

Office Of Environmental Quality Control  
Office Of The Governor  
820 Kalia Drive  
7th Office Building, 7th Floor  
Honolulu, Hawaii 96813

DEPARTMENT OF PUBLIC WORKS  
CITY AND COUNTY OF HONOLULU

REVISED

ENVIRONMENTAL IMPACT STATEMENT

FOR

THE PROPOSED HONOULIULI INTERCEPTOR SEWER SYSTEM  
(A SUPPLEMENT TO EPA'S MAMALA BAY WASTEWATER TREATMENT  
AND DISPOSAL SYSTEM, OAHU, HAWAII - DECEMBER 1973)

THIS ENVIRONMENTAL DOCUMENT IS SUBMITTED  
PURSUANT TO CHAPTER 343, HRS

RESPONSIBLE OFFICIAL

*Kazu Hayashida*

KAZU HAYASHIDA

DIRECTOR AND CHIEF ENGINEER

OCT 27 1976

DATE

ACCEPTING AUTHORITY - THE HONORABLE GEORGE ARIYOSHI  
GOVERNOR, STATE OF HAWAII

## PREFACE

This Environmental Impact Statement was prepared prior to the adoption of the rules and regulations of the Environmental Quality Commission of the State of Hawaii under Chapter 343, Hawaii Revised Statutes. Therefore the contents are not arranged exactly as listed under Section 1:42, CONTENTS REQUIREMENTS, in the Regulations of the Environmental Quality Commission of the State of Hawaii.

Listed below is an index of the content requirements as described under the said Section 1:42 with reference to the page and section in this EIS where these requirements are covered.

- a. Summary sheet: Page vii, SUMMARY
- b. Project description: Page 9, III. PROJECT DESCRIPTION
- c. Description of environmental setting: Page 12, IV. EXISTING CONDITIONS
- d. The relationship of the proposed action to land use plans, policies, and controls for the affected area: Page 12, IV. EXISTING CONDITIONS,  
A. Land Use
- e. The probable impact of the proposed action on the environment: Page 38, V. IMPACT OF THE PROPOSED INTERCEPTOR SEWER SYSTEM
- f. Any probable adverse environmental effects which cannot be avoided: Page 63, VI. ADVERSE ENVIRONMENTAL EFFECTS WHICH CANNOT BE AVOIDED SHOULD THE PROPOSAL BE IMPLEMENTED
- g. Alternatives to the proposed action: Page 64, VII. ALTERNATIVES TO THE PROPOSED ACTION
- h. The relationship between local short-term uses of man's environment and the maintenance and enhancement of long-term productivity: Page 81, VIII. THE RELATIONSHIP BETWEEN LOCAL SHORT-TERM USES OF MAN'S ENVIRONMENT AND THE MAINTENANCE AND ENHANCEMENT OF LONG-TERM PRODUCTIVITY
- i. Mitigation measures proposed to minimize impact: Page 38, V. IMPACT OF THE PROPOSED INTERCEPTOR SEWER SYSTEM (Mitigation measures are described within the text following descriptions of various impacts)
- j. Any irreversible and irretrievable commitments of resources: Page 81, IX. IRREVERSIBLE AND IRRETRIEVABLE COMMITMENTS OF RESOURCES
- k. An indication of what other interests and considerations of Governmental policies are thought to offset the adverse environmental effects of the proposed action: Page 1, I. BACKGROUND
- l. Organizations and persons consulted: APPENDIX A

- m. Reproduction of comments and responses made during consultation process:  
APPENDIX A
- n. Summary of unresolved issues: Not applicable
- o. List of necessary approvals: APPENDIX B, PERMITS AND APPROVALS REQUIRED

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## SUMMARY

This Supplemental Environmental Impact Statement to D-EPA-24002-HI, Mamala Bay Wastewater Treatment and Disposal System, Oahu, Hawaii identifies the environmental implications of constructing and operating an interceptor sewer system to convey wastewater from existing sewage pump stations at Pearl City and Waipahu to the proposed Honouliuli Wastewater Treatment Plant and Barbers Point Ocean Outfall. The project includes immediate and planned future modifications to the sewage pump stations, including the provision of standby generators, and the installation of approximately 24,000 lineal feet of dual-line force main and 12,000 lineal feet of gravity sewer. These facilities will be designed to transport wastewater from the collection systems in the West Mamala Bay District to the treatment plant through the design year 2020.

The force main is to be aligned within or parallel to the old O. R. & L. right-of-way between the Pearl City and Waipahu sewage pump stations. This land is essentially undeveloped; however, approximately 2,000 lineal feet of force main will be constructed in the intertidal area along the shoreline of Middle Loch. The force main will proceed south through undeveloped land and sugar cane fields on Waipio Peninsula, crossing beneath West Loch between Hanaloa Point and the Naval Ammunition Depot. The force main will make a transition to gravity sewer at the Geiger Road entrance to the Naval Ammunition Depot and remain within the state highway right of way over the approximately 12,000 lineal feet of interceptor to the Honouliuli Wastewater Treatment Plant.

Temporary adverse environmental impacts will include the noise associated with pile driving at the sewage pump stations, disposal of excess excavated material including dredge spoil from the West Loch crossing, and the disposal of trench dewatering. There will be temporary inconvenience to vehicles using

the O. R. & L. right-of-way for service access and nuisance noise to the administrative office within the Naval Ammunition Depot during construction in that area. Also, there will be temporary scarring of the land where trenches are excavated and backfilled. None of the above adverse effects is expected to be permanent.

No significant permanent adverse environmental effects are projected. Alternatives considered include alignment, materials and configuration, and cancellation or delay of the project. Mitigating measures to reduce further the already low probability of operational failure include dual pipes with crossover valving for the force main system and standby generators at the pump stations for emergency power. Odor prevention will be designed into the system according to the recommendations of a consultant report evaluating the potential for odor generation in the future Honouliuli Interceptor Sewer System.

This supplemental statement reflects the consultation, both written and oral, of Federal, State and local governmental agencies. Also included are the written comments of private sector firms potentially affected by the project.

DRAFT SUPPLEMENTAL  
ENVIRONMENTAL IMPACT STATEMENT  
FOR  
HONOULIULI INTERCEPTOR SEWER SYSTEM

I. BACKGROUND

In response to Federal and State requirements for compliance with water quality standards for the waters of Hawaii, the City and County of Honolulu engaged the services of an engineering consortium to evaluate existing conditions, project future requirements, and make recommendations for a program to provide facilities which would meet these projected requirements. This consortium began its studies in April of 1970 and published its final report in February of 1972. The resulting program was comprehensive, covering the entire island of Oahu through the year 2020. Among the focal points of the report was a careful consideration of the condition of Pearl Harbor and means to improve the quality of its waters.

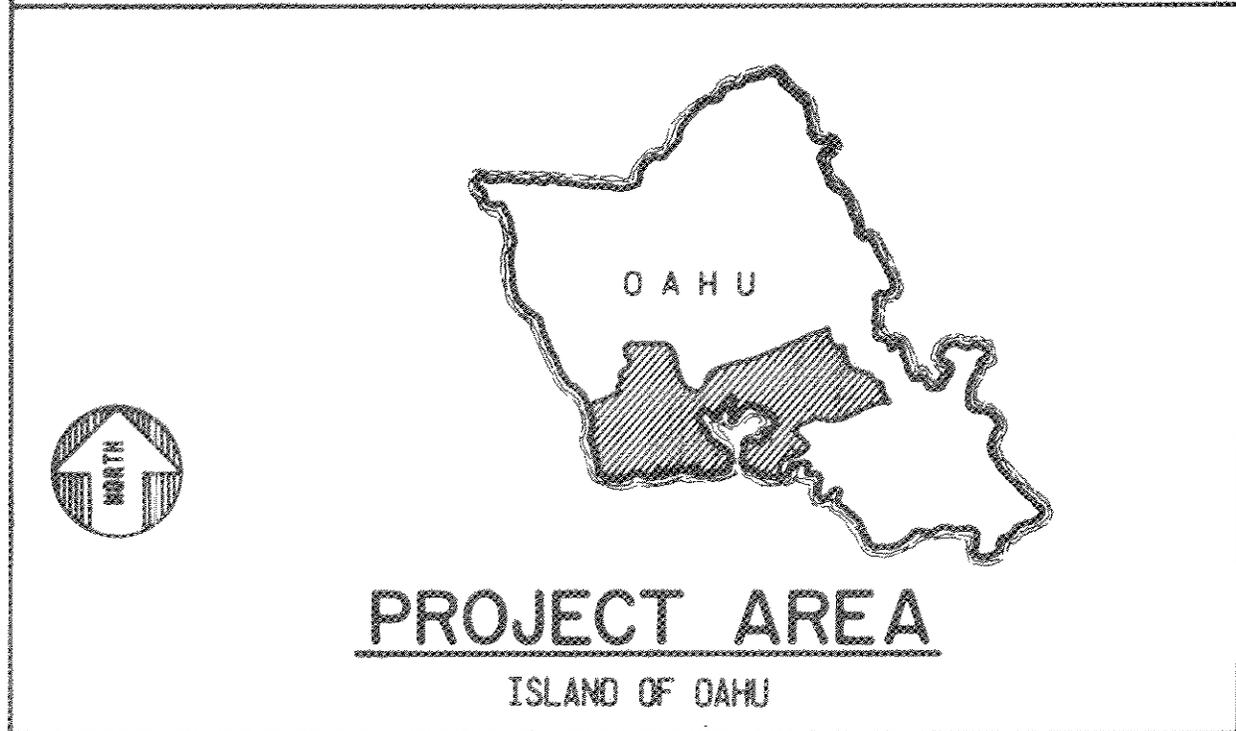
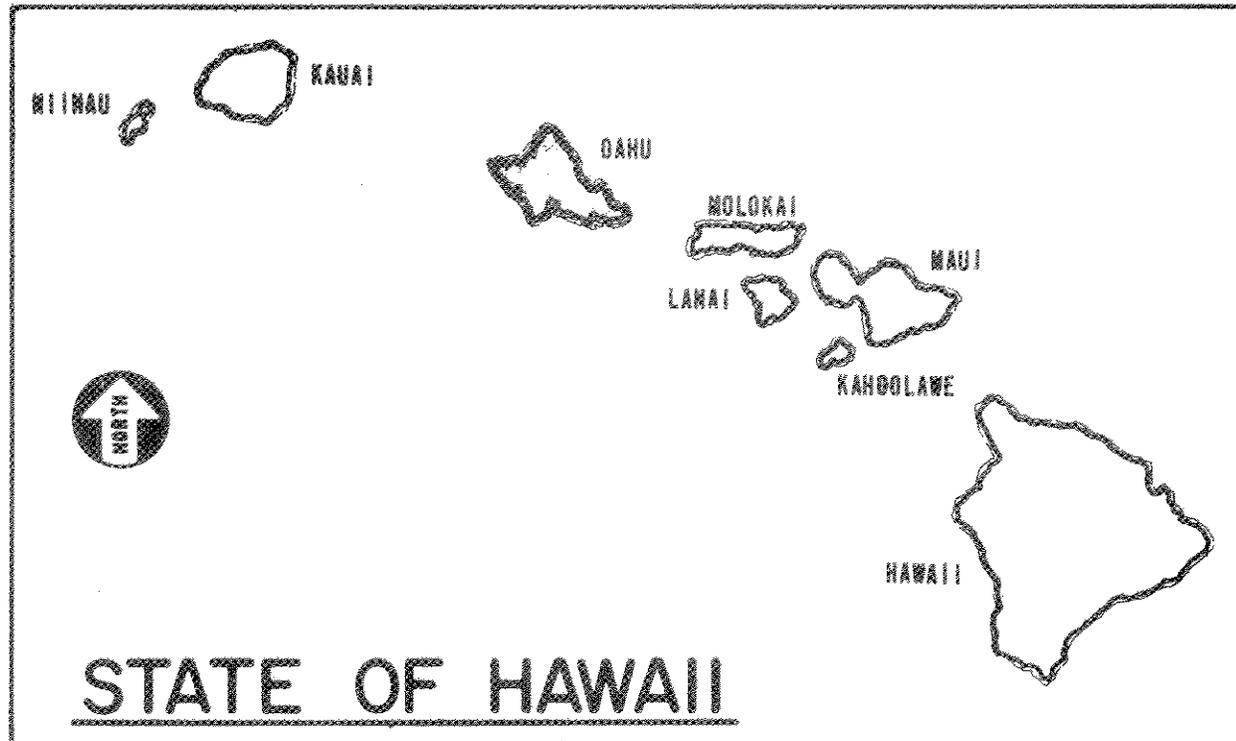
Pearl Harbor received the attention of groups other than the City and County of Honolulu. In September of 1971, the Administrator of the Environmental Protection Agency called a "Conference in the Matter of Pollution of the Navigable Waters of Pearl Harbor and its Tributaries in the State of Hawaii" to enlist the support and suggestions of all interested, informed parties for means to abate pollution in Pearl Harbor. The conclusions and recommendations of the conferees, as set forth in the proceedings of this conference, were essentially identical to those of the engineering consortium in their final report regarding the enhancement of the waters of Pearl Harbor. That portion of the "Water Quality Program for Oahu with Special Emphasis on Waste Disposal, Final Report", dated

February 1972, which dealt with the Pearl Harbor area is identified as the Honouliuli or West Mamala Bay Sewerage Region. The facilities to implement the recommendations of the program within this region are identified collectively as the Honouliuli (or West Mamala Bay) Wastewater System. Figure 1 is a location map of the project area, and Figure 2 defines the tributary areas and design flows from each area.

This Statement is a supplement to the Final Environmental Impact Statement D-EPA-24002-HI, Mamala Bay Wastewater Treatment and Disposal System, Oahu, Hawaii, dated December 26, 1973 (hereinafter identified as the Final Environmental Statement). In-depth description and environmental analysis of the greater project area is provided in the Final Environmental Statement and is incorporated herein by reference. This supplemental statement is provided to evaluate the probable impact of design features which have been established since the time of the Final Environmental Statement. It was recognized at that time that certain areas of concern would require detailed investigation once planning for this system reached a more advanced stage.

A. Present Condition

Practically all urban developments within the Honouliuli project area have sewerage systems, except for several residential localities in the Ewa district. At the present time, fifteen municipal and military treatment plants are situated and operating within the Honouliuli Wastewater System area. In addition, there are several small private treatment plants, septic tanks and the Nanakai Sewage Treatment Plant. The latter, although not technically within the boundaries of the tributary areas shown in Figure 2 is discussed in the consortium report as part of the Honouliuli System. The fifteen plants are:



CITY AND COUNTY OF HONOLULU  
 ENVIRONMENTAL IMPACT STATEMENT  
 HONOLULU INTERCEPTOR SEWER SYSTEM

HONOLULU, OAHU, HAWAII

LOCATION MAP

SEPTEMBER 1975

FIGURE

1

TRIANGLE AREA	POPULATION	SEWER FLOW (MGD)	SEWER FLOW (MGD)
A	10,000	1.0	1.0
B	15,000	1.5	1.5
C	20,000	2.0	2.0
D	25,000	2.5	2.5
E	30,000	3.0	3.0
TOTAL	90,000	9.0	9.0
PRESENT POPULATION	80,000		

NOTES: 1. FLOWS FROM TRIANGLES C & E BASED ON DESIGN PLANT FLOWS.  
2. TOTAL AND PRESENT POPULATION DOES NOT INCLUDE THE RECREATION CENTER.

- MOBILIZATION TO EXISTING STATION
- EXISTING STATION PUMP STATION SPS
- EXISTING STATION PUMP STATION SPS
- PROPOSED STATION PUMP STATION SPS
- EXISTING STATION TREATMENT PLANT SPS
- EXISTING STATION TREATMENT PLANT SPS TO BE ABANDONED
- PROPOSED GRAVITY SEWER
- PROPOSED PRESSURE MAIN
- EXISTING SEWER

REFERENCE: 1. ALL WIRE LINES ON MAP SHALL BE OBTAINED FROM THE HAWAIIAN PUBLIC UTILITIES COMMISSION WITH SPECIAL EMPHASIS ON WIRE RECORDS OF THE HAWAIIAN PUBLIC UTILITIES COMPANY AND THE HAWAIIAN ELECTRIC COMPANY.



CITY AND COUNTY OF HONOLULU  
 ENVIRONMENTAL IMPACT STATEMENT  
 HONOLULU INTERCEPTOR SEWER SYSTEM  
 HONOLULU EARLY PHASE

FIGURE 2  
 HONOLULU WASTEWATER SYSTEM

SCALE: 1" = 1000'  
 NORTH

Facility	Designed Treatment	Flow ('69-70)	Place of Discharge
City & County Jail STP	Secondary	0.094 MGD	S. Halawa Stream
Animal Quarantine STP	Secondary	0.09 MGD	N. Halawa Stream
Pearl City STP	Primary	4.39 MGD	Middle Loch, Pearl Harbor
Waipahu Stabll. Pond	Secondary	2.24 MGD	Middle Loch, Pearl Harbor
Palisades STP	Secondary	0.69 MGD	Waimano Stream
Capehart-Iroquois Point (Navy)	Primary	0.53 MGD	Pearl Harbor Channel
Fort Kam STP (Navy)	Secondary	4.10 MGD	Pearl Harbor Channel
Barbers Point STP (Navy)	Primary	1.5 MGD	Mamala Bay
Makakilo Hts. STP	Secondary	0.36 MGD	Irrigation ditch, leaching well
Nanakai STP	Secondary	0.023 MGD	Irrigation ditch, leaching well
Ford Island	Secondary	0.25 MGD	Middle Loch Channel
NAVMAG (Pond)	Secondary	0.04 MGD	Leaching Pits
NAVMAG (Ext. Aer.)	Secondary	0.006 MGD	Leaching Pits
Inactive Ship Maint. Fac.	Secondary	0.012 MGD	Leaching Pits
Degaussing St.	Secondary	0.004 MGD	Leaching Pits

Effluents from these treatment facilities enter either Pearl Harbor or Mamala Bay via:

1. Direct discharge after treatment
2. Surface runoff, following drainage channels
3. Subsurface leaching, after treatment and injection.

The two exceptions are the effluents from the Makakilo and Nanakai wastewater treatments plants (WWTPs). These are used for irrigation in the immediate area, with excess injected into shallow recharge wells.

Those effluents reaching Pearl Harbor and Mamala Bay via direct discharge of surface runoff by drainage channels are significant contributors to the pollutant load on these receiving waters. Sub-surface leaching, following treatment and injection, provides some additional removal of pollutants. The two municipal and four military facilities using injection for ultimate disposal are not considered to exert a significant adverse effect on receiving waters, particularly considering the relatively small quantities of wastewater discharged from these facilities.

B. Recommended Wastewater System

Figure 2 shows the centralized treatment system for the facilities presently discharging either directly or via surface runoff to Pearl Harbor. This collection, transmission and treatment system was identified in the "Water Quality Program for Oahu with Special Emphasis on Waste Disposal, Final Report" (WQPO), dated February 1972, with modifications to interceptor alignment made in the "Master Plan Report for Honouliuli Interceptor Sewer System" (MPR), dated October 1973.

The proposed treatment facility is a secondary plant near Ewa (called the Honouliuli WWTP) with an ocean outfall sewer and possible future reclamation of treated effluent for sugar cane irrigation. Environmental impacts of both treatment plant and outfall sewer

have been described in the Final Environmental Impact Statement for Honouliuli Wastewater Treatment Plant and Barbers Point Ocean Outfall, dated June 1975. The treatment facility will be located mauka of Geiger Road as it enters Barbers Point Naval Air Station from the east. The major objective of the overall Honouliuli system, including collection, treatment, and disposal, is to eliminate virtually all discharges of untreated or partially treated wastewater into the enclosed waters of Pearl Harbor. Specifically, the system, as recommended includes:

- (1) Abandoning treatment facilities at Pacific Palisades and the City Jail and diverting these raw sewage to Honouliuli Interceptor Sewer System via the Pearl City SPS.
- (2) Diverting treated effluent from the Animal Quarantine Station facility to Honouliuli System (replacing discharge to North Halawa Stream) via the Pearl City SPS.
- (3) Abandoning the Pearl City wastewater treatment plant and diverting raw sewage via the Pearl City Pump Station to the proposed Honouliuli WWTP.
- (4) Retaining the Waipahu (with modification) and Kunia pump stations to convey wastewater to the proposed Honouliuli WWTP.
- (5) Constructing pump stations and interceptors in the Honouliuli and Ewa beach areas, at such time as collection sewers are installed, to convey flows from these areas to the Honouliuli WWTP.

- (6) Abandoning the Navy's treatment facility at Iroquois Point and diverting raw wastewater to the proposed Ewa Beach sewer system.
- (7) Abandoning the Navy's Barbers Point Naval Air Station (BPNAS) treatment facility and diverting flow to the Honouliuli System.
- (8) Continuing to operate the Makakilo and Nanakai facilities, with effluent disposed into plantation irrigation system, until such future time as it may become feasible to divert these flows to the Honouliuli System through further development in these areas.
- (9) Disposing of treated industrial waste from the Campbell Industrial Park area through the Barbers Point ocean outfall.

Although originally identified as a system component by the WQPO, disposal of industrial waste from Campbell Industrial Park (item 9 above) is not presently included.

The U.S. Navy is considering discharging wastes generated at the Naval Magazine, West Loch, from the NAVMAG Pond and possibly the NAVMAG Extended Aeration system to the Honouliuli Interceptor. The Ford Island plant is to be abandoned and its flow diverted to the existing Fort Kam treatment facility (not a part of this project). The existing treatment facilities at the Degaussing Station and the Inactive Ship Maintenance facility will be retained, with leaching pit disposal of these relatively minor quantities of effluent.

The proposed interceptor system will include five major collection points with pump stations to convey wastewater to the Honouliuli WWTP. The Pearl City SPS is the focal point of all waste flows from

Aiea, Waimalu, Halawa, Waiau, and Pearl City. The Kunia SPS will continue to serve the Waipahu-Kunia area and discharge wastewater to the Waipahu SPS. The Waipahu SPS will receive the Kunia discharge plus raw waste via gravity collectors from other points in the Waipahu area for discharge to the Honouliuli WWTP.

Both the Pearl City SPS and Waipahu SPS will be modified under this project to provide for immediate and future forecasted flows. The Kunia station will not require modification. Two additional pump stations are to be built in the future. The proposed Ewa Beach SPS will handle flows from the Ewa Beach and Iroquois Point areas. The proposed Honouliuli SPS will collect wastewater from existing and future developments in the Honouliuli-Ewa Town area.

## II. SCOPE OF SUPPLEMENTAL EIS

The scope of this Supplemental Environmental Impact Statement is to assess the probable impact of the interceptor sewers, both gravity and force main, which will convey wastewater from the Pearl City SPS and Waipahu SPS to the proposed Honouliuli WWTP. This assessment shall describe both construction (short term) and operational (long term) effects of the pump station modifications and the recommended interceptor alignment identified in the Final Environmental Statement.

Evaluation of the social and economic impact of this project on the present and future populations to be served by the Honouliuli Wastewater System has been made in the Final Environmental Statement. Therefore, this supplemental statement is limited to consideration of the effects of construction and operation on the immediate surrounding areas.

## III. PROJECT DESCRIPTION

For the purposes of this supplemental statement, the project is defined as (1) modifications to the existing Pearl City SPS and Waipahu SPS,

including phased modification of equipment and addition of standby generators, (2) installation of approximately 24,000 lineal feet of dual pipe force main, and (3) installation of approximately 12,000 lineal feet of gravity sewer. The locations of the pump stations, force main, and gravity sewer are shown within the service areas in Figure 2. Construction is to be phased according to the following estimated contract schedule:

<u>Construction Contract</u>	<u>Estimated Start</u>	<u>Estimated Cost</u>
Waipahu SPS Mods.	July 1976	\$1,300,000
Gravity Sewer	August 1977	\$6,600,000
Force Main - East Sect.	October 1977	\$5,000,000
Pearl City SPS Mods.	July 1977	\$3,100,000
Force Main - West Sect.	March 1977	\$3,600,000
Force Main - West Loch & NAVMAG	August 1977	\$5,000,000

Additional minor modifications will be required in pump station equipment to accommodate the increased future flows from the service areas identified in Figure 2; however, these will be equipment changes within existing structures and will involve relatively minor capital outlays with no known adverse environmental effects.

The project includes the acquisition of additional land for the pump station modifications (emergency generator buildings) and the establishment of permanent easements for the interceptor lines. The pump stations and force mains to be built in the future for service of the Honouliuli-Ewa Town and Ewa Beach areas are not a part of this project except that their flow contributions have been considered in the sizing of the gravity interceptor. Environmental effects of the Ewa Beach area have been evaluated

and discussed in the Final Environmental Impact Statement for Ewa Beach Sewer System, May 1975. The environmental consequences of the planned Honouliuli-Ewa Town Sewer System will be presented at such time as more detailed information is available.

All construction contracts under this project, as identified above, are eligible for funding under the Environmental Protection Agency Construction Grants Program for Treatment Works. Current (1975) funding participation in such projects is 75% EPA, 10% State, 15% County.

Pump stations, with future equipment changes, will be capable of serving the tributary areas identified in Figure 2 through the design year 2020 as follows:

<u>Tributary Area</u>	<u>Peak Flow (MGD)</u>	<u>Pump Station</u>
A	59	Pearl City
B and C	33	Waipahu
D	17	Proposed Honouliuli-Ewa Town
E and H*	11	Proposed Ewa Beach

\*Assumes 4 MGD from Iroquois Point (Area H)

Again referring to Figure 2, the interceptor sewer is planned as follows:

<u>From/To</u>	<u>Approximate Length (feet)</u>	<u>Dual Pipe Sizes (inches)</u>	<u>Material</u>
Pearl City/ Waipahu	11,500	33/39	Reinf. conc., steel cylinder and/or ductile iron
Waipahu/ West Loch	8,500	42/48	Reinf. conc., steel cylinder and/or ductile iron
West Loch Crossing	2,000	42/42	Ductile iron with ball joints
West Loch/ Gravity	2,000	48/48	Reinf. concrete - steel cylinder
Gravity Line	12,000	84 (single line)	PVC-lined reinforced concrete

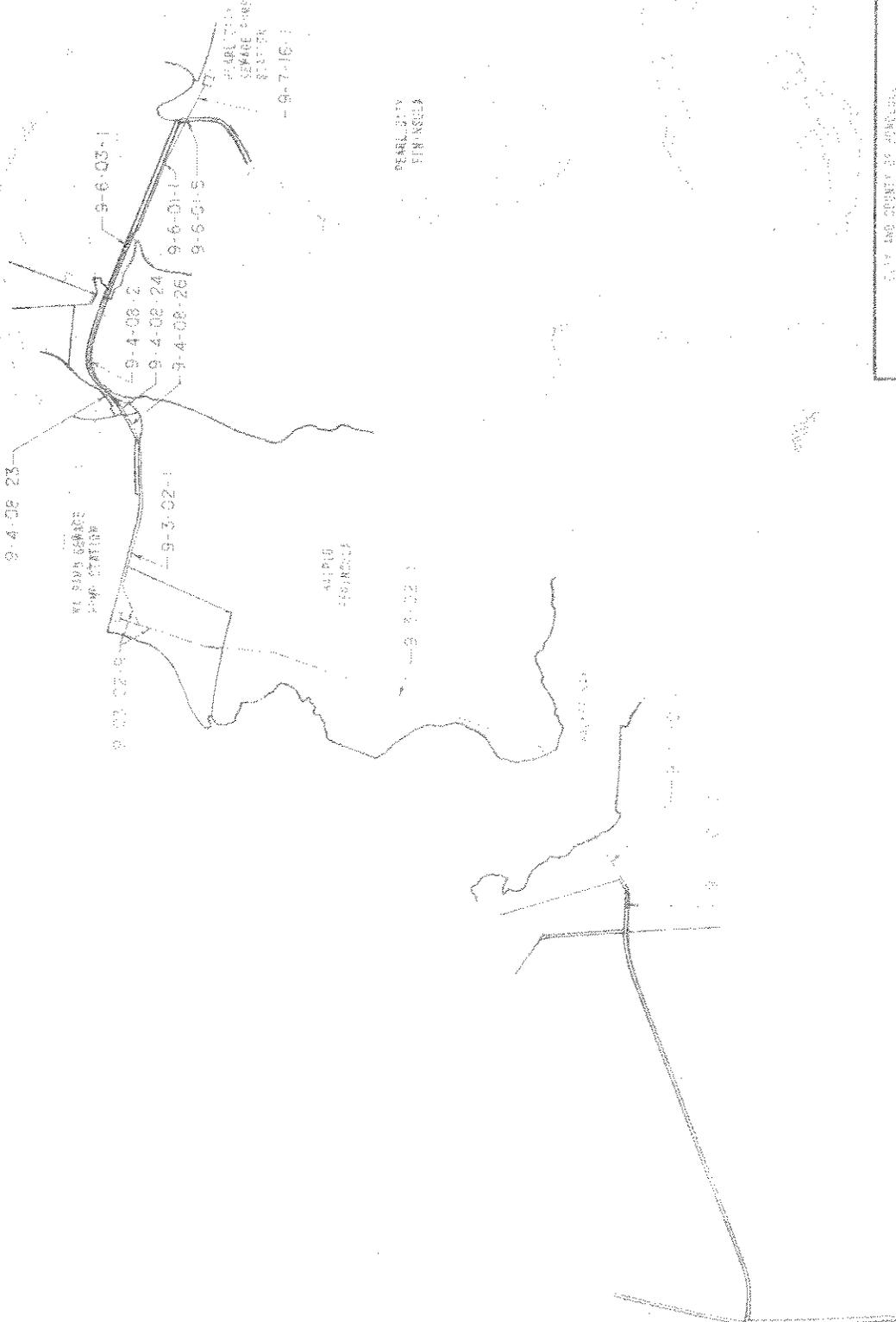
#### IV. EXISTING CONDITIONS

##### A. Land Use

No segment of the approximately 36,000 feet of interceptor sewer or planned pump station modification is on or through present or projected future residential, commercial, or industrial development. The recommended alignment does, however, pass through agricultural and recreational land, as well as a military reservation. Figure 3 provides tax key references for land under consideration in this project. In general, the land along the recommended interceptor alignment is either Federal (U.S. Navy) or City and County property; no condemnation of private land is planned for implementation of the interceptor sewer system.

Land surrounding the Pearl City SPS is undeveloped and Federally owned. The nearest residence is approximately 300 feet, although there are shacks constructed of wood and corrugated metal within 100 feet. Some commercial establishments (small diner and bowling alley) are within 500 feet, and the nearest classroom in the Lehua Elementary School is about 1,000 feet from the existing pump station.

The force main alignment is generally within or parallel to the Navy 40-foot right-of-way (former Oahu Railway & Land Company track bed) between Pearl City SPS and Waipahu SPS. Over this section, the recommended alignment crosses Waiawa Stream and Waiawa Springs drainage channel. It passes adjacent to the wildlife refuge on Pearl City Peninsula and through the intertidal area along the northern shoreline of Middle Loch, crosses Waipio Access Road, and infringes on the northern boundary of the Ted Makalena golf course. This 18-hole course covers 150 acres and has a current (1975) usage



CITY AND COUNTY OF HONOLULU  
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 CONSISTENT INTERIOR DESIGN SYSTEM  
 HONOLULU, HAWAII

747 MAP KEY IDENTIFICATION  
 FOR PARCELS ALONG  
 RECOMMENDED ROUTE

of approximately 270 rounds per day. An open drainage channel crosses the recommended alignment 400 feet from the Ewa edge of the course. The 40-foot right-of-way which runs along the alignment between the two pump stations is now a service road for the U.S. Navy and utility companies. These users require access to their buried transmission lines, including fuel lines and military communications cables. Alignment within this area will avoid conflict between the interceptor sewer and existing buried utility lines. In this section, the Energy Corridor coincides with the 40 foot right-of-way, and the interceptor infringes on the golf course to avoid conflict. The nearest residences to the proposed interceptor are located approximately 50 feet from the recommended alignment within this section. The nearest classroom is approximately 200-300 feet (Waipahu High School) from the recommended alignment as it approaches Waipio Access Road. Sound pressure level measurements were made at Waipahu High School on August 4, 1976, using a B & K Model 2203 Precision Sound Level Meter. At 9:00 a.m., measurements made at the exterior of the classroom nearest to Farrington Highway indicated a sound pressure level of 72 dBA (slow response). With no activity occurring on the school grounds (other than mobilization by a contractor for classroom construction), the ambient noise level as measured at several locations was about 60 dBA.

Commercial activity along the recommended alignment between the pump stations is limited to small watercress and lotus farms in the low-lying areas between Middle Loch and Leeward Community College. The alignment does not pass through these areas, which lie north

(mauka) of the service road. Photos 1-4 identify key sections of the alignment described above and are located on Figure 6 for reference. Arrows denote the direction of view in the photo.

The property on which the Waipahu SPS is located and along which the interceptor alignment is recommended between the pump station and the sugar cane fields on Waipio Peninsula is owned by the City and County of Honolulu. In the area of the pump station, commercial establishments (auto repair shop, warehouses, etc.) and wood frame residential structures are located no closer than 100 yards from the interceptor alignment and/or planned pump station modifications. The alignment passes through the Waipahu Incinerator Ash and Disposal Site immediately prior to entering the cane fields.

The land now under cultivation for sugar cane by Oahu Sugar Company is owned by the Federal government (U.S. Navy) and leased to Oahu Sugar Company for cane production. The recommended alignment will cross a number of irrigation channels and three unpaved cane haul roads over this 6,500+ feet of interceptor.

Approximately 2,000 feet of interceptor will be required for the West Loch underwater crossing. This crossing is described in greater detail in Section B. Topography and Soils, and E. West Loch Boat and Ship Traffic.

The interceptor will pass through a recreation area (baseball field) in the Naval Ammunition Depot, but will avoid the secured (restricted) area to the southeast. The nearest military housing is approximately 100 yards from the recommended alignment; however, the construction will pass along First Street, fronting the Administration Building. Upon leaving the Naval Ammunition Depot, the interceptor



Photo No. 1 - Mixed Vegetation  
Between Pearl City Sewage  
Pumping Station and Waiawa  
Stream, Pearl City Peninsula.

