



EXECUTIVE CHAMBERS

HONOLULU

GEORGE R. ARIYOSHI
GOVERNOR

September 21, 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 environmental impact statement for the Wailua-Hana Water System Improvements on Maui 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

cc: Mr. William S. Haines, Director
Department of Water Supply, County of Maui

OEQC LIBRARY

ENVIRONMENTAL IMPACT STATEMENT

FOR THE

WAILUA-HANA WATER SYSTEM IMPROVEMENTS

Hana, Island of Maui, Hawaii

Submitted by
Department of Water Supply
County of Maui
Wailuku, Maui, Hawaii

Prepared by
Sam O. Hirota, Inc.
345 Queen Street, Suite 500
Honolulu, Hawaii 96813

OEQC LIBRARY

ENVIRONMENTAL IMPACT STATEMENT

FOR THE

WAILUA-HANA WATER SYSTEM IMPROVEMENTS

Hana, Island of Maui, Hawaii


Submitted by
Department of Water Supply
County of Maui
Wailuku, Maui, Hawaii

Prepared by
Sam O. Hirota, Inc.
345 Queen Street, Suite 500
Honolulu, Hawaii 96813

COUNTY OF MAUI
DEPARTMENT OF WATER SUPPLY

ENVIRONMENTAL IMPACT STATEMENT
FOR THE
WAILUA-HANA WATER SYSTEM IMPROVEMENTS
HANA, MAUI, HAWAII

PROPOSING AGENCY AND OFFICIAL CONTACT



Mr. William S. Haines, Director
Department of Water Supply
County of Maui
P.O. Box 1109
Wailuku, Maui, Hawaii 96793

PREPARED BY
Sam O. Hirota, Inc.
345 Queen Street, Suite 500
Honolulu, Hawaii 96813

JUNE 1984

TABLE OF CONTENTS

Section	Page
I. SUMMARY	1
II. PROJECT DESCRIPTION	6
A. Statement of Objectives	6
B. The Affected Area	7
C. The Existing Wailua-Hana Water System	9
D. Contaminants and Contaminant Levels	16
E. Description of the Recommended Action	17
F. Alternative Actions Considered	18
G. Use of Public Funds or Lands	24
H. Phasing/Timing for the Proposed Action	29
III. DESCRIPTION OF THE ENVIRONMENTAL SETTING	30
IV. THE RELATIONSHIP OF THE PROPOSED ACTION TO LAND USE PLANS, POLICIES, AND CONTROLS FOR THE AFFECTED AREA	31
V. THE PROBABLE IMPACTS OF THE PROPOSED ACTION ON THE ENVIRONMENT	32
A. Introduction	32
B. Identification of Alternative Actions and Sites	32
C. Alternative Sites/Actions Considered	32
VI. ANY PROBABLE ADVERSE ENVIRONMENTAL EFFECTS WHICH CANNOT BE AVOIDED	53
VII. ALTERNATIVES TO THE PROPOSED ACTION	54
VIII. THE RELATIONSHIP BETWEEN LOCAL SHORT-TERM USES OF ENVIRONMENT AND THE MAINTENANCE AND ENHANCEMENT OF LONG-TERM PRODUCTIVITY	55
IX. MITIGATION MEASURES PROPOSED TO MINIMIZE ADVERSE IMPACTS	56
X. ANY IRREVERSIBLE AND IRRETRIEVABLE COMMITMENTS OF RESOURCES THAT WOULD BE INVOLVED IN THE PROPOSED ACTIONS	57
XI. AN INDICATION OF WHAT OTHER INTERESTS AND CONSIDERATIONS OF GOVERNMENTAL POLICIES ARE THOUGHT TO OFFSET THE ADVERSE ENVIRONMENTAL EFFECTS OF THE PROPOSED ACTION	58

	Page
XII. ORGANIZATIONS AND PERSONS CONSULTED DURING THE EIS CONSULTATION PERIOD	60
XIII. REPRODUCTION OF COMMENTS AND RESPONSES MADE DURING THE CONSULTATION PROCESS	63
XIV. SUMMARY OF UNRESOLVED ISSUES	79
XV. LIST OF NECESSARY APPROVALS	80
XVI. DRAFT EIS COMMENTS	84

APPENDICES

Appendix		Page
A	HANA WATER SYSTEM IMPROVEMENTS POPULATION PROJECTION/WATER DEMAND	A-1
B	WATER QUALITY DATA SUMMARY	B-1
C	COMMENTS AND RESPONSES TO DRAFT EIS	C-1

LIST OF FIGURES

Figure		Page
1	Location Map, Island of Maui	8
2	State Land Use Designations Hana, Maui, Hawaii	10
3	Special Land Use Designations	11
4	Hana System Watershed	13
5	Estimated Average Flow in Wailua Stream at Hana System Intake, 1000 Feet	14
6	Alternative Sites	25
7	Alternative Sites, Wailua-Hana Water System Improvements	33

LIST OF TABLES

Table		Page
1	Wailua Water System Present Worth Cost Summary	26
2	Present Worth Cost Summary Hana Water System	27
3	Combined Wailua-Hana Water System Present Worth Cost Summary	28
4	Avifauna Identified in the Hana Area	40
5	Government Laws and Regulations Affecting The Proposed Action	59
6	Hana Water System Improvements-Organizations and Persons Consulted During the EIS Consultation Period	61
7	Reproduction of Comments and Response Made During The Consultation Process	64
8	Permit and Approval Requirements for Hana Water Systems Improvements	81

I. SUMMARY

AGENCY ACTION

Department of Water Supply, County of Maui

PROJECT OBJECTIVE

The project objective is to treat the existing surface water sources or to find new sources for the Wailua-Hana Water System in order to comply with the State and Federal drinking water quality standards. Surface water from Wailua Stream must be treated to reduce turbidity, iron content, odor, color, and corrosivity if it is to be used as a source for the Hana Water System. The Wakiu wells have problems with corrosivity, and chloride levels.

PROPOSED ACTION

The engineering study recommends that the County of Maui drill a groundwater well near the 20,000-gallon storage tank at Hamoa, construct a slow sand filter at the Wailua Stream and provide a new interconnecting pipeline between Hamoa and Hana Town. This site/alternative was selected because:

1. it would provide the community with a reliable water source and better quality of water;
2. the studies indicated that there would be high probability of locating an additional groundwater source;
3. the annualized present worth costs were nearly the least expensive amongst all the alternatives. Less expensive alternatives did not provide operational

flexibilities and were not as reliable.

THE AFFECTED ENVIRONMENT

Hana is located along the slopes of Haleakala on the eastern end of the island of Maui. The topography of the area is gently sloping, except for gulches and valleys. The area was created by lava flows; the soil is highly permeable, absorbing a significant amount of the area's average 180 inches of annual rainfall. Groundwater occurs as perched bodies in the higher elevations and as basal water near the shore.

