazardous materials should be stored in a manner to prevent spills, in a secure area, in the manufacturer's approved container, and away from floor drains or other routes to the environment. For hazardous materials stored in containers larger than 25 gallons or for large quantities of smaller containers, secondary containment should be considered.

Flammable, combustible, toxic, and corrosive materials must be stored in accordance with City and County Honolulu Fire Department ("HFD") regulations. The

degree to which an operation is regulated by HFD is based on the nature, volume, and intended use of on-site hazardous materials. The scope of the fire department regulations include, but are not limited to, storage container standards, hazardous material compatibility data, storage location requirements, spill and clean-up contingency plans, warning label requirements, and fire prevention systems.

Diesel fuel and gasoline are "class I flammable fuels" (Uniform Fire Code) that will be stored on-site. At this time, the HFD requires containment systems with a volume greater than 60 gallons for class I flammable fuels to be underground systems. The Hawaii Department of Health ("DOH") regulates underground storage tanks for the EPA. MECI recommends that the METC avoid installing underground storage tanks, to minimize the risk of an undetected release of fuel into the environment. Class I flammable materials may be stored inside buildings or liquid storage rooms, in approved containers. In addition, the HFD plans to approve certain above ground containment systems by spring of 1992.

Regulated Waste Management Plan

Treatment and disposal costs for regulated wastes are exorbitant, because of the limited treatment and disposal sites in Hawaii and the long distance shipping necessary for treatment and disposal of regulated wastes on the mainland. Conscientious regulated waste management will save on disposal fees and reduce the probability of administrative

actions by regulatory agencies for mismanagement of regulated wastes. A regulated waste management plan will include:

* Waste Minimizing Program
* Recycling Program
* RCRA Hazardous Waste Program
* Used Motor Oil Recycling
* Other Regulated Waste Programs

A waste minimizing program will reduce the amount of waste generated by the METC. This is accomplished by analyzing each waste stream generated by the METC to determine the stream contents and source processes. Waste reduction is achieved by substituting materials and methods in the source processes with more efficient materials and methods that produce less waste. As an example, ceramic reusable coffee mugs will perform the same function as one-time-use styrofoam cups. By using ceramic mugs, no solid waste is generated. However, cleaning the mugs between uses generates waste water and requires labor.

A recycling program will compliment the waste minimizing program. The recycling program is designed by analyzing waste streams, identifying recyclable and reusable

waste materials in the stream, and instituting a logistics plan for recycling the materials. Conventional recyclable materials are scrap metals, paper, plastic, and glass.

Prudent hazardous waste management is extremely important. Hazardous waste is strictly regulated by the EPA under RCRA. Waste generators are responsible for determining if their waste is a hazardous waste as defined by 40 CFR Part 261, Subpart D. Also, the degree to which a generator is regulated is dependent upon the type and amount of waste generated. Firms that improperly generate, treat, store, dispose, or transport hazardous waste are subject to large fines imposed by the State of Hawaii and the EPA. In addition, poor management of hazardous waste can also contribute to contamination of the air, soil, and surface and groundwater of the generator's site and surrounding sites. Clean-up of uncontrolled hazardous waste sites is a costly and lengthy process.

The METC should review all potential hazardous waste generating processes in order to minimize the amounts of hazardous wastes generated. In turn, lower treatment and disposal fees and lessen regulatory requirements. Hazardous waste reduction can be accomplished by substituting non-hazardous materials for hazardous materials, and carefully segregating waste materials so non-RCRA regulated wastes are not mixed and contaminated with RCRA regulated wastes.

METC courses in engine repair will generate used motor oil. Used motor oil that meets specification standards may be recycled in Hawaii and burned for fuel oil.

Specification standards are the concentrations of halogens (chlorinated compounds), metals, and flash point or ignitability. Used motor oil that is generated from automobile and boat engines will meet specification standards if the oil has not been contaminated with other materials. Contaminated "off-specification" used oil may have to be disposed of as RCRA hazardous waste. METC should design a collection and containment system that will preclude any contamination of used oil. The containment system must be designed to effectively handle the volume of waste oil generated. Because used oil is a "class III combustible material", the fire department has approved above ground containment systems for used oil.

Other regulated wastes that METC may generate are: PCB waste items, asbestos wastes, refrigerants, engine fluids, and non-RCRA listed chemicals. Although these wastes are not specifically regulated under RCRA, METC should manage nor-RCRA wastes as conscientiously RCRA wastes.

Design Considerations

Design for the METC should be responsive to the proposed on-site operations that will employ hazardous materials and generate regulated wastes, and, to proximity of the facility to waterways. Hazardous material storage and work areas must be designed in accordance with HFD approved fire codes. Although underground containment systems are approved for use by the EPA, DOH and HFD, MECI does not recommend underground containment for hazardous materials or regulated wastes, because of the

increased risk of a release of hazardous materials or wastes into the soil or groundwater of the site. An above ground containment system should be used. It will greatly reduce the probability of a release of hazardous materials into the soil or ground water of the site. Design characteristics of hazardous material and waste storage and work areas will reduce the probability of an accidental release of hazardous materials or wastes in the waterways. Design characteristics of hazardous materials and regulated waste storage areas include:

i) limited access
ii) impervious ground surfaces
iii) bermed containments
iv) weather protection

Consideration must also be given to the placement of floor drains and storm water catch basins to reduce the probability of spills entering the waste water system.

7.0 REFERENCES

The following documents were examined during the course of this assessment. Copies were not retained nor included herein:

City and County of Honolulu, 1981. Environmental Impact Statement for Proposed Sand Island Access Road Widening.

City and County of Honolulu, Real Property Assessment Division. Field Book, Real Property Ownership Records Tax Map Key 1-5-41, First Tax Division City and County of Honolulu. 1991.

Environmental Communications, Inc., 1990. Environmental Assessment for Proposed Infrastructure Improvements Sand Island Business Association.

Helber, Hastert & Kimura, Planners, and R.M. Towell Corp. Honolulu Waterfront Master Plan, Final Report. 1989.

U.S. Department of Interior Geological Survey. 1983. Honolulu Quadrangle 7.5 Minute Series (Topographic Map).

U. S. Environmental Protection Agency. 1990. Waste Minimization: *Environmental Quality with Economic Benefits*. EPA/530-SW-90-044.

Western Fire Chiefs Association. 1985. Uniform Fire Code, 1985 Edition.

8.0 SIGNATURES

This document was prepared by me and by personnel under my supervision during the period September 27, 1991, to October 11, 1991.

William N. Albrecht, Ph.D., CIH
Diplomate, American Board of Toxicology
Vice President

Michael D. Doyle, B.S.
Senior Environmental Scientist

David T. Kawahara, B.S.
Environmental Scientist

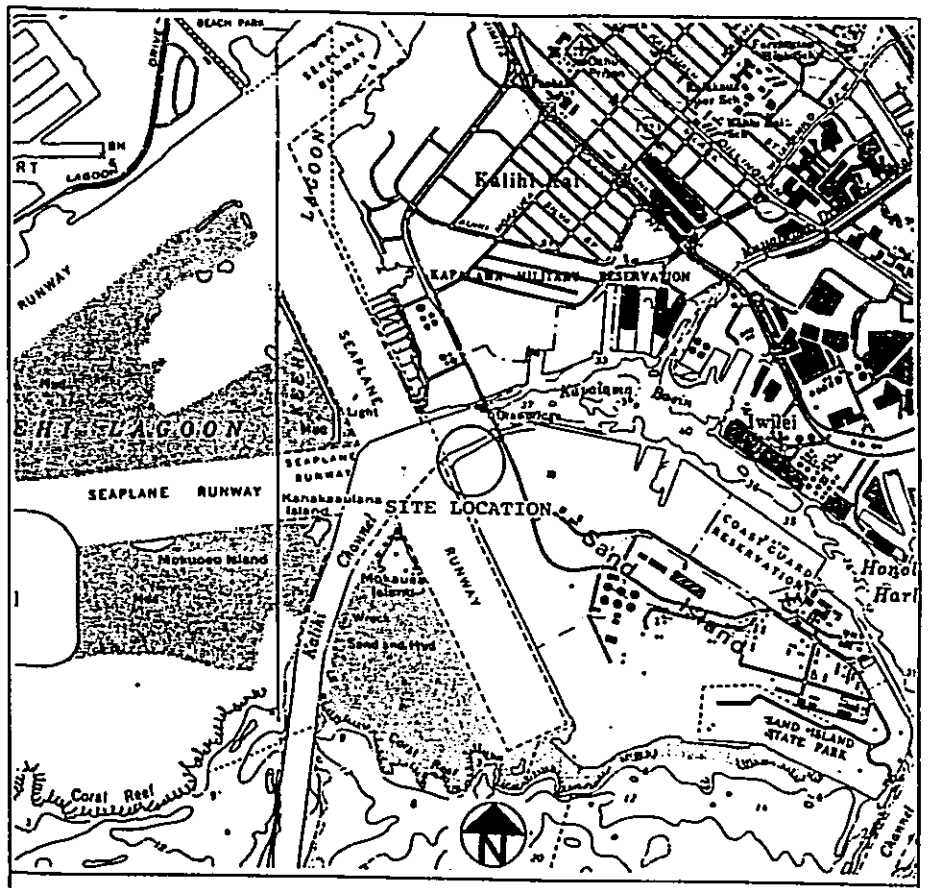
9.0 APPENDIX

Site Maps and Plans

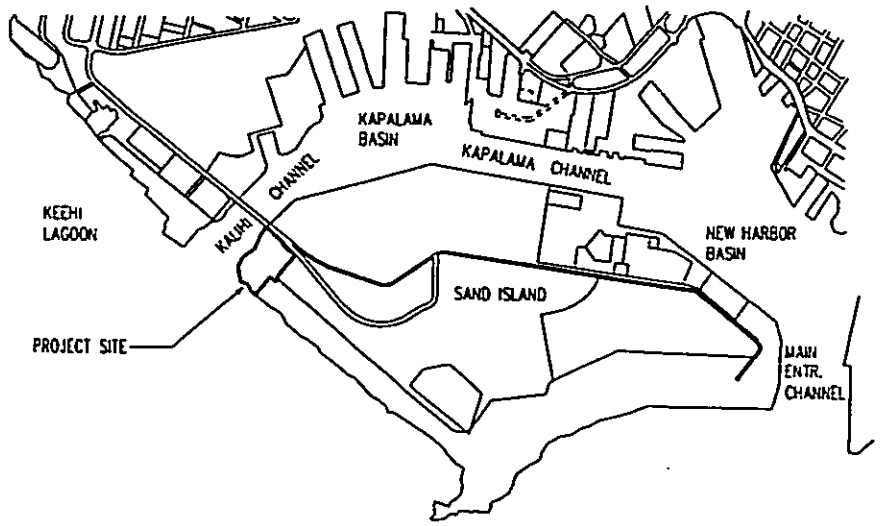
APPENDIX

SITE MAPS & PLANS

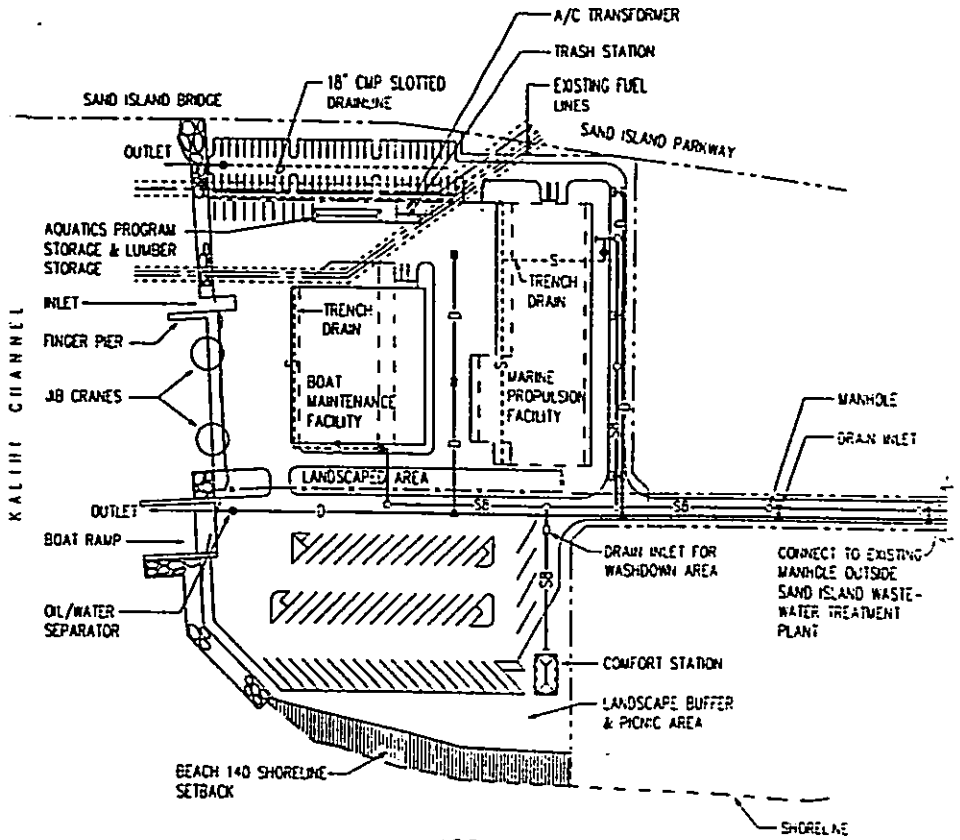
Muranaka Environmental Consultants, Inc.
1130 N. Nimitz Highway
Honolulu, Hawaii 96817



SAND ISLAND	
TOPOGRAPHICAL MAP	Date: 1983
Source: USGS	Drawn: N/A
Scale: 1:24000	Project #: 91597
MURANAKA ENVIRONMENTAL CONSULTANTS, INC.	



LOCATION MAP
NOT TO SCALE



SITE MASTER PLAN
NOT TO SCALE

MURANAKA
ENVIRONMENTAL CONSULTANTS INC

MARINE EDUCATION & TRAINING CENTER
HONOLULU OAHU HAWAII

LOCATION MAP

DRAWN BY	CHECKED BY	DATE	JOB NO
DF	MTM	OCT 1991	91597

MURANAKA
ENVIRONMENTAL CONSULTANTS INC

MARINE EDUCATION & TRAINING CENTER
HONOLULU OAHU HAWAII

SITE MASTER PLAN

DRAWN BY	CHECKED BY	DATE	JOB NO
DF	MTM	OCT 1991	91597

Appendix C

WATER QUALITY SURVEY FOR THE MARINE EDUCATION AND TRAINING CENTER AT SAND ISLAND

AECOS No. 656

WATER QUALITY SURVEY FOR THE MARINE EDUCATION AND TRAINING CENTER AT SAND ISLAND

Prepared For:

Wilson Okamoto & Associates, Inc.
1150 South King Street
Honolulu, Hawaii 96814

Prepared By:

AECOS, Inc.
970 N. Kalaheo Ave., Suite C311
Kailua, Hawaii 96734

February 1992

INTRODUCTION AND SUMMARY

The construction of the Marine Education and Training Center (METC) will involve a section of Sand Island shoreline on Ke'ehi Lagoon and the Kalihi Channel at the entrance to Honolulu Harbor (Figure 1). The proposed Marine Education and Training Center is consistent with other uses of the area, which includes numerous boat moorings, a yacht harbor, and a commercial harbor. Commercial boat maintenance facilities are sited north along the shore of Ke'ehi Lagoon and on the adjacent Honolulu Harbor.

Long term water quality impacts of the project are not anticipated to be unusual or significant. The potential detriments to water quality posed by the project would seem to mostly involve contamination from motor fuels and oils spilled on the site. This location is one surrounded by boating activities, including extensive mooring sites in lagoonal waters, and some petroleum contamination is very likely already present. The prevention of runoff contamination by petroleum products and other pollutants as may be generated by the mechanical engineering that will be taught on the site will be included in site development plans. Drainage systems proposed for the METC will collect surface water runoff into collection basins prior to discharge into Ke'ehi Lagoon (Kalihi Channel). Oil/water separators are to be installed along the northeastern shoreline of the project (Wilson Okamoto & Assoc., 1991). Compliance testing of runoff will be required under EPA Stormwater Runoff Regulations (NPDES permit).