Photo No. 2 - Alignment  
Approaching Middle Loch;  
Wildlife Refuge to Left,  
Watercress/Lotus to Right;  
Pearl City Peninsula.



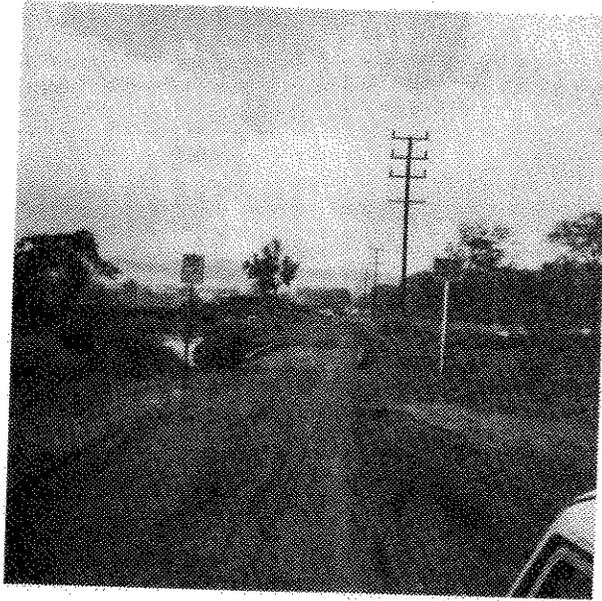


Photo No. 3 - Service Road Over  
U.S. Navy Right-of-Way, Pearl  
City Peninsula

Photo No. 4 - Mauka Boundary of  
Golf Course Showing Relationship  
of Fence Line, Roadway (Approximate  
Energy Corridor), Canal and Resi-  
dences; Waipio Peninsula



alignment will remain within existing right-of-way for Geiger Road (State Route 764) until entering the headworks for the proposed Honouliuli WWTP. Although there are utilities buried within this right-of-way, including a 12-inch water line, no significant relocation of existing utilities is planned. All lands adjacent to Geiger Road are zoned agricultural and are cultivated for sugar cane. No land acquisition is planned.

B. Topography and Soils

As indicated on the schematic profile presented in Figure 4, the topography over the Honouliuli Interceptor Sewer System is relatively flat. Between the Pearl City SPS and the junction with the Waipahu SPS, ground elevations are generally at or below 10 feet above sea level, exceptions being man-made fills on Pearl City Peninsula (sanitary landfill), Waipio Access Road (fill to road grade), and near the Waipahu SPS (disposal fill). The ground elevations through the cane fields on Waipio Peninsula approach 40-feet above sea level. The lowest existing ground elevation in the system is the bottom of West Loch, which is approximately 35 feet below sea level in the vicinity of the interceptor alignment. Ground elevations vary from sea level to approximately 30 feet through the Naval Ammunition Depot and remain relatively flat at about 35 feet (varying 6-7 feet) over the section between the Naval Ammunition Depot and the proposed Honouliuli WWTP.

Detailed soils investigations have been prepared describing the material encountered in borings along the recommended alignment of the interceptor and in the area of the sewage pump station sites,

where new structures will be required for emergency generators and at the force main junction immediately adjacent to the Waipahu SPS. Figure 5, taken from the Walter Lum Associates, Inc. soils report<sup>(1)</sup>, indicates that the soils between the Pearl City and Waipahu pump stations along the alignment are Pearl Harbor clays. These are brown, silty clays underlain by dark gray organic clays and silts. The Keeau clays are similar but slightly stiffer. Depths of silty clay and organic clay vary along the alignment, and are described in detail with station references in the Lum report cited above. Along the upper Waipio Peninsula, the material identified in Figure 5 as fill land is composed of dredge spoil, excess excavation from adjacent uplands, and some solid waste, including waste from sugar cane processing. It is, in general, a silty loam. The cane field soils are generally stiff to hard, brown silty clays with layers of gray-brown clay. The sand and coral formations in this area are generally composed of dense, tan-brown silty sand and coral. Below the mudline in West Loch, the soil is very soft, gray clay, with some increase in strength between 25 and 35 feet below the mudline. The section in the Naval Ammunition Depot is shown as silty clay loam; however, test borings by Lum and by Geolabs-Hawaii, Inc.<sup>(2)</sup> indicate that the material in this area and over the entire section of alignment between the Naval Ammunition Depot and proposed Honouliuli WWTP is interbedded coral and clay. The clay is either in layers or pukas (holes), varying with the development of the original reef environment in the Pleistocene Period.

C. Terrestrial Flora and Fauna

Ground cover between the Pearl City SPS and Waiawa Stream is primarily California grass with patches of haole koa. Monkeypod trees

DEALER ROAD

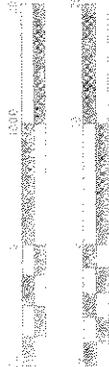
AS-PH/GRASS  
DRAINAGE PAVEMENT

STATION WITH  
STATION INTERCEPTOR &  
STATION INTERCEPTOR  
INTERCEPTOR

WASTEWATER TREATMENT PLANT

84" DENSITY SEWER

SEWER LINE



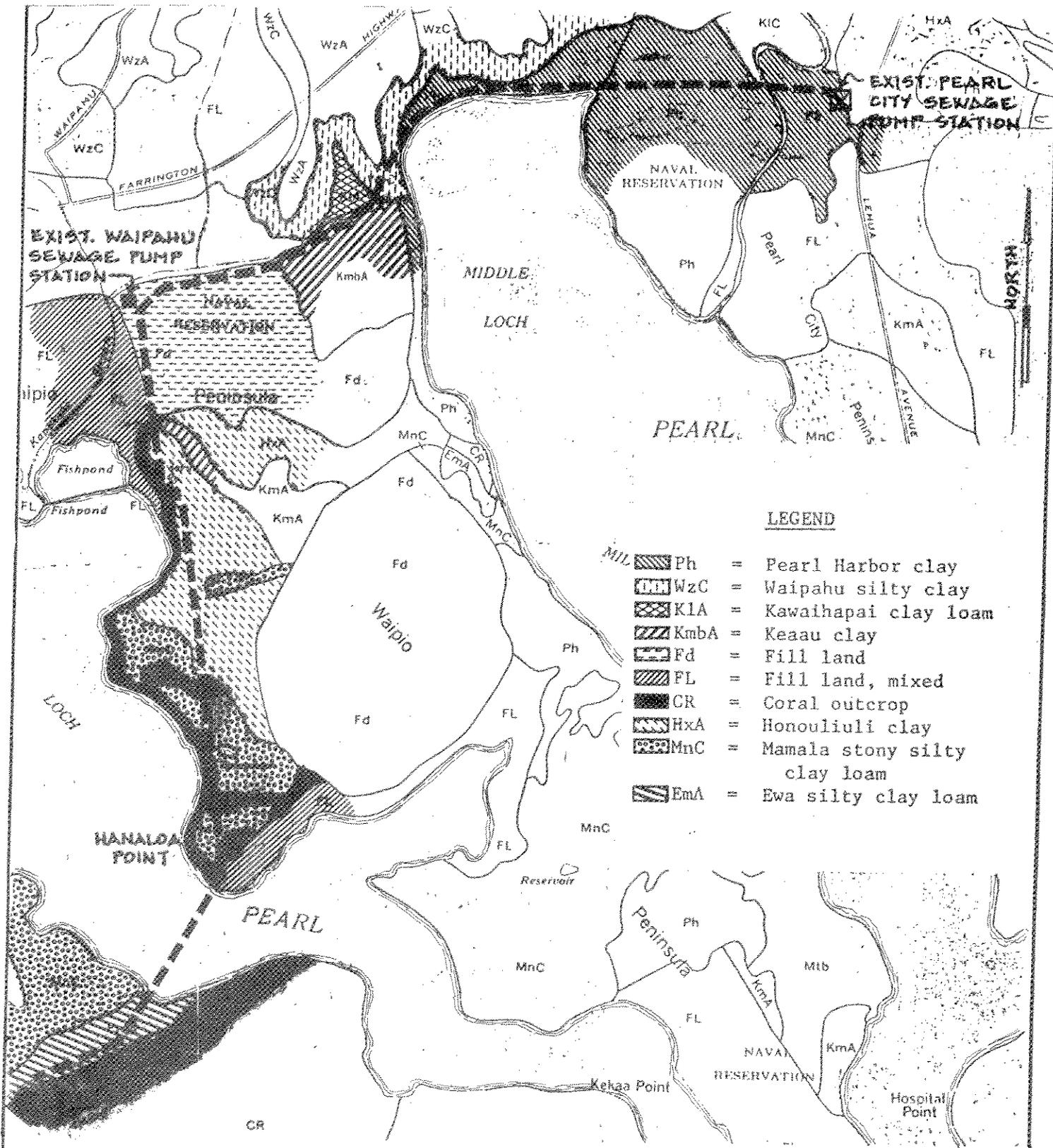
CITY AND COUNTY OF HONOLULU  
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HONOLULU INTERCEPTOR SEWER SYSTEM  
HONOLULU, OAHU, HAWAII

SCHEMATIC PROFILE

FIGURE 4







NOTE: THE BOUNDARIES AND SURFACE SOIL CONDITIONS ARE APPROXIMATE ONLY.

REFERENCE: U.S. SOIL CONSERVATION SERVICE AUG. 1972

SOURCE: PEARL CITY SEWAGE PUMP STATION MODIFICATION AND NEW FORCE MAIN SOIL EXPLORATION REPORT DATED MAY 12, 1975. PREPARED BY WALTER LUM ASSOCIATES, INC.

CITY AND COUNTY OF HONOLULU  
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 HONOLULUI, OAHU, HAWAII

SOIL CHARACTERISTICS

SEPTEMBER 1975

FIGURE

5

within this area are 12 to 24 inches in diameter, with heights of 30 to 50 feet. However, they are somewhat sparse, with an average spacing of over 50 feet. Photo No. 1 indicates the vegetation characteristic of this section. Adjacent to the sanitary landfill, there is essentially no vegetation. However, if construction access from the service road were to result in destruction of any vegetation, it would be kiawe and haole koa between the proposed alignment and the service road over the right-of-way. Over the approximately 1,000 feet of alignment prior to the drainage channel serving Waiawa Springs, there exists intermixed haole koa and California grass, the former with a maximum height of 5 feet. Prior to the dense mangrove within the wildlife habitat, there is a 500-foot segment of the alignment which passes through fairly dense bullrushes and California grass, with the former at a maximum height of 6 feet. As shown in Photo No. 2, the mangrove is dense for about 500 feet; it reaches heights of up to 50 feet. Also mixed with the mangrove is milo, with diameters of up to 6 inches and heights of 15 feet. Nearing Middle Loch, the milo predominates over the mangrove, and haole koa also increases to form a dense mix approximately 15 feet in height. Around the edge of Middle Loch, the milo is 2-3 inches in diameter, 15 feet high, and has an average spacing of 2-3 feet. Some hau bush are in evidence, but only intermittently around Middle Loch, and at a height of approximately 10 feet. Along the edge of the golf course, the cover is haole koa and California grass, with maximum combined height of 5 feet. Leaving the golf course, the haole koa and California grass mix continues; however, there is evidence of burning within this area such

that the vegetation is extremely sparse. Immediately adjacent to the Waipahu SPS, the vegetation is haole koa of 2-3 inch diameter, 15 foot height, and approximately 2 foot spacing. Between the Waipahu SPS and the cane field, the vegetation is young kiawe, 4-5 feet high, occasional older kiawe 6-8 inches in diameter and 20 feet high, and California grass. Immediately before entering West Loch, the alignment exits the cane fields and passes through approximately 100 feet of haole koa and will require removal of a single, fairly large (8 inch diameter, 20 foot height) kiawe tree.

Vegetation along the alignment through the Naval Ammunition Depot consists of ground cover only. The same can be said of the vegetation along the right-of-way adjacent to Geiger Road.

The Final Environmental Statement has identified the species of wildlife inhabiting the greater project area. Other than insects, the most numerous species and those of greatest concern in the proposed interceptor area are Hawaii's native birds. Mammals, such as the mongoose and feral cat, sighted within the project area are neither rare nor endangered. On the contrary, they are known predators of endangered species.

As shown in Figure 6, the recommended interceptor alignment passes near a fenced area of approximately 27 acres on Pearl City Peninsula which will eventually become a national wildlife refuge. In 1973 this area was set aside as a protected habitat for relocation of those endangered species and others to be disturbed by the construction of the Reef Runway at the Honolulu International Airport. Until such time as responsibility is accepted by the Department of



the Interior, contingent on establishment of a suitable environment for certain species, this fenced area will continue under the combined supervision of the Federal Aeronautics Administration (FAA) and the State of Hawaii Department of Transportation. Regardless of the official status of the area, it is a recognized habitat for the Hawaiian Stilt (Himantopus himantopus knudseni), identified in the Endangered Species Act of 1973 (PL 93-205). The Hawaiian Coot (Fulica americana aiai) has also been seen in this location; however, the sighting has not as yet been confirmed by government wildlife biologists. In addition to these endangered species, the fenced area provides habitat for the Cattle Egret (Bubulcus ibis) and wintering ground for the Golden Plover (Pluvialis dominica). Other species observed within the fenced boundary include the Ruddy Turnstone (Arenaria interpres), the Sanderling (Calidris alba), the Lacenecked Dove (Streptopelia chinensis), Baird's Dove (Geopelia striata), and the Indian Mynah (Acridotheres tristis). In August of 1974, State of Hawaii wildlife biologists counted 145 Hawaiian Stilts and in September identified 112 Golden Plovers. These figures indicate that the desirable species do indeed find suitable habitat within the 27-acre area. The nesting season for known species in this area is roughly from March through mid-August, except for the plover, which is a migratory species and spends only a portion of its non-mating season in this and other suitable habitats in Hawaii. The proposed interceptor alignment does not infringe on the wildlife habitat located on Pearl City Peninsula.

A second major wildlife habitat is located along the northern shoreline of West Loch where Waikale Stream discharges to Pearl Harbor.

The recommended interceptor sewer alignment will be located approximately 2,000 feet from this habitat at its nearest point.

D. Marine Fauna

A marine biological survey was conducted for this supplemental statement by Dr. Ralph L. Bowers<sup>(3)</sup>. This study focused on the shoreline area of Middle Loch tangent to the recommended interceptor alignment and the bottom conditions of West Loch in the area of the interceptor crossing. Other studies, particularly those conducted by the Naval Undersea Research and Development Center<sup>(4)</sup> <sup>(5)</sup> <sup>(6)</sup> <sup>(7)</sup>, indicate that subtidal conditions of low numbers of species and high numbers of individual species are those characteristic of stressed environments. These findings were confirmed by Dr. Bowers' study in West Loch. Visual observation, net sampling, and sediment analysis from seven stations along the interceptor alignment in West Loch disclosed a predominance of polychaete worms. With 40 crab nets set for a period of six hours, a total of 12 crabs was collected; carapace widths were generally below 4 inches. No swimming organisms were observed in the stations where water depth was greater than 2-3 feet; however, visibility was greatly restricted by bottom turbidity.

Along the north shoreline of Middle Loch, four sampling stations were located in the intertidal area, and four additional stations were established approximately 100 feet farther offshore. At these stations, swimming organisms were detected in relative abundance, including mollies (Poeciliidae), tilapia (Cichlidae), and nehu (Engraulidae). Also identified were crabs (Crustacea/Portunidae) and shrimp (Crustacea/Alpheidae). A few attached organisms, such as

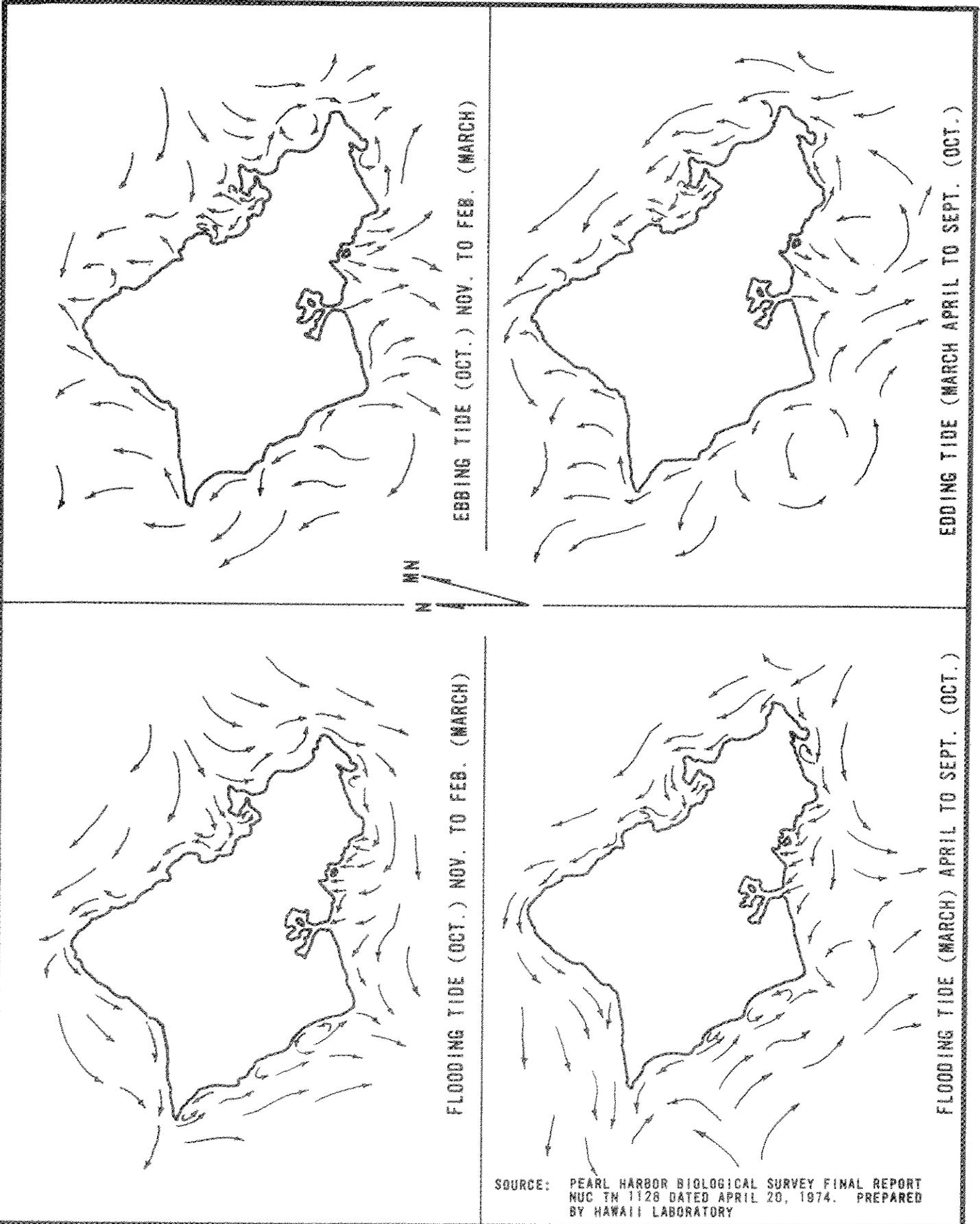
sponges (Demospongiae/-), were observed; and polychaete worms were again the dominant bottom-dwelling organisms. Little difference was noted between the intertidal and offshore stations relative to numbers and types of species.

As identified in Report on Pollution of the Navigable Waters of Pearl Harbor in 1969<sup>(8)</sup>, a continuing reduction occurs in both quality and quantity of oysters from the beds within Pearl Harbor. Two stress factors have been identified as particularly significant for the oyster beds of West Loch; these are (1) silt from surface runoff discharged to the loch by freshwater streams, and (2) high coliform concentrations resulting from untreated or partially treated sewage. The nearest of these oyster beds in West Loch is located approximately 2,500 feet from the proposed interceptor alignment.

E. Circulation and Stratification Patterns (with emphasis on West Loch)

Offshore circulation patterns are identified in Figure 7 and those within Pearl Harbor are shown in Figure 8. The information shown for West Loch was developed for this supplemental statement by Ocean Engineering Consultants, Inc. in a technical report prepared by Dr. Karl H. Bathen<sup>(9)</sup>. Detailed descriptions of the effects on circulation and stratification in West Loch of tides, fresh water outflow, saltwater intrusion, wind stress and ship activity are presented in that report. Predominant control is exercised by tides, wind and runoff.

In the Class AA waters of West Loch (north and northwest sections), a large anticyclonic gyre would be expected during tradewind conditions, with a northern (mauka) flow of water along the westernmost shoreline and a southern (makai) flow along the eastern, or

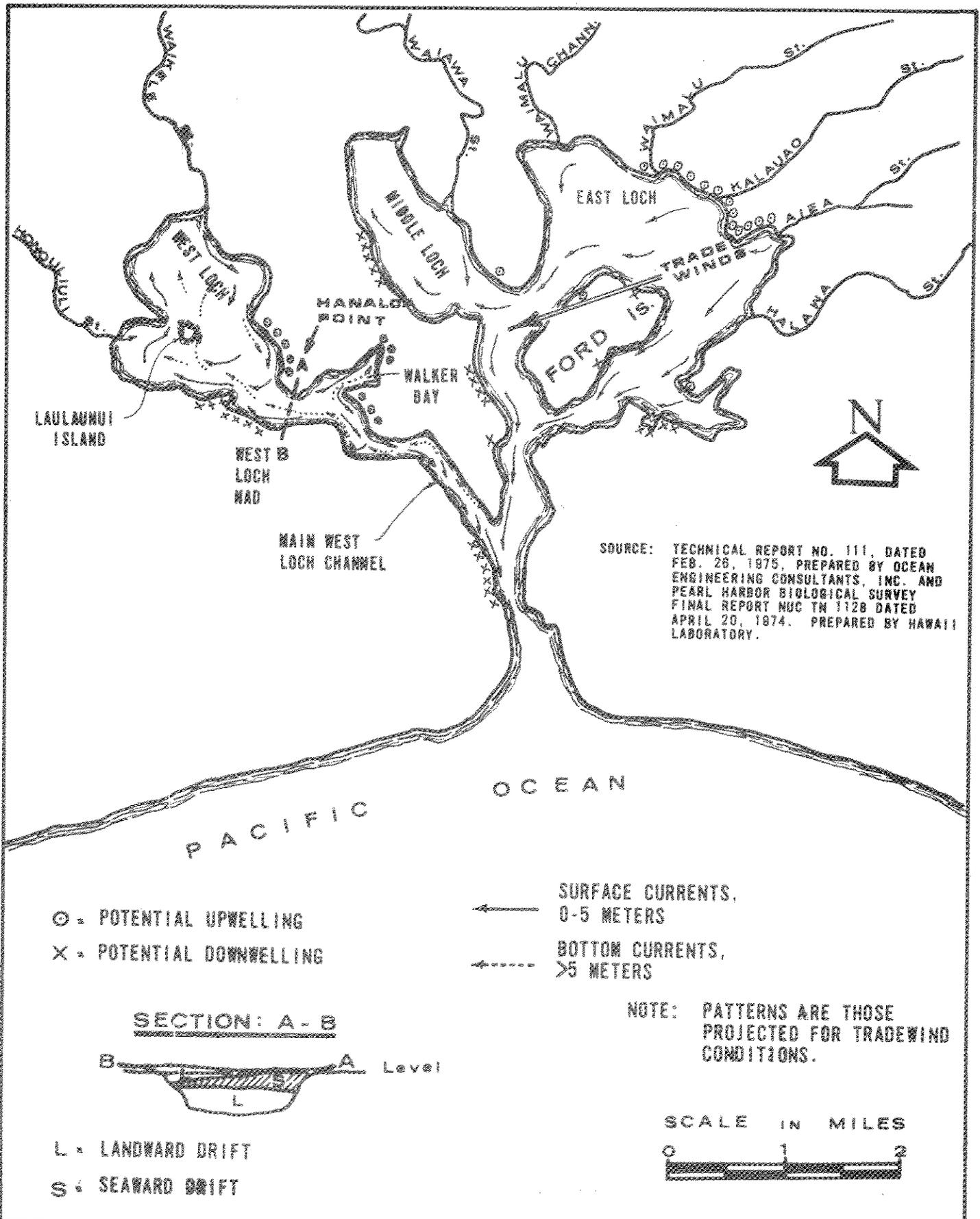


SOURCE: PEARL HARBOR BIOLOGICAL SURVEY FINAL REPORT  
 NUC TH 1126 DATED APRIL 20, 1974. PREPARED  
 BY HAWAII LABORATORY

CITY AND COUNTY OF HONOLULU  
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 HONOULIULI, OAHU, HAWAII

GENERAL CIRCULATION  
 PATTERNS AROUND OAHU  
 SEPTEMBER 1975

FIGURE  
**7**



CITY AND COUNTY OF HONOLULU  
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 HONOLULUI INTERCEPTOR SEWER SYSTEM  
 HONOLULUI, OAHU, HAWAII

CIRCULATION PATTERNS  
 IN PEARL HARBOR  
 SEPTEMBER 1975

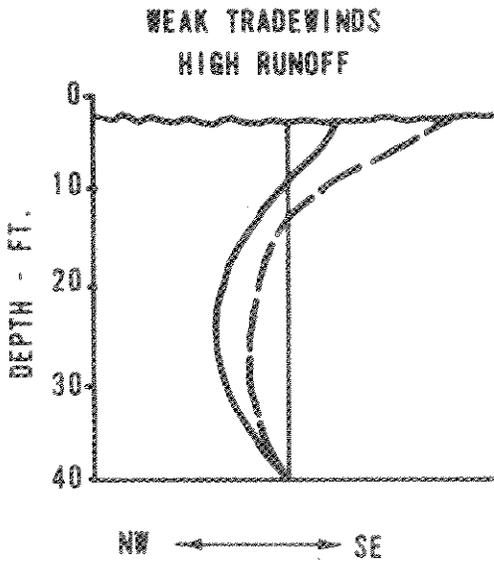
FIGURE  
**8**

upwind shoreline. Just north of Hanalea Point, a weak upwelling may occur, characteristic of the entire eastern shoreline of the main West Loch channel, during strong tradewind conditions. In contrast, some downwelling may simultaneously occur on the western (downwind) shoreline in the vicinity of the Naval Ammunition Depot.

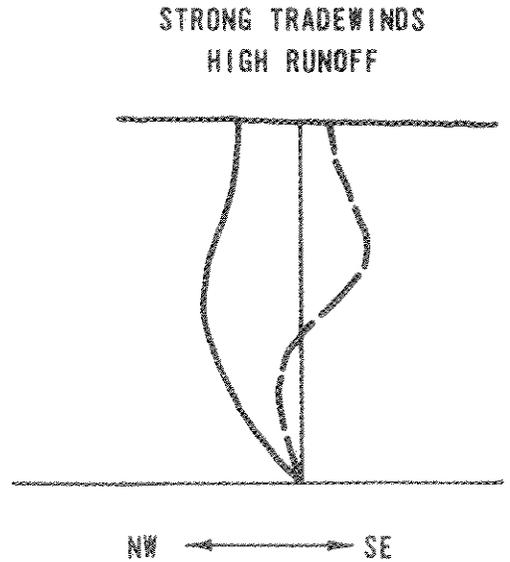
During flood tides, the flow in most of the water column along the recommended interceptor alignment moves very slowly (less than 0.1 foot per second) northwest. During ebb tides, and periods of weak tradewinds, the surface flow (to 15 feet depth) is expected to be southeasterly, while movement in the bottom layer may essentially cease.

Strong tradewinds would govern the surface flows, overriding the directions identified above, and drive the surface layer west to southwest at about 0.5 fps, turning northwest toward Laulaunui Island upon reaching the western shoreline in the area of the Naval Ammunition Depot. Under these conditions, the surface layer would be about 7 feet deep, with tidal influences affecting the water column below this level. Figure 9 presents characteristic velocity profiles in the interceptor area under four common wind and runoff conditions.

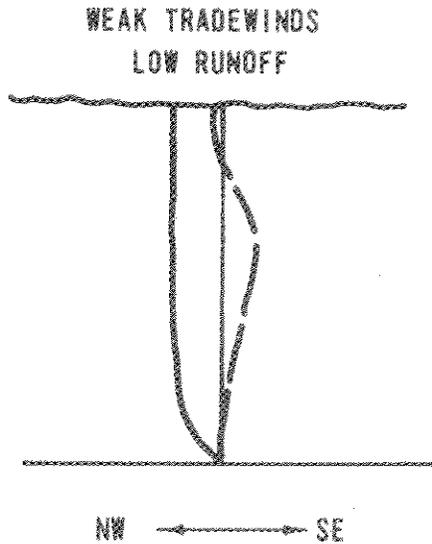
Vertical stratification in the area of the interceptor alignment would be more pronounced on the eastern (Hanalea Point) side, with freshwater runoff moving seaward. This stratification would weaken toward the western shore (Naval Ammunition Depot). Average residence time of waters in the upper layer of West Loch during the year is expected to be between 1 and 3 days; in the lower layer, this time would increase to between 4 and 6 days. An exception would be during periods of significant runoff into West Loch. In this case, the



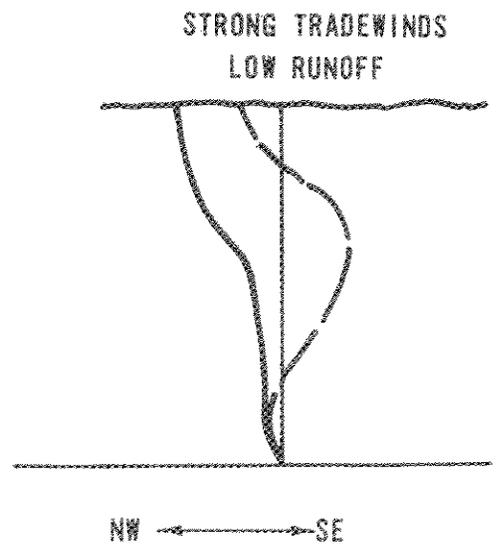
37 FEET  
(11.3 m)



———— FLOOD TIDE  
- - - - EBB TIDE



37 FEET  
(11.3 m)



NOTE: PREDICTED CHARACTERISTIC PROFILES  
OFF HANALOA POINT, WEST LOCH, PEARL  
HARBOR, UNDER STATED CONDITIONS.  
(SEE SECTION A-B FIGURE 8 )

SOURCE: TECHNICAL REPORT NO. 111, DATED FEB. 28, 1975,  
PREPARED BY OCEAN ENGINEERING CONSULTANTS, INC.

SCALE  
0 10 20  
cm/sec.

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VERTICAL VELOCITY PROFILES

SEPTEMBER 1975

FIGURE

9

surface layer residence time may be as low as 6 to 20 hours. In the area of the interceptor alignment, salinity between the surface and bottom layer off Hanalea Point differs from 1 to 2 parts per thousand (ppt) during the summer. Winter differences would increase to 2 or 3 ppt due to increased surface runoff during these months. Summer thermal stratification is likely to produce surface to bottom temperature differences of 1° to 3° C, with less than 1° C difference in the winter months. Where a significant gradient occurred, it would be expected between 3 and 15 feet below the water surface.

The majority of vertical mixing results from tradewind activity, causing exchange between the freshwater and saltwater layers primarily in the north and northwest sections of West Loch, where tidal, wind and surface runoff influences interact in the relatively shallow areas. Ship motions in the West Loch Channel between the main South Channel and the Naval Ammunition Depot also produce significant vertical mixing. Other mixing influences are considered negligible.

#### F. Water Quality

Pearl Harbor is one of the two major estuarine bodies of water on the island of Oahu. With a water surface of approximately 9 square miles and a shoreline of 60 miles, it drains a land area of 90 square miles (15% of the land area of Oahu). The majority of this runoff enters the estuary via five major streams contributing fresh water at a combined mean annual rate of approximately 180 million gallons per day (MGD). Of this contribution, almost 85% enters either West Loch or Middle Loch via Waiawa and Waikele Streams; flow is nearly equally distributed between these streams. Water classification for the

purposes of quality evaluation and control is Class A, except for that portion of West Loch north of a line between Nichols Point and Loch Point, which is Class AA.

In contrast to Kaneohe Bay, the other major estuarine body of water on the island, Pearl Harbor has received little analytical attention until recent years. However, in 1972, studies on water quality in Pearl Harbor were conducted jointly by the Naval Facilities Engineering Command and the Naval Civil Engineering Laboratory. The results of these studies, entitled "Completion Report for the Pearl Harbor, Hawaii Study Covering the Test Period Through Calendar Year 1972"<sup>(10)</sup>, were published in June of 1973. The parameter measurements contained in this report may well serve as baseline figures to determine the construction and maintenance effects (if any) of the Honouliuli Interceptor Sewer System on the water quality of Pearl Harbor. Figure 10 shows the location of quality sampling stations established and monitored over a one-year period. Of particular relevance to the Honouliuli Interceptor Sewer System are the series of stations identified as WC and MC. The three MC stations provide the most reliable data for identifying baseline quality in the area of Middle Loch. Likewise, the three stations of WC are quite conveniently situated in the approximate location of the proposed underwater crossing of West Loch, thereby providing similar background data for this critical section of the alignment.

