EXECUTIVE CHAMBERS

HONOLULU

GEORGE R. ARIYOSHI
GOVERNOR

April 27, 1984

Ms. Letitia N. Uyehara, Director
Office of Environmental Quality Control
550 Halekauwila Street, Room 301
Honolulu, Hawaii 96813

Dear Ms. Uyehara:

Based on the recommendation of the Office of Environmental Quality Control, I am pleased to accept the revised environmental impact statement for the Kaneohe-Kailua wastewater facilities as a satisfactory fulfillment of the requirements of Chapter 343, Hawaii Revised Statutes.

This environmental impact statement will be a useful tool in deciding whether this project should be allowed to proceed. My acceptance of the statement is an affirmation of its adequacy under applicable laws and does not constitute an endorsement of the proposal.

When the decision is made regarding this action, I expect the proposing agency to carefully weigh the societal benefits against the environmental impact which will likely occur. This impact is adequately described in the statement, and, together with the comments made by reviewers, provides a useful analysis of alternatives to the proposed action.

With warm personal regards, I remain,

Yours very truly,

George R. Ariyoshi

Revised
Environmental Impact Statement
for
Kaneohe-Kailua Wastewater Facilities

March 1984

GMP
associates, inc.

Revised
Environmental Impact Statement
for
Kaneohe-Kailua Wastewater Facilities

TAX MAP KEYS: 4-2, 4-3, 4-4, 4-5 and part of 4-6
This document is prepared pursuant to Chapter 343, HRS.

Proposing Agency: DEPARTMENT of PUBLIC WORKS
CITY and COUNTY of HONOLULU
650 SOUTH KING STREET
HONOLULU, HAWAII 96813

Accepting Authority: GOVERNOR, STATE of HAWAII
and DEPARTMENT of LAND UTILIZATION
CITY and COUNTY of HONOLULU

Responsible Official: Michael J. Chun March 8, 1984

MICHAEL J. CHUN **Date**
Director and Chief Engineer

Prepared for:
DIVISION of WASTEWATER MANAGEMENT
CITY and COUNTY of HONOLULU

By
GMP
associates, inc.

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Summary

SUMMARY

This document addresses facilities actions being proposed in the Kaneohe-Kailua Wastewater Facilities Plan. These actions will improve cost effectiveness and/or environmental features of the Kaneohe-Kailua-Kahaluu wastewater management system for the planning period 1985 to year 2005. During these 20 years, a moderate population increase from 89,000 to 100,000 is projected. Meanwhile, the two major wastewater treatment plants at Kaneohe and Kailua are already 20 years old and have several shortcomings which must be corrected.

Six categories of alternatives are evaluated, namely:

(1) Centralization/Decentralization Alternatives

(2) Primary/Secondary Treatment Alternatives

(3) Sludge Disposal Alternatives

(4) Flow Reduction Alternatives

(5) Odor Control Alternatives

(6) Energy Conservation Alternatives

Present environments, as well as environmental impacts stemming from proposed actions, are described. The following facilities actions are proposed:

(1) Facilities at the Kailua Sewage Treatment Plant will be upgraded to provide centralized treatment for the entire planning area

(2) Ahuimanu Sewage Treatment Plant will be reduced to a pretreatment and pumping facility

(3) Treatment plants at Pohakupu, Kukanono, Maunawili Park and Maunawili Estates will be closed. Sewage will be transported to the Kailua Sewage Treatment Plant collection system via a new sewer interceptor and new sewage pump stations

(4) Kaneohe sewage treatment plant will be reduced to a pretreatment and pumping facility

(5) Collection systems within the area will be expanded to accommodate about 12,000 persons in areas which now use cesspools for sewage disposal

There will be a few minor short-term, local adverse impacts resulting from construction activities as the above proposed actions are implemented. Favorable water quality impacts and odor reduction will result from the closure of Ahuimanu STP and the four interim treatment plants near Kawainui Marsh. Substantial savings in operational costs and a reduction in odor problems near the Kaneohe STP will result from reducing Kaneohe STP to a pretreatment and pumping facility. A major improvement will result from the positive strategy for odor control at Kailua STP.

1 Introduction and Objectives

CHAPTER 1

INTRODUCTION AND OBJECTIVES

1.1 INTRODUCTION

1.1.1 Objective of Facilities Plan & EIS

The objective of the Kaneohe-Kailua Facilities Plan is to present alternatives and recommendations for wastewater facilities which are cost effective and environmentally acceptable.

The entire Kaneohe-Kailua-Kahaluu Wastewater Management "System" includes the following components:

(1) Collection Facilities - Sewer Districts and Sub-districts

(2) Major Sewer Lines, including force mains and pump stations

(3) Treatment Facilities & Processes

(4) Mokapu Outfall

Primary emphasis in the Kaneohe-Kailua Wastewater Facilities Plan is on treatment facilities and processes.

Centralized treatment at Kailua Sewage Treatment Plant (STP) has been recommended in the Facilities Plan. Accordingly, the primary objective of this EIS is to present environmental impacts of centralized treatment alternatives at the Kailua STP. The Facilities Plan and this EIS also include the broader aspects of the entire Wastewater Management System in some detail.

The basic format of this EIS follows Environmental Protection Agency (EPA) guidelines. Minor modifications are included to adapt to State of Hawaii EIS regulations. This document also serves as an Environmental Assessment in the Federal environmental review process.

1.1.2 Scope of Study for the Facilities Plan

The Scope of Study for the Kaneohe-Kailua wastewater Facilities Plan requires review of optimal location(s) and processes for wastewater collection and treatment for the planning period 1985 to 2005. Recommendations in the Plan are based on cost effectiveness, pollution abatement efficiency, operational simplicity and flexibility, odor abatement efficiency, conservation of energy and pertinent environmental considerations.

A prime task is to determine whether decentralized, partially centralized, or centralized treatment will be most economically as well as environmentally and operationally sound. The original Scope of Study, prepared in 1980, required that two determinations be made for two cases of effluent quality, namely:

(1) Present effluent quality requirements of 30 milligrams per liter (mg/l) for both five day Biochemical Oxygen Demand (BOD_5) and Suspended Solids (SS) as stated in the National Pollutant Discharge Elimination System (NPDES) Permits issued by the State Department of Health (DOH) in 1977 for both Kaneohe STP and Kailua STP.

(2) Revised effluent quality requirements for a 30 day average concentration as requested in a waiver proposal to EPA dated September 7, 1979.

These requirements, using the trickling filter as a treatment method, were proposed as follows:

Wastewater Parameter	Kailua STP	Kaneohe STP
BOD_5 (mg/l)	60	60
SS (mg/l)	45	60

Secondary treatment was a general requirement for all STPs prior to 1982. Subsequently, an amendment to the Clean Water Act permitted municipalities to request a waiver of the requirement for secondary treatment if it could be shown that no adverse environmental impacts in water quality would result from the lesser degree of treatment. The City intends to reapply to EPA during 1983 for a waiver or the secondary treatment requirements to allow primary effluent to be discharged through Mokapu Outfall.

It is important to note that federal law presently limits a waiver to five years. If there are no congressional amendments to the Clean water Act that extend the period, upgrading to secondary treatment will be required if another waiver is not granted.

Recent legislation provides revised definitions of secondary treatment that now qualify biological trickling filters as a secondary treatment process. Accordingly, there is no legal requirement to consider activated sludge or other

alternative secondary treatment processes at Kailua STP. Review of such other alternatives may be, however, desirable as part of the planning process.

It was prudent to amend the Facilities Plan study scope, in view of the above, to examine two revised treatment strategies at Kailua STP. It is expected that EPA will approve one of these strategies. These revised treatment strategies are:

(1) Strategy A

Use primary treatment only. This strategy infers that trickling filters will not be required. Future limits for Mokapu Outfall effluents will be established by EPA after submission of the City's next request for waiver. It is assumed that both BOD_5 and SS will be somewhat over 100 mg/l.

(2) Strategy B

Use secondary treatment. This strategy infers that trickling filters will be included in the treatment process with effluent limits in the range of 45 to 55 mg/l for BOD_5 and SS.

2 Wastewater Management Overview

CHAPTER 2

WASTEWATER MANAGEMENT OVERVIEW

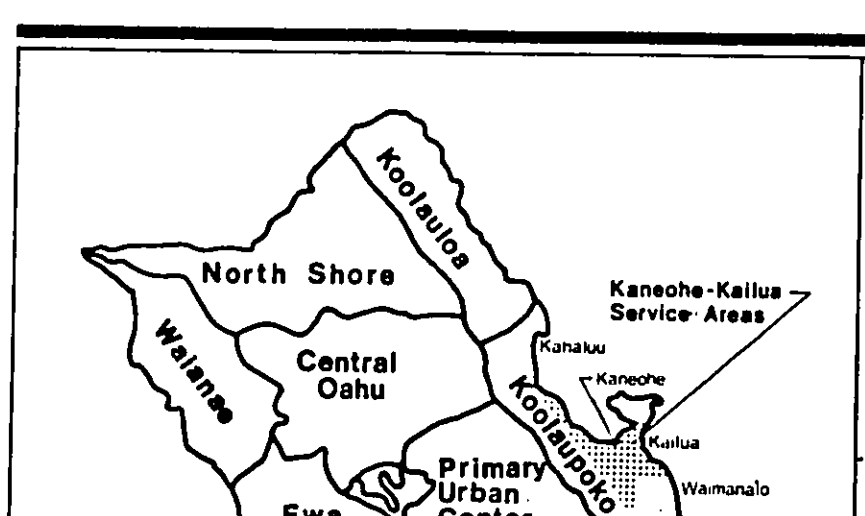
2.1 FACILITIES HIGHLIGHTS

Locations of the Kaneohe-Kailua wastewater service areas are shown in Figure 1. The Kaneohe service area will, for the future purposes of wastewater management, include four sub-areas of the Kahaluu area.

Figure 2 shows major wastewater facilities in the service areas which are either in existence or for which decisions have been made. The present and proposed sewered areas in the Kaneohe-Kailua service area are illustrated in Figure 3. Figures 4 and 5 are aerial views of the Kaneohe STP and Kailua STP showing relationships to the surrounding area. The project which will evolve from the Facilities Plan involves centralized treatment facilities at Kailua STP. Details are presented in Chapter 6.

2.1.1 Use of Public Funds and/or Lands

Major wastewater facilities (treatment plants and collection systems) in the service areas of the Facilities Plan, are government operated and are on land owned or controlled by the City. Public funds, administered by the City, will be used for any facilities improvements, operations and maintenance.



Source: U. S. G. S. , 1969

Existing KMCAS STP

Kaneohe Effluent Force Main

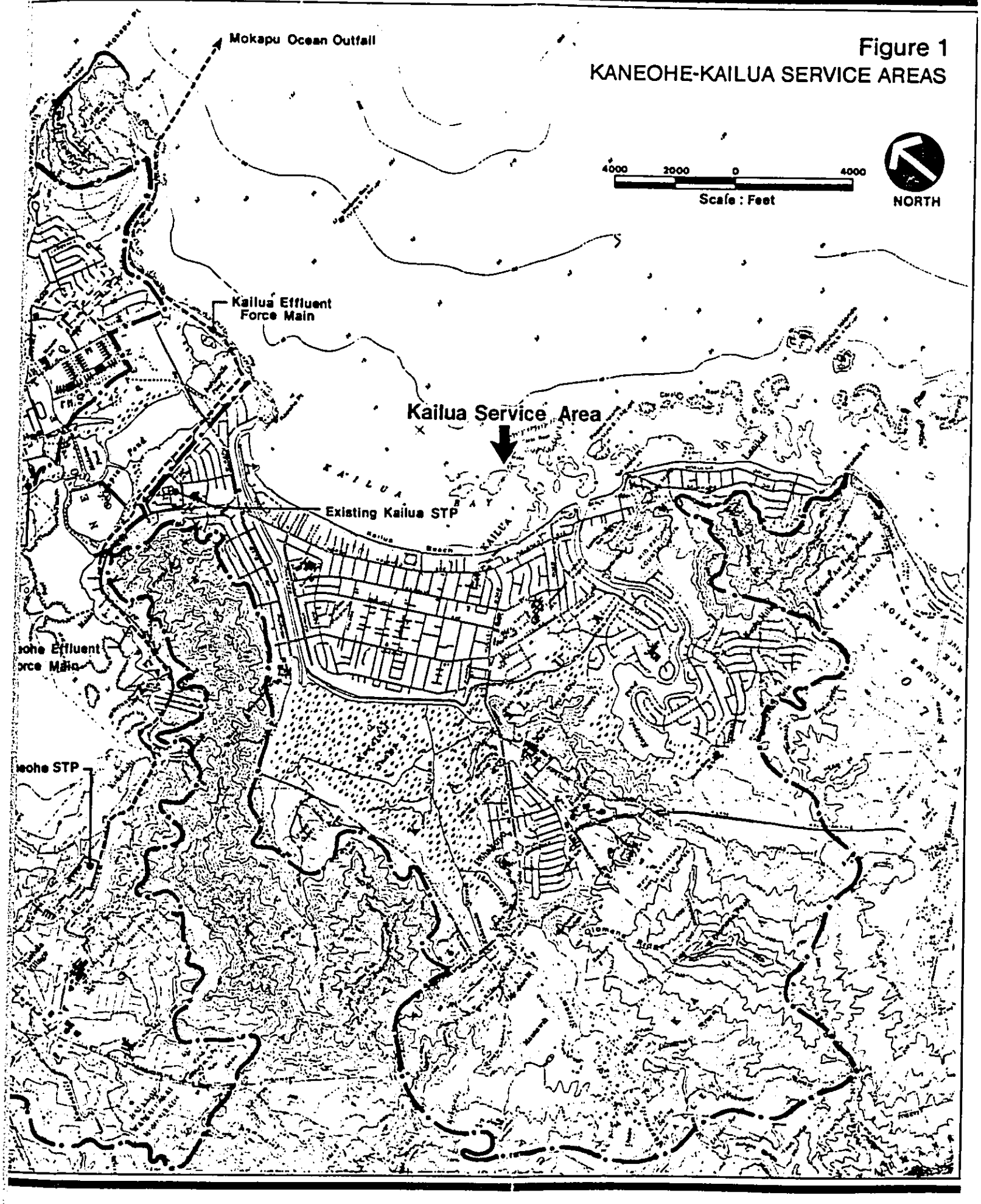
Kaneohe Service Area

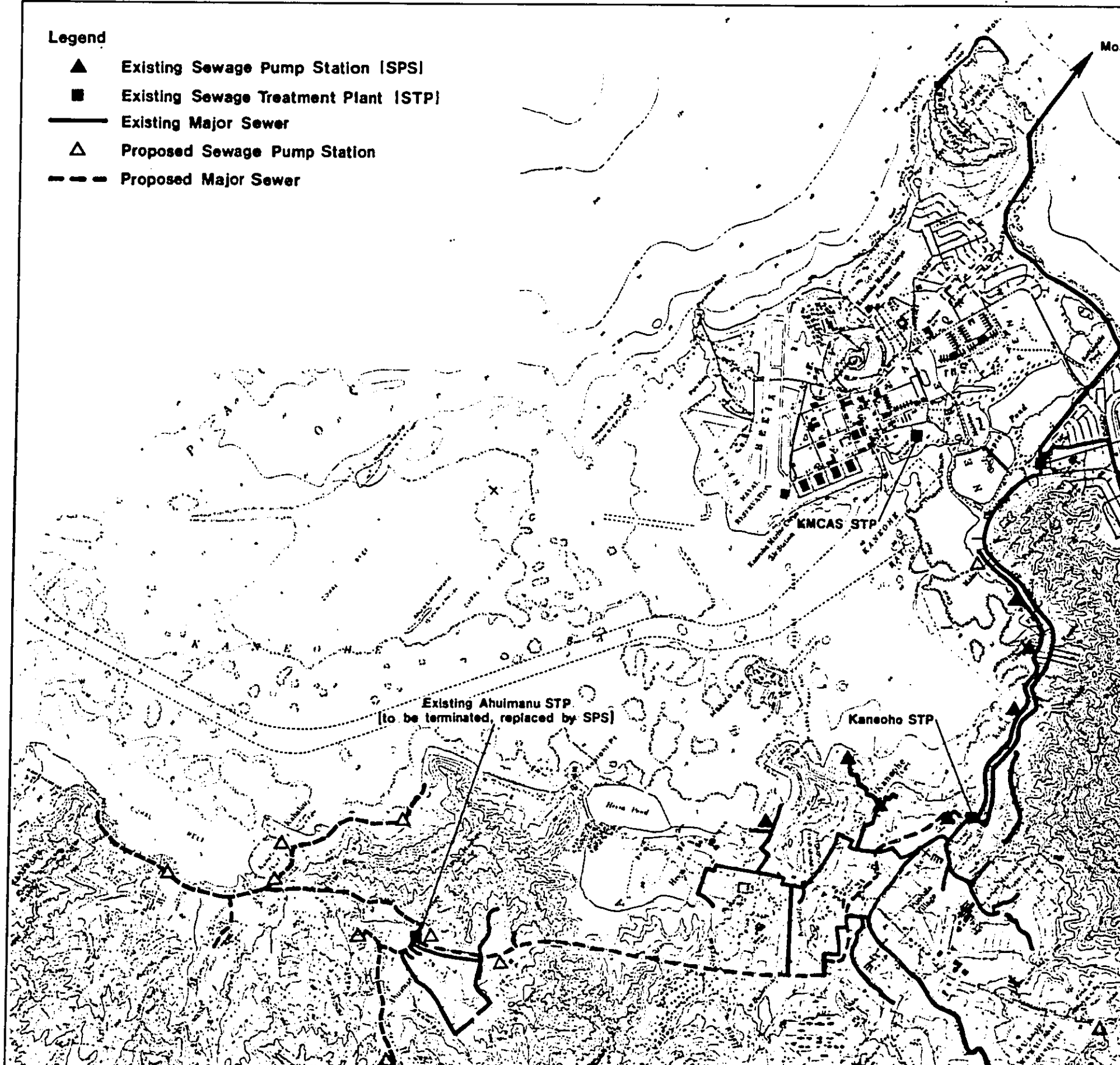
Existing Ahuimanu STP (to be terminated)

Existing Kaneohe STP

Future Extension of Kaneohe Service Area into 4 subareas of Kahaluu

Figure 1
KANEOHE-KAILUA SERVICE AREAS




Legend
Existing Sewage Pump Station (SPS)
Existing Sewage Treatment Plant (STP)
Existing Major Sewer
Proposed Sewage Pump Station
Proposed Major Sewer
KMCAS STP
Existing Ahuimanu STP
(to be terminated, replaced by SPS)
Kaneohe STP

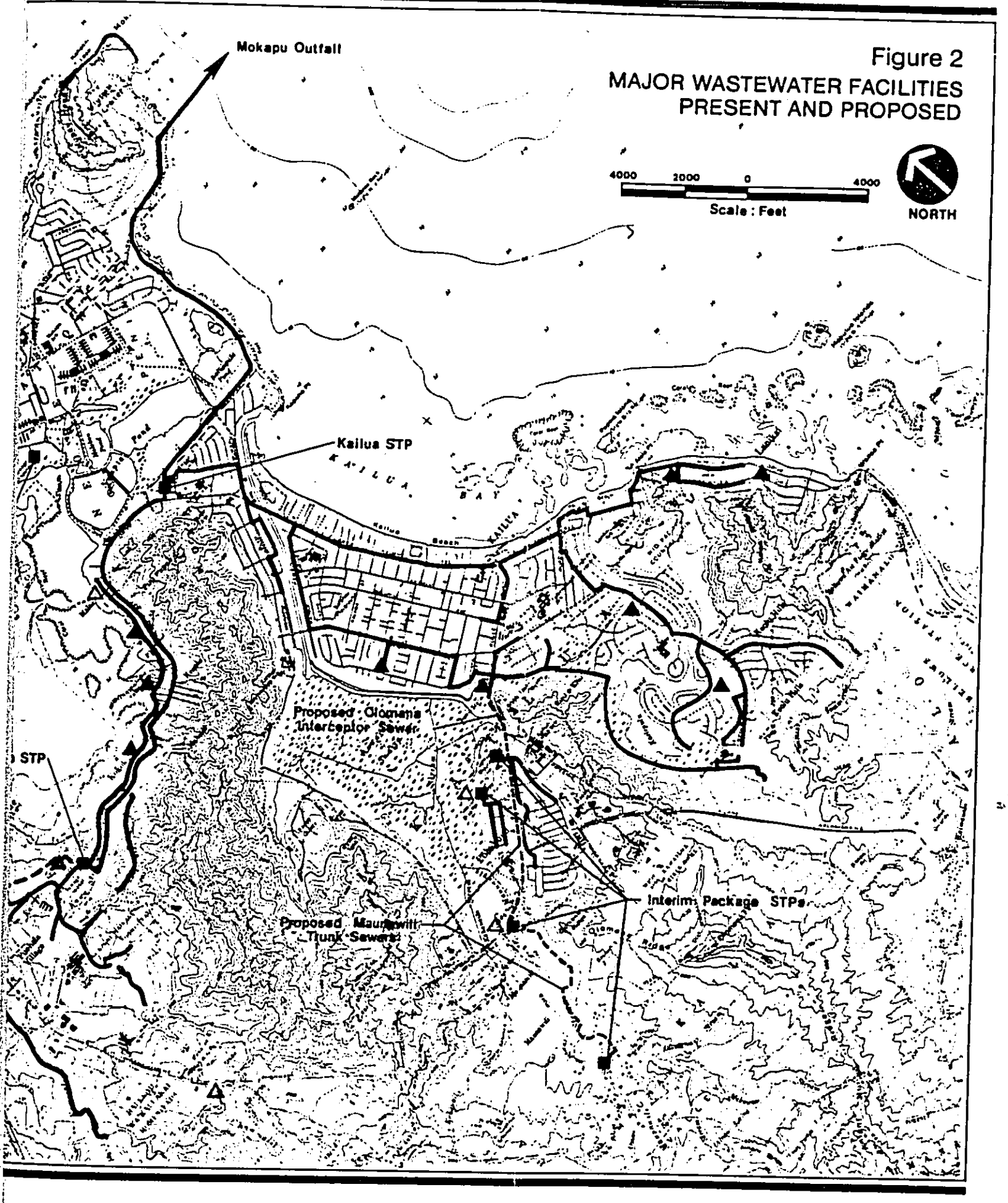
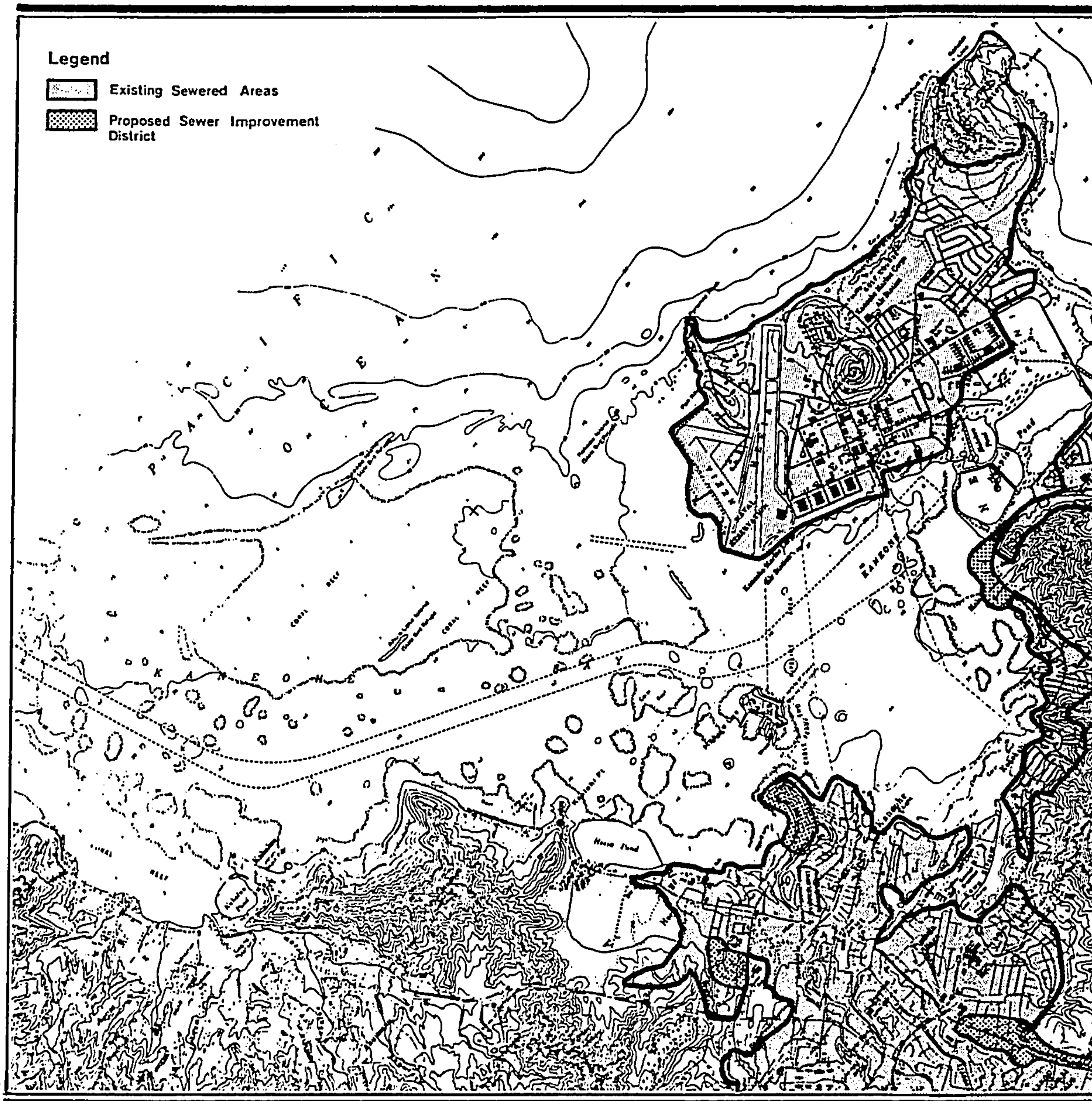


Figure 2
MAJOR WASTEWATER FACILITIES
PRESENT AND PROPOSED


Legend
Existing Sewered Areas
Proposed Sewer Improvement District
PACIFIC OCEAN
KANEOHE BAY

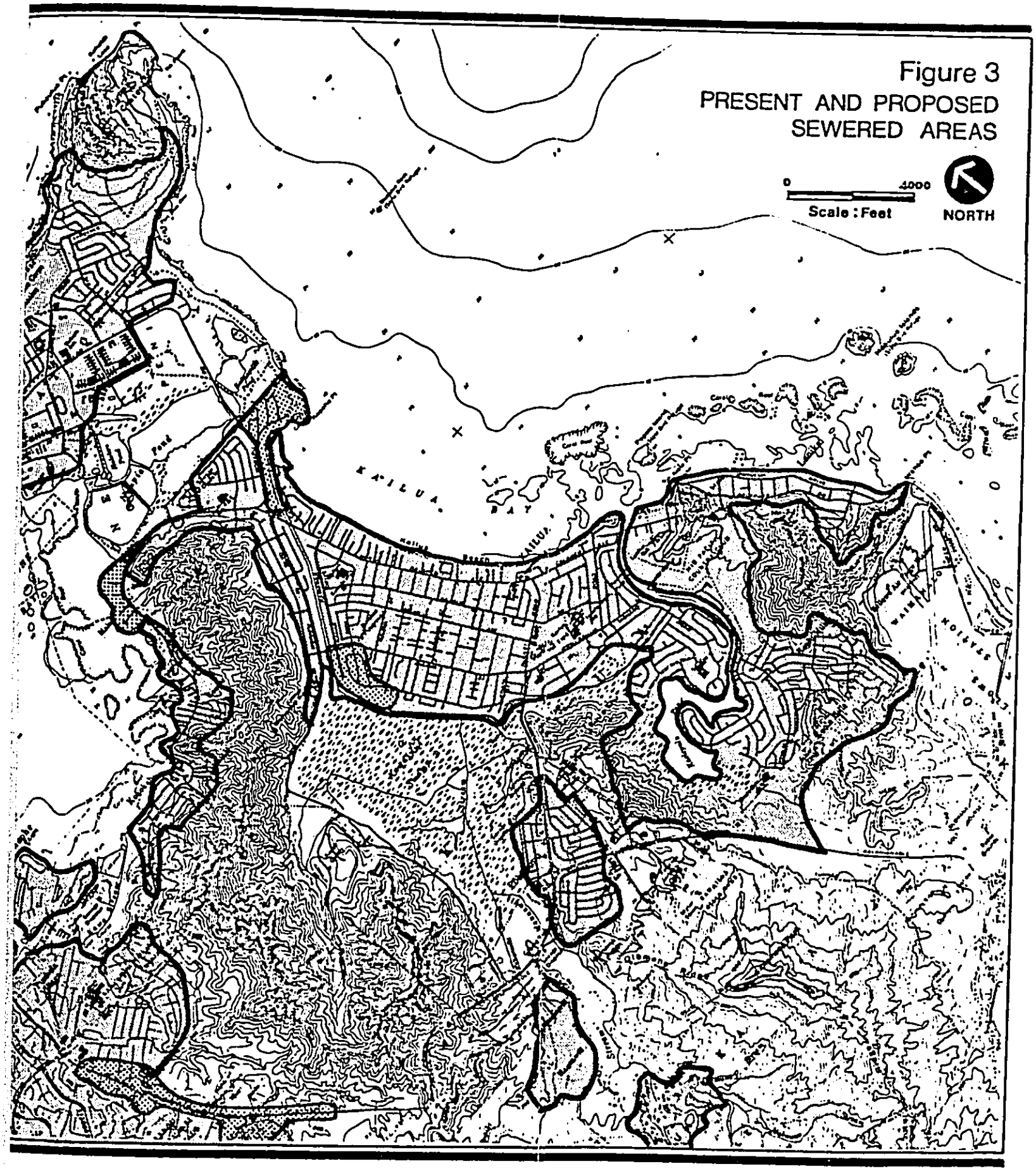


Figure 3
PRESENT AND PROPOSED
SEWERED AREAS
0
4000
Scale : Feet
NORTH
KAILUA
BAY


KAILUA STP
Figure 5
KAILUA STP AND ENVIRONS
0
1000
Scale : Feet
NORTH
Wind Directions

Currently, federal funds have generally been available for 75 percent of capital improvement costs of wastewater treatment facilities. The State has provided 10 percent of the funding; the City has provided 15 percent. The funding participation will change after October 1, 1984. The anticipated breakdown is: Federal - 55%, State - 18%, City - 27%.[1]

2.1.2 Historic Perspective

A decade ago, the windward suburban communities were growing rapidly and were continuing to change in character from rural to suburban. Much of the Kailua, Kaneohe and Kahaluu service areas had cesspools and were unsewered. These communities, along with the rest of Oahu, were expressing serious concern about coastal water quality, particularly in Kaneohe Bay. Wastewater treatment plants had been built in Kailua (1964), Kaneohe (1962) and Ahuimanu (1967). These plants received average influent flows of about 3, 3 and 0.5 million gallons per day (mgd) in the early 1970's. Treated effluents were discharged from the Kapoho Point Outfall into the northwest edge of Kailua Bay, from the Kaneohe Outfall into South Kaneohe Bay, and from the Ahuimanu STP into Ahuimanu Stream. Residential areas in the southwest section of the Kailua service area were then, as now, served by four interim wastewater treatment plants whose combined capacity was about 0.5 mgd. Effluent from these four

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1 Verbal communication with Wastewater Treatment Works Construction Grants Branch, State Department of Health. September 23, 1983.

plants, i.e., Pohakupu, Kukanono, Maunawili Park and Maunawili Estates, then, as now, flowed to tributaries of Kawainui Marsh or directly into the marsh.

No major facility changes were made at any of the treatment plants during the 1970's. Average flows at the Kaneohe and Kailua treatment plants had, by 1980, increased to about 4 and 5 mgd, respectively.

Windward suburban areas, like other areas of Oahu, experienced a growth of about 20 percent during the decade of the 1970's. Sewer service replaced cesspool service in most areas. The old Kaneohe Bay Outfall and the old Kapoho Point Outfall were discontinued and replaced by the new (1977) Mokapu Ocean Outfall. This was a major step in the cleanup of Kaneohe Bay. A new (1977) force main now carries effluent from the Kaneohe and Kailua treatment plants to the ocean outfall.

The Kaneohe Marine Corps Air Station (KMCAS) Wastewater Treatment Plant, built in 1947, also lies geographically within the Kaneohe-Kailua Sewerage District but is under military jurisdiction. The KMCAS plant was upgraded in 1973 from primary to secondary treatment. Average daily flows during the 1970's were in the range of 1.2 to 1.4 mgd. This same flow range is projected to the year 2005. About 0.2 mgd is used for irrigation of the golf course and for landscaping near the station entrance and around one barracks. The remaining effluent is pumped to the effluent pump station at Kailua STP and is then discharged through the Mokapu Ocean Outfall. All effluent was discharged into a Kaneohe Bay Outfall until completion of the Mokapu Ocean Outfall.

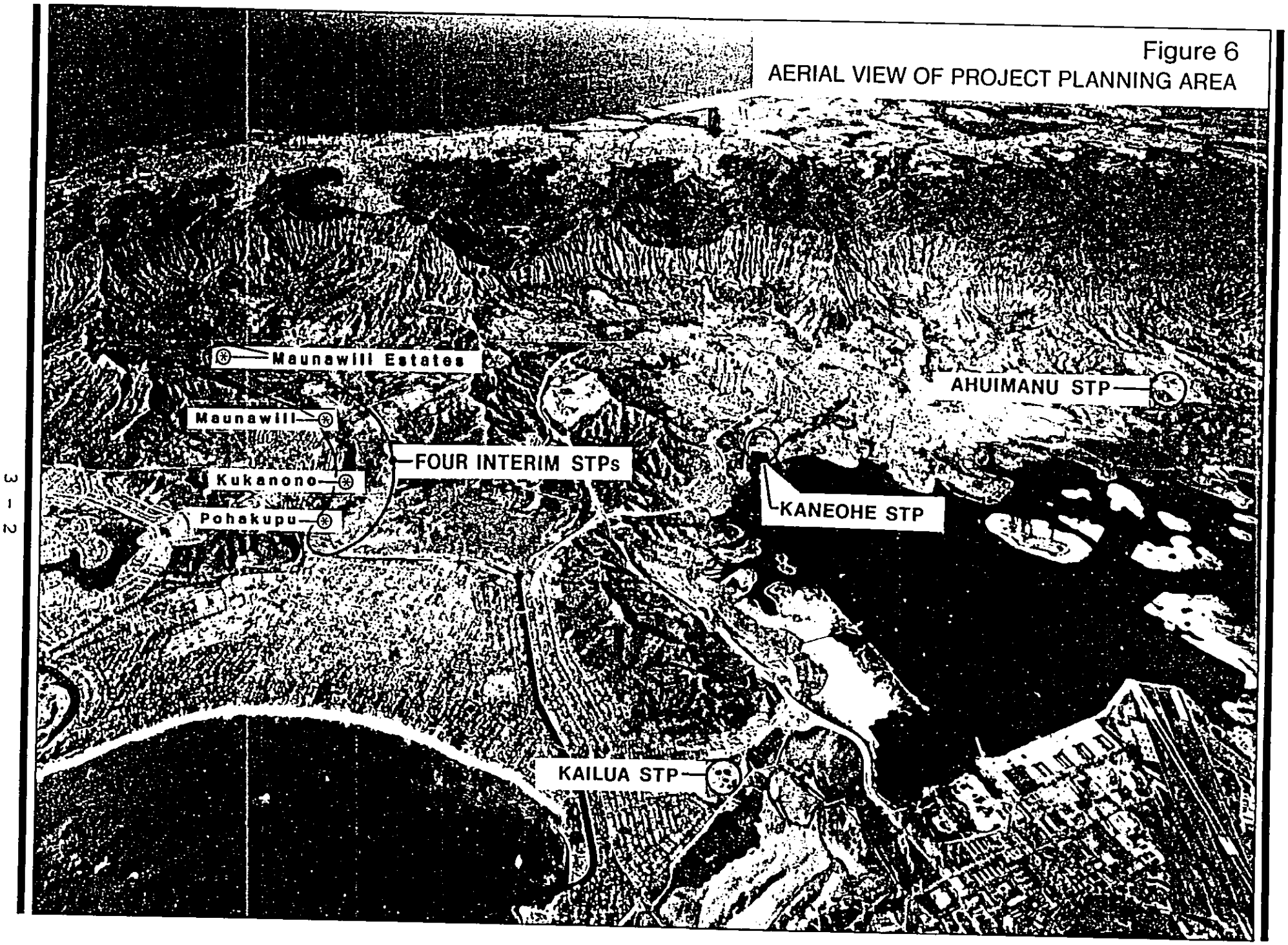
As part of planned system improvements, it has been determined that the Ahuimanu STP will close in the mid 1980's. Wastewater collected within and near the Ahuimanu tributary sewered area from four sub-areas of Kahaluu will be directed to a pump station at the present STP location and then through a new force main to the Kaneohe STP. The four small interim treatment plants near Kawainui Marsh, in addition, will cease operations in the mid 1980's. Wastewater collected in that area will be directed to the Kailua STP.

Construction of the Ahuimanu Sewage Pump Station and Force Main began during 1983. Specific wastewater collection system details in five improvement districts of Kahaluu were presented in the 1980 Facility Plan and companion Environmental Impact Statement for the Kahaluu Wastewater Treatment and Disposal System.

It is expected that centralized facilities recommended for Kailua STP in the Facilities Plan will be constructed in the mid 1980's.

3 Present Environment

Figure 6
AERIAL VIEW OF PROJECT PLANNING AREA



CHAPTER 3

PRESENT ENVIRONMENT

3.1 COMMUNITY LOCATIONS

Community locations for the windward Oahu suburban areas of Kaneohe, Kailua, and Kahaluu are shown in Figure 1 (page 2-2).

3.1.1 Service Areas

Figure 6 is an aerial view showing the general character of the service areas. Single-family residential areas predominate with substantial open space. A few acres are devoted to commercial-industrial use.

3.1.2 Communities Within Service Areas

The Kailua service area includes the following neighborhoods:

(1) Kailua proper
(between Kawainui Marsh and Kailua Bay)

(2) Lanikai

(3) Enchanted Lakes (around Kaelepulu Pond)

(4) Keolu Hills (south of Kaelepulu Pond)

(5) Pohakupu

(6) Maunawili

The Kaneohe service area includes the following:

(1) Kaneohe proper

(2) Kokokahi

(3) Heeia

The four sub-areas of Kanaluu which will, in the future, be part of Kaneohe service area are:

(1) Ahuimanu

(2) Kahaluu East

(3) Kahaluu North

(4) Kahaluu South

3.1.3 Topography

Overall topography varies considerably. There is precipitous, almost vertical, terrain at the Koolau crest which forms the southwestern boundary of the planning area. This changes to an almost flat shoreline area along most of the northeastern boundary.

The southern portion of the planning area has some steep to moderately steep slopes. Substantially flat areas predominate around Kaelepulu Pond and Kawainui Marsh. Steep to moderately steep slopes separate the Kailua service area from the Kaneohe service area. Moderate slopes of less than ten percent prevail in much of the Kaneohe area.

3.1.4 Geology

The project is in an area of volcanic origin. The continuing processes of erosion, deposition, weathering and soil formulation have formed valleys and deposits of alluvial material. The Koolau rift zone, along the Koolau Range, is made up of a series of vertical, parallel dikes which store infiltrating rainfall and form a storage area for ground water supply. Coralline sand predominates at the surface along the Kailua Bay coastline for several thousand feet inland.

3.1.5 Climate

The planning area has a mild subtropical climate with strong northeast tradewinds about 75 percent of the time. Mean annual temperature is 75°F. The extremes constitute occasional temperatures in the upper fifties in January and February and a little over 90°F during August through October. Mean annual rainfall averages 50" along the coast and 150" along the crest of the Koolau Range. Heavy rains often occur during November through April with only about 30 percent of the annual rainfall occuring May through October.

3.1.6 Air Basin

The air basin of the Kaneohe-Kailua area has been designated as an attainment area under the Federal Clean Air Act.

The implication of this designation is that National ambient air quality standards are being maintained.

There have been odor problems for over a decade at the residential subdivision of Aikahi Gardens, across the road to the southwest of Kailua STP, about 500 feet from the trickling filters. Figure 5 shows the relationship of Kailua STP to adjacent residences.