Land in the area is primarily designated Agricultural (A) by the State. The State also designates the Hana Town area Urban (U). County zoning includes residential in the Hana Town, Hamoa, Puuiki, Muolea, and Koali areas. The steeper lands, the forest reserves, river valley, and shoreline are in open space and designated Conservation (C) by the State Land Use Commission.

Hana is an agricultural community wherein cattle ranching and diversified crops are the principal economic activities. There is a hotel and restaurant which caters primarily to out of state visitors. The residential homes and ranch houses are low-rise, single-family structures on large lots or farms. Hana is a relatively isolated area which is accessible through a narrow, winding road; it is a 3-hour

drive from Kahului, the principal city on the island. The area served by the Wailua-Hana Water System has an estimated population of 1,443. It is estimated that by the year 2000, the population will be 2,176.

The present maximum daily demand for potable water is estimated to be 213,500 gallons; by the year 2000, the maximum daily demand will be 309,000 gallons. The estimated average daily consumption per capita is about 108 gallons.

THE EXISTING WATER SYSTEM

The Wailua-Hana Water Distribution System extends from a water source on the Wailua Stream in the Koali District south to Hana Town, to the Wakiu wells, and north to Hana Airport.

Wailua Stream is the main source of water for the system, and water from the wells at Wakiu is used to supplement the water supply to Hana Town. Department of Water Supply personnel estimate that 60 percent of the water for the Hana system is supplied by Wailua intake and 40 percent from Wakiu Well B. Water from the Wailua intake is distributed by gravity flow through a 4-inch pipeline to Hana Town. The distribution system in Hana is made up of 3/4-inch to 4-inch diameter lines with a 12-inch supply line from the Wakiu wells.

Flow in the Wailua Stream is erratic, and projections indicate that the Wailua intake will not likely be able to provide a consistent source of water to the Hana system to meet the future (year 2000) demands.

Seven storage tanks serve the Hana system; one serves Hana Town, while the five, smaller storage tanks are scattered throughout the system, and a large 500,000-gallon concrete storage tank is located near the Wakiu wells. Hana Ranch owns and operates a private water system which serves a portion of the area between Kawaipapa Gulch and the Hana Hongwanji Church. The Hana Ranch system has four 50,000-gallon redwood tanks located about a quarter mile inland of the Hana Post Office.

PROBABLE ENVIRONMENTAL IMPACTS OF THE PROPOSED ACTION

The total amount of land that will be affected will be less than two acres. The agricultural nature of the surrounding area and the lack of nearby homes will result in minimal construction and site clearing impacts on the human environment. Access to the site is available. Once completed, the wells, pumps, reservoirs, and chlorination system will be sheltered. The small size of the land affected, use, and common flora and fauna make impact on these aspects negligible. The impact of having additional water available to the community is not felt to be a primary catalyst for urban growth. It is felt that Hana will remain

a small, rural community because of the rural nature of the area, the land use and zoning restrictions, and the distance from major employment areas.

ALTERNATIVE ACTIONS/SITES

Twelve alternative actions were considered. The installation of a package water treatment plant (PWTP) or a slow sand filter (SSF) system to treat the existing surface water were evaluated in the engineering report. The drilling of wells at Hamoa to provide a new, more reliable source of better quality groundwater and the construction of the interconnection pipeline were selected as the most efficient solution for water system improvements.

II. PROJECT DESCRIPTION

A. Statement of Objectives

The objective of the proposed action is to upgrade the quality of the Wailua-Hana Drinking Water System. It has been found that the water does not comply in certain quality criteria with some of the State and Federal Drinking Water Regulations.

The principal contaminant found in water from Wailua Stream (one or the two principal sources of the water system) is turbidity. The average turbidity of the water is 3.8 Nephelometric Turbidity Units (NTU), whereas the allowable maximum contaminant level (MCL) is 1 NTU. Samples also indicate that the level of certain other quality criteria covered by the National Interim Primary Drinking Water Regulations (NIPDWR) are less than the specified MCL, except for corrosivity. Water from the Wailua Stream was found to meet the standards for aesthetic elements covered by the National Secondary Drinking Water Regulations (NSDWR), with the exception of odor, iron, and color. Surface water from Wailua Stream must be treated to reduce the primary contaminants if it is to be used as a domestic source for the Hana Water System.

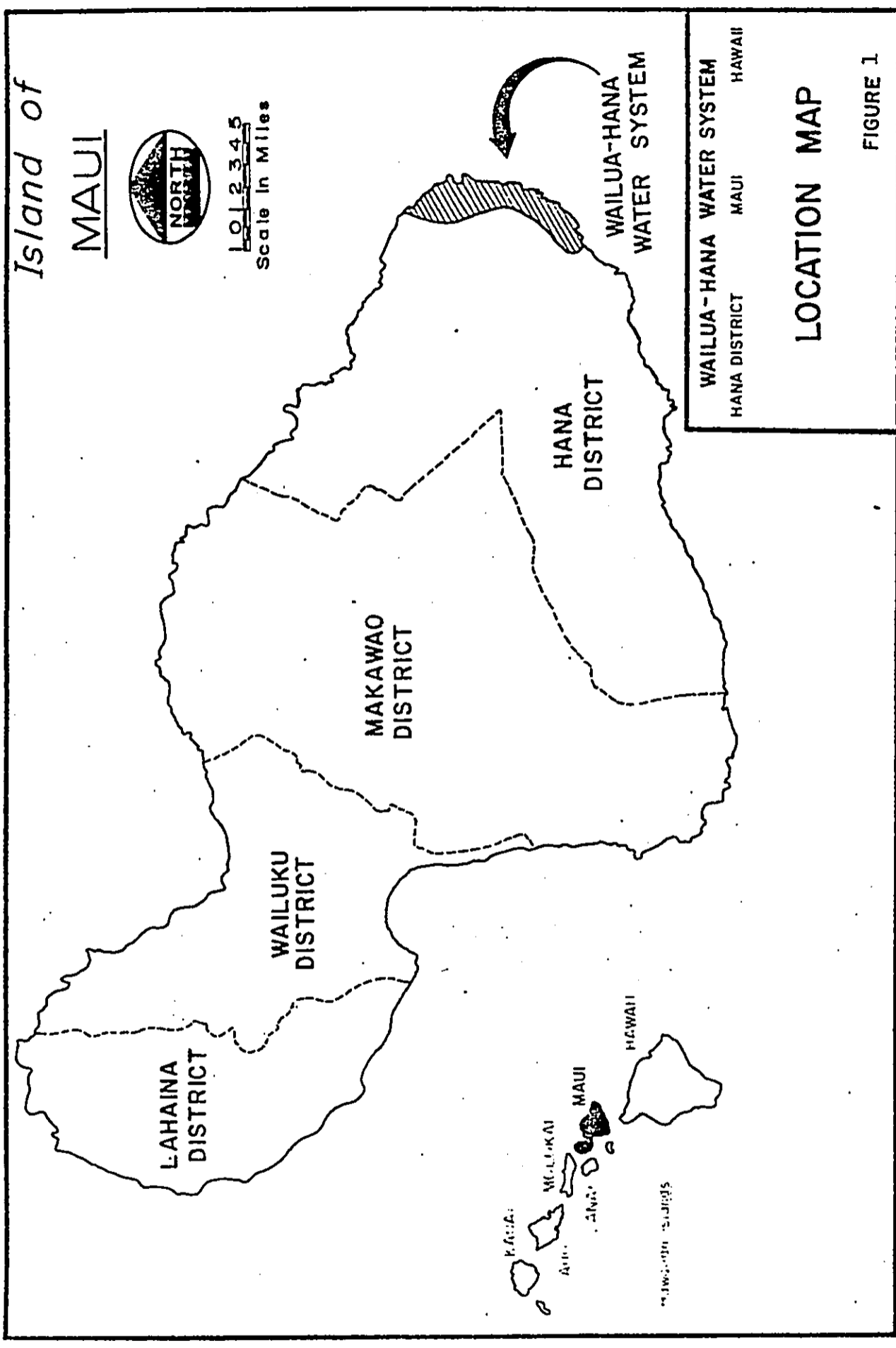
The Wakiu wells have exceeded the primary maximum contaminant levels for microbial populations, sodium and corrosivity. Secondary contaminants that exceeded maximum levels are chloride, and total dissolved solids. With the exception of corrosivity and microbial populations treatment processes per se are not believed to be required to reduce the contaminant levels at the wells. Revised management procedures for the sources, such as reduced pumping rates, may reduce these contaminants to acceptable levels.