A summary of water quality parameters is presented in Table I for these two stations of particular interest. The chemical data from Middle and West Lochs show surprisingly similar water quality



Table I

## Water Quality Parameters for the Middle and West Lochs of Pearl Harbor

Parameter	Surface			Bottom		
	Range	Mean	Samples	Range	Mean	Samples
Station MC (Middle Loch)						
Turbidity (JTU)	1.2-26.0	3.6	80	1.4-23.0	5.9	60
Secchi Disc (m)	0.6- 2.9	1.6	86	n/a	n/a	-0-
Salinity (ppt)	20.1-36.3	31.9	84	25.3-36.9	34.9	60
Dissolved Oxygen (ppm)	2.5-10.9	7.0	83	0.1- 7.0	3.7*	54
Total Phosphorus (ppm)	0.03-0.94	0.14*	47	0.01-0.76	0.08*	36
Total Kjeldahl Nitrogen (ppm)	neg.-0.62	0.21*	22	neg.-0.29	0.16	22
Total Organic Carbon (ppm)	neg.- 9.0	4.4	26	neg.-11.0	3.6	20
Total Coliform (MPN/100ml)	10-13,000	700	38	n/a	n/a	-0-
Fecal Coliform (MPN/100ml)	2- 2,400	248	24	n/a	n/a	-0-
Station WC (West Loch)						
Parameter	Range	Mean	Samples	Range	Mean	Samples
Turbidity (JTU)	1.3- 9.0	3.7	82	1.5-40.0	6.2	61
Secchi Disc (m)	0.1- 2.5	1.2	86	n/a	n/a	-0-
Salinity (ppt)	16.1-35.4	30.7	74	32.0-37.3	35.3	85
Dissolved Oxygen (ppm)	3.8- 9.0	7.3	74	0.1- 5.8	2.8*	53
Total Phosphorus (ppm)	neg.-0.21	0.11*	34	neg.-0.21	0.07*	32
Total Kjeldahl Nitrogen (ppm)	neg.-0.20	0.12	18	neg.-0.23	0.15	18
Total Organic Carbon (ppm)	1.0-10.5	4.7	23	neg.- 8.0	2.8	21
Total Coliform (MPN/100ml)	10-30,000	175	38	n/a	n/a	-0-
Fecal Coliform (MPN/100 ml)	10-15,000	1,390*	21	n/a	n/a	-0-

Reference: Completion Report for the Pearl Harbor, Hawaii Study Covering the Test Period Through Calendar Year 1972. Sponsored by Naval Facilities Engineering Command, Published June, 1973.

\*Not acceptable for Class A waters according to Section 6 of Water Quality Standards, Chapter 37-A of Public Health Regulations, Department of Health, State of Hawaii, 1968.

in these two areas, although that common quality is not particularly high. Although the NAVFACENGCOM publication on quality mentions that in both Middle and West Lochs a blanket of fresh water overrides the salt water, with the majority of pollutants being carried at or near the surface, this is only partially evident from the data presented in summary form in Table I. Salinity varies from surface to bottom by 9% in Middle Loch on the average and 13% in West Loch. Mean surface turbidity is less than that for bottom samples from both Lochs, indicating that if significant silt is delivered from surface runoff, it is of sufficient density to settle. Reinforcing the concept of pollution from surface runoff are the high values of nitrogen, phosphorus, and total organic carbon for surface versus bottom samples. The indicator organism data describing probable fecal contamination is acceptable, if not encouraging, except for the high count of fecal coliforms in West Loch. As the density of fecal coliforms is almost an order of magnitude above that of total coliforms, the data must be considered somewhat unrepresentative for these parameters.

G. West Loch Boat and Ship Traffic

The interceptor crossing under West Loch is approximately 2,000 horizontal feet. Although ammunition ships are brought in by tug and positioned for on- and off-loading at the piers in the restricted areas of the Depot, no Navy craft normally travels northwest of the proposed pipeline route. However, this condition may change in the future although there are no specific plans for basin enlargement at present. The maximum draft of fully loaded ships may be as much as 36 feet. Emergency anchoring may affect an additional 5-10 feet of soft material. Presently passing over the proposed pipeline are

small commercial fishing vessels. Discussion with Port Services disclosed that on the average, in the past, only two vessels per day passed northwest of the Naval Ammunition Depot. Within a six-week period of September through mid-October, 1973, no fishing vessels entered West Loch.

H. Streams and Flooding

As shown in Figure 6, the proposed interceptor alignment involves four stream (or drainageway) crossings; these are:

Waiawa Stream  
Waiawa Springs  
Wailani Flood Control Channel  
Kalo'i Gulch

In addition, the proposed alignment runs parallel to Kapakahi Stream. However, since information available from the U.S. Army Corps of Engineers<sup>(11)</sup> indicates that the alignment does not fall within the 100-year flood boundary for Kapakahi, this stream is not considered further.

Waiawa Stream has a drainage area of 26.4 square miles. According to recent information<sup>(11)</sup> it has a mean annual flood of 5,500 cfs and a ten-year flood of 15,000 cfs. These floods generally occur during winter and early spring months. Inundation from flooding is primarily over undeveloped land; however, there is potential for damage to commercial and residential property upstream.

Waiawa Springs is a drainage channel for spring water. Having essentially no surface drainage area, it is not considered subject to significant flooding.

Wailani Flood Control Channel has been designed to contain 100-year floods within the confines of the improved channel. Flooding would not be expected to result in inundation of land areas.

Kaloi Gulch serves a drainage area of 1.7 square miles. Maximum recorded discharge was 645 cfs<sup>(12)</sup> in 1969. Flooding from such discharge would not be extensive, and inundation would be over cane land.

V. IMPACT OF THE PROPOSED INTERCEPTOR SEWER SYSTEM

Potential adverse environmental effects associated with this project may be identified as those related to the construction phase of the project and those occurring through operational malfunctions of the system once constructed.

A. Short Term Impact (Construction Phase)

1. Social and Economic

Construction will not require the relocation of commercial facilities or residences. The proximity of residences to the construction site along certain sections of the interceptor will result in temporary inconvenience (discussed more fully under noise); however, once in place and operational, this project has no significant identifiable social implications apart from the larger Water Quality Program as discussed in the Final Environmental Statement.

The interceptor will require a 25-foot wide permanent easement and an additional temporary construction easement which will vary according to physical conditions over the length of the proposed interceptor. Over much of the recommended alignment along the shoreline of Middle Loch and the Ted Makalena golf course, the existing service road can be used for construction access, thereby minimizing the physical effects of construction

on surrounding land. On Waipio Peninsula, the easement will be acquired from the U.S. Navy, who leases to Oahu Sugar Company. However, there will be destruction of cane crop associated with both the temporary and permanent easements. Assuming a total easement width of 50 feet, approximately 5 acres of cultivated land will be affected, with about 2.5 acres permanently removed from productive agricultural use. Current value of cane crop according to calculations using the Alexander-Grant formula is approximately \$0.12 per square foot, meaning approximately \$25,000 would be paid to Oahu Sugar Company if 5 acres were condemned for construction. This price is variable and is tied to the current price of sugar on the New York Commodity Exchange; therefore, the figure given above is only approximate. Also, because the Waipio cane is seed cane rather than crop cane, some adjustment may be made. Compensation for land permanently used for maintenance access is expected to be approximately \$2,000 per acre, assuming that the highest and best use of the land is judged to be agricultural. In total it is estimated that about \$30,000 would be paid directly to Oahu Sugar Company for economic damage associated with the interceptor placement and operation. However, once the Honouliuli WWTP is completed and the pump stations at Pearl City and Waipahu are able to discharge to the central plant for treatment, the dual cell oxidation pond will be abandoned. This site, occupying approximately 15 acres, may revert to cane production or provided for use by Oahu Sugar Company in some other manner to offset the loss of

crop described above. No decisions regarding disposition of this 15-acre parcel have yet been made.

Interceptor sewer and pump station construction will occur within 100 feet of Oahu Sugar Company's mill wastewater line and within 20 feet of the company's mill mud line. This proximity is to be taken into consideration during design, and construction notes will require the Contractor to take all steps necessary for the protection of the utilities, including the Oahu Sugar Company, Ltd. wastewater lines. No damage to these lines is expected from pile driving at the Waipahu Sewage pump station or excavation and placement of interceptor sewer in the cane fields.

2. Environmental

a. Flora and Fauna

The clearing, grubbing and excavation associated with this project will necessarily destroy some plant and animal life. Material which is excavated will either be replaced, if suitable, as fill material or be transported to an acceptable disposal site. For land excavation, the total estimated excess material is 50,000 cubic yards. This excess may be disposed of by the Contractor at an existing approved City and County or Federal (U.S. Navy) disposal site or may be used as fill material for concurrent construction projects underway at that time, depending on the characteristics of the material. Whatever the method of disposal, the Contractor will be prevented by law from

stockpiling excavated or imported material in a manner which would cause significant environmental damage. Excavation and disposal of dredged material from West Loch is discussed under the section of this supplemental statement dealing with water pollution.

There will be limited damage to plant life along the construction easement and in the areas which the Contractor may establish for field offices and for equipment and material storage yards. However, the storage areas will be approved by the City and County of Honolulu prior to establishment. Once construction is completed, the Contractor will be required to restore the site such that natural growth of vegetation can re-establish pre-construction conditions. Where construction passes through areas which are now seeded and maintained, such as the golf course, the Contractor will be required to reseed for restoration. In other areas, restoration will be accomplished by natural regrowth, subject; however, to the City and County's "Soil Erosion Standards and Guidelines".

Assessment consultation with both the U.S. Department of the Interior, Bureau of Sport Fisheries and Wildlife and the Fish and Game Division of the State of Hawaii Department of Land and Natural Resources indicates that the interceptor construction near the wildlife habitat on Pearl City Peninsula is expected to have no adverse environmental effect on desirable species of fauna. There

will be destruction of some mangrove and other flora due to excavation along the shoreline of Middle Loch. However, Dr. Ralph L. Bowers, in his report prepared for this supplemental statement, indicates that the destruction will not be permanent.

Destruction of desirable species of fauna will be limited to marine organisms. The effects of construction on Waiawa Stream, Waiawa Springs drainage channel, Middle Loch and West Loch are discussed in the section of this supplemental statement dealing with water pollution.

b. Noise

Noise problems will be inherent along the interceptor alignment where excavation equipment, material transfer vehicles, and construction activity in general produces sound pressure levels above ambient. Where no special excavation methods are required (blasting or ripping), the nearest residences will be those along the northern boundary of the Ted Makalena golf course. These residences will be subject to noise levels similar to those encountered during the construction of the underground utilities in the energy corridor. Because ambient noise in this area is sometimes relatively high due to the passage of service vehicles, occasional maintenance or repair involving excavation, and the adjacent golf course activity, it is estimated that the construction activity will not significantly increase the ambient noise level for these

residences, particularly if construction over this section of interceptor is restricted to normal working hours.

Certain sections of the interceptor may require ripping or blasting for excavation, as indicated by the soils reports previously referenced. However, these areas are restricted to the cane fields on Waipio Peninsula, where coral outcroppings occur, and the section between West Loch and the proposed Honouliuli WWTP, including the Naval Ammunition Depot. Should blasting or ripping be required for excavation in the Naval Ammunition Depot area, noise levels may be well above ambient. Greatest inconvenience would be expected in the Administration Building, where excavation would be approximately 50 feet from the nearest office. Once outside the boundaries of the Naval Ammunition Depot or within the coral outcroppings on Waipio Peninsula, such excavation techniques are not expected to have a significant adverse effect because of the distance to developed areas.

Pile supports have been recommended for modifications at both Pearl City and Waipahu sewage pump stations. These will be driven to support the standby generator structures at each station, the junction structure (below-ground) at the Waipahu station, and may be used for the transition sections of force main at each of these two locations. The latter may be required to prevent damage through differential settlement between pile-supported

(pump station) and non-supported (force main) items, as noted in the Lum report previously cited. At both sites, nearby residents will be temporarily disturbed by the noise, however, if pile driving is restricted to normal working hours, the disturbance should be minimal. With noise levels decreasing in approximate proportion to the square of the distance, the nearest classroom at Lehua Elementary School should not experience noise levels sufficiently high to disrupt teaching activities. If possible, however, construction scheduling will be planned such that pile driving at Pearl City SPS does not coincide with classroom hours. The Contractor's proposed work schedule will be reviewed with this in mind during pre-construction meetings. In addition, the Contractor will be subject to Chapter 44B, Community Noise Control for Oahu, Public Health Regulations, and determination of "excessive noise", if any, from pile-driving will be the responsibility of the State of Hawaii Department of Health.

c. Air Pollution and Dust Control

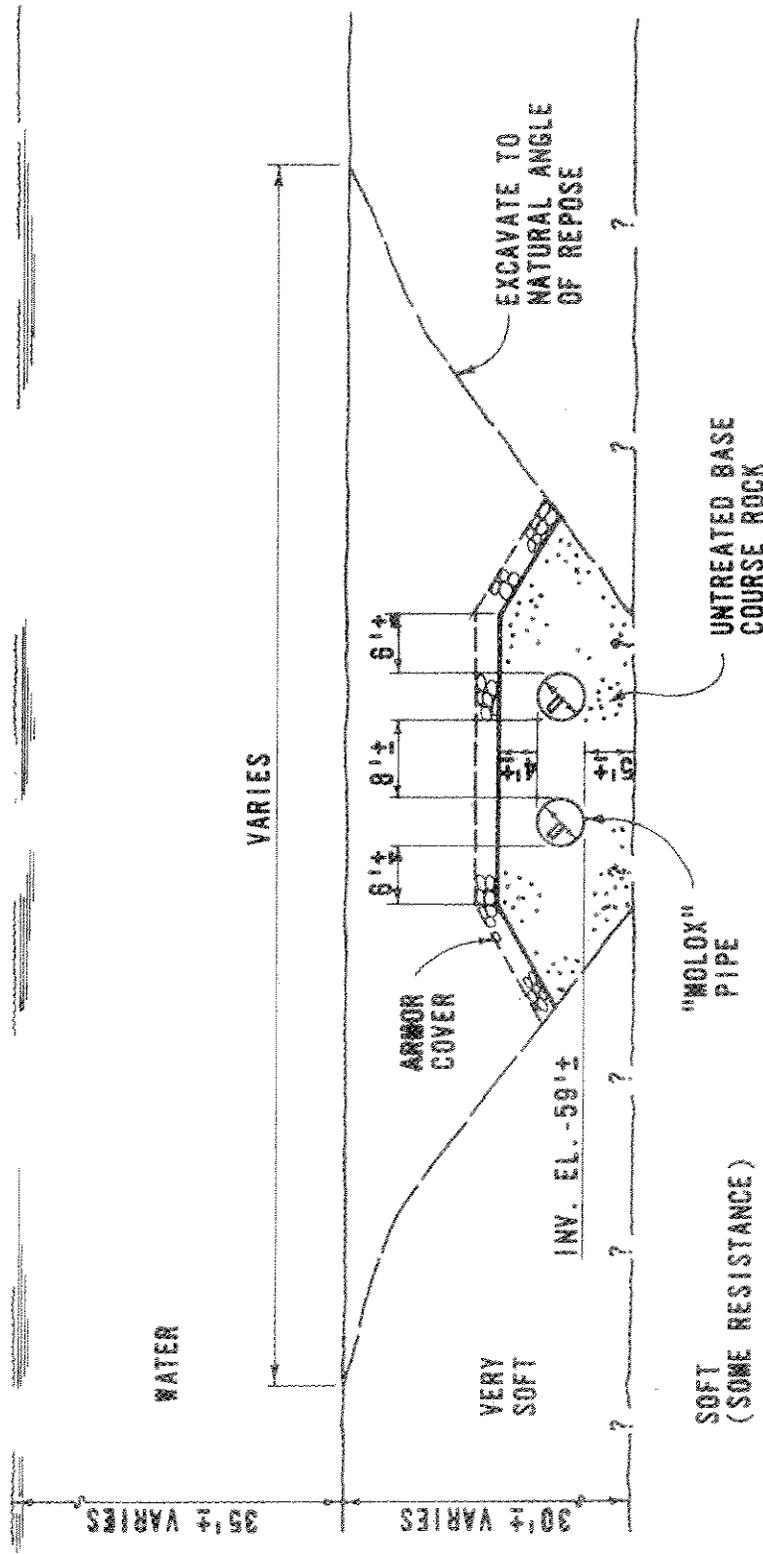
The Contractor will be required by the construction documents for each separate contract to comply with regulations governing generation of airborne particulates and other potential air pollutants. These will include specific attention to dust control for material which is excavated and imported material for backfill. Other than the control of particulate matter, air pollution is not expected to occur to any significant degree from construction

of the Honouliuli Interceptor Sewer System. Special attention should be given to dust control from excavation and backfill in the Naval Ammunition Depot and the Ted Makalena golf course. All other inhabited areas are normally (trade-wind conditions) upwind from construction activity.

d. Water Pollution

The construction of the Honouliuli Interceptor Sewer presents two types of potentially detrimental effects to waters in the project area. First is the direct destruction of marine organisms and plant life due to construction activity in water crossings. The second is the indirect effect which could result from the transport of sediment from underwater construction or the disposal of trench dewatering waste into navigable waters, damaging organisms directly or disrupting habitat, reproductive patterns, or food chains. Geographically, these potential hazards may be identified as (1) the West Loch crossing, (2) the intertidal construction along the shoreline of Middle Loch, (3) the crossings of Waiawa Stream, Waiawa Springs drainage channel, and the golf course drainage channel, and (4) anywhere that trench dewatering may be required.

Figure 11, taken from the Lum soils report, shows a recommended cross-section for the underwater interceptor crossing of West Loch. This plan involves approximately 140,000 cubic yards of excavation by dredging. Although the Contractor will determine the method for removing this



SCHEMATIC SECTION  
NOT TO SCALE

SOURCE: PEARL CITY SEWAGE PUMP STATION MODIFICATION AND NEW FORCE MAIN SOIL EXPLORATION REPORT. PREPARED BY WALTER LUM ASSOC. INC. DATED MAY 12, 1975

CITY AND COUNTY OF HONOLULU  
ENVIRONMENTAL IMPACT STATEMENT  
HONOULIULI INTERCEPTOR SEWER SYSTEM  
HONOULIULI, OAHU, HAWAII

SUGGESTED PIPE BEDDING  
WEST LOCH CROSSING

SEPTEMBER 1975

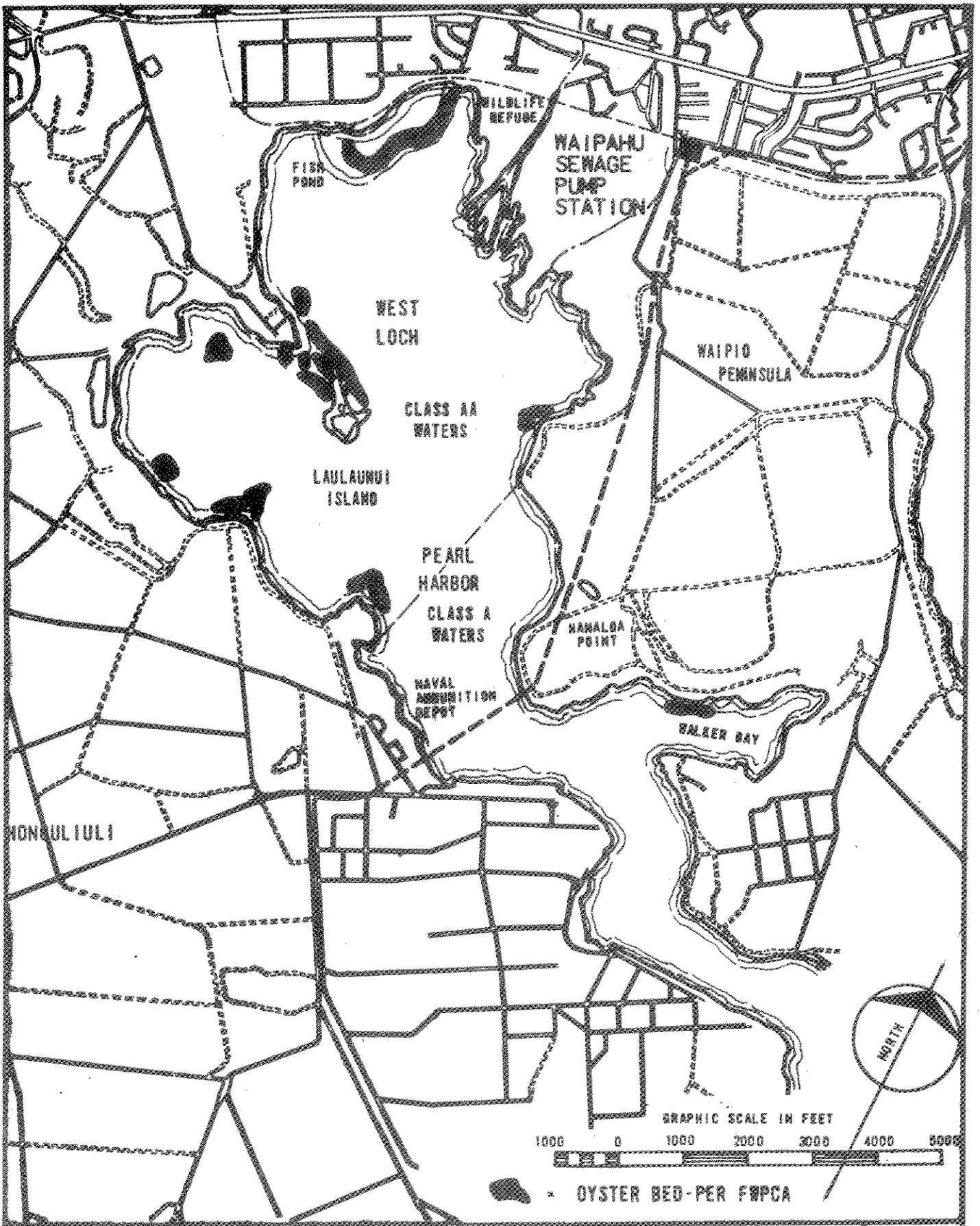
FIGURE

11

material, it is assumed that the bottom will be dredged by clamshell rig. The alternative methods of dredging and environmental effects of this operation are described in the Final Environmental Statement for Harbor Maintenance Dredging in the State of Hawaii, prepared by the Honolulu District of the U.S. Army Corps of Engineers and dated September 1975. Dredge spoil will be transported to a deep ocean disposal site designated and approved by the EPA in accordance with the procedures identified in Appendix A of the EIS referenced above.

The report by Bowers, previously cited, indicates that no significant direct destruction of desirable marine organisms is expected to result from dredging along the recommended alignment in West Loch. Destruction of polychaete worms is not considered significant or adverse, and the majority of crabs will be sufficiently motile to avoid the dredging operation.

Indirectly, the dredging operation may present a potentially significant hazard by the transport of bottom material during dredging from the dredge site northwest toward the Class AA waters of West Loch and the oyster beds in that area. Figure 12 shows the location of oyster beds in West Loch. Sedimentation studies were made for this assessment by Austin, Smith & Associates, Inc. using bottom sediments gathered by divers who were also engaged in biological investigation. Dr. Bathen used the analytical results to

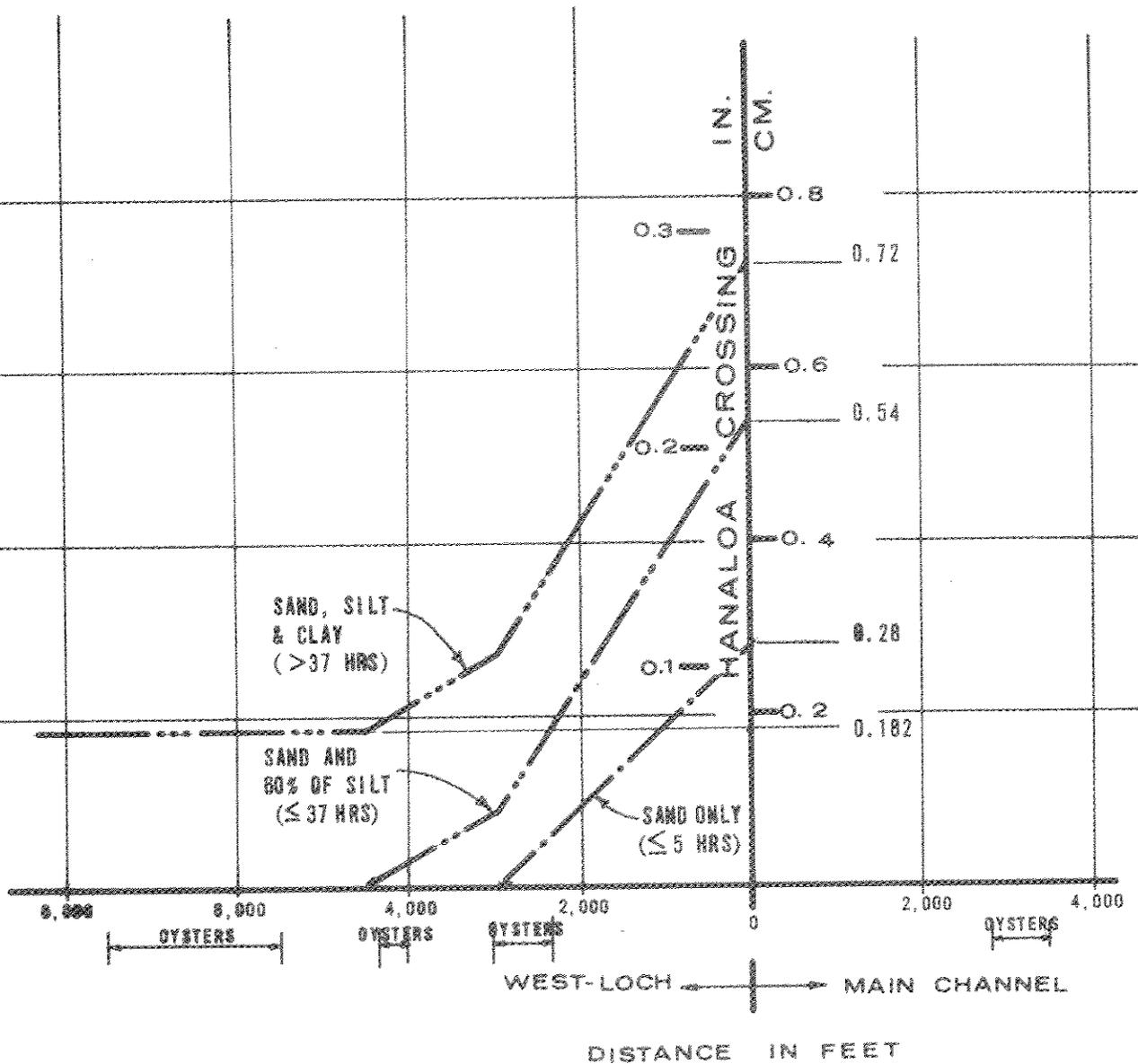


CITY AND COUNTY OF HONOLULU  
 ENVIRONMENTAL IMPACT STATEMENT  
 HONOLULU INTERCEPTOR SEWER SYSTEM  
 HONOLULU, OAHU, HAWAII

OYSTER BEDS  
 SEPTEMBER 1975

FIGURE  
**12**

characterize the bottom material for settleability under the conditions of circulation previously identified as characteristic of West Loch for tradewind influence. Three identifiable fractions of the material are (1) sand, comprising 11% of bottom material, with a maximum horizontal movement of 2,950 feet and a maximum suspension time of 5 hours, (2) silt, comprising 32% of the bottom material, with 60% of this being transported no farther than 4,500 feet and having a suspension time of less than or equal to 37 hours, the remainder being deposited over some greater distance and longer time, and (3) clay, comprising 57% of the material, with all remaining in suspension for more than 37 hours and being approximately uniformly deposited. For an estimate of the effects of dredging on the oyster beds of West Loch, it was assumed that approximately 10% of the dredged material would be "lost" during transfer to the barge and travel in a northwesterly direction toward the Class AA waters and oyster beds of West Loch. Figure 13 provides an indication of the depth to which sediment may be expected to accumulate in the region of the oyster beds, based on the assumptions and analytical results stated above, from dredging across West Loch. This figure shows a maximum sediment depth over the nearest oyster beds of approximately 0.35 cm (0.14 in.) from dredging along the interceptor alignment. Dr. Bowers<sup>(3)</sup>, having reviewed the information and assumptions made above,



MATERIAL CARRIED NORTHWEST ONLY

MAXIMUM DEPOSITION DISTANCES FOR:

SAND	2,950 FT.
60% OF SILT	4,500 FT.

CITY AND COUNTY OF HONOLULU

ENVIRONMENTAL IMPACT STATEMENT  
 HONOLULULI INTERCEPTOR SEWER SYSTEM  
 HONOLULULI, OAHU, HAWAII

SEDIMENT DEPOSITION  
 FROM DREDGING

SEPTEMBER 1975

FIGURE

**13**

indicated that "although the sedimentation produced by the construction activities will temporarily increase the stress conditions in West Loch, it is the author's opinion that little, if any, measurable reduction of the oyster beds will result from these activities." Prior to construction in West Loch, marked stakes will be placed adjacent to the oyster beds northwest of the construction site and also adjacent to the bed in Walker Bay. Turbidity measurements by Secchi disk will be made to determine baseline levels in these areas. Should measurement of these parameters during construction in West Loch show significant additional sediment load from the project, silt curtains will be installed to reduce such load.

Within the intertidal area along the shoreline of Middle Loch, construction will have a definite adverse localized effect on plant life, particularly mangrove, and the marine organisms which inhabit their dispersed root structures. A similar effect will occur at the interceptor crossing of Waiawa Stream, Waiawa Springs drainage channel, and the Wailani Flood Control Channel in the golf course. During construction along or within any of these locations, the Contractor will be required by the contract documents to provide a silt curtain to contain the turbidity resulting from construction activity within a reasonable area. A silt curtain is a fine-mesh material screen, with floating booms at the surface and weights at the bottom. The vast majority of turbidity is contained within the volume of

water defined by the curtain and the shoreline, but the flow of water is not substantially impeded. This protective system has been used successfully on past construction projects where reduction in turbidity was considered necessary. It has been shown particularly effective in shallower waters, where turbidity can be prevented from passing beneath the lower edge of the curtain. This curtain, placed prior to construction along the shoreline of Middle Loch, is expected to restrict the effects of construction turbidity to within approximately 50 feet from the shoreline. Likewise, the placement of these curtains around the mouth of Waiawa Stream, Waiawa Springs drainage channel, and the golf course drainage channel, will localize the effects of turbidity due to construction across these open channels. In these areas as well, Dr. Bowers' report states that "biological impact on the organisms in Waiawa Stream and Waiawa Springs will be minimal" and that "such a fauna (Middle Loch) would not be seriously degraded by construction activities and temporarily increased sediment loads."

Trench dewatering will be required where the interceptor is to be placed at or below ground water elevations. The water pumped from these sections of trench will contain turbidity. The rates of discharge and the concentration of suspended material will not be known until trenching is begun. The Contractor will dewater in accordance with all applicable regulations relating to erosion control and drainage. In areas such as Pearl City Peninsula and upper

Waipio Peninsula, silting ponds may be required. Where trench dewatering is sufficiently close to Pearl Harbor, the same silt curtain containment discussed above may be employed to prevent turbidity discharge beyond a controlled area in Middle Loch. The Contractor may encounter dewatering requirements which are excessive, in which case the interceptor may be placed in a "wet trench", properly sheeted and braced. The Contractor will be required to obtain permits for the temporary stockpiling of material removed from trench excavation and for the material imported for backfill. The Contractor's plans for grading and erosion control will be reviewed for compliance with City and County ordinances before approval to proceed is given.

e. Recreational Facilities

The proposed alignment passes through a portion of the Ted Makalena golf course and a ball field in the West Loch Naval Ammunition Depot. No other recreational facilities are located along the proposed sewer alignment. Construction of the 33/39 inch dual force main along the mauka (northern) boundary of the golf course will interfere with golfing activities only while a temporary fence is being erected prior to excavation. The existing chain link fence will be used with temporary posts. Upon completion of backfilling, the fence will be replaced in its present position and the temporary posts removed. During construction, all tees, fairways and greens will remain playable. The

Department of Parks and Recreation of the City and County of Honolulu has participated in the selection of the recommended alignment through consultation in the planning phases of this project. Endorsement of the recommended alignment is provided in the appended letter from Mr. Young Suk Ko, Director, Department of Parks and Recreation, to the regional office of the Bureau of Outdoor Recreation, U.S. Department of Interior (see Appendix A). Economic studies in the Master Plan Report for Honouliuli Interceptor Sewer System dated October 1973 indicate that alternative alignments to avoid the golf course could result in additional piping costs of approximately \$1,000,000.

Construction scheduling may affect the availability of the West Loch NAD baseball field should construction work in this area coincide with the baseball season. Other than availability of the field during construction, there appears to be no significant effect on the ball field. No structures such as dugouts or bleachers exist at the ball field at present. After construction, the field will be restored to its original condition.

f. Natural and Historic Landmarks

The recommended alignment was discussed with persons from the Hawaï Register of Historic Places. There appear to be no known natural or historic landmarks within the project limits other than Pearl Harbor itself. As noted in the appended letter from the Historic Preservation

Officer, State of Hawaii (see Appendix A), the project will be required to comply with Chapter 6, HRS and with the Advisory Council on Historic Preservation's Policies and Procedures for Protection of Properties on the National Register (section 106). If evidence of any natural or historic landmarks is uncovered during excavation, the Historic Preservation Officer and the Division of Fish and Game will be notified.

g. Roadways and Traffic

The service road along the 40-foot right-of-way between the Pearl City and Waipahu sewage pumps stations will be used for construction access for this project. With heavy equipment working along the service road, there will be obstruction to the passage of vehicles in the immediate area of construction at any given time. However, there will be obstruction only by mobile equipment; the contractor will not be allowed to stockpile material along the road. Also, since the service road intersects Lehua Avenue, Waipio Access Road and Depot Road, maintenance access to all areas except the immediate construction site will be provided at all times. Construction notes will require the Contractor to maintain emergency access for utility maintenance at all times.

Depot Road extends past the Waipahu Sewage Pump Station in a north-south direction as an improved road for traffic serving:

1. The Waipahu Municipal Incinerator
2. The ash disposal site
3. Oahu sugar cane fields (not a main cane haul road)
4. The Waipahu dual cell oxidation pond
5. As secondary access to Waipio Point Access Road and areas on the southern end of Waipio Peninsula.