The odors continue to be an occasional problem although they have been reduced over the past decade and daily chemical treatment, at considerable expense, is utilized to minimize odors.

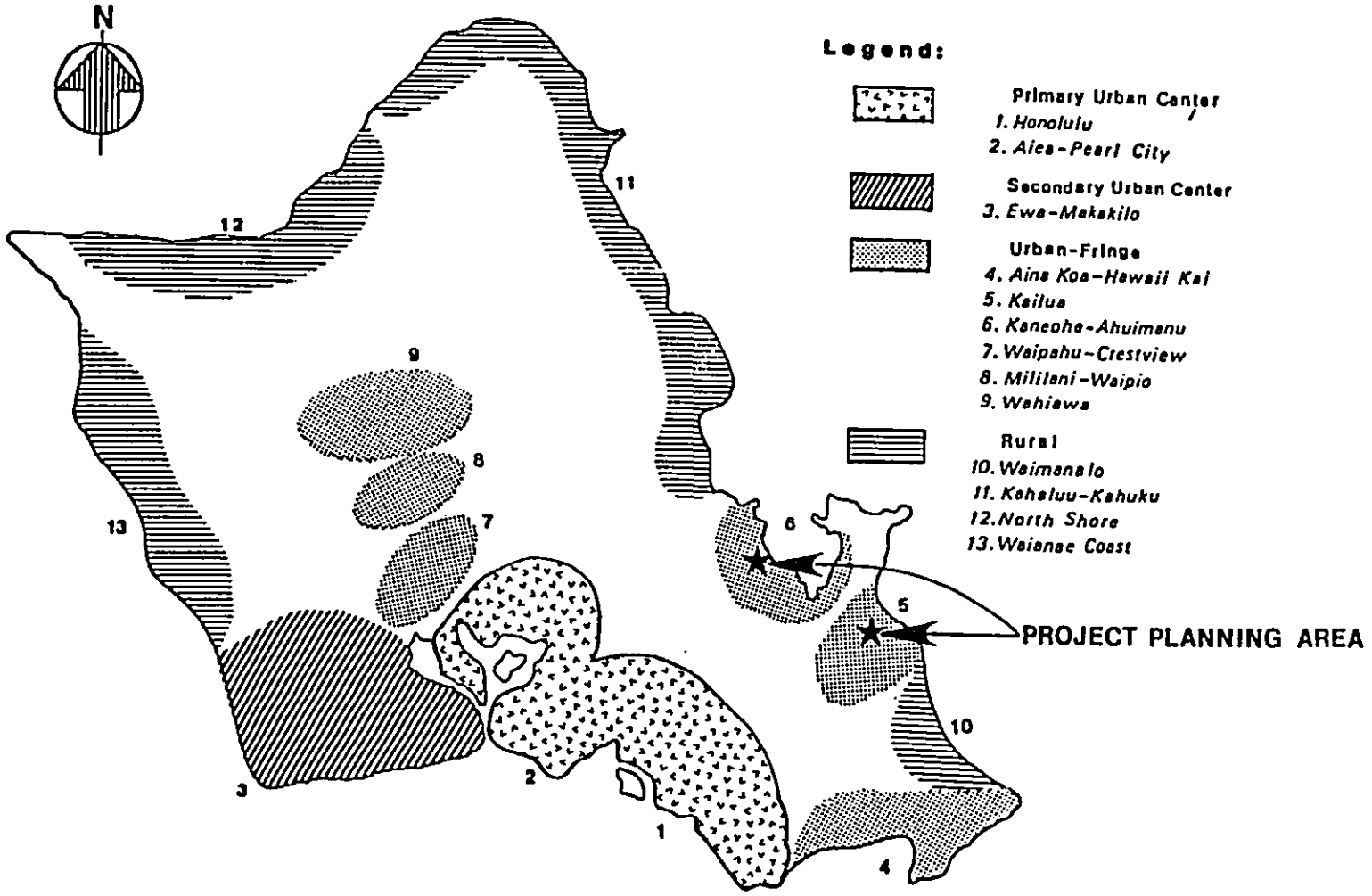
There are currently no Federal or State ambient air quality standards for hydrogen sulfide (H_2S); a gas which is a principal component of STP odors. The State Department of Health is currently, however, proposing a state-wide ambient standard of 100 parts-per-billion. The threshold for detection of H_2S odors varies in the range of 5 to 130 parts-per-billion.

3.1.7 Community Type

The service areas are designated as "urban-fringe" in the 1977 General Plan of Honolulu as shown in Figure 7. The City's policy with respect to "urban fringe" is to "reduce, or at most maintain, the 1975 proportion of the Island's rural and urban fringe populations" during the period to year 2000.

Figure 7

POPULATION PLANNING AREAS



3.1.8 Major Economic Activities

Kaneohe Marine Corps Air Station is the only large employer in the planning area. Although there are a number of jobs in the neighborhood commercial areas and minor institutions, the major locations ot employment are on the leeward side of the Koolau range. The service areas are primarily "bedroom" communities.

Only one percent of land in the service area is devoted to industrial use, and about two percent to commercial uses.

3.1.9 Housing Type and Mix

Table 3.1 shows a breakdown or dwelling units in the service areas by type for 1975.

3.1.10 Present Population

Resident populations for Kailua, Kaneohe and Kahaluu were 41,291, 35,216, and 12,119, respectively, for a total of 88,626, based on 1980 census data. It is of interest that the 1980 military population of Kaneohe Marine Corps Air Station was 11,578. The breakdown of populations for sewered and non-sewered areas are shown in Table 10.1.

TABLE 3.1

DWELLING UNITS BY TYPE - 1975

Dwelling type	Kaneohe		Kailua		Kahaluu	
	Units	%	Units	%	Units	%
Single-family	7,319	78.97	10,476	88.44	2,840	74.70
Low density multifamily	481	5.19	208	1.76	839	22.10
High density multifamily	1,468	15.84	1,161	9.80	121	3.20
Total	9,268	100.00	11,845	100.00	3,800	100.00

SOURCE: City and County of Honolulu, Department of General Planning, Planning Data for Oahu: 1975 Land Use Data by Small Area, May 1978. Table 118, page 241.

3.1.11 Major Botanical Features

Landscaping of residential areas is the predominant botanical feature in the Kaneohe and Kailua service areas. Natural vegetation at lower elevations includes pili grass, kiawe, haole koa, and finger grasses. There are, at higher elevations, guava, christmas berry, California grass, java plum and lantana.

Coconut trees, Bermuda grass, and a variety of grasses and weeds are features on and adjacent to the sites at the Kaneohe and Kailua STPs. The flora, at the present Kapaa landfill site used for sludge disposal and at the proposed Kalaheo Landfill site, includes haole koa, christmas berry, java plum, monkey pod, guinea grass, California grass, and napier grass.

3.1.12 Important Fish and Wildlife

Wild animal life within the Kaneohe and Kailua service areas includes the mongoose, rat, wild pig, and feral cats and dogs.

The coastal regions include natural habitats and feeding areas for many introduced exotic birds such as cardinals, linnets, sparrows, mynah birds, thrush, and doves. Native herons habituate and feed in the fish ponds of Molii, Kahaluu and Heeia. The Hawaiian Owl, Pueo, is generally found in the open grassland areas. The State of Hawaii considers this species as endangered on Oahu.

The marshy wetlands along the shoreline, near mouths of streams and fish ponds, are the natural habitat for endangered species of waterbirds.

Near the STPs and at Kawainui Marsh near Kapaa Sanitary Landfill, there have been sightings of endangered waterbirds. Figure 8 shows bird habitat and feeding areas near major waste water facilities in the planning area. Endangered bird species include Hawaiian Stilt or Aeo (HIMANTOPUS HIMANTOPUS KNUDSENI), Hawaiian Coot or Alae Keokeo (FULICA AMERICANA ALAI), Hawaiian Gallinule or Alae Ula (GALLINULA CHLOROPUS SANDWICENSIS), and Hawaiian Duck or Koloa (ANAS WYVILLIANA). There are no legally defined critical habitats at or immediately adjacent to wastewater facilities. However, Nuupia Pond, near Kailua STP, is biologically significant to recovery plans for the Hawaiian stilt.

3.1.13 Wetlands

Figure 9 shows wetlands in the planning area. Note that the Army Corps of Engineers has recently designated a portion of the lower Maunawili Valley, immediately mauka of Kailua Road, as a wetland.

3.1.14 Wild and Scenic Rivers

There are no wild and scenic rivers in the planning area.

3.1.15 Environmentally Sensitive Areas

The wetlands (Figure 9) and the entire coastline and coastal waters are considered environmentally sensitive within

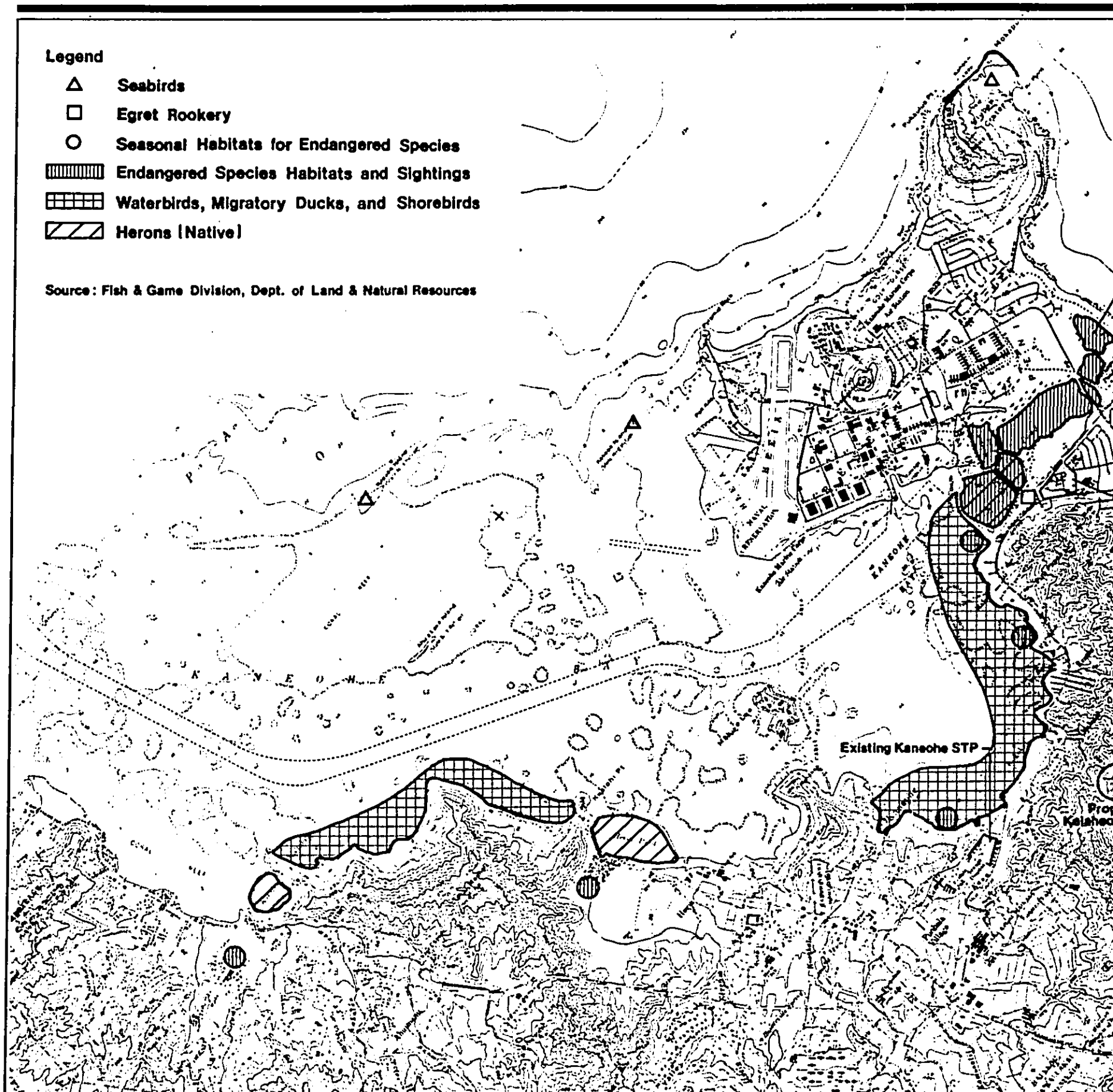
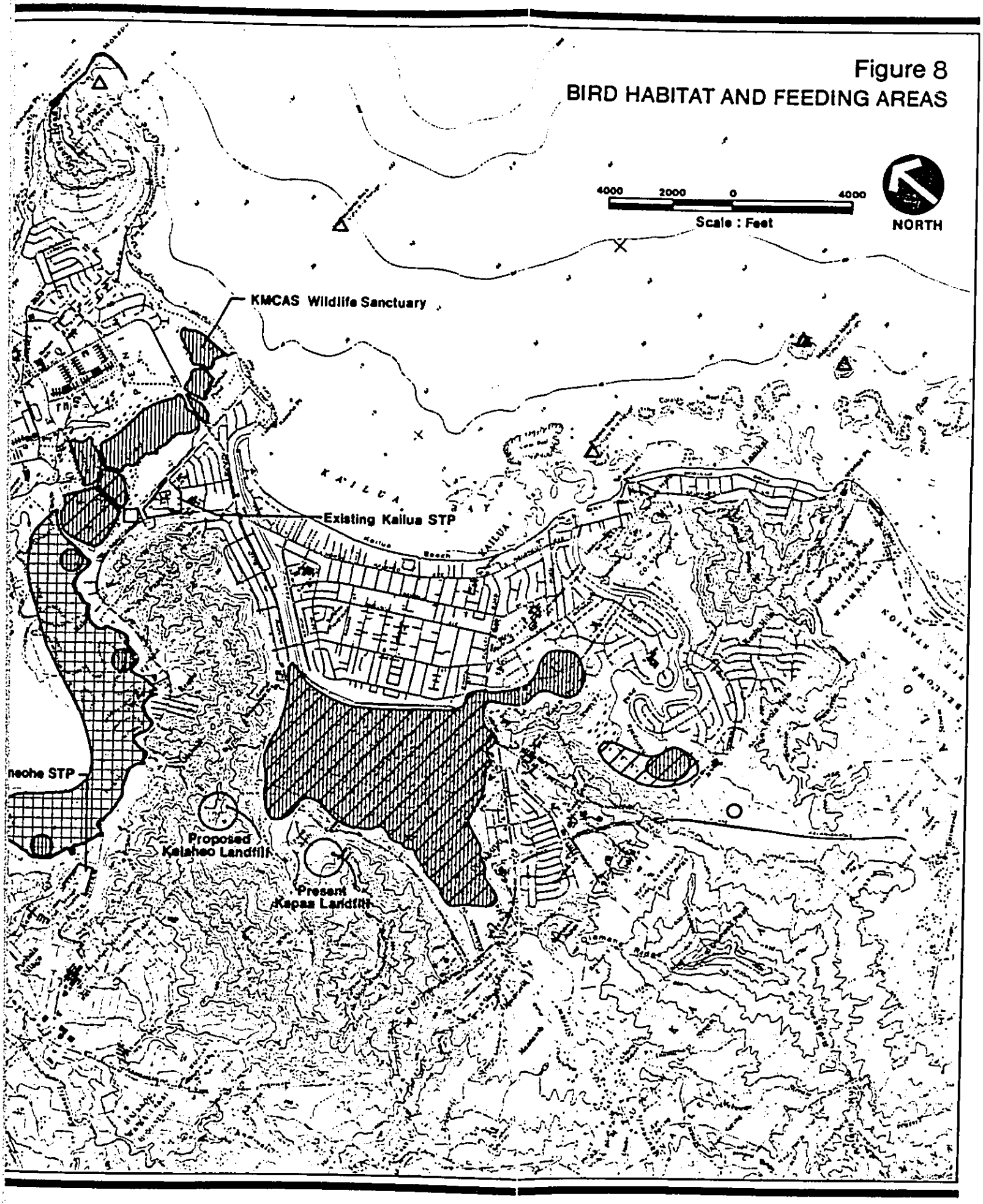

Legend
Seabirds
Egret Rookery
Seasonal Habitats for Endangered Species
Endangered Species Habitats and Sightings
Waterbirds, Migratory Ducks, and Shorebirds
Herons (Native)
Source: Fish & Game Division, Dept. of Land & Natural Resources
K A N E O H E B A Y
Existing Kaneohe STP

Figure 8
BIRD HABITAT AND FEEDING AREAS



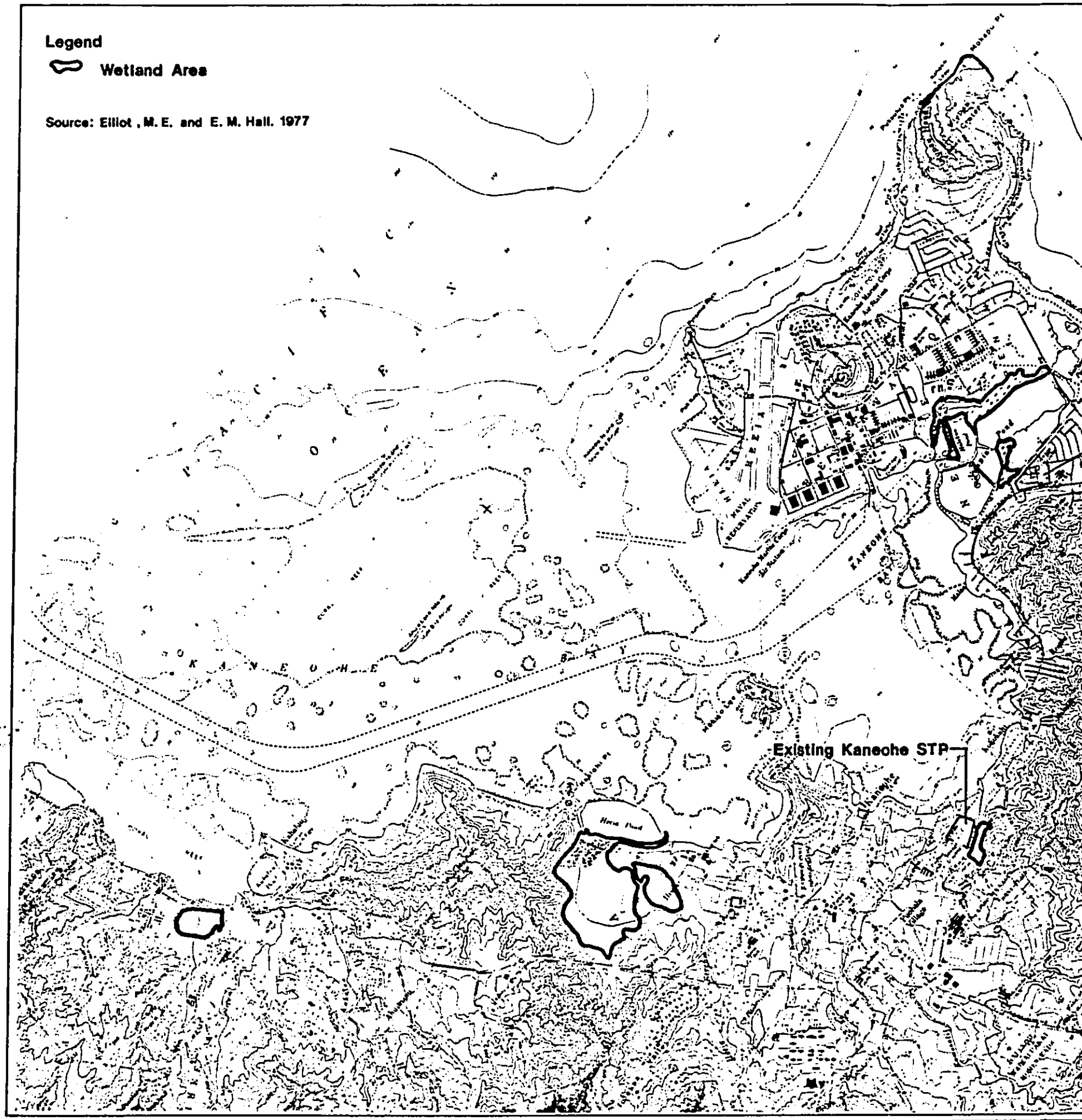
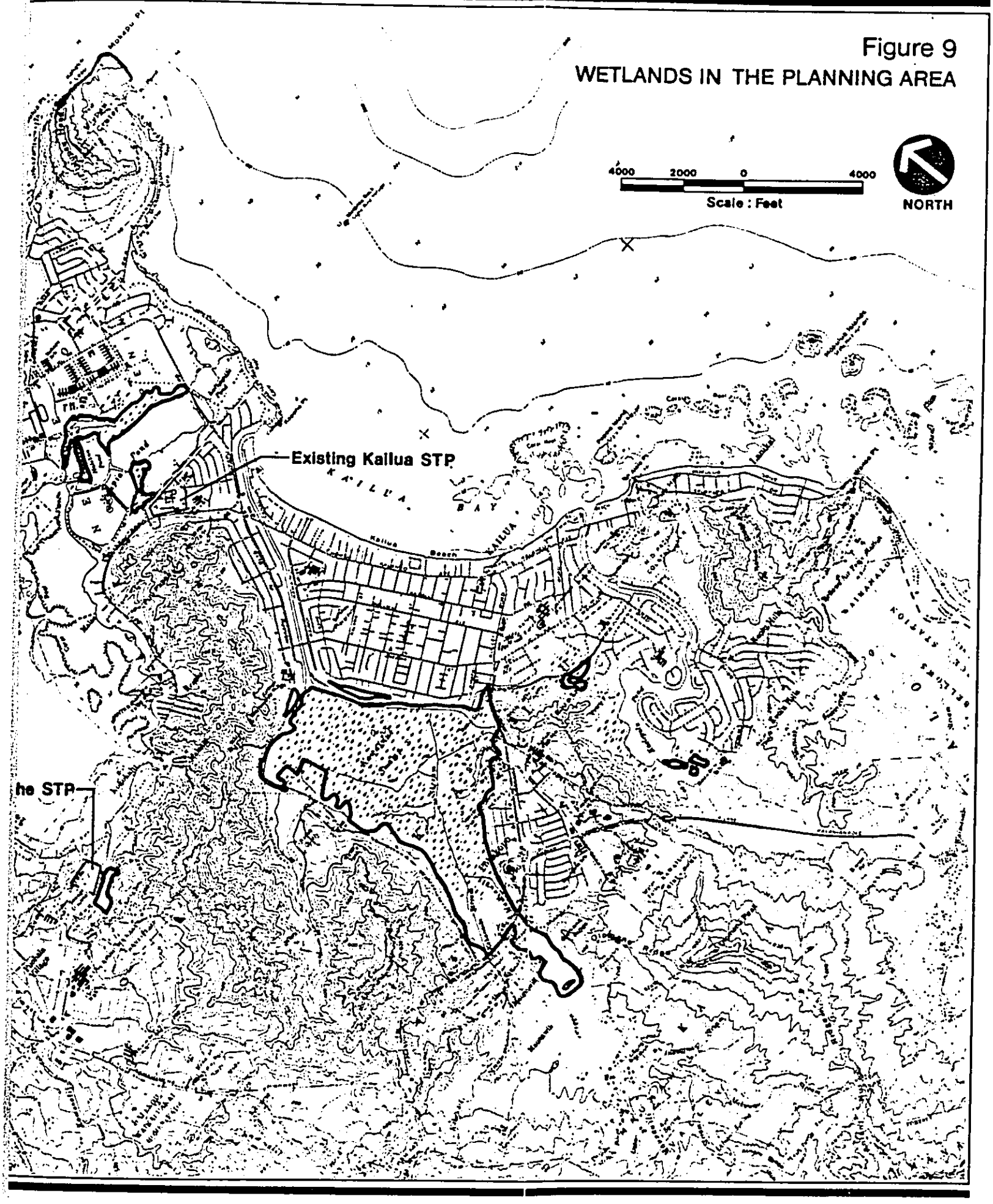

Legend
Wetland Area
Source: Elliot , M. E. and E. M. Hall. 1977
K A N E O H E O O B A Y
Existing Kaneohe STP

Figure 9
WETLANDS IN THE PLANNING AREA



the planning area. These environmentally sensitive areas are all "Special Management Areas" (SMA) and, as such, are subject to special Coastal Zone Management (CZM) regulations under State statute administered by the City and County of Honolulu. The proposed projects are consistent with CZM requirements. Figure 10 shows SMA boundaries within the planning area. Note that Kaneohe STP is within an SMA and Kailua STP is adjacent to an SMA. Maunawili Park STP, Kukanono STP, and Pohakupu STP are also located within an SMA.

3.1.16 Ground Water Resources

There are no present or planned withdrawals of potable ground water within the inhabited portions although there is ground water underlying wastewater facilities in the planning area. As an added precaution against contamination of ground water, the Board of Water Supply has established a "no-pass" line for cesspools. Except for a few "grandfather" cases, cesspools are prohibited farther inland than this line which is shown in Figure 11.

3.1.17 Environmentally Significant Agricultural Lands

There are no such lands within the planning area.

3.1.18 Cultural Resources

Registered historical and archeological sites in the planning area are shown in Table 3.2. Kawainui Marsh is

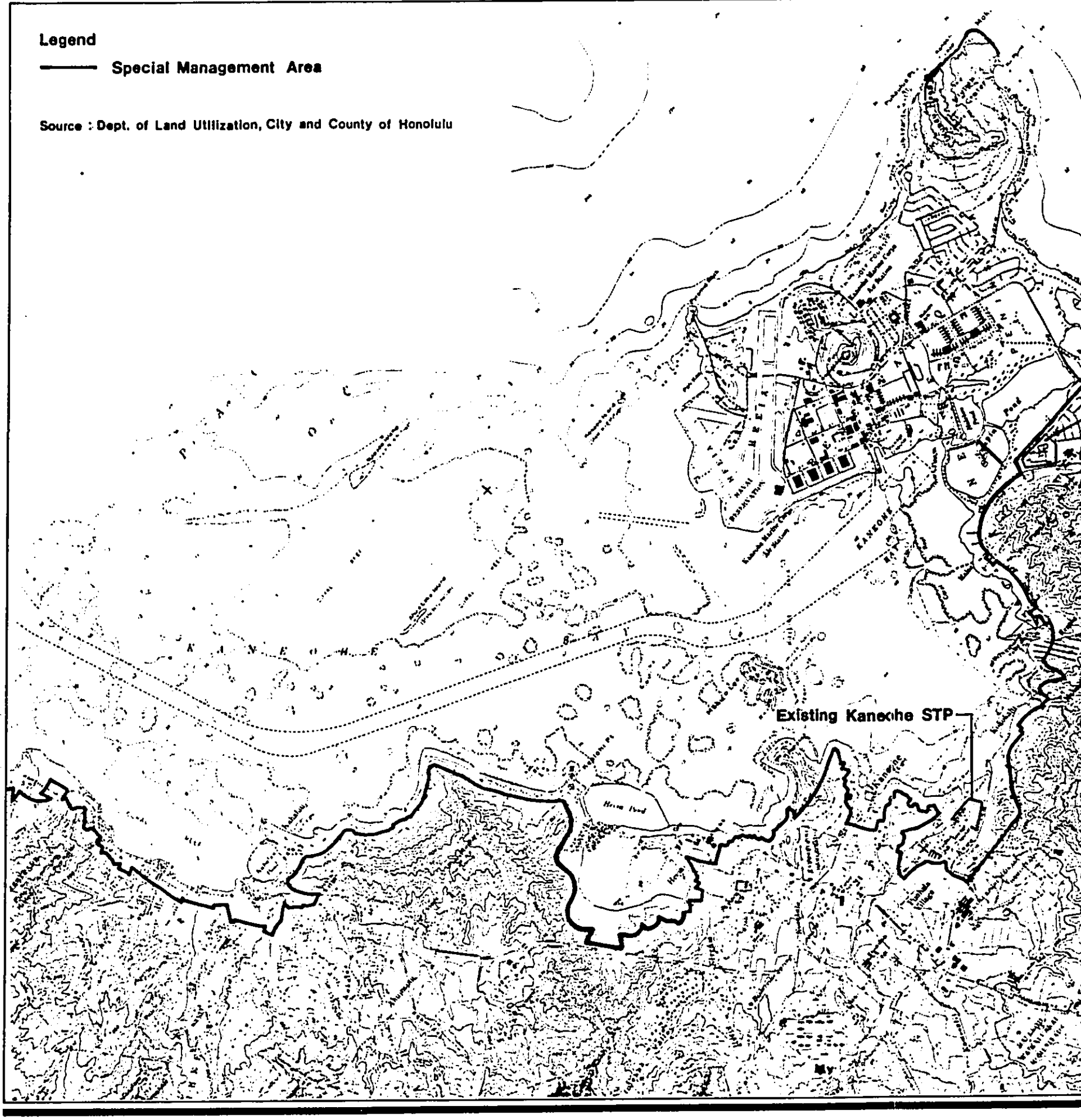

Legend
Special Management Area
Source : Dept. of Land Utilization, City and County of Honolulu
Existing Kaneohe STP

Figure 10
SPECIAL MANAGEMENT AREA BOUNDARIES

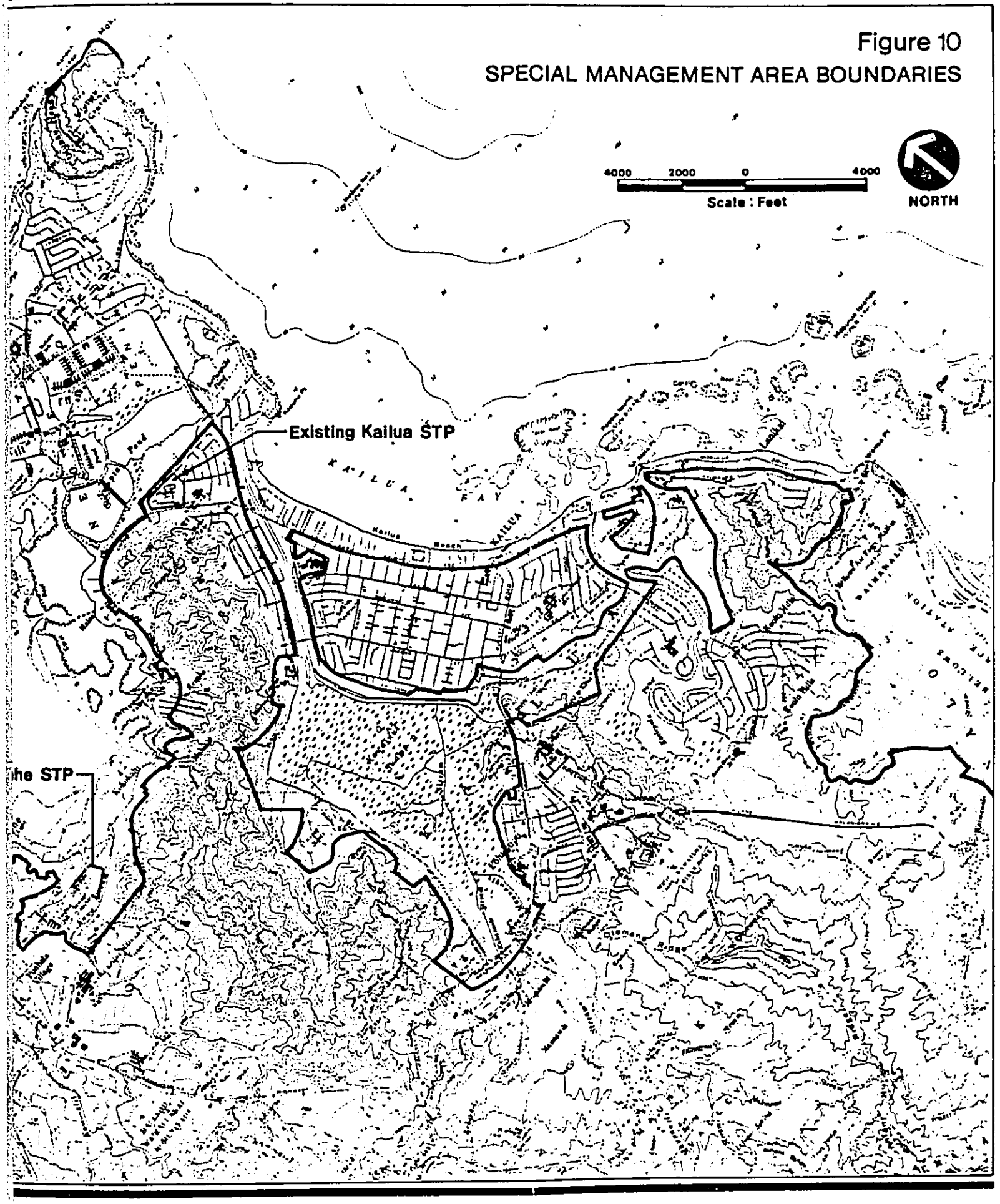
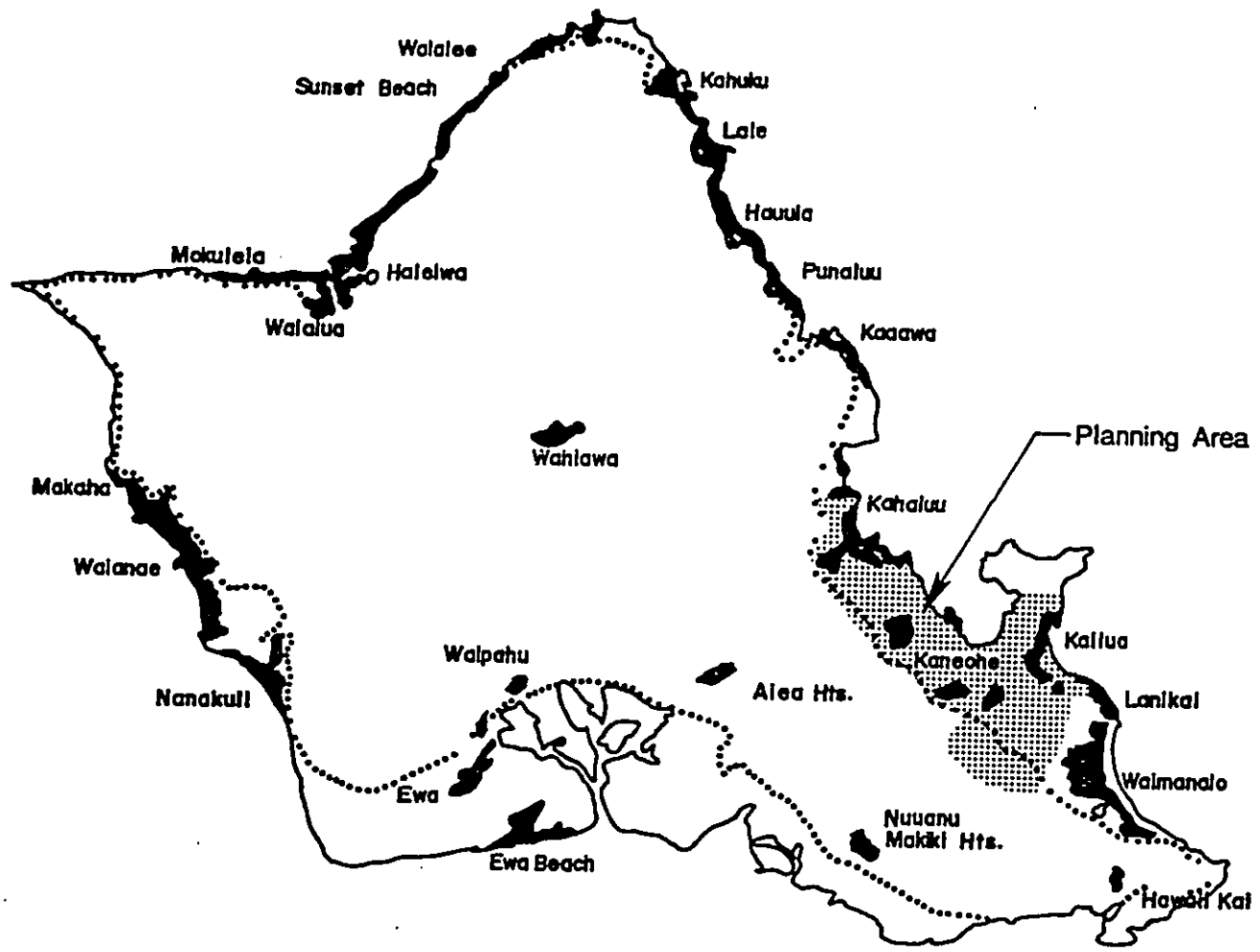


Figure 11
LIMIT LINE FOR CESSPOOLS



Legend

- Areas where Cesspools exist, or have existed until recently
- "No Pass" Line
- Project Planning Area

Source : Water Quality Management Plan, City and County of Honolulu, 1980.

20,000 0 20,000 40,000
Scale : Feet

NORTH

TABLE 3.2

REGISTERED HISTORICAL AND
ARCHEOLOGICAL SITES IN THE PLANNING AREA

	TMK[1]	Registered Status[2]	
319 Kahaluu Fishpond	4-7-11-1	N	3/14/73
327 Heeia Fishpond	4-6-5-1	N	1/17/73
329 Leleahina Heiau	4-6-14-5	N	3/20/73
354 Kawaewai Heiau	4-5-33-1	N	8/21/72
359 Puhukini Heiau	4-2-15-3	N	9/11/72
371 Ulu Po Heiau (near Pohakupu STP)	4-2-13-31	N	11/09/72
1017 Mokapu Sand Burials	4-4-8-1	N	11/15/72
1153 Kapapa Island Complex	4-4-8-4	N S	8/21/72 1/29/81
1165 Kahaluu Taro Lo'i	4-7-51-2	N	3/14/73

1 TMK: Tax Map Key designation

2 Registered status: N = National, S = State

SOURCE: Historic Sites Section, Division of State Parks Outdoor Recreation and Historic Sites, Department of Land and Natural Resources, 1151 Punchbowl, Honolulu. March 1981.

eligible for inclusion in the National Register of Historic Places. Pahukini Heiau is located within the Kapaa Landfill site. Adequate measures have been taken by the City and County of Honolulu to preserve the Heiau site. No other historic/ archeological sites are located within wastewater facilities property boundaries, but Ulo Po Heiau is located close to Pohakupu STP.

3.1.19 Flood-Prone Areas

Figure 12 shows that Kaneohe STP is within a flood-prone area at the mouth of Kawa Stream. Construction of wastewater facilities within flood prone areas should be avoided. When, however, it is unavoidable, every precaution should be taken during the design and construction to safeguard facilities against costly flood damage. Details of the safeguards will be addressed in the Step II and Step III phases.