Subsection D of this Section and Appendix B contain additional details and data on water sample testing.

B. The Affected Area

The Wailua-Hana Water System is located along the slopes of Haleakala on the eastern shore of Maui. (See Figure 1). The topography of the area is gently sloping, except for gulches and valleys. The land was formed from lava flow and consists chiefly of olivine and picritic basalt, basaltic andesite, and andesite. The soil is highly permeable, absorbing a significant amount of the average 180 inches of rainfall per year. Groundwater occurs as perched bodies in the higher altitudes and as basal water near the shore.

Large areas too wet for cultivation or at elevations too high for development make up much of the area. The lower slopes are used mainly for cattle grazing. Land in the area



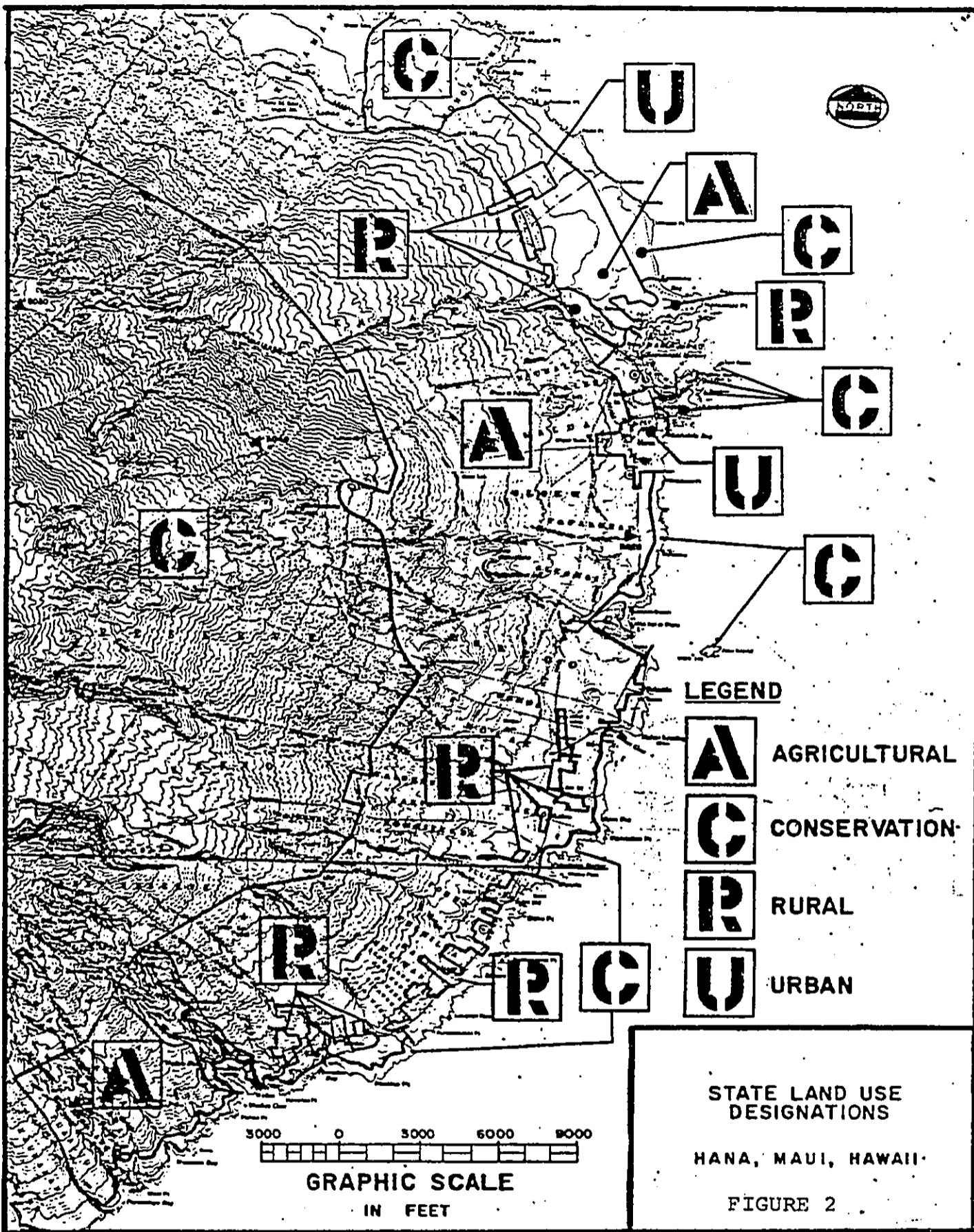
is primarily zoned for Agricultural (A) use by the State. Some areas along the shoreline in Hana Town and in the Hamoa, Puuiki, Muolea, and Koali Districts are zoned for Residential (R) use, while land in Hana Town is zoned for Urban (U) use (See Figure 2). The area served by the Wailua-Hana Water System has an estimated population of 1,443.