Contract documents will require the provision of temporary roads wherever construction interferes with the passage of vehicles along Depot Road or any of the feeder roads in this area. This requirement will also apply to construction in the West Loch Naval Ammunition Depot and along Geiger Road to the proposed Honouliuli WWTP. Construction at the intersection of Geiger and Fort Weaver roads is expected to require the permanent relocation of the existing traffic control box. Construction at this intersection will be coordinated with the State project for widening of Fort Weaver Road to prevent scheduling conflicts. The Contractor shall comply with State of Hawaii safety rules and regulations for all work associated with the interceptor along Geiger Road and with City and County of Honolulu safety requirements for work across Waipio Point Access Road and along Depot Road. The U.S. Navy shall be consulted for construction coordination within the military reservation.

h. Stream Crossings (Flood Potential)

Depending on the Contractor method used in stream crossings, there is a potential for construction to

increase flood inundation area for any given discharge if flow is restricted by such construction at the time of high discharge. This is particularly true with Waiawa Stream, where the drainage area is substantial and no channel modifications have been instituted for flood control.

Ball joint ductile iron pipe will be specified for the Waiawa Stream crossing, which will enable the Contractor to place the pipe without restricting stream flow at any time. If this method is selected, no environmental damage through aggravated flood inundation is foreseen. The other common method for pipe placement at stream crossings would involve sectional construction of cofferdams, partially restricting stream flow. If cofferdam construction is selected, the Contractor will be required to provide diversion capacity at least equal to the mean annual stream flow. Construction notes for all stream crossings will require the Contractor to coordinate with the City and County of Honolulu. Such coordination may substantially reduce the already probability of flood damage by restricting cofferdam height and/or construction scheduling.

f. Miscellaneous

Any pollution resulting from the activities of the contractor, either on land or water, shall be the responsibility of the contractor. This shall include pollution from construction equipment and turbidity created by underwater construction. However, little, if any such pollution

is expected, particularly since the contractor shall observe all regulations applicable to environmental protection and shall take all measures over and above these regulations judged necessary to preserve environmental integrity over the interceptor alignment. This responsibility shall be incorporated into the contract documents, and the contractor's methodology for accomplishing work under the contract shall be reviewed in detail by the City and County of Honolulu both prior to and during construction, with particular attention to compliance with environmental rules and regulations.

B. Long Term Impact (Operational)

1. Normal Operation

Once construction is completed, the Honouliuli Interceptor Sewer System, under normal operation, is expected to have no adverse effects. Social and economic effects of the completed project are not separable from the larger Mamala Bay System, previously considered in the Final Environmental Statement. The only land permanently effected will be the 0.171 acres acquired for the Pearl City Sewage Pump Station expansion and the 0.398 acres acquired for the Waipahu Sewage Pump Station expansion. Indirectly an additional 20 acres of land will be required for the permanent force main easement; however, this easement will have no effect on flora or fauna within or adjacent to its boundaries under normal operation of the system except for the 2.5 acres of cane land previously discussed. No air pollution is expected from normal interceptor sewer or pump station operation.

a. Noise and Odor

Although pumps, motors and other equipment will be housed in the existing pump station buildings, no significant increase in ambient exterior noise levels is expected from the addition of these items. Pump station modifications will include emergency standby generators. A 900 KW gas turbine unit is to be installed in a new above-ground building at the Pearl City station and an 800 KW diesel unit will be similarly installed at Waipahu. These generators will operate only under conditions of power outage to insure the continuation of station functions or for preventive maintenance testing; emergency standby power is required by the Environmental Protection Agency for municipal pump stations funded under the Construction Grants Program. Each of these units will have mufflers installed directly on the generator exhaust; in addition, insulation in the building walls will reduce potential increases in exterior ambient noise levels to a minimum.

A study on the potential for odor generation in the future Honouliuli Interceptor Sewer System was prepared by Austin, Smith & Associates, Inc.<sup>(13)</sup> in 1974-75. The report indicates that the long detention times expected in the force main system, particularly during early years with low flows, are conducive to the production of hydrogen sulfide. If not controlled, objectionable odors may be expected at the transition from the force main to gravity sewer at

the Geiger Road entrance to the Naval Magazine at West Loch. The report evaluated alternative means of odor prevention and recommended that chemical oxidant be injected for positive control through the combination of chemical and biochemical effects. Preventive measures for odor control are now under consideration for addition to the interceptor system design, if necessary. The completed system is not expected to produce objectionable odors.

b. Water

Under normal operation, the Honouliuli Interceptor Sewer System is expected to add significantly to the improvement of water quality in Pearl Harbor. The diversion of untreated and partially treated effluents now discharged to Pearl Harbor will reduce the biochemical oxygen demand, nutrient load and potential pathogenic contamination of this estuary. The buried pipe along the shoreline of Middle Loch and below the mudline in West Loch is expected to have no adverse environmental impact under normal operations.

2. Operational Malfunction

The probability of a pipe rupture or leak is extremely small. Historically, the City and County of Honolulu has an enviable record over its many miles of interceptor sewer. Interceptor breaks identified by the Division of Sewers are limited to:

- a. Breaks in the Waipahu force main, first occurring in 1958. This 16-inch cast iron line was installed in 1926, and its breakages were attributed to differential soil settlement in the area.

- b. A break in the Ward Avenue interceptor in 1972. This 48-inch cast-in-place concrete pipe with vitrified clay liner was constructed in 1926-27.
- c. A break in 1975 in the 12-inch Public Bath force main (Waikiki area). This reinforced concrete cylinder pipe was installed in 1962; however, the section in which breakage occurred was intended to be a temporary section and was not jacketed by concrete, as were adjoining sections.

Advances in both construction methods and materials since these early lines were installed further reduces the probability of failure in future installations. Because of the large volumes of wastewater to be carried by the Honouliuli Interceptor (and also for hydraulic reasons), the Master Plan Report recommended that the entire force main be constructed with dual piping. Crossovers with appropriate valving will enable any section of a ruptured pipe to be isolated and flow diverted to the parallel pipe while repairs are made. This plan will provide a minimum disruption in the system operation and a minimum adverse environmental effect in the unlikely event of a force main rupture. Depth of cover over both land and water portion of the interceptor alignment are considered adequate to prevent damage from external impact. The Corps of Engineers recommendations (see Appendix A) for protection from ship traffic and emergency anchorage will be followed in the placement of force main beneath West Loch. The recommendations of the soils consultant (Lum

report) will be followed for placement of the pipe in areas subject to settlement. Where some vertical or horizontal movement is considered possible following placement of the interceptor, flexible joints will be provided to absorb such movement without pipe damage. A rupture of the force main on land would be easily detectable by visible evidence of sewage ponding on the ground surface. Of course the odor of raw sewage would also make a surface line rupture detectable. A rupture of the force main underwater would be evident from visual observation of discoloration in the water. Whether on land or in the water, emergency notification to the Division of Sewers would dispatch a crew to make valving adjustments diverting wastewater to the undamaged force main (dual system). Repair work would then normally be accomplished by contract.

Pipe leakage would be more difficult to detect than a rupture. Theoretically, leakage could be determined from comparison of influent flow records, noting an abnormal reduction in incoming volumes. This method is rough at best and must be considered sufficiently insensitive so as to detect only major leaks, which would most probably show visible evidence at the point of loss. Minor leaks over the land portion are essentially undetectable until surface wetness results. A more refined procedure for detecting even small leaks in the underwater portions would be a coliform density monitoring program. Even minor leaks would result in a significant increase in coliform levels in West Loch or Middle Loch and could assist in location

of the leak long before visible discoloration or odor occurred. Unfortunately, no such program for coliform monitoring in West Loch or Middle Loch now exists and there are no known plans to institute a program. Therefore, both rupture and leak detection must rely on sensory evidence.

Environmental damage from pump station malfunction is also highly improbable. The automatic transfer of pump operation to the standby generators will preclude overflow due to power outage. The regular preventive maintenance testing program for these generators will insure their proper operation. Should a mechanical problem occur in one of the pumps, the standby may be used while repairs are made. In all sewage pump stations, a standby pump is required; its capacity must be at least equal to that of the largest pump normally operational. No bypass to navigable waters is planned for either pump station.

In summary, the adverse effects of an accidental release of raw sewage to either land or water along the interceptor alignment would be temporary, if they occur at all. No permanent adverse effects are anticipated from the operation of the Honouliuli Interceptor Sewer System, under either normal or foreseeable abnormal conditions.

VI. ADVERSE ENVIRONMENTAL EFFECTS WHICH CANNOT BE AVOIDED SHOULD THE PROPOSAL BE IMPLEMENTED

The acquisition of land, including the permanent easement for the interceptor, is unavoidable if the project is implemented as described.

This includes approximately 2.5 acres of land now under cultivation for sugar cane on Waipio Peninsula.

The scarring of land by trenching, the noise inherent in pile driving at and around the sewage pump stations, and the increase in turbidity in limited sections of Middle Loch and West Loch are unavoidable adverse effects resulting from construction activity. Each of these is temporary and will exist only during construction, or until such period following construction as vegetation is able to conceal construction effects on the landscape. The contractor will be required to restore by reseeding those areas presently under care and cultivation; however, certain areas will only regenerate over time by natural growth, such as the mangrove and other vegetation in the affected shoreline of Middle Loch.

## VII. ALTERNATIVES TO THE PROPOSED ACTION

Variables which may be considered significant in the proposed action include time, routing and configuration. The first variable includes the alternatives of delaying the project schedule or abandoning the project altogether.

### A. No Project

Since the objective of this project is to convey existing and projected wastewater from the Pearl City and Waipahu sewage pump stations to the site of the proposed Honouliuli WWTP, the alternative of no project is beyond the scope of this statement. The "no project" alternative must be considered under the discussion of implications for the Mamala Bay System in its entirety, as set forth in the Final

Environmental Statement. In general, the effect of no project would be:

1. The continued discharging of untreated or partially treated wastewater into Pearl Harbor through the design year 2020, or
2. Upgrading of existing plants (and pond) to serve the present flows from Pearl City and Waipahu independently plus addition of future capacity to these, or the construction of new plants to serve the expected and planned development in the project area through the design year 2020; treated effluent would continue to be discharged to Pearl Harbor.
3. The Honouliuli WWTP and the Barbers Point Ocean Outfall (already approved) would require redesign or abandonment as projects.
4. The entire integrated program for waste management in the Mamala Bay area would require replanning.

B. Project Delay

Delay of the Honouliuli Interceptor Sewer System would necessarily mean delay in the operation of the Honouliuli WWTP and Barbers Point Ocean Outfall as planned, since the majority of inflow is to be delivered by the interceptor system identified by this project. Delay in the entire West Mamala Bay wastewater management system would prevent City and County compliance with Federal treatment requirements. If the project were delayed, existing plants would have to be upgraded to improve the quality of effluent discharged; however, these would

eventually be abandoned altogether when the centralized treatment plant, interceptor sewer, and outfall system is completed. This would be an unnecessary and highly expensive method of improving effluent quality, with no evident offsetting benefits. In addition, it is highly doubtful whether such independent plant upgrading could be accomplished within the time frame now established for the secondary treatment of municipal wastewater.

C. Alternative Alignments

1. Alternate A

The route shown in Figure 14 was considered and rejected by the East and West Mamala Bay Regional Wastewater Treatment and Disposal System study prepared in 1972 on economic grounds. This alternative, as compared to the recommended alignment, would involve approximately 4,500 additional feet of dual force main plus the 8,000 feet of gravity sewer between NAD West Loch and the intersection of Fort Weaver and Geiger roads. The 40-foot right-of-way over the 6,500 feet of this alternative alignment immediately west of the Waipahu Sewage Pump Station is coincident with the Energy Corridor. Therefore, the interceptor would have to be placed either in developed residential land to the north of the Energy Corridor or within the wildlife refuge and along the shoreline of West Loch, within Class AA waters. Substantial time and funds would be required to obtain the recommended 50-foot easement through the many individually-owned lots north of the Energy Corridor. Construction activity within

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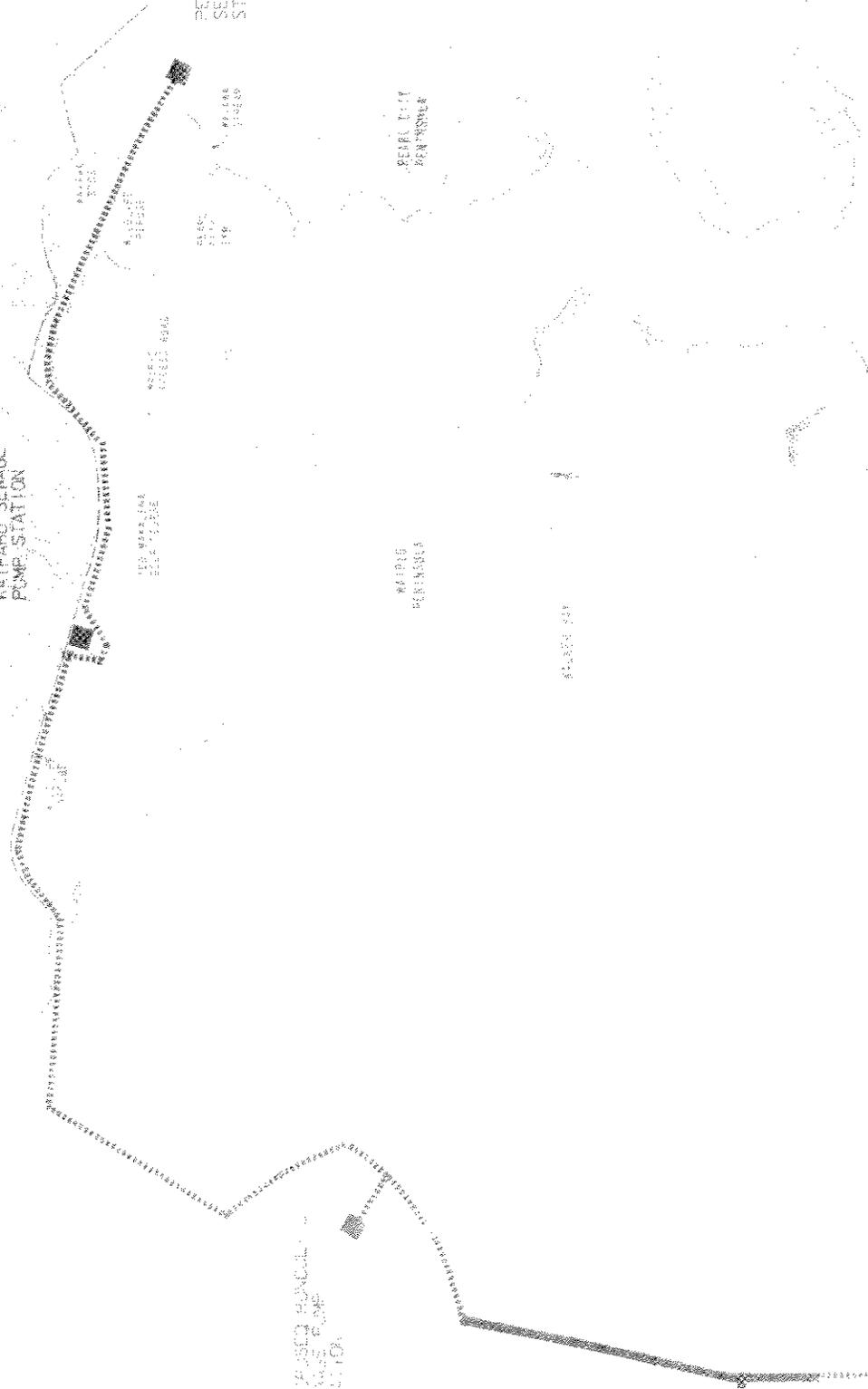
KAIPAHU SEWAGE  
PUMP STATION

PEARL CITY  
SEWAGE PUMP  
STATION

PEARL CITY  
REINFORCED

PEARL CITY  
REINFORCED

PEARL CITY  
SEWAGE PUMP  
STATION



LEGEND

CONCRETE MANHOLE

SEWER PIPE

SEWER VALVE

SEWER CONNECTION

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HONOLULU RAMP PANEL

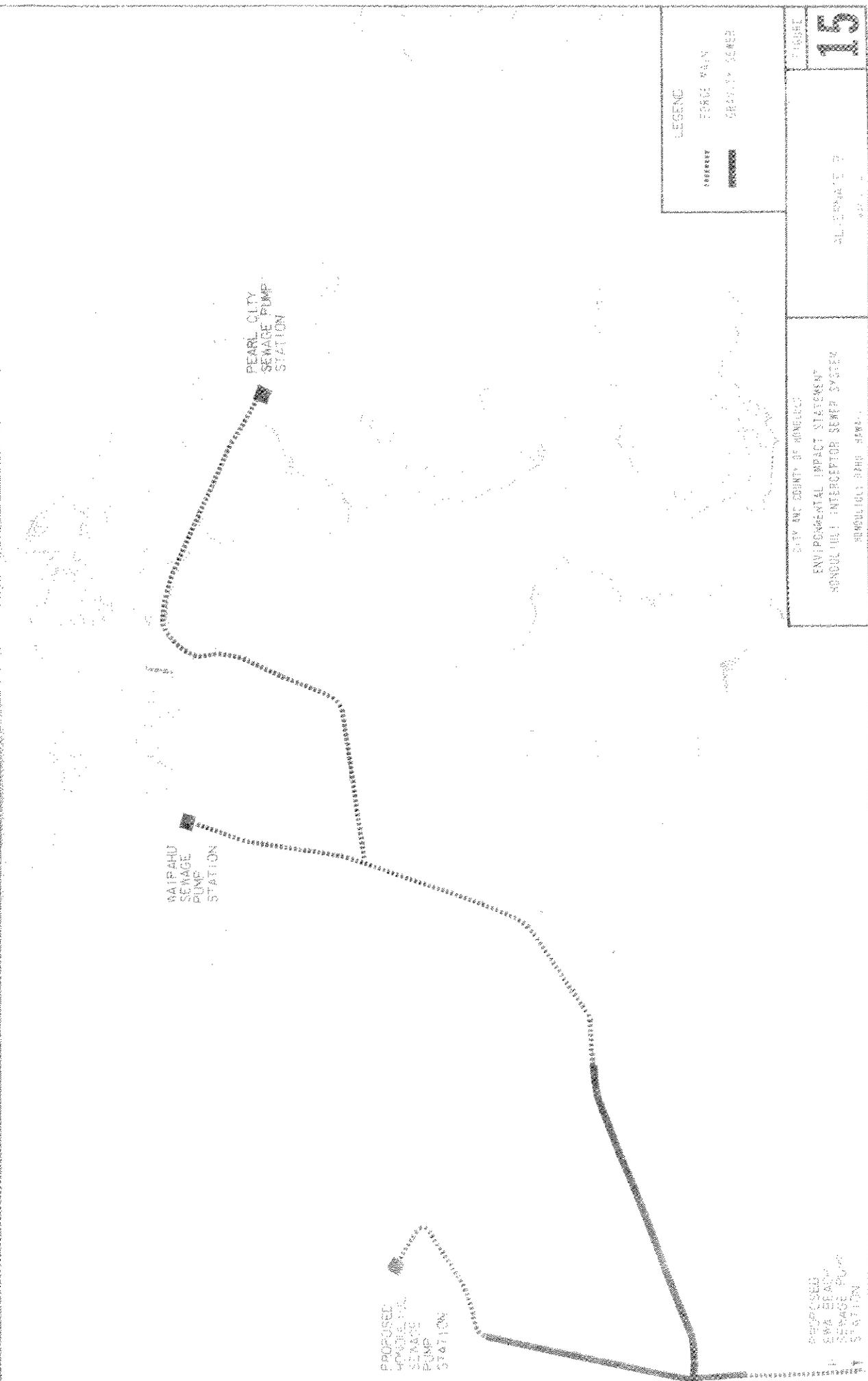
SHEET  
**14**

A. TERMINATE A

this section would have definite adverse environmental effects on the residents, including significant increases in ambient noise levels. Placement of the interceptor along the shoreline to the south of the Energy Corridor would locate the pipe in the wildlife habitat and along the intertidal portions of the protected waters of West Loch, including the fishpond. This alternative would require a crossing of Waikele Stream. At the point of crossing, Waikele Stream has formed a delta of silt deposits and would require several hundred feet of reinforced concrete jacketing for the interceptor pipes. Placement within the Energy Corridor is not physically possible without relocating existing fuel and utility lines; in addition, the Department of Transportation, State of Hawaii, has indicated that the Energy Corridor was not intended for the transport of wastewater (see Appendix A). Therefore, for a variety of economic and practical reasons, the land route was rejected by the 1972 planning study. This decision appears to be valid on environmental grounds also.

2. Alternate B

Alternate B is shown in Figure 15. It coincides with the recommended alignment from its beginning at the Pearl City Sewage Pumping Station to the crossing of Waipio Point Access Road. At the access road, Alternate B follows the alignment of the road (which is also the alignment of an existing 8-inch Navy fuel line) for approximately 4,000 feet southward before turning in a south-westerly direction to cut diagonally across Waipio Peninsula and join with the force main from the Waipahu SPS. The diagonal



NAIIPAHU  
SEWAGE  
PUMP  
STATION

PEARL CITY  
SEWAGE PUMP  
STATION

PROPOSED  
KAWAIAE  
SEWAGE  
PUMP  
STATION

PROPOSED  
KAWAIAE  
SEWAGE PUMP  
STATION

LEGEND

PROPERTY

SEWER

CITY AND COUNTY OF HONOLULU  
ENVIRONMENTAL IMPACT STATEMENT  
HONOLULU INTERCEPTOR SEWER SYSTEM  
RENDERING SHEET NUMBER

PROJECT NUMBER

**15**

alignment across Waipio Peninsula generally parallels the alignment of the Navy fuel line. Approximately 3 acres of sugar cane land are required during construction of this portion of the force main across Waipio Peninsula. One acre will be permanently required for maintenance access after construction is completed.

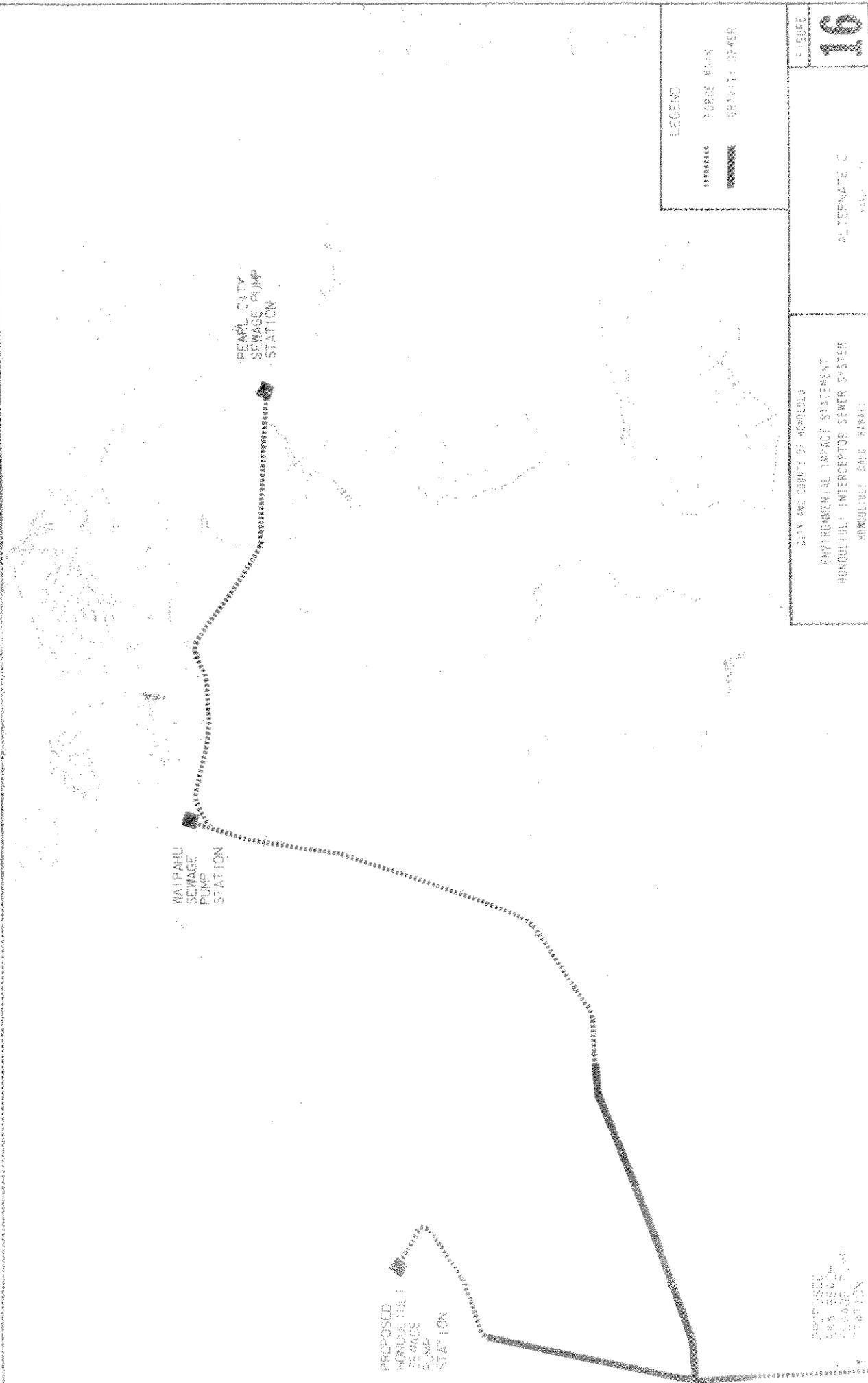
The force main from the Waipahu SPS to the point of juncture with the force main from the Pearl City SPS follows the recommended alignment for this section of the system. From the point of juncture of the force mains, the remainder of the alignment for Alternate B across West Loch and to the proposed Honouliuli WWTP coincides with the recommended alignment.

While Alternate B avoids construction work within the Ted Makalena Golf Course, it does increase the total length of the alignment by approximately 4,000 feet and requires an additional 3 acres of cane land for construction. The proposed force main will not interfere with the existing 8-inch fuel line. However, construction work will inconvenience motorists using Waipio Point Access Road.

The total length of this alignment is approximately 40,000 l.f. which includes 28,000 l.f. of force main and 12,000 l.f. of gravity sewer. Total estimated cost is \$18,360,000.

### 3. Alternate C

Alternate C is shown in Figure 16. It begins at the Pearl City SPS and heads southwesterly, crossing Waiawa Stream and the Pearl City Peninsula sanitary landfill area for approximately 3,000 feet to a point immediately south of the wildlife habitat



PROPOSED  
HONOULULU  
SEWAGE  
PUMP  
STATION

WAIPIAHU  
SEWAGE  
PUMP  
STATION

PEARL CITY  
SEWAGE PUMP  
STATION

LEGEND

- FORCE MAIN
- GRAVITY SEWER

CITY AND COUNTY OF HONOLULU  
ENVIRONMENTAL IMPACT STATEMENT  
HONOULULU INTERCEPTOR SEWER SYSTEM  
HONOULULU SEWER SYSTEM

FIGURE  
**16**

PROPOSED  
HONOULULU  
SEWAGE PUMP  
STATION

adjacent to the Middle Loch of Pearl Harbor. The settlement associated with continuing anaerobic decomposition of organic material in a landfill introduces potentially poor bedding conditions with this section.

The following 3,000 feet of underwater alignment passes through mooring facilities for the Navy floating drydocks. Clusters of reinforced concrete mooring anchors embedded in this area add to the cost and risk associated with the construction and maintenance of a pipeline in Middle Loch.

Entering Waipio Peninsula near the intersection of Waipio Point Access Road and the Energy Corridor, Alternate C then becomes identical to the recommended alignment over the remaining 18,000 feet of force main and 12,000 feet of gravity sewer.

The total length of this alignment is approximately 36,000 l.f., which includes 24,000 l.f. of force main and 12,000 l.f. of gravity sewer. Total estimated cost is \$19,740,000.

4. Alternate D

Alternate D, shown in Figure 17, is similar to Alternate C. Beginning at the Pearl City SPS, the proposed force main alignment follows the existing force main to the Pearl City STP along the west bank of Waiawa Stream. It then turns westward and parallels the northern boundary of the STP to the edge of Middle Loch, traversing approximately 1,200 feet of the Pearl City peninsula sanitary landfill. From this point, Alternate D coincides with the alignment of Alternate C to the proposed Honouliuli WWTP.

WAIPIAHU  
SEWAGE  
PUMP  
STATION

PEARL CITY  
SEWAGE PUMP  
STATION

PROFESSOR  
HONOLEULU  
SEWAGE  
PUMP  
STATION

LEGEND

FORCED MAIN

GRAVITY SEWER

SCALE

17

CITY AND COUNTY OF HONOLULU

ENVIRONMENTAL IMPACT STATEMENT  
HONOLULU INTEGRATED SEWER SYSTEM

HONOLULU: 8940 KAPAAI

17

An additional 500 l.f. of pipe is required in Alternate D to skirt the sanitary landfill and minimize the construction through this poor bedding material. The same problems and hazards in Alternate C associated with construction through the sanitary landfill and across the Middle Loch of Pearl Harbor apply to Alternate D.

Total length of this alignment is approximately 37,000 l.f., which includes 25,000 l.f. of force main and 12,000 l.f. of gravity sewer. Total estimated cost is \$19,920,000.

5. Alternate E

Alternate E is the alignment recommended in the report "Water Quality Program for Oahu with Special Emphasis on Waste Disposal, Final Report", dated February 1972. It is shown on Figure 18. The initial 2,100 feet of this alignment is identical to that of Alternate D. However, instead of turning westward at the northern boundary of the Pearl City STP as in the case of Alternate D, Alternate E continues southwestward on the west bank of Waiawa Stream to the edge of Middle Loch. Construction along this alignment within the Pearl City STP boundary and to the edge of Middle Loch, a distance of approximately 1,800 feet, is through marshy land resulting from sediment accumulation at the mouth of Waiawa Stream.

The force main then continues under Middle Loch, generally paralleling the alignment of the existing effluent outfall line from the Pearl City STP. The proposed underwater crossing is approximately 3,500 feet in length. Unstable bottom conditions of Middle Loch have resulted in several breaks to the existing



effluent outfall line. A hazard also exists from dragging anchor lines in this area, as the floating drydocks anchored in the northern reaches of Middle Loch are regularly (approximately 20 trips per year) towed across this alternate alignment.

After exiting Middle Loch, the force main generally follows existing cane roads across Waipio Peninsula to its intersection with the force main from the Waipahu SPS, a distance of approximately 5,600 feet. Approximately 2 acres of sugar cane will be affected along the 5,200 foot section during construction. The force main from Waipahu SPS is similar but not identical, to the recommended alignment. The route taken in Alternate E follows an existing cane road and passes immediately adjacent to the dual cell oxidation pond. This alignment would conflict with the existing force main to this lagoon system, which must remain operable until the Honouliuli interceptor treatment plant and outfall system is operational. From the point of departure to West Loch at Hanaloa Point, the proposed alignment coincides with that of the recommended alignment to the proposed Honouliuli WWTP.

Approximate length of this alignment is 36,000 l.f., including 24,000 l.f. of force main and 12,000 l.f. of gravity sewer. Total estimated cost is \$20,210,000.

#### 6. Discussion of Alternatives

The alignment shown in Figure 6 is that recommended by the Master Plan Report for the interceptor sewer line to convey wastewater from the existing Pearl City and Waipahu Sewage Pumping Stations to the Honouliuli WWTP.

When compared to the alternate alignments discussed herein, the recommended alignment has the following advantages:

- a. Lowest estimated construction cost.
- b. Avoids major roadways (except Geiger Road, which is common to all alignments) where traffic would be disrupted or inconvenienced during construction or during repair of the interceptor sewer line.
- c. Alternates C, D and E propose construction under the Middle Loch of Pearl Harbor, which possess certain hazards from ship crossings and moorings as well as construction through what is known to be poor bedding material through the sanitary landfill and marshy areas.
- d. While Alternate B possess many of the advantages of the recommended alignment, and has the advantage of avoiding the Ted Makalena Golf Course, it requires additional piping, more crop destruction (sugar cane) and inconvenience to the motorists along Waipio Point Access Road during construction of the sewer line.

D. Alternative Pipe Configurations

The Honouliuli Interceptor Sewer System will be designed to serve the tributary areas previously identified to the year 2020, and possibly beyond. Over such a design period, a wide range of flow variations are encountered. A force main which is satisfactory now may not be large enough to meet the demand of the year 2020. On the other hand, another force main that is large enough for the year 2020 may be too large to maintain satisfactory flow velocities in

early years. Therefore, hydraulic characteristics, as well as the economics and environmental conditions of operation, should be carefully analyzed in preparing the final design.

Hydraulic analysis prepared as part of the Master Plan Report, previously cited, indicates that a single line force main system, while operational, provides flow velocities lower than desirable in early years and results in higher friction losses in later years.

A system that consists of a single pipe between the Pearl City SPS and the junction with the force main from the Waipahu SPS and a dual pipe system between the junction and the gravity sewer section affords more flexibility of operation for corrective action should pipe maintenance be required south of the Waipahu junction. This would also reduce some of the friction losses in the pipe between Waipahu junction and the beginning of the gravity line.

However, for a major interceptor such as the proposed Honouliuli Interceptor Sewer System, a dual line force main seems to be the most advisable. Pipe failure anywhere along the alignment, although highly unlikely, would render the system non-operational upstream from the point of failure. Should one of the pipes require maintenance, wastewater can still be pumped through the other, thus keeping the system operational and reducing the risk of releasing untreated wastewaters. Hydraulically, the dual pipe system provides for a balanced design from the standpoint of pumping requirements and pressure on the line. The resulting lower pressure on the line may also reduce maintenance on the line. Therefore, a dual force main system is recommended.

The Master Plan Report also evaluated a variety of materials which may be used for the force main sections of the interceptor system. Table II shows the comparative characteristics and costs of these materials. It is recommended that where soil conditions allow, concrete mortar lined and coated steel cylinder pipe be used. Where soil conditions are likely to cause differential settlement or horizontal movement, ductile iron pipe with ball joint connections is recommended. The Master Plan Report provides a detailed engineering and economic discussion of alternative pipe materials. The environmental implications are a direct result of the probability of failure of each pipe material for the Honouliuli interceptor sewer system, which together with the economic and hydraulic considerations, were the three factors upon which the recommendation is based.