Construction impacts on water quality can be anticipated. Dredging along and directly off the shoreline and construction of a pier, small boat ramp, and rip-rap sea walls are planned. Although dredging marine sediments can resuspend a variety of buried pollutants, the specific nature of these is unknown. Analyses of harbor bottom sediments from Kapalama Basin (AECOS, 1990) show relatively high levels of heavy metals, organics, sulfides, and organo-tins. Present in lesser concentrations are PCBs and PAHs. Presumably, lesser concentrations of all of these would characterize the nearshore sediments at the project site. Of some concern will be the creation of turbidity plumes during in-water constructioh activities. Use of turbidity curtains can help mitigate turbidity impacts on adjacent areas and reduce the movement away from the site of pollutants mixed into the water column with the sediments.

A review of existing water quality based upon historical measurements and measurements made specifically for this report follows.

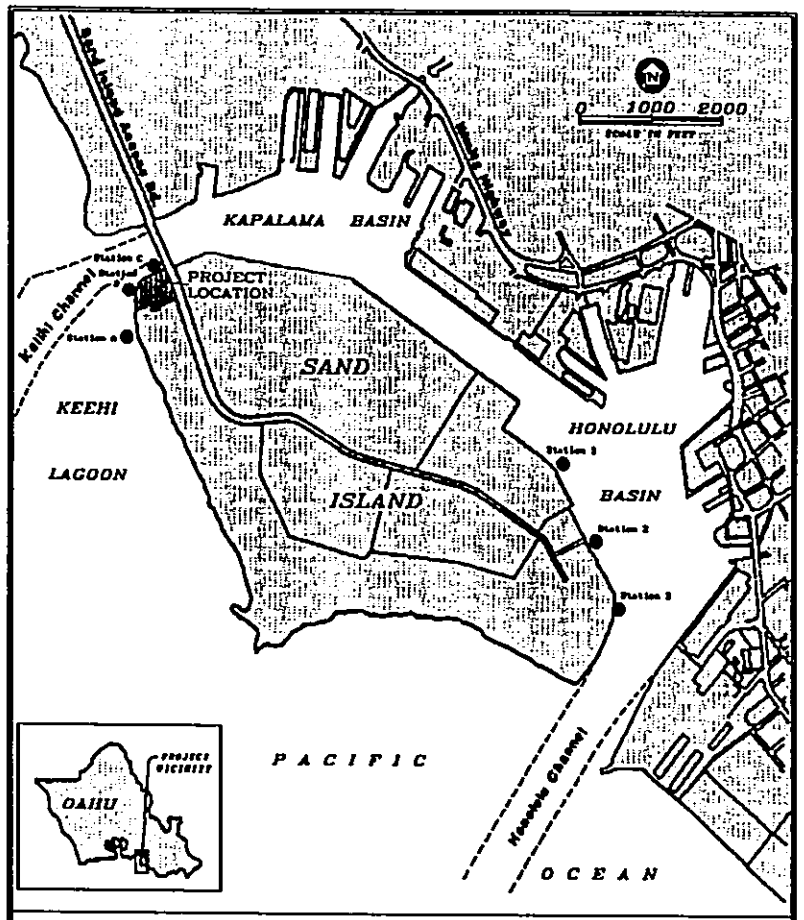


Figure 1. Honolulu Harbor and portion of Keehi Lagoon showing METC project site and water quality sampling stations for September 1991.

WATER QUALITY FIELD SURVEY

A series of three stations were established along the shoreline of Sand Island centered on the METC as shown in Figure 1. An additional three stations were established for an unrelated project at the east end of Sand Island (AECOS, 1991). Water samples were collected from the all six stations on September 7, 1991. Samples were collected from immediately off the shoreline. A first set of six samples was collected between 0930 and 1115 hours, corresponding to a predicted low tide (HLW) of 0.2 feet at 0856 hours. (The HLW and LLW were both 0.2 feet on September 7). A second set of samples was collected between 1450 and 1545 hours, corresponding to a rising tide and high tide (HHW) of 2.2 feet at 1525 hrs. The results of analyses for non-nutrient parameters are presented in Table 1, with the low tide value over the high tide value at each station.

Table 1. Non-nutrient water quality parameters measured at the METC site and three locations in Honolulu Harbor on September 7, 1991.

Station No.	A	B	C	1	2	3
pH	8.26 8.27	8.29 8.29	8.23 8.24	8.27 8.27	8.30 8.28	8.27 8.29
Dissolved Oxygen (mg/L)	3.7 3.8	6.9 4.2	7.2 3.65	3.2 3.6	4.1 3.55	3.8 4.2
Salinity (ppt)	36 35	35 35	35 35	36 35	35 35	35 35
Temperature (^{o}C)	27.8 28.0	27.5 28.5	27.5 28.8	28 28.8	28 28.8	27 28
Turbidity (ntu)	0.99 0.66	4.74 2.56	2.53 2.66	1.29 1.59	0.85 0.57	0.44 0.65

Table values represent morning (low tide) above, and afternoon (high tide) below.

In general, the values for non-nutrient parameters show little significant difference between high and low tide values and generally small spatial variation. Two dissolved oxygen values (at Stations B and C in the morning) were greater than all of the others. However, only turbidity showed much spatial

variability, with the highest values obtained at stations nearest Honolulu Harbor on the west (Stations B and C), and furthest inside the harbor on the east (Station 1).

Table 2 presents the results of nutrient analyses and chlorophyll a analysis on the samples collected on September 7. Again, values show a tendency for spatial variation to exceed the temporal variation. Slightly lower inorganic nitrate and ammonia concentrations were found close to and inside the harbor (Stations B, C, and 1) where the chlorophyll a values tended to be highest. This result suggests that the phytoplankton is utilizing the inorganic nutrients for growth, and this utilization can be detected in the longer residence time water mass of the harbor. Total nitrogen and total phosphorus showed no particular patterns.

Table 2. Nutrient water quality parameters and chlorophyll a measured at four locations in Honolulu Harbor on September 7, 1991.

Station No.	A	B	C	1	2	3
Nitrate + nitrite (mg N/L)	0.003 0.004	<0.001 <0.001	0.001 <0.001	0.002 <0.001	0.018 0.015	0.008 0.004
Ammonia (mg N/L)	0.010 0.010	0.005 0.008	0.010 0.006	0.005 0.004	0.020 0.017	0.010 0.009
Total Nitrogen (mg N/L)	0.147 0.149	0.148 0.146	0.169 0.138	0.127 0.129	0.175 0.143	0.122 0.120
Total Phosphorus (mg P/L)	0.019 0.016	0.032 0.021	0.026 0.018	0.015 0.019	0.027 0.021	0.020 0.014
Chlorophyll a (ug/L)	0.77 0.42	1.29 0.71	0.43 0.96	0.74 1.05	0.73 0.40	0.50 0.60

Table values represent morning (low tide) and afternoon (high tide) samples.

Table 3 presents the State of Hawaii Water Quality Standards applicable to Honolulu Harbor and Keehi Lagoon, which are Class A embayments. The standards are a set of criteria not to be exceeded, but which require that a representative set of field measurements be collected over time. More than two samples would have to be collected and analyzed from each station to establish compliance or lack of compliance with the water quality standards. Nonetheless, a

comparison of the results obtained on September 7, 1991 with the criteria in Table 3 provides a means of assessing which water quality parameters might be indicative of environmental problems. Note that the standards include two sets of criteria for each parameter and these depend upon the volume of fresh water inflow into the embayment (which might change seasonally). Under most conditions, Honolulu Harbor would probably be a dry embayment because the flow contribution of Nu'uanu Stream, its tributaries, and Kapalama Canal is well below 1 % of the volume of the harbor. Salinity data collected regularly during 1978-79 (AECOS, 1979) from Kapalama Basin would appear to confirm that Honolulu Harbor is a "dry" embayment despite the suggestion in a 208 Committee Report (DOH, 1977) to the contrary. Ke'ehi Lagoon is also designated in the 208 Committee Report as a "known wet embayment", although this designation is perhaps also questionable since the combined average daily flows of Kalihi and Moanalua Streams amount to only about one-quarter of a percent of the volume of the lagoon. Salinity data from 1978-79 indicates that Ke'ehi Lagoon could be a seasonally wet embayment.

Although the definition of the water body will establish which of the criteria in the regulations actually apply in a statutory situation, our purpose here is only to establish or suggest which parameters might indicate water quality problems. Using the "dry embayment" criteria from Table 3, and comparing these with the measurements made at Stations A, B, and C, we can conclude as follows. The standard for dissolved oxygen is that the concentration in the water must be 75% or greater of saturation. For normal sea water salinity and a temperature of 28°C, 75% saturation is about 4.8 ppm oxygen. Thus, the oxygen levels measured were frequently under the dissolved oxygen criterion.

Turbidity values always exceeded the "dry" geometric mean criterion value of 0.40 ntu (= nephelometric turbidity units). Ammonia values always exceeded the "dry" geometric mean criterion value of 0.0035 milligrams nitrogen per liter (mg N/L). Most of the chlorophyll a values exceeded the "dry" geometric mean criterion value of 0.50 micrograms per liter (ug/L). Total phosphorus was generally close to or a little over the criterion of 0.020 milligrams phosphorus per liter (mg P/L).

Comparing the September 7, 1991 results with the water quality standards ("dry" criteria) suggests problems may exist with respect to turbidity in Kalihi Channel (Stations B and C); ammonia at most stations (Ke'ehi Lagoon and Honolulu Harbor); total phosphorus at Stations B, C and 2 at low tide; and chlorophyll a at most stations. The elevated ammonia, elevated chlorophyll, and depressed dissolved oxygen are suggestive of somewhat stagnant waters. Water quality at

Station A (along the shore south of the project) is perhaps slightly better than at the Kalihi Channel Stations B and C. The latter are probably influenced by inner Honolulu Harbor (Kapalama Basin) water.

Table 3. State of Hawaii Water Quality Criteria for embayments (DOH, 1989).

Parameter	Geometric mean not to exceed the given value	Not to Exceed the given value more than 10% of the time	Not to Exceed the given value more than 2% of the time
Total Nitrogen (mg N/L)	0.200* 0.150**	0.350* 0.250**	0.500* 0.350**
Ammonia Nitrogen (mg NH4-N/L)	0.006* 0.0035**	0.013* 0.0085**	0.020* 0.015**
Nitrate + Nitrite Nitrogen (mg N/L)	0.008* 0.005**	0.020* 0.014**	0.035* 0.025**
Total Phosphorus (mg P/L)	0.025* 0.020**	0.050* 0.040**	0.075* 0.060**
Turbidity (NTU)	1.50* 0.40**	3.00* 1.00**	5.00* 1.50**
Chlorophyll a (ug/L)	1.50* 0.50**	4.50* 1.50**	8.50* 3.00**

pH units shall not deviate more than 0.5 units from 8.1

Dissolved Oxygen (DO) shall not be less than 75% saturation.

Temperature shall not vary more than 1°C from ambient conditions.

* wet criteria (fresh water inflow > 1% of bay volume)

** dry criteria (fresh water inflow < 1% of bay vol.)

Runoff from the METC site is not expected to have any special influence on the parameters listed in Table 3, with certain exceptions. During the construction phase, inwater activities will raise the turbidity and localized exceedences of the turbidity criteria are likely to occur. Runoff from the site, being freshwater, will produce a salinity and pH

depression in the surface layer. As this brackish layer becomes mixed into the water column, salinity and pH will return to ambient values. Obviously in the event of major storms, runoff from city storm drains into Ke'ehi Lagoon and Honolulu Harbor will far exceed the contribution made by the METC site drainage system.

HISTORICAL WATER QUALITY REVIEW

Ke'ehi Lagoon was once a large, shallow reef flat behind the broad fringing reef west of Honolulu Harbor. The Kalihi Channel was a natural, narrow break in the reef margin which provided an outlet for the brackish water from Kalihi and Moanalua Streams. Extensive fill and dredging projects which, while begun earlier, proceeded in earnest during World War II have substantially altered every aspect of the ecology of Ke'ehi Lagoon (AECOS, 1979a).

Sand Island forms the outer, eastern shore of Ke'ehi Lagoon. This islet was first created on a shallow reef flat off Honolulu from the material dredged from an expanding Honolulu Harbor beginning at the turn of the century. Eventually, the fill land connected Sand Island to Oahu as a peninsula located between Ke'ehi Lagoon and Honolulu Harbor. The Kalihi Ship Channel, dredged through Ke'ehi Lagoon, was opened in 1960 and provided access to Honolulu Harbor on the west end and substantially improved the circulation of harbor waters (Cox and Gordon, 1970; AECOS, 1979a). This channel again isolated Sand Island as an "offshore" feature. Access to Sand Island was provided by the bascule bridge.

The METC project is sited on the Kalihi Channel along the shore of Sand Island next to the bascule bridge. Thus, the water fronting the site can represent Ke'ehi Lagoon or Honolulu Harbor waters, or a mixture of both, depending upon the tide and other factors. The most recent study of water circulation specifically in this area was that by Noda (1978).

The Noda (1978) report described a reversing current in the Kalihi Channel under both tradewind and light wind conditions. During Trade wind conditions, water flows eastward past the METC site and into Honolulu Harbor on a flood (rising) tide and westward, from out of the harbor, on an ebb (falling) tide. The tidal pattern was reversed under light and variable wind conditions, with the flow into and out of Honolulu Harbor past the METC site providing a major role in the flushing of Ke'ehi Lagoon. Under all conditions of wind and tide, the net flow within the seaplane channel ("ski

channel") off the west side of the METC site was northward, into Kalihi Channel.

Various studies of Ke'ehi Lagoon and Honolulu Harbor have been conducted over the years and the water quality in both is often regarded as poor, largely because of the numerous sources of pollutants from shoreside industrial activities, shipping operations, and urban runoff. The Kapalama Basin, the part of the harbor closest to the METC project site, exhibits the poorest water quality in the area owing partly to discharges from the Kapalama Canal which drains an industrial area (AECOS, 1979a). Obviously, at times of heavy run-off from the land, poor quality surface water of low salinity may cover much of the harbor. Intense shipping activity has been reported as contributing to turbid conditions (McCain and Coles, 1973; Oceanit Labs, 1990).

Early reviews of water quality in Honolulu Harbor after the opening of the west entrance to the harbor and the deepening of Kalihi Ship Channel in 1960 are found in Ultramar Chemical Water Laboratory (1968), Cox and Gordon (1970), and Dillingham Environmental (1971). Because of improvements in analytical methods made during the 1970's, values for some parameters reported in these studies may not be comparable with more recent studies. Department of Health records provide some historical water quality data for Honolulu Harbor as shown in Table 4.

Table 4. Department of Health water quality data for Honolulu Harbor; mean for January 1973 to December 1975 from the area around Pier 11 (after Towill Corp., 1982).

pH	8.03	Nitrate+Nitrite	0.013
Dissolved Oxygen	6.27	TKN	0.213
Temperature (^{o}C)	26.2	Total Nitrogen	0.234
Turbidity (FTO)	1.88	Total Phosphorus	0.029
Total Coliform	3941	Fecal Coliform	1671

Units for nutrient and DO values are ppm (mg/L); coliforms are no/100 mls; Number of samples not stated, but 34 to 35 data points are stored in STORET file.

Water quality studies conducted for the Honolulu International Airport, Reef Runway Construction Project provide a one year record of water quality measurements from a station ("Station 7") at the west end of the Kapalama Basin, not far from the METC site. Samples were collected approximately monthly at several depths for the period from September 1977 through August 1978 (AECOS, 1979b). The data for "Station 7" are summarized in Table 5. The water quality criteria (DOH, 1989) clearly exceeded were turbidity and total phosphorus. Follow-up studies were reported by OI Consultants, Inc. (1986), and included a "Station D" located in the Kalihi Channel directly off the METC site. Three samples, from the surface, mid-water, and near bottom, were collected on a single visit (July 15, 1986). The mean of these three samples is given here in Table 5.

Table 5. Kapalama Basin water quality measured over a one-year period in 1978-79 (AECOS, 1979b) and in July 1986 (OI Consultants, 1986).