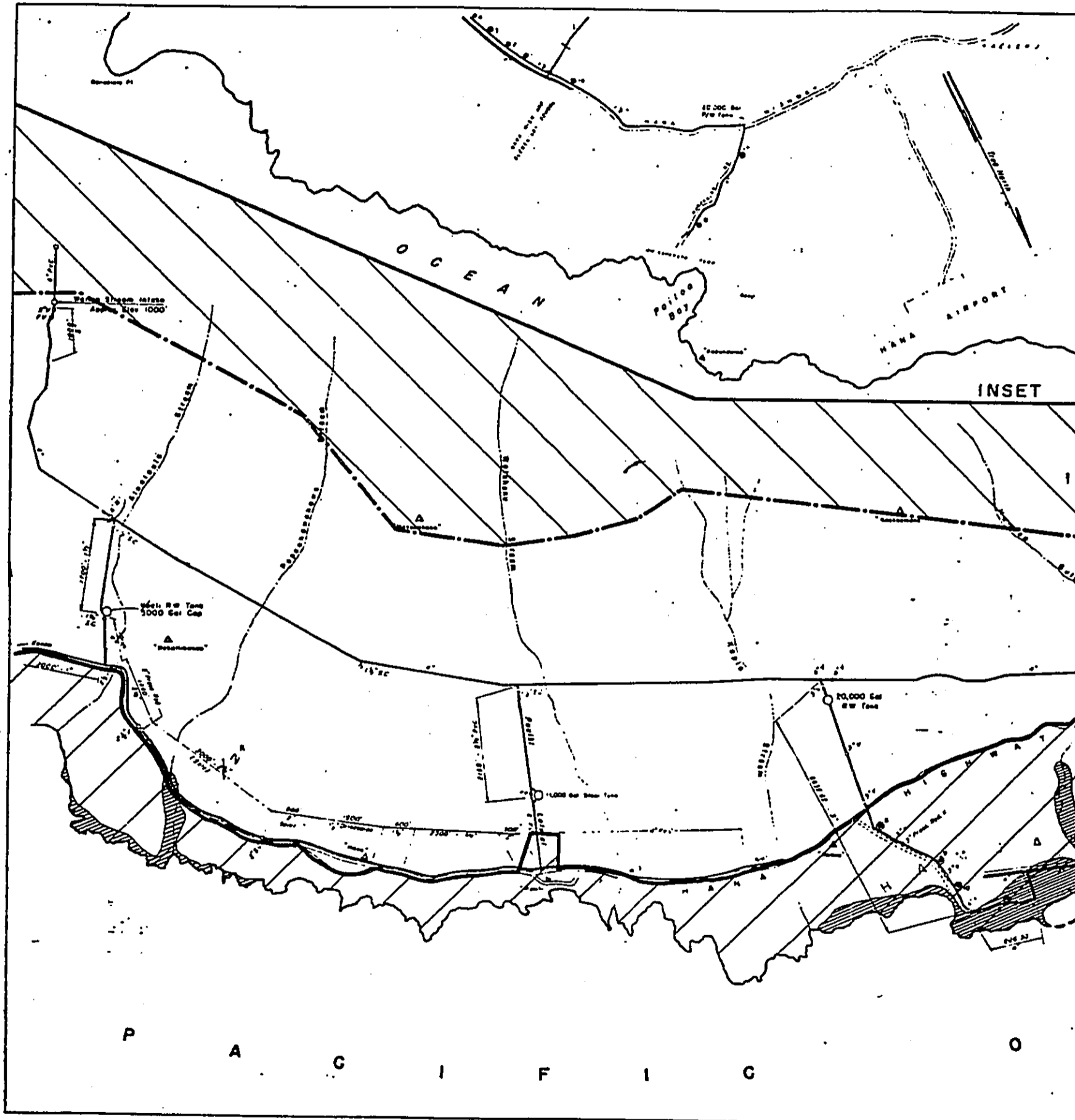
Lands zoned as Conservation (C) areas are located along the shoreline, at high elevations in mountain forest reserves, and in river valleys. Some areas along the shoreline have been designated as Special Management Areas (SMA) and as flood (tsunami) zones (See Figure 3).

C. The Existing Wailua-Hana Water System

The Wailua-Hana Water Distribution System extend from a water source on the Wailua Stream in the Koali District, to Hana Town, to the Wakiu wells, and north to Hana Airport. The service area includes the communities of Koali, Muolea, Puuiki, Hamoa and Hana Town.

Water from the Wailua intake moves by gravity flow through a 4-inch transmission pipeline to the Town of Hana. The distribution system in Hana is made up of 3/4-inch to 4-inch diameter lines with a 12-inch supply line from the Wakiu wells.