In addition to the number of pipes and material to be used, time may be considered an alternative factor. That is, one pipe could be placed now and a second parallel pipe put in at such future time as required. However, Table II shows that placement cost is generally 50% or more of the total in-place cost of the pipe. Since the dual pipe force main can be placed in a single trench, cost savings associated with placement of both pipes now appear to outweigh the flexibility of delaying placement of one pipe. Present value construction cost of this alternative method may be expected to be at least 50% higher, since total final trench width would have to be greater and more net excavation and backfilling would be required. In addition, the possibility of future adverse environmental impact through construction damage to the then-existing force main must be considered



since the future pipe would have to be laid adjacent to and connected with a force main which would be operating near maximum capacity and could not be bypassed. For these reasons, it is recommended that both pipes of the dual force main system be placed as part of the present project.

VIII. RELATIONSHIP BETWEEN LOCAL SHORT-TERM USES OF MAN'S ENVIRONMENT AND THE MAINTENANCE AND ENCHANCEMENT OF LONG-TERM PRODUCTIVITY

This project provides for the long-term improvement of the water quality of Pearl Harbor, so that future generations as well as present may enjoy the benefits associated with this natural body of water. Also, recognizing that development within the Honouliuli District will occur in some form, the proposed system provides the flexibility for serving that future development, whatever it may be, through a unified network of pipes, pumping stations, and treatment and outfall facilities. This long-range planning should prevent the need for future facilities which may only meet requirements on a stop-gap basis; thus, human and natural resources will be freed for alternative uses.

IX. IRREVERSIBLE AND IRRETRIEVABLE COMMITMENTS OF RESOURCES

The proposed interceptor sewer system will commit limited amounts of land, labor, and material resources. Approximately 25 feet of permanent easement will be required along the entire alignment, with an additional 25 feet of construction access road. The latter is already in existence over much of the alignment. Some sugar cane land will be removed from cultivation, and some sugar cane crops will be destroyed during construction. However, the replacement of the existing dual cell oxidation pond on Waipio Peninsula will potentially create more cane land than will be condemned.

Once construction is completed, the only land committed will be that actually occupied by the pipe, maintenance access roads, and the expanded sewage pump stations. Labor will be involved in the construction and maintenance of these facilities, as is the case with any piping and pumping network; all labor expenditure is essentially irreversible and irretrievable. Materials such as concrete, cast iron, reinforcing steel, etc., will be required for construction, and once buried, will be irreversibly and irretrievably committed for all practical purposes.

Operationally, additional energy will be required to drive the larger pumps to be installed at the sewage pump stations now and in the future.

APPENDIX A

ORGANIZATIONS AND PERSONS CONSULTED IN THE  
PREPARATION OF THE ENVIRONMENTAL IMPACT STATEMENT

## INTRODUCTION

The following agencies and persons were formally consulted during the preparation of the environmental impact statement. Asterisk denotes those contacted who commented in writing. Both comments and responses are included in the following pages. Where no written response is included herein, correspondence antedated the requirement for formal written response.

### FEDERAL

Page No.

USDA, Soil Conservation Service

USDI, Fish and Wildlife Service

Department of the Navy

*PacDiv, NAVFACENCOM	2 March 1973, Samaritano	A-3
*PacDiv, NAVFACENCOM	8 July 1975, Walter	A-4
*ROICC, NAVFACENCOM	19 December 1975, Bass	A-5
*HQ, Fourteenth Naval District	12 February 1976, Brooks	A-7

Department of the Army

*U.S. Army Engineer District	21 January 1975, Cheung	A-10
*U.S. Army Engineer District	7 April 1975, Pender	A-12
*U.S. Army Engineer District	9 January 1976, Cheung	A-14

### STATE

*Department of Transportation	6 December 1972, Matsuda	A-17
*Department of Transportation	20 January 1976, Wright	A-19
*Department of Land & Natural Resources	2 January 1975, Takata	A-21
*Department of Land & Natural Resources	7 February 1975, Cobb	A-26
*Department of Land & Natural Resources	2 February 1976, Cobb	A-28
*Office of Environmental Quality Control	6 January 1976, Marland	A-30
*Department of Health	12 February 1976, Kumagai	A-32
Department of Planning and Economic Development		
*University of Hawaii at Manoa	16 December 1974, Cox	A-34
Leeward Community College		

### CITY AND COUNTY

*Department of Recreation	20 February 1975, Ko	A-35
*Department of Parks & Recreation	5 January 1976, Ko	A-37
*Department of Housing & Community Dev.	17 December 1975, Blackfield	A-39
*Department of Land Utilization	26 December 1975, Wanket	A-41
*Department of General Planning	31 December 1975, Way	A-43
*Board of Water Supply	5 January 1976, Hirata	A-45
*Department of Transportation Services	8 January 1976, Villegas	A-47

OTHER

Page No.

*Standard Oil Company of California	8 February 1973, Morris	A-49
*Standard Oil Company of California	27 January 1976, Dunn	A-50
*Oahu Sugar Company, Ltd.	17 December 1974, Humme	A-52
*Oahu Sugar Company, Ltd.	23 December 1975, Humme	A-53
*GASCO, Inc.	19 December 1975, Tanaka	A-56
*Hawaiian Electric Company	31 December 1975, Bell	A-58
Amfac Property, Inc.		
Amfac Trousdale		
Bishop Estate		
Ewa Beach Community Association		
Pearl City Community Association		
Waipahu Community Association		
League of Women Voters of Honolulu		
Life of the Land		
The Outdoor Circle		

DEPARTMENT OF THE NAVY  
PACIFIC DIVISION  
NAVAL FACILITIES ENGINEERING COMMAND  
FPO SAN FRANCISCO 96610

071:WR:nyt  
Ser. 1346  
2 MAR 1973

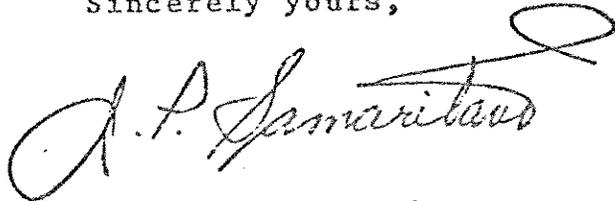
Austin, Smith & Associates, Inc.  
745 Fort Street, Suite 900  
Honolulu, Hawaii 96813

Gentlemen:

Your letter of January 3, 1973 proposed a generalized "land route" for the Honouliuli Interceptor Sewer from Pearl City to the treatment plant site. In the vicinity of West Loch and the Waipio Peninsula, the Navy Utility Corridor is encumbered by easements for the State Energy Corridor and the Standard Oil Company, Inc. pipelines. It therefore appears that a 56"-60" diameter sewer line would unreasonably interfere with these interests.

It is conceivable that portions of the proposed sewer line could be placed in the Navy Utility Corridor between Lehua Avenue and Waipio Access Road. Emplacement in this area would be considered subject to review of plans and profiles of the project.

Sincerely yours,



J. P. SAMARITANO  
Director, Real Estate Division

RECEIVED

MAR 3 1973

AUSTIN, SMITH & ASSOCIATES INC.  
Honolulu, Hawaii 96813



DEPARTMENT OF THE NAVY  
RESIDENT OFFICER IN CHARGE OF CONSTRUCTION  
NAVAL FACILITIES ENGINEERING COMMAND CONTRACTS

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Chief of Construction  
Engineering  
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Mr. Kazu Hayashida  
Director and Chief Engineer  
City and County of Honolulu  
Department of Public Works  
Honolulu, Hawaii 96813

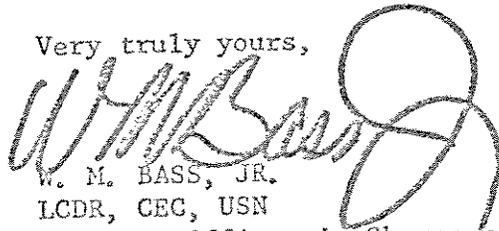
Gentlemen:

Thank you for your invitation to comment on the Environmental Impact Statement (EIS) for the Proposed Honouliuli Interceptor Sewer System. While I am thoroughly in favor of the system, I basically find the following faults with the EIS:

1. The environmental impacts attributed to the proposed alignment are unduly vague and in some cases appear to be understated.
2. In my personal opinion, the crossing of West Loch as proposed, will have a serious effect on the Class AA waters, the oyster bed and the general appearance of the area.
3. No figures are given to indicate why the proposed route is economically superior to alternative B which does not cross West Loch. Specifically, what is the economic value in dollars of 4,000 feet and 3 acres of cane land. The reader is unable to make a comparison between these economic costs and the anticipated environmental damage to the Class AA waters and associated recreational and commercial costs (loss of oyster beds, disturbance of underwater biology, etc.)

In my view, alternate B should be selected over the proposed route.

Very truly yours,

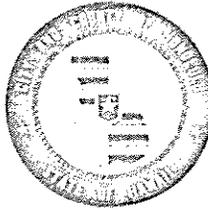


W. M. BASS, JR.  
LCDR, CEC, USN  
Resident Officer in Charge of Construction

Copy to:  
Environmental Quality Control  
State of Hawaii

DEPARTMENT OF PUBLIC WORKS,  
CITY AND COUNTY OF HONOLULU

HONOLULU, HAWAII 96813



FRANK F. FASI  
MAYOR

KAZU HAYASHIDA  
DIRECTOR AND CHIEF ENGINEER

February 12, 1976

SD 76-61

Lieutenant Commander William Bass  
Resident Officer in Charge of Construction  
Naval Facilities Engineering Command  
P. O. Box 94  
FPO San Francisco 95610

Dear Commander Bass:

Subject: EIS Preparation Notice  
Honouliuli Interceptor Sewer System  
(Reference to Your Letter Dated December 19, 1975)

Thank you for reviewing and commenting on the subject EIS preparation notice.

The preparation notice was distributed to agencies for allowing them to provide input to the EIS which is being prepared now. For this reason the preparation notice was very brief as you stated in your letter. The EIS will fully disclose the environmental implications promulgated in Chapter 343, HRS.

Our consultants and the Department of Public Works, City and County of Honolulu, have coordinated the alignment of the force main with the Department of the Navy as indicated on Page 1 of the preparation notice. The agencies involved have mutually agreed to the selected alignment. Major design features were reviewed by the Navy and we have followed their comments as directed.

Very truly yours,

A handwritten signature in cursive script, appearing to read "Kazu Hayashida".

KAZU HAYASHIDA  
Director and Chief Engineer

cc: CEQC  
PACDIV

A-6

Pl

76 00944

HEADQUARTERS  
FOURTEENTH NAVAL DISTRICT  
BOX 110  
APO SAN FRANCISCO 96610

RECEIVED  
DISTRICT OF PUBLIC WORKS

IN REPLY REFER TO:

FEB 13 11 35 AM '76  
TO ENVW Ser 244

12 FEB 1976  
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RECEIVED  
DISTRICT OF PUBLIC WORKS

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

Dear Mr. Hayashida:

Environmental Impact Statement Preparation Notice  
for the Proposed Honouliuli Interceptor Sewer System

The subject Preparation Notice, which was forwarded by your letter of December 15, 1975 to the Pacific Division, Naval Facilities Engineering Command, has been reviewed, and the following comments for the consultation phase are submitted:

- a. Figure 1. NAD should be NAVMAG. NAVMAG extended aeration plant will be abandoned and should be annotated with the triangle symbol. Fort Kam STP is not properly sited. The boundary for tributary area "H" should be extended to include NAVMAG. These suggested corrections have been shown on Figure 1, enclosure (1).
- b. Pages 5-6. The grant of easement for the Waipio Peninsula portion will require adequate compensation to Oahu Sugar Company for crop damage.
- c. Page 10. (Par. E.I.1.d.). Recommend that discussion on water pollution from disposal of dredge spoil be included.
- d. Page 14. (Par. E.II.1.b.). Recommend inclusion of a statement that there will be no emergency by-passes into Pearl Harbor. Emergency generators will be provided at pump stations for back-up power in event of power failures.

Thank you for the opportunity for comment during this consultation phase, and further review is anticipated upon receipt of the Draft Environmental Impact Statement.

Sincerely,

*K. D. Brooks*

K. D. BROOKS  
CAPTAIN, USN  
CHIEF ENGINEER  
DISTRICT OF THE COMMANDANT  
A-7

Encl: (on page 2)

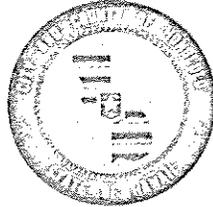
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Ser 244

Encl:  
(1) Figure 1, Honouliuli Wastewater  
System, September 1975

Copy to:  
Office of Environmental Quality  
Control, State of Hawaii

DEPARTMENT OF PUBLIC WORKS.  
CITY AND COUNTY OF HONOLULU

HONOLULU, HAWAII 96813



FRANK F. FASI  
MAYOR

KAZU HAYASHIDA  
DIRECTOR AND CHIEF ENGINEER

February 23, 1976

SD 76-92

Captain K. D. Brooks  
CBC, USN  
District Civil Engineer  
Headquarters  
Fourteenth Naval District  
Box 110  
San Francisco 96610

Dear Captain Brooks:

Subject: EIS Preparation Notice  
Honouliuli Interceptor Sewer System  
Reference To Your Letter 48:09F:SH:mm,  
Ser 244, Dated 12 Feb 1976

Thank you for reviewing and commenting on the subject EIS preparation notice.

Your corrections concerning Figure 1 will be made, wherever applicable, in the EIS.

Also, your other comments including compensation for losses of cane crop, discussion of water pollution due to dredging, and the utilization of standby generators to preclude overflow conditions will all be incorporated in the EIS.

Very truly yours,

*Kazu Hayashida*  
For KAZU HAYASHIDA  
Director and Chief Engineer



DEPARTMENT OF THE ARMY  
U. S. ARMY ENGINEER DISTRICT, HONOLULU  
BLDG. 230, FT. SHAFTER  
APO SAN FRANCISCO 96558

PODED-P

21 January 1975

Mr. William A. Bonnet  
Austin, Smith & Associates, Inc.  
745 Fort Street, Suite 900  
Honolulu, Hawaii 96813

RECEIVED

JAN 22 1975

AUSTIN, SMITH & ASSOCIATES, INC.  
Honolulu, Hawaii 96813

Dear Mr. Bonnet:

As requested in your 10 December 1974 letter, we have reviewed the five alternative alignments for the Honouliuli Interceptor Sewer System and have the following comments to offer.

a. Each of the alternative routes cross Kaloi Gulch and Waiawa Stream. Design of the stream crossings should be coordinated with our office as well as with the City and County of Honolulu Department of Public Works, Engineering Division, Drainage Section.

b. The proposed Honouliuli Wastewater Treatment Plant is located close to Kaloi Gulch and may be subject to flooding problems. The areas of concern are marked in orange on Exhibit II-1.

c. Alignments II-1 and II-2 minimize disturbance of the marine environment by minimizing major harbor and channel crossings. The draft environmental statement should adequately describe the biological setting at the marine crossings and the anticipated short and long-term impacts expected upon the marine environment.

d. None of the alternatives show the alignment going around West Loch, as marked in red on Exhibit II-1. It is suggested that consideration be given to an all-land route.

e. Where marine crossings are necessary, a conservative approach is recommended to allow for maximum future development of harbor facilities in West Loch and for safety of the sewer line itself. Assuming that vessels drawing about 36 feet may be using Pearl Harbor in the area of the sewer line crossings in the future, a depth of 42 feet would be required for navigation. Allowing for about 2 feet for overdepth dredging and at least 5 feet of cover, it is recommended that the top of the line be at elevation -50 feet mllw or deeper. The proposed minimum depth of cover of 3 feet appears inadequate for a major trunk line of this importance.

PODED-P

Mr. William A. Bonnet

21 January 1975

f. It is also recommended that the construction trench be backfilled with non-erodable material and that the crossings be located in areas where there would be no requirement for anchorage if possible. Although such crossings would be posted to prohibit anchoring, a heavy anchor dropped in an emergency situation could penetrate 5 to 10 feet of soft material and damage the lines.

g. Planning related to the marine crossings should continue to be closely coordinated with the U.S. Navy and appropriate State agencies, as well as with the Pacific Ocean Division, U.S. Army Corps of Engineers. In accordance with Section 10 of the River and Harbor Act of 1899, a Department of the Army permit will be required for construction in navigable waters.

h. It is suggested that the more formal specification terminology of "Reinforced Concrete Steel-Cylinder Pipe" would be less subject to misinterpretation than the terminology, "concrete cylinder pipe".

Thank you for the opportunity to review the alternative alignment. We hope these comments will assist you in the preparation of the supplemental environmental statement. Please contact Dr. John Belshe', 862263, for clarification of any of the comments.

Sincerely yours,

*E. Chum*  
for KISUK CHEUNG  
Chief, Engineering Division



DEPARTMENT OF THE ARMY  
U. S. ARMY ENGINEER DISTRICT, HONOLULU  
BLDG. 230, FT. SHAFTER  
APO SAN FRANCISCO 96558

PODCO-0

7 April 1975

Park Engineering, Inc.  
Suite 2085, Pacific Trade Center  
190 S. King Street  
Honolulu, Hawaii 96813

Gentlemen:

In response to your letter of 19 March 1975 concerning the Pearl City Sewage Pump Station Force Main Section 2, the following are our comments:

Portions of this Force Main will require Department of the Army permits since it crosses navigable waters. These portions are at Waiawa Stream, Waiawa Springs, and along the shoreline of Middle Loch, approximately between stations 33+00 to 64+00.

The proposed project appears to be aligned approximately 100 feet off the edge of the existing dirt road (sheet 1) in a low dry area, crosses Waiawa Stream, aligned on the northern edge of the U. S. Naval Pearl City sanitary landfill (which filled in a swamp area, sheet 2) with some filling in of low areas along the edge of the landfill. It goes through the landward edge of a swampy mangrove area adjacent to Waiawa Spring, in the tidal flats at the head of Middle Loch (sheets 4-7) and along the northern boundary of the Ted Makalena Golf Course. Other activities in the coastal area which presently affect environmental quality are lowland cattle grazing, watercress farming, junk stockpiling, pig farming, inactive ship maintenance in Middle Loch, Pearl City Sewer Treatment Plant discharge into Middle Loch, landfilling activities due to other pipeline and road construction, housing developments, drainage discharges from other upland areas and fuel storage facilities, and Waipahu Sewerage Treatment and sugarcane wastewater discharges into Middle Loch. The mangrove area represents the last vestiges of the marshy area which once dominated the Middle Loch environment. The mangrove area also serves as an excellent endangered waterbird habitat.



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DEPARTMENT OF THE ARMY  
U. S. ARMY ENGINEER DISTRICT, HONOLULU  
BLDG. 230, FT. SHAFTER  
APO SAN FRANCISCO 96558

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9 January 1976 ENV

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PODED-P

Mr. Kazu Hayashida  
Department of Public Works  
City and County of Honolulu  
650 S. King Street  
Honolulu, Hawaii 96813

Dear Mr. Hayashida:

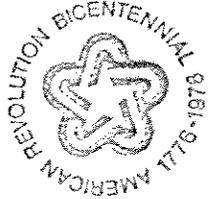
Your request for comments on the environmental effects of the Proposed Honouliuli Interceptor Sewer System was received on 15 December 1975. We have reviewed the EIS Preparation Notice and have the following comments.

a. Previous comments on the Pearl City Sewage Pump Station Force Main Section 2 were provided directly to the Consultants, Park Engineering, Inc., on 7 April 1975 and 27 May 1975. The environmental statement should address the stated concerns relating to protection of the coastal tidal mangrove areas, dewatering activities, and mitigative construction measures.

b. Any sections of the project involving construction in navigable waters will require a Department of the Army (D.A.) permit, pursuant to Section 10 of the River and Harbor Act of 1899. In addition, Section 103 of the Marine Protection, Research and Sanctuaries Act (P.L. 92-532) requires a D.A. permit for the ocean disposal of excess dredged material. A D.A. permit for the Barbers Point ocean outfall sewer is currently being processed.

c. The proposed facilities would be located in or near the flood plains of Kaloi Gulch and Waiawa and Kapakahi Streams. The method of stream crossings and the potential flood problems should be addressed in the impact statement.

d. Although the EIS would be a supplement to EPA's Mamala Bay Wastewater Treatment and Disposal System, sufficient information about the environmental setting to be impacted by the project should be provided. As stated on page 66 of the Final Environmental Statement, Mamala Bay Wastewater Treatment and Disposal System, Oahu, Hawaii, December 1973, "EPA will require a thorough environmental review of the entire Honouliuli Interceptor Sewer focusing on the Pearl Harbor area. It will be necessary to prove conclusively that no damage to critical wildlife habitat areas will take place."



PODED-P  
Mr. Hayashida

9 January 1976

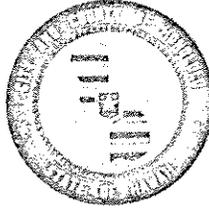
Thank you for the opportunity to review the EIS Preparation Notice. We would appreciate a copy of the EIS when it is available for review.

Sincerely yours,

  
for  
KISUK CHEUNG  
Chief, Engineering Division

DEPARTMENT OF PUBLIC WORKS,  
CITY AND COUNTY OF HONOLULU

HONOLULU, HAWAII 96813



FRANK F. FASI  
MAYOR

KAZU HAYASHIDA  
DIRECTOR AND CHIEF ENGINEER

February 9, 1976

SI 76-13

Mr. Kisuk Cheung, Chief  
Engineering Division  
U. S. Army Engineer District, Honolulu  
Department of the Army  
Building 230, Fort Shafter  
APO San Francisco 96558

Dear Mr. Cheung:

Subject: EIS Preparation Notice  
Honouliuli Interceptor Sewer System  
Reference to Your Letter PODEP-P,  
Dated January 9, 1976

Thank you for your review and comments on the subject EIS preparation notice.

Department of Army permits will be obtained wherever required for the construction of this sewer system in accordance with the requirements as stated in your reply.

Also, your comments regarding stream crossing methods, potential flood problems and detailed coverage of the environmental setting and impact on the environment will be considered and incorporated into the EIS.

Very truly yours,

A handwritten signature in cursive script, reading "Kazu Hayashida".

KAZU HAYASHIDA  
Director and Chief Engineer



Austin, Smith & Associates, Inc.  
Page 2  
December 6, 1972

HAR-ED  
1833

I regret that I must necessarily disapprove your above request.

Very truly yours,

*E. Alvey Dwight*  
FUJIO MATSUDA  
for Director

GEORGE R. ARIYOSHI  
GOVERNOR



RECEIVED  
DEPT. OF PUBLIC WORKS

E. ALVEY WRIGHT  
DIRECTOR

DEPUTY DIRECTORS

WALLACE AOKI  
RYOKICHI HIGASHIONNA  
DOUGLAS S. SAKAMOTO  
CHARLES O. SWANSON

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

JAN 25 10 19 AM '76

DIR [Signature]

DEP  
ENV CL  
Sewers & Storm  
Engineering [Signature]

IN REPLY REFER TO:

STP 8.3455

January 20, 1976

JAN 27 AM 10 09

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

Dear Mr. Hayashida:

Subject: EIS Preparation Notice,  
Honouliuli Interceptor Sewer System

In reference to the subject proposal, please coordinate your work on Fort Weaver Road with our plans to realign and widen this roadway.

Thank you for the opportunity to comment on this proposal.

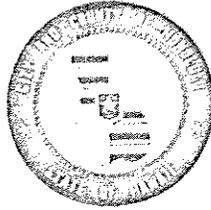
Sincerely,

[Signature of E. Alvey Wright]

E. ALVEY WRIGHT  
Director

DEPARTMENT OF PUBLIC WORKS  
CITY AND COUNTY OF HONOLULU

HONOLULU, HAWAII 96813



FRANK P. FASI  
MAYOR

KAZU HAYASHIDA  
DIRECTOR AND CHIEF ENGINEER

SD 76-54

February 6, 1976

Mr. E. Alvey Wright, Director  
Department of Transportation  
State of Hawaii  
869 Punchbowl Street  
Honolulu, Hawaii 96813

Dear Mr. Wright:

Subject: EIS Preparation Notice  
Honouliuli Interceptor Sewer System  
(Ref. to your letter, STP 8.3455, dated January 20, 1976)

Thank you for your comments to the subject preparation notice.

The proposed Honouliuli Interceptor Sewer will follow along Geiger Road and cross Fort Weaver Road. The realignment and widening of Fort Weaver Road will affect the interceptor sewer at the intersection of Geiger Road and Fort Weaver Road. We will coordinate our work at this intersection with your department.

The major portion of Ewa Beach Force Main will traverse along Fort Weaver Road. Because your project on Fort Weaver Road is uncertain at the present time, we have temporarily suspended the design of the force main. Please inform us of your current schedule for the Fort Weaver project, so that we may be able to reevaluate our schedule for the force main design.

Very truly yours,

A handwritten signature in cursive script, reading "Kazu Hayashida".

KAZU HAYASHIDA  
Director and Chief Engineer

RI:ew

*Handwritten notes:*  
P  
G  
J

George R. Ariyoshi  
GOVERNOR OF HAWAII



DIVISIONS:  
CONVEYANCES  
FISH AND GAME  
FORESTRY  
LAND MANAGEMENT  
STATE PARKS  
WATER AND LAND DEVELOPMENT

STATE OF HAWAII

DEPARTMENT OF LAND AND NATURAL RESOURCES

DIVISION OF FISH AND GAME  
1178 PUNCHBOWL STREET  
HONOLULU, HAWAII 96813

RECEIVED

JAN 8 1975

January 2, 1975

AUSTIN, SMITH & ASSOCIATES, INC.  
Honolulu, Hawaii 96813

Mr. William A. Bonnet  
Project Engineer  
Austin, Smith & Associates, Inc.  
Suite 900, 745 Fort Street Mall  
Honolulu, Hawaii 96813

Dear Mr. Bonnet:

This responds to your formal request for review and comment on the environmental impact of each of the five alternative alignments for transmission of wastewater from the existing Pearl City and Waipahu sewage pump stations to the future Honouliuli Sewage Treatment Plant site.

Enclosed are our comments from the fish and wildlife standpoints. These comments represent the views of the Division of Fish and Game and not necessarily those of the Department of Land and Natural Resources. We are responding directly since your request came directly to us.

If you have any questions or need clarification on our comments, please give us a call.

Yours truly,

  
MICHIO TAKATA, Director  
Division of Fish & Game

MT:rfm

encls.

State of Hawaii  
Department of Land and Natural Resources  
Division of Fish and Game

MEMORANDUM

Date January 2, 1975

TO: Michio Takata, Director, Division of Fish and Game

THROUGH: Kenji Ego, Chief, Fisheries Branch/Henry Sakuda, Marine Section Chief

FROM: Michael Fujimoto, Aquatic Biologist

SUBJECT: Comments on 1. Conservation District Use Application  
2. Corps of Engineers Public Notice No.  
x 3. Letter Requesting Comments

Comment Requested by Austin, Smith & Associates, Inc. Date of Request 12/10/74 Date Rec'd 12/12/74

Summary of Proposed Project

Title Transmission of Wastewater from the existing Pearl City and Waipahu Sewage Pump Stations to the future Honouliuli Sewage Treatment Plant.

Project by City and County of Honolulu

Location Pearl Harbor

Brief Description Austin, Smith & Associates, Inc., as consultant to the City and County of Honolulu, is requesting comments on the environmental effects of five alternate routes (Alternates A, B, C, D, & E) for the sewage transmission force main from Pearl City and Waipahu to the proposed Honouliuli Sewage Treatment Plant.

The alignments for all five alternate routes will cross West Loch, Pearl Harbor at its mouth. In addition to the West Loch crossing the alignments for Alternates C, D, & E cross Middle Loch. Alternates A & B route the force main around Middle Loch, with Alternate A following the State Energy Corridor to the Waipahu pump station and Alternate B running along Middle Loch's western shore for approximately 3,000 feet before crossing the Waipio Peninsula.

COMMENTS

1. Comments for this proposed project were previously submitted; refer to:

Memo to Michio Takata  
January 2, 1975  
Page Two

Austin, Smith & Associates, Inc. letter requesting comments on Transmission of Wastewater from the existing Pearl City and Waipahu Sewage Pump Stations to the future Honouliuli Sewage Treatment Plant. Project by City and County of Honolulu.

The only foreseeable effects to any fisheries values will come when the force main crosses the waters of Pearl Harbor. Here (at crossings) there will be disturbances to the bottom and temporary turbidity due to trenching during construction. After the force main is in operation, the possibility exists of water contamination due to pipe failure. On this basis, Alternates C, D, & E are the more undesirable of the five alternates. Beside the West Loch crossing common to all five alternates, Alternates C, D, & E, each have an additional crossing at Middle Loch, a productive habitat for shellfish and finned fishes. Of Alternates A & B, we favor Alternate A since it follows an inland route along the Energy Corridor thereby lessening the chance of contaminants entering Pearl Harbor.

The applicant states that this letter is a formal request for review and comment on the environmental impact of the five alternative alignments proposed. Inasmuch as the department makes final review and comments on all proposed projects, the applicant should be notified of this procedure.

  
MICHAEL FUJIMOTO

CONCUR:

---

MICHIO TAKATA, Director  
Division of Fish & Game



STATE OF HAWAII  
DEPARTMENT OF LAND AND NATURAL RESOURCES

DIVISION OF FISH AND GAME  
1179 PUNCHBOWL STREET  
HONOLULU, HAWAII 96813

January 2, 1975

MEMORANDUM

TO: Michio Takata, Director, Division of Fish & Game

FROM: Ronald L. Walker, Chief, Wildlife Branch

SUBJECT: Honouliuli Interceptor Sewage System: Environmental Impact of Alternative Alignments

Although much depends upon the precise alignment of the line in relation to wildlife habitat, judging from the maps, there will be minimal impact on wildlife values. Generally, the shorter the line the better, as less habitat will be disrupted. It appears that Alternates A, B, C and D (Exhibits II-1, II-2, II-3 and II-4) all pass close to the wildlife refuge on Pearl City Peninsula. However, assuming that there are fail-safe precautions taken to prevent leakage of effluent into the water table in this vicinity, no adverse impacts should be expected. Clearing of exotic vegetation including mangrove will cause a temporary disruption of bird life (primarily exotic) which will eventually be restored with regrowth of the plants over the filled-in trench. Depending upon how close the ditch passes to the edge of the water, endangered species such as the coot and stilt, indigenous species such as the black-crowned night heron and exotic beneficial species such as the cattle egret may be temporarily disturbed.

Alternative A - This is one of the shorter routes and as such should cause less disturbance than the more circuitous alignments. It does not pass directly through critical wildlife habitat.

Alternative B - Less desirable as it is a longer route, but minimal impact on wildlife values can be expected.

Alternative C - This alignment crosses water and avoids the edge of Middle Loch which would lessen the impact there, but might present problems of correcting leaks underwater and possible contamination of the waters of Middle Loch.

Alternative D - (See comments for Alternative C.)

Memo to Michio Takata  
January 2, 1975  
Page Two

SUBJECT: Honouliuli Interceptor Sewage System: Environmental Impact of  
Alternative Alignments

Alternative E - (See comments for Alternative C.) As this route borders the edge of a drainage at the extreme eastern end of the alignment it might cause significant disruption to wildlife habitat there, but avoids the wildlife refuge.

From a wildlife habitat standpoint, Alternative A seems to be the preferable route.

We should reserve the prerogative of reviewing detailed schematics of actual construction before making a final judgement.

  
\_\_\_\_\_  
RONALD L. WALKER

CONCUR:

\_\_\_\_\_  
MICHIO TAKATA, Director  
Division of Fish & Game

George R. Ariyoshi  
XXXXXXXXXXXX  
GOVERNOR OF HAWAII



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

DIVISIONS:  
CONVEYANCES  
FISH AND GAME  
FORESTRY  
LAND MANAGEMENT  
STATE PARKS  
WATER AND LAND DEVELOPMENT

February 7, 1975

Mr. William A. Bonnet  
Project Engineer  
Austin, Smith & Associates, Inc.  
Suite 900, 745 Fort Street  
Honolulu, Hawaii 96813

Dear Mr. Bonnet:

SUBJECT: EIS for Honouliuli Interceptor Sewer System

Since this project is within the boundaries of a historic property on the Hawaii and National registers of historic places, and since a Corps of Engineers permit will be required because navigable waters are involved, any alternative route chosen will have to comply with Chapter 6, HRS and with the Advisory Council on Historic Preservation's Policies and Procedures for Protection of Properties on the National Register (Section 106).

It is the Federal Agency's responsibility to initiate these protection procedures as outlined in 36CFR800. I foresee no difficulties inherent in the project itself but it is most advisable that this consideration and consultation be initiated as early in the project planning as possible.

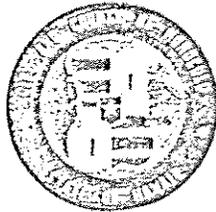
Thank you for this opportunity to review this project.

✓  
Very truly yours,

CHRISTOPHER COBB  
Historic Preservation Officer  
State of Hawaii

DEPARTMENT OF PUBLIC WORKS  
CITY AND COUNTY OF HONOLULU

HONOLULU, HAWAII 96813



FRANK F. FASI  
MAYOR

KAZU HAYASHIDA  
DIRECTOR AND CHIEF ENGINEER

February 18, 1976

SD 76-82

Mr. Christopher Cobb  
Chairman of the Board  
Department of Land and Natural Resources  
State of Hawaii  
P. O. Box 621  
Honolulu, Hawaii 96809

Dear Mr. Cobb:

Subject: EIS Preparation Notice For The  
Honouliuli Interceptor Sewer System  
Reference To Your Letter Dated February 2, 1976

Thank you for reviewing and commenting on the subject preparation notice.