Parameter	Geo. Mean	Range	N
Light Extinction Coefficient (m^{-1})	0.39	0.23 - 0.63	(11)
Turbidity (ntu)	1.6	0.9 - 5.0	(72)
(1986)	2.1		(3)
NFR (mg/L)	5.6	1.5 - 13.2	(71)
(1986)	5.33		(3)
Nitrate + nitrite (mg N/L)	0.003	ND - 0.007	(72)
(1986)	0.001		(3)
Ammonia (mg N/L)	0.004	0.001 - 0.015	(72)
(1986)	0.016		(3)
Total N (mg N/L)	0.115	0.080 - 0.270	(72)
(1986)	0.235		(3)
Ortho-P (mg P/L)	0.006	0.003 - 0.012	(72)
(1986)	N.D.		(3)
Total P (mg P/L)	0.039	0.014 - 0.101	(71)
(1986)	0.004		(3)
Chlorophyll a (ug/L)	0.15	0.06 - 1.53	(71)
(1986)	1.13		(3)

The 1986 follow-up survey did not show any appreciable change in water quality from the 1977-78 study: the value of most parameters measured in 1986 were within the range reported for 1977-78. Exceptions were ammonia and total phosphorus. The 1986 mean ammonia value was slightly greater than the maximum value measured in 1977-78; and the 1986 total phosphorus was lower than any value obtained in the same area in 1977-78.

A survey of Honolulu Harbor conducted by Oceanit Laboratories, Inc. (1990) included water quality results for several stations as shown in Table 6. Values are reported as geometric means, although the number of samples collected and the sampling dates were not provided. Of particular relevance to the present site is the "Kalihi Channel" station, indicated on the station location map as mid-channel at the Sand Island, bascule bridge. For the period represented by these samples, the Kalihi Channel station appeared to have the worst water quality. Overall, values are generally similar to those reported in Tables 1 and 2, with somewhat higher total phosphorus values and lower total nitrogen values as compared with our single sampling in September 1991.

Table 6. Summary of results from Honolulu Harbor water quality monitoring for the Aloha Tower redevelopment project (Oceanit Labs, 1990).

Station:	Kalihi Channel	Kapalama Channel	Harbor	Main Channel
Turbidity (ntu)	3.95	0.94	0.80	0.32
NFR[1] (mg/L)	8.52	5.60	6.86	4.43
Nitrate + nitrite[2] (mg N/L)	0.003	0.003	0.004	0.004
Total Nitrogen[3] (mg N/L)	0.125	0.100	0.112	0.100
Orthophophate (mg P/L)	0.008	0.004	0.003	0.003
Total Phosphorus (mg P/L)	0.046	0.019	0.018	0.013
Chlorophyll a (ug/L)	0.46	0.57	0.55	0.30

1 - Suspended solids or non-filterable residue.
2 - As "nitrate" (?) in report.
3 - As "total nitrates" (?) in report.

The nature of Honolulu Harbor sediments were perhaps first seriously studied by Akazawa (1978) for the Department of Health In more recent years, samples have been extensively analyzed and subjected to bioassay procedures as part of the requirements for dredged material disposal under the U.S. Army Corps of Engineers. The last study of this type was that by AECOS (1990). Samples from five locations in Kapalama Basin were composited into a single Station 1 sample for testing purposes. Heavy metals were found in lower concentrations than had been previously reported for Kapalama Canal (Akazawa, 1978), and the sediment heavy metals were not generally different in this area as compared with the other inner Honolulu Harbor stations. Organo-tins were an exception, being higher at Station 1 than elsewhere in the harbor.

Station 1 was also distinguished by detectable quantities of a PCB (0.20 mg/Kg Aroclor 1260) and small amounts of the polynuclear aromatics: pyrene, chrysene, and benzo-(k)-fluoranthene. Dredging of these sediments and their disposal at the South Oahu Dredged Spoil Disposal Site was permitted on the basis of the bioassay/bioaccumulation testing results.

The results from Station 1 are cited here because this area (Kapalama Basin) is located closest to the METC site. However, inputs to Kapalama basin (from Kapalama Canal and other industrial activities around the shore) suggest sediment quality in the Kapalama Basin could be expected to be generally poor. How these analytical results relate to sediments off the METC is not really known. Sediments along the shoreline, where project dredging would mostly occur, represent older fill material from the development of Sand Island. Sediments of the Kalihi Channel bottom represent the fine material from urban runoff and, presumably any scavanged pollutants that may have accumulated since the channel was dredged in the 1950's.

CONCLUSIONS

The proposed project represents a light industrial and boating facility along the shoreline of a semi-enclosed lagoon. The location is one characterized by a concentration of similar facilities and large numbers of moored vessels. As a new facility, the opportunity exists to reduce or eliminate significant contributions via runoff from the site. Included in the METC site plans are just such mitigating features (settling basins and oil/water separators). Testing of the quality of run-off from the site will be required under new regulations incorporating storm water discharges within the National Pollutant Discharge Elimination System (NPDES; See 55 FR 47990 et seq., 56 FR 12098 et seq.). Requirements under permits issued will focus on pollution prevention measures rather than technological controls (McCubbin, Becker, and Hill, 1991). Because it is a new program, the effectiveness cannot be assessed. Obviously, both the proper maintenance of physical controls (such as the oil/water separator) and management practices at METC over time will determine the long-term effectiveness of any anti-pollution measures implemented.

Temporary adverse impacts to the biota in adjacent areas may result from dredging along the site shore. The opportunity to mitigate is limited generally to the use of turbidity curtains set-out around the dredge area. Fine sediments which escape from the area will tend to settle into the Kalihi Channel. This channel presently is a sink for suspended material entering Ke'ehi Lagoon from streams and perhaps for material resuspended within Honolulu Harbor from the passage of large ships. The Kalihi Channel is not utilized as a shipping channel (except for barge traffic), but contributes significantly to water circulation in Honolulu Harbor.

In-water boating activities will be concentrated in this area as a part of the intended functions of the project (from training activities and the siting of a public boat ramp). The boat ramp will supplement a similar facility located north of the site along the Ke'ehi Lagoon shore. Contamination of the waters with a variety of substances ranging from polynuclear aromatic hydrocarbons (in petroleum products), to anti-fouling paints (perhaps including butyl-tins), to foam and plastics in flotsam and jetsam will occur. While these are undesirable consequences, the location of the METC and the public boat ramp are consistent with similar pollutant sources which are regarded as non-point and resulting from accepted activities and practices in the area. Controls and mitigations to minimize pollutant sources will be incorporated in the design of the METC. Water pollution arising from the public use of the adjacent boat parking and ramp area is beyond the control of the METC. However, as an educational facility, knowledge of the contribution of boating activites to the degradation of coastal waters can be imparted to the boaters and mechanics trained at the facility. Presumably, pollution control devices for marine engines will be studied as part of the curriculum.

BIBLIOGRAPHY

AECOS, Inc. 1979a. Hawai'i Coral Reef Inventory, Island of O'ahu (OCRI). Part B. Sectional Map Descriptions. Prep. for the U.S. Army Engineer District, Honolulu. 552 p.

_____. 1979b. Post construction water quality, benthic habitat and epifaunal survey for the reef runway, Honolulu International Airport. Final report, Part A: water quality. Prep. for Parsons, hawaii. 137 p.

_____. 1990. Laboratory results. Bioassay and bioaccumulation for Honolulu Harbor dredged material disposal. Prep. for U.S. Army Engineer District, Honolulu, Fort Shafter, Hawaii. AECOS No. 576A.

_____. 1991. Water quality survey for the AT&T Cable Ship Depot in Honolulu Harbor. Prep. for R.M. Towill Corp. AECOS No. 659.

Akazawa, E. 1978. A report on trace metal concentrations in samples of biota and sediments collected from the Hawaiian estuarine environment. State of Hawaii, Department of Health, Honolulu. 17 p.

Buske, N. and J.C. McCain. 1972. A preliminary survey of the marine environmental impact of the Honolulu Power Plant. B.K. Dynamics and Hawaiian Electric Co., Honolulu.

Cox, D.C., and L.C. Gordon. 1970. Estuaries and potential estuarine pollution on the major Hawaiian Islands. In: Estuarine pollution in the State of Hawaii. Vol. I: Statewide study. Univ. of Hawaii, Water Resources Research Center, Tech. Rept. No. 31.

Dillingham Environmental Company. 1971. Water quality program for Oahu with special emphasis on waste disposal. Final report, work areas 6 & 7. Analysis of water quality, oceanographic studies. Part II - Appendices. Prep. for the City and County of Honolulu, Dept. of Public Works.

DOH. 1977. An Ecosystem Approach to Water Quality Standards. Report of the Technical Committee on Water Quality Standards, Tech. Rept. No. 1. State of Hawaii, Department of Health.

_____. 1989. Amendment and compilation of Chapter 11-54, Hawaii Administrative Rules, November 20, 1989. Summary. Department of Health, State of Hawaii.

ECI & HECO. 1974. The marine biological impact of the Honolulu Generating Station: A summary of the 1974 investigations. Environmental Consultants, Inc. and Hawaiian Electric Co. 102 p.

McCain, J.C. and S. Coles. 1973. The marine biological impact of the Honolulu Generating Station: A summary of the 1973 investigations. Environmental Dept., Hawaiian Electric Co., Inc. Honolulu. 137 p.

McCubbin, P.R., J.C. Becker, and B.E. Hill. 1991. EPA's new storm water reglations for industries and municipalities. NAEP Newsletter, 16(2): 2-5.

Noda, Edward K., and Assoc. 1978. Post construction current circulation study for the reef runway at Honolulu International Airport. Prep. for: Ralph M. Parsons Co., Honolulu. 60 p.

Oceanit Laboratories, Inc. 1990. Marine environmental assessment for the Aloha Tower redevelopment. Prep. for Aloha Tower Assoc.

OI Consultants, Inc. 1986. Survey of the water quality, benthic habitat and infaunal populations for Keehi Lagoon, Hickam Harbor and Marine Pond, Honolulu International Airport. Prep. for KFC Airport, Inc., Honolulu.

Towill Corp. 1982. Revised environmental impact statement for commercial fishing vessel berthing area, Pier 16, Honolulu Harbor, Oahu. Prep. for Dept. of Transportation, Harbors Division. R.M. Towill Corp., Honolulu.

Ultramar Chemical Water Laboratory. 1968. Water study: Honolulu Harbor, Keehi Lagoon and nearshore waters from Kewalo Basin to Ahua Point, Oahu. Prep. for Department of Health, State of Hawaii. 16 p. plus tables.

Wilson Okamoto & Associates, Inc. 1991. Environmental Impact Statement Preparation Notice for the Marine Education and Training Center and Public Boat Launch Facility, Sand Island, Oahu. Prep. for Honolulu Waterfront Project, DBED&T, State of Hawaii.

Appendix D

TRAFFIC ASSESSMENT FOR THE MARINE EDUCATION AND TRAINING CENTER

Marine Education and Training Center

Prepared for
Wilson Okamoto & Associates

By
Wilbur Smith Associates
January, 1992

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TABLES

FIGURES

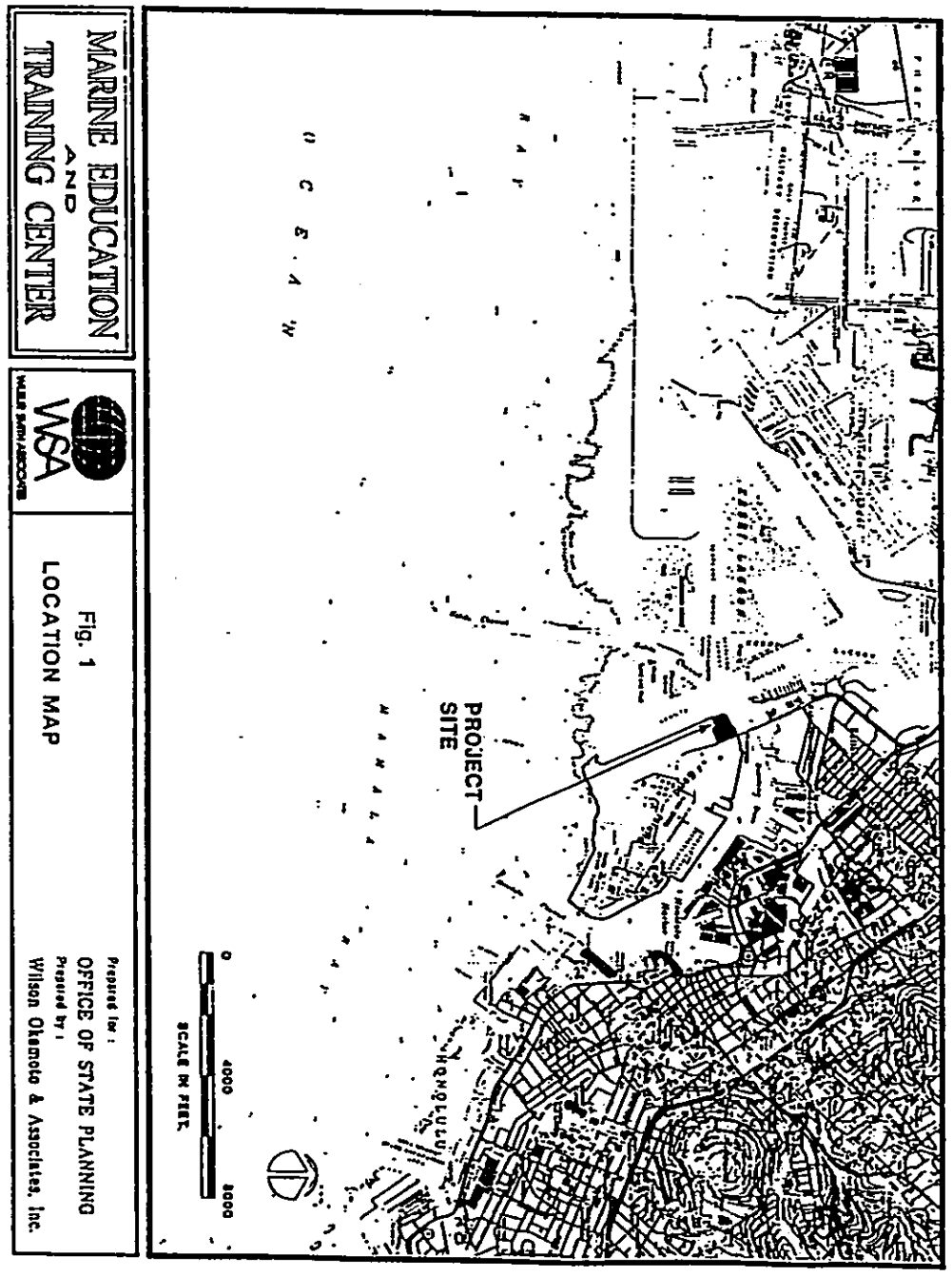
INTRODUCTION

The following report summarizes the results of a traffic analysis conducted for a planned Marine Education and Training Center on Sand Island, in the Honolulu harbor area. As shown in Figure 1, Sand Island is a man made island surrounded on the east by the Honolulu harbor main entrance channel, on the west by the Kalihi Channel, and on the north by Kapalama Channel. The project is to be located on a portion of an 8-acre site on the northwest corner of Sand Island. Access to the facility will be from a new roadway which will intersect the Sand Island Parkway opposite the existing Road 51A entrance to the Matson Container Yard.

The project would consist of two major facilities. The Boat Maintenance Facility will be located on the portion of the site near Sand Island Parkway. The Marine Propulsion Facility will be located about 60 feet southwest of the Boat Maintenance Facility, consisting of approximately 35,600 square feet of floor area. There will be approximately 60 parking stalls including four handicapped stalls, for the training center. The school will eventually have 160 to 180 students.

As part of the site, there is a public boat launch facility with 47 parking spaces and two launching ramps. This facility will be operated and maintained by the State Department of Transportation.

This report assesses existing and future traffic conditions with and without the project at the intersection of Sand Island Parkway and Road 51A. This will be the only intersection accessing the site.



MARINE EDUCATION AND TRAINING CENTER

WSA

Fig. 1
LOCATION MAP

Prepared for :
OFFICE OF STATE PLANNING
Prepared by :
Wilson Okamoto & Associates, Inc.

EXISTING CONDITIONS

The project site is presently undeveloped land which extends from Sand Island Parkway to the shoreline. The area south of the project, makai of Sand Island Parkway, is also undeveloped, but is planned as the future Corporation Yard for the City and County of Honolulu. These areas are presently used for storage lots of new vehicles and construction materials. A small unsurfaced parking lot for harbor-area workers is provided adjacent to the Road 51A intersection. The areas across Sand Island Parkway are part of the Matson Container Yard facilities.

Existing Roads

Sand Island Access Road, a State highway, provides access to Sand Island from Nimitz Highway. The portion of this roadway located on Sand Island is referred to as the Sand Island Parkway. In the vicinity of the project, the Sand Island Parkway provides two lanes in each direction, with left-turn lanes at major cross streets. Near the project, the roadway has full control of access and a speed limit of 35 mph.