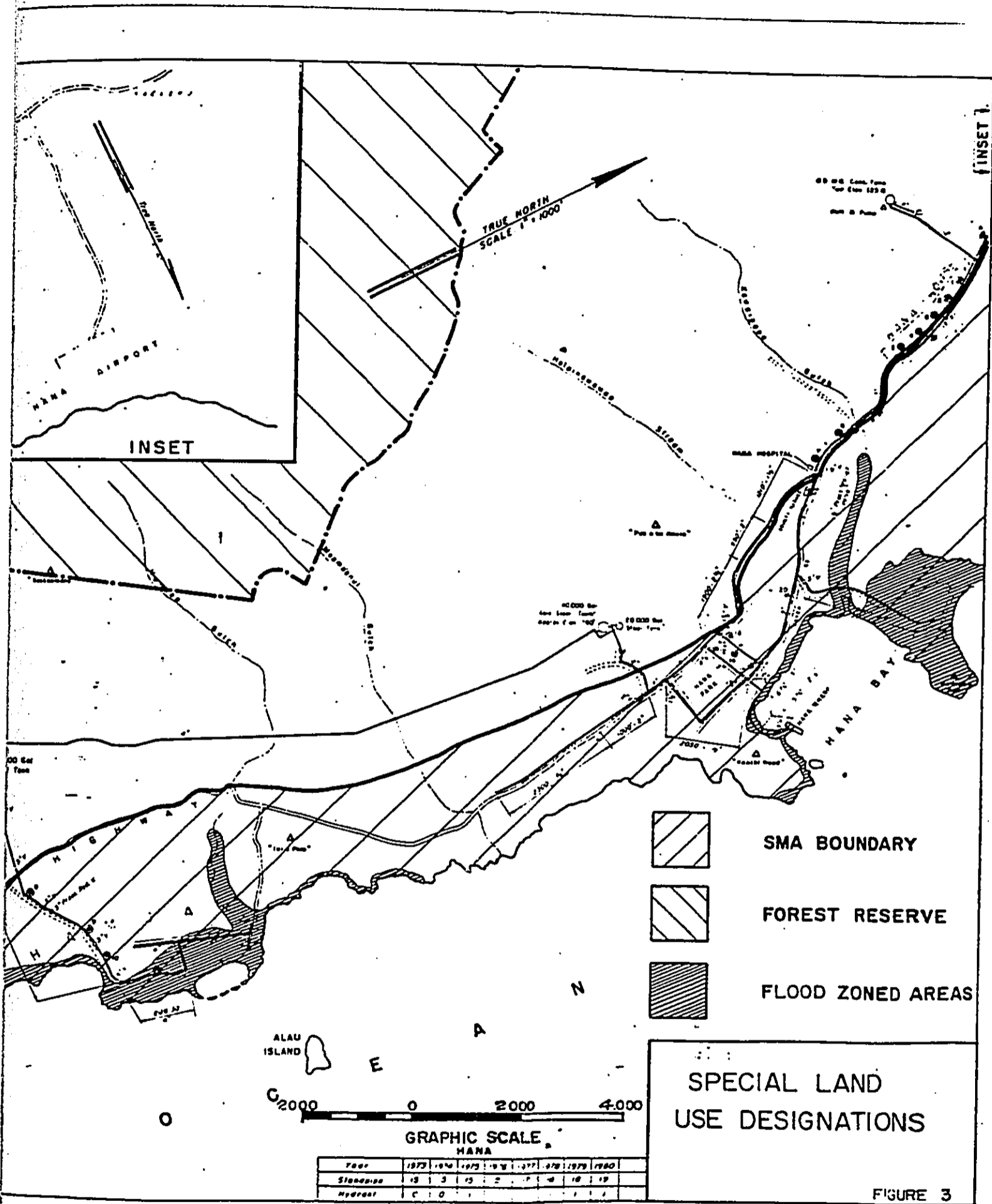


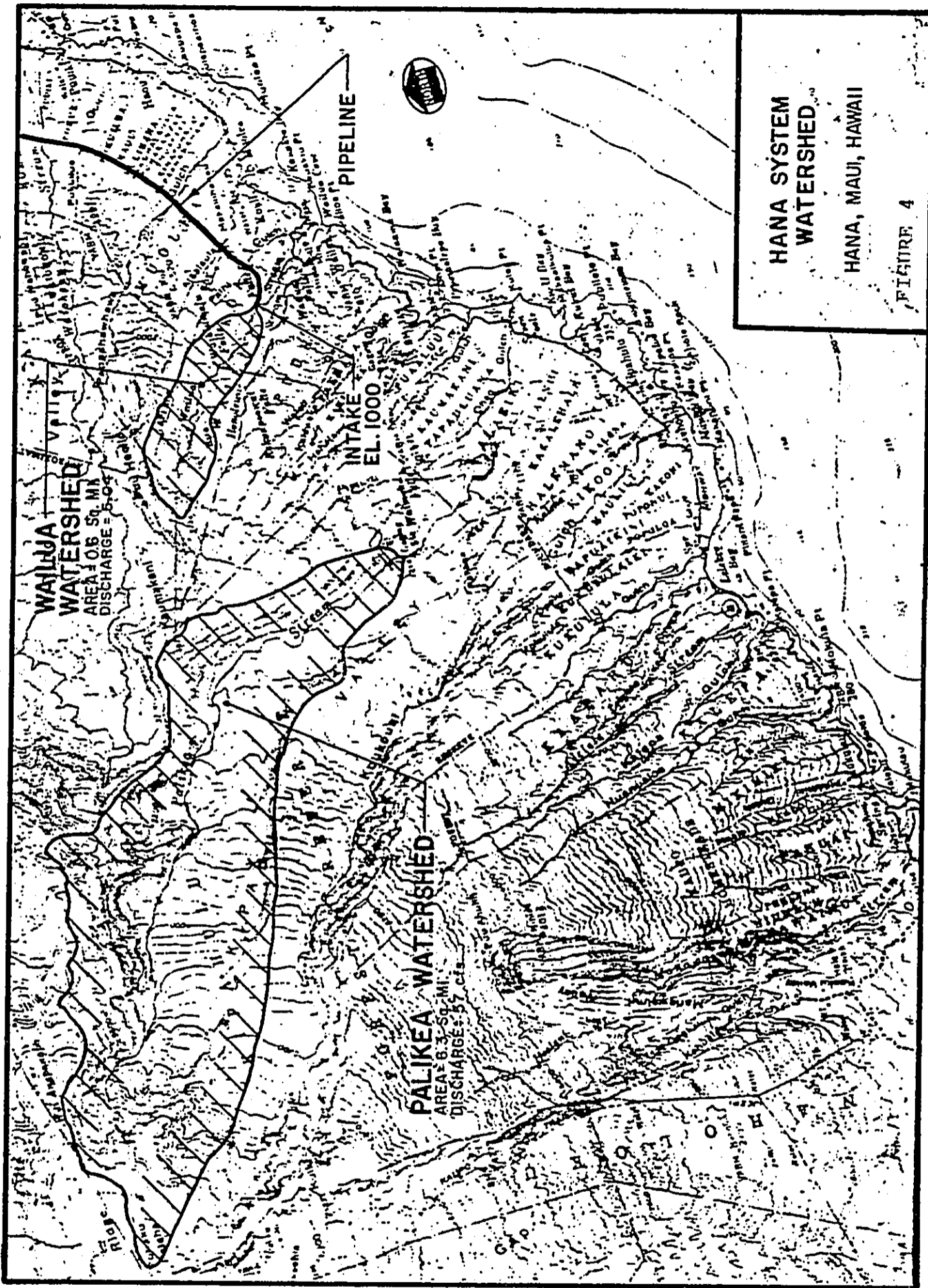
FIGURE 3

County Department of Water Supply personnel estimate that 60 percent of the water for the Wailua-Hana System is supplied by Wailua intake and 40 percent from Wakiu well.

Based on the County Department of Water Supply records, the average daily demand for the year 2000 is estimated to be 205,800 gallons per day (GPD).

Flow in the Wailua Stream is erratic, but the stream seldom runs nearly dry at the water system intake. Since there is no gauge in Wailua Stream to measure the total flow in Wailua Stream, an estimate was made by comparing the watershed areas. For this purpose, average monthly flows in Paliikea Stream for the past five years and the area of the watershed for this stream was compared to the area of the Wailua watershed above the intake. The location of these watersheds is shown on Figure 4 and the estimated average flow of Wailua Stream is shown in Figure 5.

A well (Well A) at Wakiu was drilled in 1972 to supplement the water supply from the Wailua intake. A second well (Well B) was drilled in 1976 when high salinity was first discovered in the water from Well A. Subsequent improvements have partially resolved this salinity problem in Well A.