The EIS will discuss the alternative routes for the interceptor sewer in further detail and present arguments for the chosen route in terms of both economics and the environment.

The indirect effects of dredging through West Loch will be addressed in the EIS as well as the locations of oyster beds and the probable effects on them.

Effects of construction on the flora and fauna in the intertidal areas such as Middle Loch and the construction methods to minimize the adverse effects will be described in the EIS.

Very truly yours,

A handwritten signature in cursive script, appearing to read "Kazu Hayashida".

For KAZU HAYASHIDA  
Director and Chief Engineer

76 00781  
*[Handwritten initials]*

GEORGE R. ARIYOSHI  
GOVERNOR OF HAWAII



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CHRISTOPHER COBB, CHAIRMAN  
BOARD OF LAND & NATURAL RESOURCES

EDGAR A. HAMASU  
DEPUTY TO THE CHAIRMAN

TO  
STATE OF HAWAII

DIR  
DEP'S

DEPARTMENT OF LAND AND NATURAL RESOURCES

DIVISIONS:  
CONVEYANCES  
FISH AND GAME  
FORESTRY  
LAND MANAGEMENT  
STATE PARKS  
WATER AND LAND DEVELOPMENT

P. O. BOX 621

HONOLULU, HAWAII 96809

ENVU  
Sewers  
*[Handwritten signature]*

February 2, 1976

REC'D  
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RECEIVED

Honorable Kazu Hayashida  
Department of Public Works  
Honolulu Hale  
Honolulu, Hawaii 96813

Dear Mr. Hayashida:

We have reviewed the EIS preparation notice for the Honouliuli Interceptor Sewer System.

Although the system will affect a property on the State and National Registers of Historic Sites (Pearl Harbor), the effect does not appear to be adverse.

The notice presents five alternate routes. From the standpoint of fish and wildlife interests, alternate route A is preferred because the route is overland. There would, therefore, be less disturbance of aquatic habitat. Moreover, in the event of a rupture, environmental damage would be less severe and less widespread. Leaks would be easier to detect, to contain, and to clean up.

Page 7, paragraph 2, states that there will be no direct destruction of desirable organisms resulting from dredging an alignment through West Loch. We suggest consideration be given to indirect effects on desirable marine organisms. Such effects would include disruption of habitat, of reproductive patterns or of the food chains of desirable organisms.

Page 8, paragraph 1 concludes that "little, if any, measurable reduction of the oyster beds will result from these activities." This conclusion is not supported by any data or analysis. There is, for example, no data on oyster distribution in West Loch and no estimates of oyster populations in the area to be dredged. Consideration should also be given to the effect of dredging on nehu and other fish in West Loch.

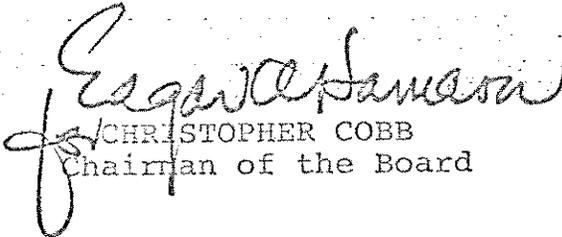
Hon. Kazu Hayashida

-2-

February 2, 1976

Somewhere near page 10, paragraph 2, there should be included an assessment of the direct and indirect effects of dredging and excavation on the flora and fauna inhabiting the Middle Loch shoreline.

Sincerely,

  
CHRISTOPHER COBB  
Chairman of the Board

cc: Fish & Game  
Historic Sites  
DOWALD

GEORGE R. ARIYOSHI  
GOVERNOR



STATE OF HAWAII  
OFFICE OF ENVIRONMENTAL QUALITY CONTROL  
OFFICE OF THE GOVERNOR  
550 HALEKAUWILA ST.  
ROOM 301  
HONOLULU, HAWAII 96813  
January 6, 1976

76 00105

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DEPT. OF PUBLIC WORKS

JAN 8 8 29 AM '76  
TELEPHONE NO. 521-5515

TO DIR  
DEP

ENVI  
Services  
Chief  
Engineering

*[Handwritten initials]*

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DIV. OF SERVICES

76 JAN -9 AM 10 13

Kazu Hayashida  
Director and Chief Engineer  
Department of Public Works  
City and County of Honolulu

SUBJECT: CONSULTATION PROCESS - Environmental Impact Statement  
for the Proposed Honouliuli Interceptor Sewer System

Dear Mr. Hayashida, *Kazu*

We appreciate your request for our comments as consultant in the preparation of this EIS. Mr. Harry Akagi, Environmental Planner, will serve as consultant for us on this subject.

You recognize, of course, that this Office is required to evaluate the EIS in terms of complying with Chapter 343, H.R.S. Mr. Akagi's consultation does not constitute an abridgment of that responsibility which will be accomplished by other staff people when the statement is submitted for review.

Thank you for this opportunity to assist in this process.

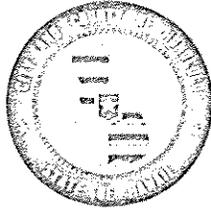
Sincerely,

*[Signature]*

Richard E. Marland  
Director

DEPARTMENT OF PUBLIC WORKS,  
CITY AND COUNTY OF HONOLULU

HONOLULU, HAWAII 96813



FRANK F. FASI  
MAYOR

KAZU HAYASHIDA  
DIRECTOR AND CHIEF ENGINEER

February 9, 1976

SD 76-66

Dr. Richard E. Marland, Director  
Office of Environmental Quality Control  
Office of the Governor  
State of Hawaii  
Room 301  
550 Halekauwila Street  
Honolulu, Hawaii 96813

Dear Dr. Marland:

Subject: EIS Preparation Notice  
Honouliuli Interceptor Sewer System  
Ref. to your letter dated January 6, 1976

Thank you for your reply concerning the subject EIS preparation notice.

We anticipate working closely with your staff in preparing the EIS to comply with the requirements set forth in Chapter 343, H.R.S.

Very truly yours,

A handwritten signature in cursive script, appearing to read "Kazu Hayashida".

KAZU HAYASHIDA  
Director and Chief Engineer

TT:124

76 01037

*Handwritten initials*

GEORGE R. ARIYOSHI  
GOVERNOR OF HAWAII



RECEIVED  
DEPT. OF PUBLIC WORKS

GEORGE A. L. YUEN  
DIRECTOR OF HEALTH

Audrey W. Mertz, M.D., M.P.H.  
Deputy Director of Health

Henry N. Thompson, M.A.  
Deputy Director of Health

James S. Kumagai, Ph.D., P.E.  
Deputy Director of Health

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

FEB 19 8 24 AM '76  
*ENVU*

*Sewers & Emory*

February 12, 1976

In reply, please refer to:  
File: EPHS 155

FEB 19 PM 2 46

RECEIVED  
DIV. OF HEALTH

Mr. Kazu Hayashida  
Director and Chief Engineer  
Department of Public Works  
City & County of Honolulu  
Honolulu, Hawaii 96813

Dear Mr. Hayashida:

Subject: Request for Comments on Proposed Environmental Impact Statement (EIS) for Honouliuli Interceptor Sewer System

Thank you for allowing us to review and comment on the subject proposed EIS. Please be informed that we have no comments or objections to this project at this time.

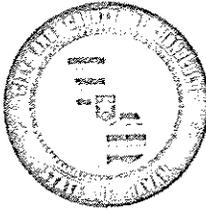
We realize that the statements are general in nature due to preliminary plans being the sole source of discussion. We, therefore, reserve the right to impose future environmental restrictions on the project at the time final plans are submitted to this office for review.

Sincerely,

*James S. Kumagai*  
JAMES S. KUMAGAI, Ph.D.  
Deputy Director for  
Environmental Health

DEPARTMENT OF PUBLIC WORKS  
CITY AND COUNTY OF HONOLULU

HONOLULU, HAWAII 96813



FRANK F. FASI  
MAYOR

KAZU HAYASHIDA  
DIRECTOR AND CHIEF ENGINEER

February 24, 1976

SD 76-97

Dr. James S. Kumagai  
Deputy Director for Environmental Health  
Department of Health  
State of Hawaii  
P. O. Box 3378  
Honolulu, Hawaii 96801

Dear Dr. Kumagai:

Subject: EIS Preparation Notice for  
Honouliuli Interceptor Sewer System  
Reference To Your Letter File EPHS-SS,  
Dated February 12, 1976

We appreciate your review of the subject EIS preparation  
notice. Thank you.

Very truly yours,

A handwritten signature in cursive script, appearing to read "Wallace M. Hayashida".

For KAZU HAYASHIDA  
Director and Chief Engineer

TT:sn

Handwritten initials, possibly "EF".

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RECEIVED

DEC 19 1974

University of Hawaii at Manoa

AUSTIN, SMITH & ASSOCIATES, INC.  
Honolulu, Hawaii 26813

Environmental Center  
Maile Bldg. 10 • 2540 Maile Way  
Honolulu, Hawaii 96822  
Telephone (808) 948-7361

Office of the Director

December 16, 1974

Mr. William A. Bonnet  
Austin, Smith & Associates  
745 Fort St. Mall, Suite 900  
Honolulu, HI 96813

Dear Mr. Bonnet:

We are complimented by your request #1568.4E of 10 December 1974 for review of alternative alignments for the Honouliuli Interceptor Sewer System and for comments on the probable environmental impacts associated with these alternatives. With some regret I must inform you that, as matters now stand, the Environmental Center will not participate in the consultative phase of the development of Environmental Impact Statements that is provided in the new regulations of the Environmental Quality Commission. We will be available later to review selected EIS's in the formal review phase.

Our reasons for establishing this policy are that, by engagement in the consultative phase, we would be in competition with professional consultants like your organization. You may be interested in the fuller discussion of the problems presented by the new EIS system contained in the enclosed statement for the 27 November EQC hearing. The problems associated with the consultative phase are on pp. 9-10 of the statement.

Until the EQC publishes its final rules and regulations and makes further decisions as to the appropriate role of the Environmental Center, our policy on engagement in the EIS system must be considered tentative. Should they change within the period allocated to the consultative phase of the Honouliuli Interceptor EIS we will let you know.

We are, of course, pleased that planning is proceeding on this very important sewerage project.

Yours very truly,

  
Doak C. Cox  
Director

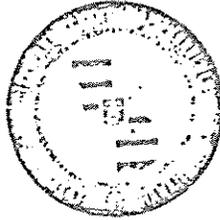
DEPARTMENT OF RECREATION  
CITY AND COUNTY OF HONOLULU.

1455 SOUTH BERETANIA STREET  
HONOLULU, HAWAII 96814

#1566 ✓

YOUNG SUK K  
DIRECTOR

RAMON DURAN  
DEPUTY DIRECTOR



RECEIVED

RANK F  
MAYOR  
PAUL DEVENS  
MANAGING DIRECTOR

FEB 21 1975

AUSTIN, SMITH & ASSOCIATES, INC.  
Honolulu, Hawaii 96813

February 20, 1975

Mr. Frank E. Sylvester  
Regional Director  
Bureau of Outdoor Recreation  
U.S. Department of Interior  
450 Golden Gate Avenue  
San Francisco, California 94102

Dear Mr. Sylvester:

SUBJECT: FEDERAL APPROVAL OF HAWAII SEWER LINE EASEMENT  
ALONG UPPER BOUNDARY OF TED MAKALENA GOLF COURSE

The City and County of Honolulu has conducted a route study for its proposed Pearl City to Honouliuli interceptor sewer line through its engineering consultant, Austin, Smith and Associates, Inc.

The preferred force main alignment, II-1 (attached plan), will enter the golf course immediately after crossing Waipio Point Access Road and will remain just inside the northern fence line and adjacent to and south of the proposed energy corridor easement. For the latter, please refer to our request of May 14, 1974.

Although the fence is expected to be removed during construction for access from the service road, a temporary fence will be constructed between the trench and golf course which will allow all holes to remain playable during construction. Once construction is completed, the contractor will restore the ground cover to its original condition and replace the fence.

The alignment shown in Exhibit II-1 was recommended in the Master Plan Report based on economic and engineering considerations. In

Mr. Sylvester

-2-

February 20, 1975

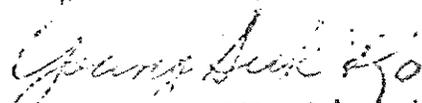
all cases, the excavated trench will be approximately twelve feet in width and when completed will provide a minimum three-foot depth of cover over the pipeline.

The force main shall be a dual pipe (33" and 39" diameter) system using concrete cylinder pipe except for underwater crossings where ductile iron will be used. The dual pipe system, in addition to giving hydraulic flexibility over the 45-year design period (through year 2020), provides "environmental insurance" against degradation in the remote possibility that there would be failure of one of the lines.

The Department of Parks and Recreation has discussed the sewer alignment with the consultant and the City and County Division of Sewers and has no objection to the easement as it does not affect Ted Makalena Golf Course. The line will lie within the golf course boundaries only along the western half of the property line. It has been determined that no facilities will have to be moved, nor will there be any permanent adverse effect on the utility of the course.

Your assistance is encouraged to obtain an early approval of both this easement and the energy corridor.

Sincerely,

  
YOUNG SUK KO, Director

Attach.

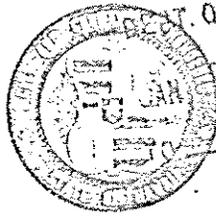
cc: Department of Planning and  
Economic Development  
Department of Public Works  
✓ Austin, Smith and Associates, Inc.  
Kenneth Nam

DEPARTMENT OF PARKS AND RECREATION  
CITY AND COUNTY OF HONOLULU

650 SOUTH KING STREET  
HONOLULU, HAWAII 96813

76 00062  
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FRANK F. FASI  
MAYOR



RECEIVED  
DEPARTMENT OF PUBLIC WORKS

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ENV 24

*Sewers  
Engineering Br*

YOUNG SUK KO  
DIRECTOR

January 5, 1976

MEMORANDUM

TO : KAZU HAYASHIDA, DIRECTOR AND CHIEF ENGINEER  
DEPARTMENT OF PUBLIC WORKS

FROM : YOUNG SUK KO, DIRECTOR

SUBJECT: ENVIRONMENTAL IMPACT STATEMENT PREPARATION  
NOTICE, PROPOSED HONOULIULI INTERCEPTOR  
SEWER SYSTEM

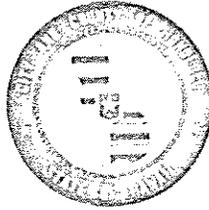
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DIV. OF STREETS  
JAN - 6 PM 3 35

We have reviewed the subject notice and have determined that the proposed project will have no long-term adverse effects on the use or appearance of Ted Makalena Golf Course.

*Young Suk Ko*  
YOUNG SUK KO, Director

DEPARTMENT OF PUBLIC WORKS  
CITY AND COUNTY OF HONOLULU

HONOLULU, HAWAII 96813



FRANK F. FASI  
MAYOR

KAZU HAYASHIDA  
DIRECTOR AND CHIEF ENGINEER

SD 76-59

February 6, 1976

TO: Mr. Young, Suk Ko, Director  
Department of Parks and Recreation

FROM: Kazu Hayashida, Director and Chief Engineer

SUBJECT: Environmental Impact Statement Preparation Notice  
for the Proposed Honouliuli Interceptor Sewer System  
(Reference: Your Memo dated January 5, 1976)

Thank you for reviewing and commenting on the subject EIS  
Preparation Notice.

Your comments regarding the Ted Makalena Golf Course will  
be incorporated into the EIS.

A handwritten signature in cursive script, appearing to read "Kazu Hayashida".

KAZU HAYASHIDA  
Director and Chief Engineer

TT:jy

Handwritten initials, possibly "CJ", written in a cursive style.

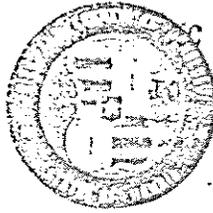
DEPARTMENT OF HOUSING AND COMMUNITY DEVELOPMENT  
CITY AND COUNTY OF HONOLULU

650 SOUTH KING STREET  
HONOLULU, HAWAII 96813  
PHONE 523-  
DEPT. OF PUBLIC WORKS

75 18382  
Design & Com.  
P4PS

FRANK F. FASI  
MAYOR

RICHARD K. SHARPLESS  
MANAGING DIRECTOR



DEC 19 2 17 PM '75  
ENV

WILLIAM BLACKFIELD  
DIRECTOR

TYRONE T. KUSAO  
DEPUTY DIRECTOR

Sewers

75 DEC 22 AM 9 04

RECEIVED  
ENV. DEPT.

December 17, 1975

Mr. Kazu Hayashida  
Director and Chief Engineer  
Department of Public Works  
City and County of Honolulu  
Honolulu, Hawaii

Dear Mr. Hayashida:

Subject: EIS Preparation Notice for the  
Proposed Honouliuli Interceptor  
Sewer System

Thank you for allowing us to review and comment  
on the subject EIS preparation notice. We have no  
objections to this project.

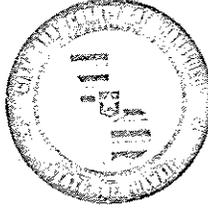
Since there will be no relocation of residences  
and businesses, the proposed project will not increase  
our relocation services or affect this Agency's  
program.

Sincerely,

WILLIAM BLACKFIELD  
Director

DEPARTMENT OF PUBLIC WORKS  
CITY AND COUNTY OF HONOLULU

HONOLULU, HAWAII 96813



FRANK F. FASI  
MAYOR

KAZU HAYASHIDA  
DIRECTOR AND CHIEF ENGINEER

SD 76-57

February 6, 1976

TO: Mr. William Blackfield, Director  
Department of Housing and Community Development

FROM: Kazu Hayashida, Director and Chief Engineer

SUBJECT: Environmental Impact Statement Preparation Notice  
for the Proposed Honouliuli Interceptor Sewer System  
(Reference: Your Letter dated December 17, 1975)

Thank you for reviewing and commenting on the subject EIS  
Preparation Notice.

A handwritten signature in cursive script, appearing to read "Kazu Hayashida".

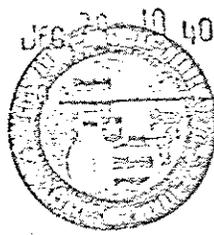
KAZU HAYASHIDA  
Director and Chief Engineer

TT:jy

Handwritten initials, possibly "CWF", written in a cursive style.

DEPARTMENT OF LAND UTILIZATION  
CITY AND COUNTY OF HONOLULU

RECEIVED  
DEPT. OF PUBLIC WORKS  
650 SOUTH KING STREET  
HONOLULU, HAWAII 96813



JFS 28-10 40 AM '75

ENV (cy)  
Sewers

75 18525  
Chief Engineer  
P & P's

GEORGE S. MORIGUCHI  
DIRECTOR

FRANK F. FASI  
MAYOR

LU12/75-3828  
(JW)

December 26, 1975

MEMORANDUM

TO : KAZU HAYASHIDA, DIRECTOR AND CHIEF ENGINEER  
DEPARTMENT OF PUBLIC WORKS

FROM : WILLIAM E. WANKET, ACTING DIRECTOR OF LAND  
UTILIZATION

SUBJECT : EIS PREPARATION NOTICE FOR PROPOSED HONOULIULI  
INTERCEPTOR SEWER SYSTEM

DEC 29 PM 2 55

Major portions of the proposed interceptor line fall within the Special Management Area and will require an SMA permit under the Interim Shoreline Protection District Ordinance. Preliminary requirements will be fulfilled by following Chapter 343, HRS, procedures. Subsequent to acceptance of the EIS, an SMA permit application must be filed with this department.

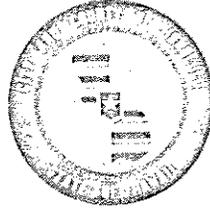
We have no further comments to make on the EIS Preparation Notice itself. We appreciate your consulting us.

WILLIAM E. WANKET  
Acting Director

WEW:rh

DEPARTMENT OF PUBLIC WORKS  
CITY AND COUNTY OF HONOLULU

HONOLULU, HAWAII 96813



FRANK F. FASI  
MAYOR

KAZU HAYASHIDA  
DIRECTOR AND CHIEF ENGINEER

February 6, 1976

TO: Mr. George S. Moriguchi, Director  
Department of Land Utilization

FROM: Kazu Hayashida, Director and Chief Engineer

SUBJECT: Environmental Impact Statement Preparation Notice  
for the Proposed Honouliuli Interceptor Sewer System  
(Reference: Your Memo LUL2/75-3828(JW)  
dated December 26, 1975)

Thank you for reviewing and commenting on the subject EIS preparation notice.

The SMA Permit Application mentioned in your reply will be filed at a later date.

  
KAZU HAYASHIDA  
Director and Chief Engineer

TT:jy



DEPARTMENT OF GENERAL PLANNING  
CITY AND COUNTY OF HONOLULU

650 SOUTH KING STREET  
HONOLULU, HAWAII 96813

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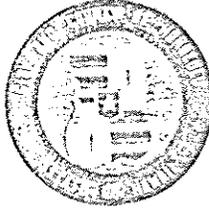
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RECEIVED  
DEPT. OF PUBLIC WORKS

FRANK F. FASI  
MAYOR

ROBERT R. WAY  
CHIEF PLANNING OFFICER

JAN 2 10 16 AM '76  
TO \_\_\_\_\_  
DIR



DGP12/75-3118 (BN)

DEP  
and  
Sewer  
Engineering

December 31, 1975

JAN - 5 AM 9 05

MEMORANDUM

TO : MR. KAZU HAYASHIDA, DIRECTOR AND CHIEF ENGINEER  
DEPARTMENT OF PUBLIC WORKS

FROM : ROBERT R. WAY, CHIEF PLANNING OFFICER

SUBJECT: EIS PREPARATION NOTICE FOR THE PROPOSED  
HONOULIULI INTERCEPTOR SEWER SYSTEM

Thank you for the opportunity to review the above-captioned material.

The existing Kunia Sewage Pump Station site is designated for Industrial use on the General Plan map and zoned R-6 Residential. In a somewhat similar situation involving the Sand Island Sewer Treatment Plant site, the Corporation Counsel advised in Advisory M72-69 that an amendment to the General Plan was not necessary to accommodate that facility. Thus, it can reasonably be concluded that an amendment to the General Plan is not required for the Kunia Sewage Pump Station site. However, should there be any residual confusion regarding this conclusion I am sure the Office of Corporation Counsel will clarify the situation.

Conformance to the General Plan for the proposed Honouliuli Sewage Pump Station cannot be determined until a definite site is selected.

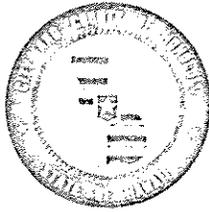
In summary, we concur with the EIS outline and findings as presented.

ROBERT R. WAY  
Chief Planning Officer

RRW:co

DEPARTMENT OF PUBLIC WORKS,  
CITY AND COUNTY OF HONOLULU

HONOLULU, HAWAII 96813



FRANK F. FASI  
MAYOR

KAZU HAYASHIDA  
DIRECTOR AND CHIEF ENGINEER

SD 76-67

February 9, 1976

Mr. Robert R. Way, Chief Planning Officer  
Department of General Planning  
City and County of Honolulu  
650 South King Street  
Honolulu, Hawaii 96813

Dear Mr. Way:

Subject: EIS Preparation Notice  
Honouliuli Interceptor Sewer System  
Ref. to your memo DGP 12/75-3118(BN), dated  
December 31, 1975.

Thank you for reviewing and commenting on the subject EIS preparation statement. Your comments regarding conformance to the General Plan are appreciated.

Very truly yours,

A handwritten signature in cursive script, appearing to read "Kazu Hayashida".

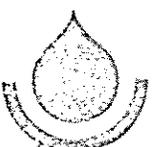
KAZU HAYASHIDA  
Director and Chief Engineer

TT:mv

DEPT. OF WATER SUPPLY  
CITY AND COUNTY OF HONOLULU  
30 SOUTH BERETANIA  
POST OFFICE BOX 3410  
HONOLULU, HAWAII 96843

RECEIVED  
DEPT. OF PUBLIC WORKS

JAN 9 1 47 PM '76



TO ENVIRONMENTAL  
Sewer

FRANK F. FASI, Mayor  
STANLEY S. TAKAHASHI, Chairman  
YOSHIE H. FUJINAKA, Vice Chairman  
KAZU HAYASHIDA  
WALTER D. HOWARD  
TERESITA R. JUBINSKY  
E. ALVEY WRIGHT

EDWARD Y. HIRATA  
Manager and Chief Engineer

AF  
91  
RD

January 5, 1976

Mr. Kazu Hayashida  
Director and Chief Engineer  
Department of Public Works  
City and County of Honolulu  
Honolulu, Hawaii 96813

Dear Mr. Hayashida:

SUBJECT: Environmental Impact Statement  
Preparation Notice for the Proposed  
Honouliuli Interceptor Sewer System

We have reviewed the environmental impact statement preparation notice and recommend that the proposed design and construction activities be coordinated with our Engineering Division to assure protection of the water mains that may be affected by the project.

Aside from this, the proposed project is not anticipated to adversely affect potable groundwater resources in the area.

Thank you for allowing us to review and comment on this matter. If further information is required, please contact Mr. Lawrence Whang at 548-5221.

Very truly yours,

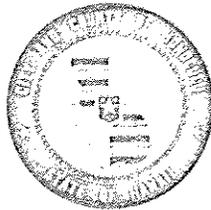
EDWARD Y. HIRATA  
Manager and Chief Engineer

76 JAN 12 AM 9 08

RECEIVED  
DIV. OF SEWER

DEPARTMENT OF PUBLIC WORKS,  
CITY AND COUNTY OF HONOLULU

HONOLULU, HAWAII 96813



FRANK F. FASI  
MAYOR

KAZU HAYASHIDA  
DIRECTOR AND CHIEF ENGINEER

SD 76-65

February 9, 1976

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

Dear Mr. Hirata:

Subject: EIS Preparation Notice  
Honouliuli Interceptor Sewer System  
Ref. to your letter dated January 6, 1976

Thank you for reviewing the subject notice.

The design and construction of this sewer system will be coordinated with your Engineering Division as recommended by you.

Very truly yours,

A handwritten signature in cursive script, appearing to read "Kazu Hayashida".

KAZU HAYASHIDA  
Director and Chief Engineer

TT:DW

DEPARTMENT OF TRANSPORTATION SERVICES  
CITY AND COUNTY OF HONOLULU

HONOLULU MUNICIPAL BUILDING  
650 SOUTH KING STREET  
HONOLULU, HAWAII 96813

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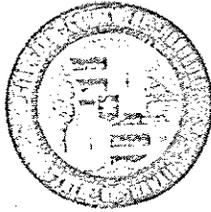
ENVU

GEORGE C. VILLEGAS  
DIRECTOR

81

Sewers  
Chief of Dept  
Engineering

TE 12/75-1620



January 8, 1976

FRANK F. FASE  
MAYOR

MEMORANDUM

TO : KAZU HAYASHIDA, DIRECTOR AND CHIEF ENGINEER  
DEPARTMENT OF PUBLIC WORKS

FROM : GEORGE C. VILLEGAS, DIRECTOR  
DEPARTMENT OF TRANSPORTATION SERVICES

SUBJECT: ENVIRONMENTAL IMPACT STATEMENT FOR THE PROPOSED  
HONOULIULI INTERCEPTOR SEWER SYSTEM

The Department of Transportation Services recommends that the EIS place emphasis on provisions for temporary access routes to the work areas during construction to prevent traffic congestion on the surrounding streets.

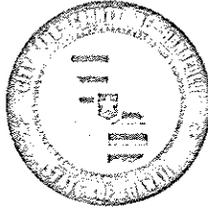
GEORGE C. VILLEGAS  
Director

76 JAN - 9 AM 10 13

RECEIVED  
DIV. OF SERVICES

DEPARTMENT OF PUBLIC WORKS,  
CITY AND COUNTY OF HONOLULU

HONOLULU, HAWAII 96813



FRANK F. FASI  
MAYOR

KAZU HAYASHIDA  
DIRECTOR AND CHIEF ENGINEER

SD 76-68

February 9, 1976

Mr. George C. Villegas, Director  
Department of Transportation Services  
City and County of Honolulu  
650 South King Street  
Honolulu, Hawaii 96813

Dear Mr. Villegas:

Subject: EIS Preparation Notice  
Honouliuli Interceptor Sewer System  
Ref. to your memo TE 12/75-1620,  
dated January 8, 1976.

Thank you for reviewing and commenting on the subject EIS preparation notice.

Temporary access routes to the work areas will be provided during construction as recommended by you.

Very truly yours,

A handwritten signature in cursive script, reading "Kazu Hayashida".

KAZU HAYASHIDA  
Director and Chief Engineer

TT:ew

Chevron

Standard Oil Company of California,  
Western Operations, Inc.  
P. O. Box 3319, Honolulu, HI 96801

Manufacturing Department  
Hawaiian Refinery  
L. P. Morris  
Manager  
J. C. Kirk  
Process Superintendent

February 8, 1973

SOCO PIPELINE EASEMENTS FROM  
DEPOT STREET TO LEHUA AVENUE  
FILE: 074.

Mr. William Bonnet  
Austin Smith & Associates, Inc.  
745 Fort Street, Suite 900  
Honolulu, HI 96813

Dear Mr. Bonnet:

This letter is to confirm the discussion of your meeting with our Messrs. W. C. Nielsen and R. L. Silva on February 7, 1973, incident to your proposed new sewer line from Depot Street to Lehua Avenue.

The route of Standard Oil Company's pipelines as shown on Sheet 4 of State of Hawaii, Department of Transportation, Harbors Division, Right of Way Map, Energy Corridor, Section II, Waipahu Industrial Park to Lehua Avenue, appears to be in error. To the best of our knowledge, our pipelines are located within our 15' wide easement and not as shown on Sheet 4.

Very truly yours,

  
L. P. MORRIS

RLS:lly



Standard Oil Company of California,  
Western Operations Inc.  
P. O. Box 3319, Honolulu, HI 96801

RECEIVED  
DEPT. OF PUBLIC WORKS

JAN 28 1 52 PM '76

January 27, 1976

ENV 111  
Sewers

Chief -  
Asst. Ch.  
Engineering

Manufacturing Department  
Hawaiian Refinery  
W. E. Dunn  
Manager

HONOULIULI SEWER SYSTEM  
FILE: 074.

Department of Public Works  
City and County of Honolulu  
Honolulu, HI 96813

Attention Mr. Kazu Hayashida

Gentlemen:

Subject: Environmental Impact Statement for the Proposed Honouliuli  
Interceptor Sewer System.

Listed below are comments regarding the Honouliuli Interceptor Sewer  
System:

1. Standard Oil Company must have 24 hour access on the roadway during installation of the Pearl City to Waipahu Sewer line and the Makakilo Interceptor Sewer line along Barbers Point NAS fence line.
2. Standard Oil Company easements must be clear of all stored materials and equipment.

We patrol our right of way daily and in case an emergency, necessary work must be done immediately.

If you wish to discuss this matter further, please contact Mr. Fred Choy at 682-5711.

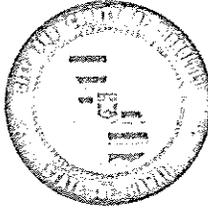
Very truly yours,

W. E. DUNN

FQYC:llly

CITY AND COUNTY OF HONOLULU

HONOLULU, HAWAII 96813



FRANK F. FASI  
MAYOR

KAZU HAYASHIDA  
DIRECTOR AND CHIEF ENGINEER

SD 76-55

February 6, 1976

Mr. W. E. Dunn, Manager  
Manufacturing Department  
Hawaiian Refinery  
Standard Oil Company of California  
Western Operations, Inc.  
P. O. Box 3319  
Honolulu, Hawaii 96801

Dear Mr. Dunn:

Subject: Environmental Impact Statement  
Preparation Notice for the Proposed  
Honouliuli Interceptor Sewer System  
(Reference: Your Letter File:074  
dated January 27, 1976)

Thank you for reviewing and commenting on the  
subject EIS Preparation Notice.

Your requirements on having 24-hour access on the  
roadway along the Barbers Point NAS fence line and for  
keeping your easements clear of equipment and materials  
during construction will be covered in the plans and  
specifications.

Very truly yours,

A handwritten signature in cursive script, appearing to read "Kazu Hayashida".

KAZU HAYASHIDA

Director and Chief Engineer

TT:jy

Handwritten initials, possibly "AM", in a stylized cursive font.

RECEIVED

OAHU SUGAR COMPANY LTD.

DEC 20 1974

AN Amfac COMPANY

P.O. BOX "O"  
WAIPAHU, HAWAII 96797  
TELEPHONE 677-3577

AUSTIN, SMITH & ASSOCIATES, INC.

Honolulu, Hawaii 96813 December 17, 1974

Mr. William A. Bonnet  
Project Engineer  
AUSTIN, SMITH & ASSOCIATES, INC.  
Suite 900, 745 Fort Street Mall  
Honolulu, HI 96813

Dear Mr. Bonnet:

We have received your letter number 1568.4E and herewith comment as requested.

1. You intend to use concrete cylinder pipe. Our main mill wash water siphon to Waipio Peninsula is concrete cylinder pipe and has on several occasions failed. Usually the cause has seemed to be cracks in the concrete, either internally or externally, resulting in corrosion of the steel cylinder.
2. We should like to request a minimum cover of four feet where the sewer traverses through planted cane areas.
3. All routes shown appear satisfactory to Oahu Sugar Company.

If any further comment is needed, please let us know.

Very truly yours,

OAHU SUGAR COMPANY, LIMITED



John T. Humme, President

JTH:cla

cc: K.H. Berg  
J.E. Loomis

OAHU SUGAR COMPANY LTD.

P.O. BOX "O"  
WAIPAHU, HAWAII 96797  
TELEPHONE 677-3577

RECEIVED  
DEPT. OF PUBLIC WORKS

DEC 29 9 07 AM '75

TO ENR (cy)  
sewers

December 23, 1975

AN ENGINEERING COMPANY

Chief Engineer

Department of Public Works  
City and County of Honolulu  
Honolulu, HI 96813

Attention Mr. Kazu Hayashida  
Director and Chief Engineer

Gentlemen:

Thankyou for your letter and enclosures dated December 15, 1975. You have asked us to comment on the EIS for the Proposed Honouliuli Interceptor Sewer System as it relates to our jurisdiction and responsibility.