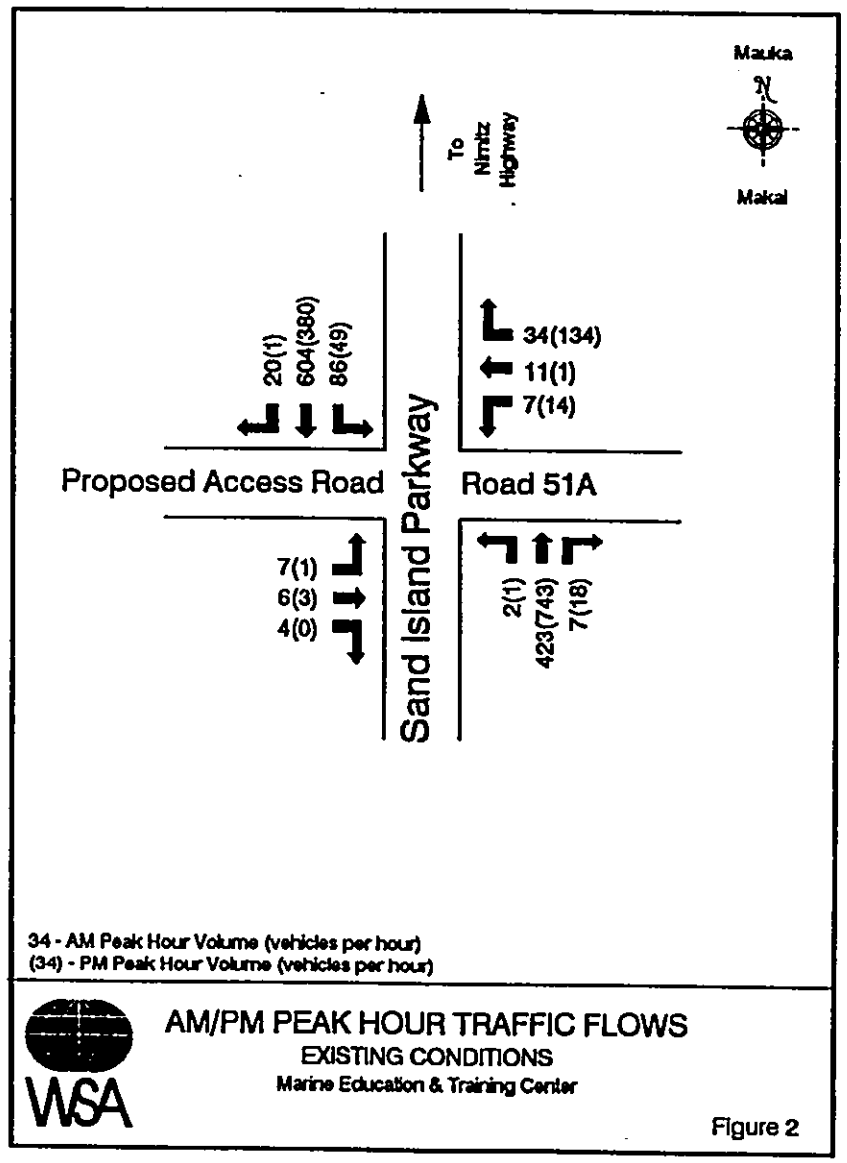
Road 51A provides access to the Pier 51A area of the Matson Container Yard harbor facilities. The two-lane, two-way roadway has a separate right-turn lane at its intersection with Sand Island Parkway. The makai leg of the intersection is presently a gravel-surface driveway which provides access to the open storage areas, and the unsurfaced employee parking area.

The Road 51A intersection is controlled by a fully-activated traffic signal. The traffic signal provides protected left-turn phases for the Sand Island Parkway approaches, and provides separate phases to the Road 51A approach and the gravel driveway opposite Road 51A.

Existing Traffic Flows

Traffic counts were conducted by Wilbur Smith Associates during the AM and PM peak commute periods at the intersection of Sand Island Parkway and Road 51A. The morning peak hour used in this study is 6:30 to 7:30 AM and the afternoon peak hour is 3:15 to 4:15 PM. The resulting peak hour turning movement flows are illustrated in Figure 2.

This analysis considers only weekday conditions since field observations and previous traffic counts indicate that the weekday traffic volumes on Sand Island Access Road/Parkway are substantially higher than weekend traffic volumes. Also, no classes are expected at the



Marine Education and Training Center on weekends, although the public boat ramp will be open for use.

The Level-of-Service Concept

The Transportation Research Board (TRB), a division of the National Science Foundation, has developed the standard methods used in traffic impact analyses to evaluate the effectiveness and quality of transportation facilities. Facilities include intersections, roadways, freeways, transit services, and pedestrian areas. While specific calculations for each type of facility differ, many of the TRB evaluation methods involve a concept known as level-of-service (LOS) which describes facility operations on a letter basis from A to F, signifying excellent to unacceptable traffic conditions.

Most of the evaluation methods compare facility demand to the facility's theoretical capacity to estimate level-of-service. Demand is estimated using actual or projected traffic counts for a given time period. Capacity is estimated based on the facility's physical characteristics, (e.g. size, the number of lanes, etc.), traffic conditions (e.g. types of vehicles, directional distribution, etc.), and control conditions (e.g. signalized, un-signalized, etc.). The comparison is frequently referred to as the volume-to-capacity (V/C) ratio. The V/C ratio is used to determine the level of service of the facility. Figure 3 illustrates the six levels-of-service categories, A to F.

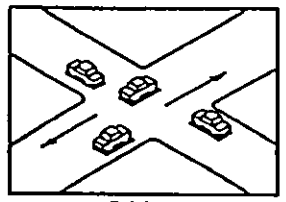
Signalized Intersection - Signalized intersections are one of the most complex devices in the traffic system. Consequently, the TRB has developed several methods for evaluating the level-of-service at signalized intersections. In most of the methods, level-of-service is estimated based on the volume-to-capacity ratio for critical conflicting movements. Conflicting Movements are defined as those which interfere with each other. For example, left-turns must wait for breaks in opposing through traffic before turning left. In this case, left-turning vehicles would be said to conflict with through vehicles.

Existing Levels-of-Service

Levels-of-service were calculated at the key intersection of Sand Island Parkway and Road 51A using the methodology presented in the 1985 Highway Capacity Manual. The resulting levels of service for the morning and afternoon peak hours are summarized in Table 1. Capacity analysis worksheets are included in the Appendix.

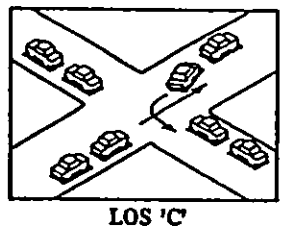
According to the analysis, it would appear that the key intersection is operating at a Level

LEVEL OF SERVICE "A" - V/C = 0 TO 0.60
Describes operations with very low delay, i.e., less than 5 seconds per vehicle. This occurs when signal progression is extremely favorable, and most vehicles arrive during the green phase. Most vehicles do not stop at all.



LOS 'A'

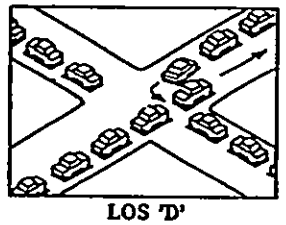
LEVEL OF SERVICE "B" - V/C = 0.61 TO 0.70
Describes operations with delays in the range of 5 to 15 seconds per vehicle. This generally occurs with good progression and/or short cycle lengths. More vehicles stop than for LOS "A", causing higher levels of average delay.



LOS 'C'

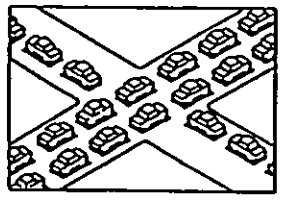
LEVEL OF SERVICE "C" - V/C = 0.71 TO 0.80
Describes operation with delay in the range of 15 to 25 seconds per vehicle. Occasionally vehicles may wait more than one red signal phase. The number of vehicles stopping is significant at this level, although many still pass through the intersection without stopping.

LEVEL OF SERVICE "D" - V/C = 0.81 TO 0.90
Describes operations with delay in the range of 25 to 40 seconds per vehicle. At LOS "D", the influence of congestion becomes more noticeable. Many vehicles stop, and the proportion of vehicles not stopping declines. Noticeable numbers of vehicles fail to clear signal during the first green phase.



LOS 'D'

LEVEL OF SERVICE "E" - V/C = 0.91 TO 1.00
Describes operations with delay in the range of 40 to 60 seconds per vehicle. These high delay values generally indicate poor progression, long cycle lengths, and high V/C ratios. Vehicles frequently fail to clear the signal during the first green phase.



LOS 'F'

LEVEL OF SERVICE "F" - V/C GREATER THAN 1.00
Describes operations with delay in excess of 60 seconds per vehicle. This condition often occurs with oversaturation, i.e., when arrival flow rates exceed the capacity of the intersection.

SOURCE: Highway Capacity Manual, 1985.

of Service B with a V/C ratio of 0.39 and 0.54 for the AM and PM peak hours, respectively. This is representative of relatively uncongested conditions. The existing daily traffic crossing the Sand Island Bridge mauka of the project access road has a V/C ratio of 0.08. This represents a Level of Service A for this roadway segment.

Table 1
Intersection Levels of Service Summary
Existing Conditions

Marine Education & Training Center

Signalized Intersection	AM Peak Hour LOS	AM Peak Hour V/C	PM Peak Hour LOS	PM Peak Hour V/C	Daily V/C
Sand Island Parkway & Road 51A	B	0.39	B	0.54	0.08

FUTURE CONDITIONS WITHOUT THE PROJECT

The Marine Education and Training Center is planned for full operation by 1999. Traffic conditions were analyzed for 1999 without the Training Center as a base from which to identify the incremental impacts that would result from the project.

1999 Traffic Volumes Without the Project

The undeveloped area south of the project site is planned for development as the Corporation Yard for the City and County of Honolulu. The City plans to consolidate the maintenance and servicing of vehicles for several of its departments to this site. These vehicles are currently maintained at several locations in other areas of the City. The Corporation Yard is planned for construction with the same general time frame as the Marine Education and Training Center, and thus is assumed to be fully operational by 1999.

The adjacent section of water front is also planned for improvements as part of the Sand Island Beach Park. This is expected to include a parking area that will share the same access road as the project.

The traffic generation for these two projects was developed from forecasts presented in the traffic study for these two planned projects.[1] The numbers of vehicle trips generated by these projects is estimated as follows:

	To Project	From Project
AM Peak Hour		
Corporation Yard	339	167
Beach Park	14	0
	353	167
PM Peak Hour		
Corporation Yard	167	339
Beach Park	14	14
	181	353

[1] "Traffic Impact Study for the Honolulu Corporation Yard and Sand Island Beach Park", prepared for the City and County of Honolulu by Wilson Okamoto & Associates, 1988.

An additional traffic increase of two percent per year has also incorporated to reflect general growth due to increased economic activity in the harbor area and other infill development.

1999 Traffic Conditions Without the Project

It was estimated that under conditions with general growth and approved projects, the intersection would operate at Level of Service F, as shown in Table 2. This problem can be alleviated with the addition of a left turn lane to the eastbound approach.

Table 2
Levels of Service Summary
1999 Future Anticipated Conditions Without the Project

Marine Education & Training Center

Signalized Intersection	1999 Background Traffic Without the Project				
	AM Peak Hour		PM Peak Hour		Daily V/C
	LOS	V/C	LOS	V/C	
Sand Island Parkway & Road 51A	F	0.95	F	1.15	0.13

FUTURE CONDITIONS WITH THE PROJECT

The following section presents an assessment of the project's trip generation characteristics as well as the impacts of both project and cumulative traffic on the local street system.

Site Traffic

Trip Generation - The number of peak hour and daily trips that would be generated by the proposed project were estimated using site specific information and engineering judgement. Applying this information an estimated 280 daily trips, with 48 AM peak hour trips and 96 PM peak hour trips, would be generated by the project. The estimated numbers of trips are summarized in Table 3.

The trip generations derived for the Marine Education and Training Center were several assumptions. It was stated in the Environmental Impact Statement Preparation Notice that there would be no more than 100 people at the Marine Education and Training Center facility at one time. This period of maximum use would occur in the afternoon. It was estimated that approximately 60% of this maximum number would leave the site during the PM peak hour. An amount equivalent to 40% was estimated to arrive at the site during the PM peak hour. Of these, there would be approximately 80% driving. The others would be either car pooling, walking, or using some other form of transportation. It was also assumed that there would be a much lower volume arriving and departing during the AM peak hour due to the class scheduling. Most of the classes will be scheduled during the afternoon. Most of the AM trips would be related to faculty and staff trips.

For the public boat launch, it was assumed that most people would be using the facility during the weekends. For the generated number of trips a comparison was made from the Los Angeles County Small Harbor Commission. They have approximately 8 launches and an estimated 19,000 to 20,000 trips per year. Using these as a base, trips were generated, and distributed based on assumptions about how the facilities may be used.

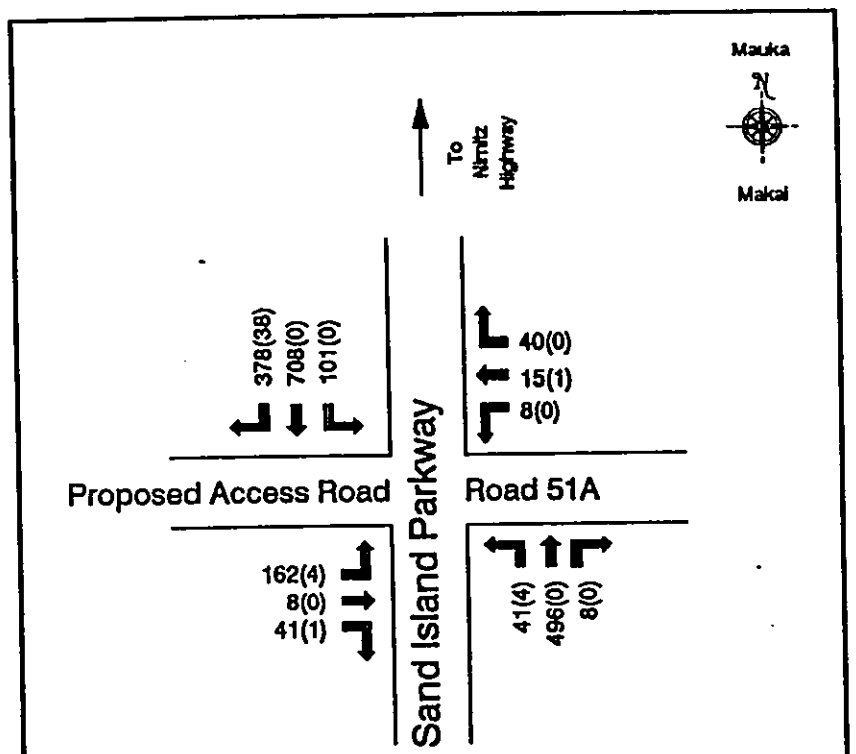
Trip Distribution and Assignment - Traffic was distributed in accordance to the pattern of the existing traffic on the Road 51A approach opposite the planned project access road. This distribution averages 10% southbound and 90% northbound. Traffic assignment for the project is summarized in Figure 4 for the AM peak hour and in Figure 5 for the PM peak hour. The traffic flows in these figures include the sum of normal background traffic, project traffic, and other cumulative growth. Project traffic is summarized in parentheses.