14 13 12 11 10 9 8 7 6 5 4 3 2 1 0

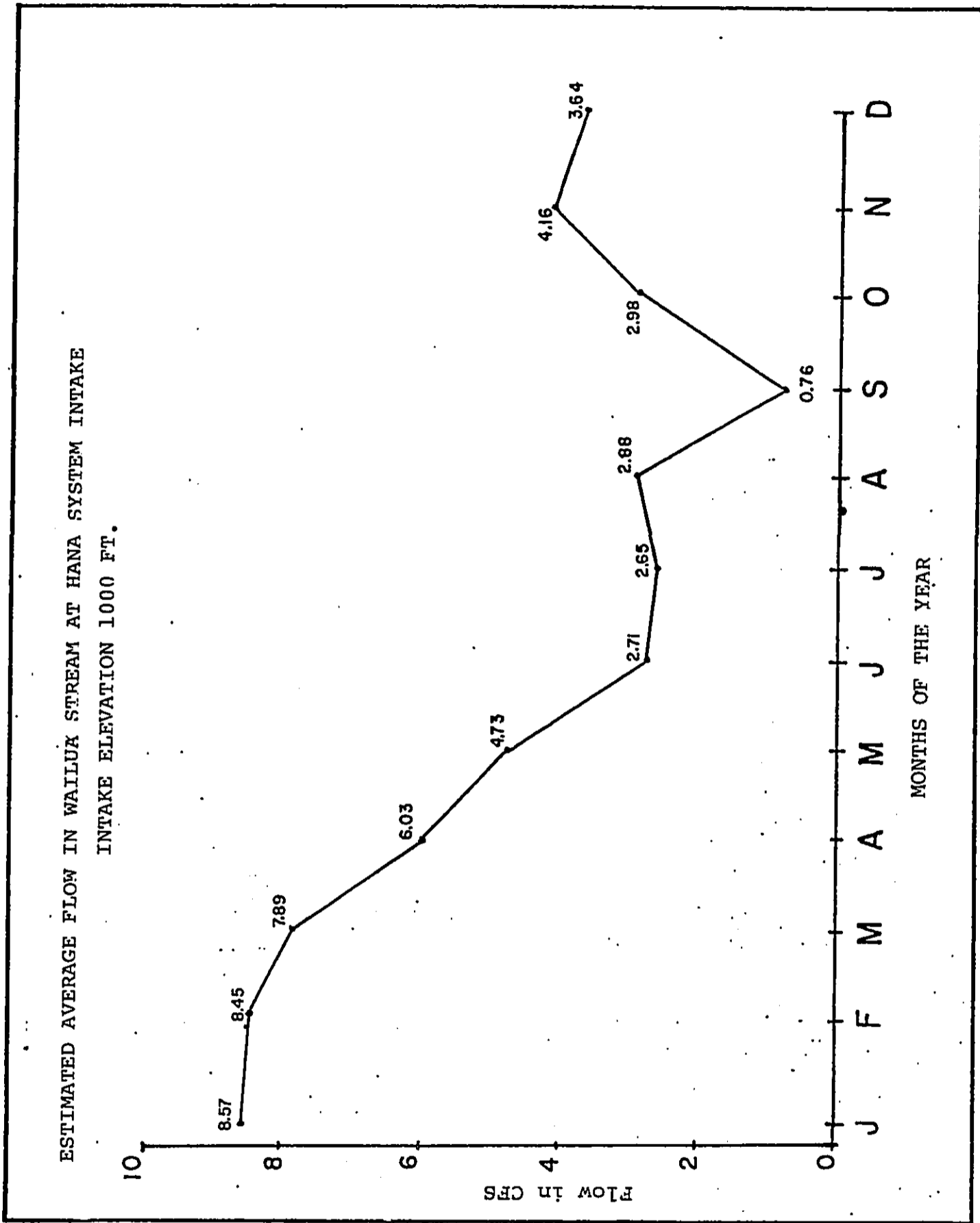


FIGURE 5

There are six (6) steel or redwood storage tanks and one (1) concrete storage tank in service in the Wailua-Hana Water Distribution System. One 30,000-gallon and one 20,000-gallon redwood tank serves Hana Town, while four redwood storage and steel storage tanks, ranging in size from 5,000 to 25,000 gallons, are scattered throughout the system. The 500,000-gallon concrete storage tank is located near the Wakiu wells. Disinfection is provided at the 40,000-gallon tank and at the 500,000-gallon concrete storage tank by gas chlorinators whereas manual chlorination is used to disinfect water at the Koali, Puuiki, and Hamoa tanks.

Hana Ranch owns and operates a private water system which serves a portion of the area between Kawaipapa Gulch and the Hana Hongwanji Church which includes Hana Houselots No. 2, Hotel Hana-Maui, Hana Ranch Shopping Center and the Old Camp area. The source of water for this system is a well at Kawaipapa. Storage facilities in the Hana Ranch System consist of four (4), 50,000-gallon redwood tanks which are located about a quarter mile inland of the Hana Post Office. Water is pumped from the well to the storage tanks through 6-inch transmission lines. The Hotel Hana-Maui and the Hana Ranch Houselots No. 2 are supplied by 4-inch and 6-inch transmission lines, respectively, that tap into the main 6-inch transmission line. The Hana Ranch Shopping Center, Old Camp, and Manager's area receive water from the storage

tanks by gravity flow.

No construction work will be done on Wailua Stream, except for repairs on Wailua Stream intake. Any additional water requirements will be provided by the new source of water which will be for the new well at Hamoa. Therefore, no additional effects on the fauna and flora of Wailua Stream is anticipated.

D. Contaminants and Contaminant Levels

The preliminary identification of contaminants and contaminant levels for Wailua-Hana Water System was made from existing and recent water quality test records. Some of these tests were done by the State Department of Health's Laboratory, and the others were performed by Maui County's Department of Water Supply.

Water from the Wailua Stream intake was also sampled in February, and May of 1981 to verify prior test data and to obtain data not found in the available records. Tests were also made on samples taken from Wakiu Well B to check with data from the preliminary well tests conducted in 1977.

Test on the water samples indicates that water from the Wailua Stream has exceeded the primary contaminant levels for microbial populations, turbidity and corrosivity. Water from Wakiu Well B has exceeded the maximum contaminant levels for sodium and corrosivity.

Secondary contaminant levels that are exceeded at the Wailua Stream are odor, iron and color. At the Wakiu wells, chloride and total dissolved solids are the secondary contaminants that exceed recommended levels.

The water from the Wailua Stream can be treated to meet the regulatory standards for microbiology, turbidity, odor, iron and color through filtration and disinfection. The Wakiu wells can meet standards for sodium, chloride and total dissolved solids through improved disinfection and reduced pumping rates.

Sampling results are presented in Appendix B.

E. Description of the Recommended Action

The engineering study recommends that the County of Maui provide the community of Hana with reliable and better quality water sources. It recommends treatment of the Wailua Stream waters, revised operating procedures at the Wakiu wells and new groundwater wells be drilled near the 20,000-gallon storage tank at Hamoa. This site was selected because hydrogeological studies indicated that there would be high probability of groundwater occurrence at this location, and because wells at this site can be economically joined with the existing water system and serve most of the water service area.

F. Alternative Actions Considered

As the hyphenated name suggests, the Wailua-Hana Water System is essentially two separate areas of water demand -- Hana Town north to Wainapapa and Hamoa south to Koali. These areas were joined together in the past by their common source of supply, the Wailua Stream. The development of new sources in the system suggested that the Wailua-Hana Water System be evaluated as two separate water systems.

Sources of water that were considered available to treatment and/or development for the water system were: (1) a new groundwater source above Hana, (2) the existing Wailua Stream, (3) the existing Wakiu well field and (4) other additional sources for Hana Town including well sites above Hana Town and at Kawaipapa Gulch and a pipeline to bring water from a Hamoa well.