Legend

Flood-Prone Area

Source: U. S. Dept. of Interior, Geological Survey. 1975

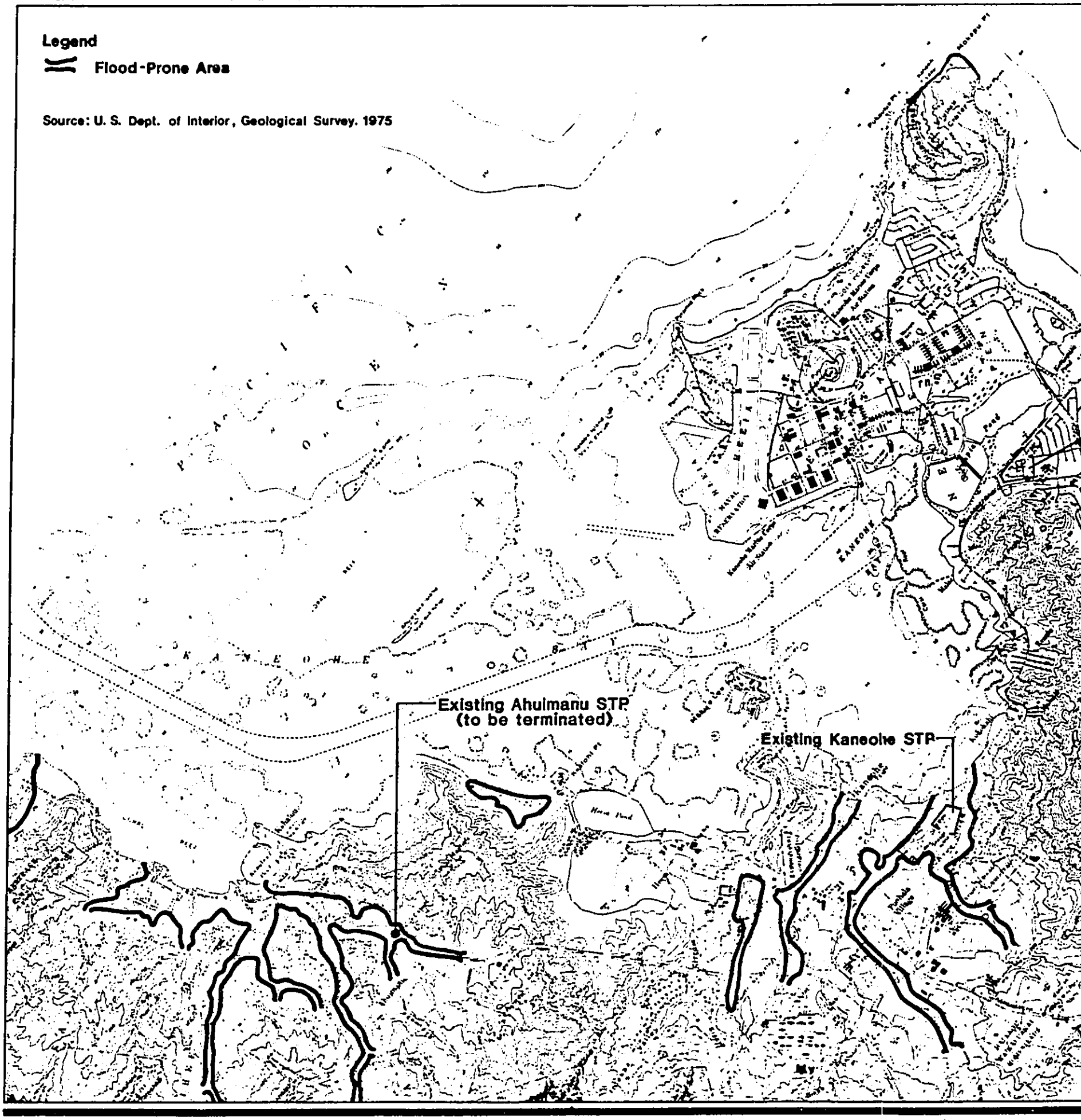
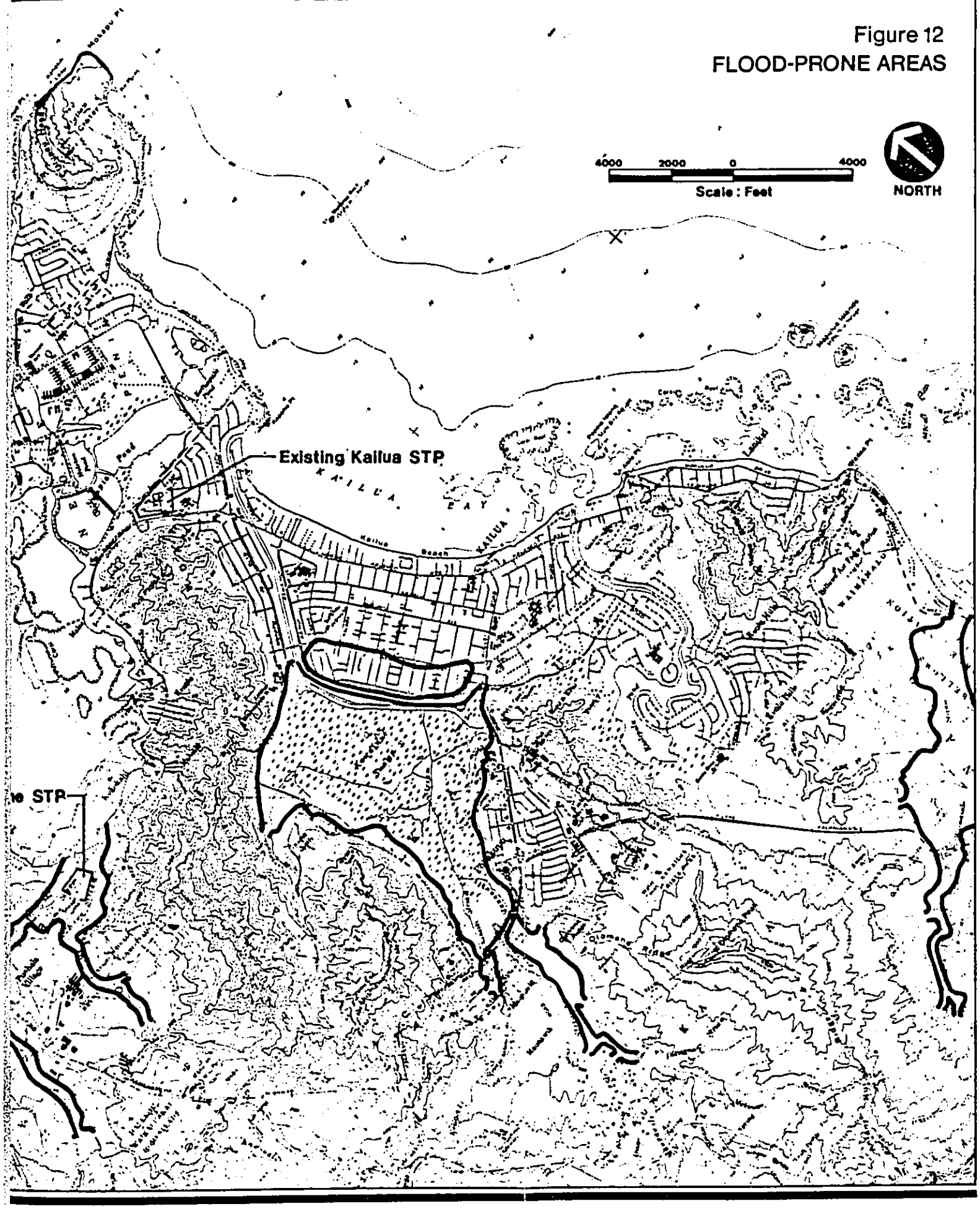


Figure 12
FLOOD-PRONE AREAS



4 Present Facilities

CHAPTER 4

PRESENT FACILITIES

4.1 GENERAL DESCRIPTION

Figure 2 (page 2-3) depicts the location of major wastewater facilities in the Kaneohe-Kailua service areas. Design capacities, and 1979 and 1983 flows of the three largest treatment plants, Kailua STP, Kaneohe STP and Ahuimnanu STP, are presented on Table 4.1. No data are available to determine how much of the above flows are from commerical/industrial sources; however, such flows are considered minor. A general description of wastewater collection, treatment, and disposal facilities and their conditions follows.

4.1.1 Kaneohe STP

4.1.1.1 Description

Kaneohe STP is a secondary treatment plant approximately 20 years old with a design capacity of 4.3 mgd as shown on Table 4.1. The last major expansion of the plant was in 1968. Figure 13 shows the site layout.

Treatment consists of degritting and mechanical screening of raw sewage followed by primary sedimentation using clarifiers, biological treatment using high-rate trickling filters, and secondary clarification and micro-screening.

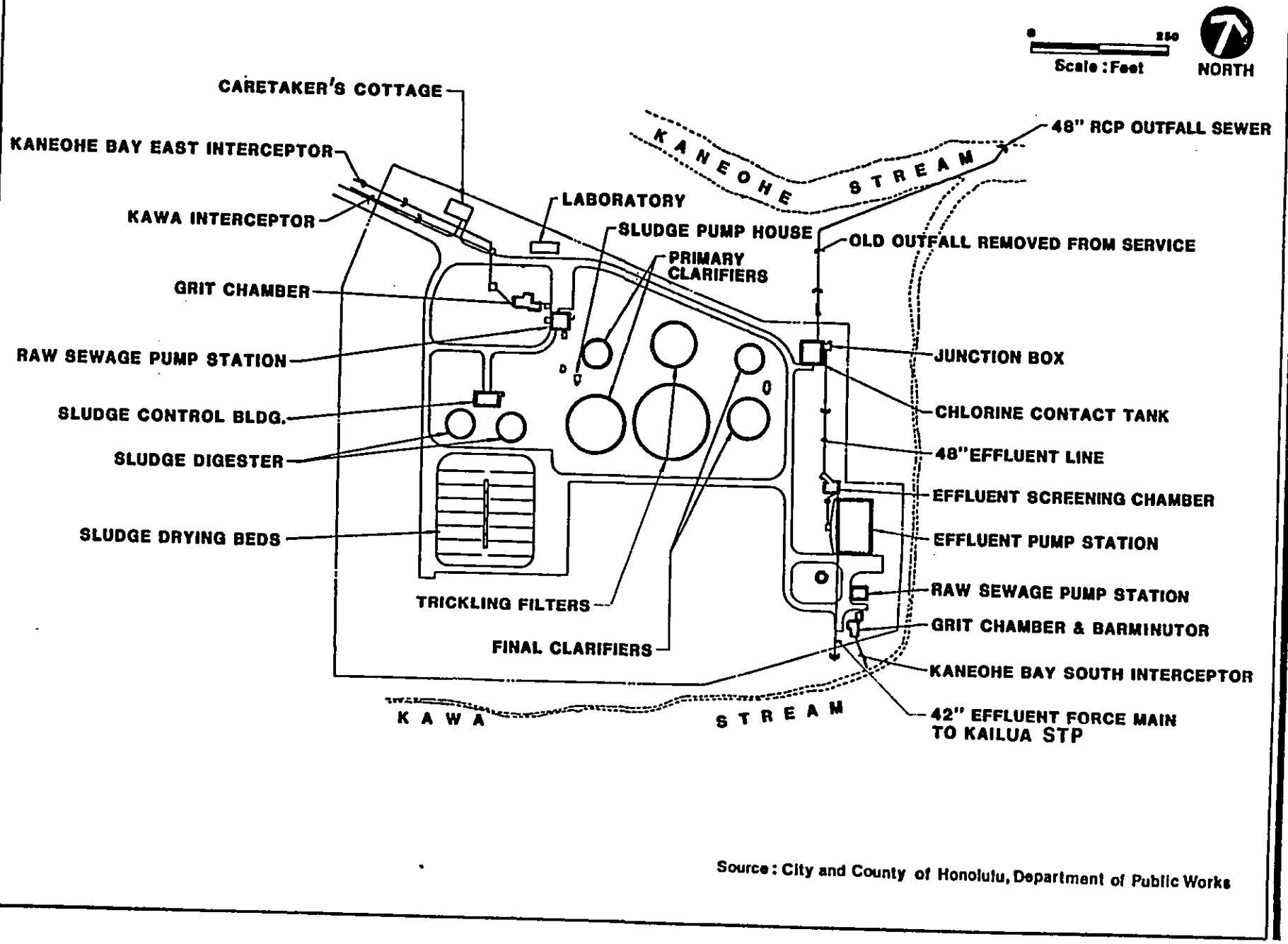
TABLE 4.1

CAPACITIES AND FLOWS OF
MAJOR TREATMENT FACILITIES[1]

	Design Average Daily Wastewater Flow (mgd)	Average 1979 Daily Wastewater Flow (mgd)	Average 1983 Daily Wastewater Flow (mgd)
Kailua STP	7.0	4.9	5.1
Kaneohe STP	4.3	4.1	4.0
Ahuimanu STP	1.4	0.4	0.6

1 City and County of Honolulu Wastewater Management Division Annual Report

Figure 13
KANEOHE STP SITE LAYOUT



Source : City and County of Honolulu, Department of Public Works

The removed solids are anaerobically digested, dewatered by sludge drying beds, or by a mobile centrifuge, and disposed of at the Kapaa Sanitary Landfill.

4.1.1.2 General Condition

Effluent BOD_5 and SS concentrations from Kaneohe STP were 43 and 36 mg/l, respectively during FY 1981 - 1982. The Kaneohe STP has not been achieving its effluent quality requirements of 30 mg/l BOD_5 and 30 mg/l SS in recent years. The problem stems primarily from the fact that the plant was not designed to produce effluent of this quality. Inability to directly control recycle flow rate to the trickling filters and the inadequacy of flow division between parallel wet stream processes compounds this problem. Additional problems at the STP include the inadequacy of the sand sludge drying beds in Kaneohe's wet climate; the excessive soil subsidence causes some piping and minor structural settlement and cracks. The majority of process equipment at Kaneohe STP is estimated to have ten years or less remaining useful life with the exception of the relatively new effluent pump station.

4.1.1.3 Kaneohe Collection System

The Kaneohe collection system covers a service area of 3,300 acres. The majority of the system has gravity flow and

consists of 65 miles of line. Seven sewage lift stations are operated and maintained by the City and County of Honolulu while three additional stations are maintained by private entities. Average age of the system is between 20 and 25 years. The infiltration/inflow analysis in Chapter 4 of the Kaneohe-Kailua Wastewater Facilities Plan gives some insight into the condition of the Kaneohe collection system.

Infiltration is defined as the intrustion of ground water into the collection system. Ground water enters the system through breaks or joint separations in collection lines which lie below the ground water table. The magnitude of infiltration depends on both the condition of lines and joints and on the elevation of the ground water table relative to the sewer pipe.

Inflow is the second way that extraneous water can enter a collection system. Strictly speaking, it represents that amount of water entering the collection system due to a specific rainfall. A simple example of inflow is the surface runoff entering a system through unsealed manhole covers.

Infiltration and inflow result in an increase in both capital and operational costs for a treatment plant. Often it is cost-effective to improve the collection system in order to minimize infiltration and inflow rather than to treat the entire load. The infiltration/inflow analysis for the Kaneohe collection system shows that infiltration is significant but not of such magnitude as to justify the expense of rehabilitation.

4.1.2 Kailua STP

4.1.2.1 Description

Kailua STP is a secondary treatment plant about 15 years old with a design capacity of 7 mgd, and a present flow of about 5 mgd. Figure 14 shows the site layout.

Treatment consists of mechanical screening of raw sewage followed by primary sedimentation, biological treatment using a high-rate trickling filter, and secondary clarification and microscreening. Sludge is gravity thickened followed by anaerobic digestion. Sludge is then dewatered by centrifugation and disposed of at Kapaa Sanitary Landfill.

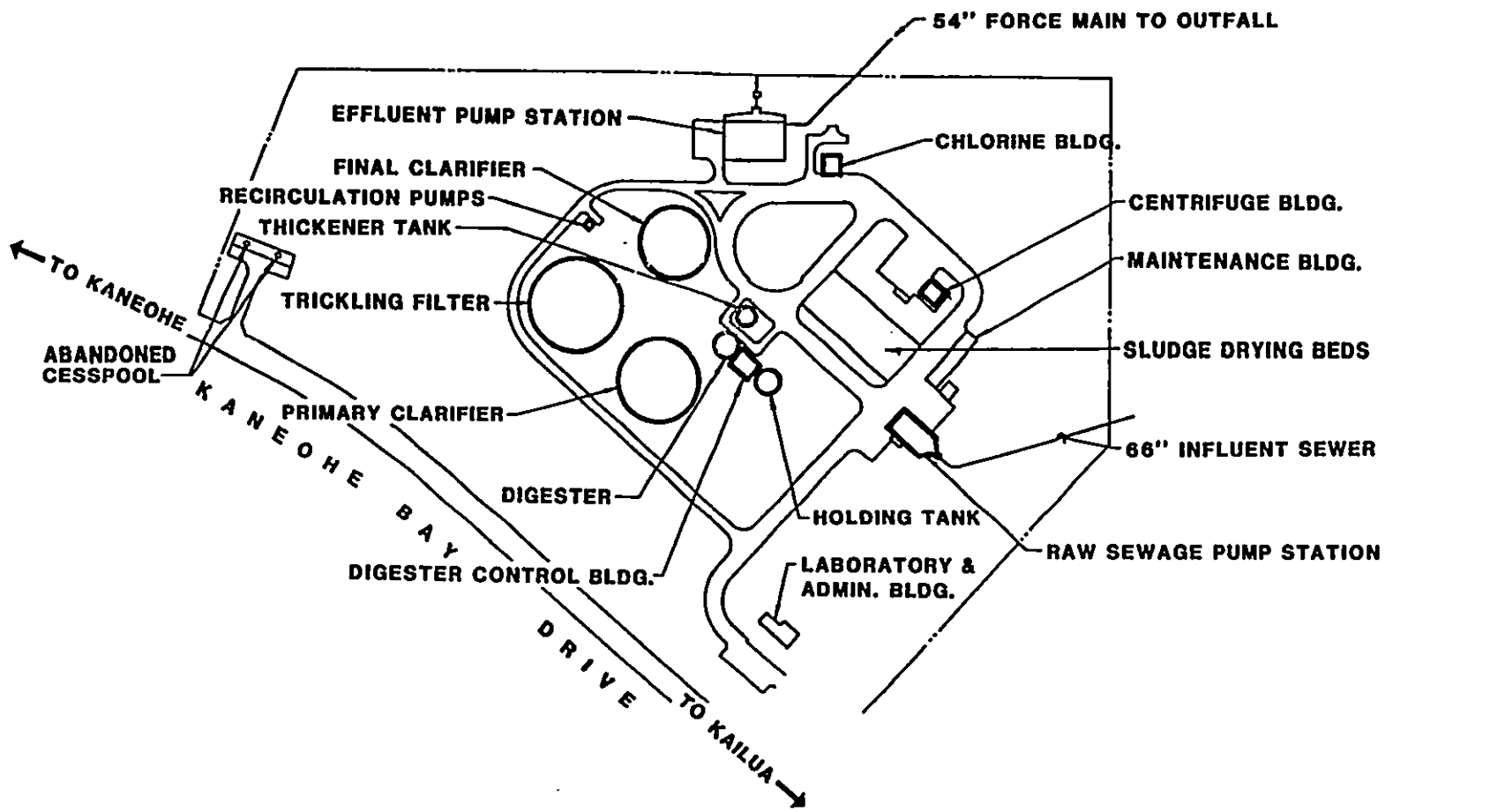
4.1.2.2 General Condition

Average effluent BOD_5 and SS concentrations from Kailua STP were 23 and 18 mg/l, respectively during FY 1981 - 1982. The Kailua STP has met its effluent quality requirement of 30 mg/l BOD_5 and 30 mg/l SS during recent years. Much of its process equipment will, however, require replacement in the near future as it reaches the limits of its useful life. Kailua has, in addition, an inherent reliability problem due to a lack of treatment unit redundancy.

4.1.2.3 Kailua Collection System

The Kailua collection system covers a service area of 3,000 acres. The majority of the system is gravity flow

Figure 14
KAILUA STP SITE LAYOUT



Source : City and County of Honolulu, Department of Public Works

consisting of 70 miles of line. Six sewage lift stations are operated and maintained by the City and County of Honolulu. There are no private lift stations within the system. The average age of the system is estimated to be between 20 and 25 years. The infiltration/inflow analysis in Chapter 4.3 of the Kaneohe-Kailua Wastewater Facilities Plan shows that infiltration is higher than in the Kaneohe collection system, but no major collection system rehabilitation is considered necessary. Table 4.11 in the Facilities Plan shows that, in 1979, infiltration constituted about 31 percent of average flow at Kaneohe STP and 35 percent of average flow at Kailua STP.

4.1.3 KMCAS STP[1]

This plant is owned, operated and maintained by the U.S. Government and serves the Kaneohe Marine Corps Air Station. It is a high-rate trickling filter facility of about 2 mgd design capacity and it provides secondary treatment for daily flows in the range of 1.2 to 1.4 mgd. The plant was upgraded from primary to secondary treatment level in the early 1970's and is in generally good condition.

4.1.4 Interim Treatment Plants

There are four interim treatment plants within the Kailua service area. Effluent from each facility is chlorinated

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[1] Not within the scope of this study.

and discharged directly into Kawainui Marsh or into Maunawili Stream, which discharges into Kawainui Marsh. All four plants are scheduled to be phased out. Wastewater will then be conveyed to the Kailua STP for treatment. Meanwhile, because present flows are close to design values at three plants, there is a moratorium on sewer connections in the areas served by Maunawili Estates STP, Maunawili Park STP and Kukanono STP. A brief description of each interim treatment plant follows.

4.1.4.1 Pohakupu STP

Pohakupu STP is a trickling filter package plant serving a population of 2,600. The plant uses an anaerobic digester and sludge drying beds. Pohakupu STP was put into operation in 1958 and, at present, its general condition is good. Design capacity is 0.43 mgd. Average flow in 1983 has been 0.26 mgd.

4.1.4.2 Kukanono STP

Kukanono STP is an extended aeration plant designed to serve Castle Hospital and a population of 400. Kukanono STP began service in 1961. Occasional problems are experienced with inadequate sludge settling, but it can be considered to be in fair condition. The plant does not have adequate headworks and lacks solids handling units. Design capacity is 0.07 mgd. Average flow in 1983 has been 0.04 mgd.

4.1.4.3 Maunawili Park STP

Maunawili Park STP is an extended aeration plant designed to serve a population of 1,300. Maunawili Park STP began operation in 1965 and is in good condition but lacks solids handling units. Design capacity is 0.14 mgd. Average flow in 1983 has been 0.10 mgd.

4.1.4.4 Maunawili Estates STP

Maunawili Estates STP is an extended aeration plant designed to serve a population of 900. Maunawili Estates STP began service in 1965 and is in good condition but lacks solids handling units. Design capacity is .095 mgd. Average flow in 1983 has been 0.16 mgd.

4.1.5 Ahuimanu STP

Ahuimanu STP is a secondary treatment facility with capabilities for nutrient removal. Effluent is chlorinated and discharged into a polishing pond and then into Ahuimanu Stream which, in turn, flows into Kaneohe Bay. The Ahuimanu STP is scheduled to be abandoned. Wastewater generated thereafter in four sub-areas of Kahaluu will be pretreated and pumped by a future Ahuimanu sewage pump station via force main to a pre-treatment facility at Kaneohe and then to Kailua STP for centralized treatment.

4.1.6 Kapaa Sanitary Landfill

Sewage sludge from all wastewater treatment plants in the Kaneohe-Kailua service areas is disposed of at the City-operated Kapaa Sanitary Landfill. Landfill design and operations meet criteria specified by the 1976 Resources Conservation and Recovery Act (RCRA). These stringent criteria preclude any environmental degradation from leachate.

4.1.7 Present Effluent Disposal

Combined flows from the Kaneohe and Kailua STPs, as well as from KMCAS STP, are discharged through the Mokapu Ocean Outfall. Flow from Ahuimanu STP is discharged into Ahuimanu Stream and then into Kaneohe Bay. Flows from the four interim STPs are discharged into Kawainui Marsh.

Discharge ports of the Mokapu Outfall are one mile off-shore from Mokapu Point at a depth of 100 feet. Receiving water standards are those for Open Coastal Waters Class A. Water quality monitoring data indicate that current standards are being met. This data was presented in the Application to EPA for Secondary Treatment Modifications, Kaneohe and Kailua Treatment Facilities, City and County of Honolulu. (Ref. 12)

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5 Water Quality Problem

CHAPTER 5

WATER QUALITY PROBLEM

5.1 DISCUSSION

Effluents from the Kaneohe, Kailua and KMCAS STPs, as presently operated, pose no potential water quality problem. A report to the Environmental Protection Agency (Application for Secondary Treatment Modification, Kaneohe and Kailua Treatment Facilities) of September 7, 1979 (12) provides full documentation that present effluent discharge causes no significant interference with recreational activities, public water supplies, or with the protection and propagation of balanced indigenous ecosystems. The Mokapu Outfall was constructed in order to eliminate the harmful impacts of sewage effluents which were previously discharged into Kaneohe Bay from the Kaneohe and KMCAS STPs and into Kailua Bay, through the old Kapoho Outfall, from the Kailua STP. The design objective for the Mokapu Outfall was to avoid degradation of coastal waters near Mokapu Point, including Kailua Bay. The outfall presently discharges secondary treated effluent from the three STPs. The Outfall has been performing in accordance with its design objective since it began service in December 1977.

The City's letter of September 1979 to EPA (12) requested permission to discharge effluents with a degree of treatment less than secondary. The waiver specifically requested approval of the following effluent requirements:

Parameter	Kailua	Kaneohe
BOD_5 (mg/l)	60	60
SS (mg/l)	45	60

These are 30-day arithmetic averages which are not to be exceeded.

The City has had a Water Quality Monitoring Program in effect since the construction of Mokapu Outfall. The City, in addition, conducted baseline water quality studies to evaluate the impact of Mokapu Outfall on the marine environment prior to construction. Consultants to the City have reported on the impact of Mokapu Outfall on phytoplankton communities (13), zooplankton and larval fish (14) and benthic ecosystems and fish populations (15). Data from the above studies, as well as the continuing quarterly monitoring data from stations in Kailua Bay south and west of Mokapu Outfall and from stations north and west of the Outfall, indicate little or no adverse impact on the marine environment from nutrients, pathogenic organisms, settleable solids, or floatables as the result of present effluent discharges.

There is some consensus among the local scientific professional community that no environmental problems will result if primary effluent is discharged, i.e., water quality standards will continue to be met. This is because of the depth and location of the Outfall, the relatively low discharge rate, and the fairly strong and variable currents around Mokapu Peninsula. Monitoring data will continue to be recorded and analyzed to support such a conclusion.

Effluent from the present Ahuimanu STP poses a water quality problem because of its nutrient load. This mass nutrient load into Ahuimanu Stream, which subsequently flows into the Class AA waters of Kaneohe Bay, is approximately 33 pounds total nitrogen and 15 pounds phosphorus per day. Continued discharge of effluent into Ahuimanu Stream is incompatible with a goal of the Water Quality Program for Oahu (18) which is to eliminate all wastewater discharges into Kaneohe Bay.

Effluents from the four interim treatment plants which discharge into Kawainui Marsh and Maunawili Stream also pose a water quality problem primarily because of nutrient loading. The Pohakupu and Kukanono facilities presently discharge their effluents directly into Kawainui Marsh while both Maunawili facilities discharge directly into Maunawili Stream which empties into Kawainui Marsh. The rate of input for various constituents into the marsh from the sewage treatment plants is provided in Table 5.1.

It is estimated that 87 percent of the total phosphorus content and 80 percent of the total nitrogen in Maunawili Stream is attributable to sewage discharge.

The wetland vegetation in the marsh has the capability of assimilating the wastewater nutrients (16). The vegetative overgrowth resulting from such nutrients can, however, choke or displace other plants, choke open water areas, and significantly modify the habitat for endangered species of waterbirds. Accordingly, the Kawainui Marsh Resource Management Plan recommends the discontinuance of the sewage discharges.

TABLE 5.1

COMBINED INPUTS INTO KAWAINUI MARSH FROM FOUR INTERIM STPs[1]

	Direct Discharge Into Kawainui Marsh	Discharge Into Maunawili Stream
Flow, mgd	0.33	0.23
Biochemical oxygen demand, lbs/day	95.00	35.00
Suspended solids, lbs/day	66.00	19.00
Total nitrogen, lbs/day[2]	201.40	22.20
Total phosphorus, lbs/day[2]	146.72	22.20
Fecal coliform count/100 ml	5	6

[1] 1980 Data from Division of Wastewater Management.

[2] Chun and Dugan in Environmental Aspects of Stormwater Runoff, Kawainui Residential Subdivision, Windward Oahu, Hawaii 1976. Unpublished Report

The wastewater discharge from these plants poses no threat to potable water sources.

No water quality problem is anticipated at the present sludge disposal site, Kapaa Sanitary Landfill, nor at the probable future Kalaheo Landfill sludge disposal site adjacent to Kapaa Landfill. The City has had a leachate monitoring program in effect at Kapaa Landfill and plans to institute a monitoring program at Kalaheo when the landfill opens. No leachate generation has yet been detected. If generation is detected, it is planned to recirculate such liquid back through the refuse mass.

Ground water in the area of the present and future landfills is not an existing nor potential potable water source.

6 Proposed Project

CHAPTER 6

PROPOSED PROJECT

6.1 CENTRALIZED TREATMENT FACILITIES

The Facilities Plan recommends centralized treatment at Kailua STP. Designs will be prepared in such a manner that additions and modifications can be constructed to provide either primary or secondary treatment. Level of treatment will depend on whether EPA approves the City's request for changing effluent quality requirements at Mokapu Outfall. If secondary treatment is required, trickling filters are favored at this time to meet that requirement.

At Kaneohe, the present STP will be abandoned after a new diversion line and pretreatment facility are constructed and the Kaneohe Bay South Pump Station is modified. Kawa: Pump Station will be closed. Wastewater will flow by gravity to the new pretreatment facility.

The following specific actions will be required at Kailua STP to provide Primary Treatment if EPA approves a waiver.

- Construct diversion line on the existing Kailua STP site
- Construct pretreatment facility
- Refurbish existing final clarifier
- Construct new primary digester and sludge holding tank
- Refurbish existing primary clarifier
- Refurbish existing primary digester, sludge thickener, and sludge holding tank

- Refurbish raw sewage pump station
- Odor control
- Upgrade laboratory facility
- Construct new administration/maintenance facility

Construction of a new primary clarifier, trickling filter, final clarifier, and DAF sludge thickener will be necessary, in addition to what is mentioned above, if EPA does not grant a waiver and secondary treatment is required at Kailua STP.

All plant additions and modifications at Kailua STP will be within the fenced boundary of the present STP site. Figures 15 and 16 show site plans for the proposed centralized primary treatment plant and secondary treatment plant at the present Kailua STP site.

Capital costs and operating costs for centralized primary and secondary treatment and for odor control are shown in Table 6.1 based on 1980 dollars. Note that pretreatment costs at Kaneohe are included.

Facilities proposed at Kailua STP will incorporate energy conservation alternatives including use of digester gas and wind energy. Energy conservation details and odor control details are discussed in Chapter 8. The Facilities Plan strategy for odor control is to de-emphasize chemical treatment of the wastewater itself and substitute a more positive strategy, i.e., cover all points of contact between sewage and atmosphere and withdraw the off-gases through a caustic or catalytic scrubbing process. Activated carbon can be used as a polishing step and to provide redundancy and back-up.

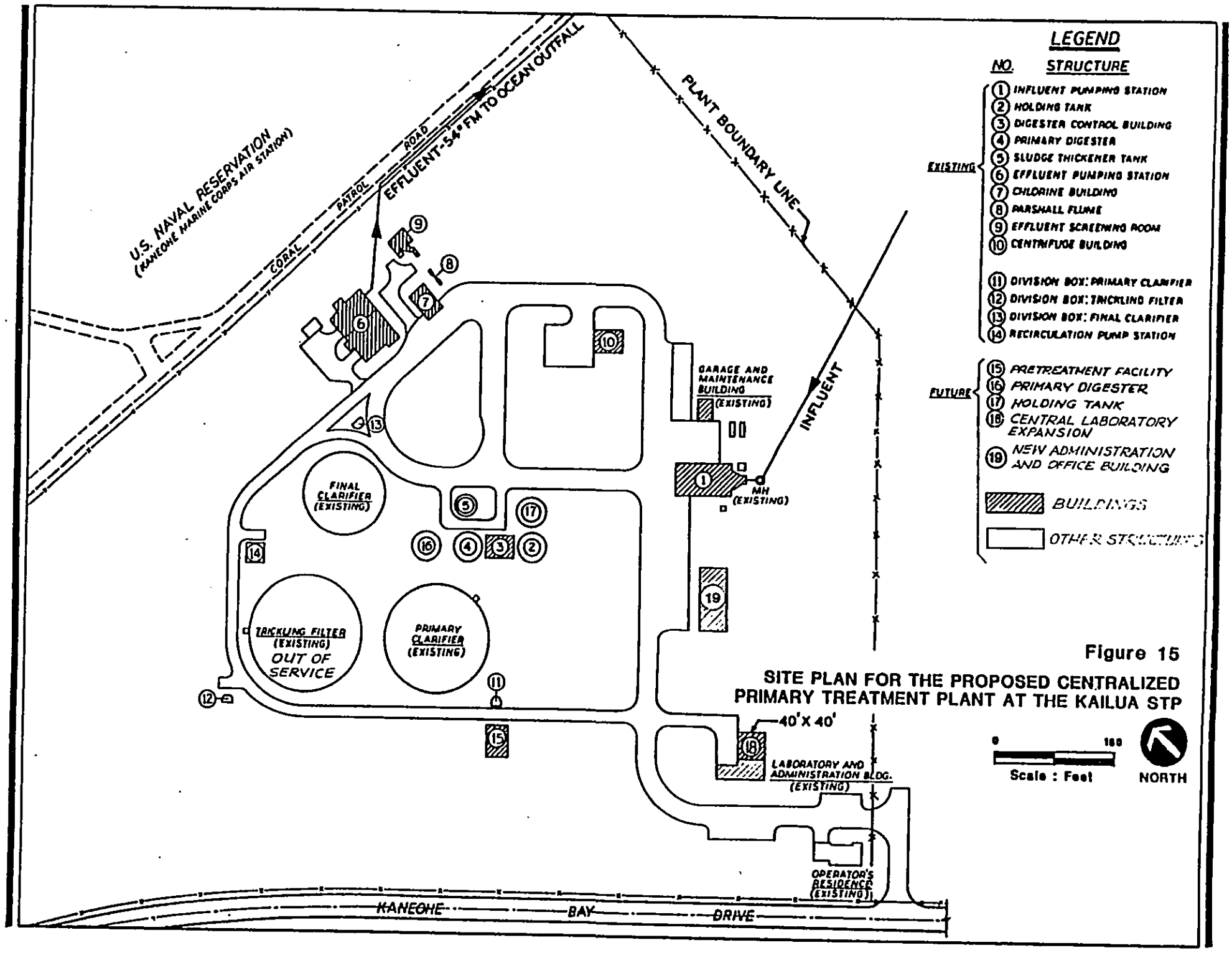

Figure 15

SITE PLAN FOR THE PROPOSED CENTRALIZED PRIMARY TREATMENT PLANT AT THE KAILUA STP

CORRECTION

THE PRECEDING DOCUMENT(S) HAS BEEN REPHOTOGRAPHED TO ASSURE LEGIBILITY
SEE FRAME(S)
IMMEDIATELY FOLLOWING

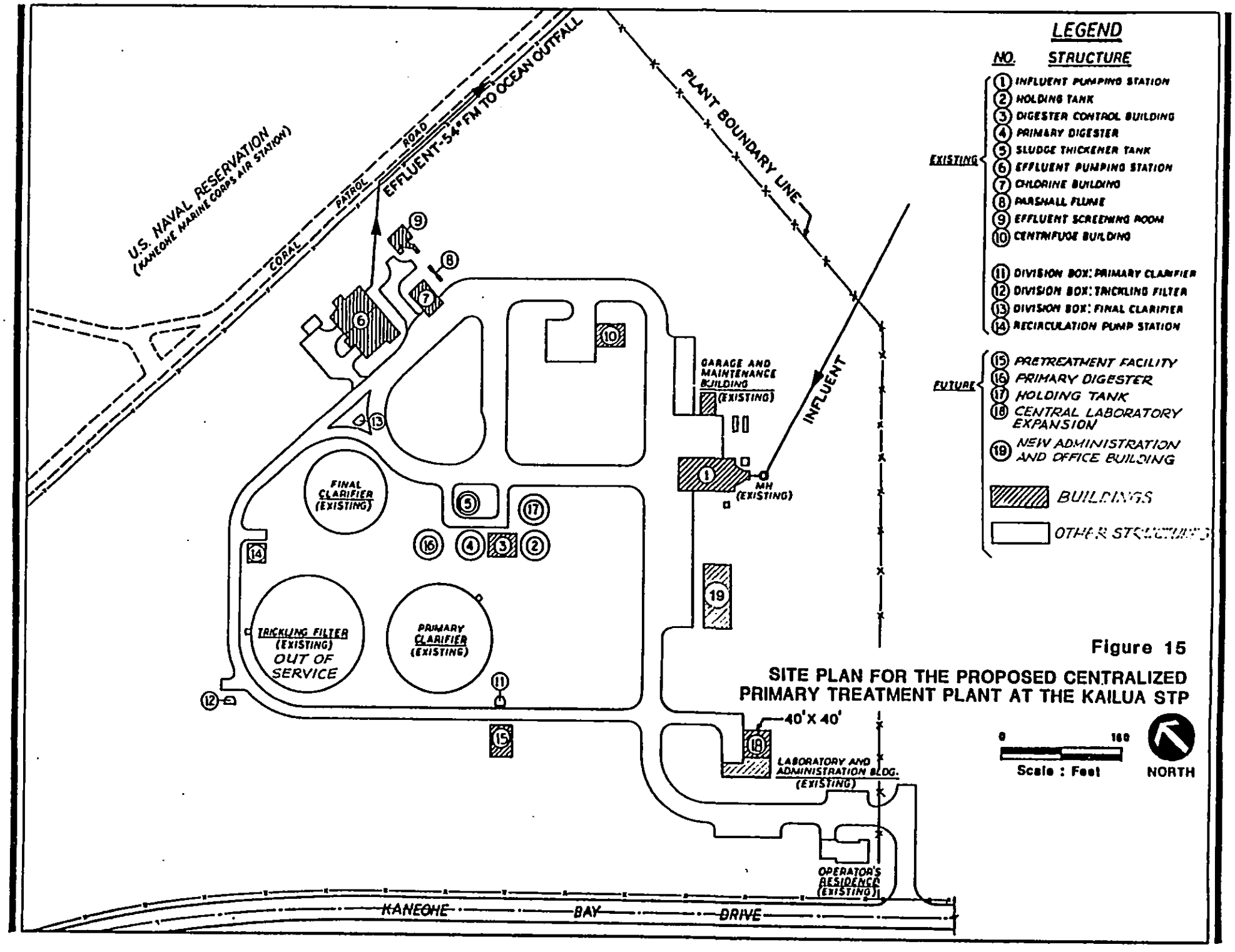

Figure 15

SITE PLAN FOR THE PROPOSED CENTRALIZED PRIMARY TREATMENT PLANT AT THE KAILUA STP

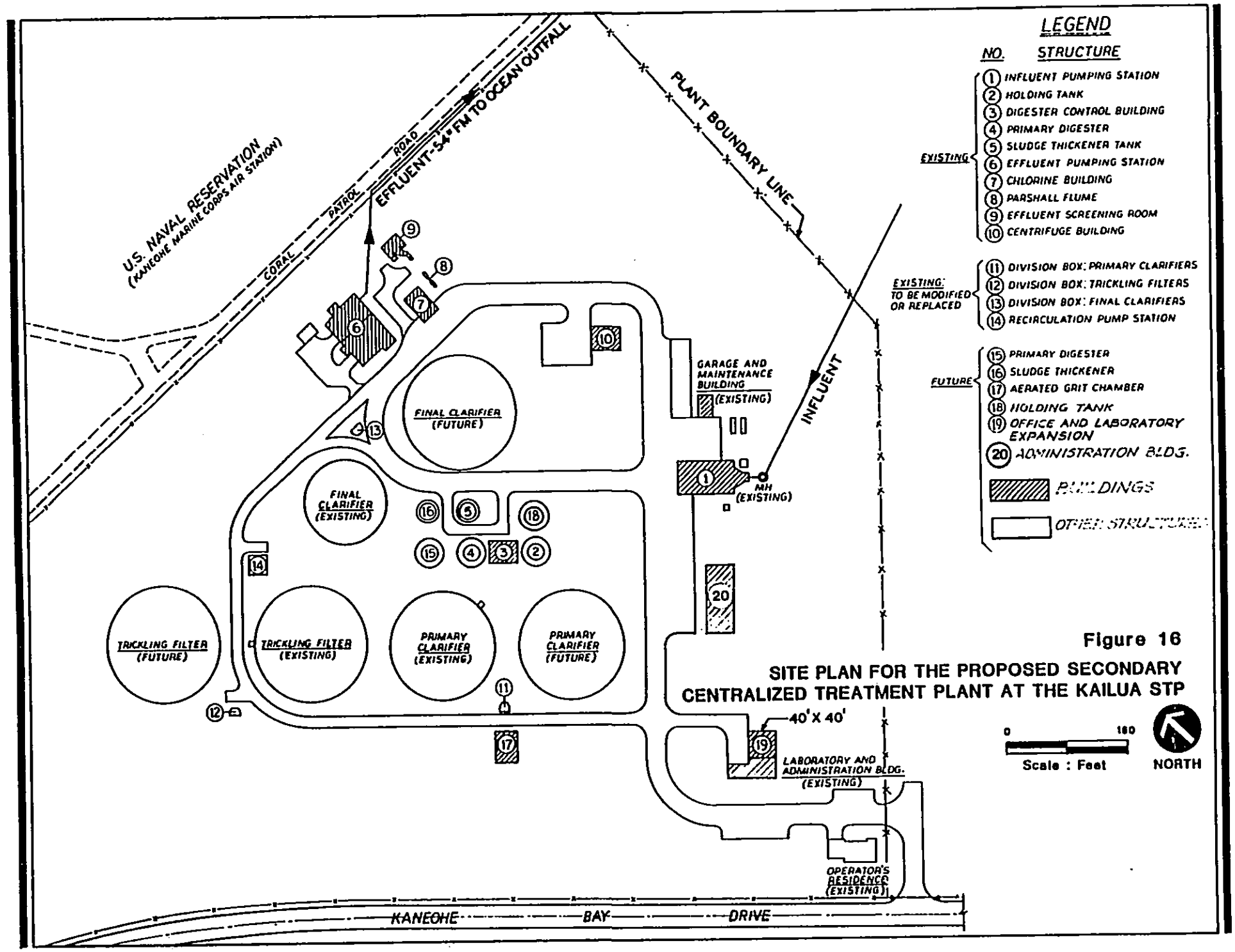

Figure 16

SITE PLAN FOR THE PROPOSED SECONDARY CENTRALIZED TREATMENT PLANT AT THE KAILUA STP

TABLE 6.1

COST FOR CENTRALIZED TREATMENT
(1980 Dollars)

	Non-Waiver	Waiver
Capital and Operating Costs for Wastewater Treatment[1]		
Capital Cost	$ 9,898,000	$ 4,992,000
Annual Operational Cost	1,027,000	738,000
Annual Energy Cost	369,000	239,000
Capital and Operating Costs for Odor Control		
Capital Cost	$ 2,214,000	$ 535,000
Annual Operational Cost	365,000	115,000
Annual Energy Cost[2]	60,000	18,000
Total Capital and Operating Costs (1980 dollars)		
Capital Cost	$12,112,000[3]	$ 5,527,000[3]
Annual Operational Cost	1,392,000[4]	853,700[4]
Total 20-Year Present Worth Costs[5] (1980 dollars)		
Capital Costs and Operational Costs	$26,438,000	$14,304,000

1 Exclusive of odor control
2 Energy included as part of operational costs on line above; savings from alternate energy sources not included
3 Capital cost of $967,000 at Kaneohe is included
4 Operations cost of about $170,000 at Kaneohe is included
5 Present worth factor is 10.29, based on 20-years at 7 3/8 percent interest: salvage value is considered to be zero

6.2 DISCUSSION

Two significant facts are evident from the cost analysis presented in Table 6.1, namely:

(1) Total Capital and Operating Costs for Kailua STP over the 20 year period will be about $26,000,000 if secondary treatment is required, and about $14,000,000 if primary treatment is allowed. If there is convincing evidence that primary effluent discharge from Mokapu Outfall will cause no environmental degradation, a saving of over $12,000,000 can be realized. Available evidence will be presented to EPA in the City's forthcoming Request for Waiver.