Table 3
Trip Generation

Marine Education & Training Center

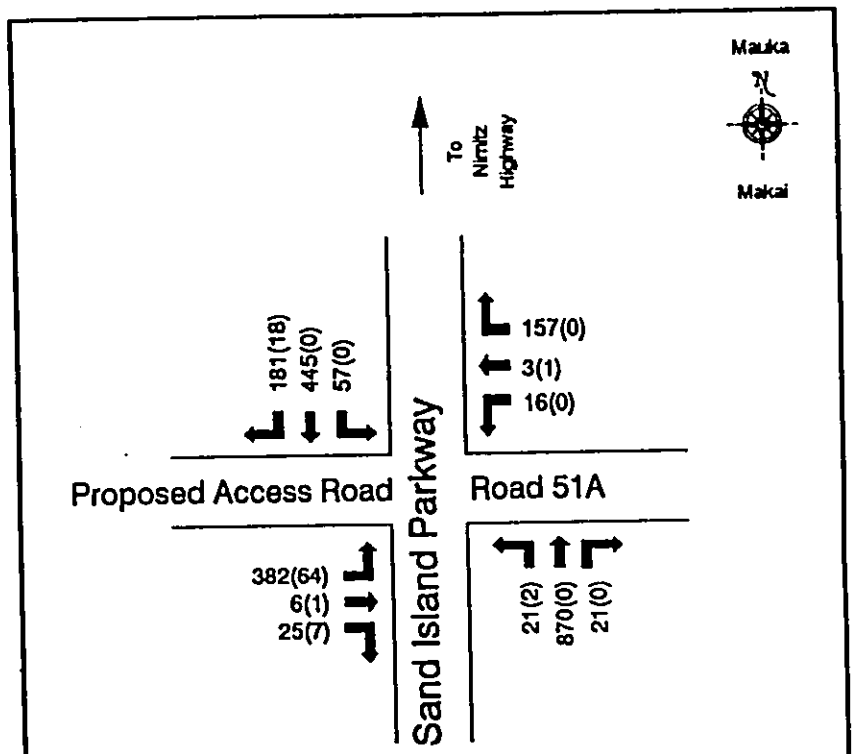
Facility	Trip Generation						Daily Total (VPD)
	AM Peak Hour			PM Peak Hour			
	Inbound (VPH)	Outbound (VPH)	Total (VPH)	Inbound (VPH)	Outbound (VPH)	Total (VPH)	
Public Boat Launch	28	0	28	0	24	24	100
Education Center	15	5	20	24	48	72	180
Total	43	5	48	24	72	96	280

VPH = Vehicles per hour
VPD = Vehicles per day



AM PEAK HOUR TRAFFIC FLOWS
Total Future
Marine Education & Training Center

Figure 4



PM PEAK HOUR TRAFFIC FLOWS
Total Future
Marine Education & Training Center

Figure 5

Site Access

Access points to the site were reviewed to assure that they conform with standard access requirements. Access to the Marine Education and Training Center would be provided by a proposed access road off the intersection of San Island Parkway and Road 51A.

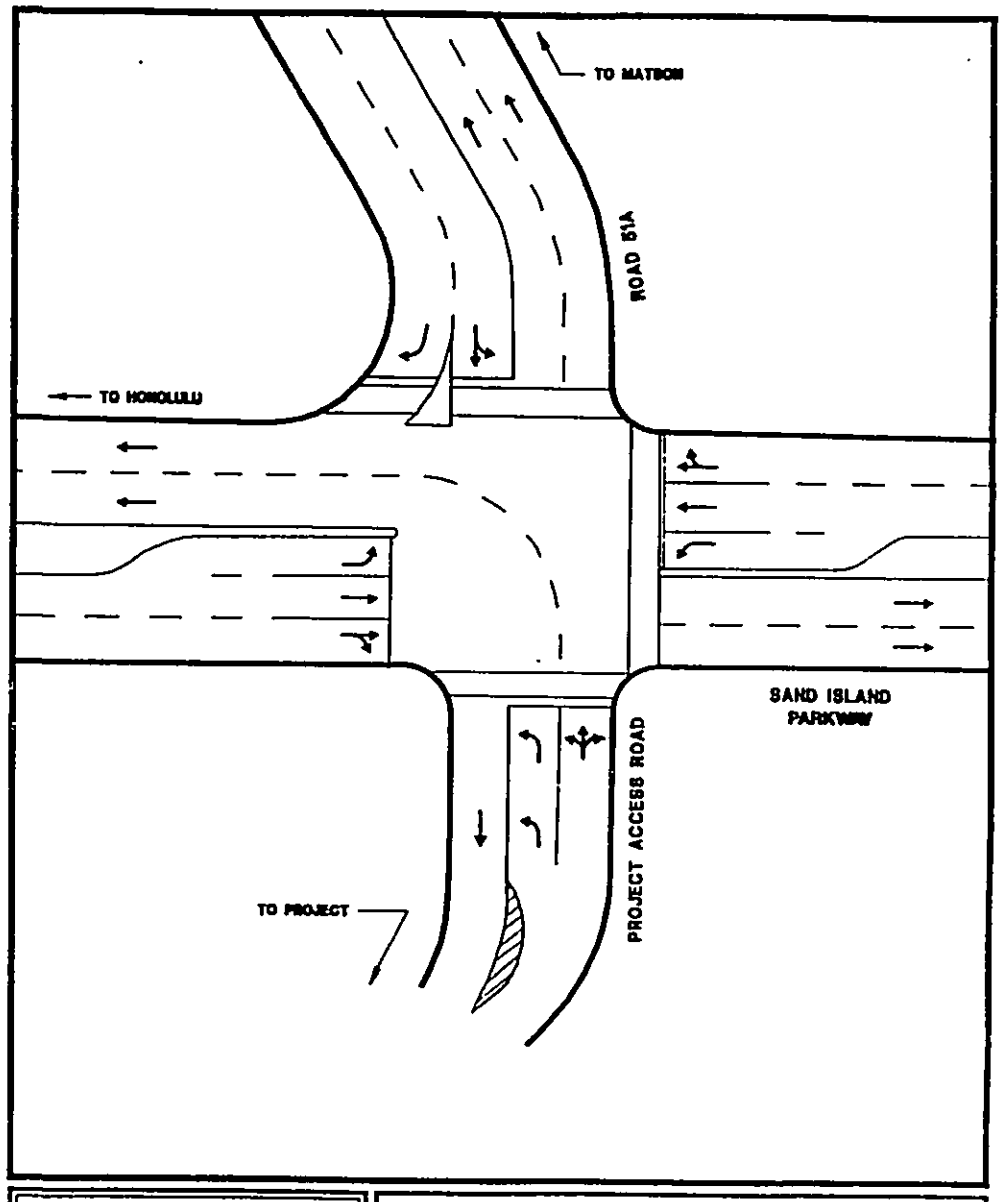
Future Intersection Levels-of Service

Future 1999 intersection levels-of-service were calculated with the proposed project and other anticipated traffic increases. These are summarized in Table 4.

Future Levels-of-Service with Two-Lane Access Roads - It was estimated that under conditions with the project and cumulative growth, the level-of-service categories at the intersection would not change compared to cumulative growth without the project. The intersection, however, will be operating at an unacceptable level of service during the peak traffic hours.

Future Levels-of-Service with Improvements - The unacceptable level of service can be alleviated with the addition of a left turn lane in the eastbound direction and changing the designated through lane to allow left and right turns in addition to the through movement. The proposed lane configuration for the intersection is depicted in Figure 6. Both of the eastbound lanes will need to be 12 feet in width to accommodate the trailers for the boat launch. This will result in an acceptable Level of Service C for the intersection, as shown in Table 4.

Capacity analysis worksheets for all future conditions are included in the Appendix.



MARINE EDUCATION AND TRAINING CENTER

PROPOSED INTERSECTION IMPROVEMENTS

Figure 6

Prepared for : HONOLULU WATERFRONT PROJECT

Prepared by : Wilson Okamoto & Associates, Inc.

Table 4
Levels of Service Summary
1999 Future Anticipated Conditions

Marine Education & Training Center

Signalized Intersection	1999 Background Plus Project Traffic								
	Without Improvements				With Improvements				
	AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour		Daily V/C
	LOS	V/C	LOS	V/C	LOS	V/C	LOS	V/C	
Sand Island Parkway & Road 51A	F	0.99	F	1.26	C	0.82	C	.92	0.15

SUMMARY AND CONCLUSION

The Marine Education and Training Center, and the planned public boat ramp and boat trailer parking area, would be located on the northwest corner of Sand Island. Access to the project would be via a new roadway which will intersect Sand Island Parkway opposite Road 51A. This new roadway would also serve the planned City and County of Honolulu Corporation Yard and the Sand Island State Beach Park.

The traffic analysis was conducted for the year 1999, at which time the project should be completed and fully operational. The findings include:

1. The Training Center and public boat ramp would generate an estimated 280 vehicles trips on a weekday, 96 trips occurring in the afternoon peak hour.

2. The project would increase peak hour volumes on Sand Island Parkway by 3 to 5%, depending on the peak hour and location. This increase would not significantly affect traffic conditions along this roadway.

3. If the new access road is constructed with a single-lane approach to the Sand Island Parkway intersection, the access road approach would operate at Level of Service F with or without the Training Center project. A widening of the access road approach to include a left-turn lane and changing the through lane designation to allow left, through and right turn movements would improve conditions to Level of Service C during peak traffic hours.

APPENDIX
LEVEL OF SERVICE WORKSHEETS

1985 HCM: SIGNALIZED INTERSECTIONS
SUMMARY REPORT

INTERSECTION..ROAD 51A/SAND ISLAND ACCESS RD
AREA TYPE.....OTHER
ANALYST.....AP
DATE.....10-23-1991
TIME.....AM PEAK HOUR
COMMENT.....EXISTING CONDITIONS

	VOLUMES					GEOMETRY							
	EB	WB	NB	SB		EB		WB		NB		SB	
LT	7	7	2	86	LTR	14.0	LT	12.0	L	12.0	L	12.0	
TH	6	11	423	604		12.0	R	12.0	T	12.0	T	12.0	
RT	4	34	7	20		12.0		12.0	TR	12.0	TR	12.0	
RR	0	0	0	0		12.0		12.0		12.0		12.0	
						12.0		12.0		12.0		12.0	
						12.0		12.0		12.0		12.0	

ADJUSTMENT FACTORS

	GRADE (%)	HV (%)	ADJ PKG Y/N	BUSES Nb	PHF	PEDS	PED. BUT. Y/N	PED. BUT. min T	ARR. TYPE
EB	0.00	0.00	N	0	0.50	0	Y	25.8	3
WB	0.00	38.00	N	0	0.77	0	Y	25.8	3
NB	0.00	38.00	N	0	0.87	0	Y	17.3	3
SB	0.00	10.00	N	0	0.72	0	N	17.3	3

SIGNAL SETTINGS — CYCLE LENGTH = 73.0

		PH-1	PH-2	PH-3	PH-4			PH-1	PH-2	PH-3	PH-4
EB	LT	X				WB	LT	X			
	TH	X					TH			X	
	RT	X					RT			X	
	PD	X					PD			X	
WB	LT		X			SB	LT	X	X		
	TH		X				TH		X	X	
	RT		X				RT		X	X	
	PD						PD		X	X	
GREEN		4.0	4.0	0.0	0.0	GREEN		5.0	10.0	25.0	0.0
YELLOW		5.0	5.0	0.0	0.0	YELLOW		5.0	5.0	5.0	0.0

LEVEL OF SERVICE

	LANE GRP.	V/C	G/C	DELAY	LOS	APP. DELAY	APP. LOS
EB	LTR	0.252	0.082	20.5	C	20.5	C
WB	LT	0.192	0.082	20.3	C	7.7	B
	R	0.043	0.795	1.0	A		
NB	L	0.017	0.096	22.7	C	11.6	B
	TR	0.466	0.370	11.5	B		
SB	L	0.244	0.301	14.7	B	6.9	B
	TR	0.445	0.575	5.9	B		

INTERSECTION: Delay = 8.7 (sec/veh) V/C = 0.368 LOS = B

1985 HCM: SIGNALIZED INTERSECTIONS
SUMMARY REPORT

INTERSECTION..ROAD 51A/SAND ISLAND ACCESS RD
AREA TYPE.....OTHER
ANALYST.....AP
DATE.....10-23-1991
TIME.....PM PEAK HOUR
COMMENT.....EXISTING CONDITIONS

	VOLUMES					GEOMETRY							
	EB	WB	NB	SB	:	EB		WB		NB		SB	
LT	1	14	1	49	: LTR	14.0	LT	12.0	L	12.0	L	12.0	
TH	3	1	743	380	:	12.0	R	12.0	T	12.0	T	12.0	
RT	0	134	18	1	:	12.0		12.0	TR	12.0	TR	12.0	
RR	0	0	0	0	:	12.0		12.0		12.0		12.0	
					:	12.0		12.0		12.0		12.0	
					:	12.0		12.0		12.0		12.0	

ADJUSTMENT FACTORS

	GRADE	HV	ADJ PKG	BUSES		PHF	PEDS	PED. BUT.		ARR. TYPE
	(%)	(%)	Y/N	Nb	Nb			Y/N	min T	
EB	0.00	0.00	N	0	0	0.50	0	Y	20.5	3
WB	0.00	16.00	N	0	0	0.67	0	Y	20.5	3
NB	0.00	16.00	N	0	0	0.91	0	Y	12.0	3
SB	0.00	31.00	N	0	0	0.87	0	N	12.0	3

SIGNAL SETTINGS — CYCLE LENGTH = 72.0

		PH-1	PH-2	PH-3	PH-4			PH-1	PH-2	PH-3	PH-4
EB	LT	X				WB	LT	X			
	TH	X					TH			X	
	RT	X					RT			X	
	PD	X					PD			X	
WB	LT		X			SB	LT	X	X		
	TH		X				TH		X	X	
	RT		X				RT		X	X	
	PD						PD		X	X	
GREEN		4.0	4.0	0.0	0.0	GREEN		5.0	9.0	30.0	0.0
YELLOW		5.0	5.0	0.0	0.0	YELLOW		5.0	5.0	0.0	0.0

LEVEL OF SERVICE

	LANE GRP.	V/C	G/C	DELAY	LOS	APP. DELAY	APP. LOS
EB	LTR	0.050	0.083	19.6	C	19.6	C
WB	LT	0.169	0.083	19.9	C	3.1	A
	R	0.178	0.792	1.2	A		
NB	L	0.007	0.097	22.3	C	13.5	B
	TR	0.705	0.375	13.4	B		
SB	L	0.130	0.292	14.3	B	6.1	B
	TR	0.259	0.569	5.1	B		

INTERSECTION: Delay = 9.7 (sec/veh) V/C = 0.537 LOS = B

1985 HCM: SIGNALIZED INTERSECTIONS
SUMMARY REPORT

INTERSECTION..ROAD 51A/SAND ISLAND ACCESS RD
AREA TYPE.....OTHER
ANALYST.....AP
DATE.....10-23-1991
TIME.....AM PEAK HOUR
COMMENT.....FUTURE CONDITIONS

	VOLUMES					GEOMETRY							
	EB	WB	NB	SB	:	EB		WB		NB		SB	
LT	158	8	37	101	: LTR	14.0	LT	12.0	L	12.0	L	12.0	
TH	8	14	496	708	:	12.0	R	12.0	T	12.0	T	12.0	
RT	40	40	8	340	:	12.0		12.0	TR	12.0	TR	12.0	
RR	0	0	0	0	:	12.0		12.0		12.0		12.0	
					:	12.0		12.0		12.0		12.0	
					:	12.0		12.0		12.0		12.0	

ADJUSTMENT FACTORS

	GRADE	HV	ADJ PKG	BUSES		PHF	PEDS	PED. BUT.		ARR. TYPE
	(%)	(%)	Y/N	Nb	Nb			Y/N	min T	
EB	0.00	0.00	N	0	0	0.50	0	Y	25.8	3
WB	0.00	38.00	N	0	0	0.77	0	Y	25.8	3
NB	0.00	38.00	N	0	0	0.87	0	Y	17.3	3
SB	0.00	10.00	N	0	0	0.72	0	N	17.3	3

SIGNAL SETTINGS — CYCLE LENGTH = 73.0

		PH-1	PH-2	PH-3	PH-4			PH-1	PH-2	PH-3	PH-4
EB	LT	X				WB	LT	X			
	TH	X					TH			X	
	RT	X					RT			X	
	PD	X					PD			X	
WB	LT		X			SB	LT	X	X		
	TH		X				TH		X	X	
	RT		X				RT		X	X	
	PD						PD		X	X	
GREEN		4.0	4.0	0.0	0.0	GREEN		5.0	10.0	25.0	0.0
YELLOW		5.0	5.0	0.0	0.0	YELLOW		5.0	5.0	5.0	0.0

LEVEL OF SERVICE

	LANE GRP.	V/C	G/C	DELAY	LOS	APP. DELAY	APP. LOS
EB	LTR	3.093	0.082	*	*	*	*
WB	LT	0.235	0.082	20.4	C	7.9	B
	R	0.051	0.795	1.0	A		
NB	L	0.310	0.096	23.8	C	12.9	B
	TR	0.546	0.370	12.1	B		
SB	L	0.287	0.301	14.9	B	10.2	B
	TR	0.816	0.575	9.8	B		