No additional surface water streams were identified as suitable for development.

The new proposed groundwater source above Hamoa will be exploratory in nature, but the prospects for well(s) in the 100 gallon per minute capacity range required are considered good.

The existing Wailua Stream source was determined to be treatable by slow sand filtration or a package water treatment plant. The estimated low flow of 50 gallons per minute is insufficient to meet the total demands of the water system, and the Wailua Stream source requires supplementary supplies from a well at Hamoa.

The existing Wakiu wells have exceeded the maximum contaminant levels for corrosivity, microbial populations, sodium, chloride and total dissolved solids. Treatment for corrosivity is not recommended at this time. Treatment for microbial levels can be accomplished with the efficient use of the existing gas chlorination disinfection system. Reduction of sodium, chloride and total dissolved solids levels can be accomplished with a revised groundwater management program. The first step in the management program is an ongoing well testing and monitoring program that will give information on the yield capabilities of each of the wells under changing seasonal, tidal and rainfall recharge conditions and at reduced pumping rates. The testing program is estimated to take two to three years and can be accomplished with the existing well pumps. The monitoring program is to be ongoing for as long as groundwater is used as a source.

With reduced pumping rates, the existing Wakiu wells are estimated to have sufficient capacity to serve the Hana Water System until approximately the year 1990. At that time an additional source will have to be developed to provide a system backup supply.

Wailua Water System

Seven water system improvement alternatives were evaluated for the Wailua Water System. Each of the alternatives considered had the primary goal of providing water to the system consumers at a quality that meets all standards while utilizing the existing distribution system to as great an extent as possible and providing service pressures equal to or better than existing.

The first alternative was for groundwater as the only source and abandonment of the Wailua Stream source. This alternative required that the distribution system between Hamoa and Koali be completely rebuilt to service Koali from the proposed wells.

Alternative Two and Two-A considered treating the Wailua Stream water with a package water treatment plant or slow sand filter at a low level site above Koali and new wells at Hamoa for supplemental and back up supplies.

This low level site has the advantage of reduced capital costs to develop the treatment plant because it is closer to the highway. Disadvantages include a loss of flexibility in system operation. The existing four-inch transmission pipeline is not useable at this low level site, and it requires that the portion of distribution pipeline between Hamoa and Puuiki be built at the same time as the treatment facilities to provide service to Puuiki. These alternatives do not allow the low dissolved solids in water from Wailua Stream to be mixed with the groundwater sources which may be high in dissolved solids and reduce the concentrations in dissolved solids. In these alternatives, power costs will be higher as both the Hamoa well and the Wailua Stream source must be operated simultaneously to provide water throughout the distribution system.

Alternative Three and Three-A considered treating the Wailua Stream water with a package water plant or a slow sand filter at a high level site above Koali and developing new wells at Hamoa. The high level site was selected to utilize the existing four-inch transmission pipeline and costs were included to repair this pipeline.

The primary advantage of this high level site is that it can use the existing pipeline. The use of the existing pipeline allows phased improvement of the distribution system and many operational flexibilities that will improve system

reliability.

Alternative Four and Four-A considered the same two treatment alternatives at a site above Hamoa.

The primary advantage of this site is that it centralizes the system components and allows for mixing of water supplies. The disadvantages include the need to build a complete distribution system to service Koali.

The recommended alternative for the Wailua System is Three-A. (Koali high level slow sand filter and Hamoa wells). This alternative has a slightly higher annualized present worth cost (10 percent), but the advantages of operational flexibility, system reliability and ability to phase other system improvements are believed to outweigh the cost difference.

Hana Water System

Five alternative improvement programs were evaluated for the Hana Water System.

The first alternative is for drilling of a third well at the existing Wakiu well field.

The primary advantage of this site is that the waterlines, power, access road and storage tank are existing at this site. The disadvantages at this site are that the distribution system must be completed through Hana Town if

the system is to be served entirely from Wakiu. Water quality from the existing Wakiu wells has been a problem in the past, but an extensive monitoring program at the existing wells may give a good indication of the performance of a third well.

Alternative Two is for a well in Kawaiapapa Gulch. The existing Hana Ranch well gives some preliminary indication that this may be a better drilling site than Wakiu. The disadvantages include the need for the distribution pipeline through Hana, possible problems with right-of-way, and the need to extend access roads, pipelines and power to the site.

Alternative Three is for a drilled well at the Hana Tanks above Hana Town. The advantages of this site is the availability of existing storage tanks, access and pipelines and the placement of the source at the opposite end of the Hana System will reduce the immediate need for the distribution system construction through Hana Town.

The primary disadvantage is that a well at this site will be exploratory in nature as there are no existing wells nearby.

Alternative Four was for the replacement of the existing four-inch transmission pipeline between Hamoa and Hana and the utilization of the Hamoa well as the new source for Hana Town. The primary advantage of this alternative is the low

cost. The use of this alternative is dependent upon the Hamoa well(s) being successfully completed.

Alternative Five is also for a pipeline connecting the two systems but this connection was evaluated using an eight-inch pipeline along the Hana Highway. The advantages of this alternative is that the line could be used for distribution and flow is possible in both directions giving operational flexibilities. The disadvantage is the high cost.