(2) Odor control costs are much higher if secondary treatment is required due to the greater number of potential odor generating processes. Present worth capital and operating costs in 1980 dollars, over 20 years at 7 3/8 percent interest, will be approximately $5,970,000 if secondary treatment is required at Kailua STP. These costs will be approximately $1,718,000 if primary treatment is allowed.

6.3 OTHER WASTEWATER MANAGEMENT ACTIONS

Facilities projects for the Kaneohe-Kailua area and their tentative construction schedules are summarized in Table 6.2. Details on specitic locations of sewer projects are shown in Appendix A.

TABLE 6.2

CONSTRUCTION SCHEDULE
KANEOHE-KAILUA WASTEWATER FACILITIES

	Tentative Starting Date
Kailua STP Modifications	1985
Kaneohe Pretreatment Facility	1985
Ahuimanu SPS and FM	Started in 1983
Maunawili WWPS and FM	1986
Kukanono WWPS and FM	1986
Kailua Road Interceptor Sewer	1986
Kaneohe Sewers Section 8 I.D.	1985
Kailua Sewers Section 9 I.D.	1984
Kailua Sewers Section 10 I.D.	Beyond 1990
Kaneohe Bay Sewers I.D.	Beyond 1990
Kaneohe Sewers Section 9 I.D.	1987
Kaneohe Sewers Section 10 I.D.	1990
Kaneohe SPS No. 5 and FM	Beyond 1990

6.4 PREVIOUSLY PLANNED WASTEWATER MANAGEMENT ACTIONS

Section 6.1 described centralized treatment facilities which are proposed at Kailua. Other key features of the Facilities Plan are listed below. Each of these features other than the centralized treatment facilities, has been the subject of previous planning and design analysis, environmental impact analysis, and discussion with the public and interested institutions and agencies. These features are as follows.

(1) Ahuimanu STP will be terminated.

(2) A new pump station at the site of the present Ahuimanu STP, with a booster pump and force main, will send sewage from four sub-areas of Kahaluu to Kailua STP via a pre-treatment facility and pump station at the site of the present Kaneohe STP.

(3) All Kaneohe wastewater will be pretreated at Kaneohe and sent to the Kailua STP for treatment.

(4) The four small interim STPs near Kawainui Marsh will be closed. A new sewer interceptor and new SPSs will convey collected sewage to the Kailua Road SPS; from there, it will be delivered to Kailua STP.

(5) Mokapu Ocean Outfall will continue discharging treated effluent from the entire Kaneohe-Kailua-Kahaluu planning area including flows from KMCAS.

(6) All present trunk sewers and pumping stations will continue to operate. Several new pump stations will be added.

(7) There will be an expansion of sewered areas to accommodate about 12,000 additional persons between now and the year 2005; these persons, until now, have been served by cesspools.

7 Relationship of Project to Other Plans

CHAPTER 7

RELATIONSHIP OF PROJECT TO OTHER PLANS

7.1 GENERAL PLANNING

The Facilities Plan is consistent with applicable primary general planning documents which are:

(1) The General Plan of Honolulu - 1977.

This document states policies to be used for directing Honolulu's development, including control of population growth and distribution.

(2) The Koolaupoko Development Plan - 1983.

This document provides more detailed guidelines on proposed land use within the service areas.

7.2 WATER QUALITY PLANNING

The following documents have guided water quality planning in the subject service areas during the past decade:

(1) Water Quality Program for Oahu - 1971.

This plan evaluated pollutant loads, estimated costs and benefits of general alternative wastewater management systems, and outlined a phased program for implementation of alternative systems.

(2) Water Quality Management Plans for City and County of Honolulu - 1980 (208 Plan).

The Kaneohe-Kailua Wastewater Facilities Plan is consistent with the above plans, although the concepts of centralized treatment at Kailua STP and closure of STPs at Ahuimanu and Kaneohe have evolved since the publishing of the 208 Plan.

8 Project Alternatives

CHAPTER 8

PROJECT ALTERNATIVES

8.1 CENTRALIZATION/DECENTRALIZATION ALTERNATIVES

Figure 17 depicts centralization/decentralization alternatives which were considered during development or the Facilities Plan. Centralized treatment at Kailua is clearly more cost-effective than continuing treatment at both Kaneohe and Kailua. Centralized treatment costs over the project life under waiver and non-waiver conditions have been estimated at $14,000,000 and $26,000,000, respectively.[1] Decentralized treatment costs over the project life have been estimated at about $3,000,000 and $7,000,000 higher, respectively, than costs for centralized treatment.[2] Additional facts supporting closure of Kaneohe STP are as follows:

(1) Kaneohe STP lies within a flood plain

(2) Kaneohe STP structures are near the end of their useful life and are subject to ground settlement

(3) Termination of present facilities at Kaneohe STP and substitution of pretreatment facilities will minimize odor problems in that area

With centralized treatment, there will be substantially higher sewage flows at Kailua STP than if the present decentralized system were continued. This could intensify odor problems

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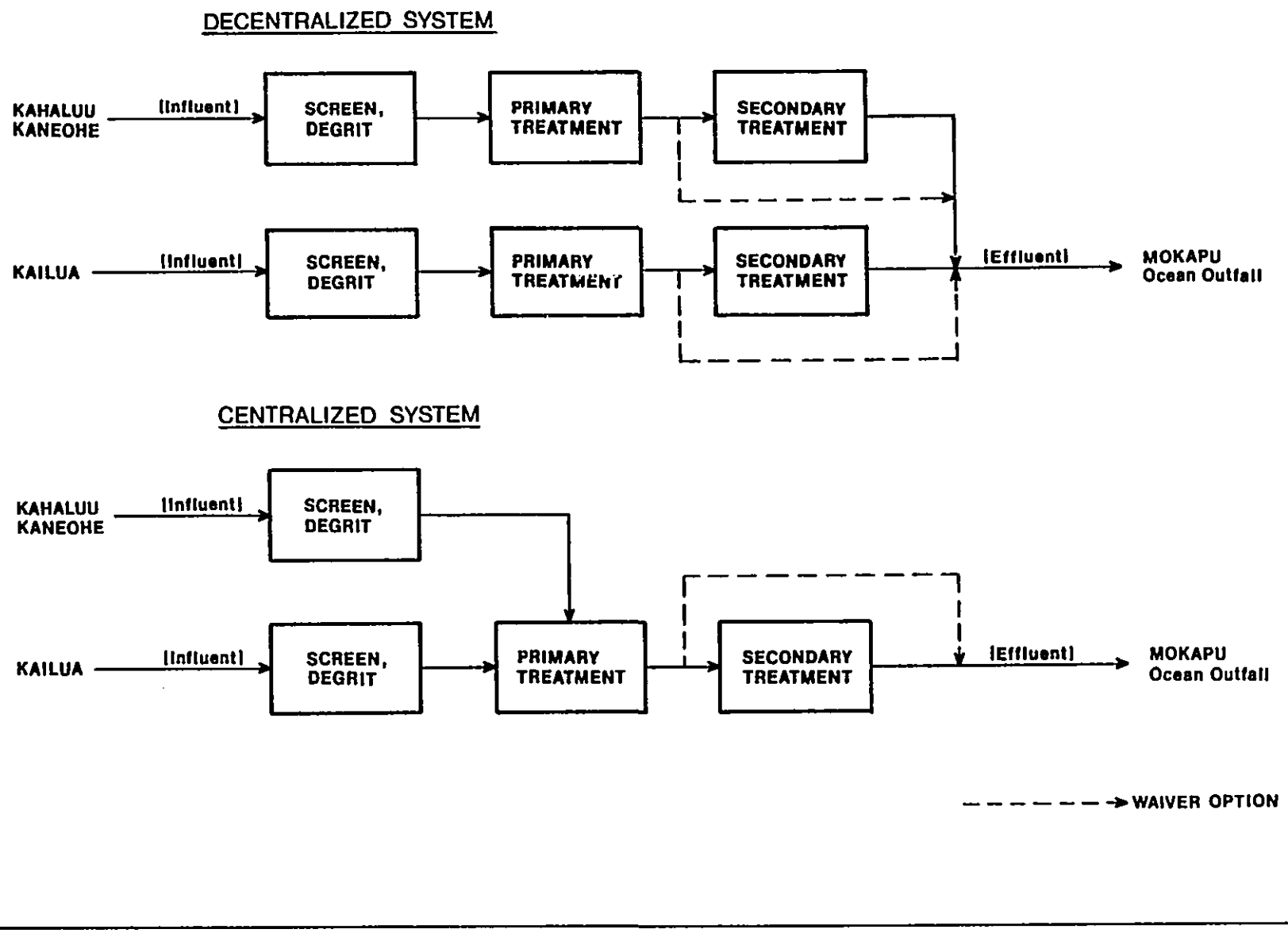
1 Facilities Plan Tables 8.30 and 8.17
2 Facilities Plan Section 7.2.1.2

Figure 17

ALTERNATIVES FOR CENTRALIZATION / DECENTRALIZATION



at Kailua if there were no change in method used for odor control. However, the odor control strategy proposed in the Facilities Plan is considered to give positive assurance of adequate odor control. Accordingly, odor is not considered to be a major factor in the centralization vs decentralization decision.

8.2 PRIMARY/SECONDARY TREATMENT ALTERNATIVES

Chapter 6 presents discussion and costs of primary/secondary treatment alternatives. The level of treatment to be used will depend upon EPA response to the City's 1983 request for waiver of secondary treatment requirements.

8.3 SLUDGE DISPOSAL ALTERNATIVES

The City is considering a centralized sludge composting facility for Windward Oahu in the Waimanalo area. If a composting facility is constructed, sludge from Kailua STP will be taken to Waimanalo for composting. Kailua STP sludge disposal will otherwise continue at the City's Windward Sanitary landfill.

8.4 FLOW REDUCTION ALTERNATIVES

Flow reduction devices in showers and toilets of residences in the area are one means of water conservation. Total water usage for toilets and showers is relatively small, however, compared to other water uses, and compared to

infiltration/inflow quantities. Accordingly there is little opportunity for reduction in sizes of wastewater treatment equipment through use of flow reduction devices. There would be, however, minor reductions in energy requirements for wastewater treatment. A rough estimate for the Kaneohe-Kailua wastewater service areas is that wastewater flows and corresponding pump energy requirements might be reduced by two to three percent if a significant majority (90 percent) of the residents cooperated fully in the use of such devices.

8.5 ODOR CONTROL ALTERNATIVES

The odor control method proposed in the Facilities Plan offers the most positive assurance of no odors beyond the STP property lines although other techniques are available. The design and operating objectives of the odor control measures proposed at Kailua STP in the Facilities Plan are to insure that odors are not detectable beyond STP property lines. The strategy proposed for odor control involves capture of gas directly at locations where gas from the sewage is released into the atmosphere. Captured gas is then absorbed in a scrubber using either a caustic or catalytic scrubbing agent. Activated carbon will remove final traces of all odor producing components. An estimate of present worth capital and operating costs for this method is $1,718,000 and $5,970,000 for waiver and non-waiver situations, respectively[1].

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1 Present worth factor is 10.29 for 20 years at 7 3/8% interest

Other odor control strategies involve use of oxidants such as chlorine, ozone, or hydrogen peroxide at one or more points in the sewage stream. These alternatives have been investigated and are not considered to provide the same reliability of odor control. Kailua STP currently uses hydrogen peroxide at an annual cost of over $300,000.

8.6 ENERGY CONSERVATION ALTERNATIVES

Opportunities for use of wind power and digester gas from sewage sludge as alternative energy sources, for all or part of electrical needs at ailua STP are discussed in the Facilities Plan. A wind power feasibility analysis for Kailua STP was conducted by Curtis (11). A copy of this analysis appears as an Appendix in the Facilities Plan. The following discussion summarizes the alternative energy investigations.

Table 8.1 projects Kailua STP energy requirements for primary or secondary treatment in 1990 and 2005. The twenty year present worth costs of purchasing electricity to meet these energy needs are projected to be on the order of $2,500,000 for primary treatment and $4,000,000 for secondary treatment.

The best possible site wind analysis is clearly fundamental to a decision concerning feasibility of effective use of wind energy. The energy of wind is proportional to the cube of its speed, so feasibility is very sensitive to speed, which must be thoroughly investigated.

TABLE 8.1

PROJECTED ENERGY REQUIREMENTS AT THE KAILUA STP

Function	Primary Treatment KWH per year		Secondary Treatment KWH per year	
	For 2005 Flow	For 1990 Flow (Approximately 90% of 2005 Flow)	For 2005 Flow	For 1990 Flow (Approximately 90% of 2005 Flow)
Wastewater Treatment	2,360,000	2,170,000	3,560,000	3,200,000
Odor Control	140,000	130,000	560,000	500,000
Total KWH Per Year	2,500,000	2,300,000	4,120,000	3,700,000

The Wind Energy Map for Oahu in Reference 10 indicates that Kailua STP is in Wind Class 2 which is indicative of marginal usefulness in energy production. There is known to be, however, significant variation within these general zones, and anemometer measurements at a 50 foot height during September and October 1981 at the site did not indicate a more favorable regime.

Meteorological kite measurements at the site supplemented the 50 foot findings with vertical profiles. The observation is made that under trade wind conditions, speed increases rapidly with height. The Kailua STP site data was compared with concurrent data from nearby Kaneohe Marine Corps Air Station and Honolulu International Airport. It is concluded that an average wind of 15.5 mph can be expected at an elevation of 100 feet, and this suggests a wind class of at least 3 (11).

The Facilities Plan specifically recommends the installation of one wind turbine generator (WTG) having a power output of 30 to 50 kw. Installed costs are estimated to be $125,000 and annual maintenance costs are estimated to be $2,500. The WTG is expected to generate 175,000 KWH per year. The 1980 present worth of the electricity generated is $180,000. The WTG will more than pay for itself while making a small contribution to reducing Hawaii oil importation. It will, more importantly, provide details on the long term wind speed and direction at the site as well as data on maintenance and the operation of the WTG.

If most of the energy requirements of the STP were to be supplied by wind power, an array of more than ten machines

of this size would be required. There is a space limitation at the site which precludes such an array. There is, furthermore, digester gas available from on-site sewage sludge which can provide part of the STP energy requirement.

WTG technology is in an early stage of development, but the recommended size and type of machine for this STP application is currently available. Data and experience gained with the first machine will make it possible to make the wisest design choices for any subsequent use of WTGs at the site.

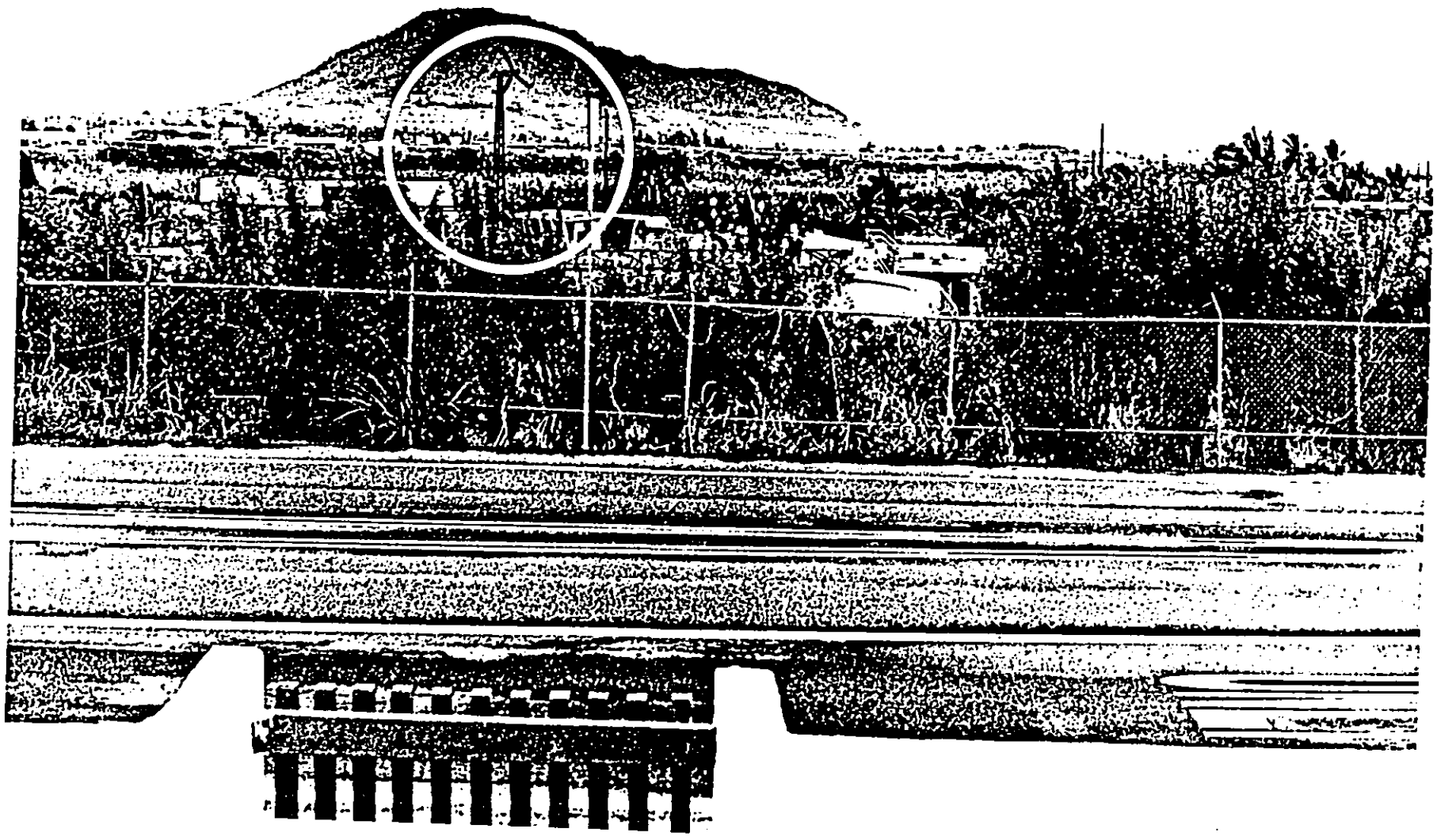
The WTG tower at the Kailua STP site will be about 100 feet high inasmuch as wind energy is proportional to the cube of its speed, and wind speed is significantly better at 100 feet than at 50 feet. Some persons may have aesthetic objections while others may find intrinsic beauty in the sight and thought of a machine developing energy from the wind. Figure 18 depicts the visual aspects of a WTG on a 100 foot tower at Kailua STP.

There are environmental concerns about possible television interference (TVI), electro-magnetic interference (EMI), and noise. Since minimum TVI and no EMI problems have been reported in observations of current operating WTGs at Kahuku, no major problems are expected to arise from WTGs in the Kailua area. The Wind Power Feasibility Analysis (11) indicates that the WTG to be sited at Kailua STP will meet Honolulu Comprehensive Zoning Code noise requirements and Oahu Community Noise Code requirements of 55 dBA day and 45 dBA night at the property boundaries of the nearest residential areas.

Figure 18

VISUAL ASPECT OF A WIND TURBINE GENERATOR AT KAILUA STP

(View looking toward Mokapu Point from west side of Kailua STP)



The possibility of wind energy for pump stations in the collection system has been considered. However, electrical demand at the pump stations is considerably less than at the STP's. For example in FY 82 - 83 electricity consumption at the Kailua Heights pump station was 121,000 KWH compared to 1,600,000 KWH for the Kailua STP. The demand at all other pump stations is considerably smaller. Also, it appears that each of the pump stations is likely to be in a zone of Class 2 where economic feasibility is questionable at this time. However, if the price of small WTGs is significantly reduced in future years, the possibility of utilizing wind energy at pump stations may deserve re-examination.

Digester gas is the other alternate energy source which shows promise for minimizing purchases of electricity for Kailua STP. Gas from the digesters can be used for substantial power generation using the existing engine generators. Acoustical shielding may be necessary to ensure that noise levels at the STP property boundary do not exceed Community Noise Code requirements of 45 dBA night and 55 dBA day.

9 Primary Impacts and Mitigations

CHAPTER 9

PRIMARY IMPACTS AND MITIGATIONS

9.1 CHECKLIST OF PRIMARY IMPACTS

The most significant impacts of actions recommended in the Facilities Plan are as follows:

- The recommended Kailua STP facilities will make it possible to reduce Kaneohe STP to a pretreatment facility with substantial savings in STP operational costs and reduction of odor problems near the Kaneohe STP

- The Kailua STP facilities will make it possible to close four small interim treatment plants, thus eliminating effluent discharge into Maunawili Stream and Kawainui Marsh

- Ahuimanu STP will be closed, thus eliminating discharge into Ahuimanu Stream and Kaneohe Bay

- Odor problems in the residential subdivisions downwind of Kailua STP will be eliminated when the recommended revision in odor control strategy is fully implemented

There will be some minor noise and other disturbances relative to construction requirements at Kailua STP located adjacent to the Nuupia Pond Wildlife Refuge. However, Figure 8 shows that the minimum distance between any construction and the pond will be about 500 feet. Most of the pond is more than 2,000 feet distant; therefore, there should be little disturbance of birds.

There will be minor temporary and localized impacts such as noise, dust and traffic inconvenience from some of the required construction activities for collection sewers, transmission sewers, and pump stations.

No agricultural land will be urbanized as a result of the project.

The checklist in Table 9.1 summarizes primary impacts of planned actions relating to the entire Kaneohe-Kailua wastewater management system.

TABLE 9.1

CHECKLIST OF PRIMARY IMPACTS

Area of Impact	Impacted Yes	Impacted No	Mitigated Yes	Mitigated No	Remarks
1. Wetlands	X				Beneficial Impact. Elimination or STP discharge into Kawainui Marsh.
2. Ground water		x			
3. Creeks and rivers	X				Beneficial Impact. Elimination of STP discharge into Maunawili and Ahuimanu Streams.
4. Floodplain	X				Beneficial Impact. When Kaneohe STP is closed and reduced to a pretreatment facility, there will be reduced activity in a flood plain.
5. Environmentally significant agricultural land		x			
6. Coastal zone	X				Beneficial Impact. Elimination ot STP discharge into Ahuimanu Stream and Kaneohe Bay.

TABLE 9.1

CHECKLIST OF PRIMARY IMPACTS (continued)

	Area of Impact	Impacted Yes	Impacted No	Mitigated Yes	Mitigated No	Remarks
7.	Important vegetation types	X				Beneficial Impact. Kawainui Marsh vegetation will no longer be subjected to STP effluent.
8.	Threatened or endangered species		X			
9.	Critical habitats	X				Beneficial Impact. Kawainui Marsh habitat for endangered species will no longer receive STP effluent.
10.	Environmentally sensitive areas	X				Remarks under Nos. 1, 4, 6, and 9 concerning beneficial impacts also apply here.
11.	Other - Odors in residential area	X				Beneficial Impacts. Reduced odors near all treatment plant sites.
12.	Open space recreation		X			

10 Secondary Impacts and Mitigations

CHAPTER 10

SECONDARY IMPACTS AND MITIGATIONS

10.1 CHECKLIST OF SECONDARY IMPACTS

If a facilities project inherently stimulates population growth, such growth itself can create environmental impacts which are called secondary impacts. Table 10.1 summarizes present and projected population and sewage flows as a basis for reviewing such impacts in Kaneohe-Kailua. It is important to note in Table 10.1 that the Facilities Plan provides for a population increase of only 11,000 persons, from 89,000 to 100,000 in a period of over two decades. This is equivalent to less than one-half percent per year.

Centralized treatment facilities proposed for Kailua STP provide for only a very modest increase in flow rates between 1985 and 2005. This is because projected flow rates are based on the Table 10.1 population projections and distributions derived from the General Plan of Honolulu. The General Plan specifies control of population growth and distribution as part of its objectives.

The facilities proposed in the Facilities Plan are all for environmental improvements and/or for cost-effectiveness of the system. The proposed facilities are consistent with the Koolaupoko Development Plan approved in 1983. The facilities have not been designed to accommodate a significant population growth. Accordingly, no significant secondary impacts are anticipated.

The following is a checklist used for alerting interested parties to potential secondary impacts in the Kaneohe-Kailua service areas.

CHECKLIST OF SECONDARY IMPACTS

Area of Impact	Impact Clearly Defined	Impact Uncertain	No Impact	Mitigated Yes	Mitigated No	Remarks
1. Air quality			x			
2. Environmentally significant agricultural lands			x			
3. Transportation			x			
4. Housing			x			
5. Business activity			x			
6. Open space recreation			x			
7. Infrastructure			x			
8. Wetlands			x			
9. Floodplain			x			
10. Ground water			x			
11. Creeks and rivers			x			
12. Coastal zone			x			
13. Threatened or endangered species			x			
14. Critical habitats			x			
15. Environmentally sensitive areas			x			

TABLE 10.1

POPULATION AND SEWAGE FLOWS - PRESENT AND PROJECTED

	1980 Population	Estimated Year 2005 Population	Average Sewage Flows Projected 1980 (mgd)	2005 (mgd)
Kaneohe:				
Sewered to Kaneohe STP	32,120	42,825	4	0
Unsewered	2,880	-		
	35,000	42,825		
Kailua:				
Sewered to Kailua STP	33,530	44,300	5	15[1]
Sewered to Interim Package Plants	5,200	-		
Unsewered	3,370	-		
	42,100	44,300		
Kahuluu:				
Sewered to Ahuimanu STP	4,400	-	0.4	0
Unsewered (non-Ahuimanu)	7,100	1,440		
Sewered to Kaneohe STP (from Ahuimanu SPS)	-	11,560		
	11,500	13,000		
Kaneohe-Kailua-Kahaluu Totals	88,600	100,125		
Kaneohe-Kailua-Kahaluu Sewered Totals	75,250	98,685		

[1] Flow projection includes infiltration increases projected in Facilities Plan

11 Relationships - Short Term and Long Term

CHAPTER 11

RELATIONSHIPS - SHORT TERM AND LONG TERM

11.1 DISCUSSION

Implementation of the Facilities Plan, with centralized wastewater treatment at Kailua, will result in substantial long term benefits. These benefits include reduction in total system costs, water quality improvements in Kaneohe Bay, Kawainui Marsh, Maunawili Stream and Ahuimanu Stream, odor reduction in the neighborhood of Kaneohe STP and the interim STPs near Kawainui Marsh, odor elimination in the vicinity of Kailua STP, and localized improvements where new collection sewers replace defective cesspools. These long term benefits will far outweigh the disturbances of noise, dust and traffic which occur during construction.

12 Irreversible and Irretrievable Commitment of Resources

CHAPTER 12

IRREVERSIBLE AND IRRETRIEVABLE COMMITMENT OF RESOURCES

12.1 DISCUSSION

No significant land acquisition will be required to implement this Wastewater Facilities Plan. Some minor easements and/or acquisiton may be necessary for new sewer lines or pump stations. Conversely, some of the land now occupied by Ahuimanu STP, Kaneohe STP, and the four small interim STPS may be made available for other commitments.

Major one-time commitments consist of manpower, materials and funds necessary for new construction and/or rehabilitation of each of the facilities proposed in the Facilities Plan. Continuing commitments will consist of funds and manpower necessary for operations and maintenance. The continuing O&M commitment at Kailua STP will be at a cost lower than would be necessary if Kaneohe STP, Ahuimanu STP, and the four small interim plants were to be retained.

13 List of Necessary Approvals

CHAPTER 13

LIST OF NECESSARY APPROVALS

- Clearance for Coastal Zone Management consistency will be required from the Hawaii State Department of Planning and Economic Development.
- Clearance for Historic and Archeological Sites will be required from the Historic Sites Section, Division of State Parks and Outdoor Recreation, Hawaii State Department of Land and Natural Resources.
- Kailua STP proposed plant modifications will require National Pollutant Discharge Elimination System (NPDES) Permit approval from the Hawaii State Department of Health and the U.S. Environmenal Protection Agency.
- Pump station modifications at the Kaneohe STP site, the Kaneohe Bay Sewers Improvement District, and part of the Kailua Road Interceptor Sewer are all within a Special Management Area (SMA) and therefore require an SMA Permit from the Department of Land Utilization, City and County of Honolulu.
- New structures and modifications at Kailua STP and other locations require a Building Permit from the Building Department, City and County of Honolulu.
- Prior to construction for any facilities including sewers, plans and specifications must be approved by the Hawaii State Health Department and State Department of Transportation (for projects affecting State highways) and by the Board of water Supply.

14 Unresolved Issues

CHAPTER 14

UNRESOLVED ISSUES

The question of whether primary or secondary treatment will be required at Kailua STP is unresolved at this time. It will be resolved when the City submits a Waiver Request to the U.S. Environmental Protection Agency (EPA) and EPA responds.

15 Organizations and Persons Consulted

CHAPTER 15

ORGANIZATIONS AND PERSONS CONSULTED

The following organizations and persons were consulted during preparation of this EIS. A total of 29 letters were received in response to the EIS Preparation Notice, of which ten had comments requiring a response. Only those letters which required responses are reproduced in the Appendix.

FEDERAL AGENCIES

15th Air Base Wing, U.S. Air Force

Farmers Home Administration, U.S. Department of Agriculture

Federal Highway Administration

Fish and Wildlife Service, U.S. Department of the Interior

Pacific Division,
Naval Facilities Engineering Command, Pearl Harbor

Public Works Department, Kaneohe Marine Corps Air Station

U.S. Army Corps of Engineers, Honolulu District

U.S. Army Support Command, Fort Shafter

U.S. Department of Housing and Urban Development

U.S. Environmental Protection Agency

U.S. Geological Survey, U. S. Department of the Interior

U.S. Naval Base, Pearl Harbor

STATE AGENCIES

Department of Agriculture

Department of Hawaiian Home Lands

Department of Planning and Economic Development

Department of Transportation

Division of Aquatic Resources,
Department of Land and Natural Resources

Division of Forestry & Wildlife,
Department of Land and Natural Resources

Environmental Center, University of Hawaii

Environmental Protection & Health Services Division,
Department of Health

Hawaii Housing Authority

Historic Sites Section,
Department of Land and Natural Resources

Kaneohe Regional Library

Kailua Library

Office of Environmental Quality Control

Water Resources Research Center, University of Hawaii

CITY AGENCIES

Board of Water Supply

Department of General Planning

Department of Housing and Community Development

Department of Land Utilization

Department of Parks & Recreation

Department of Transportation Services

Office of Information & Complaint

GOVERNMENT OFFICIALS

Honorable Daniel Inouye

Honorable Spark Matsunaga

Honorable Daniel Akaka

Honorable Cecil Heftel

Senator Ralph Ajifu

Senator Mary George

Senator Charles Toguchi

Representative Whitney Anderson

Representative Marshall Ige

Representative John Medeiros

Representative Robert S. Nakata

Representative Terrance Tom

Representative Norma Wong

Councilwoman Welcome Fawcett

Councilman David Kahanu

PRIVATE AGENCIES AND COMMUNITY ASSOCIATIONS

Ahuimanu Homeowners' Assn.

Aikahi Gardens Assn.

Aikahi Park Community Assn.

Alii Shores Community Assn.

Building Industry Digest

Congress of Hawaiian People

Conservation Congress

Council of Presidents

Crown Terrace Community Assn.

Environmental Law Center of the Pacific

Gardenia Manor Owners' Assoc.

GASCO, Inc.

Kaapuni Community Assn.

Kaelepulu Neighborhood Assn.

Kahaluu Colony Village Owners' Assn.

Kahinani Place Assn.

Kailua Chamber of Commerce

Kailua Community Council

Kailua Improvement Assn.

Haiku Plantation Community Assn.

Haiku Village Community Assn.

Hawaii Thousand Friends

Hawaiian Telephone Company

Hokuloa Homeowners' Assn.

Honolulu Advertiser

Honolulu Star-Bulletin

Joint Public Affairs Office Community Relations

KGU Radio

K-LEI Radio

Ka Lama

Kaalaea View Acres Community Assn.

Kaneohe Bay Community Assn.

Kaneohe Business Group

Kaneohe Community Council

Kaneohe Neighborhood Board #30

Kaneohe Outdoor Circle

Kokokahi Community Assn.

Kuulei Tract Assn.

PRIVATE AGENCIES AND COMMUNITY ASSOCIATIONS (continued)

Kailua Neighborhood Board #31

Kailua Satellite City Hall

Kainalu Park Homeowners' Assn.

Kalaheo Hillside Community Assn.

Legislative Information Service of Hawaii

Life of the Land

Mahinui Community Assn.

Mauka Bluff Community Assn.

Ms. Scoops Kreger (MS FIXIT)

Napali Gardens Owners' Assn.

Oahu Development Conference

Ocean Cablevision and Pacific Network

Office of Hawaiian Affairs

Olomana Community Assn.

Outdoor Circle

Lanikai Assn.

Lani-Kailua Outdoor Circle

League of Women Voters

Legal Aid Society

Pacific Business News

Pacific Resources, Inc.

Pohakupu Community Assn.

Save Our Surf

Sierra Club

Sun Press Newspapers

Temple Valley Shopping Center, Merchants Assn.

Tropic Shore Realty

Waiahole-Waikane Community Assn.

Yacht Club Knolls Owners' Assn.

Yacht Club Terrace Owners' Assn.

COMMUNITY MAILING LIST

Mr. Albert Aguiar

Mrs. Bacque

Mr. W. E. Bliss

Mrs. Lilian Chung

Mr. Wilfred D. Darling

Mrs. Virginia Forsyth

Mrs. S. Hanson

Ms. Valerie Humphries

Mr. Carl W. Johnson

Mrs. Paul Kahn

Mr. Frederick K. Kamada

F. S. Marsh

Mrs. Mary Mateo

Mrs. Euple Medley

Mr. Barry Nakamura

Mrs. Norris

Mrs. Rock

Mr. Jack Shedletsky

Mr. John Terada

Mr. A. Tsuji

Mr. Frank White

16 References

CHAPTER 16

REFERENCES

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(2) U.S. Environmental Protection Agency publication FRD-5, Environmental Assessment of Construction Grants Projects, January 1979.

(3) U.S. Environmental Protection Agency - Environmental Assessment Format - as forwarded to GMP by City Department of Public Works letter of April 21, 1980.

(4) Kaneohe-Kailua Wastewater Facilities Plan, Draft, October 1983.

(5) Plan of Study for the Step 1 Addenda to the Kaneohe and Kailua Facility Plans [and Appendix]. Prepared by the Division of Wastewater Management, Department of Public Works, City and County of Honolulu. January 1980.

(6) Process Evaluation Kailua Wastewater Treatment Plant: Final Report. Prepared by GMP Associates, Inc. for Department of Public Works, City and County of Honolulu. August 1978.

(7) Water Quality Management Plan for the City and County of Honolulu [208 Plan]. Prepared by the State Department of Health and City and County of Honolulu. December 1980.

(8) General Plan: Objectives and Policies. Exhibit A, Resolution No. 238. City and County of Honolulu. January 18, 1977. 63 p.

(9) Development Plan Ordinance for Koolaupoko. Department of General Planning, City and County of Honolulu. May 1983.

(10) Guidebook on Wind Energy Conversion Applications in Hawaii. Hawaii Natural Energy Institute, University of Hawaii. February 1981.

(11) Wind Power Feasibility Analysis for Kailua STP - George Curtis - 1983.

(12) Application (to EPA) for Secondary Treatment Modifications Kaneohe and Kailua Treatment Facilities City & County of Honolulu. September 7, 1979.

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(13) Baseline Studies of Phytoplankton Communities at Mokapu Sewer Outfall. Department of Oceanography and Hawaii Institute of Marine Biology University of Hawaii. May 1980.

(14) Zooplankton and Larval Fish Near Mokapu Outfall. AECOS Inc. December 1980.

(15) Benthic Ecosystems and Fish Populations Off Mokapu Outfall. Hawaii Water Resources Research Center Technical Memo #65 - June 1971, and a second post installation ecological study, WRRC Technical Report No. 132, May 1980 by A. R. Russo, S. J. Dollar, and E. A. Kay.

(16) Nutrient and Suspended Solids Budget Kawainui Marsh. AECOS Inc, October 1981 with February 1982 Supplement, for State Department of Planning and Economic Development.