INTERSECTION: Delay = * (sec/veh) V/C = 0.950 LOS = *

1985 HCM: SIGNALIZED INTERSECTIONS
SUMMARY REPORT

INTERSECTION..ROAD 51A/SAND ISLAND ACCESS RD
AREA TYPE.....OTHER
ANALYST.....AP
DATE.....10-23-1991
TIME.....PM PEAK HOUR
COMMENT.....FUTURE CONDITIONS WITHOUT IMPROVEMENTS

	VOLUMES					GEOMETRY					
	EB	WB	NB	SB		EB		WB		NB	SB
LT	318	16	19	57	LTR	14.0	LT	12.0	L	12.0	L 12.0
TH	5	2	870	445		12.0	R	12.0	T	12.0	T 12.0
RT	18	157	21	163		12.0		12.0	TR	12.0	TR 12.0
RR	0	0	0	0		12.0		12.0		12.0	12.0
						12.0		12.0		12.0	12.0
						12.0		12.0		12.0	12.0

ADJUSTMENT FACTORS

	GRADE (%)	HV (%)	ADJ PKG Y/N	Nm	BUSES Nb	PHF	PEDS	PED. BUT. Y/N	min T	ARR. TYPE
EB	0.00	0.00	N	0	0	0.50	0	Y	20.5	3
WB	0.00	16.00	N	0	0	0.67	0	Y	20.5	3
NB	0.00	16.00	N	0	0	0.91	0	Y	12.0	3
SB	0.00	31.00	N	0	0	0.87	0	N	12.0	3

SIGNAL SETTINGS — CYCLE LENGTH = 63.0

		PH-1	PH-2	PH-3	PH-4			PH-1	PH-2	PH-3	PH-4
EB	LT	X				NB	LT		X		
	TH	X					TH			X	
	RT	X					RT			X	
	PD	X					PD			X	
WB	LT		X			SB	LT	X	X		
	TH		X				TH		X	X	
	RT		X				RT		X	X	
	PD						PD		X	X	
GREEN		8.0	8.0	0.0	0.0	GREEN		5.0	8.0	14.0	0.0
YELLOW		5.0	5.0	0.0	0.0	YELLOW		5.0	5.0	0.0	0.0

LEVEL OF SERVICE

	LANE GRP.	V/C	G/C	DELAY	LOS	APP. DELAY	APP. LOS
EB	LTR	2.615	0.159	*	*	*	*
WB	LT	0.106	0.159	14.7	B	3.5	A
	R	0.237	0.698	2.2	A		
NB	L	0.119	0.111	19.2	C	*	*
	TR	1.773	0.175	*	*		
SB	L	0.139	0.317	11.7	B	11.1	B
	TR	0.644	0.381	11.1	B		

INTERSECTION: Delay = * (sec/veh) V/C = 1.154 LOS = *

1985 HCM: SIGNALIZED INTERSECTIONS
SUMMARY REPORT

INTERSECTION..ROAD 51A/SAND ISLAND ACCESS RD
AREA TYPE.....OTHER
ANALYST.....AP
DATE.....10-23-1991
TIME.....AM PEAK HOUR
COMMENT.....FUTURE CONDITIONS WITH PROJECT WITHOUT IMPROVEMENTS

	VOLUMES					GEOMETRY					
	EB	WB	NB	SB		EB		WB		NB	SB
LT	162	8	41	101	LTR	14.0	LT	12.0	L	12.0	L 12.0
TH	8	15	496	708		12.0	R	12.0	T	12.0	T 12.0
RT	41	40	8	378		12.0		12.0	TR	12.0	TR 12.0
RR	0	0	0	0		12.0		12.0		12.0	12.0
						12.0		12.0		12.0	12.0
						12.0		12.0		12.0	12.0

ADJUSTMENT FACTORS

	GRADE (%)	HV (%)	ADJ PKG Y/N	Nm	BUSES Nb	PHF	PEDS	PED. BUT. Y/N	min T	ARR. TYPE
EB	0.00	0.00	N	0	0	0.50	0	Y	25.8	3
WB	0.00	38.00	N	0	0	0.77	0	Y	25.8	3
NB	0.00	38.00	N	0	0	0.87	0	Y	17.3	3
SB	0.00	10.00	N	0	0	0.72	0	N	17.3	3

SIGNAL SETTINGS — CYCLE LENGTH = 68.0

		PH-1	PH-2	PH-3	PH-4			PH-1	PH-2	PH-3	PH-4
EB	LT	X				NB	LT	X			
	TH	X					TH			X	
	RT	X					RT			X	
	PD	X					PD			X	
WB	LT		X			SB	LT	X	X		
	TH		X				TH		X	X	
	RT		X				RT		X	X	
	PD						PD		X	X	
GREEN		8.0	8.0	0.0	0.0	GREEN		5.0	8.0	14.0	0.0
YELLOW		5.0	5.0	0.0	0.0	YELLOW		5.0	5.0	5.0	0.0

LEVEL OF SERVICE

	LANE GRP.	V/C	G/C	DELAY	LOS	APP. DELAY	APP. LOS
EB	LTR	1.771	0.147	*	*	*	*
WB	LT	0.137	0.147	16.3	C	7.1	B
	R	0.054	0.721	1.8	A		
NB	L	0.319	0.103	21.9	C	22.3	C
	TR	0.859	0.235	22.3	C		
SB	L	0.294	0.294	14.2	B	72.9	F
	TR	1.146	0.426	78.1	F		

INTERSECTION: Delay = * (sec/veh) V/C = 0.999 LOS = *

1985 HCM: SIGNALIZED INTERSECTIONS
SUMMARY REPORT

INTERSECTION..ROAD 51A/SAND ISLAND ACCESS RD
AREA TYPE.....OTHER
ANALYST.....AP
DATE.....10-23-1991
TIME.....PM PEAK HOUR
COMMENT.....FUTURE CONDITIONS WITH PROJECT WITHOUT IMPROVEMENTS

	VOLUMES				:	GEOMETRY							
	EB	WB	NB	SB	:	EB		WB		NB		SB	
LT	382	16	21	57	:	LTR 14.0	LT	12.0	L	12.0	L	12.0	
TH	6	3	870	445	:	12.0	R	12.0	T	12.0	T	12.0	
RT	25	157	21	181	:	12.0		12.0	TR	12.0	TR	12.0	
RR	0	0	0	0	:	12.0		12.0		12.0		12.0	
					:	12.0		12.0		12.0		12.0	
					:	12.0		12.0		12.0		12.0	

ADJUSTMENT FACTORS

	GRADE (%)	HV (%)	ADJ T/H	PKG Nm	BUSES Nb	PHF	PEDS	PED. T/H	BUT. min T	ARR. TYPE
EB	0.00	0.00	N	0	0	0.50	0	Y	20.5	3
WB	0.00	16.00	N	0	0	0.67	0	Y	20.5	3
NB	0.00	16.00	N	0	0	0.91	0	Y	12.0	3
SB	0.00	31.00	N	0	0	0.87	0	N	12.0	3

SIGNAL SETTINGS — CYCLE LENGTH = 63.0

		PH-1	PH-2	PH-3	PH-4			PH-1	PH-2	PH-3	PH-4
EB	LT	X				NB	LT	X			
	TH	X					TH			X	
	RT	X					RT			X	
	PD	X					PD			X	
WB	LT		X			SB	LT	X	X		
	TH		X				TH		X	X	
	RT		X				RT		X	X	
	PD						PD		X	X	
GREEN		8.0	8.0	0.0	0.0	GREEN		5.0	8.0	14.0	0.0
YELLOW		5.0	5.0	0.0	0.0	YELLOW		5.0	5.0	0.0	0.0

LEVEL OF SERVICE

	LANE GRP.	V/C	G/C	DELAY	LOS	APP. DELAY	APP. LOS
EB	LTR	3.170	0.159	*	*	*	*
WB	LT	0.112	0.159	14.7	B	3.6	A
	R	0.237	0.698	2.2	A		
NB	L	0.131	0.111	19.2	C	*	*
	TR	1.773	0.175	*	*		
SB	L	0.139	0.317	11.7	B	11.4	B
	TR	0.665	0.381	11.3	B		

INTERSECTION: Delay = * (sec/veh) V/C = 1.263 LOS = *

1985 HCM: SIGNALIZED INTERSECTIONS
SUMMARY REPORT

INTERSECTION..ROAD 51A/SAND ISLAND ACCESS RD
AREA TYPE.....OTHER
ANALYST.....AP
DATE.....10-23-1991
TIME.....AM PEAK HOUR
COMMENT.....FUTURE CONDITIONS WITH PROJECT & IMPROVEMENTS

	VOLUMES				:	GEOMETRY							
	EB	WB	NB	SB	:	EB		WB		NB		SB	
LT	162	8	41	101	:	L 12.0	LT	12.0	L	12.0	L	12.0	
TH	8	15	496	708	:	LTR 12.0	R	12.0	T	12.0	T	12.0	
RT	41	40	8	378	:	12.0		12.0	TR	12.0	TR	12.0	
RR	30	0	0	0	:	12.0		12.0		12.0		12.0	
					:	12.0		12.0		12.0		12.0	
					:	12.0		12.0		12.0		12.0	

ADJUSTMENT FACTORS

	GRADE (%)	HV (%)	ADJ T/H	PKG Nm	BUSES Nb	PHF	PEDS	PED. T/H	BUT. min T	ARR. TYPE
EB	0.00	0.00	N	0	0	0.50	0	Y	20.5	3
WB	0.00	16.00	N	0	0	0.67	0	Y	20.5	3
NB	0.00	16.00	N	0	0	0.91	0	Y	12.0	3
SB	0.00	31.00	N	0	0	0.87	0	N	12.0	3

SIGNAL SETTINGS — CYCLE LENGTH = 70.0

		PH-1	PH-2	PH-3	PH-4			PH-1	PH-2	PH-3	PH-4
EB	LT	X				NB	LT	X			
	TH	X					TH		X		
	RT	X					RT		X		
	PD	X					PD		X		
WB	LT		X			SB	LT	X			
	TH		X				TH		X		
	RT		X				RT		X		
	PD						PD		X		
GREEN		9.0	3.0	0.0	0.0	GREEN		8.0	30.0	0.0	0.0
YELLOW		5.0	5.0	0.0	0.0	YELLOW		5.0	5.0	0.0	0.0

LEVEL OF SERVICE

	LANE GRP.	V/C	G/C	DELAY	LOS	APP. DELAY	APP. LOS
EB	L	0.631	0.157	24.3	C	23.8	C
	LTR	0.720	0.157	23.3	C		
WB	LT	0.293	0.071	20.3	C	8.6	B
	R	0.059	0.714	1.9	A		
NB	L	0.199	0.143	20.2	C	9.0	B
	TR	0.383	0.457	8.1	B		
SB	L	0.549	0.143	23.5	C	23.3	C
	TR	0.970	0.457	23.3	C		

INTERSECTION: Delay = 19.2 (sec/veh) V/C = 0.817 LOS = C

1985 HCM: SIGNALIZED INTERSECTIONS
SUMMARY REPORT

INTERSECTION..ROAD 51A/SAND ISLAND ACCESS RD
AREA TYPE.....OTHER
ANALYST.....AP
DATE.....10-23-1991
TIME.....PM PEAK HOUR
COMMENT.....FUTURE CONDITIONS WITH PROJECT & IMPROVEMENTS

	VOLUMES					GEOMETRY							
	EB	WB	NB	SB		EB		WB		NB		SB	
LT	382	16	21	57	L	12.0	LT	12.0	L	12.0	L	12.0	
TH	6	3	870	445	LTR	12.0	R	12.0	T	12.0	T	12.0	
RT	25	157	21	181		12.0		12.0	TR	12.0	TR	12.0	
RR	10	0	0	0		12.0		12.0		12.0		12.0	
						12.0		12.0		12.0		12.0	
						12.0		12.0		12.0		12.0	

ADJUSTMENT FACTORS

	GRADE (%)	HV (%)	ADJ Y/N	PKG Nm	BUSES Nb	PHF	PEDS	PED. Y/N	BUT. min t	ARR. TYPE
EB	0.00	0.00	N	0	0	0.50	0	Y	20.5	3
WB	0.00	16.00	N	0	0	0.67	0	Y	20.5	3
NB	0.00	16.00	N	0	0	0.91	0	Y	12.0	3
SB	0.00	31.00	N	0	0	0.87	0	N	12.0	3

SIGNAL SETTINGS — CYCLE LENGTH = 70.0

		PH-1	PH-2	PH-3	PH-4			PH-1	PH-2	PH-3	PH-4
EB	LT	X				NB	LT	X			
	TH	X					TH		X		
	RT	X					RT		X		
	PD	X					PD		X		
WB	LT		X			SB	LT	X			
	TH		X				TH		X		
	RT		X				RT		X		
	PD						PD		X		
GREEN		18.0	4.0	0.0	0.0	GREEN		7.0	21.0	0.0	0.0
YELLOW		5.0	5.0	0.0	0.0	YELLOW		5.0	5.0	0.0	0.0

LEVEL OF SERVICE

	LANE GRP.	V/C	G/C	DELAY	LOS	APP. DELAY	APP. LOS
EB	L	0.794	0.286	23.6	C	23.7	C
	LTR	0.859	0.286	23.8	C		
WB	LT	0.207	0.086	19.3	C	6.3	B
	R	0.282	0.586	4.7	A		
NB	L	0.113	0.129	20.5	C	24.2	C
	TR	0.942	0.329	24.3	C		
SB	L	0.344	0.129	21.6	C	16.4	C
	TR	0.771	0.329	15.9	C		

INTERSECTION: Delay = 20.3 (sec/veh) V/C = 0.923 LOS = C

Appendix E

VISUAL IMPACT ANALYSIS FOR THE MARINE EDUCATION AND TRAINING CENTER AT SAND ISLAND

February 1992

VISUAL IMPACT ASSESSMENT

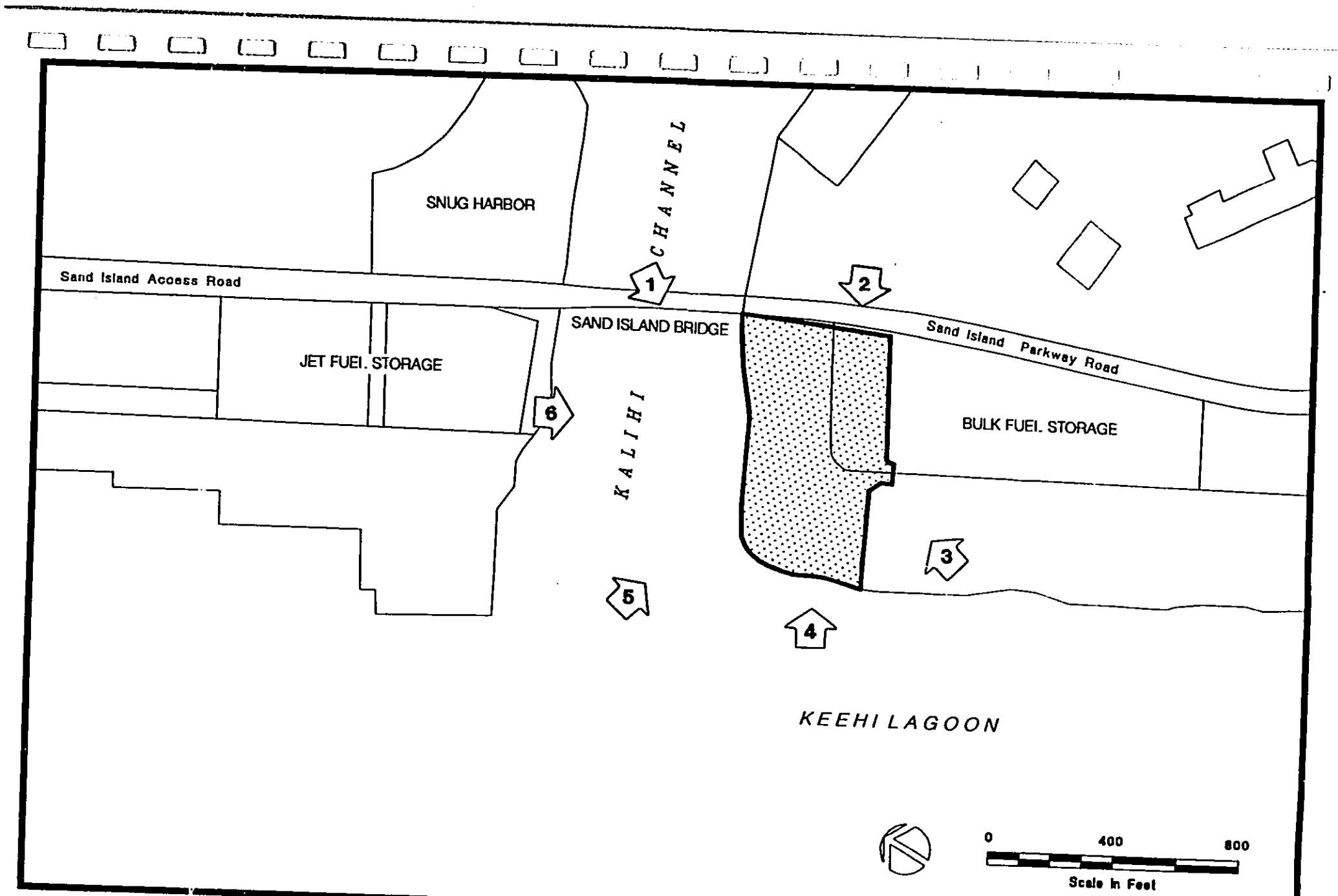
Lacayo Visualizations, Inc.
and
Wilson Okamoto & Associates, Inc.