We should like to reiterate the comments made in a letter dated June 17, 1974, addressed to the Consultants, Park Engineering, Inc., and enclose a copy of that letter.

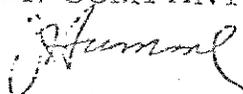
There is one additional item in the EIS Preparation Notice that we think needs to be mentioned. On page 9, Pile Supports for the Waipahu Sewage Pump Station are mentioned as a possible requirement. We point out again that this work will be done in very close proximity to the Oahu Sugar mill waste water line (36-inch diameter) and the mill mud line.

Both these pipes have been broken by similar activities in the past and we propose that work be scheduled in that area for the non-grinding season of whatever year is involved. This will reduce the chance for a spill into the Class AA waters of West Loch. If such scheduling is not feasible, then the job specification should call special attention to the problem created by the close proximity of these two lines.

Thank you for the opportunity to comment. If there are any questions about Oahu Sugar installations which may be involved, please feel free to call on me or Oscar Thompson for field observations or other help we may be able to contribute.

Very truly yours,

OAHU SUGAR COMPANY, LIMITED

  
John T. Humme, President

JTH:cla  
Enclosure

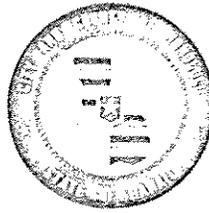
cc: K.H. Berg  
J.E. Loomis

A-53

75 DEC 29 PM 2 35

(DEPARTMENT OF PUBLIC WORKS)  
**CITY AND COUNTY OF HONOLULU**

HONOLULU, HAWAII 96813



FRANK F. FASI  
MAYOR

KAZU HAYASHIDA  
DIRECTOR AND CHIEF ENGINEER

SD 76-56

February 6, 1976

Mr. John T. Humme, President  
Oahu Sugar Company, Ltd.  
P. O. Box "O"  
Waipahu, Hawaii 96797

Dear Mr. Humme:

Subject: Environmental Impact Statement  
Preparation Notice for the Proposed  
Honouliuli Interceptor Sewer System  
(Reference: Your Letter dated  
December 23, 1975)

Your review and comments concerning the subject EIS  
Preparation Notice are appreciated.

We understand your concern about your mill waste and  
mill mud lines being located near the proposed construction  
and will consider this in the design of the proposed sewer  
system.

Very truly yours,

A handwritten signature in cursive script, appearing to read "Kazu Hayashida".

KAZU HAYASHIDA  
Director and Chief Engineer

TT:jy

Handwritten initials, possibly "AMT", in a stylized cursive font.

OAHU SUGAR COMPANY LTD.

AN AMFAC COMPANY

P.O. BOX "O"  
WAIPAHU, HAWAII 96797  
TELEPHONE 677-3577

June 17, 1974 4/11E

PARK ENGINEERING, INC.  
1149 Bethel St., Rm. 710  
Honolulu, HI 96813

Attention Mr. Walter M. Takeuchi  
Associate

Gentlemen:

Thank you for your letter of June 12 with the outline of the Pearl City Sewage Pump Station Force Main.

Your mains will cross our 1) mill waste water line and 2) mill wash mud line very close to the Waipahu pump station. These lines are both buried at relatively shallow depth and are actually on the surface about 50 yards makai of the pump station.

Near our settling ponds you will again cross our mud line and your sketch shows that your lines pass very close to our mud booster pumps.

We do not have drawings of these lines, but because in part major portions are above ground, they are very easy to find.

We suggest an on site inspection with our Civil Engineer, Mr. Oscar Thompson. He will return from vacation on Monday, June 24 and arrangements can be made by calling him at 681-3125.

Please let me know if there are problems.

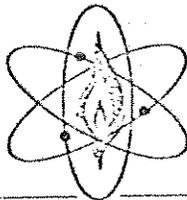
Very truly yours,

OAHU SUGAR COMPANY, LIMITED



John T. Humme, President

70 18468



**GASCO, INC.**  
A SUBSIDIARY OF PACIFIC RESOURCES, INC.

RECEIVED  
DEPT. OF PUBLIC WORKS  
DIVISIONS:  
Honolulu Gas Company  
Hilo Gas Company  
Maui Gas Company  
Isle Gas  
Honolulu Gas Equipment Co.

P. O. BOX 3379 / HONOLULU, HAWAII 96801

DEC 22 10 46 AM '75

TO ENV 124  
i NEWS (cc) ✓  
Engineering Dept  
C. J. [Signature]  
C. [Signature]

December 19, 1975

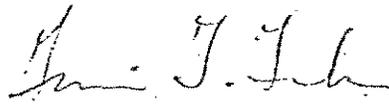
76 JAN -5 AM 9:05  
DIV. OF ST. WORKS

Mr. Kazu Hayashida  
Director & Chief Engineer of Public Works  
City and County of Honolulu  
650 S. King St.  
Honolulu, Hawaii 96813

Dear Mr. Hayashida:

Thank you for allowing us to provide input to the Environmental Impact Statement for the proposed Honouliuli Interceptor Sewer System.

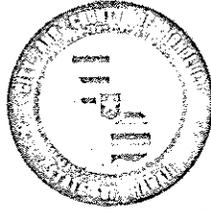
We have reviewed the proposed project and find that it does not fall in the area where we would be able to provide any special knowledge.

Very truly yours,  
  
Francis T. Tanaka

FT:jm

DEPARTMENT OF PUBLIC WORKS  
CITY AND COUNTY OF HONOLULU

HONOLULU, HAWAII 96813



FRANK F. FASI  
MAYOR

KAZU HAYASHIDA  
DIRECTOR AND CHIEF ENGINEER

SI 76-12

February 9, 1976

Mr. Francis T. Tanaka  
CASCO, INC.  
P. O. Box 3379  
Honolulu, Hawaii 96801

Dear Mr. Tanaka:

Subject: Environmental Impact Statement Preparation  
Notice for the Proposed Honouliuli Interceptor  
Sewer System (Reference to your Letter dated  
December 19, 1975)

Thank you for your review of the subject EIS preparation  
notice.

Very truly yours,

A handwritten signature in cursive script that reads "Kazu Hayashida".

KAZU HAYASHIDA  
Director and Chief Engineer

TT:ey

Handwritten initials in cursive script, possibly "GJ" and "Dina".

RECEIVED  
DIV. OF SERVICES

76 00028

76 JAN - 5 AM 1975  
HAWAIIAN ELECTRIC COMPANY, INC.

RECEIVED  
DEPT. OF PUBLIC WORKS

Box 2750 / Honolulu, Hawaii / 96803

TO

ENV WA

Sevens (C) ✓  
Engineering Br. - [Signature]

RICHARD E. BELL  
MANAGER, ENVIRONMENTAL DEPARTMENT

December 31, 1975

Mr. Chew Lun Lau  
Departmental Environmental Engineer  
Department of Public Works  
City and County of Honolulu  
Honolulu, Hawaii 96813

Dear Mr. Lau:

Subject: Request for Comments - Environmental Impact Statement  
Preparation Notice for Honouliuli Interceptor Sewer

It is possible that the project for which subject EIS is being prepared will require the construction and/or installation of HECO facilities to serve it, or the relocation of existing facilities as a consequence of the project. Further, under the requirements of several State and County regulations it is possible that the required work involving the HECO system must be discussed in the EIS from the standpoint of its environmental impact. Accordingly, with reference to this project we suggest the following be accomplished as part of the preparation process for this EIS.

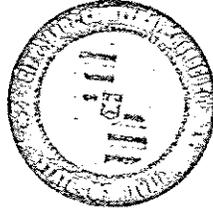
1. A determination be made relative to an EIS requirement for the HECO work. If none is required, the EIS under preparation should indicate this fact. If an EIS or negative determination is required then,
2. HECO be contacted for information on the nature of its portion of the project.
3. The project EIS be expanded, as required, to include discussion of the impact, if any, of the results of 2 above.

Sincerely yours,

[Signature]

DEPARTMENT OF PUBLIC WORKS  
CITY AND COUNTY OF HONOLULU  
HONOLULU, HAWAII 96813

FRANK F. FASI  
MAYOR



KAZU HAYASHIDA  
DIRECTOR AND CHIEF ENG

February 9, 1976

SI 76-14

Mr. Richard E. Bell, Manager  
Environmental Department  
Hawaiian Electric Company, Inc.  
Box 2750  
Honolulu, Hawaii 96803

Dear Mr. Bell:

Subject: EIS Preparation Notice  
Honouliuli Interceptor Sewer System  
Reference to Your Letter Dated December 31, 1975

Thank you for reviewing and commenting on the subject EIS preparation notice.

The EIS that we will be preparing is a supplement to the Final EIS D-EPA-24002-HI, Mamala Bay Wastewater Treatment and Disposal System (Mamala Bay EIS), dated December 26, 1973. In-depth description and environmental analysis of the greater project area is provided in the Mamala Bay EIS. The supplemental statement will be provided to evaluate the probable impact of design features which have been established since the time of the Mamala Bay EIS.

For this reason we will address our statement mainly to the force main and interceptor sewer. However, in response to your comments, construction and installation related with HECO facilities are as follows:

1. For the Pearl City Sewage Pump Station, an additional load of 800KW to the existing load of 175KW for a total of 975KW will be required. It also requires installation of underground primary service of 3ø, three-wire, 11.5KV, from the existing switchgear to the new metering equipment.

Mr. Richard E. Bell

- 2 -

February 9, 1976

2. Locations of power poles along the force main alignment are considered in the design to minimize or eliminate the necessity of relocating these poles.

Very truly yours,



KAZU HAYASHIDA  
Director and Chief Engineer

TT/RI:sn

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APPENDIX B

PERMITS AND APPROVALS REQUIRED

APPENDIX C

REFERENCES

## REFERENCES

1. Pearl City Sewage Pump Station and New Force Main - Soil Exploration Report to Park Engineering, Inc. Walter Lum Associates, Inc., May 12, 1975.
2. Preliminary Soils Investigation, Proposed Honouliuli Interceptor Sewer Line, Ewa West Loch Access Road Between Barbers Point NAS and Pearl Harbor, Ewa, Oahu, Hawaii. Geolabs - Hawaii, Inc. September 28, 1973.
3. Honouliuli Interceptor Sewer System Force Main Alignment Marine Biological Survey. Ralph L. Bowers, PhD. 1975.
4. A Proximate Biological Survey of Pearl Harbor, Oahu, Naval Undersea Center, June 1972.
5. Pearl Harbor Biological Survey - Final Report. Naval Undersea Center, November 1973.
6. Pearl Harbor Biological Survey - Final Report. Naval Undersea Center, April 1974.
7. Pearl Harbor Biological Survey - Final Report. Naval Undersea Center, August 1974.
8. Report on Pollution of the Navigable Waters of Pearl Harbor. U.S. Department of the Interior (FWPCA). October 1969.
9. Comments on Circulation, Stratification and Sediment Quality in West Loch, Pearl Harbor, Pertinent to the Proposed Honouliuli Waste Water Treatment System Interceptor Line. Ocean Engineering Consultants, Inc. (Karl H. Bathen, PhD). February 1975.
10. Completion Report for the Pearl Harbor, Hawaii Study Covering the Test Period Through Calendar Year 1972. NAVFACENGCOM/Naval Civil Engineering Laboratory. June 1973.
11. Data gathered by U.S. Army Corps of Engineers, per conference with Mr. R. Pulfrey, May 1976.
12. An Investigation of Floods in Hawaii Through September 30, 1973. U.S. Department of the Interior. January 1974.
13. Waipahu Sewage Pump Station Odor Control Study - Final Report. Austin, Smith & Associates, Inc. July 1975.

We received comments from the following agencies on the Environmental Impact Statement (June 1976). Asterisk denotes those who had substantive comments to which responses were made.

FEDERAL

Page No.

*U. S. Army Engineering District Department of the Army	D-2
Soil Conservation Service U. S. Department of Agriculture	D-6
Headquarters Support Command Department of the Army	D-7
*U. S. Coast Guard Department of Transportation	D-8
Headquarters 15th Air Base Wing Department of the Air Force	D-12
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STATE

*Office of Environmental Quality Control	D-20
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Department of Social Services and Housing	D-30
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Department of Agriculture	D-41

CITY AND COUNTY

Department of Transportation Services	D-42
*Department of Land Utilization	D-43
Board of Water Supply	D-45

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DEPARTMENT OF THE ARMY

U.S. ARMY ENGINEER DISTRICT, HONOLULU

BLDG. 230, FT. SHAFTER T. OF PUBLIC WORKS  
APO SAN FRANCISCO 96558

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PODED-PV

Mr. Kazu Hayashida  
Director and Chief Engineer  
Department of Public Works  
City and County of Honolulu  
650 South King Street, 11th Floor  
Honolulu, Hawaii 96813

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Dear Mr. Hayashida:

The Environmental Impact Statement for The Proposed Honouliuli Interceptor Sewer System was transmitted to our office for review and comments by the Environmental Quality Commission. We have reviewed the statement and offer the following comments for consideration:

a. The statement on page 8 that the overall Honouliuli system, as recommended, includes "disposing of treated industrial waste from the Campbell Industrial Park area through the Barbers Point ocean outfall" should be clarified. In a 23 April 1976 letter, commenting on the Draft Environmental Statement for Barbers Point Harbor, which was transmitted to our office by the Office of Environmental Quality Control, it was stated that "no allowances for handling the proposed treated effluent from the industrial park was included in the design capacity of the outfall sewer system" and that "the treatment and disposal responsibility of the industrial park are and will continue to be the responsibility of the Campbell Estate and/or the individual lessees".

b. The reference on page 37 to a Type 19 Flood Insurance Study with regard to discharges for Waiawa Stream should be deleted. The preliminary draft for Oahu does not contain the cited information.

c. It is recommended that pipes at stream crossings should be concrete encased in addition to use of ductile iron pipe. If cofferdams are used in pipe placement, diversion capacity should at least be equal to the mean annual flow.



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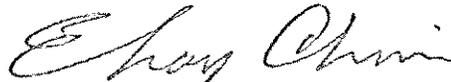
22 July 1976

Mr. Kazu Hayashida

d. The statement on page 45 that the dredged material will be transported "to one of the offshore disposal sites recommended by the U. S. Army Corps of Engineers" should be reworded to read "to a deep ocean disposal site designated and approved by the U. S. Environmental Protection Agency (EPA). Reference should be made to Appendix A of the Final Environmental Statement for Harbor Maintenance Dredging in the State of Hawaii, September 1975 (Incl 1). The dredge spoil classification and site selection are under the responsibility of the U. S. EPA. Alternatives to the designated deep ocean disposal site are currently being studied by the Corps of Engineers, and a new site may be recommended; however, use of the recommended site would be subject to approval by EPA.

Thank you for the opportunity to review this statement.

Sincerely yours,



for KISUK CHEUNG  
Chief, Engineering Division

1 Incl  
As stated

Copy furnished:  
Director, Office of Environmental  
Quality Control  
State of Hawaii  
550 Halekauwila Street  
Honolulu, Hawaii 96813

DEPARTMENT OF PUBLIC WORKS  
CITY AND COUNTY OF HONOLULU

650 SOUTH KING STREET  
HONOLULU, HAWAII 96813



FRANK F. FASI  
MAYOR

KAZU HAYASHIDA  
DIRECTOR AND CHIEF ENGINEER

SD 76-419

August 31, 1976

Mr. Kisuk Cheung  
Chief, Engineering Division  
Department of the Army  
U.S. Army Engineer District  
Bldg. 230, Fort Shafter  
APO San Francisco 96558

Dear Mr. Cheung:

Subject: Environmental Impact Statement for the Proposed  
Honouliuli Interceptor Sewer System

We appreciate the comments contained in your letter of July 22, 1976 and will address each in the same sequence as presented therein.

- a. The nine system components, including the potential disposal of treated industrial waste from Campbell Industrial Park, were referenced to the original "Water Quality Program for Oahu with Special Emphasis on Waste Disposal, Final Report". At the present time, there is no plan to handle these industrial wastes via the Honouliuli system. However, since the statement is a reference to a prior plan which did include such a recommendation, the EIS will be modified by a single sentence noting this program change rather than deleting item (9).
- b. This information was obtained by our consultant during a visit with Mr. Ronald Pulfrey of your office. It was their understanding that the data was prepared for a Type 19 Flood Insurance Study. However, since that is apparently not the case, the data reference will be changed in the EIS to identify the source by name and office only.

August 31, 1976

- c. Discussion with our design consultant indicates that the ductile iron pipe with ball joint connections should be adequate to meet the structural consideration of the system at these points.

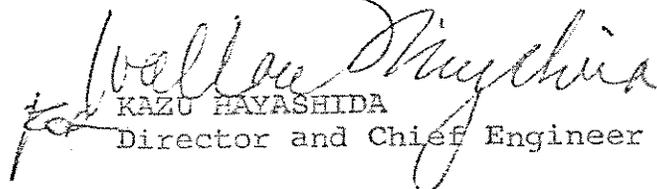
Potential differential settlement plus cost savings inherent in allowing the Contractor to "work a wet trench" suggest that ductile iron ball joint pipe without concrete encasement is preferred for stream crossings.

Should the Contractor identify cofferdam construction as his selected method of crossing, pre-construction discussion will convey your requirements for diversion capacity.

- d. The recommended wording change regarding offshore disposal has been incorporated into the EIS, with appropriate reference to Appendix A of the Final Environmental Statement for Harbor Maintenance Dredging in the State of Hawaii.

Your thorough review and constructive comments are greatly appreciated.

Very truly yours,

  
KAZU HAYASHIDA  
Director and Chief Engineer

cc: OEQC  
Austin, Tsutsumi & Assoc.

UNITED STATES DEPARTMENT OF AGRICULTURE  
SOIL CONSERVATION SERVICE

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440 Alexander Young Bldg., Honolulu, Hawaii 96813

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*M...*  
*Amf*

Dr. Richard Marland  
Office of Environmental Quality Control  
550 Halekauwila St., Rm. 301  
Honolulu, HI 96813

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*Sewers Eng*  
*Engineering*

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Dear Dr. Marland:

Subject: Environmental Impact Statement for the Proposed  
Honouliuli Interceptor Sewer System

We have reviewed the subject EIS and have no comments to offer.

Thank you for the opportunity to review this document.

Very truly yours,

Francis C. H. Lum  
State Conservationist

cc:  
Mr. Kazu Hayashida, Director ✓  
Dept. of Public Works  
City & County of Honolulu  
Honolulu, HI 96813



DEPARTMENT OF THE ARMY  
 HEADQUARTERS UNITED STATES ARMY SUPPORT COMMAND, HAWAII  
 APO SAN FRANCISCO 96558

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9 JUL 1976

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Director & Chief Engineer  
 Dept of Public Works  
 City & County of Honolulu  
 650 S. King Street  
 Honolulu, Hawaii 96813

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Gentlemen:

Reference is made to the Environmental Impact Statement for the Proposed Honouliuli Interceptor Sewer System.

We have reviewed the EIS and have no comments to offer.

Thank you for the opportunity to review this document.

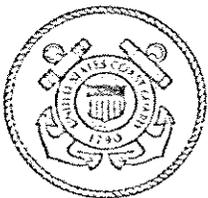
Sincerely yours,

*Carl P. Rodolph*

CARL P. RODOLPH  
 Colonel, CE  
 Director of Facilities Engineering

CF:  
 OFC OF ENVIR QUALITY CONTROL





DEPARTMENT OF TRANSPORTATION  
UNITED STATES COAST GUARD

Address reply to:  
COMMANDER (m)  
Fourteenth Coast Guard District  
677 Ala Moana  
Honolulu, Hawaii 96813

7604658  
27 Jul  
[Signature]

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16476  
20 JUL 1978

Mr. Kazu Hayashida  
Director  
Department of Public Works  
City & County of Honolulu  
Honolulu, Hawaii 96813

Dear Mr. Hayashida:

Staff review of the "EIS For The Proposed Honouliuli Interceptor Sewer System" has been completed, and the Coast Guard has no objections to the project being implemented as stated therein.

The following comments are submitted:

- a. Any hazards to navigation resulting during the construction period in West Loch, Pearl Harbor, will require a Notice To Mariners, and coordination with Pearl Harbor Port Control is recommended. It is requested that the Fourteenth Coast Guard District (oan) be provided one month's advance notice, if possible, to enter information into the Local Notice To Mariners.
- b. Upon completion, the exact position of the pipeline across West Loch is required to facilitate charting.
- c. Where construction results in depths less than those shown on current charts, marking will be the responsibility of the contractor. No Coast Guard navigational aids should be affected.
- d. Pursuant to Section 107(c) of the Marine Protection, Research, and Sanctuaries Act of 1972, the Department of Transportation (USCG) is charged with the responsibility for surveillance and other enforcement activity to prevent unlawful dumping or transportation for dumping. Surveillance is considered to include those activities necessary to ensure that ocean dumping is executed in accordance with the Act or other appropriate laws and regulations, and in accordance with a permit issued pursuant to the Act. Copies of any Statement Of Findings or permits issued for ocean dumping in connection with this project will be received from the U. S. Army Corps of Engineers. The Coast Guard will request at least 24 hours advance notification of any ocean dumping operations scheduled off Oahu, Hawaii.

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COMMUNICATIONS SECTION

20 JUL 1976

The opportunity to review and comment on this proposed project is appreciated.

Sincerely,

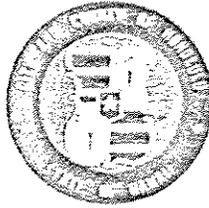


J. V. CAFFREY  
Captain, U. S. Coast Guard  
Chief of Staff  
Fourteenth Coast Guard District

Copy to:  
Commandant (G-NEP/7)  
CEQ Washington  
OEQC Hawaii  
COE Honolulu

DEPARTMENT OF PUBLIC WORKS  
CITY AND COUNTY OF HONOLULU

650 SOUTH KING STREET  
HONOLULU, HAWAII 96813



FRANK F. FASI  
MAYOR

KAZU HAYASHIDA  
DIRECTOR AND CHIEF ENGINEER

SD 76-416

August 31, 1976

Captain J. V. Caffrey  
Chief of Staff  
Fourteenth Coast Guard District  
U. S. Coast Guard  
677 Ala Moana Boulevard  
Honolulu, Hawaii 96813

Dear Captain Caffrey:

Subject: Environmental Impact Statement for the  
Proposed Honouliuli Interceptor Sewer System

We thank you for the comments contained in your letter of 20 July 1976 and will address each in the same sequence as presented therein.

- a. The contractor will be required to coordinate with the Pearl Harbor Port Control during construction in West Loch. He will also notify the Fourteenth Coast Guard District to publish information on construction activity in the Local Notice to Mariners one month prior to the start of construction. Appendix B of the EIS has been modified to reflect this requirement.
- b. Upon completion, NOAA charts will be transmitted to your office showing the exact position of the pipeline. Appendix B of the EIS has been modified to reflect this requirement.
- c. Discussion with our design consultant indicates that construction will not result in reduced depths at any point in West Loch. Likewise, no navigational aids should be affected.

Captain J. V. Caffrey

- 2 -

August 31, 1976

- d. Appendix B of the EIS has been modified to reflect the requirement for notification of the Coast Guard at least 24 hours in advance of any ocean dumping operations. This will also be included in contract documents as general notes to the Contractor.

Your thorough review and constructive comments on this project are greatly appreciated.

Very truly yours,

  
KAZU HAYASHIDA  
Director and Chief Engineer

cc: OEQC  
Austin, Tsutsumi & Asso.

DEPARTMENT OF THE AIR FORCE  
HEADQUARTERS 15th AFB BASE WILSON FIELD  
APO SAN FRANCISCO 96350



DEEE (Mr. Nakashima, 4492158)

15 JUL 1976

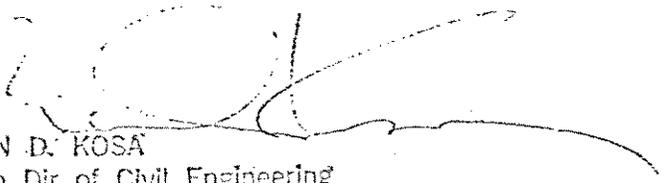
SUBJECT: Environmental Impact Statements

TO: Environmental Quality Commission  
550 Halekauwila Street, Room 301  
Honolulu, Hawaii 96813

1. This Headquarters has no comment to render relative to the Environmental Impact Statement for the following projects:

- ✓ a. The Proposed Honouliuli Interceptor Sewer System, Oahu, Hawaii
- b. The Proposed Kalakaua Commercial Complex, Oahu, Hawaii
- c. Central Maui Water Transmission System, Waiehu to Makena, Maui, Hawaii

2. We greatly appreciate your cooperative efforts in keeping the Air Force apprised of your development projects throughout the State and the opportunity to review the statements.

  
BEN D. KOSA  
Dep Dir of Civil Engineering





United States Department of the Interior

FISH AND WILDLIFE SERVICE
Division of Ecological Services
821 Mililani Street
Honolulu, Hawaii 96813

Reference: ES

July 7, 1976

Interim Director
Environmental Quality Commission
550 Halekauwila Street, Room 301
Honolulu, Hawaii 96813

Dear Sir:

We have reviewed the draft environmental impact statement for the proposed Honouliuli Interceptor Sewer System and offer the following comments:

Page 25, first paragraph. Part IV-C, Terrestrial Flora and Fauna. To avoid confusion, all species should be identified by both common and scientific names. It is further suggested that the nesting period of Hawaiian Coot (Fulica americana alai) and Hawaiian Stilt (Himantopus himantopus knudseni) be shown as extending from March through August 15.

Page 40, first paragraph. Part V.A.2.a. Flora and Fauna. Environmental restrictions over stockpiling excavated or imported material should be further discussed with citation of the specific provisions of the laws under discussion. It should analyze their effectiveness, weighing both their strong and weak points.

Page 41, first paragraph. Part V.A.2.a. It is suggested that the paragraph be modified to indicate that upon completion of construction activities disturbed areas will not be immediately seeded to minimize potential erosion problems, but instead, vegetation would be allowed to slowly grow over construction scars. In addition, it should be stated that the lack of immediate plantings of vegetative cover will contribute to shoreside erosion and prolonged water turbidity, adversely affecting fish and wildlife resources.

Page 45, first paragraph, V.A.2.d. Water Pollution. Excavation by various types of dredge should be discussed to evaluate their impact on water quality. If dredging is to be accomplished by clamshell, the revised EIS should mention whether or not silt screens will be deployed during dredging of the West Loch crossing. The revised statement should also describe any special stipulations required, prior to EPA's approval of the proposed dredge disposal site. It is further suggested that sediments along the West Loch alignment be analyzed for contamination of heavy metals.



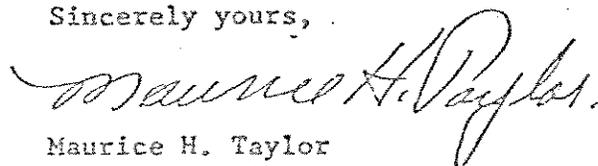
Page 50, first paragraph. Part V.A.2.d. Monitoring programs to detect levels of settleable solids and other pollutants during dredging operations require discussion. A contingency plan of the proposed dredging operations is suggested to avert significant losses, should monitoring results and investigations by resource agencies indicate that these operations are creating intolerable conditions for oysters (Crassostrea virginica) and other marine life.

Page 61, first paragraph. Part V.B.2, Operational Malfunction. The degree of sensitivity in detecting leaks by both changes in the normal volumes of influent sewage to the treatment plant and by increases in coliform density should be discussed. Since leaks are to be detected by changes in water quality, it is suggested that the statement identify existing and/or proposed Department of Health monitoring stations. In the event of a force main rupture under West Loch the revised EIS should disclose procedures of locating the rupture site and describe its subsequent repair procedures.

Page 66, first paragraph. Part VII.C.1., Alternate A. Rejection of this alternative not only for economic reasons, but also on environmental grounds, as stated in the last sentence of this section, requires further discussion. It appears to be inconsistent with comments by the Division of Fish and Game (2 January 1975) where a preference for alternate A was noted. The discussion fails to compare fish and wildlife values between the marine and terrestrial environment, although it was previously mentioned (Flora and Fauna) that destruction of desirable species will be limited to marine organisms. This section generally fails to fully consider the benefits and detriments of an all land route on environmental grounds.

Because some of the actions described in the environmental statement may conflict with the programs and objectives of the U. S. Fish and Wildlife Service, our response should not be considered to be approval of the project or actions described in the document. Rather, it should be regarded as relating only to the adequacy of the statement as a full disclosure document.

Sincerely yours,



Maurice H. Taylor  
Field Supervisor

cc: Dir., PWD, Honolulu  
ARD, AE  
NMFS, Honolulu (J. Naughton)  
HDF&G  
HINWR, Kailua

DEPARTMENT OF PUBLIC WORKS  
CITY AND COUNTY OF HONOLULU

650 SOUTH KING STREET  
HONOLULU, HAWAII 96813



FRANK F. FASI  
MAYOR

KAZU HAYASHIDA  
DIRECTOR AND CHIEF ENGINEER

SD 76-418

August 31, 1976

Mr. Maurice H. Taylor, Field Supervisor  
Division of Ecological Services  
Fish & Wildlife Service  
U. S. Dept. of the Interior  
821 Mililani Street  
Honolulu, Hawaii 96813

Dear Mr. Taylor:

Subject: Environmental Impact Statement for the  
Proposed Honouliuli Interceptor Sewer System

We are responding to your comments of July 7, 1976 on the subject EIS. Our responses herein appear in the same sequence as the comments.

Page 25, first paragraph. Part IV-C, Terrestrial Flora and Fauna.

This section of the EIS has been modified to identify all species by both common and scientific names. In addition, the nesting period of the Hawaiian Coot and Hawaiian Stilt is now shown as March through mid-August.

Page 40, first paragraph. Part V.A.2.a. Flora and Fauna.

Two primary legal safeguards apply. The first is Chapter 23, Grading, Soil Erosion and Sediment Control. Quoting in part from Section 23-2.6, Denial of Permit, "If the Chief Engineer finds that the work as proposed by the applicant is likely to endanger any property or public way or structure or endanger the public health or welfare through environmental damage, he shall deny the grading, grubbing or stockpiling permit." Secondly, contract documents will contain the City and County's standard specification on Environmental Pollution Control, a copy of which is attached hereto. Note that disturbance to fish and wildlife is specifically mentioned in this specification.

We do not feel it is our responsibility to evaluate and justify existing legal provisions with each environmental assessment. These provisions gives sufficient latitude to the City and County representatives assigned to this project to prevent Contractor damage to the environment. During pre-construction discussions, the Contractor's specific plans and scheduling for stockpiling material will be considered, and if modifications are warranted, they will be implemented. Likewise, during actual construction, direction will be given if necessary to prevent potential damage from stockpiling which could not be foreseen prior to construction.

Page 41, first paragraph. Part V.A.2.a.

Where construction passes through areas which are now seeded and maintained, such as the golf course, the Contractor will be required to reseed for restoration. In other areas, restoration will be accomplished in accordance with the City and County's "Soil Erosion Standards and Guidelines" and will be in such a manner as to prevent significant erosion.

With regard to shoreside erosion, construction along the shoreline of Middle Loch is to be in the intertidal area. When completed, natural regrowth of flora is not expected to create significant adverse environmental effects, according to Dr. Ralph Bowers, special biological consultant for this project. Although portions of the "nursery area" for fish will be disturbed, the mobility of the organisms and the availability of alternate areas in the immediate vicinity indicate that this effect will not be significant. The EIS has been modified to include a summary of the above information.

Page 45, first paragraph, V.A.2.d. Water Pollution

Excavation by various types of dredge was discussed in the "Final Environmental Statement on Harbor Maintenance Dredging in the State of Hawaii", September 1975. Reference has been made to this document, and we do not believe it is necessary to reproduce the discussions contained therein, particularly since no substantial environmental effect differences are pointed out in the referenced document according to dredging method selected. Silt curtains will be installed in West Loch during construction if turbidity and sediment analyses indicate this is necessary, and the EIS has been modified to make this clear.

Appendix B of the EIS has been changed to show that EPA approval of a disposal site will be required. At such time as this site is selected and approval sought, any special stipulations will be determined.

The EIS on Harbor Maintenance Dredging, previously referenced, evaluated the effect of dredging on heavy metal dispersion. Section 5.07 of that document states, in part, "The heavy metal content of the spill is not expected to alter concentrations in the water." On a long-term basis, the diversion of existing waste discharges away from Pearl Harbor should reduce the accumulating heavy metal concentrations both in water and sediment.

Page 50, first paragraph. Part V.A.2.d.

Prior to construction, stakes marked for equal increments of length will be placed adjacent to the oyster beds northwest of the construction site and also adjacent to the bed in Walker Bay. Turbidity measurements by Secchi disk will also be made to determine baseline readings in these areas. Should these measurements during construction indicate significant sediment load from the project, silt curtains will be installed to reduce such load. The EIS has been modified to show this program.

Page 61, first paragraph. Part V.B.2, Operational Malfunction.

Because of normal variations in volume of influent sewage, the sensitivity of leak detection by this method would be very low. With high coliform concentrations in all domestic raw sewage, detection by monitoring coliform levels in Middle Loch and West Loch would have a very high sensitivity. However, we are aware of no present or proposed program for such monitoring by any Government agency, including the State of Hawaii Department of Health. The EIS has been modified to reflect these findings.

With the large volumes of wastewater being conveyed, a rupture beneath Middle Loch (intertidal area) or West Loch would result in a visible discoloration of the water. Immediate action would be taken to divert all flow through the unruptured lines while repairs are being made. In the past, repairs for ruptured lines have generally been handled by contract. This information has been incorporated into the EIS.

Page 66, first paragraph. Part VIII.c.1. Alternate A.