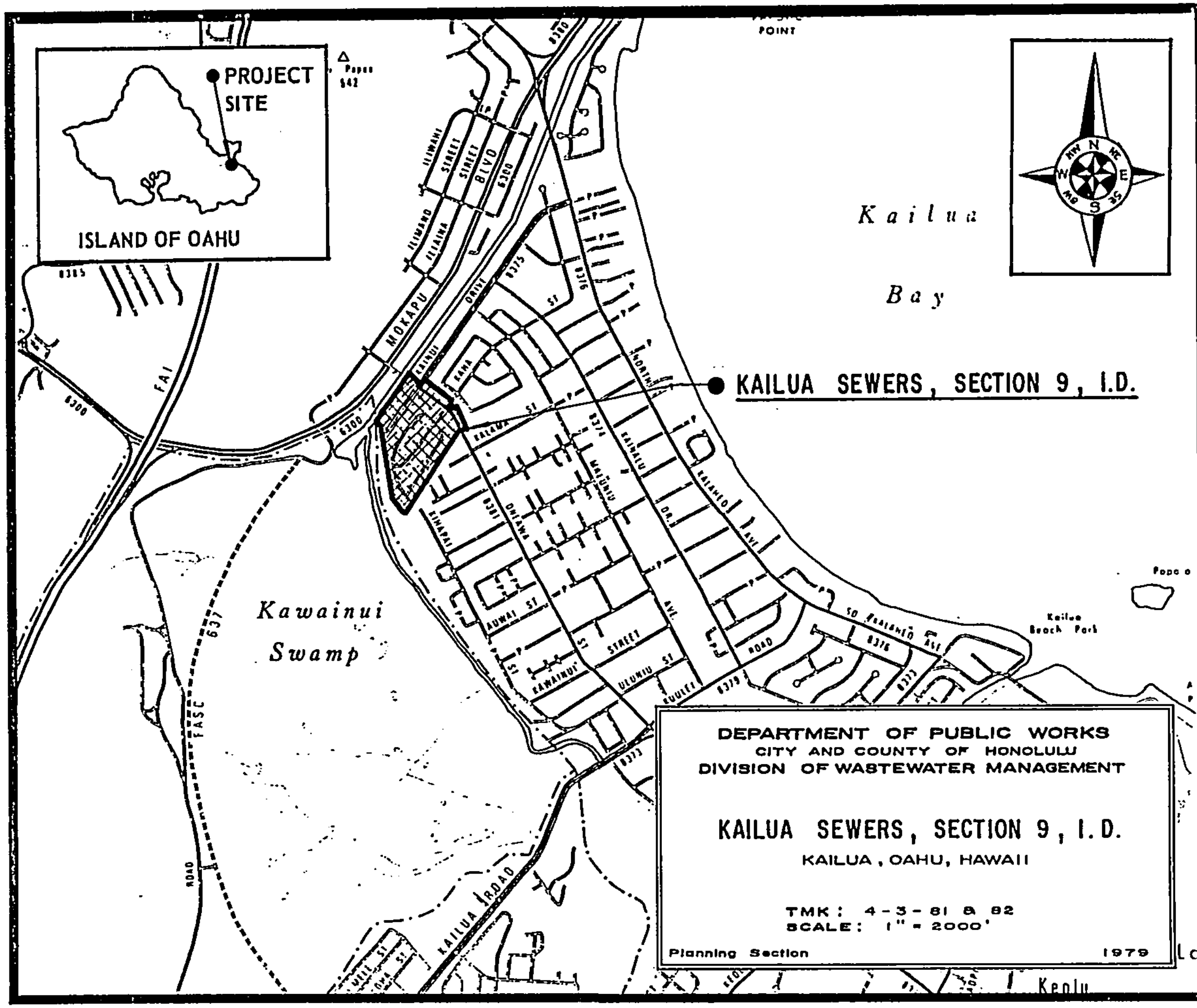
(17) Kawainui Marsh Resource Management Plan - Department of Planning and Economic Development. August 2, 1982 draft.

(18) Water Quality Program For Oahu with special emphasis on waste disposal: Final report work areas 8 and 9. Prepared by Engineering Science, Inc. and Sunn, Low, Tom & Hara, Inc. for Department of Public Works, City and County of Honolulu. July 1971.

APPENDIX A

PROPOSED SEWER AND COLLECTION SYSTEMS

Appendices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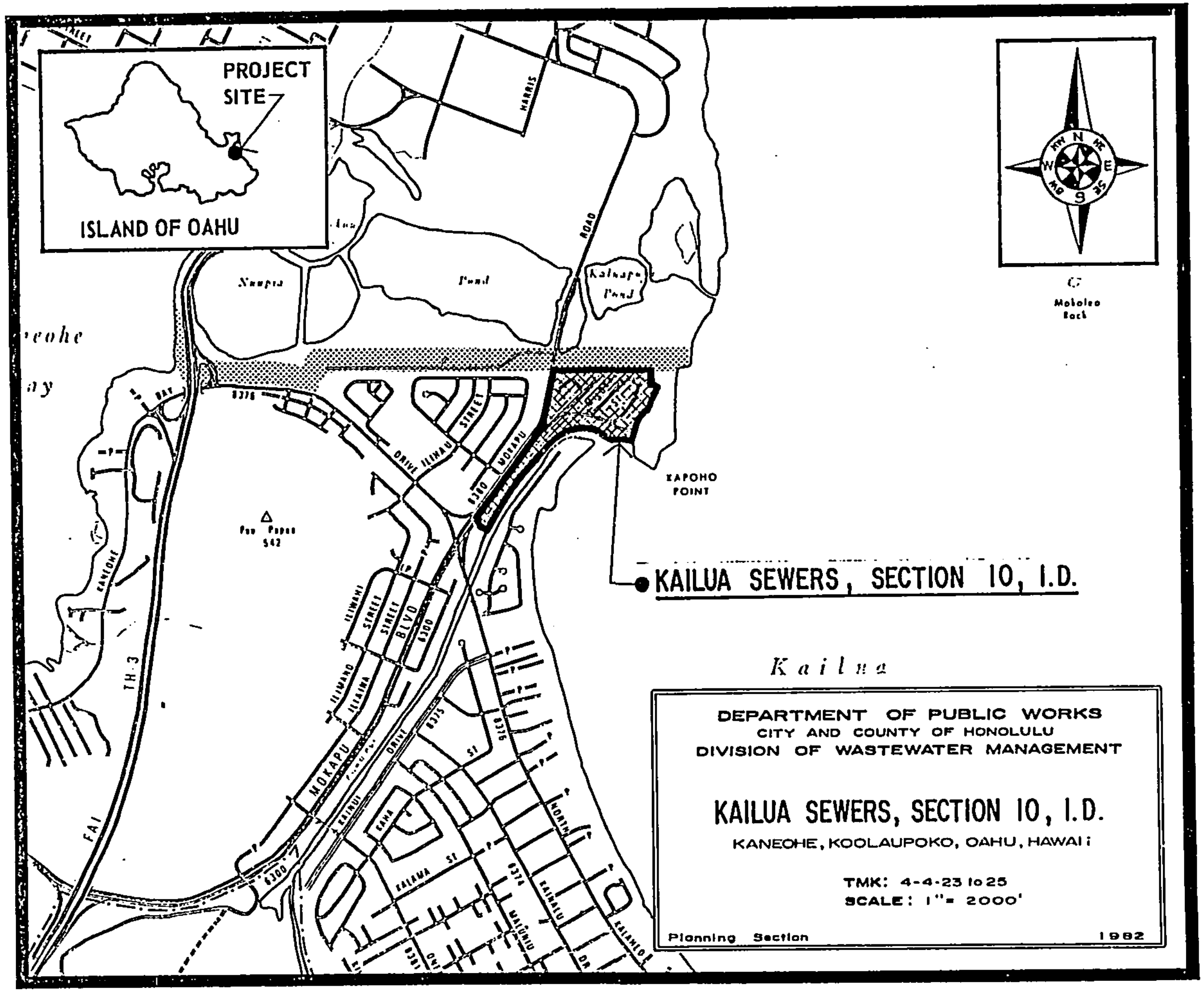
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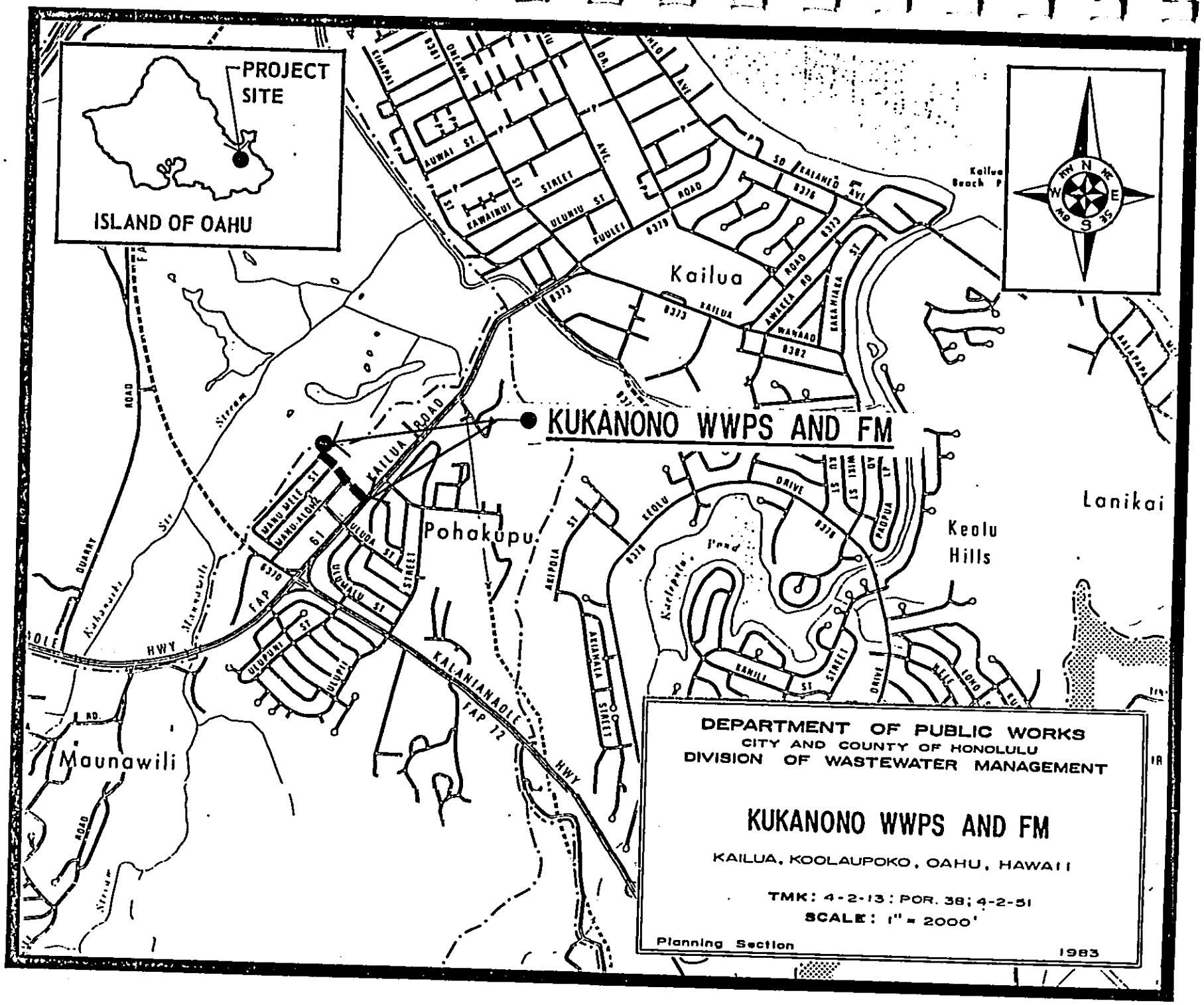
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KALANIANAOLE HWY
FAP 72
FAP
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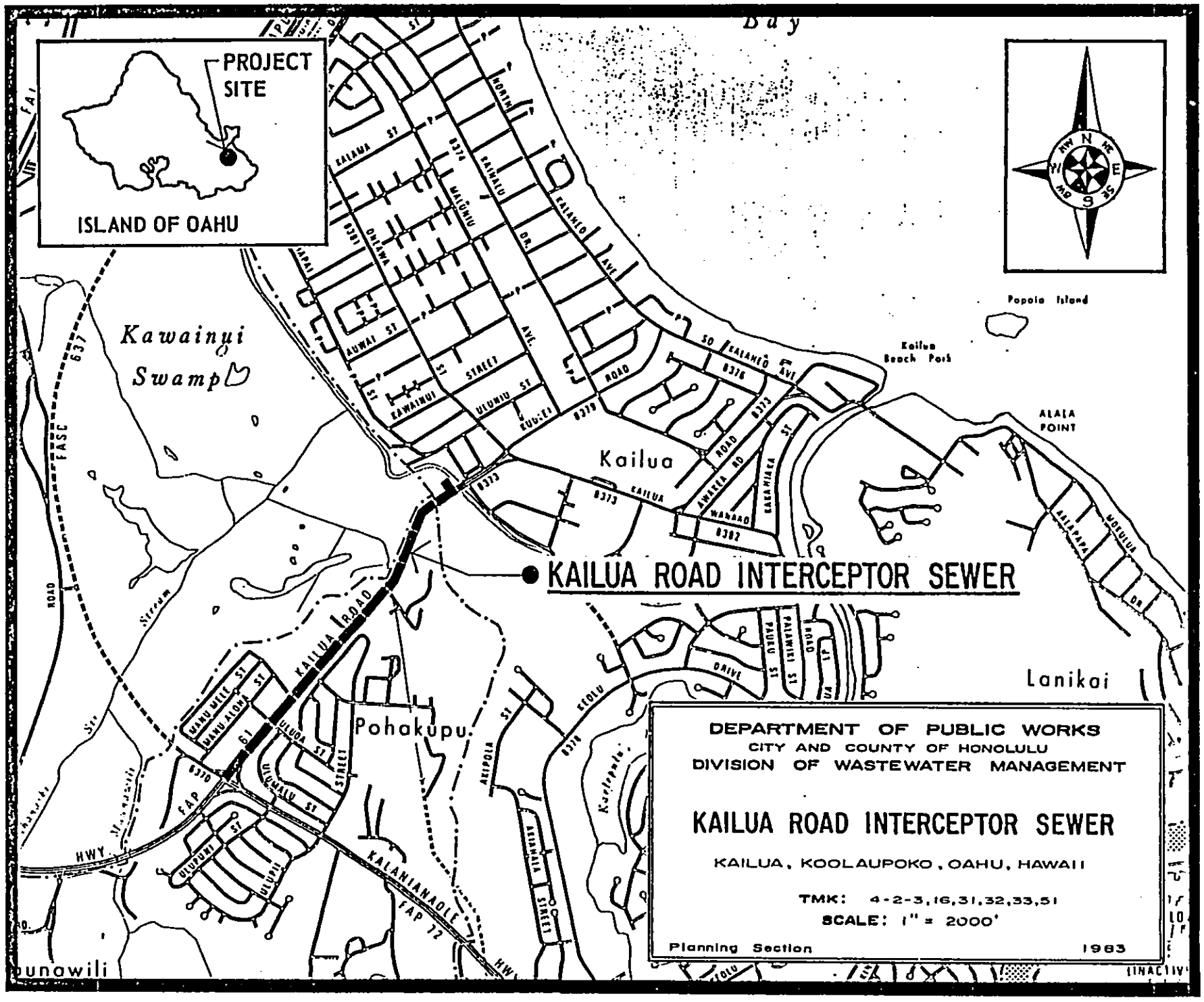
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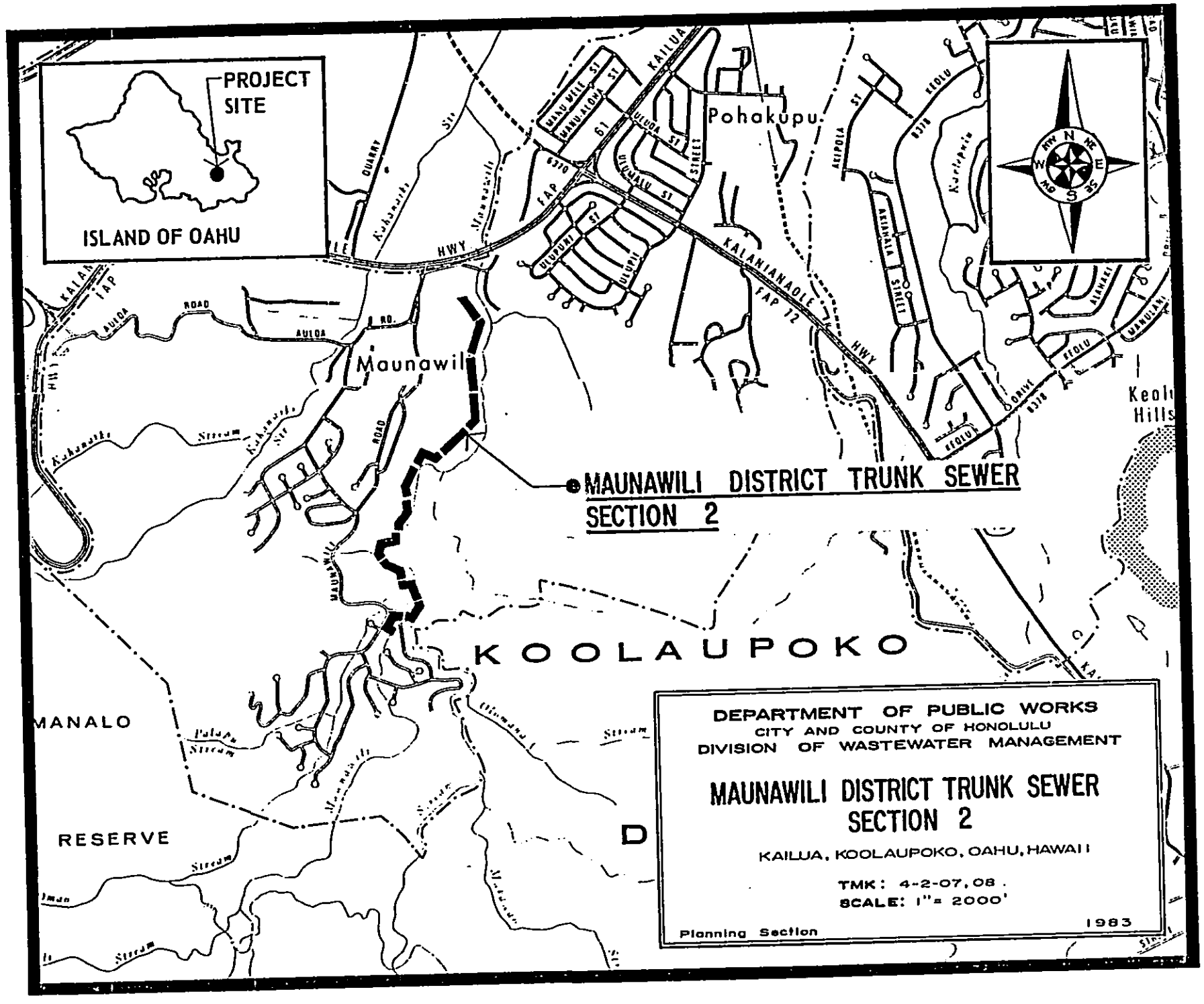
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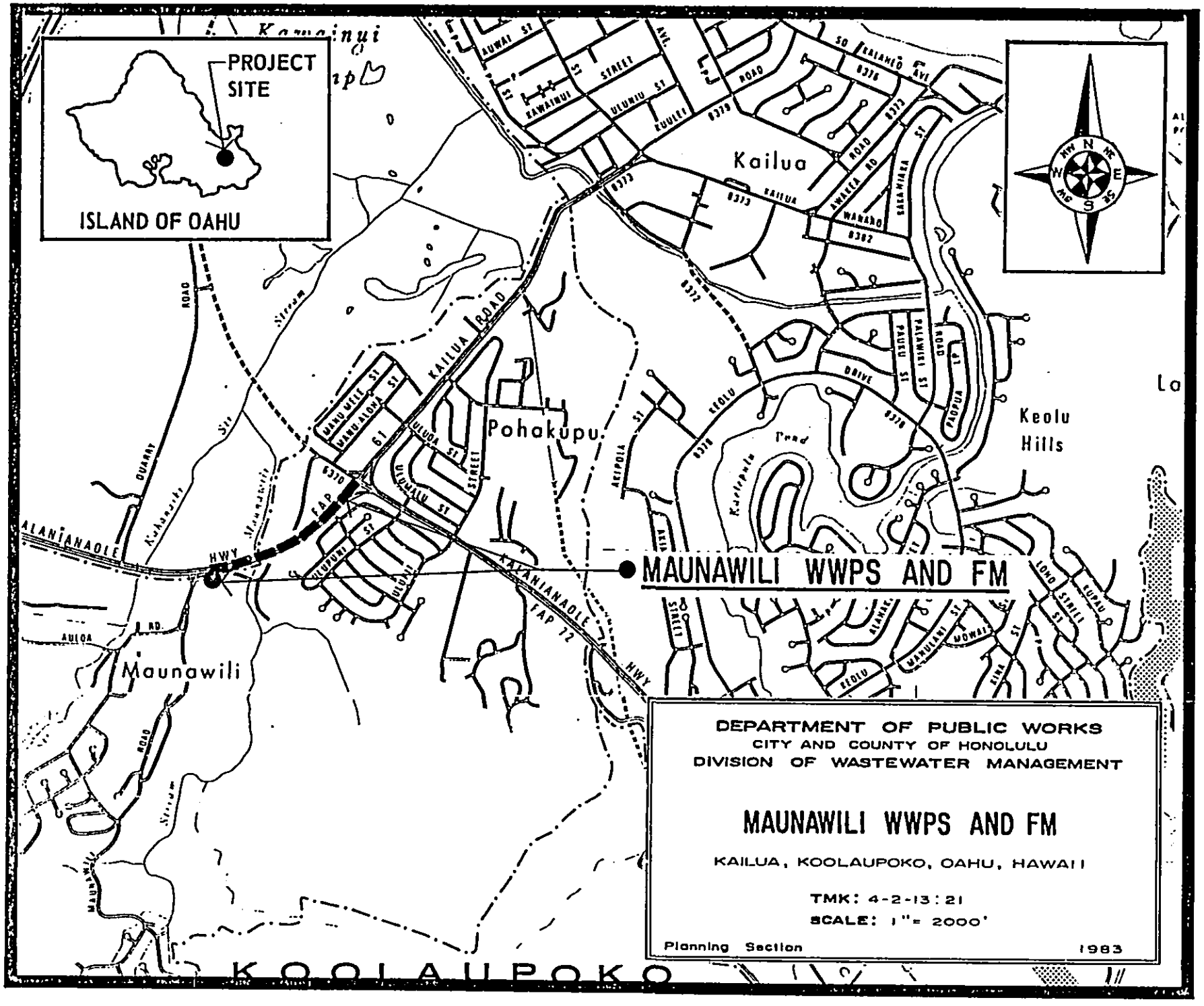
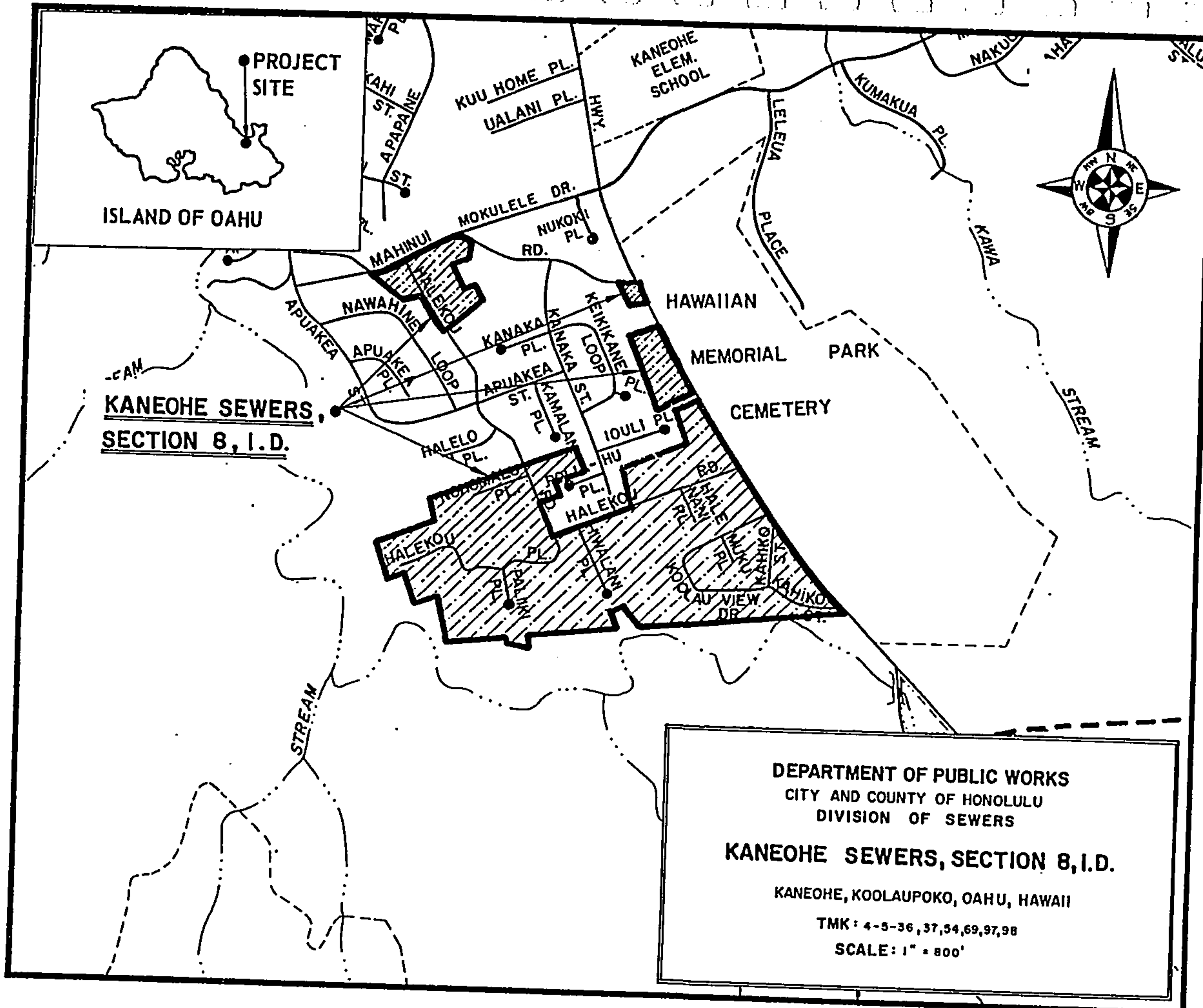
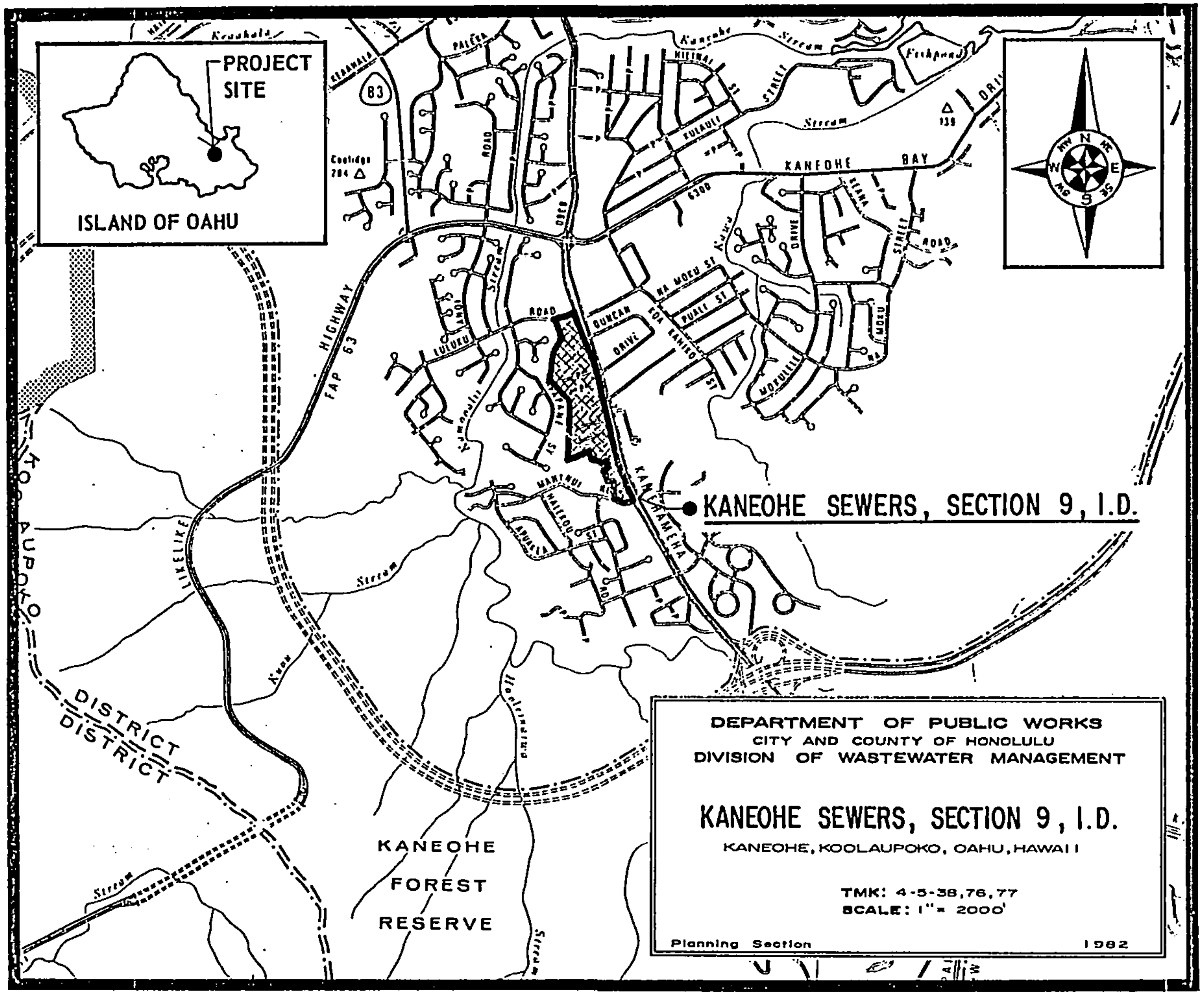
KAILUA, KOOLAUPOKO, OAHU, HAWAII
TMK: 4-2-07, 08
SCALE: 1"= 2000'
Planning Section
1983


PROJECT SITE
ISLAND OF OAHU
Kailua
Pohakupu
Keolu Hills
Maunawili
KAILUA ROAD
ALANIANAOLE HWY
MAUNAWILI WWPS AND FM
KOOLAUPOKO
DEPARTMENT OF PUBLIC WORKS
CITY AND COUNTY OF HONOLULU
DIVISION OF WASTEWATER MANAGEMENT
MAUNAWILI WWPS AND FM
KAILUA, KOOLAUPOKO, OAHU, HAWAII
TMK: 4-2-13:21
SCALE: 1"= 2000'
Planning Section
1983


PROJECT SITE
ISLAND OF OAHU
KANEOHE SEWERS, SECTION 8, I.D.
HAWAIIAN MEMORIAL PARK CEMETERY
KANEOHE ELEM. SCHOOL
KUU HOME PL.
UALANI PL.
HWY.
LELEUA PLACE
KUMAKUA PL.
KAWA STREAM
MOKULELE DR.
NUKOKI PL.
MAHINUI RD.
HALEKOU
NAWAHINE LOOP
APUAKEA
APUAKEA PL.
APUAKEA ST.
KANAKA PL.
KAINAKA ST.
KEIKIKANE LOOP
KEIKIKANE PL.
KAMALANI PL.
IOULI PL.
HALELO PL.
HALEKOU PL.
HALEKOU RD.
HALE NANI PL.
MUKU PL.
KAHIKO ST.
KAHIKO PL.
KOOLAU VIEW DR.
HIWALANI PL.
PALIIKI PL.
STREAM
APAPANE ST.
DEPARTMENT OF PUBLIC WORKS
CITY AND COUNTY OF HONOLULU
DIVISION OF SEWERS
KANEOHE SEWERS, SECTION 8, I.D.
KANEOHE, KOOLAUPOKO, OAHU, HAWAII
TMK: 4-5-36, 37, 54, 69, 97, 98
SCALE: 1" = 800'

34


PROJECT SITE
ISLAND OF OAHU
KANEOHE SEWERS, SECTION 9, I.D.
HIGHWAY
FAP 63
LIKELIKE
KANEOHE BAY
KAMEHAMEHA
KANEOHE FOREST RESERVE
KOOLAUPOKO
DISTRICT
DISTRICT
DEPARTMENT OF PUBLIC WORKS
CITY AND COUNTY OF HONOLULU
DIVISION OF WASTEWATER MANAGEMENT
KANEOHE SEWERS, SECTION 9, I.D.
KANEOHE, KOOLAUPOKO, OAHU, HAWAII
TMK: 4-5-38,76,77
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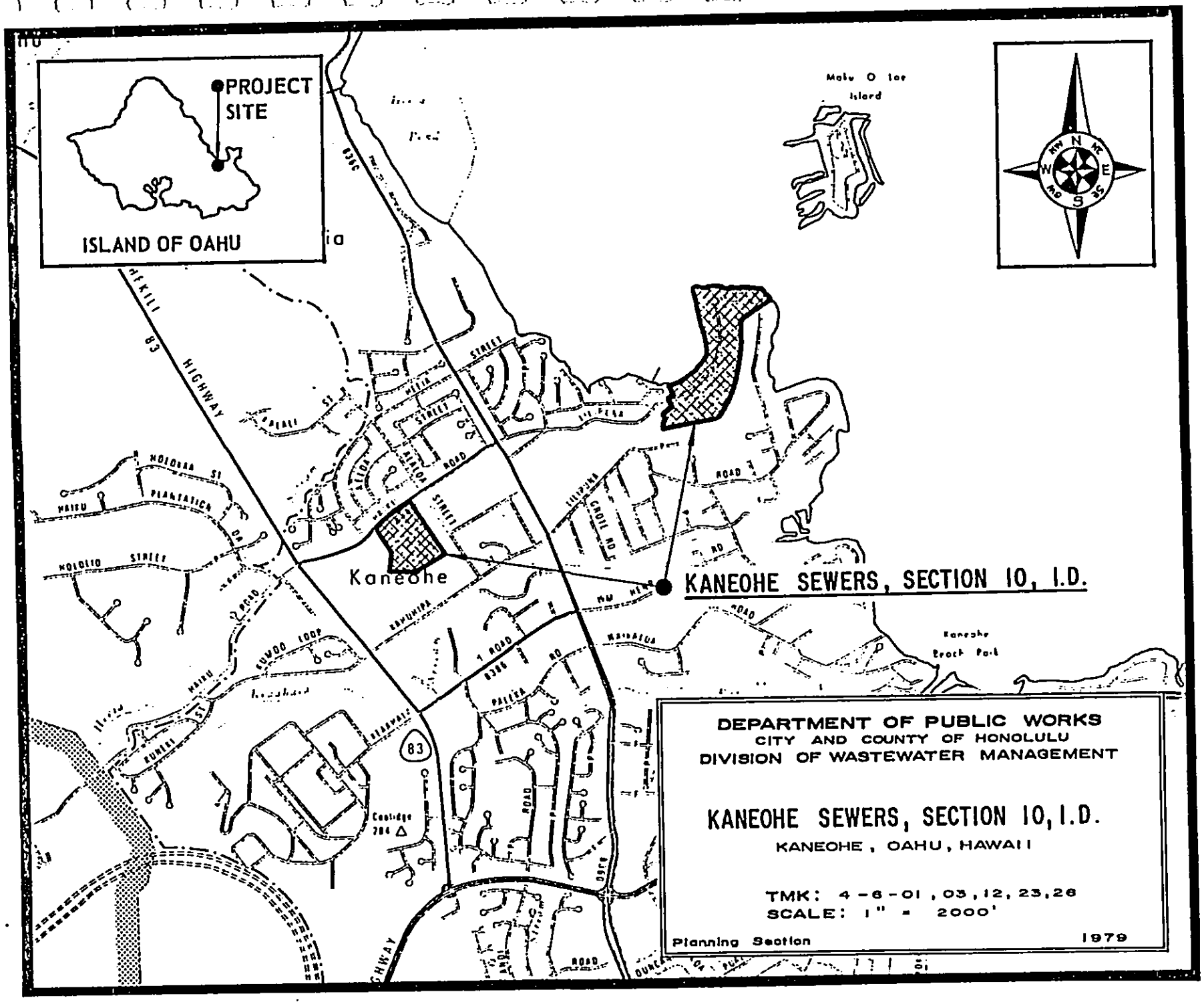
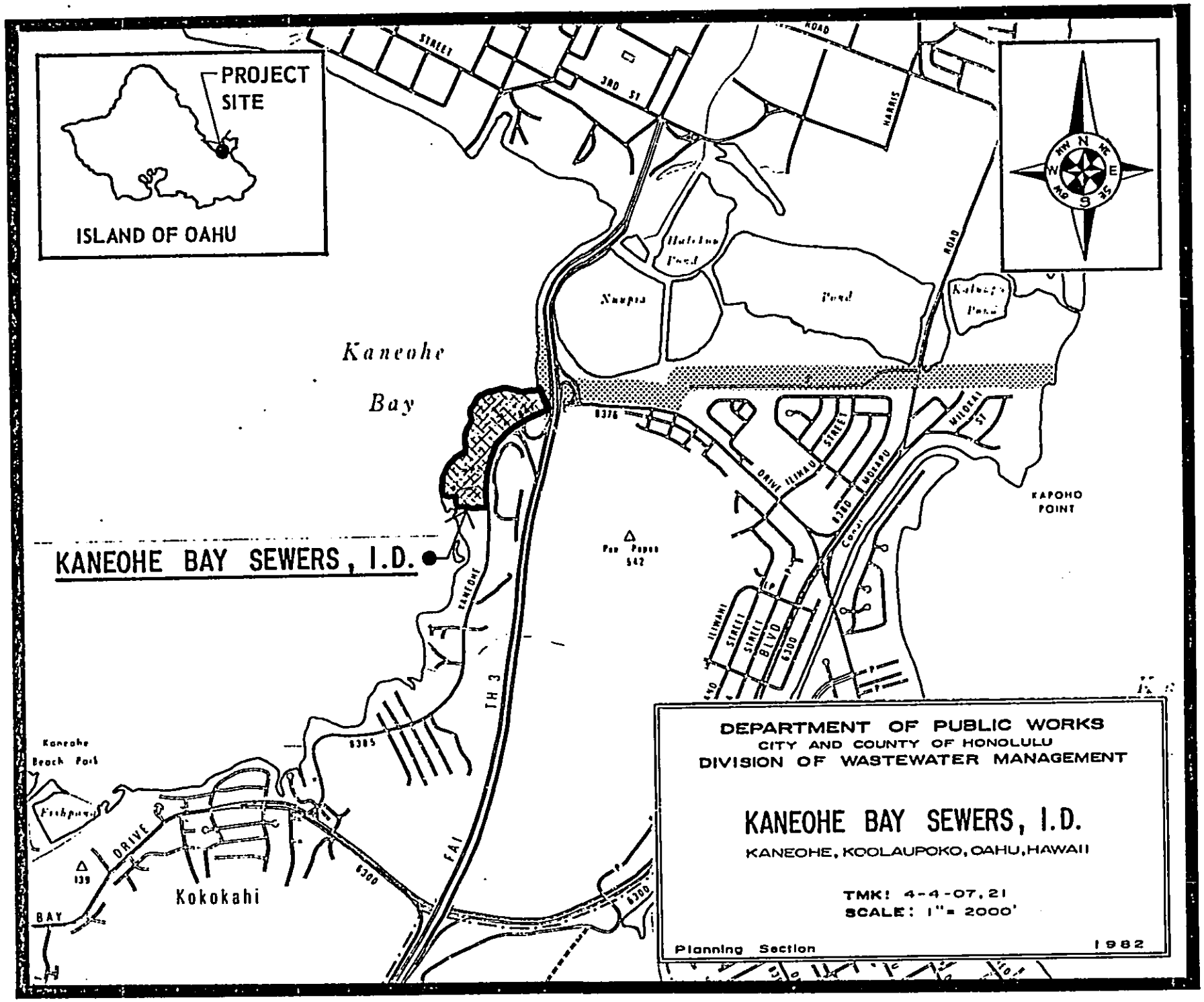
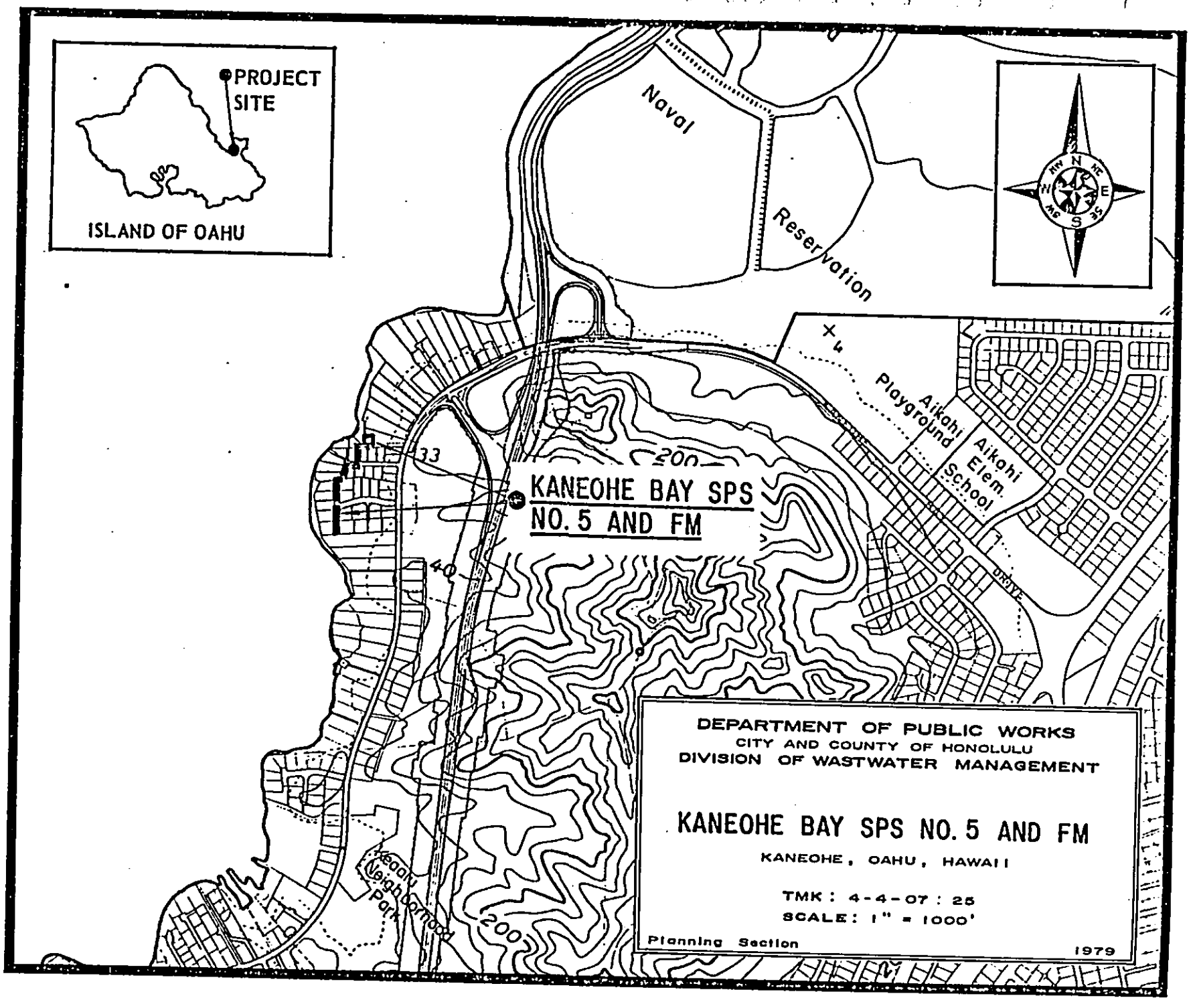
Planning Section
1982


PROJECT SITE
ISLAND OF OAHU
Mokolii Island
N
E
S
W
KANEOHE SEWERS, SECTION 10, I.D.
Kaneohe
Kaneohe Beach Park
KAHEKILI 83 HIGHWAY
83
Coolidge
HOLOKAA ST
PLANTATION DR
HAIKU
HOLOLIO STREET
KUMOO LOOP
KUNEKI ST
ALAOA
STREET
ROAD
CROIL RD
KAWAINUI
NAMOKU
PALEKA RD
RD
HAIKU RD
DEPARTMENT OF PUBLIC WORKS
CITY AND COUNTY OF HONOLULU
DIVISION OF WASTEWATER MANAGEMENT
KANEOHE SEWERS, SECTION 10, I.D.
KANEOHE, OAHU, HAWAII
TMK: 4-6-01, 03, 12, 23, 26
SCALE: 1" = 2000'
Planning Section
1979

53


PROJECT SITE
ISLAND OF OAHU
Kaneohe Bay
KANEOHE BAY SEWERS, I.D.
Kokokahi
KAPOHO POINT
TH 3
DEPARTMENT OF PUBLIC WORKS
CITY AND COUNTY OF HONOLULU
DIVISION OF WASTEWATER MANAGEMENT
KANEOHE BAY SEWERS, I.D.
KANEOHE, KOOLAUPOKO, OAHU, HAWAII
TMK: 4-4-07, 21
SCALE: 1"= 2000'
Planning Section
1982


PROJECT SITE
ISLAND OF OAHU
Naval
Reservation
KANEOHE BAY SPS NO. 5 AND FM
Aikahi Playground
Aikahi Elem. School
Keaahi Neighborhood Park
200
40
33
DEPARTMENT OF PUBLIC WORKS
CITY AND COUNTY OF HONOLULU
DIVISION OF WASTWATER MANAGEMENT
KANEOHE BAY SPS NO. 5 AND FM
KANEOHE, OAHU, HAWAII
TMK: 4-4-07: 25
SCALE: 1" = 1000'
Planning Section
1979

APPENDIX B

EISPN COMMENTS AND RESPONSES

816 7630

DEPARTMENT OF LAND UTILIZATION

CITY AND COUNTY OF HONOLULU

650 SOUTH KING STREET
HONOLULU, HAWAII 96813

EILEEN R. ANDERSON
MAYOR

MICHAEL M. McELROY
DIRECTOR

LU10/81-5437(JH)
81/EC-4

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'81 NOV 10 PM 2 06
DIV. OF WASTEWATER MANAGEMENT

November 9, 1981

MEMORANDUM

TO : MICHAEL J. CHUN, DIRECTOR & CHIEF ENGINEER
DEPARTMENT OF PUBLIC WORKS

FROM : MICHAEL M. McELROY, DIRECTOR

SUBJECT: ENVIRONMENTAL IMPACT STATEMENT PREPARATION NOTICE
KANEOHE-KAILUA WASTEWATER FACILITIES PLAN,
KANEOHE-KAILUA, OAHU, HAWAII

We have reviewed the Preparation Notice mentioned above and offer the following comments:

1. Reference: Page 40

Comment: The text states that "Water quality...at Mokapu outfall is essentially that of pristine open ocean." This discharge into Class A waters could easily be returned to the shore along Kailua Bay by wind driven currents generated by the prevailing East-Northeasterly trade winds. Although no detrimental effects of existing discharges have been recorded, the long-term effects of this activity should be addressed in the EIS. Possibly, a survey of residents in the Kailua Bay area could be conducted to determine any perceived change in nearshore water quality from the initial discharge in 1977.