A visual impact assessment was conducted for the purpose of depicting the impacts of the proposed Marine Education and Training Center (METC) development on the coastal views in the vicinity of the project site. A site master plan and preliminary conceptual designs of proposed facilities prepared in the master plan formulation phase for the METC were used for renderings in the view study.

Visualizations, Inc. was retained to prepare a three-dimensional computer model of the buildings and site master plan. Photographs of existing views were taken to compare with the computer-designed three-dimensional views. The selected viewpoints included:

(1) From the Sand Island Bridge facing southwest toward the project site.
(2) From the Sand Island Parkway facing west toward the project site.
(3) From the shoreline near the Sand Island Park extension area facing north.
(4) From approximately 175 feet offshore in Keehi Lagoon facing northeast.
(5) From approximately 350 feet offshore in Kalihi Channel facing east.
(6) From the opposite shore of Kalihi Channel the Keehi Small Boat Harbor, facing southeast.

The three-dimensional computer model of the proposed project was used to render six stills from the selected views. Color laser prints of the selected views were developed for use in comparison with existing photographs of the undeveloped existing area.



MARINE EDUCATION AND TRAINING CENTER

VIEW PLANE LOCATIONS

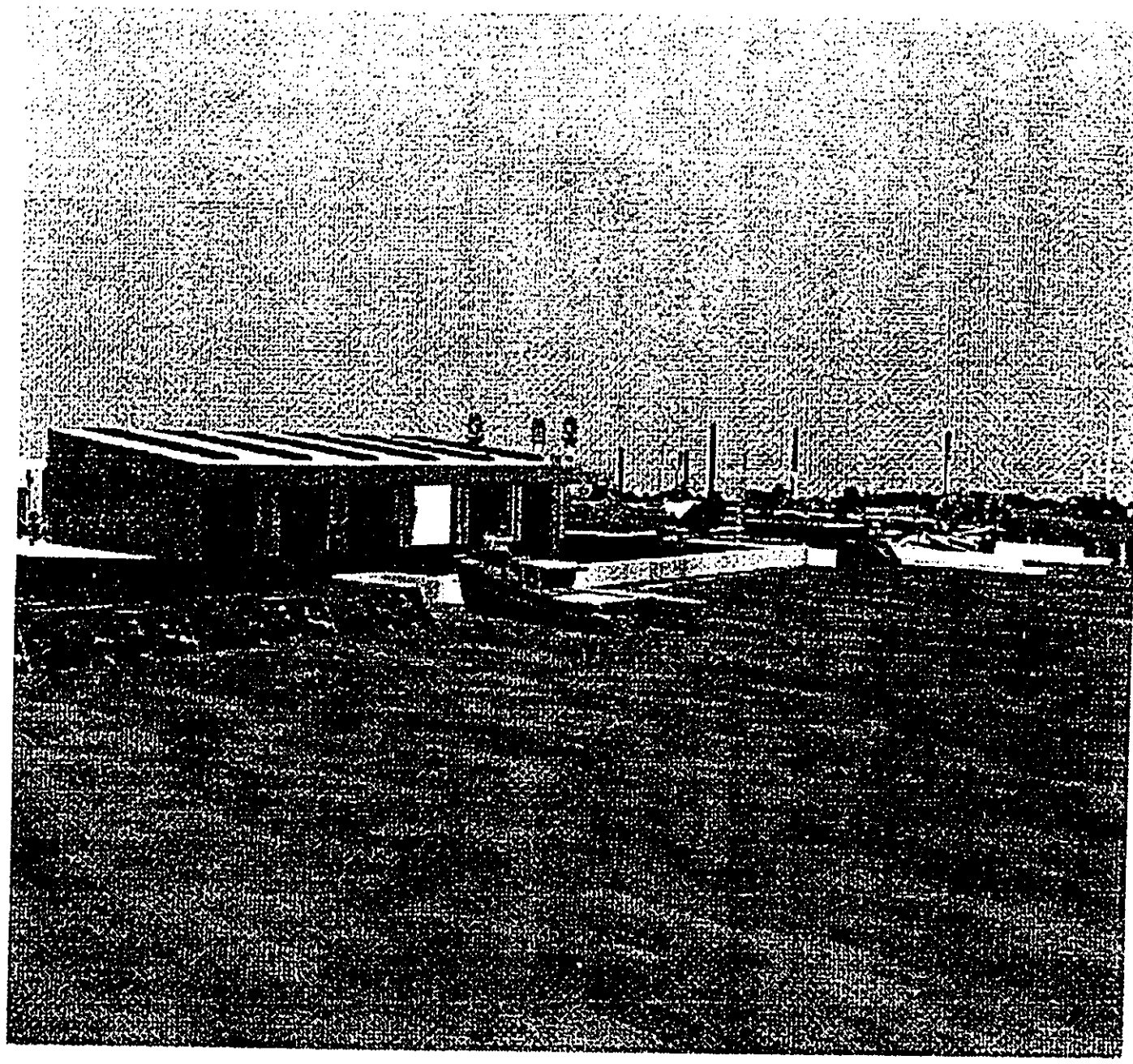
Prepared for :
HONOLULU WATERFRONT PROJECT
Prepared by :
Wilson Okamoto & Associates, Inc.

MARINE EDUCATION
AND
TRAINING CENTER

EXISTING VIEW #1
(From Sand Island Bridge, facing southwest)

Prepared for :
HONOLULU WATERFRONT PROJECT

Prepared by :
Wilson Okamoto & Associates, Inc.



Source : Lacayo Visualizations
December 1991

MARINE EDUCATION
AND
TRAINING CENTER

PROPOSED VIEW #1

(From Sand Island Bridge, facing southwest)

Prepared for :
HONOLULU WATERFRONT PROJECT

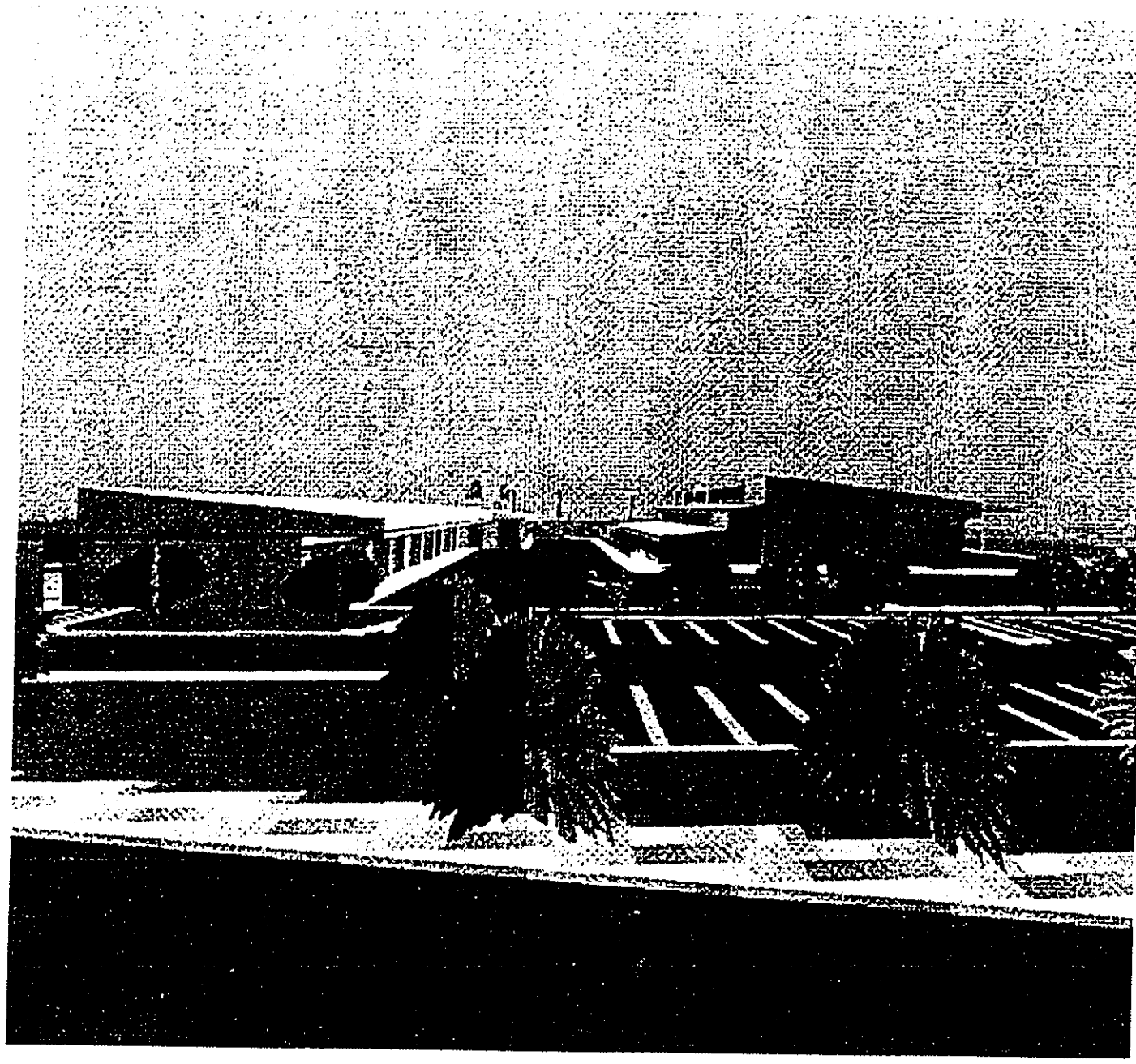
Prepared by :
Wilson Okamoto & Associates, Inc.

MARINE EDUCATION
AND
TRAINING CENTER

EXISTING VIEW #2
(From Sand Island Parkway, facing west)

Prepared for :
HONOLULU WATERFRONT PROJECT

Prepared by :
Wilson Okamoto & Associates, Inc.



Source : Lacayo Visualizations
December 1991

MARINE EDUCATION
AND
TRAINING CENTER

PROPOSED VIEW #2
(From Sand Island Parkway, facing west)

Prepared for :
HONOLULU WATERFRONT PROJECT

Prepared by :
Wilson Okamoto & Associates, Inc.

MARINE EDUCATION
AND
TRAINING CENTER

EXISTING VIEW #3
(From shoreline, facing north)

Prepared for :
HONOLULU WATERFRONT PROJECT

Prepared by :
Wilson Okamoto & Associates, Inc.

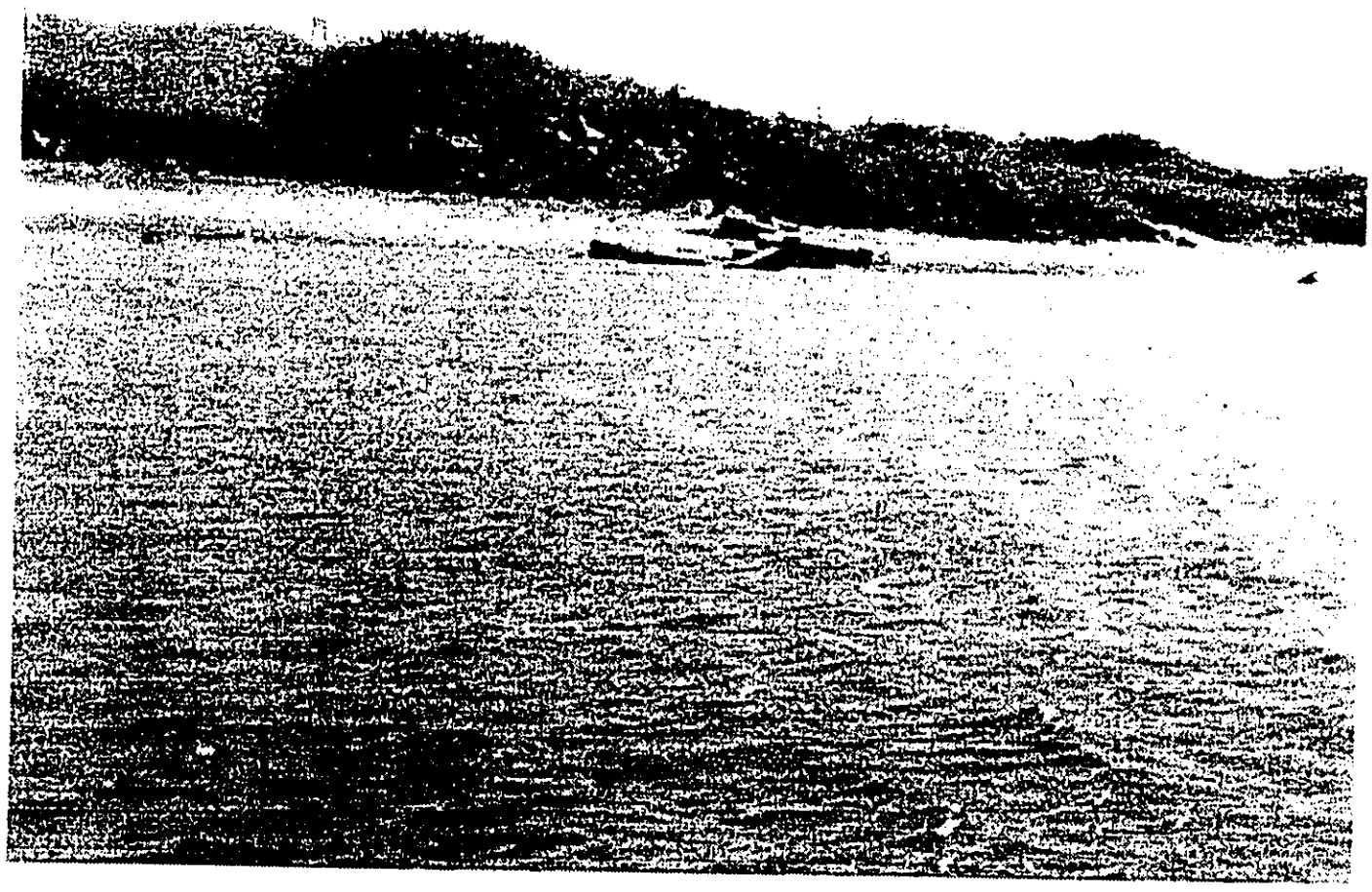
Source : Lacayo Visualizations
December 1991

MARINE EDUCATION
AND
TRAINING CENTER

PROPOSED VIEW #3
(From shoreline, facing north)

Prepared for : HONOLULU WATERFRONT PROJECT

Prepared by : Wilson Okamoto & Associates, Inc.