Along the shoreline of West Loch, residential and light industrial property abuts the Energy Corridor, which in turn is immediately adjacent to the shoreline, as is the case with Middle Loch. The letter from E. Alvey Wright for Fujio Matsuda, dated December 6, 1972, and appended to the EIS indicated that transportation of wastewater via buried lines was not compatible with the concept of the Corridor; the letter gave formal disapproval for their location within its boundaries. A true "all land" route would involve establishment of a permanent easement through both residential and light industrial property, both of which are highly developed between the Energy Corridor and Farrington Highway. Routing through this property would involve:

- a. A lengthy and expensive period of property acquisition.
- b. The removal and permanent relocation of several existing structures, including single family residences, multi-storied apartments and industrial buildings.
- c. Construction in the immediate vicinity of the remaining residences.

Determination was made by the City and County at the time of masterplanning for this project that the property could not be acquired and construction accomplished within the time and budgetary framework established for the Honouliuli (West Mamala Bay) wastewater treatment program as a whole (established for compliance with Federal regulations for degree of treatment). A detailed investigation into the specific environmental impacts related to such an all land route was rejected as immaterial; the findings would not alter the time and funding constraints of the program.

If the "all land" route were to be constructed within the intertidal area of West Loch, over 1,000 feet of dual line force main would be within the wildlife refuge on Waipio Peninsula. An additional 3,000 feet would lie within the area of extremely dense mangrove along the northwestern boundary of West Loch. In either event (land or intertidal construction), a crossing of the large flood control channel for Waikele Stream would be required. Uplifted limestone areas to the west of the industrial area could require that

August 31, 1976

the pump sizes be increased to handle the additional static lift; another such high point occurs just prior to the proposed site of the Honouliuli Sewage Pump Station. Substantial (estimated in excess of \$10 million) additional capital and operating costs would be incurred if this route were to be selected. In addition, the proposed route passes immediately adjacent to the wildlife refuge located along the shoreline southwest of Laulanui Island. Construction in the intertidal area would destroy mangrove and disturb whatever fauna exists among these root structures. No such disturbance occurs at the proposed crossing of West Loch from Hanaloa Point to the Naval Ammunition Depot at West Loch. Construction activity in the upper reaches of West Loch would necessarily distribute sediment over the oyster beds shown as immediately adjacent on Figure 12 of the EIS. Sediment would also be transported to the oyster beds located between Laulaunui Island and the small point of land lying to its west.

In summary, we believe that additional detailed investigation of species populations within the intertidal area of West Loch is not warranted. The length of passage through this dense growth and the location in relation to known oyster beds of West Loch indicates that such a route would be environmentally less desirable than that proposed. The Division of Fish and Game comments of 2 January 1975 were based on the assumption that a true all land route was temporarily and economically feasible; such is not the case. Were the alignment shown for Alternate A properly shown on the Makai side of the Energy Corridor as discussed herein, we believe the Division of Fish and Game recommendation may be altered. Figure 14 of the EIS has been changed to show the alignment in proper relation to the Energy Corridor and a copy of the revised figure and this response has been forwarded to that office, attention Michio Takata, Director.

Very truly yours,

  
KAZU HAYASHIDA  
Director and Chief Engineer

Attach.

cc: OEQC  
Austin, Tsutsumi & Assoc.  
State of Hawaii, DLNR,  
Div. of Fish and Game  
Attn. Michio Takata, Director

GEORGE R. ARIYOSHI  
GOVERNOR



RECEIVED  
OFFICE OF PUBLIC WORKS

76 04810  
RICHARD E. MARLAND, PH.D.  
DIRECTOR

TELEPHONE NO.  
548-6315

8 24 AM '76

STATE OF HAWAII  
OFFICE OF ENVIRONMENTAL QUALITY CONTROL

OFFICE OF THE GOVERNOR

550 HALEKUA WALK ST.

ROOM 301

HONOLULU, HAWAII 96813

July 26, 1976

ENV - eq  
Sewers  
Engineering to Council

Kazu Hayashida  
Director and Chief Engineer  
Department of Public Works  
City and County of Honolulu  
Honolulu, Hawaii 96813

SUBJECT: Environmental Impact Statement for the Proposed  
Honouliuli Interceptor Sewer System, Oahu, Hawaii

Dear Mr. Hayashida,

As of this date, this Office has received twelve comments on the above subject. An attached sheet lists the responding agencies.

In our evaluation of the EIS we find several areas in which the revised EIS should expand discussion. The following comments are offered:

1. On p. 12, Land Use, the nearby wildlife refuge on Pearl City Peninsula should be mentioned.
2. P. 22, Terrestrial Flora and Fauna. What fauna are found in the "500-foot segment of the alignment which passes through fairly dense bullrushes and California grass?" Would construction in this habitat have a significant impact on the fauna?
3. P. 25, Terrestrial Flora and Fauna. Consideration might be given to timing the construction along the wildlife reserve boundary so as to avoid the nesting season of the Hawaiian Stilt, (Himantopus himantopus knudseni).
4. P. 41, Impact of the Proposed Interceptor Sewer System, Flora and Fauna. The statement, "Destruction of desirable species of fauna will be limited to marine organisms," should be expanded. Will the baitfish for skipjack tuna, nehu, be affected?
5. P. 42, Impact of Noise. The noise levels which the residences along the northern boundary of the Ted Makalena Golf Course will experience should be discussed. We suggest that some estimates of the bad levels be provided. Mention should

be made of the Department of Health regulation, Community Noise Control for Oahu Chapter 44B.

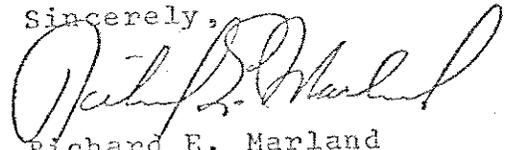
6. P. 51, Water Pollution. Regarding the statement, "fauna in Middle Loch would not be seriously degraded by construction activities and temporarily increased sediment loads," what are the affected fauna.
7. P. 62, Adverse Environmental Effects Which Cannot Be Avoided Should the Proposal Be Implemented. We recommend provisions be required for the contractors to make an attempt to restore the affected shoreline area on Middle Loch.
8. P. 64, Alternative Alignments. In order for a comparison to be made of the alternative alignments, estimated costs for Alternative A should be provided.
9. P. B-1, Appendix B. We suggest that the possibility of the requirements for a Conservation District Use Application from the Board of Land and Natural Resources, and a Shorewaters Construction Permit from the Department of Transportation-Harbors Division be investigated. Has clearance been obtained from the State Historic Preservation Officer?

For brevity and fairness, this Office did not attempt to summarize comments made by other reviewers. Instead, we strongly recommend that careful consideration be given to each comment by the reviewers. We also recommend that a copy of the revised EIS be provided to those persons and agencies that have provided substantive comments on the EIS.

The EIS Regulations allow the accepting authority or his authorized representative to consider responses received after the fourteen day response period. This Office will exercise the option and will consider responses after the fourteen day period.

We trust that these comments will be helpful to you in preparing the revised EIS. Thank you for the opportunity to review the EIS. We will look forward to the revised EIS.

Sincerely,



Richard E. Marland  
Director

Attachment

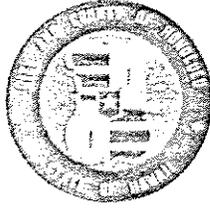
List of commentors for the Environmental Impact Statement for the Proposed Honoūliuli Interceptor Sewer System, City and County of Honolulu, Department of Public Works.

<u>Commentors</u>	<u>Date of Comments</u>
State Agencies:	
Dept. of Agriculture	6/22/76
*Dept. of Defense	6/22/76
Dept. of Planning and Economic Development	6/29/76
Dept. of Social Services and Housing	6/23/76
University of Hawaii:	
*Water Resources Research Center	6/28/76
Federal Agencies:	
USDI Fish and Wildlife Service	7/7/76
*USDA Soil Conservation Service	7/7/76
*Army/DAFE	7/9/76
*15th Air Base Wing (PACAF)	7/15/76
U.S. Coast Guard	7/20/76
City and County of Honolulu Agencies:	
Board of Water Supply	7/14/76
Dept. of Transportation Services	7/7/76

\*denotes no comments

DEPARTMENT OF PUBLIC WORKS  
**CITY AND COUNTY OF HONOLULU**

650 SOUTH KING STREET  
HONOLULU, HAWAII 96813



RANK F. FASI  
MAYOR

KAZU HAYASHIDA  
DIRECTOR AND CHIEF ENGINEER

SD 76-417

August 31, 1976

Dr. Richard E. Marland, Director  
Office of Environmental Quality Control  
Office of the Governor  
550 Halekauwila Street, Room 301  
Honolulu, Hawaii 96813

Dear Dr. Marland:

Subject: Environmental Impact Statement for the  
Proposed Honouliuli Interceptor Sewer System

We appreciate your comments of July 26, 1976, regarding the subject project. Our responses herein appear in the same sequence as your comments were set forth.

1. p. 12, Land Use. Although a detailed discussion of the history and present status of the wildlife refuge on Pearl City Peninsula was presented on page 23, the EIS has been modified in accordance with your recommendation to indicate this land use on page 12.
2. p. 22, Terrestrial Flora and Fauna. We are including herewith and verbatim the response prepared by our special biological consultant for this project, Dr. Ralph Bowers.

"The particular area that is referred to in Comment No. 2 is characterized by dense growths of California grass and mangroves and a relatively soft, muddy substratum that is periodically covered and uncovered by tidal fluctuations. These areas are typically inhabited by burrowing organisms such as polychaete worms and snapping shrimps. Grapsid crabs can generally be seen in the area during low tide. Other organisms including various fishes (Tilapia, nehu, mullet, molly and lizard fish), swimming crabs, and opae

shrimps will enter the area during high tide and feed on organic detritus among the mangrove roots and bases of the California grass stalks. Other organisms (serpulid worms, and small bivalve molluscs) are found attached to the mangrove roots and protruding rocks in the intertidal zone."

"It can be assumed that those burrowing and attached organisms will be destroyed during construction of the Interceptor Sewer System through this area. Most of the more motile organisms (fishes, swimming crabs, grapsid crabs, and opae shrimps) will be able to avoid destruction by moving seaward during the construction activities."

"Those organisms that may be destroyed during the construction activities all play specific roles in the total ecosystem of this type of habitat. However, based on the relatively small area of the habitat that will be disrupted and that this disruption is temporary (pre-construction biological conditions should be restored within 2-5 years after construction is completed), there should be no reason to expect permanent significant (either positive or negative) impact on the fauna due to construction of the Interceptor Sewer System."

This response reinforces the original position of insignificant impact presented in the Statement; we feel the EIS does not require further modification in this instance.

3. p. 25, Terrestrial Flora and Fauna. Discussion with Dr. Andrew Berger discloses that construction activity and other human disturbance appear to have little if any effect on the critical species mentioned. This position is substantiated by studies made at Kanaha Pond, Maui and Paiko Lagoon, Oahu. On the basis of these findings, we do not believe that the additional construction cost which would be incurred by restricting the Contractor's work schedule in this area is warranted.

4. p. 41, Impact of the Proposed Interceptor Sewer System, Flora and Fauna. We include herewith the response prepared by Dr. Bowers.

"Baitfish for skipjack tuna, the nehu, will be little affected by the construction activities. Gosline and Brock (1960) indicate that this fish is found in turbid waters in various salinities. Observations completed in January 1975, show the waters of Pearl Harbor to be extremely turbid (visibility < 1-2 feet) yet the nehu continue to survive under such conditions."

"Construction activities will suspend additional quantities of particulate material in the water and even if silt curtains are not used, the nehu should be able to avoid temporarily increased water turbidity and show little or no detrimental effect to the population."

This response suggests insignificant impact; we feel that further modification of the EIS is not necessary.

5. p. 42, Impact of Noise. Discussion with Mr. Jerry Alruno of the Noise and Radiation Branch, State of Hawaii, Department of Health, indicates that noise associated with the conventional trenching methods (backhoe, etc.) may be expected no higher than 80 dBA at 50 feet. According to Public Health Regulations Chapter 44B, Community Noise Control for Oahu, a Community Noise Permit may be granted for construction activities. Appendix B of the EIS will be modified to include this permit requirement. Standard City and County construction contract documents (Section 113) encompass this requirement to comply with "all applicable Federal, State and City and County laws and regulations concerning environmental pollution control and abatement."
6. p. 51, Water Pollution. The response to this comment is presented herein as prepared by Dr. Bowers based on his biological investigation of the subject area.

"The following is a list of the fauna along the northern shoreline of Middle Loch that would be affected by the construction activities:

1. Sponges - attached to substratum
2. Snapping shrimps - burrowing in mud

3. Segmented worms - burrowing in mud and attached to hard surfaces
4. Sea anemones - attached to substratum
5. Bivalve molluscs - attached to hard surfaces

The organisms listed above are either attached or slow moving and would most likely be destroyed during trenching and backfilling operations. Again, this would be a temporary condition with pre-construction biological conditions being restored within a 2-5 year period following completion of the construction in the area. The large areas of shoreline that will not be disturbed contain large numbers of similar organisms, thus a rapid recolonization of the disrupted area is assured."

As no significant impact is indicated, we do not feel that a modification of the EIS is warranted.

7. p. 62, Adverse Environmental Effects Which Cannot Be Avoided Should the Proposal Be Implemented. In discussion with our biological consultant, Dr. Ralph Bowers, we have been informed that natural regrowth of the affected area will occur sufficiently rapidly that acceleration through re-seeding or replanting is not necessary. In the intertidal areas, growth of mangrove and other water plants will begin quickly following completion of construction, and artificial planting of these species of flora, none of which is endangered or exposed to regular observation, would be expensive. Shoreside, the replanting of a mixed growth so as to duplicate that which is removed would be extremely difficult. If artificially planted, the area would regrow with a species distribution different from its surroundings. It is suggested that natural regrowth be allowed to occur in areas not presently developed (unless there are potential erosion problems) and that restoration be limited to areas now under care and maintenance such as the golf course. The EIS has been changed to reflect this specific restoration plan.

August 31, 1976

8. p. 64, Alternative Alignments. Using the cost per lineal foot of concrete cylinder pipe without amer-plate lining shown in Table II of the EIS for dual 42 and 48 inch I.D. at \$370/1.f. installed, we project an additional cost of \$17 million. This would be only partially offset by a reduction in size of the gravity line from NAD West Loch. We believe that it is safe to estimate the differential cost of Alternative A and the proposed alignment as being in excess of \$10 million.
9. p. B-1, Appendix B. Requirements for a Conservation District Use Application from DLNR and an Application for Permit for Work in the Shore Waters of the State of Hawaii from the Harbors Division have been included in Appendix B of the EIS.

Although we have received no written clearance from the State Historic Preservation Officer, our consultants have coordinated with this Office throughout the planning and EIS phases of the work. It is assumed that review by the Department of Land and Natural Resources included evaluation by the subject Office, and the absence of adverse comment indicates no objection to the proposed project.

We appreciate your detailed review and constructive comments on this project.

Very truly yours,

  
KAZU HAYASHIDA  
Director and Chief Engineer

cc: Austin, Tsutsumi & Asso.

ORGE R. ARIYOSHI  
GOVERNOR



Wll  
E. ALVEY WRIGHT  
DIRECTOR

RECEIVED  
OFFICE OF PUBLIC WORKS

DEPUTY DIRECTORS  
WALLACE AOKI  
RYOKICHI HIGASHIONNA  
DOUGLAS S. SAKAMOTO  
CHARLES O. SWANSON  
brf

Aug 3 8 44 AM '76  
STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
869 PUNCHBOWL STREET  
HONOLULU, HAWAII 96813  
ENVOL  
Sewers &  
Engineering  
Circuit

IN REPLY-REFER TO:  
STP 8-3758  
RECEIVED  
- 4 P12 78

July 26, 1976

Mr. Kazu Hayashida, Director  
and Chief Engineer  
Department of Public Works  
City and County of Honolulu  
650 So. King Street  
Honolulu, Hawaii 96813

Dear Mr. Hayashida:

Subject: Environmental Impact Statement for the  
Proposed Honouliuli Interceptor Sewer System

Thank you for the opportunity to comment on the subject statement. We have no comments on the general body of the subject EIS. However, under Permits and Approval Required (Appendix B, Page B-1), the requirements of a permit from the Harbors Division to work in the shore waters of the State of Hawaii should be added. This permit will be required for the construction of the Barbers Point ocean outfall. ya ?

Sincerely,

E. Alvey Wright  
E. ALVEY WRIGHT  
Director

DEPARTMENT OF PUBLIC WORKS  
CITY AND COUNTY OF HONOLULU

650 SOUTH KING STREET  
HONOLULU, HAWAII 96813



FRANK F. FASI  
MAYOR

KAZU HAYASHIDA  
DIRECTOR AND CHIEF ENGINEER

August 6, 1976

SD76-399

Mr. E. Alvey Wright, Director  
Department of Transportation  
State of Hawaii  
869 Punchbowl Street  
Honolulu, Hawaii 96813

Dear Mr. Wright:

Subject: Honouliuli Interceptor Sewer System EIS  
(Reference to your letter, STP 8.3758,  
dated July 26, 1976)

Thank you for reviewing the subject EIS.

The City will apply for a permit from the Harbors Division for this project as several streams and West Loch will be crossed by the proposed sewer. The permit required for the Barbers Point Ocean Outfall project has already been obtained.

Very truly yours,

A handwritten signature in cursive script, appearing to read "Wallace Miyake".

For KAZU HAYASHIDA  
Director and Chief Engineer

TT:sn

30

D-29

ORGE R. ARIYOSHI  
GOVERNOR



ANDREW L.T. CHANG  
DIRECTOR OF SOCIAL SERVICES & HOUSING

STATE OF HAWAII  
DEPARTMENT OF SOCIAL SERVICES AND HOUSING  
P.O. Box 339  
Honolulu, Hawaii 96839

June 23, 1976

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Sewers

P&PS 80

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7/11

2/6

2/2

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Office of Environmental Quality Control  
50 Halekiauila St. Room 301  
Honolulu, Hawaii 96813

Gentlemen,

Re: The Proposed Honolulu Interceptor  
Sewer System

We are pleased to see this proposed system coming closer to reality.

The completed tributary Area "A" will be of great service to our Halawa  
Recreational Facility since it is slated for future expansion.

We are returning the EIS for your further usage.

*Maeda Okino*  
\_\_\_\_\_  
for DIRECTOR

cc: Kazu Hayashida, Director  
Department of Public Works,  
City & County of Honolulu  
Honolulu, Hawaii 96813

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SE R. ARIYOSHI  
GOVERNOR OF HAWAII



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CHRISTOPHER COBB, CHAIRMAN  
BOARD OF LAND & NATURAL RESOURCES

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EDGAR A. HAMASU  
DEPUTY TO THE CHAIRMAN

STATE OF HAWAII  
TO  
DEPARTMENT OF LAND AND NATURAL RESOURCES

P. O. BOX 621  
HONOLULU, HAWAII 96809

July 10, 1976

DIVISIONS:  
CONVEYANCES  
FISH AND GAME  
FORESTRY  
LAND MANAGEMENT  
STATE PARKS  
WATER AND LAND DEVELOPMENT

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*Vertical stamp: JUL 13 11 59 AM '76*

Honorable Kazu Hayashida  
Director and Chief Engineer  
Department of Public Works  
City and County of Honolulu  
Honolulu, Hawaii

Dear Sir:

We have reviewed the EIS for the Honouliuli Interceptor and would like to point out that any construction in the Conservation District will require approval of this Board under Regulation No. 4 of the department.

This requirement should be reflected in Appendix B of the EIS.

Very truly yours,

*Signature of Christopher Cobb*  
For CHRISTOPHER COBB  
Chairman of the Board

cc: Land Management  
Fish & Game

DEPARTMENT OF PUBLIC WORKS  
CITY AND COUNTY OF HONOLULU

650 SOUTH KING STREET  
HONOLULU, HAWAII 96813



RANK F. FASI  
MAYOR

KAZU HAYASHIDA  
DIRECTOR AND CHIEF ENGINEER

SD 76-414

August 31, 1976

Mr. Christopher Cobb, Chairman  
Board of Land and Natural Resources  
State of Hawaii  
P. O. Box 621  
Honolulu, Hawaii 96809

Dear Mr. Cobb:

Subject: Environmental Impact Statement for the  
Proposed Honouliuli Interceptor Sewer System

A Conservation District Use Application will be submitted to your office after the acceptance of the EIS and prior to commencement of construction activities. Appendix B of the EIS has been revised to reflect DLNR review for a Conservation District Use permit under Regulation No. 4.

Very truly yours,

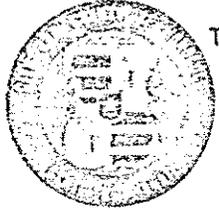
*Wallace Hayashida*  
KAZU HAYASHIDA  
Director and Chief Engineer

cc: OEQC  
Austin, Tsutsumi & Asso.

DEPARTMENT OF LAND UTILIZATION  
CITY AND COUNTY OF HONOLULU  
650 SOUTH KING STREET DEPT. OF PUBLIC WORKS  
HONOLULU, HAWAII 96813

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*Engy to cont*

GEORGE S. MORIGUCHI  
DIRECTOR

EIS (JW)

K. F. FASI  
AYOR

June 29, 1976

MEMORANDUM

TO : KAZU HAYASHIDA, DIRECTOR  
DEPARTMENT OF PUBLIC WORKS

FROM : GEORGE S. MORIGUCHI, DIRECTOR  
DEPARTMENT OF LAND UTILIZATION

SUBJECT: EIS FOR HONOULIULI INTERCEPTOR SEWER SYSTEM

REC'D  
DWAR  
100-311-1-ADD-03

We have reviewed the Environmental Impact Statement for the Interceptor Sewer System and find that it generally addresses the concerns of Ordinance No. 4529 (Interim Shoreline Protection). It would appear that the recommended alignment selection was made to minimize impact on public recreation areas, wildlife preserves and major population areas. It would also appear that the project will not hinder access to the shoreline or create any visual obstructions.

The contractual agreements, which will be entered into during the construction of the system, should include controls to minimize the short-term impacts during the construction period.

To clarify our previous memorandum, dated December 26, 1975, the application for a Shoreline Management Permit for this project will be evaluated only in terms of the recommended alignment and proposed construction methods. The question of whether or not an interceptor line should be built at all will not be considered since construction of the Honouliuli Sewer System, of which this interceptor line is a necessary and inseparable part, was initiated prior to the effective date of Ordinance No. 4529.

We have no further comments to make. We appreciate your consulting us.

*George S. Moriguchi*  
GEORGE S. MORIGUCHI  
Director

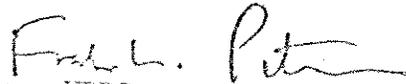
GSM:ls

University of Hawaii at Manoa  
Water Resources Research Center

MEMORANDUM

June 28, 1976

MEMO TO: Kazu Hayashida  
OEQC

FROM: Frank L. Peterson   
Acting Asst. Director, WPRC

SUBJECT: EIS for Proposed Honouliuli Interceptor Sewer System

Dr. Reginald H. F. Young and I have reviewed the EIS for the Proposed Honouliuli Interceptor Sewer System and we have no significant comments, criticisms, or suggestions to add.

FLP:jmn



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*Handwritten initials*

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# University of Hawaii at Manoa

RE:0205

Environmental Center  
Maile Bldg. 10 • 2540 Maile Way  
Honolulu, Hawaii 96822  
Telephone (808) 948-7361

*ENV (c9)*  
*Sevens 21*  
*Engineering & Const*

Office of the Director

July 26, 1976

TO: Kazu Hayashida

FROM: Doak C. Cox

RE: Environmental Impact Statement for The Proposed Honouliuli  
Interceptor Sewer System.

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JUL 27 PM 4 16

The Environmental Center's review of the above cited Environmental Impact Statement (EIS) has been prepared with the assistance of Alison Kay (General Sciences) and Jacquelin Miller and Clare Shinsato (Environmental Center).

Generally, the EIS appears adequate in its coverage of probable environmental impacts resulting from the proposed project. However, there are a few areas of concern we feel are unclear or need to be expanded.

p. 14 "The nearest classroom is approximately 200-300 feet (Waipahu High School) from the recommended Alignment". The EIS should address expected noise levels that would occur in this area. What type of equipment and construction activities may cause disturbance to teaching activities and what mitigating measures will be taken. We suggest that construction be restricted to non-school hours or during summer months.

The EIS (p.43) states that "If possible, however, construction scheduling should be planned such that pile driving at Pearl City SPS does not coincide with classroom hours." The phrase "If possible" and "should be planned" seem vague and noncommittal. Will construction be restricted during classroom hours if noise levels are found disruptive to classroom activities?

p. 25 The Wildlife refuge on Pearl City Peninsula is of particular concern. Since "nesting season for known species in this area is roughly between March and June" we suggest that construction activities not be scheduled during these months.

p. 41 The conclusion attributed to the Division of Fish and Game (paragraph 2) regarding lack of adverse environmental effects on desirable species of fauna is somewhat misleading as judged from the letter of

January 2, 1975 from Ronald Walker (appendix A). The letter clearly qualifies the conclusion of expected minimal impact by citing the provision that "assuming that there are fail-safe precautions taken to prevent leakage of effluent---no adverse impacts should be expected". The specific alignment is of considerable importance in assessing potential impacts and it is suggested that alternative E "might cause significant disruption to wildlife habitat."

Were the environment impacts on the wildlife refuge areas resulting from short term noise and construction activities adequately considered and evaluated? If so the results of such evaluations should be fully documented in the EIS.

p. 42 Will there be any need for possible blasting activities near shoreline or wildlife refuge areas? If so, in what areas, frequency, duration. Blasting should not be scheduled during nesting seasons.

p. 45 The EIS mentions the use of a Clam Shell rig for dredging. Has consideration been given to the use of suction dredging which may have less detrimental effects on the marine environment (i.e. minimize turbidity in class AA waters, of West Lock, etc).

We understand that fossil oyster beds are located near the areas under consideration for this project. All possible effort should be made to avoid disturbance of any such fossil deposits as they represent unique significant geologic structures.

We appreciate the opportunity to review this EIS.



---

Doak C. Cox  
Director

cc: OEQC  
Contributors

DEPARTMENT OF PUBLIC WORKS  
CITY AND COUNTY OF HONOLULU

650 SOUTH KING STREET  
HONOLULU, HAWAII 96813



KAZU HAYASHIDA  
DIRECTOR AND CHIEF ENGINEER

SD 76-429

September 7, 1976

Dr. Doak C. Cox, Director  
Environmental Center  
University of Hawaii at Manoa  
Maile Bldg. 10  
2540 Maile Way  
Honolulu, Hawaii 96822

Dear Dr. Cox:

Subject: EIS for the Proposed Honouliuli Interceptor  
Sewer System

We thank you for the comments contained in your letter of July 26, 1976 and will address each in the same sequence as presented therein.

P. 14 Soils investigation along the proposed alignment adjacent to Middle Loch (nearest point to Waipahu High School) indicates no material which would require either ripping or blasting for excavation. Conventional trenching equipment may be expected to produce noise levels no higher than 80 dBA at 50 feet, according to Mr. Jerry Alruno of the Noise and Radiation Branch, State of Hawaii, Department of Health. If the nearest classroom is 200 feet or more from construction, noise levels at the building exterior may be expected no higher than  $SPL_2 = 68$  dBA according to inverse square law. Sound pressure level measurements were made by our consultant on August 4, 1976, at Waipahu High School using a B & K Model 2203 Precision Sound Level Meter. At 9:00 a.m., measurements made at the exterior of the classroom nearest to Farrington Highway indicated a sound pressure level of 72 dBA (slow response). With no activity occurring on the school grounds (other than mobilization by a contractor for classroom construction), ambient noise levels as measured at several locations were about 60 dBA. Based upon the foregoing, we do not see a need for mitigating measures to be taken. The EIS has been revised to include the information presented above.

P. 43 According to Public Health Regulations, Chapter 44 B, Community Noise Control for Oahu, a Community Noise Permit may be granted for construction activities. We feel that it is the responsibility of the Department of Health, in reviewing such an application, to determine whether special restrictions must be placed on the Contractor.

P. 25 We have been corrected by the Fish and Wildlife Service (U. S. Department of the Interior), who states that the nesting period of the Hawaiian Coot (Fulica americana alei) and the Hawaiian Stilt (Himantopus himantopus knudensi) is between March and mid-August. The EIS has been changed accordingly.

Discussion with Dr. Andrew J. Berger of the Zoology Department, University of Hawaii, indicates that construction activity and other noise generators have no measurable effect on bird species, more specifically those listed as endangered. Dr. Berger has evaluated such effects through a number of studies, including Kanaha Pond, Maui, and Paiko Lagoon, Oahu. In light of his opinion, it is our feeling that the Contractor's construction schedule need not be restricted in this instance.

P. 45 Discussion of expected impact in this section of the EIS was limited to short term effects of construction; leakage of wastewater is not a potential problem during this period, and we consider the EIS statements valid as presently set forth. Possible long-term impact, with special attention to mitigating measures taken to prevent adverse effects from leakage or rupture, is dealt with on pgs. 57-61 of the EIS.

We agree that the specific alignment is of importance in assessing potential impact; we likewise agree that alternative E might well cause significant disruption to wildlife habitat. However, we do not feel the EIS should be modified to specifically include these points.

Because the recommended alignment does not pass through the wildlife refuge on Pearl City Peninsula, a special study to investigate the effects of construction activity was not felt to be warranted. This is particularly true since studies by Berger and others have shown that birds exhibit little or no adverse reaction to noise or other potentially disturbing activity in areas surrounding their habitat.

September 7, 1976

P. 42 Soils evaluation near the shoreline of Middle Loch or the Wildlife refuge on Pearl City Peninsula indicates that conventional excavation methods should be adequate and that neither ripping nor blasting should be required. Blasting may be required for excavation in the limestone outcroppings at both landward ends of the West Loch crossing (Waipio Peninsula and NAD West Loch). However, these sites are not adjacent to any known wildlife habitats.

P. 45 A detailed evaluation of the differential environmental effects of alternative dredging equipment has been presented in the Final Environmental Statement, Harbor Maintenance Dredging in the State of Hawaii, prepared by the U. S. Army Engineer District, Honolulu in September 1975. The EIS has been modified to include reference to this publication.

It is not felt that the Contractor's methods should be restricted by the construction documents. Sediment deposit calculations described in the EIS were made assuming 10% of all excavated material would be carried in one direction, an extremely conservative estimate. Desirable species of non-motile organisms are essentially limited to oysters. Using this conservative estimate of sediment loads (conservative in the sense of probably being well in excess of actual sediment loads during construction), Dr. Bowers maintained that "... little, if any, measurable reduction of oyster beds will result from these activities.", as set forth on pg. 50 of the EIS. It is our feeling that the potential environmental effects do not warrant restriction of Contractor methods in this instance.

The State of Hawaii Department of Land and Natural Resources, Division of Fish and Game, could find no record of fossil oyster beds located along the alignment of the interceptor beneath West Loch. If there is survey data giving evidence of such fossil beds, we would appreciate more detailed information. If evidence of fossil beds is discovered, the Division of Fish and Game will be notified of such evidence. The EIS has been modified accordingly.

We appreciate your thorough review and constructive comments.

Very truly yours,



For KAZU HAYASHIDA

Director and Chief Engineer

cc: OEQC  
Austin, Tsutsumi & Assoc.



DEPARTMENT OF PLANNING  
AND ECONOMIC DEVELOPMENT

GEORGE K. ARIMON  
Director

HIDETO KONO  
Director

FRANK SRIVANER  
Deputy Director

Kamamalu Building, 250 South King St., Honolulu, Hawaii • Mailing Address: P.O. Box 2359, Honolulu, Hawaii 96804

June 29, 1976

Ref. No. 1488

MEMORANDUM

TO: Dr. Richard Marland, Director  
Office of Environmental Quality Control

FROM: Hideto Kono, Director *[Signature]*

SUBJECT: Environmental Impact Statement for the Proposed Honouliuli Interceptor  
Sewer System

Our staff has reviewed the subject statement and finds that it has adequately assessed the probable environmental concerns that can be anticipated from the proposed project.

We note that the subject proposal is consistent in its linkage with the Honouliuli Wastewater Treatment Plant and Barber's Point Ocean Outfall System and the Malama Bay Wastewater Treatment and Disposal System, both of which have received prior review. Further, as it appears that a West Loch crossing cannot be feasibly avoided, we would concur with the proposed interceptor alignment.

We appreciate this opportunity to review and comment on the subject statement.

State of Hawaii  
DEPARTMENT OF DEFENSE  
OFFICE OF THE ADJUTANT GENERAL  
Fort Ruger, Honolulu, Hawaii 96816

22 JUN 1976

HIENG

Dr. Albert Tom, Chairman  
Environmental Quality Commission  
550 Halekauwila Street  
Honolulu, Hawaii 96813

Dear Dr. Tom:

Honouliuli Interceptor Sewer System

Thank you for sending us a copy of the Environmental Impact Statement for the proposed "Honouliuli Interceptor Sewer System." We have received the publication and have no comments to offer.

We are returning the Environmental Impact Statement for the proposed project per your request.

Yours truly,

signed

WAYNE R. TOMOYASU  
Captain, CE, HARNG  
Contr & Engr Officer

Enclosure



STATE OF HAWAII  
DEPARTMENT OF AGRICULTURE

1428 SO. KING STREET  
HONOLULU, HAWAII 96814

June 22, 1976

MEMORANDUM

To: Environmental Quality Commission

Subject: EIS for Proposed Honouliuli Interceptor Sewer System  
(A Supplement to EPA's Mamala Bay Wastewater Treatment  
and Disposal System of December, 1973)

The Department of Agriculture has reviewed this final statement and finds agricultural concerns have been addressed. We have no additional comments or recommendations.

The EIS is returned for your future use.

A handwritten signature in cursive script, reading "John Farias, Jr." with a flourish at the end.

JOHN FARIAS, JR.  
Chairman, Board of Agriculture

JF:d:h