2. Reference: Page 41

Comment: The text states that a waiver has been requested to lower the effluent standards for the Kailua and Kaneohe Sewage Treatment Plants. The Biological Oxygen Demand (BOD) would be doubled from 30 mg/l to 60 mg/l. Presently, the suspended solid (SS) levels are greater than allowable according to the Department of Health. These SS levels would be further increased if the waiver is granted. These proposed changes in effluent standards would mean additional degradation of water quality and, therefore, should be thoroughly addressed in the EIS.

MEMO TO: MICHAEL J. CHUN, DIRECTOR & CHIEF ENGINEER
PAGE 2

If you have any comments or questions, please contact John Machol of our staff at 523-4077.

MICHAEL M. McELROY
Director of Land Utilization

MMM:ey

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

EILEEN R. ANDERSON
MAYOR

MICHAEL J. CHUN, Ph.D.
DIRECTOR AND CHIEF ENGINEER

MAURICE H. HAYA
DEPUTY DIRECTOR

WPP 83-487

October 12, 1983

Mr. Derral Herbst
Acting Project Leader
Office of Environmental Services
United States Department of Interior
Fish and Wildlife Service
P. O. Box 50167
Honolulu, Hawaii 96850

Dear Mr. Herbst:

Subject: Environmental Impact Statement Preparation Notice for Kaneohe-Kailua Wastewater Facilities Plan

Thank you for your letter concerning the EIS Preparation Notice for the Kaneohe-Kailua Wastewater Facilities Plan. There has been some delay in response because of basic changes in federal criteria concerning the project.

The EIS being published in October of 1983 indicates that wastewater facilities being proposed in the Plan will not impact endangered species. Figure 8 shows Bird Habitat and Feeding Areas in relationship to Kailua STP. The Plan recommends facilities modifications of modest scale within the fenced boundaries of the STP during the 1980's. The closest distance to bird habitats is about 500 feet, and the distances to much of the bird areas are over 2,000 feet. No significant impacts are foreseen from minor short term disturbances during construction.

The closure of the interim treatment plants near Kawainui Marsh may have a role in improving habitat for endangered water birds in the Marsh.

We appreciate your interest in this planning effort.

Should there be any questions, please call Geraldine Lum - 527-5392.

Me ke aloha pumehana,

MICHAEL J. CHUN
Director and Chief Engineer

DEPARTMENT OF PUBLIC WORKS

CITY AND COUNTY OF HONOLULU

650 SOUTH KING STREET
HONOLULU, HAWAII 96813

EILEEN R. ANDERSON
MAYOR

MICHAEL J. CHUN, Ph.D.
DIRECTOR AND CHIEF ENGINEER

MAURICE H. KAYA
DEPUTY DIRECTOR

WPP 83-486

October 12, 1983

MEMORANDUM

TO: DR. WILLARD T. CHOW, CHIEF PLANNING OFFICER
DEPARTMENT OF GENERAL PLANNING

VIA: ANDREW I. T. CHANG, MANAGING DIRECTOR

FROM: MICHAEL J. CHUN, DIRECTOR AND CHIEF ENGINEER

SUBJECT: ENVIRONMENTAL IMPACT STATEMENT PREPARATION NOTICE FOR KANEOHE-KAILUA WASTEWATER FACILITIES PLAN

Thank you for your memorandum concerning the EIS Preparation Notice for the Kaneohe-Kailua Facilities Plan. There has been some delay in response because of basic changes in federal criteria concerning the project.

The EIS being published in October of 1983 does, as you suggest, discuss the fact that the Facilities Plan conforms with the Honolulu General Plan, the Koolaupoko Development Plan, and further discusses the subject of minimal secondary impacts.

An improved wastewater treatment system with a design closely limited to population projections in the General Plan will not, per se, stimulate population growth in the area. Land use policies in the General Plan and Development Plan will govern growth.

We appreciate your interest in this planning effort.

Should there be any questions, please call Geraldine Lum at extension 5392.

Michael J. Chun

MICHAEL J. CHUN
Director and Chief Engineer

RECEIVED
NOV 13 1986

United States Department of the Interior

FISH AND WILDLIFE SERVICE
300 ALA MOANA BOULEVARD
P.O. BOX 50167
HONOLULU, HAWAII 96850

DIV. OF WASTEWATER MANAGEMENT

IN REPLY REFER TO:
ES
Room 6307

NOV 09 1981

RECEIVED
DEPT OF PUBLIC WORKS
NOV 20 PM '81

Dr. Michael J. Chun
Director and Chief Engineer
City Department of Public Works
650 South King Street
Honolulu, Hawaii 96813

Re: EIS Preparation Notice,
Kaneohe-Kailua Wastewater
Facilities Plan, Oahu,
Hawaii

Dear Dr. Chun:

We have reviewed the subject Environmental Impact Statement (EIS) Preparation Notice and offer the following comments.

The Service recommends the EIS address the expected impacts of the project on the Hawaiian Owl and the four species of Hawaiian waterbirds listed in the Preparation Notice. Since Federal funds will be involved in the project, formal consultation (by the agency providing the funds) with the Fish and Wildlife Service will be required if it is determined that the project may affect listed species as specified in the Endangered Species Act of 1973, as amended.

Additionally, we recommend appropriate aquatic and marine resources, and human uses of these resources, be addressed, along with mitigation measures which will reduce or eliminate any adverse impacts of the project.

We appreciate this opportunity to comment.

Sincerely yours,

Derral Herbst

Derral Herbst
Acting Project Leader
Office of Environmental Services

cc: NMFS
HDF&G
EPA, San Francisco

CONSERVE AMERICA'S ENERGY

Save Energy and You Serve America!

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

EILEEN R. ANDERSON
MAYOR

MICHAEL J. CHUN, PH.D.
DIRECTOR AND CHIEF ENGINEER

MAURICE H. KAYA
DEPUTY DIRECTOR

WPP 83-485

October 12, 1983

Honorable Kent Keith, Director
Department of Planning and Economic Development
P. O. Box 2359
Honolulu, Hawaii 96804

Dear Mr. Keith:

Subject: Environmental Impact Statement Preparation Notice for Kaneohe-Kailua Wastewater Facilities Plan

This letter is in response to Mr. Kono's letter concerning the EIS Preparation Notice for the Kaneohe-Kailua Facilities Plan. There has been some delay in response because of basic changes in federal criteria concerning the project.

The EIS being published in October of 1983 will depict the area of special management area interest in Figure 10 and does, as you suggest, discuss the impact of alternatives in light of Coastal Zone Management policies. The DPED Procedures Guide for Achieving Federal Consistency with the Hawaii CZM Program will be followed.

We appreciate your interest in this planning effort. Your review of the completed EIS will be welcome.

Should there be any questions, please call Geraldine Lum - 527-5392.

Me ke aloha pumehana,

MICHAEL J. CHUN
Director and Chief Engineer

RECEIVED '81 NOV 12 PM 3 41
DEPARTMENT OF GENERAL PLANNING
CITY AND COUNTY OF HONOLULU
650 SOUTH KING STREET
HONOLULU, HAWAII 96813

DIV. OF WASTEWATER MANAGEMENT

EILEEN R. ANDERSON
MAYOR

WILLARD T. CHOW
CHIEF PLANNING OFFICER

RALPH PORTMORE
DEPUTY CHIEF PLANNING OFFICER

DGP10/81-3439

November 10, 1981

MEMORANDUM

TO: Dr. Michael J. Chun, Director and Chief Engineer
Department of Public Works

SUBJECT: Environmental Impact Statement Preparation
Notice for the Kaneohe-Kailua Wastewater
Facilities Plan, Kaneohe-Kailua, Oahu, Hawaii

Our comments are as follows:

We recommend that the EIS discuss how the facility plan for Kaneohe-Kailua will conform to or conflict with objectives and policies of the adopted General Plan and the development plan being proposed for the area. Where conflicts or inconsistencies exist, it may be necessary for the EIS to describe the extent to which the facility plan and/or current and proposed land use plans can be reconciled.

Public projects, in particular those that involve the construction of public facilities, may well stimulate or induce secondary effects. It would be helpful if these were discussed. For example, General Plan population distribution policies indicate that approximately 120,000 people out of the projected Oahu year 2000 population of 917,400 should be living in Koolaupoko. The planned land use pattern shown on the Koolaupoko Development Plan reflects this anticipated population. Potential major population deviations in the area resulting from an improved wastewater treatment system therefore may need to be discussed.

Ralph Kawamoto
RALPH KAWAHOTO
Planner

APPROVED:

WILLARD T. CHOW

Regarding your concern with Mokapu Outfall, the EIS will summarize expected impacts of BOD and SS.

We appreciate your interest in this planning effort.

Should there be any questions, please call Geraldine Lum - 527-5392.

Me ke aloha pumehana,

MICHAEL J. CHUN
Director and Chief Engineer

DEPARTMENT OF PLANNING AND ECONOMIC DEVELOPMENT
Kamamalu Building, 250 South King St., Honolulu, Hawaii • Mailing Address: P.O. Box 2359, Honolulu, Hawaii 96804

GEORGE R. ARIYOSHI, Governor
HIDETO KONO, Director
FRANK SKRIVANEK, Deputy Director

ENV LL
WWM

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DIV. OF WASTEWATER MANAGEMENT

November 4, 1981

Ref. No. 5855

Dr. Michael J. Chun
Director and Chief Engineer
Department of Public Works
City and County of Honolulu
Honolulu, Hawaii 96813

Dear Dr. Chun:

Subject: Environmental Impact Statement Notice for Kaneohe-Kailua Wastewater Facilities Plan

We have reviewed the subject preparation notice and offer the following comments.

Since the Hawaii Coastal Zone Management (CZM) Program's statutory concerns include water quality, coastal ecosystems, coastal hazards, and historic resources, we recommend that the environmental impact statement disclose the effects of the various alternatives on these applicable CZM policies as contained in Chapter 205A, Hawaii Revised Statutes. This will assist the agencies having functional CZM responsibilities in their evaluation of the project's consistency and compliance with the Hawaii CZM policies.

We would also like to review the draft environmental impact statement when it is completed. We appreciate your assistance in this matter.

Sincerely,

Hideto Kono

82000964
Env
WWM

GEORGE R. ARIYOSHI
GOVERNOR OF HAWAII

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

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

RECEIVED
'82 JUN 11 PM 2 37
DIV. OF WASTEWATER MANAGEMENT

January 5, 1982

MEMORANDUM

To: Gordon Soh, Planning Office

From: Ralston Nagata, Director
Historic Sites Program

Subject: EIS, Kaneohe-Kailua Wastewater Facilities Plan,
Kaneohe and Kailua, Oahu, TMK: 4-2/3/4/5/6-various

The proposed undertaking is in an urban area, generally devoid of significant archaeological sites other than those mentioned in the preliminary plan. These above-ground sites should be preserved and maintained whenever possible.

On occasion, ground-disturbing construction activities are likely to disturb previously unknown, buried archaeological sites. Consequently, any plans should contain the condition that the State Historic Preservation Office will be contacted when buried archaeological deposits, artifacts, and burials are discovered, and that appropriate salvage excavations will be conducted.

RALSTON NAGATA

cc: Michael J. Chun
Public Works, C&C of Hon.

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

EILEEN R. ANDERSON
MAYOR

MICHAEL J. CHUN, Ph.D.
DIRECTOR AND CHIEF ENGINEER

MAURICE H. KAYA
DEPUTY DIRECTOR

WPP 83-484

October 12, 1983

Honorable Susumu Ono, Director
State of Hawaii
Department of Land and Natural Resources
P. O. Box 621
Honolulu, Hawaii 96809

Dear Mr. Ono:

Subject: Environmental Impact Statement Preparation Notice
for Kaneohe-Kailua Wastewater Facilities Plan

Thank you for your letters concerning the EIS Preparation Notice for the Kaneohe-Kailua Facilities Plan. There has been some delay in response because of basic changes in federal criteria concerning the project.

Construction contracts for wastewater treatment facilities will provide for contact with the State Historic Preservation Office if and when buried archeological deposits, artifacts and burials are discovered.

Detailed response to your comment regarding Kalaheo Landfill leachate is covered in the City's EIS for Kalaheo Landfill dated March 8,1983. Leachate monitoring will be provided at the Kalaheo site.

Your concerns relative to the Kahaluu sewer and Ahuimanu STP effluent were covered in the Environmental Impact Statement of December 1979 for the Kahaluu Wastewater Treatment and Disposal System.

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DIV. OF WASTEWATER MANAGEMENT

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

January 8, 1982

Honorable Michael J. Chun
Dept. of Public Works
650 So. King Street
Honolulu, HI 96813

Dear Dr. Chun:

We are sorry to have taken so long to review the EIS preparation notice for the Kaneohe-Kailua wastewater plan. We nevertheless do have some comments to offer.

We fully concur with the principal purposes of the Plan, which we understand are to extend wastewater treatment to a greater number of windward households, improve water quality in Ahuimanu Stream and nearby areas of Kaneohe Bay, and maximize the return on public expenditures for wastewater treatment. However, several aspects of the proposed EIS appear to warrant more consideration.

The sections on "Primary" and "Secondary Impacts and Mitigations" (pp. 51 and 53) indicate "no impact" on the coastal zone or on environmentally sensitive areas. We question the adequacy of the assessment of potential impacts on aquatic resources. For example, the proposed closing of the Ahuimanu STP and resultant reduction in water discharge may have profound effects on the organisms inhabiting Ahuimanu Stream and the Bay near its mouth. Even though such effects seem likely to be beneficial, the impact should be addressed. Specific information should be provided on existing resources, predicted changes in aquatic conditions, probable effect on resources, and mitigating measures (if appropriate). Similarly, there should be detailed information on the probable consequences of increasing BOD and SS levels in STP discharges into the ocean through the Mokapu outfall.

We note the existence of underdrains for leachate collection at the present Kapaa landfill site but find no indication that underdrains are planned for the proposed Kalaheo site. Although "to date, no leachate has accumulated in this (Kapaa) drain system" (p.43), it would seem that a similar system at Kalaheo would allow rapid detection of unforeseen leachate problems there. The EIS should discuss this matter.

We suggest that since a substantial portion of the proposed Kahaluu interceptor sewer would be installed close to the bay shore, the EIS should include appropriate details of sitework and of mitigative measures needed to prevent erosion from work sites which could increase present sedimentation problems in Kaneohe Bay; to prevent construction materials, debris, petroleum products, and other contaminants from passing into Bay and stream environments and maintain public access to the shoreline during construction.

Much of the proposed undertaking is in an urban area, generally devoid of significant archaeological sites other than those mentioned in the preliminary plan. The above-ground sites mentioned should be preserved and maintained whenever possible.

On occasion, ground-disturbing construction activities disturb previously unknown, buried archaeological sites. Consequently, the Plan should contain the condition that the State Historic Preservation Office (Phone 548-6408) will be contacted when buried archaeological deposits, artifacts, and burials are discovered and that appropriate salvage excavations will be conducted.

Sincerely,

SUSUMU ONO, Chairman
Board of Land and Natural Resources

- Industrial and commercial land use data on page 18 was taken from the Department of General Planning data in the publication referenced at the bottom of that page.

- Regarding your question concerning major botanical features at Kalaheo Landfill, the viability of the Kalaheo Landfill is not a key issue of the Wastewater Facilities Plan. Sludge will be disposed of at any landfill that is finally developed or will be sent to the Waimanalo composting facility that is being studied.

- The City engaged Bishop Museum for recommendations on preservation of the Heiau at Kapaa Landfill and has followed those recommendations.

- The source of the statement concerning the pristine quality of receiving water off Mokapu Point is the author's judgment for ocean water one mile offshore at a depth of 100 feet.

- In 1983 the City intends to pursue a waiver which will permit primary treatment effluent at the Mokapu Outfall. Evidence indicates there will be very significant savings to tax payers, and that no significant environmental degradation will result.

- It is very unlikely that leachate from Kapaa Sanitary Landfill will go undetected. The City feels confident that design and operations at Kapaa Landfill are sufficient to give assurance of no environmental problems from leachate. The drain system can and will collect any leachate that is generated. The practice of covering refuse daily is intended to prevent contact between fill material and surface run-off.

- Land use data refinement is generally beneficial, but suggested data changes in the present document are not of a magnitude which would cause a significant impact on Wastewater Facilities Plan decisions.

- With respect to your concerns about sludge disposal, the Waimanalo Wastewater Facilities Plan being considered in 1983 recommends a central composting facilty that would accept Kailua STP sludge along with Waimanalo STP sludge.

Space is available at the Waimanalo treatment plant and there are some potential users of the compost in the Waimanalo agricultural areas. Before implementation of a compost facility, a market study will be conducted.

- Figure 15 deals with centralization/decentralization alternatives studied prior to the EISPN. The EIS to be published about October 1983 deals with the next planning step, namely the specific treatment process to be recommended at the centralized site.

- There will be some noise and other disturbances during construction at Kailua STP. They are mentioned in the EIS to be published about October 1983. It is considered that no adverse impacts on wetlands, endangered species, environmentally sensitive areas and residential areas will result. Visual impacts will not be significant.

- The EIS to be published shows 1980 population of 89,000 for the service areas and projected 2005 population of 100,000. A ten percent population growth over a 20-year period is certainly a modest growth rate. Facilities to accommodate such modest planned growth can hardly cause significant secondary impacts.

We appreciate your interest in this planning effort.

Should there be any questions, please call Geraldine Lum - 527-5392.

Me ke aloha pumehana,

MICHAEL J. CHUN
Director and Chief Engineer

APPENDIX B

EISPN LETTERS WITH RESPONSES

(1) Sierra Club - letter of November 8, 1981

(2) State of Hawaii, Department of Land and Natural Resources- letters or January 5 and 8, 1982

(3) State of Hawaii,
Department of Planning and Economic Development -
letter of November 4, 1981

(4) City and County of Honolulu
Department of General Planning -
memorandum of November 10, 1981

(5) United States Department of the Interior,
Fish and Wildlife Service -
letter of November 9, 1981

(6) City and County of Honolulu,
Department of Land Utilization -
memorandum of November 9, 1981

(7) University of Hawaii at Manoa,
Water Resources Research Center -
letter of October 30, 1981

(8) Department of the Army,
U. S. Army Engineer District, Honolulu -
letter of October 27, 1981

(9) Realty Management
and Sales Corporation for Aikahi Gardens-
letter of October 28, 1981

(10) Aikahi Gardens Association of Owners -
letter of November 5, 1981

EISPN LETTERS WITH NO COMMENT

(11) U.S. Department of Agriculture,
Agricultural Stabilization and Conservation Service-
letter of October 13, 1981

(12) State Department of Hawaiian Home Lands -
letter of December 1981

(13) Board of Water Supply,
City and County of Honolulu -
memorandum of October 21, 1981

(14) Kaneohe Marine Corps Air Station -
letters of October 20 and November 6, 1981

(15) Hawaii Housing Authority -
letter of October 22, 1981

(16) State Department of Agriculture -
letter of October 23, 1981

(17) City Department of Transportation Services -
memorandum of October 23, 1981

(18) State Department of Transportion -
letter of October 23, 1981

(19) State Department of Health -
letter of October 26, 1981

(20) Federal Department of Housing and Urban Development -
letter of November 3, 1981

(21) City Department of Housing and Community Development -
memorandum of October 27, 1981

30

Mr. Michael J. Chun from Miller
8 November 1981

Page 3

Page 53- It is difficult to understand how "no impact" can be alleged "as a result of population growth accommodated by the proposed project". All 15 of the named subject areas will be impacted to a greater or lesser degree; the proposed population growth is largely dependent on the proposed wastewater project. The EIS ought to recognize this.

I hope these comments will be helpful. We look forward to receiving and commenting on the draft EIS.

Sincerely,

Susan E. Miller

Susan E. Miller
Honolulu Group Conservation Chairman
Sierra Club, Hawai'i Chapter

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

EILEEN R. ANDERSON
MAYOR

MICHAEL J. CHUN, Ph.D.
DIRECTOR AND CHIEF ENGINEER

MAURICE H. KAYA
DEPUTY DIRECTOR

WPP 83-483

October 12, 1983

Ms. Susan Miller
Conservation Chairman, Honolulu Group
Sierra Club, Hawaii Chapter
P. O. Box 22897
Honolulu, Hawaii 96822

Dear Ms. Miller:

Subject: Environmental Impact Statement Preparation Notice for Kaneohe-Kailua Wastewater Facilities Plan

Thank you for your letter concerning the EIS Preparation Notice for the Kaneohe-Kailua Facilities Plan. There has been some delay in response because of basic changes in federal criteria concerning the project. Our responses to several points in your letter are set forth below:

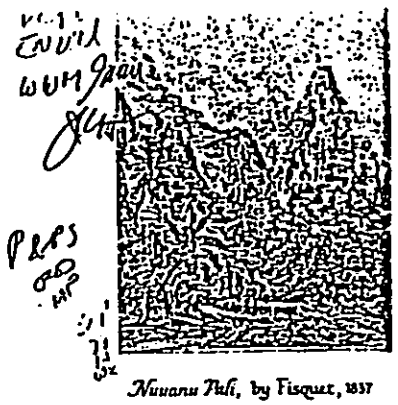
- Funding availability for the construction of facilities in the Plan is anticipated but not guaranteed. The facilities proposed at Kailua STP are a relatively high public works priority.
- Figures 2 and 3 were prepared in 1981. The Lanikai pump station has since been added to the revision of Figure 2.
- Proposed sewered areas will be consistent with the Koolaupoko Development Plan map.
- It is appropriate to describe the communities as predominately composed of single family residences with substantial open space.

  Kukanono and Olomana were considered as part of the Pohakupu and Maunawili area, respectively.
- The wind rose data for Figures 4 and 5 of the EISPN were taken from Kaneohe Marine Corps Air Station records collected over a number of years.

The Sierra Club, Hawaii Chapter
Post Office Box 22897, Honolulu, Hi 96822
Telephone: (808) 949-5494

8 November 1981

Mr. Michael J. Chun
Director and Chief Engineer
Department of Public Works
City and County of Honolulu
650 South King Street
Honolulu, Hawai'i 96813



Nuuanu Pali, by Fisquet, 1837

Re: Environmental Impact Statement Preparation Notice (EISPN)
Kaneohe-Kailua Wastewater Facilities Plan,
Kaneohe-Kailua, Oahu, Hawaii

Dear Mr. Chun:

The Honolulu Group of the Sierra Club, Hawai'i Chapter appreciates the opportunity to comment on the subject EISPN. Our comments, with page annotations, follow.

Page 3 - Funding: What is the expected availability of Federal funds--i.e., how much is already committed and hwo much is speculative?

Page 4 - When were Figures 2 and 3 prepared? I am personally aware of one area (southeastern half of Lanikai) where the pump station and sewer improvements shown as "proposed" on the figures are already in place.

On Figure 3, does the Heeia meadows area (shown as "future populated area to be sewered (potential)") show as a residential (i.e., populated) area on the Ko'olaupoko Development Plan map? Also, is the area shown as "future populated area" around upper Kawainui Marsh and in the Haunawili Valley consistent with the expansion limitation of 984 persons incorporated in the FEIS for the Olomana-Maunawili sewer projects? It appears too large--the Kawainui Marsh portion alone covers most of the original Kawainui Marsh Residential Subdivision proposal which was to have some 700 units.

Page 15- Under "Service Areas", the second sentence is accurate with respect to the pictured area. However, the picture does not cover Kaneohe or Kahalu'u. The former has both a substantial light industrial area and three shopping complexes (one "regional" being built and two existing). The latter area will have a sizable commercial/light industrial area along Kamehameha Highway based on recent Development Plan changes.

"Communities Within Service Areas": are Kukanono and Olomana considered subsumed in Pohakapu and Maunawili respectively?

Page 17- Climate: Could you please cite sources for the figures given in the paragraph? The figures for wind direction are of particular interest in light of the known odor problem associated with the Kailua STP.

Page 17- Climate, cont'd: 1981 may be an atypical year but there had been essentially no tradewinds up to late summer and they still are scarce. I gather that the circular graphs accompanying Figures 4 and 5 are meant to indicate the percentages of time the wind is in a given direction--from what data were these compiled?

Page 18- "Major Economic Activities": Source for figures on industrial and commercial land uses?

Page 20- "Major Botanical Features": Is the proposal for a "Kalaheo landfill site" viable in light of the fact that the adjacent H-3 spur was built with Federal funds and the Federal Highway Beautification Act should therefore apply to the site?

Page 22- "Cultural Resources": Is the statement regarding the adequacy of the protective measures for Pahukini Heiau supported by archaeologists familiar with the site? E.g., Aki Sinoto of the B. P. Bishop Museum?

Page 40- "Present Receiving Water Quality": Source for statement that "receiving water...is essentially that of pristine open ocean"?

Page 41- Would the waiver to permit subsecondary effluent discharge be pursued if the centralized alternative is decided upon?

Page 43- Re leachate from Kapaa Sanitary Landfill: Is it possible that the drain system is not where the leachate is, rather than the (implied) lack of leachate? What about surface run-off from the landfill?

Page 47- "General Planning": Since the Ko'olaupoko Development Plan has been approved by an apparently veto-proof margin in the City Council, should not the Facility Plan Addenda use the land use distributions found in that document and its associated map? This would affect especially industrial and commercial land use categories.

Page 49- I would suggest that one alternative for sludge disposal be use as fertilizer in commercial agricultural applications. With the increasing costs of both production and transport of petrochemically-derived fertilizers, the economics of sludge as fertilizer should not be overlooked. In addition, this use of sludge would be revenue-producing in what is otherwise a completely revenue-consuming operation.

Figure 15 does not have any apparent relation to the secondary-subsecondary treatment alternatives. The figure simply details three alternatives with no indication as to which alternative configuration relates to which treatment alternative.

Page 51- What about temporary impacts during construction? Such activity would seem to impact upon at least the following:

Wetlands (noise, dust, runoff); Threatened or Endangered Species (noise, dust, run-off, fumes); Environmentally Sensitive Areas (see wetlands above); Other--effect on residential areas (noise, dust, traffic, fumes).

If the facility expansion lies between the present layout and Kaneohe Bay Drive, visually screening the plant will be more difficult than presently.

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

EILEEN R. ANDERSON
MAYOR

MICHAEL J. CHUN, Ph.D.
DIRECTOR AND CHIEF ENGINEER

MAURICE H. KAYA
DEPUTY DIRECTOR

WPP 83-488

October 12, 1983

MEMORANDUM

TO: Mr. Michael M. McElroy, Director
Department of Land Utilization

FROM: Michael J. Chun, Director and Chief Engineer

SUBJECT: Environmental Impact Statement Preparation Notice for Kaneohe-Kailua Wastewater Facilities Plan

Thank you for your memorandum concerning the EIS Preparation Notice for the Kaneohe-Kailua Wastewater Facilities Plan. There has been some delay in response because of basic changes in federal criteria concerning the project.

The EIS to be published in October 1983 states the City's intention to submit a revised Waiver Request in 1983 concerning effluent quality reduction at the Mokapu Outfall. It appears that such reduction would be a prudent wastewater management action that would save substantial unnecessary expenditure of public funds and improve odor control at the Kailua STP. Water quality monitoring evidence to date near Mokapu Outfall indicates that no degradation of the marine environment generally, and Kailua Bay specifically, would result if effluent standards were relaxed.

We appreciate your interest in this planning effort.

Should there be any questions, please call Geraldine Lum at extension 5392.

Michael J. Chun
MICHAEL J. CHUN
Director and Chief Engineer

University of Hawaii at Manoa
Water Resources Research Center
Holmes Hall 283 • 2540 Dole Street
Honolulu, Hawaii 96822

RECEIVED DEPT OF PUBLIC WORKS
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TO ENV ... WEN ...

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DIV. OF WASTEWATER MANAGEMENT

30 October 1981

Dr. Michael J. Chun
Director and Chief Engineer
Department of Public Works
City & County of Honolulu
650 South King Street
Honolulu, Hawaii 96813

Dear Dr. Chun:

Subject: EIS Preparation Notice Kaneohe-Kailua Wastewater Facilities Plan, Kaneohe-Kailua, Oahu, Hawaii, September 30, 1981

We have reviewed the subject EIS Preparation Notice and offer the following comments:

1. BOD (Biochemical Oxygen Demand) was used in this report (pp. 33, 41, and 42). To avoid confusion it would be advisable to specify whether "BOD_5" (five day BOD) or "BOD_u" (ultimate BOD) was used.

2. P. 41. A less than secondary treatment was proposed for the Kailua STP effluent, i.e., BOD = 60 mg/ℓ, SS = 45 mg/ℓ) which is probably adequate, we would suggest a detailed waste assimilative capacity analysis be conducted to determine the exact amount of allowable waste loading from this treatment facility.

3. The cessation of sewage effluent flow into Kawainui wetlands will have an impact due to the termination of nutrient inflow. Whether or not this will be beneficial or detrimental is the issue to be addressed. Nutrients having been added for 23 years started in 1958 with the Pohakupu STP. There will undoubtedly be an environmental impact on the flora and fauna if this is now stopped. The EIS should present ecological information on Kawainui Marsh before the introduction of sewage, the changes during the past 23 year period (if possible those attributable to the STP effluent), and the anticipated changes resulting from the cessation of sewage effluent inflow.

4. P. 27, Fig. 10. The location of the STP's are not indicated.

5. Are the STP's in tsunami prone areas?

AN EQUAL OPPORTUNITY EMPLOYER

Thank you for the opportunity to comment. This material was reviewed by WRRC and affiliate personnel.

Sincerely,

Edwin T. Murabayashi
EIS Coordinator

ETM:ja

cc: H. Gee
Y.S. Fok
C. Liu

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

EILEEN R. ANDERSON
MAYOR

MICHAEL J. CHUN, Ph.D.
DIRECTOR AND CHIEF ENGINEER

MAURICE H. KAYA
DEPUTY DIRECTOR

WPP 83-489

October 12, 1983

Mr. Edwin T. Murabayashi
EIS Coordinator
University of Hawaii at Manoa
Water Resources Research Center
Holmes Hall 283
2540 Dole Street
Honolulu, Hawaii 96813

Dear Mr. Murabayashi:

Subject: Environmental Impact Statement Preparation Notice for Kaneohe-Kailua Wastewater Facilities Plan

Thank you for your letter concerning the EIS Preparation Notice for the Kaneohe-Kailua Wastewater Facilities Plan. There has been some delay in response because of basic changes in federal criteria concerning the project.

Our responses to your several points are set forth below.

- BOD_5 terminology will be used as you suggested.
- The City's permit application to the Corps of Engineers for Olomana-Maunawili Sewer Projects August 1981 states:

  "The completed Olomana District Interceptor and Maunawili District Trunk Sewer systems would eliminate the need for the four existing wastewater treatment facilities, releasing the lands for private or other public uses such as pumping stations, depending on the plan selected. Secondary treated sewage would no longer be discharged into the marsh, eliminating noxious odors from the existing sewage treatment plants and the health hazards associated with sewage discharge of secondary sewage effluent into the marsh. The reduction of nutrients into the marsh would benefit water quality and ecology of Oneawa (Kawainui) Canal, Kailua Bay, and Kawainui Marsh."

Mr. Edwin T. Murabayashi -2- October 12, 1983

The DPED August 2, 1982 draft of the Kawainui Marsh Resource Management Plan recommends elimination of the sewage treatment plant discharges. Closure of the four plants will save taxpayers well over $1,000,000 during the 20-year planning period.

Regarding Mokapu Outfall, water quality monitoring and other studies to date give substantial evidence that reduction in effluent standards would not result in environmental degradation of the marine environment generally, nor Kailua Bay specifically. Reference 13, 14 and 15 of the EISPN and water quality data at the Wastewater Management Division give further details.

- Although Figure 10 indicates the words "Sewage Disposal" at sites of Kailua STP and Kaneohe STP, the EIS revised Figure 10 will highlight these locations.
- As seen in figure 12 of the EISPN, the Kaneohe STP is in a flood-prone area.

We appreciate your interest in this planning effort.

Should there be any questions, please call Geraldine Lum - 527-5392.

He ke aloha pumehana,

Michael J. Chun

MICHAEL J. CHUN
Director and Chief Engineer

RECEIVED

'81 OCT 30 AM10 13

DIV. OF WASTEWATER MANAGEMENT

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

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PODED-PV

TO ——

9107392

DIR MGR
DEP DIR
EVAL
WW GEN

27 October 1981

Mr. Michael J. Chun
Director and Chief
Department of Public Works
City and County of Honolulu
650 South King Street
Honolulu, HI 96813

Dear Mr. Chun:

Thank you for the opportunity to review the Environmental Impact Statement Preparation Notice for the Kaneohe-Kailua Wastewater Facilities Plan sent to us on 6 October 1981. Based on our review, we provide the following comments.

a. Proposed sewer lines and pumping stations in streams or wetlands may need Department of the Army permits.

b. Reference page 31, figure 12, "Flood Areas," and page 22 of text: A portion of the proposed major sewer alignment in the Kahaluu area lies in the Kaalaea Stream and Waihee Stream flood plains, and is subject to 100-year riverine flooding (Zone A). The 100-year flood has a one percent chance of being equalled or exceeded in any given year. Proposed public utilities and facilities in flood-prone areas should be located and constructed to minimize flood damage and infiltration of flood waters into the system. Most of the proposed wastewater facilities are situated in areas of minimal flooding (Zone C), or areas of undetermined but possible flood hazards (Zone D). Zone classifications are taken from the Federal Insurance Administration's Flood Insurance Study for the Island of Oahu.

c. Reference Section IX, Item 1 (page 51) of the Preparation Notice: This checklist indicated that wetlands will not be impacted by the proposed project. However, wetlands may occur within the proposed project area and may be impacted. We suggest that you contact the US Army Corps of Engineers, Operations Branch at 438-9258 for information regarding jurisdictional areas and Department of the Army requirements.

d. We suggest that the Environmental Impact Statement (EIS) identify the relationship of the proposed project to the Olomana-Haunawili Sewer Project. For example, will raw sewage from these completed sewer projects be pumped via the Kailua Sewage Pumping Station (SPS) to one of the Sewage Treatment Plants (STP) finally selected for the Kaneohe-Kailua Wastewater Facilities Plan? In addition, we suggest that the EIS confirm that the selected STP will have sufficient capacity to process this additional raw sewage from the Olomana-Haunawili sewer projects to the secondary treatment level.

e. Page 11, figure 3. When referring to this figure in the text of the EIS, the preparer should cavaet the legend item "Future Populated Areas to be Sewered (Potential)" by relating that designation to the "Service Area Boundary" in the figure in attachment 2.of the US Army Engineer District, Honolulu "Final Environmental Impact Statement," US Department of the Army Permit Application for Olomana-Haunawili Sewer Projects, Kawainui Marsh, Oahu, Hawaii, dated August 1981.

f. Page 22 and table 2. The list of cultural resources potentially affected by portions of the plan should be amended by adding the Kawainui Marsh Historic, Archaeological and Cultural District, which was determined eligible for inclusion on the National Register of Historic Places on 13 July 1979. We suggest that the cultural sites also be shown on a figure.

g. Page 46. In all discussions of the project alternatives, existing environment, and environmental impacts, the City and County EIS should avoid conflict with statements made in the above Corps final EIS, particularly paragraph 4.18, regarding the design population in the Olomana-Haunawili sewerage sub-district.