MARINE EDUCATION
AND
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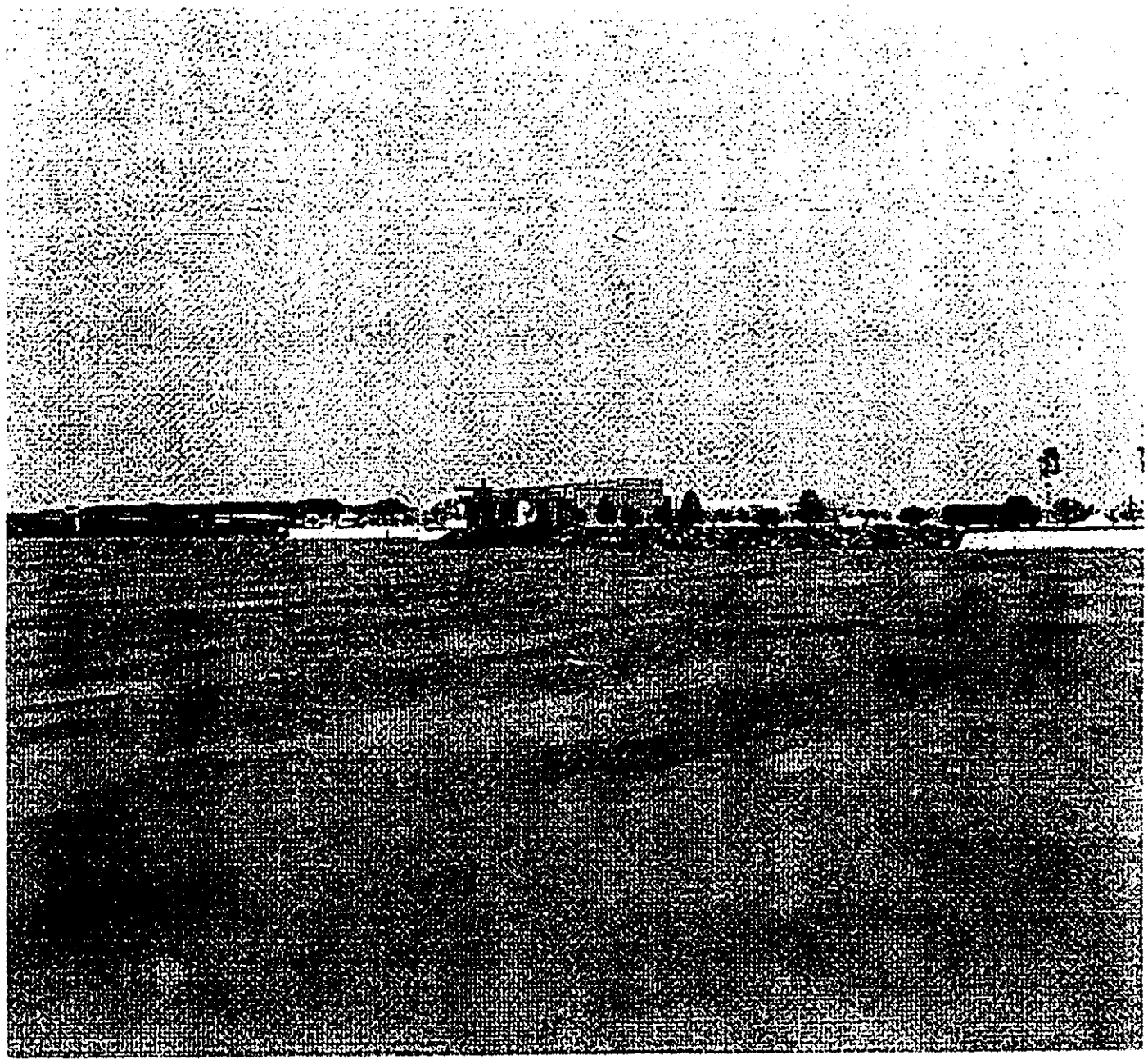
EXISTING VIEW #4
(From offshore, facing northeast)

Prepared for :
HONOLULU WATERFRONT PROJECT

Prepared by :
Wilson Okamoto & Associates, Inc.



Source : Lacayo Visualizations
December 1991

MARINE EDUCATION
AND
TRAINING CENTER

PROPOSED VIEW #4
(From offshore, facing northeast)

Prepared for :
HONOLULU WATERFRONT PROJECT

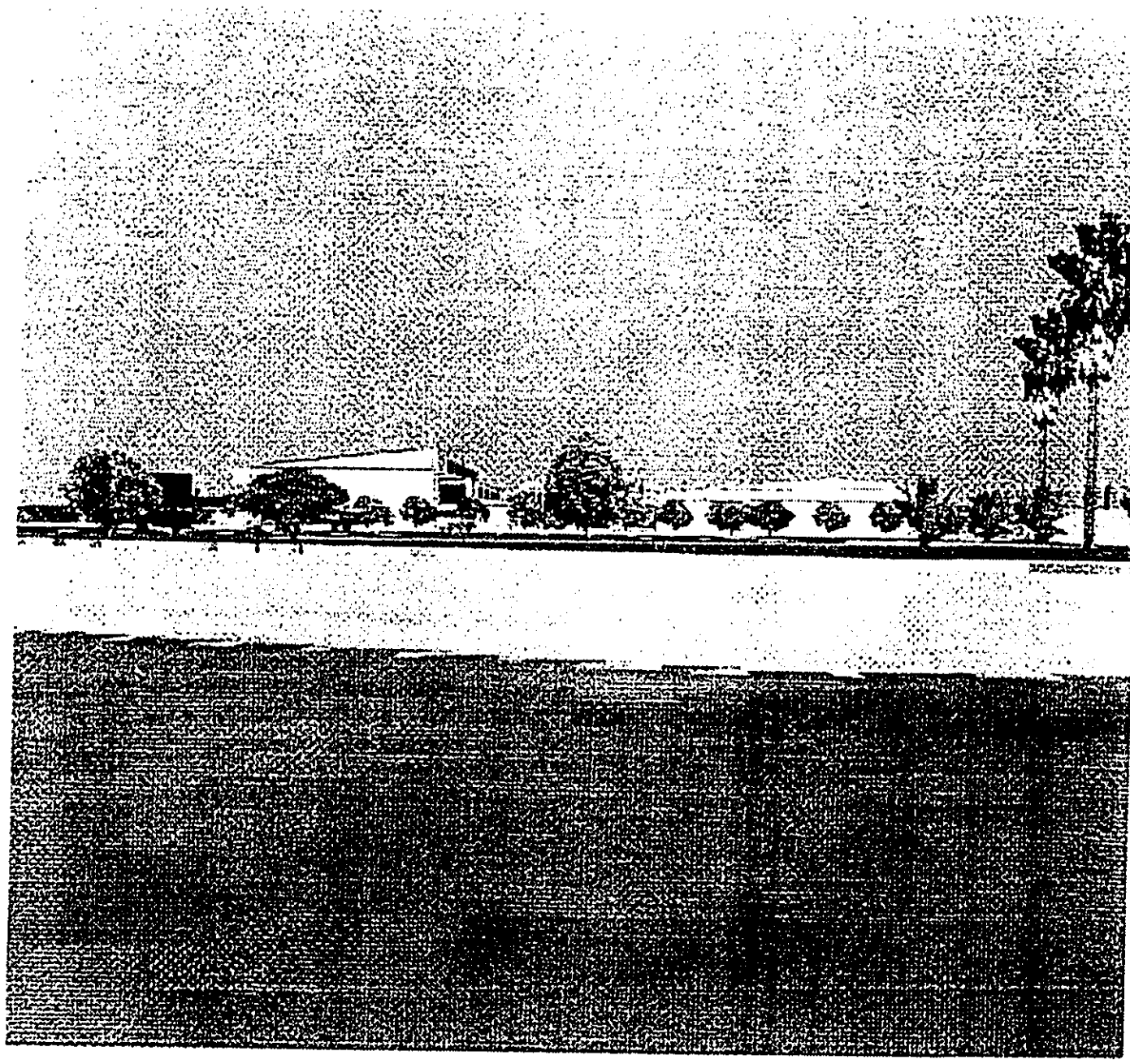
Prepared by :
Wilson Okamoto & Associates, Inc.

MARINE EDUCATION
AND
TRAINING CENTER

EXISTING VIEW #5
(From offshore, facing east)

Prepared for :
HONOLULU WATERFRONT PROJECT

Prepared by :
Wilson Okamoto & Associates, Inc.



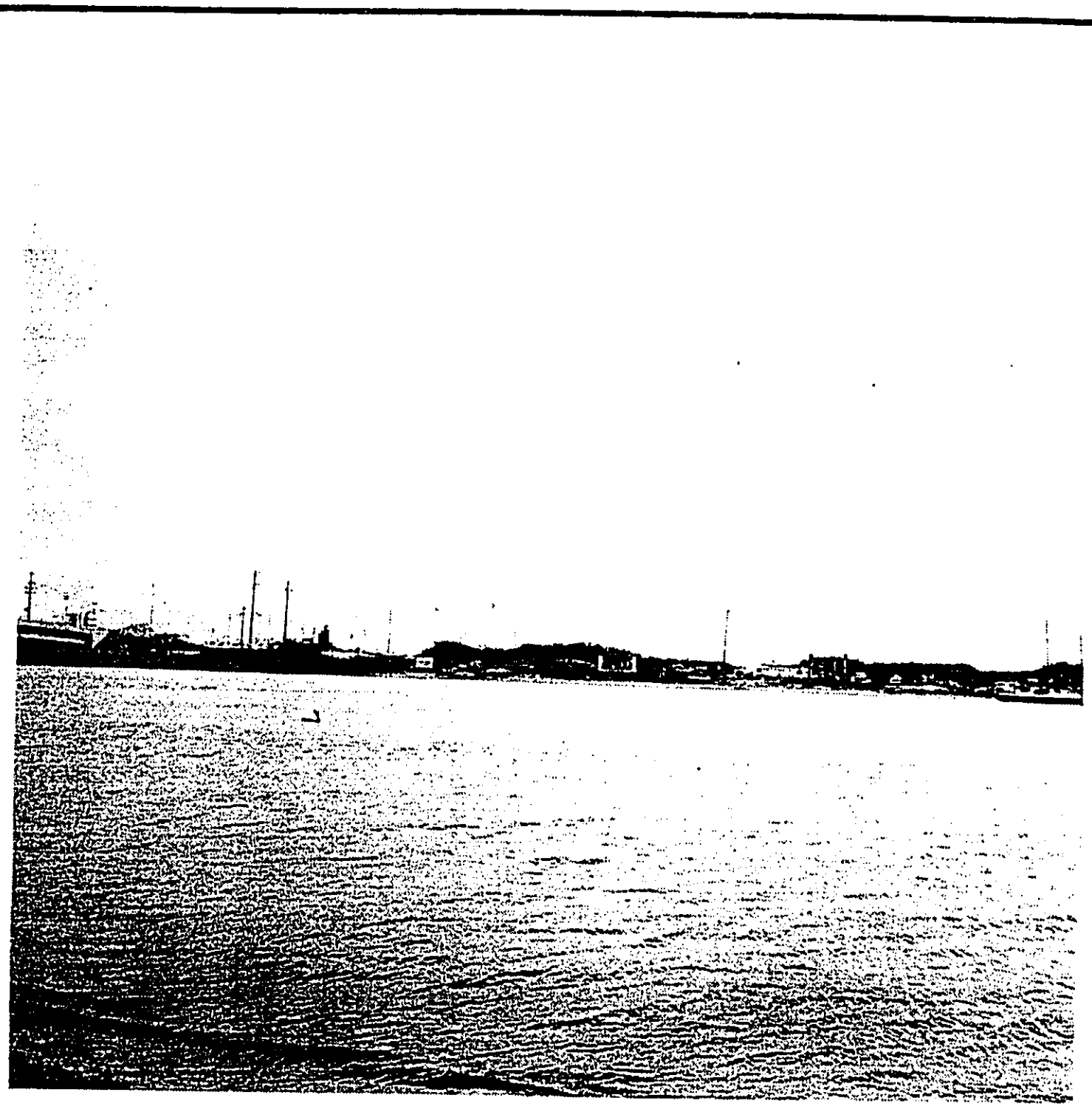
Source : Lacayo Visualizations
December 1991

MARINE EDUCATION
AND
TRAINING CENTER

PROPOSED VIEW #5
(From offshore, facing east)

Prepared for :
HONOLULU WATERFRONT PROJECT

Prepared by :
Wilson Okamoto & Associates, Inc.

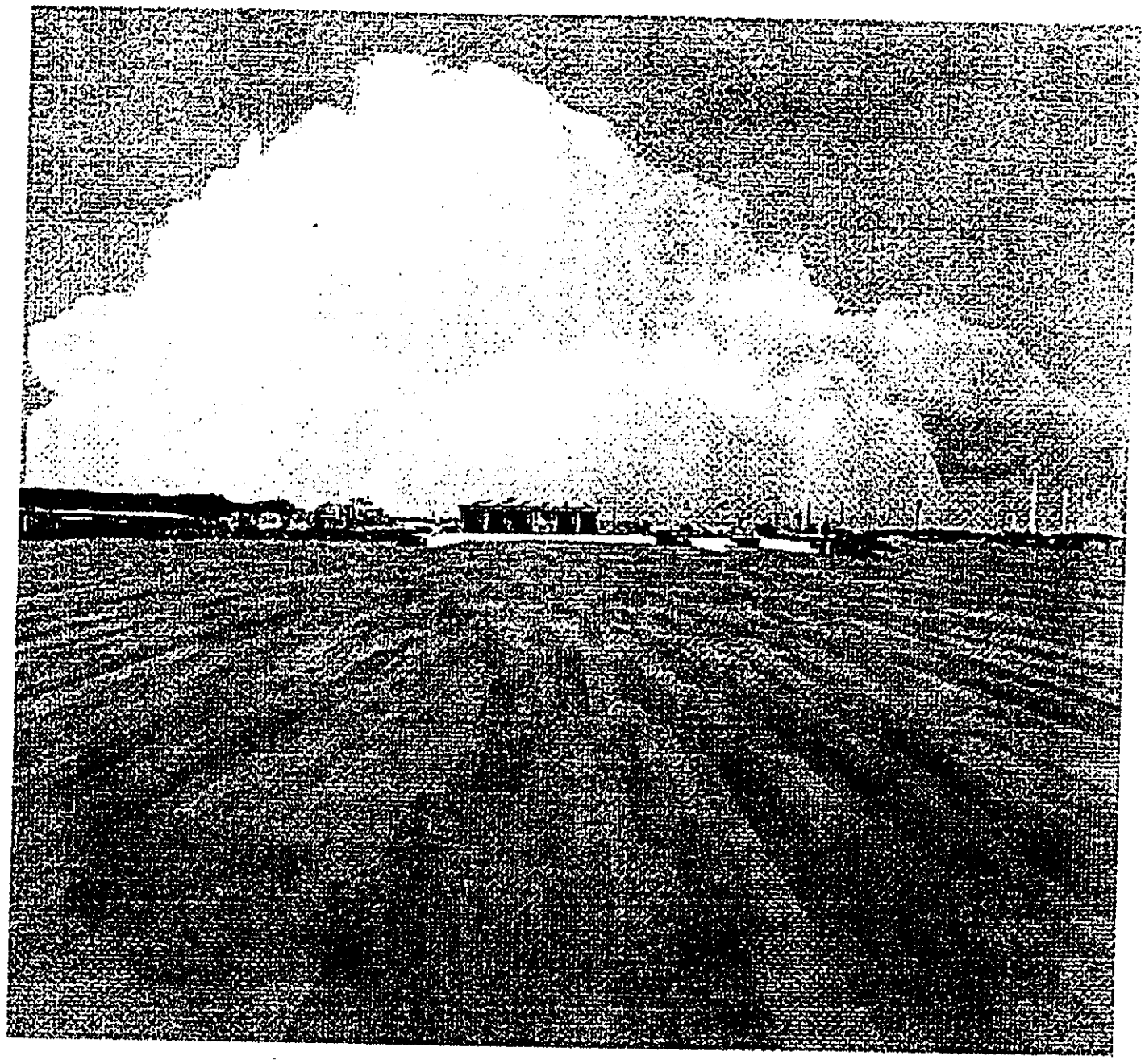


MARINE EDUCATION
AND
TRAINING CENTER

EXISTING VIEW #6
(From opposite shoreline fronting Kalihi Channel, facing southeast)

Prepared for :
HONOLULU WATERFRONT PROJECT

Prepared by :
Wilson Okamoto & Associates, Inc.



Source : Lacayo Visualizations
December 1991

MARINE EDUCATION
AND
TRAINING CENTER

PROPOSED VIEW #6

(From opposite shoreline fronting Kalihi Channel, facing southeast)

Prepared for :
HONOLULU WATERFRONT PROJECT

Prepared by :
Wilson Okamoto & Associates, Inc.