These specific socio-economic impacts were prepared in conjunction with the staff of the City and County Department of Public Works. We suggest that the discrepancy between the City and County DEIS and the Federal EIS on the subject of design population be eliminated. The City and County EIS should also take into consideration the conditions imposed by the US Environmental Protection Agency on the construction grant for the proposed marsh or alternative alignments under the Olomana-Haunawili Sewer Project (see paragraph 4.24 of the Federal FEIS).

Sincerely,

KISUK CHEUNG
Chief, Engineering Division

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

EILEEN R. ANDERSON
MAYOR

MICHAEL J. CHUN Ph.D
DIRECTOR AND CHIEF ENGINEER

MAURICE H. KAYA
DEPUTY DIRECTOR

WPP 83-490

October 12, 1983

Mr. Kisuk Cheung, Chief
Engineering Division
Department of the Army
U. S. Army Engineer District, Honolulu
Ft. Shafter, Hawaii 96858

Dear Mr. Cheung:

Subject: Environmental Impact Statement Preparation Notice for Kaneohe-Kailua Wastewater Facilities Plan

Thank you for your letter concerning the EIS Preparation Notice for the Kaneohe-Kailua Wastewater Facilities Plan. There has been some delay in response because of basic changes in federal criteria concerning the project.

- The potential requirement for Army permits is acknowledged.
- The Kahaluu sewer alignment has had EIS approval and will be constructed. Flood hazard concerns will be considered.
- Comments concerning wetlands will be incorporated in the EIS.
- Sewage from the proposed Olomana - Maunawili sewer will be pumped to Kailua STP where sufficient capacity for adequate treatment will exist.
- The "Service Area Boundary," shown in Attachment 2 of the Army EIS, shows precise limits for areas to be sewered. Figure 3 in the Facilities Plan EIS shows these areas symbolically, with no intention of being precise.
- The note concerning eligibility for the National Register will be incorporated in the EIS.
- A minor discrepancy in projected populations is acknowledged. The magnitude, however, is not sufficient to significantly affect Facilities Plan actions.

- The City is continuing an attempt to satisfactorily resolve alignment problems of the Olomana - Maunawili Sewer.

We appreciate your interest in this planning effort.

Should there be any questions, please call Geraldine Lum - 527-5392.

Me ke aloha pumehana,

MICHAEL J. CHUN
Director and Chief Engineer

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OCT 29 2 06 PM '81
CITY & COUNTY OF HONOLULU
DEPT. OF PUBLIC WORKS

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DIV. OF WASTEWATER MANAGEMENT

Realty Management and Sales Corp.
GENERAL BROKERAGE PROPERTY MANAGEMENT RENTALS
1580 Makaloa Street, Suite 888, Honolulu, Hawaii 96814
Phone 946-7988

DIR MWR
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PLPS

October 28, 1981

Dr. Michael J. Chun, Ph.D.
Director & Chief Engineer
Department of Public Works
City & County of Honolulu
650 So. King St.
Honolulu, HI 96813

Re: Aikahi Gardens

Dear Dr. Chun:

On behalf of the Board of Directors for Aikahi Gardens, I would like to take this opportunity to state that the Board requests your assistance in an action for the curtailment of the odor problem which may ensue due to the Kaneohe-Kailua waste water facilities plan now being studied by the City and County of Honolulu.

At the present time, the odor problem is a subject of great debate among the members of the Association of Apartment Owners at Aikahi Gardens. If there is more waste processed at the facility, then the odor will increase, causing great discomfort to the Association.

Your comments on this problem will be appreciated.

Sincerely,

REALTY MANAGEMENT & SALES CORP.

Nicolas G. Sofos
Property Manager-Managing Agent
for Aikahi Gardens

cc Jack Shedletsky, President, Board of Directors
for Aikahi Gardens

NS:cb

DEPARTMENT OF PUBLIC WORKS

CITY AND COUNTY OF HONOLULU

650 SOUTH KING STREET
HONOLULU, HAWAII 96813

EILEEN R. ANDERSON
MAYOR

MICHAEL J. CHUN, Ph.D.
DIRECTOR AND CHIEF ENGINEER

MAURICE H. KAYA
DEPUTY DIRECTOR

WPP 83-491

October 12, 1983

Mr. Nicolas G. Sofos
Property Manager-Managing Agent
for Aikahi Gardens
c/o Realty Management and Sales Corp.
1580 Makaloa Street, Suite 888
Honolulu, Hawaii 96814

Dear Mr. Sofos:

Subject: Environmental Impact Statement Preparation Notice for Kaneohe-Kailua Wastewater Facilities Plan

Thank you for your letter concerning the EIS Preparation Notice for the Kaneohe-Kailua Wastewater Facilities Plan. There has been some delay in response because of basic changes in federal criteria concerning the project.

We acknowledge the odor nuisance from Kailua STP which has affected Aikahi Gardens from time to time despite our best efforts and considerable expense for chemical abatement of the odors. We believe that the positive steps for odor control, as specified in the Facilities Plan, will reduce odors to acceptable levels.

We appreciate your interest in this planning effort.

Should there be any questions, please call Geraldine Lum - 527-5392.

Me ke aloha pumehana,

MICHAEL J. CHUN
Director and Chief Engineer

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DIV. OF WASTEWATER MANAGEMENT

AIKAHI GARDENS

Association of Owners
Kaneohe Bay Drive

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DEPT OF PUBLIC WORKS
NOV 9 9 12 AM '81

November 5, 1981

Dr. Michael J. Chun, PhD
Director and Chief Engineer
Department of Public Works
City and County of Honolulu
650 So. King Street
Honolulu, HI 96813

Dear Dr. Chun:

This letter is in regard to the EIS preparation notice for the Kaneohe-Kailua Wastewater Facilities Plan.

The most serious problem that Aikahi Gardens homeowners are faced with is the odor from the Kailua sewage treatment facility. It is our desire to reduce and eliminate the odor.

Your preliminary EIS report implies the odor will affect nearby homeowners although it can be mitigated. Mitigation would not be sufficient. It is imperative for the welfare and health of hundreds of Aikahi Gardens residents that any plan for modification of sewage treatment include procedures for curtailment of the odor. Any increase could not be tolerated.

Sincerely,

Jack Shedletsky, President
Aikahi Gardens Board of Directors
(c/o Realty Management & Sales Corp.)
1580 Makaloa St., Ste. 888
Honolulu, HI 96814

JS:jf

The revised year 2005 population projection given in the Kaneohe-Kailua Facilities Plan** is given below:

	Population
Kahaluu Tributary Area	13,000
Kaneohe Tributary Area	42,825
Kailua Tributary Area	44,300
TOTAL	100,125

It is evident from the two population projections listed above that the latter projections have decreased over 50 percent from the original master plan. In terms of volume, the Mokapu Outfall should have no hydraulic problems in handling year 2005 wastewater flows from all three tributary areas.

In the Facilities Plan, capacity of the recommended centralized treatment plant at Kailua has been limited to specific, modest population growth limits. These limits are in accordance with public growth control policies in the 1977 Honolulu General Plan and the 1983 Koolaupoko Development Plan. In our comments to the EIS for the Iolani School Properties, we stated that flows from the non-urban designated areas such as the proposed development cannot be included in the expansion of the plant. This design limit for the capacity of the treatment plant is in itself a policy to ensure that sewage facilities are consistent with the Development Plan. We are determining the capacities of our new facilities based on the Development Plans and do not induce growth in the area. Land Use Policies and not infrastructure availability should be used to determine growth in an area.

We appreciate your interest in this planning effort. Should there be any questions, please call Geraldine Lum at extension 5392.

MICHAEL J. CHUN
Director and Chief Engineer

**Kaneohe-Kailua Facilities Plan, Volume 1, prepared by GMP Associates, Inc., prepared for the City & County of Honolulu, Department of Public Works, October 1983, Table 5.1, page 5-4.

STATE OF HAWAII
DEPARTMENT OF PLANNING AND ECONOMIC DEVELOPMENT

GEORGE R. ARIYOSHI
Kent M. Keith
John Pingree

COPY

Ref. No. 8396

November 22, 1983

MEMORANDUM

TO: Ms. Letitia N. Uyehara, Interim Director
Office of Environmental Quality Control

FROM: Kent M. Keith, Director

SUBJECT: EIS - Kaneohe-Kailua Wastewater Facilities

We have reviewed the subject document and find no significant adverse impacts relative to the Hawaii Coastal Zone Management Program objectives and policies.

We would, however, like to point out that the Army Corps of Engineers has recently designated a portion of the lower Maunawili Valley, immediately mauka of Kailua Road, as a wetland. Inasmuch as this wetland is within the project area and will be traversed by the proposed Maunawili Trunk Sewer, appropriate revisions to the document should be made in order to reflect this new designation.

The presentation of project impacts and mitigating measures in Chapter 9 appears to focus on mitigation of positive impacts. While the project's beneficial impacts are acknowledged, the focus of the discussion should be on negative or adverse project impacts. As an example, Table 9.1 lists odor impact as a beneficial impact. The odor problem will be eliminated at the Kaneohe plant, a positive impact. However, due to an increase in capacity at the Kailua plant, odor will become a negative project impact which will be mitigated by the installation of special equipment. Other potentially adverse impacts should be similarly cited.

Thank you for this opportunity to comment.

cc: Dr. Michael J. Chun, Director
City and County of Honolulu, Department of Public Works
GMP Associates, Inc.

DEPARTMENT OF PUBLIC WORKS

CITY AND COUNTY OF HONOLULU

650 SOUTH KING STREET
HONOLULU, HAWAII 96813

EILEEN R. ANDERSON
MAYOR

MICHAEL J. CHUN, Ph.D.
DIRECTOR AND CHIEF ENGINEER

MAURICE H. KAYA
DEPUTY DIRECTOR

WPP 83-617

December 30, 1983

Honorable Kent M. Keith
Department of Planning and
Economic Development
P. O. Box 2359
Honolulu, Hawaii 96804

Dear Mr. Keith:

Subject: EIS for Kaneohe-Kailua Wastewater Facilities Plan

This is in response to your November 22 comment on the EIS for Kaneohe-Kailua Wastewater Facilities.

The EIS will be revised to show the Corps of Engineers recent designation of a portion of lower Haunawili Valley, immediately mauka of Kailua Road, as a wetland.

With respect to the comment about odor at Kailua STP, the odor reduction which will occur at Kailua STP when the Facilities Plan is implemented is considered to be a positive impact.

There is presently an occasional odor problem at Kailua. Although the added influents will contain components capable of causing even more odor in the community than at present, the new design for Kailua will minimize or eliminate release of all odors, an improvement over the present situation. Accordingly, no negative impact will be created which requires mitigation.

We appreciate your interest in this planning effort. Should there be any questions, please call Geraldine Lum at 527-5392.

Me ke aloha pumehana,

MICHAEL J. CHUN
Director and Chief Engineer

United States Department of the Interior

FISH AND WILDLIFE SERVICE
300 ALA MOANA BOULEVARD
P. O. BOX 50167
HONOLULU, HAWAII 96850

IN REPLY REFER TO:
ES
Room 6307

NOV 16 1983

Ms. Letitia N. Uyehara
Office of Environmental Quality Control
550 Halekauwila Street, Room 301
Honolulu, Hawaii 96813

Dear Ms. Uychara:

The U.S. Fish and Wildlife Service (FWS) has reviewed the Environmental Impact Statement (EIS) which was forwarded with your letter of October 18, 1983 concerning the Kaneohe-Kailua Wastewater Facilities. The EIS is incomplete in addressing appropriate marine resources within the Mokapu outfall area (our letter of November 9, 1981). The EIS needs to include description of the outfall site and to thoroughly discuss primary and secondary long-term effects of increased, primary effluent on fishery and benthic resources. Additionally, we offer the following specific comments:

1. Page 3-9. The Short-eared Owl (Pueo), Asio flammeus sandwichensis is not listed by FWS as an Endangered or Threatened species (50 CFR 17.11 & 17.12); however, the State considers this species endangered on Oahu (Title 13, subtitle 5, part 2, chapter 124).

2. Page 3-10. The statement that "there are no critical habitats at or immediately adjacent to wastewater facilities" is slightly misleading. Nuupia Ponds, which are adjacent to the Kailua Wastewater Facility are considered in the FWS Endangered Waterbirds Recovery Plan as an area essential to the recovery of the Hawaiian Stilt. Although the area is not yet legally defined as Critical Habitat (50 CFR 424), this should not detract from Nuupia Ponds' biological significance to Hawaiian Stilts.

We recommend that the final EIS clarify these minor discrepancies and expand discussion of the outfall area. We appreciate this opportunity to comment.

Sincerely,

for William R. Kramer
Acting Project Leader
Office of Environmental Services

cc: DLU
DPW
GMP
HIDAR
DF&W
EPA, San Francisco

CONSERVE AMERICA'S ENERGY

Save Energy and You Serve America!

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

EILEEN R. ANDERSON
MAYOR

MICHAEL J. CHUN, Ph.D.
DIRECTOR AND CHIEF ENGINEER

MAURICE H. KAYA
DEPUTY DIRECTOR

HPP 83-600

December 15, 1983

MEMORANDUM:

TO: MR. KAZU HAYASHIDA
MANAGER AND CHIEF ENGINEER
BOARD OF WATER SUPPLY

FROM: MICHAEL J. CHUN
DIRECTOR AND CHIEF ENGINEER

SUBJECT: EIS FOR KANEOHE-KAILUA
WASTEWATER FACILITIES PLAN

This is in response to your November 15, 1983 comments on the October 1983 EIS for Kaneohe-Kailua Wastewater Facilities. We acknowledge each of the three Board of Water Supply requirements which may be applicable when the Facilities Plan is implemented.

We appreciate your interest in this planning effort. Should there be any questions, please call Geraldine Lum at extension 5392.

Michael J. Chun

MICHAEL J. CHUN
Director and Chief Engineer

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

EILEEN R. ANDERSON
MAYOR

WILLARD T. CHOW
CHIEF PLANNING OFFICER

RALPH PORTMORE
DEPUTY CHIEF PLANNING OFFICER

DGP10/83-9025

November 21, 1983

Ms. Letitia N. Uyehara, Interim Director
Office of Environmental Quality Control
State of Hawaii
550 Halekauwila Street, Room 301
Honolulu, Hawaii 96813

Dear Ms. Uyehara:

Kaneohe-Kailua Wastewater Facilities
Environmental Impact Statement

Our comments are as follows.

Although documentation is available indicating that the present effluent discharge from Hokapu Outfall is not causing significant degradation of coastal waters, the report does not establish that similar results can be expected under the proposed centralized system which calls for the phasing out of Ahuimanu and Kaneohe Sewage Treatment Plants as well as the treatment plants at Pohakupu, Kukanono, Maunawili Park and Maunawili Estates. Nor is there an indication that the coastal waters will be able to handle future loads of the service area when sewerage services are expanded to meet the needs of presently unsewered areas and urban area expansions in Kahaluu, Kaneohe and Kailua to the year 2005. The total discharge volume and cumulative impact of the effluent into the receiving coastal waters should be discussed.

Secondary unplanned growth impact is presently beginning to appear in the Kaneohe area in the form of Iolani School's State land use application to redesignate conservation lands into urban use. One basis the applicant uses to justify the project is the adequacy and availability of sanitary sewer services to accommodate the projected estimated average flow from its development. Because public projects, in particular

those that involve the construction and improvement of public facilities, may well stimulate or induce these types of secondary effects, the EIS may need to discuss sewerage policies applicable to future development requests which are inconsistent with the City's Development Plan.

Sincerely,

Ralph Kawamoto

RALPH KAWAMOTO
Planner

APPROVED:

for WILLARD T. CHOW

CC: DLU
DPW
GMP Associates, Inc.

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

EILEEN R. ANDERSON
MAYOR

MICHAEL J. CHUN, Ph D
DIRECTOR AND CHIEF ENGINEER

MAURICE H. KAYA
DEPUTY DIRECTOR

WPP 83-608

December 28, 1983

MEMORANDUM

TO: DR. WILLARD T. CHOW
CHIEF PLANNING OFFICER

VIA: ANDREW I. T. CHANG
MANAGING DIRECTOR

FROM: MICHAEL J. CHUN
DIRECTOR AND CHIEF ENGINEER

SUBJECT: EIS FOR KANEOHE-KAILUA
WASTEWATER FACILITIES PLAN

Thank you for your letter of November 21, 1983 on the Kaneohe-Kailua Wastewater Facilities Plan EIS.

The wastewater flows generated from the Kahaluu, Kaneohe and Kailua areas were included in the original design of the Mokapu Outfall. The master plan report* prepared in 1972, used as a basis for the design of the Mokapu Outfall, gave the following year 2000 population projection:

	Population
Kahaluu Tributary Area	23,000
Kaneohe Tributary Area	82,000
Kailua Tributary Area	100,000
TOTAL	205,000

*Master Plan Report--Kaneohe-Kailua Diversion Line and Outfall, prepared by Chung Dho Ahn & Associates, Inc., prepared for the City & County of Honolulu, Department of Public Works, July, 1972, Table 2-2, page 2-3.

University of Hawaii at Manoa

Water Resources Research Center
Holmes Hall 283 • 2540 Dole Street
Honolulu, Hawaii 96822

8 December 1983

Dr. Michael J. Chun
Director & Chief Engineer
Department of Public Works
City & County of Honolulu
650 South King Street
Honolulu, Hawaii 96813

Dear Dr. Chun:

SUBJECT: Environmental Impact Statement for Kaneohe-Kailua Wastewater Facilities, October 1983

We have reviewed the subject EIS and have no comment to offer. Thank you for the opportunity to comment. This material was reviewed by WRRC and affiliate personnel.

Sincerely,

Edwin T. Murabayashi
EIS Coordinator

ETM:jm

cc: Letitia Uyehara
Michael McElroy
GMP Associates

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

EILEEN R. ANDERSON
MAYOR

MICHAEL J. CHUN, Ph.D.
DIRECTOR AND CHIEF ENGINEER

MAURICE H. KAYA
DEPUTY DIRECTOR

WPP 83-595

December 13, 1983

Mr. James A. Gammon
215 Aikane Street
Kailua, Hawaii 96734

Dear Mr. Gammon:

Subject: EIS for Kaneohe-Kailua
Wastewater Facilities Plan

Thank you for your letter of November 22, 1983 on the Kaneohe-Kailua Wastewater Facilities Plan EIS.

The EIS did not evaluate the impact of primary-treated effluent on Mokapu receiving waters because this and other criteria of the secondary waiver Section 301(h) regulations will be addressed in a separate application to EPA. If approved by EPA, the public will be given ample opportunity to comment at a public hearing required by the Section 301(h) regulations. Primary-treated effluent will not be discharged until a modified NPDES permit allowing the discharge is issued.

We appreciate your interest in this planning effort. Should there be any questions, please call Geraldine Lum at 527-5392.

He ke aloha pumehana,

MICHAEL J. CHUN
Director and Chief Engineer

BOARD OF WATER SUPPLY
CITY AND COUNTY OF HONOLULU

COPY

November 15, 1983

Ms. Letitia N. Uyehara
Interim Director
Office of Environmental Quality Control
550 Halekauwila Street, Room 301
Honolulu, Hawaii 96813

Dear Ms. Uyehara:

Subject: Your Letter of October 18, 1983, on the Environmental Impact Statement for the Kaneohe-Kailua Wastewater Facilities

We appreciate the opportunity to review the draft environmental impact statement and offer the following comments:

1. Water availability for new structures will be determined when the building permits are submitted for our review and approval.

2. The developer will be required to pay the water development charge for source, reservoir, and transmission mains.

3. Construction drawings must be submitted for our review and approval should the project affect our existing facilities.

If you have any questions, please contact Lawrence Whang at 527-6138.

Very truly yours,

KAZU HAYASHIDA
Manager and Chief Engineer

cc: Department of Public Works
Belt Assoc., Inc.

water budget will not be sufficient to make a meaningful prediction of total impact on waterbird habitat. For example, it could be speculated that reduction of nutrients from closure of STPs might possibly, after a long period of time, reduce biomass in the marsh and so tend to provide more open water space. On the other hand, the accumulation of organic and inorganic sediments over the past several decades caused by activities of both man and nature may preclude the possibility of increased open water space unless some dredging is undertaken.

Such speculations are more appropriately the subject of an environmental study for comprehensive management of the whole of Kawainui Marsh, rather than for the narrower topic of terminating four interim STPs. At one time in history, Kawainui Marsh "existed" without the 0.5 mgd of wastewater now introduced by the four interim STPs, but other variables helped create the extent of open water which existed at the time.

Digester Gas

It is planned that all digester gas, now wasted by flaring, will be utilized as an alternate energy source for STP operations. This will result in more hours of usage for the existing emergency engine generators. This in turn means more noise generation. However, as stated in the EIS, this noise will be mitigated with appropriate acoustical shielding.

We appreciate your interest in this planning effort. Should there be any questions, please call Geraldine Lum at 527-5392.

He ke aloha pumehana,

Michael J. Chun

MICHAEL J. CHUN
Director and Chief Engineer

James A. Gannon
215 Aikane Street
Kailua, HI 96734

November 22, 1983

Ms. Letitia N. Uyehara, Interim Director
Office of Environmental Quality Control
550 Halekauwila Street, Room 301
Honolulu, Hawaii 96813

Dear Ms. Uyehara,

The purpose of this letter is to provide comments on the Environmental Impact Statement for Kaneohe-Kailua Wastewater Facilities dated October 14, 1983.

The EIS describes a two part plan for future handling of sewage wastewater. First, all collected and treated sewage for the Kaneohe-Kailua area is to be discharged from a single point, the Mokapu outfall. Second, the level of treatment for the sewage discharged from theMokapu outfall is to be reduced from secondary to primary.

Using figures from the EIS, 10.4mgd of secondary treated sewage is currently discharged from the Mokapu outfall. If the plan described in the EIS is followed, 15mgd of primary treated sewage will be discharged from the Mokapu outfall by the year 2005. This increase in quantity and decrease in quality of the effluent from the Mokapu outfall has the potential to have a significant environmental impact on the coastal waters into which it is discharged.

The EIS appears to be deficient in that it does not adequately address the impact of the primary treated effluent on coastal waters. Currently avaliable data and reports on the effects of the secondary treated effluent now being discharged from the Mokapu outfall are alluded to, but are not presented in the EIS. No information is provided to support the statement on page 5-2 that no degradation of coastal waters will occur from the proposed discharge of primary effluent. The main thrust of the plan described in the EIS appears to be to risk sacrificing the quality of coastal waters instead of spending funds to expand the treatment facilities at the Kailua STP to handle the increased sewage flow. Although the problem of controlling odors from the Kailua STP appears to be adequately addressed, I seriously doubt that local citizens would consider improved air quality to be a satisfactory tradeoff for increased water pollution from sewage in the coastal waters of Kaneohe Bay and Kailua Bay. The EIS should be redone to include a thorough study and evaluation of the effect on coastal waters of the increased quantity of primary effluent to be discharged from the Mokapu outfall.

Thank you for the opportunity to comment on this EIS.

Sincerely yours,

James A. Gannon

Copy to: Dr. Michael J. Chun
GMP Associates, Inc.

The City encourages the use of water restrictors and other water saving devices. The Board of Water Supply has an ongoing water conservation program. Section 1010 - Water Conservation of Ordinance No. 83-36, relating to the plumbing code is attached for your information.

Impact of flow reduction devices in this area is relatively small and not cost effective. Section 10.4.3 of the draft Facilities Plan states in part "A rough estimate for the Kaneohe-Kailua wastewater service areas is that wastewater flows might be reduced by two to three percent if a significant majority (90 percent) of the resident cooperated fully in the use of such devices."

The Department of Public Works is currently reviewing potential markets for composted sewage sludge to assist in decisions relative to a centralized sludge composting plant at Waimanalo. Final decisions on ultimate sludge disposal cannot be made until our studies are complete.

We appreciate your interest in this planning effort. Should there be any questions, please call Geraldine Lum at 527-5392.

He ke aloha pumehana,

MICHAEL J. CHUN
Director and Chief Engineer

Attach.

[45] (48) Amending Table 10-2.

Table 10-2 is amended by adding a triple asterisk to the column heading "Water and Street Service" and adding a triple asterisk footnote to read:

"***Final sizes to be governed by rules and regulations of the Board of Water Supply."

[46] (49) Adding Section 1010.

Section 1010 is added to read:

"Section 1010. Water Conservation.

"(a) Water supply faucets or valves shall be provided with approved flow control devices which limit flow to a maximum three gallons per minute.

"Exceptions:

"(1) Hose bibbs or valves not used for a denignated fixture or equipment.

"(2) Hose bibbs, faucets, or valves serving fixed demand, timing or water level control appliances, equipment or holding structures such as water closets, pools, automatic washers and other similar equipment.

"(3) Emergency showers.

"(b) Tank-type water closets discharging more than 3.5 gallons per flush shall be provided with approved volume limiting devices or methods which will limit the discharge to 3.5 gallons per flush. When a satisfactory performance of the water closet cannot be obtained with 3.5 gallons or less per flush, the Administrative Authority may approve a larger discharge.

"(c) Any new installation using potable water for cooling equipment at a rate exceeding one gallon per minute, or operating more than ten hours in a twenty-four hour period, shall be designed to recirculate or reuse the cooling water.

"Any existing installation using potable water for cooling equipment shall be exempt except where an expansion to the system requires additional water usage."

panels as a primary of back-up energy source should be investigated.

(3) Because of the great reduction of cost to the consummer, we would support the proposed Secondary Treatment Modification System with the waiver from the EPA.

(4) Water conservation through the use of water restrictors and other water saving devices should be implemented regardless of which plan is used. This should be done in coordination with the Board of Water Supply's on going conservation program.

(5) The composting of the sludge is an excellent idea, but no mention is made of what will be done with the end product!! Will this sludge be used to replace petrochemical fertilizers on city properties? Be stock piled at the composting location in Waimanalo? Or be packaged and sold to the public?

Thank you for allowing us to comment on this project.

Aloha,

NANCY H. CLINGAN
Chairman

cc: Ms. Letita N. Uyehara, Office of Environmental Qualtiy Control
Mr. Michael McElroy, Director, Dept of Land Utilization
Dr. Michael J. Chun, Director, Dept of Public Works
Councilman David Kahanu
Kailua Neighborhood Board
Kahaluu Neighborhood Board
Neighborhood Commission

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

EILEEN R. ANDERSON
MAYOR

MICHAEL J. CHUN, Ph.D.
DIRECTOR AND CHIEF ENGINEER

MAURICE H. KATA
DEPUTY DIRECTOR

WPP 83-589

December 6, 1983

Ms. Nancy Clingan, Chairman
Kaneohe Neighborhood Board
c/o Kaneohe Satellite City Hall
46-024 Kamehameha Highway
Kaneohe, Hawaii 96744

Dear Ms. Clingan:

Subject: EIS for Kaneohe-Kailua
Wastewater Facilities Plan

Thank you for your testimony of November 16, 1983 concerning the EIS and your support of our proposed plans.

With respect to your concern about disposal of sewage during prolonged electrical outages, Kailua STP itself has adequate facilities for such emergencies. Standby diesel engines are available for effluent pumps, and gas-powered emergency generators are available to provide continuity for other plant operations. Our plans call for expanded emergency capabilities to negate any effect of future power outages. Incidentally, we were able to operate the Kailua STP near normal conditions following both Hurricane Iwa and the July 1983 island-wide power outage.

The Department of Public Works is reviewing procedures and facilities to ensure the best possible emergency response at all outlying pump stations. We will be installing generators in all pump stations that do not already have generators.

During the development of the Facilities Plan, all reasonable alternate energy sources were considered. Wind energy and digester gas are economically viable. Photovoltaics and other energy alternatives are not yet economical for this application at the present time. We will continue to look at alternatives to reduce our ever rising power costs.

RECEIVED '81 NOV -4 AM10 14 DIV. OF WASTEWATER MANAGEMENT

DEPARTMENT OF HOUSING AND COMMUNITY DEVELOPMENT
CITY AND COUNTY OF HONOLULU

650 SOUTH KING STREET
HONOLULU, HAWAII 96813

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TO ENV WWM

JOSEPH K. CONANT

RECEIVED NOV -4 AM10 13 DIV. OF WASTEWATER MANAGEMENT

October 27, 1981

MEMORANDUM

TO: Michael J. Chun, Director & Chief Engineer
Department of Public Works

FROM: Joseph K. Conant

SUBJECT: Environmental Impact Statement Preparation Notice
Kaneohe-Kailua Wastewater Facilities Plan,
Kaneohe-Kailua, Oahu, Hawaii

We have reviewed the information on the subject project and have no comments to offer at this time.

Thank you for allowing us the opportunity to review and comment on this matter.

for JOSEPH K. CONANT

DEPARTMENT OF TRANSPORTATION SERVICES

CITY AND COUNTY OF HONOLULU

HONOLULU MUNICIPAL BUILDING
650 SOUTH KING STREET
HONOLULU, HAWAII 96813

EILEEN R. ANDERSON
MAYOR

ROY A. PARKER
DIRECTOR

TE20/81-3320

October 23, 1981

MEMORANDUM

TO: MICHAEL J. CHUN, DIRECTOR AND CHIEF ENGINEER
DEPARTMENT OF PUBLIC WORKS

FROM: ROY A. PARKER, DIRECTOR

SUBJECT: ENVIRONMENTAL IMPACT STATEMENT PREPARATION NOTICE FOR KANEOHE-KAILUA WASTEWATER FACILITIES PLAN
KANEOHE-KAILUA, OAHU, HAWAII

We have no comments on the EIS Preparation Notice for the Kaneohe-Kailua Wastewater Facilities Plan.

ROY A. PARKER

GEORGE R. ARIYOSHI
GOVERNOR

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

RYOKICHI HIGASHIONNA, Ph.D.
DIRECTOR

DEPUTY DIRECTORS
Wayne J. Yamasaki
CHARLES R. CARVAS
JAMES B. McCORMICK
JONATHAN K. SHIMADA, Ph.D.

IN REPLY REFER TO:

STP 8.7786

October 23, 1981

Mr. Michael J. Chun, Ph. D.
Director and Chief Engineer
Department of Public Works
City and County of Honolulu
650 South King Street
Honolulu, Hawaii 96813

Dear Mr. Chun:

Environmental Impact Statement Preparation Notice, Kaneohe-Kailua Wastewater Facilities Plan, Kaneohe-Kailua, Oahu, Hawaii

Thank you for the opportunity to participate in the preparation of the EIS for the subject project.

We have no substantive comments to offer to assist you in your work.

Very truly yours,

Ryokichi Higashionna
Director of Transportation

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DIV. OF WASTEWATER MANAGEMENT

810735

GEORGE R. ANTONIN

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

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GEORGE A. L. YUEN
DIRECTOR OF HEALTH

JOHN P. CHALMERS, M.D.
DEPUTY DIRECTOR OF HEALTH

HENRY H. THOMPSON, M.A.
DEPUTY DIRECTOR OF HEALTH

MELVIN K. KOIZUMI
DEPUTY DIRECTOR OF HEALTH

ADELINA MADRID ZANIW, M.A., J.D.
DEPUTY DIRECTOR OF HEALTH

In reply, please refer to:
File: EPHS-SS

October 26, 1981

Mr. Michael J. Chun
Director and Chief Engineer
Department of Public Works
City & County of Honolulu
650 S. King St.
Honolulu, Hawaii 96813

Dear Mr. Chun:

Subject: Request for Comments on Proposed Environmental Impact Statement (EIS) for Kaneohe-Kailua Wastewater Facilities Plan, Kaneohe-Kailua, Oahu, Hawaii

Thank you for allowing us to review and comment on the subject proposed EIS. Please be informed that we do not have any 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,

HELVIN K. KOIZUMI
Deputy Director for
Environmental Health

810735

DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT
HONOLULU AREA OFFICE
300 ALA MOANA BLVD., RM. 3318, P.O. BOX 50007
HONOLULU, HAWAII 96850

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REGION IX TO

November 3, 1981

IN REPLY REFER TO:
9.1SS (Johnson/546-2198)

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DIV. OF WASTEWATER MANAGEMENT

Mr. Michael J. Chun
Director and Chief Engineer
Department of Public Works
City and County of Honolulu
650 South King Street
Honolulu, HI 96813

Dear Mr. Chun:

Subject: Environmental Impact Statement Preparation Notice
Kaneohe-Kailua Wastewater Facilities Plan
Kaneohe-Kailua, Oahu, Hawaii

The Environmental Impact Statement Preparation Notice for the subject project was reviewed for HUD concerns and projects in the area.

We have no substantive comments to offer at this time but look forward to receiving the Draft EIS.

Sincerely,

Calvin Lew
Acting Area Manager

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

EILEEN R. ANDERSON
MAYOR

MICHAEL J. CHUN, Ph.D
DIRECTOR AND CHIEF ENGINEER

MAURICE H. KAYA
DEPUTY DIRECTOR

WPP 83-492

October 12, 1983

Mr. Jack Shedletsky, President
Aikahi Gardens Board of Directors
c/o Realty Management & Sales Corp.
1580 Makaloa Street, Ste. 888
Honolulu, Hawaii 96814

Dear Mr. Shedletsky:

Subject: Environmental Impact Statement Preparation Notice
for Kaneohe-Kailua Wastewater Facilities Plan

Thank you for your letter concerning the EIS Preparation Notice for the Kaneohe-Kailua Wastewater Facilities Plan. There has been some delay in response because of basic changes in federal criteria concerning the project.

We acknowledge the odor nuisance from Kailua STP which has affected Aikahi Gardens from time to time despite our best efforts and considerable expense for chemical abatement of the odors. We believe that the positive steps for odor control, as specified in the Facilities Plan, will reduce odors to acceptable levels.

We appreciate your interest in this planning effort.

Should there be any questions, please call Geraldine Lum - 527-5392.

Me ke aloha pumehana,

MICHAEL J. CHUN
Director and Chief Engineer

F10-1096

United States Department of Agriculture
Agricultural Stabilization and Conservation Service
P. O. Box 50008
Honolulu
Hawaii 96850

ENVCL & WRM

October 13, 1981

Mr. Michael J. Chun
Director & Chief Engineer
City & County of Honolulu
650 S. King Street
Honolulu, Hawaii 96813

Dear Mr. Chun:

Subject: EIS Preparation Notice
Kaneohe-Kailua Wastewater Facilities Plan
Kaneohe-Kailua, Oahu, Hawaii

Thank you for letting me review the EIS for the above mentioned project.

I have no comments on the proposed project.

Yours very truly,

Max S. Coray

Max S. Coray, State Executive Director
Hawaii State ASCS Office

ASCS

GEORGE R. ARIYOSHI
GOVERNOR OF HAWAII

PROJECT OFFICES
WAIMEA OFFICE
P. O. BOX 125
KAMUELA, HAWAII 96743
KEAUKAHA OFFICE
P. O. BOX 833
HILO, HAWAII 96720

STATE OF HAWAII
DEPARTMENT OF HAWAIIAN HOME LANDS
P. O. BOX 1879
HONOLULU, HAWAII 96805

PROJECT OFFICES
MAUI OFFICE
P. O. BOX 32
KAHULUI, MAUI 96732
MOLOKAI OFFICE
P. O. BOX 198
HOOLEHUA, MOLOKAI 96729
KAUAI OFFICE
P. O. BOX 332
LIHUE, KAUAI 96766

December , 1981

RECEIVED
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DIV. OF WASTEWATER MANAGEMENT

Dr. Michael J. Chun
Director and Chief Engineer
Department of Public Works
City and County of Honolulu
650 South King Street
Honolulu, Hawaii 96813

Dear Dr. Chun:

SUBJECT: Environmental Impact Statement Preparation Notice
Kaneohe-Kailua, Wastewater Facilities Plan,
Kaneohe-Kailua, Oahu, Hawaii

The Department of Hawaiian Home Lands has reviewed the Environmental Impact Statement Preparation Notice for the subject project and has no comments.

Thank you for the opportunity to review and comment.

Sincerely yours,

Georgiana K. Padeken
Chairman

GKP:CW:ci

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TO

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

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DIV. OF WASTEWATER MANAGEMENT

EILEEN R. ANDERSON, Mayor

YOSHIE H. FUJINAKA, Chairman
ROBERT A. SOUZA, Vice Chairman
MICHAEL J. CHUN
WALTER A. DODS, JR.
RYOKICHI HIGASHIONNA
DONNA M. HOWARD
[illegible] PANG

KAZU HAYASHIDA
Manager and Chief Engineer

RECEIVED
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TO

October 21, 1981

TO : DR. MICHAEL J. CHUN
DIRECTOR AND CHIEF ENGINEER
DEPARTMENT OF PUBLIC WORKS

FROM : KAZU HAYASHIDA
BOARD OF WATER SUPPLY

SUBJECT: YOUR LETTER OF OCTOBER 6, 1981 ON THE ENVIRONMENTAL IMPACT STATEMENT PREPARATION NOTICE FOR THE KANEOHE-KAILUA WASTEWATER FACILITIES PLAN, KANEOHE-KAILUA, OAHU, HAWAII

We anticipate no impact on potable groundwater from the proposed project.

If you have any questions, please contact Lawrence Whang at 548-5221.

KAZU HAYASHIDA
Manager and Chief Engineer

Water...man's greatest need — use it wisely

LETTERS NOT REQUIRING RESPONSES

Mr. William A. Bonnet
Department of Transportation Services
(City and County of Honolulu)

Mr. Joseph K. Conant
Department of Housing and Community Development
(City and County of Honolulu)

Captain M. M. Dallam, USN
Headquarters, Naval Base Pearl Harbor

Mr. Douglas G. Gibb
Chief of Police
(City and County of Honolulu)

Mr. Ryokichi Higashionna
Director of Transportation (Hawaii)

Mr. Shuzo Kimura
Headquarters, 15th Air Base Wing (PACAF)

Mr. Melvin K. Koizumi
Department of Health (Hawaii)

Mrs. Emiko I. Kudo
Department of Parks and Recreation
(City and County of Honolulu)

Mr. Francis C. H. Lum
U. S. Department of Agriculture

Major Jerry M. Matsuda
Department of Defense (Hawaii)
Office of the Adjutant General

Mr. Michael M. McElroy
Department of Land Utilization
(City and County of Honolulu)

Mr. Rikio Nishioka
State Public Works

Mr. Melvin M. Nonaka
Fire Chief
(City and County of Honolulu)

LETTERS NOT REQUIRING RESPONSES (continued)

Ms. Georgianna K. Padeken
Department of Hawaiian Home Lands (Hawaii)

Commander J. E. Schwartz
Fourteenth Coast Guard District

Mr. Jack Suwa
Department of Agriculture (Hawaii)

Mr. Roy H. Tanji
Director and Building Superintendent
(City and County of Honolulu)

Mr. M. A. Yoshinaga, P. E.
Kaneohe Marine Corpos Air Station

Mr. Edwin T. Murabayashi
Water Resources Research Center

U.S. Department of Transportation
United States Coast Guard

Commander (dpl)
Fourteenth Coast Guard District

Prince Kalanianaole
Federal Building
300 Ala Moana Blvd.
Honolulu, Hawaii 96850
Phone: 546-2861

11000
Serial 608

02 NOV 1983

Ms. Letitia N. Uyehara, Interim Director
Office of Environmental Quality Control
550 Halekauwila Street, Room 301
Honolulu, Hawaii 96813

Dear Ms. Uyehara:

The Fourtheenth Coast Guard District has reviewed the EIS for Kaneohe-Kailua Wastewater Facilities and has no objection or constructive comments to offer at the present time.

Sincerely,

J. E. SCHWARTZ
Commander, U. S. Coast Guard
District Planning Officer
By direction of
Commander, Fourteenth Coast Guard District

Copies to: Department of Land Utilization, C&C of Hnl.
Department of Public Works, C&C Hnl.
GMP Associates, Inc.

GEORGE R. ARIYOSHI
GOVERNOR

JACK K. SUWA
CHAIRMAN, BOARD OF AGRICULTURE

SUZANNE D. PETERSON
DEPUTY TO THE CHAIRMAN

State of Hawaii
DEPARTMENT OF AGRICULTURE
1428 So. King Street
Honolulu, Hawaii 96814

Mailing Address:
P. O. Box 22159
Honolulu, Hawaii 96822

October 21, 1983

MEMORANDUM

To: Ms. Letitia N. Uyehara, Interim Director
Office of Environmental Quality Control

Subject: Environmental Impact Statement (EIS for Kaneohe-Kailua Wastewater Facilities
TMK: 4-2, 4-3, 4-4, 4-5, and part of 4-6
Kaneohe-Kailua, Oahu

The Department of Agriculture has reviewed the subject EIS and has no comments to offer.

Thank you for the opportunity to comment.

JACK K. SUWA
Chairman, Board of Agriculture

cc: Mr. Michael H. McElroy
Dept. of Public Works, C&C
GMP Associates, Inc.

"Support Hawaiian Agricultural Products"

12

FB 83-985

November 1, 1983

Ms. Letitia M. Uyehara
Interim Director
Office of Environmental Quality Control
550 Halekauwila Street, Room 301
Honolulu, Hawaii 96813

Dear Ms. Uyehara:

Subject: Kaneohe-Kailua Wastewater Facilities
Koolaupoko, Oahu

We have reviewed the EIS for Kaneohe-Kailua Wastewater Facilities and have no comments.

Thank you for the opportunity to review the EIS.

Very truly yours,

ROY H. TANJI
Director and Building Superintendent

TH:ei
cc: Dept. of Public Works
GMP Assoc., Inc.
J. Harada

UNITED STATES MARINE CORPS
Marine Corps Air Station
Kaneohe Bay, Hawaii 96863

FDPP/DD/mo
11015
1 8 NOV 83

Ms. Letitia M. Uyehara, Interim Director
Office of Environmental Quality Control
550 Halekauwila Street, Room 301
Honolulu, Hawaii 96813

Dear Ms. Uyehara:

Thank you for the opportunity to comment on the Environmental Impact Statement for Kaneohe-Kailua Wastewater Facilities at Koolaupoko, Oahu. We have reviewed the Environmental Impact Statement and have no comments.

The Station's point of contact is Dr. Diane Drigot, Station Environmental Protection Specialist, telephone 257-2171.

Sincerely,

M. A. YOSHINAGA, P.E.
Deputy Director, Facilities Department
By direction of the Commanding Officer

Copy to:
Mr. Michael McElroy, Director, Dept of Land Utilization, C & C of Honolulu
Dr. Michael Chun, Director, Dept of Public Works, C & C of Honolulu
GMP Associates, Inc

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

EILEEN R. ANDERSON
MAYOR

MICHAEL M. McELROY
DIRECTOR

ROBERT G. JONES
DEPUTY DIRECTOR

November 22, 1983

LU10/83-5880(JDN)

Ms. Letitia H. Uyehara, Interim Director
Office of Environmental Quality Control
State of Hawaii
550 Halekauwila Street, Room 301
Honolulu, Hawaii 96813

Dear Ms. Uyehara:

Draft Environmental Impact Statement (EIS) for
Kaneohe-Kailua Wastewater Facilities

We have reviewed the subject Draft EIS and found that it adequately addresses all of our concerns.

If there are any questions, please contact John Nakagawa of our staff at 527-5038.

Very truly yours,

MICHAEL H. McELROY
Director of Land Utilization

MHM:sl

cc: DPW
GMP Assoc., Inc.

NOV 9 1983

(P)1904.3

Mr. Michael McElroy
Director
Department of Land Utilization
City & County of Honolulu
Honolulu, Hawaii

Dear Mr. McElroy:

Subject: Kaneohe-Kailua Wastewater Facilities
Environmental Impact Statement

We have reviewed the subject environmental impact statement and have no comments to offer.

Thank you for the opportunity to review the environmental impact statement.

Very truly yours,

RIKIO MISHIOKA
State Public Works Engineer

MS:jl
cc: Ms. Letitia Uyehara
Dr. Michael Chun
GMP Associates, Inc.

FIRE DEPARTMENT

CITY AND COUNTY OF HONOLULU

1455 S. BERETANIA STREET, ROOM 305
HONOLULU, HAWAII 96814

EILEEN R. ANDERSON
MAYOR

MELVIN M. MOHAKA
FIRE CHIEF

THOMAS C. BLONDIN
FIRE DEPUTY CHIEF

October 27, 1983

Ms. Leticia Uyehara
Interim Director
Office of Environmental Quality Control
550 Halekauwila Street, Room 301
Honolulu, Hawaii 96813

SUBJECT: KANEOHE-KAILUA WASTEWATER FACILITIES

Dear Ms. Uyehara:

Thank you for the opportunity to review and comment on the subject project.

We do not anticipate a significant change in fire protective services for the area of the subject project.

Very truly yours,

MELVIN M. MOHAKA,
Fire Chief

cc: Mr. Michael J. Chun, Director
Dept. of Public Works
GKP Associates, Inc.

GEORGE R. ARIYOSHI
GOVERNOR OF HAWAII

PROJECT OFFICES

WAIMEA OFFICE
P. O. BOX 175
KAMUELA, HAWAII 96743

KEAUKAHA OFFICE
P. O. BOX 833
HILO, HAWAII 96720

STATE OF HAWAII
DEPARTMENT OF HAWAIIAN HOME LANDS
P. O. BOX 1879
HONOLULU, HAWAII 96805

PROJECT OFFICES

MAUI OFFICE
P. O. BOX 77
KAHULUI, MAUI 96732

MOLOKAI OFFICE
P. O. BOX 198
HOOLEHUA, MOLOKAI 96729

KAUAI OFFICE
P. O. BOX 332
LIHUE, KAUAI 96766

Ms. Leticia Uyehara
Interim Director
Office of Environmental
Quality Control
550 Halekauwila Street, Room 301
Honolulu, Hawaii 96813

Dear Ms. Uyehara:

SUBJECT: Kaneohe-Kailua Wastewater Facilities

Reference is made to your letter of October 18, 1983, requesting comments on the subject project.

The Department of Hawaiian Home Lands has reviewed the Environmental Impact Statement for the subject project and has no comments to offer at this time as the proposed project does not affect our lands.

Thank you for affording us the opportunity to respond to the Environmental Impact Statement.

Sincerely yours,

Georgiana K. Padeken
Chairman

GKP:RF:GW:nm

cc: Michael Chun, Director
Department of Public Works
650 South King Street, 11th floor
Honolulu, HI 96813

GHP Associates, Inc.
1427 Dillingham Blvd, Suite 209
Honolulu, HI 96817

RECEIVED
'81 OCT 28 AM10 00
DIV. OF WASTEWATER MANAGEMENT

810 1551

GEORGE R. ARIYOSHI
GOVERNOR

STATE OF HAWAII
DEPARTMENT OF SOCIAL SERVICES AND HOUSING
HAWAII HOUSING AUTHORITY
P. O. BOX 17907
HONOLULU, HAWAII 96817

PAUL A. TOM
EXECUTIVE DIRECTOR

RECEIVED
DEPT. OF PUBLIC WORKS
OCT 27 2 00 PM '81
TO ENV WWM

IN REPLY REFER TO: 4-105/3266

October 22, 1981

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

Dear Mr. Chun:

Subject: Environmental Impact Statement Preparation Notice, Kaneohe - Kailua Wastewater Facilities Plan

We have reviewed the EIS preparation notice for Kaneohe - Kailua Wastewater Facilities plan and have no specific comments to offer relative to the proposed action.

Thank you for the opportunity to comment on this matter.

Sincerely,

PAUL A. TOM
Executive Director

RECEIVED
GEORGE R. ARIYOSHI
GOVERNOR
'81 OCT 28 AM10 00
DIV. OF WASTEWATER MANAGEMENT

8107356

JACK K. SUWA
CHAIRMAN, BOARD OF AGRICULTURE

RECEIVED
DEPT. OF PUBLIC WORKS
OCT 27 2 00 PM '81
TO ENV WWM

State of Hawaii
DEPARTMENT OF AGRICULTURE
1428 So. King Street
P. O. Box 22159
Honolulu, Hawaii 96822

October 23, 1981

MEMORANDUM

To: Mr. Michael J. Chun
Director and Chief Engineer
Department of Public Works

Subject: Environmental Impact Statement Preparation Notice, Kaneohe-Kailua Wastewater Facilities Plan
THK: 4-2, 4-3, 4-4, 4-5, and part of 4-6
Kaneohe-Kailua, Oahu

We have reviewed the above document and find that no agricultural land will be affected by the proposed project.

We have no comments to offer at this time. Thank you for permitting us to comment.

JACK K. SUWA
Chairman, Board of Agriculture

RECEIVED

'81 OCT 26 AM 9 54

DIV. OF WASTEWATER MANAGEMENT

UNITED STATE MARINE CORPS
Joint Public Affairs Office
Marine Corps Air Station/1st Marine Brigade, FMF
Kaneohe Bay, Hawaii 96863

810 7311

PA:WEW:tra
11000
20 Oct 1981

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

Dear Mr. Chun:

This letter is in response to your letter of 6 October 1981 and Environmental Impact Statement Preparation Notice for Kaneohe-Kailua Wastewater Facilities Plan.

Your request for assistance in the preparation of the Environmental Impact Statement is being processed by the Marine Corps Air Station Kaneohe Bay Facilities Department.

For your information and future consideration, the Kaneohe Bay Community Association is no longer in existence.

Sincerely,

W. E. WOOD
Captain, U. S. Marine Corps
Director, Joint Public Affairs Office

RECEIVED

'81 NOV 12 AM 8 40

DIV. OF WASTEWATER MANAGEMENT

UNITED STATES MARINE CORPS
MARINE CORPS AIR STATION
KANEOHE BAY, HAWAII 96863

DEPT OF PUBLIC WORKS
'81 NOV 13 1 50 PM

TO

810 7643

IN REPLY REFER TO:
FDPF/WH/eal
11300
06 NOV 1981

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

Dear Mr. Chun:

Thank you for forwarding the Environmental Impact Statement Preparation Notice for Kaneohe-Kailua Wastewater Facilities Plan, and providing us with an opportunity to review and comment.

We have no objections or comments on the "Preparation Notice" except that what was formerly called the Public Works Department is now the Facilities Department (page I-1 of Appendix I). It is requested that this change be made to avoid confusion.

Sincerely,

ALFRED L. MIZE, Lieutenant Colonel, USMC
Director, Facilities Department
By direction of the Commanding Officer

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

EILEEN R. ANDERSON
MAYOR

MICHAEL J. CHUN, Ph D
DIRECTOR AND CHIEF ENGINEER

MAURICE H. KAYA
DEPUTY DIRECTOR

WPP 83-594

December 13, 1983

Mr. William R. Kramer
Acting Project Leader
Office of Environmental Services
Fish and Wildlife Service
U.S. Department of the Interior
P. O. Box 50167
Honolulu, Hawaii 96850

Dear Mr. Kramer:

Subject: EIS for Kaneohe-Kailua
Wastewater Facilities Plan

Thank you for your letter of November 16, 1983 concerning the EIS for Kaneohe-Kailua Wastewater Facilities.

The EIS did not evaluate the impact of primary-treated effluent on Mokapu receiving waters because this and other criteria of the secondary waiver Section 301(h) regulations will be addressed in a separate application to EPA. If approved by EPA, the public will be given ample opportunity to comment at a public hearing required by the Section 301(h) regulations. Primary-treated effluent will not be discharged until a modified NPDES permit allowing the discharge is issued.

Additional statements concerning the Short-eared Owl and about Nuupia Pond's habitat for the Hawaiian Stilt will be included in the Revised EIS.

We appreciate your interest in this planning effort. Should there be any questions, please call Geraldine Lum at 527-5392.

Me ke aloha pumehana,

MICHAEL J. CHUN
Director and Chief Engineer

HAWAIIAN ELECTRIC COMPANY, INC.
Box 2750 / Honolulu, Hawaii / 96840

RICHARD L. O'CONNELL, P.E.
MANAGER, ENVIRONMENTAL DEPARTMENT

November 14, 1983

ENV 2-1
NV/G

Ms. Letitia N. Uyehara
Interim Director
Office of Environmental
Quality Control
550 Halekauwila Street, Room 301
Honolulu, Hawaii 96813

Dear Ms. Uyehara:

Subject: Kaneohe-Kailua Wastewater Facilities
Koolaupoko, Oahu

We have reviewed the Environmental Impact Statement for the Kaneohe-Kailua Wastewater Facilities and have the following comments:

1. The various proposed wastewater facilities may have an effect on HECO's facilities.

2. There is no mention of the effects to HECO's facilities for the purchase of excess electrical power produced by wind power and/or sewage sludge digester gas for operation of the Kailua Sewage Treatment Plant (STP) and the various pumping stations. HECO's Distribution Engineering Department should be consulted regarding purchased power.

Thank you for letting us comment on the above subject project.

Sincerely,

Richard L. O'Connell
Manager, Environmental Department

SLC:cal

cc: Mr. Michael McElroy, Director
C&C, DLU

Dr. Michael J. Chun, Director
C&C, DPW

GMP Associates, Inc. ✓

9

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

EILEEN R. ANDERSON
MAYOR

MICHAEL J. CHUN, Ph.D.
DIRECTOR AND CHIEF ENGINEER

MAURICE H. KAYA
DEPUTY DIRECTOR

WPP 83-593

December 13, 1983

Mr. Richard L. O'Connell, Manager
Environmental Department
Hawaiian Electric Company, Inc.
P. O. Box 2750
Honolulu, Hawaii 96840

Dear Mr. O'Connell:

Subject: EIS for Kaneohe-Kailua
Wastewater Facilities Plan

Thank you for your letter of November 14, 1983 concerning the EIS for Kaneohe-Kailua Wastewater Facilities.

Prior to implementation of alternate energy schemes for wind and digester gas at Kailua STP, HECO's Distribution Engineering Department will be contacted relative to reduced requirements for purchased power. As currently conceived in preliminary planning, there would be no excess power from Kailua STP available for sale to HECO. Appendix X to the Wastewater Facilities Plan of October 1983 provides further details which may be of particular interest to HECO.

We appreciate your interest in this planning effort. Should there be any questions, please call Geraldine Lum at 527-5392.

Me ke aloha pumehana,

Michael J. Chun

MICHAEL J. CHUN
Director and Chief Engineer

NOV 2 1 1983

Ms. Letitia N. Uyehara, Interim Director
Office of Environmental Quality Control
550 Halekauwila Street, Room 301
Honolulu, Hawaii 96813

Dear Ms. Uyehara:

We appreciate the opportunity to review the draft environmental impact statement (EIS) for the proposed modifications to the Kaneohe-Kailua wastewater facilities.

In our January 8, 1982 letter to the Department of Public Works, we suggested that the forthcoming EIS should address potential impact on aquatic resources. We recently received a response to our letter. Essentially, that response, dated October 12, 1983, states:

1) The impact on aquatic organisms of shutting down the Ahuimanu Sewage Treatment Plant is covered in a 1979 environmental impact statement for the Kahaluu wastewater system.

2) Mitigative measures necessitated by construction of the Kahaluu interceptor is also covered in the 1979 statement.

3) The consequences of increasing BOD (biological oxygen demand) and SS (suspended solids) levels from discharges through the Mokapu outfall will be covered by the draft we have just reviewed.

Inasmuch as the shutting down of the Ahuimanu facility will have an effect on the flow to the Kailua plant, we think it appropriate that the impact of the shutdown on aquatic organisms be covered. If it were covered in a 1979 document, then appropriate sections bear reiterating. We concede that if construction of the Kahaluu interceptor is completed, a discussion of mitigative measures for that work would be pointless, but not otherwise. Finally, the environmental impact statement fails to discuss the impacts of increased discharge at Mokapu under relaxed water quality standards. Insofar as these impacts may be addressed in a September 1979 report to the Environmental Protection Agency, they ought to be incorporated into the EIS.

As indicated on page 10-3, the flow into Kailua inshore waters may be tripled between 1980 and the year 2005. At the same time, it is proposed that water quality standards be relaxed, doubling the levels of BOD and SS discharged (pp. 1-2 and 1-3), albeit only five years at a time. Moreover, treatment at Kailua is said to be unreliable due to lack of backup equipment (p. 4-4).

GEORGE R. ARIYOSHI
GOVERNOR OF HAWAII

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

CHARLES G. CLARK
DIRECTOR OF HEALTH

In reply, please refer to:
EPHSD-SB

November 7, 1983

MEMORANDUM

To: Ms. Letitia N. Uyehara, Interim Director, OEQC
Mr. Michael H. McElroy, Director of Land Utilization,
City & County of Honolulu

From: Deputy Director for Environmental Health

Subject: Environmental Impact Statement (EIS) for Kaneohe-Kailua Wastewater Facilities, Koolaupoko, Oahu

Thank you for allowing us to review and comment on the subject EIS. On the basis that the project will comply with all applicable Administrative Rules, please be informed that we do not have any objections to this project.

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.

MELVIN K. KOIZUMI

cc: Dr. Michael Chun
GMP Associates

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

EILEEN R. ANDERSON
MAYOR

ROBERT R. MASUDA
DIRECTOR

SAM L. CARL
DEPUTY DIRECTOR

OSCAR H. ASAMINA
EXECUTIVE ASSISTANT

November 7, 1983

Ms. Letitia N. Uyehara
Interim Director
Office of Environmental Quality Control
550 Halekauwila Street, Room 301
Honolulu, Hawaii 96813

Dear Ms. Uyehara:

SUBJECT: ENVIRONMENTAL IMPACT STATEMENT (EIS) FOR
THE PROPOSED KANEOHE-KAILUA WASTEWATER FACILITIES

We have reviewed the EIS for the wastewater facilities and do not anticipate any negative impacts on parks and recreation facilities in proximity to the project sites.

Thank you for the opportunity to review the EIS.

Sincerely yours,

(Mrs.) EMIKO I. KUDO, Director

EIK:vc

cc: DPW
[redacted]

COPY

United States Department of Agriculture

Soil Conservation Service

P.O. Box 50004
Honolulu, Hawaii
96850

November 16, 1983

Ms. Letitia N. Uyehara, Interim Director
Office of Environmental Quality Control
550 Halekauwila Street, Room 301
Honolulu, HI 96813

Dear Ms. Uyehara:

Subject: Environmental Impact Statement for Kaneohe-Kailua Wastewater Facilities, Koolaupoko, Oahu, HI

We have reviewed the subject environmental impact statement and have no comments to make.

Thank you for the opportunity to review the document.

Sincerely,

FRANCIS C.H. LUM
State Conservationist

Copy:
Mr. Michael McElroy, Director
Department of Land Utilization
City & County of Honolulu
650 South King Street, 7th Floor
Honolulu, HI 96813

Dr. Michael J. Chun, Director
Department of Public Works
City & County of Honolulu
650 South King Street, 11th Floor
Honolulu, HI 96813

GHP Associates, Inc. ✓
1427 Dillingham Blvd., Suite 209
Honolulu, HI 96817

The Soil Conservation Service is an agency of the Department of Agriculture

State of Hawaii
DEPARTMENT OF DEFENSE
OFFICE OF THE ADJUTANT GENERAL
3949 Diamond Head Road
Honolulu, Hawaii 96816

24 OCT 1983

HIENG

Ms. Letitia N. Uyehara, Interim Director
Office of Environmental Quality Control
550 Halekauwila Street, Room 301
Honolulu, Hawaii 96813

Dears Ms. Uyehara:

Thank you for providing us the opportunity to review the proposed project, "Kaneohe-Kailua Wastewater Facilities" Environmental Impact Statement.

We have completed our review and have no comments to offer at this time.

Ioura truly,

JERRY M. MATSUDA
Major, HANG
Contr & Engr Officer

cc: Mr. M. McElroy, Director
Dept of Land Utilization C&C of Hnl
Dr. Michael Chun, Director
Dept of Public Works, C&C of Hnl
GHP Associates, Inc.
Env. Quality Comm w/EIS

Mere discussion of effluent quality is not the same as discussing environmental impact. For any given volume and quality of discharge, there will be impacts on various elements of the environment. Our interest lies in protecting aquatic resources and the recreational use of Kailua bay. We regret our January 8, 1982 letter failed to make this clear.

It is suggested that a supplemental statement be prepared to cover the obvious inadequacies of the present draft. It may also be desirable for the supplement to cover points raised by the Department of Land Utilization on November 9, 1981 and the Water Resources Research Center on October 30, 1981.

Sincerely,

Susumu Ono

SUSUMU ONO
Chairperson

cc: OPH, C&C Honolulu
[redacted]

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

EILEEN R. ANDERSON
Mayor

MICHAEL J. CHUN, Ph.D.
Director and Chief Engineer

MAURICE H. KAYA
Deputy Director

WPP 83-602

December 15, 1983

Honorable Susumu Ono, Chairperson
State of Hawaii
Board of Land and Natural Resources
P. O. Box 621
Honolulu, Hawaii 96809

Dear Mr. Ono:

Subject: EIS for Kaneohe-Kailua
Wastewater Facilities Plan

Thank you for your letter of November 21, 1983 on the Kaneohe-Kailua Wastewater Facilities Plan EIS.

The transmission of wastewater between Ahuimanu Sewage Treatment Plant (STP) and Kaneohe Sewage Treatment Plant will be via the Ahuimanu Force Main, Sections 1 and 2, which are presently under construction. Conversion of Ahuimanu STP to a pump station is also under construction. Environmental concerns were covered in the Environmental Impact Statement (EIS) of December 1979 and the revised EIS of March 1980 for the Kahaluu Wastewater Treatment and Disposal System.

The EIS did not evaluate the impact of primary-treated effluent on Mokapu receiving waters because this and other criteria of the secondary waiver Section 301(h) regulations will be addressed in a separate application to EPA. If approved by EPA, the public will be given ample opportunity to comment at a public hearing required by the Section 301(h) regulations. Primary-treated effluent will not be discharged until a modified NPDES permit allowing the discharge is issued.

We appreciate your interest in this planning effort. Should there be any questions, please call Geraldine Lum at 527-5392.

Me ke aloha pumehana,

Michael J. Chun

MICHAEL J. CHUN
Director and Chief Engineer

November 8, 1983

Ms. Letitia H. Uyehara
Interim Director
Office of Environmental
Quality Control
550 Halekauwila Street
Room 301
Honolulu, Hawaii 96813

Dear Ms. Uyehara:

Subject: EIS for Kaneohe-Kailua Wastewater Facilities

We have no comments on the subject EIS.

Sincerely,

William A. Bonnet

cc: Dept. of Land Utilization
Dept. of Public Works
GHP Associates, Inc.

cm (K. Hirata)

DEPARTMENT OF HOUSING AND COMMUNITY DEVELOPMENT
CITY AND COUNTY OF HONOLULU
650 SOUTH KING STREET
HONOLULU, HAWAII 96813
PHONE 523-4191

EILEEN R. ANDERSON
MAYOR

JOSEPH K. CONANT
DIRECTOR

CHARLES R. TORIGOE
DEPUTY DIRECTOR

October 31, 1983

Mr. Michael McElroy, Director
Department of Land Utilization
City and County of Honolulu
650 South King Street, 7th Floor
Honolulu, Hawaii 96813

Dear Mr. McElroy:

Subject: Environmental Impact Statement
Kaneohe-Kailua Wastewater Facilities
Koolaupoko, Oahu

We appreciate the opportunity to review and comment on the Kaneohe-Kailua Wastewater Facilities Environmental Impact Statement.

We note that the service areas of the proposed facilities include the Windward Oahu suburban areas of Kaneohe, Kailua and Kahaluu. Resident population for these areas amounts to 88,600 people. The proposed facilities will accommodate an additional 12,000 or a total of 100,600 persons between now and the year 2005.

We will retain the EIS report for our files.

Sincerely,

JOSEPH K. CONANT

cc: Michael J. Chun, Department of Public Works

GHP Associates, Inc.
1427 Dillingham Blvd., Suite 209
Honolulu, Hawaii 96817

83 06586

DEPARTMENT OF THE ARMY
PACIFIC OCEAN DIVISION, CORPS OF ENGINEERS
FT. SHAFTER, HAWAII 96858

REPLY TO ATTENTION OF

November 15, 1983

Dr. Michael Chun, Director
Department of Public Works
City and County of Honolulu
650 South King Street, 11th Floor
Honolulu, Hawaii 96813

Dear Dr. Chun:

Thank you for the opportunity to review and comment on the environmental impact statement for Kaneohe-Kailua Wastewater Facilities. The following comments are offered:

a. It is unclear if any fill in wetland areas is needed. If fill is required in Kawainui Marsh or other wetland areas, a Department of the Army permit may be required.

b. Page 3-17, Section 3.1.19 Flood-Prone Areas and Figure 12. The most updated map of flood-prone areas in the Kaneohe-Kailua areas is the Flood Insurance Rate Map (FIRM), prepared as part of the Flood Insurance Study for the City and County of Honolulu by the Federal Insurance Administration. The FIRM (dated September 3, 1980) identifies the riverine flood plain areas within the proposed wastewater facilities improvement district. Under the requirements of the National Flood Insurance Program, public utilities and facilities should be located and constructed to minimize or eliminate flood damage, and adequate drainage is provided to reduce exposure to flood hazards.

Sincerely,

Kisuk Cheung
Chief, Engineering Division

Enclosure

EXPLANATION OF ZONE DESIGNATIONS

ZONE	EXPLANATION
A	Areas of 100-year flood; base flood elevations and flood hazard factors not determined.
AO	Areas of 100-year shallow flooding where depths are between one (1) and three (3) feet; average depths of inundation are shown, but no flood hazard factors are determined.
AH	Areas of 100-year shallow flooding where depths are between one (1) and three (3) feet; base flood elevations are shown, but no flood hazard factors are determined.
A1-A30*	Areas of 100-year flood, base flood elevations and flood hazard factors determined.
A99	Areas of 100-year flood to be protected by flood protection system under construction; base flood elevations and flood hazard factors not determined.
B	Areas between limits of the 100-year flood and 500-year flood; or certain areas subject to 100-year flooding with average depths less than one (1) foot or where the contributing drainage area is less than one square mile; or areas protected by levees from the base flood. (Medium shading)
C	Areas of minimal flooding. (No shading)
D	Areas of undetermined, but possible, flood hazards.
V	Areas of 100-year coastal flood with velocity (wave action); base flood elevations and flood hazard factors not determined.
V1-V30*	Areas of 100-year coastal flood with velocity (wave action); base flood elevations and flood hazard factors determined.
*	The numerals indicate the magnitude of difference between the 100-year and 10-year flood elevations. For numerals between 1-20, the difference is one half of the value; for values greater than 20, the difference is 10 less than the numerals shown. This information is used in establishing insurance rates.
—18—	100-year tsunami or riverine elevation line, with elevation in feet above mean sea level.
———	Zone boundary line

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

EILEEN R. ANDERSON
MAYOR

MICHAEL J. CHUN, PH.D.
DIRECTOR AND CHIEF ENGINEER

MAURICE H. KAYA
DEPUTY DIRECTOR

WPP 83-601

December 15, 1983

Mr. Kisuk Cheung, Chief
Engineering Division
Pacific Ocean Division
Corps of Engineers
Ft. Shafter, Hawaii 96858

Dear Mr. Cheung:

Subject: EIS for Kaneohe-Kailua
Wastewater Facilities Plan

This is in response to your November 15, 1983 comments on the October 1983 EIS for Kaneohe-Kailua Wastewater Facilities.

a. Construction in the wetland areas is not contemplated for projects in this Facilities Plan.

b. The requirement for minimizing public facilities hazards in flood plain areas is recognized. Accordingly, wastewater facilities which must remain at or near the plant will be designed to minimize flood damage.

We appreciate your interest in this planning effort. Should there be any questions, please call Geraldine Lum at 527-5392.

Me ke aloha pumehana,

MICHAEL J. CHUN
Director and Chief Engineer

KANEOHE NEIGHBORHOOD BOARD NO. 30
C/o KANEOHE SATELLITE CITY HALL
46-074 KAM HIGHWAY
KANEOHE, HAWAII 96744

November 16, 1983

GMP ASSOCIATES, INC.
1427 Dillingham Blvd., Suite 209
Honolulu, Hawaii 96813

REFERENCE: EIS FOR KANEOHE-KAILUA WASTEWATER FACILITIES

Dear Sir:

At the regular October 27, 1983 meeting of Kaneohe Neighborhood Board, we voted to support the centralized wastewater system for the population projected for the year 2005 in the Kailua-Kaneohe-Kahaluu area. The Department of Public Works should be commended for reducing the cost for a greatly improved sewer system to Kaneohe as well as for eliminating environemtal polluting presently impacting the Ahuimanu Streams, Kawanui Marsh and Kaneohe Bay. The Board also makes the following comments:

(1) With such a physically extensive wastewater system to a centralized, single outfall, we are amazed to find no mention being made of what happens to all that sewage in prolonged electrical outages. Cork the outfall and we have sewage in our homes and running in our streets! Windward Oahu has frequent, extensive and, at times, prolonged electrical failures. Also, due to the location of the above ground transmission lines over the Koolau Mountains will always have that potential. Are there to be back-up generators or batteries every pump site? Or, as in the past, will there be mass pumping at the old SIP sites of raw sewage into the nearby streams, marshlands, and Kaneohe Bay? Are there to be outlet pipes left in place at the closed SIPs for this purpose?

(2) In Chapter 8, energy conservation is addressed with the primary discussion being the use of minipower at the Kailua SIP and the possibility of some use for the digestive gases in the operation of the station. We find that no mention is made of the possibility of other alternate energy uses at the pumping stations or Kaneohe SIP. The use of photovoltaic

University of Hawaii at Manoa

Environmental Center
Crawford 317 • 2550 Campus Road
Honolulu, Hawaii 96822
Telephone (808) 948-7361

November 19, 1983

RE:0394

Mr. Michael McElroy, Director
Department of Land Utilization
City and County of Honolulu
650 South King Street
Honolulu, Hawaii 96813

Ms. Letitia N. Uyehara, Interim Director
Office of Environmental Quality Control
550 Halekauwila Street
Honolulu, Hawaii 96813

Dear Sir/Madam:

Draft Environmental Impact Statement
Kaneohe-Kailua Wastewater Facilities
Kaneohe-Kailua, Koolaupoko, Oahu

This project proposes to:

1) centralize sewage treatment in the Kailua-Kaneohe area by expansion of the Kailua Sewage Treatment Plant (STP).

2) terminate certain existing interim STP's and

3) discharge the collected effluents, after primary treatment, through the Mokapu outfall thus eliminating existing effluent discharges to Maunawili and Ahuimanu streams, Kaneohe Bay, and Kawainui Marsh.

We appreciate the opportunity to review the above cited DEIS. Our Environmental Center review has been prepared with the assistance of Alison Kay, Zoology; Sheila Conant, General Science; Matthew Spriggs, Anthropology; Lee Hannah, Jacquelin Miller, and Mark Ingoglia, Environmental Center. The following comments are offered for your consideration.

EIS Format and General Content

In addition to comments on the content of the DEIS, we would like to offer some comments on the general format and style of this document. The use of the exceptionally heavy paper (cardboard) dividers for the headings of each chapter and the double and triple spacing of the text has resulted in a physical volume more than double that necessary.

Not only is the DEIS thus more bulky to handle, but we assume it cost more than necessary to reproduce. Furthermore, the reader is obliged to wade through the unnecessary "fluff" in his review. We suggest that consideration be given in the drafting of future EIS's to reducing their bulk through more concise print formats and the elimination of separate, heavy weight, chapter dividers.

Archaeology

Further clarification of what sewer diversion lines will be installed due to the proposed project needs to be outlined in the Revised EIS. Page 6-8 discusses previously planned wastewater management plans but does not clearly note which of their "features" are included in the present project nor how they relate to the assessment of impacts. These "features" include potential excavation impacts on archaeological remains. Clarification should be provided in the final EIS.

Water Quality

Our reviewers agree with the "consensus" (page 5-2) that it is unlikely that significant impacts will occur from the release of primary treated effluent from the Mokapu outfall. A brief summary of the results of the studies cited in this DEIS would be helpful to identify what impacts have occurred from the release of secondarily treated effluent at Mokapu outfall and thus the rationale for the determination of no significant impact.

The following reference should be included in the revised EIS:

Russo, A.R., S.J. Dollar, E.A. Kay. "Benthic Ecosystem and Fish Population off the Mokapu Outfall: A Second Postinstallation Ecological Study", Water Resources Research Center, University of Hawaii Technical Report No. 132, May 1980.

Authorship of references cited (Chapter 16) should be included (when available) in the reference list to facilitate further literature searches.

Impacts of elimination of present discharges

As is recognized in the EIS (Chapter 4) discharges of sewage to Ahuimanu Stream, Maunawili Stream, and Kawainui Marsh have resulted in excessive nutrients and degradation of these receiving waters. The proposed closure of the discharging interim STP's and redirection of their effluents to the Mokapu outfall will eliminate this source of pollutant/nutrient loading in these receiving waters. One factor which seems to have been overlooked in the analysis of the impacts of the proposed action on these streams and Kawainui Marsh, is that of dewatering of the streams and reduction of water supply to the marsh. While we recognize the need to eliminate pollutants, we wonder whether the elimination of these STP discharges will significantly reduce the flows in the streams or the water supply to the marsh and, if so, whether mitigative measures will be necessary to avoid significant impacts to the stream and marsh biota?

It would be helpful to provide, in the revised EIS, simple water budgets comparing present water flows into Kawainui Marsh and flows after the effluent is diverted to Mokapu outfall. The reduction of flow may be critical to the surviving waterbird habitat of Kawainui Marsh and may have significant effects on open water space.

Digest Gas

The discussion of wind turbine energy production and its impact is thorough and helpful. Similar treatment of digest gas potentials, limitations and impacts would also be helpful (page 8-10).

Yours truly,

Doak C. Cox
Director

cc: GMP Associates, Inc. ✓
Alison Kay
Sheila Conant
Matthew Spriggs
Lee Hannah
Jacquelin Miller
Mark Ingoglia
Michael J. Chun

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

EILEEN R. ANDERSON
MAYOR

MICHAEL J. CHUN, Ph.D.
DIRECTOR AND CHIEF ENGINEER

MAURICE H. KAYA
DEPUTY DIRECTOR

WPP 83-596

December 13, 1983

Dr. Doak C. Cox
University of Hawaii
Environmental Center
Crawford 317
2550 Campus Road
Honolulu, Hawaii 96822

Dear Dr. Cox:

Subject: EIS for Kaneohe-Kailua
Wastewater Facilities Plan

The following response is offered to your comments on the October 1983 EIS for Kaneohe-Kailua Wastewater Facilities.

EIS Format

Consideration will be given to reduction of EIS bulk.

Archeology

Appendix A of the EIS shows alignments for proposed sewer lines. These alignments are not known to pass through any sites of archeological significance.

Water Quality

The additional reference is appreciated and will be included in the revised EIS. Inasmuch as little or no adverse impacts have been noted in any references, it is considered that any further summaries will not contribute to the EIS.

Impacts of Elimination of Present Discharges

It is acknowledged that the closure of four interim STPs, which now discharge a total of about 0.5 mgd into Kawainui Marsh, will reduce water input to the marsh. However, without a detailed study of many complex variables, it is considered that a simple

HEADQUARTERS
NAVAL BASE PEARL HARBOR
BOX 110
PEARL HARBOR, HAWAII 96860

IN REPLY REFER TO:
002B:MKL:jam
Ser 2385
9 NOV 1983

Ms. Letitia N. Uyehara, Interim Director
Office of Environmental Quality Control
550 Halekauwila Street, Room 301
Honolulu, Hawaii 96813

Dear Ms. Uyehara:

Environmental Impact Statement
Kaneohe-Kailua Wastewater Facilities

The EIS for the Kaneohe-Kailua Wastewater Facilities has been reviewed and the Navy has no comments to offer.

Thank you for the opportunity to review the EIS.

Sincerely,

M. M. DALLAM
CAPTAIN, CEC, U. S. NAVY
FACILITIES ENGINEER
BY DIRECTION OF THE COMMANDER

Copy to:
Department of Public Works, C&C Hnl.
GMP Associates, Inc.

[illegible]

October 11, 1983

Ms. Letitia N. Uyehara, Interim Director
Office of Environmental Quality Control
550 Halekauwila Street, Room 301
Honolulu, Hawaii 96813

Dear Ms. Uyehara:

Re: Kaneohe-Kailua Wastewater Facilities EI.

We have no comments relating to this project. The EIS is being returned to the Commission.

Thank you for the opportunity to comment.

Sincerely,

[illegible]
Chief of Police

Attach.

cc: Department of Land Utilization
Department of Public Works
GMP Associates, Inc.

S

SEP 8.9471

November 1, 1983

Mr. Michael McElroy, Director
Department of Land Utilization
City and County of Honolulu
650 South King Street
Honolulu, HI 96813

Dear Mr. McElroy:

Kaneohe-Kailua Wastewater Facilities

Thank you for the opportunity to review the subject environmental impact statement.

We have no substantive comments to make that would improve the document.

Very truly yours,

Ryokichi Higashionna

Ryokichi Higashionna
Director of Transportation

rko

cc: Dr. Michael Chun, DPW, C&C Honolulu
GMP Associates, Inc.

DEPARTMENT OF THE AIR FORCE
HEADQUARTERS 15TH AIR BASE WING (PACAF)
HICKAM AIR FORCE BASE, HAWAII 96853

REPLY TO ATTN OF: DEEV (Mr Yamada, 449-1831)

24 OCT 1983

SUBJECT: Environmental Impact Statement for the Kaneohe - Kailua Wastewater Facilities

TO: Ms Letita N. Uyehara, Interim Director
Office of Environmental Quality Control
550 Halekauwila Street, Room 301
Honolulu, HI 96813

1. This office has reviewed the subject EIS and has no comment relative to the proposed project.

2. We greatly appreciate your cooperative efforts in keeping the Air Force apprised of your project and thank you for the opportunity to review the document. The EIS is returned for your file.

SHUZO KIMURA
Actg Chief, Engrg & Envmtl Plng Div
Directorate of Civil Engineering

1 Atch
EIS

Cy to: Mr Michael McElroy, Director wo Atch
Department of Land Utilization
City & County of Honolulu
650 South King Street, 7th Floor
Honolulu, HI 96813

Dr Michael J. Chun, Director wo Atch
Department of Public Works
City & County of Honolulu
650 South King Street, 11th Floor
Honolulu, HI 96813

GMP Associates, Inc. wo Atch
1427 Dillingham Blvd., Suite 209
Honolulu, HI 96817

APPENDIX C

EIS COMMENTS AND RESPONSES

EIS LETTERS WITH RESPONSES

Mr. Kisuk Cheung
Army Corps of Engineers

Ms. Nancy Clingan
Kaneohe Neighborhood Board

Dr. Doak C. Cox
Environmental Center

Mr. James A. Gammon
Kailua Resident

Mr. Kazu Hayashida
Board of Water Supply

Dr. Willard T. Chow
Department of General Planning

Mr. Kent M. Keith
Department of Planning and Economic Development

Mr. William R. Kramer
U. S. Department of the Interior, Fish and Wildlife Service

Mr. Richard L. O'Connell
Hawaiian Electric Company, Inc.

Mr. Susumu Ono
Board of Land and Natural Resources

WP: 2140/97B

APPENDIX A

This Appendix presents site details for five major sewers and six collection systems (Improvement Districts) proposed as part of the Kaneohe-Kailua Wastewater Management system.

Maunawili Trunk Sewer, Section 2

Maunawili WWPS and FM

Kukanono WWPS and FM

Kailua Road Interceptor Sewer

Kailua Sewers Section 9 I.D.

Kailua Sewers Section 10 I.D.

Kaneohe Sewers Section 8 I.D.

Kaneohe Sewers Section 9 I.D.

Kaneohe Sewers Section 10 I.D.

Kaneohe Bay Sewers I.D.

Kaneohe Bay SPS No. 5 and FM

Construction of the Ahuimanu Sewage Pump Station and Force Main began during 1983. Site plans and planning data for five Collection System Improvement Districts in Kahaluu were presented in the FACILITY PLAN FOR THE KAHALUU WASTEWATER TREATMENT AND DISPOSAL SYSTEM published in January 1980 by the Division of Wastewater Management, Department of Public Works, City and County of Honolulu.