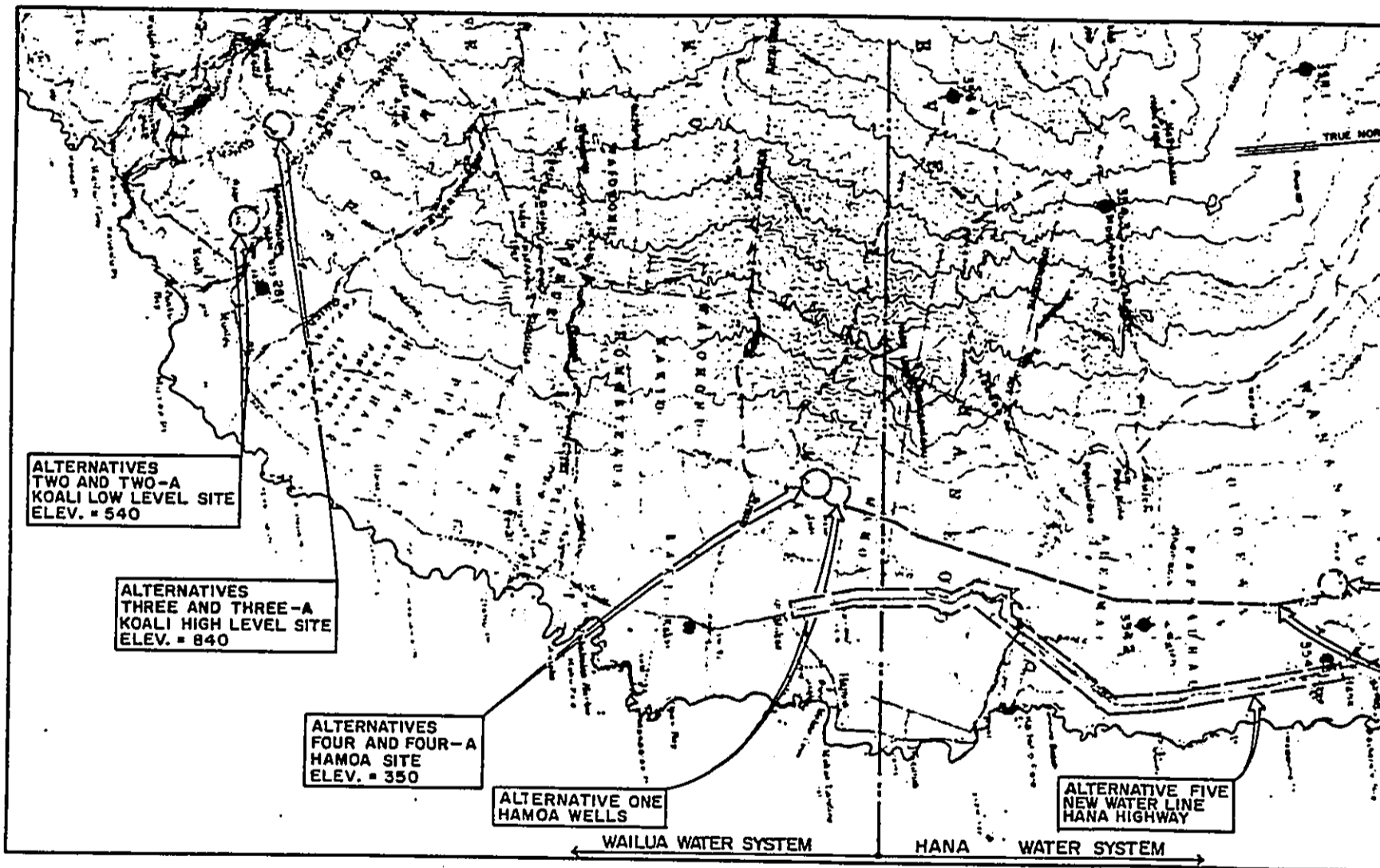
Figure 6 shows the alternative sites of the Wailua and Hana Water Systems.

The recommended action for the Hana Water System is Alternative Four. (The replacement of the existing four-inch transmission pipeline between Hamoa and Hana).

See Tables 1, 2 and 3 for the Economic Comparison Summary.

G. Use of Public Funds or Lands

The recommended alternative, to drill wells at Hamoa and improve the treatment of Wailua Stream waters will cost an estimated \$3,605,000, and the total annual cost for the operation and maintenance of the facility is estimated at \$60,050.



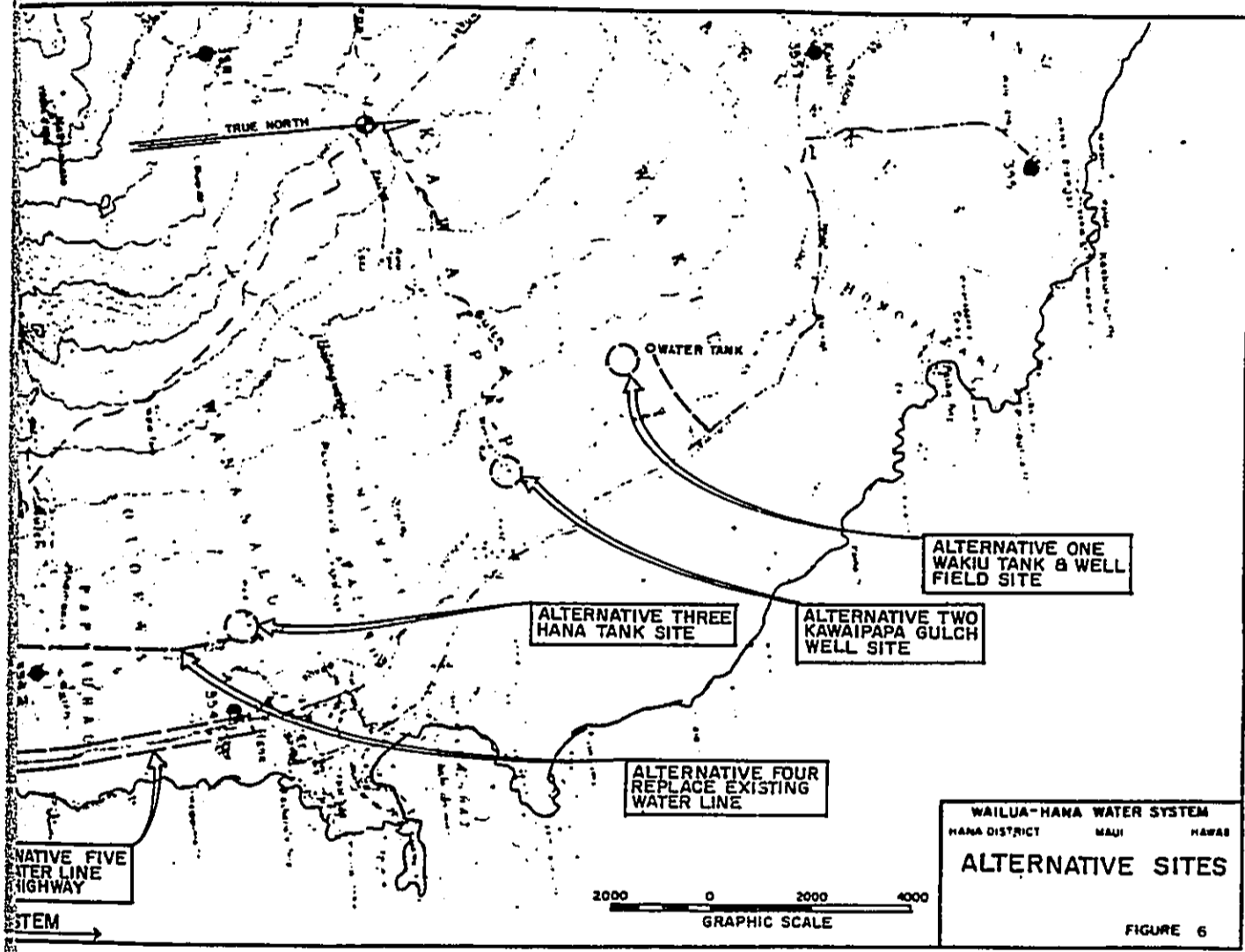


TABLE 1
WAILUA WATER SYSTEM
PRESENT WORTH COST SUMMARY

Alternative	Capital Cost	Present Worth of Salvage Value	Present Worth of Replacement Cost	Annual O&M Cost	Present Worth of O&M Cost	Present Worth of Total Cost	Annualized Present Worth Cost
One Hamoa Wells	\$2,858	\$210	\$ 9	\$53.9	\$529.2	\$1,186.2	\$324
Two Koali Low Level Package Water Plant	\$2,730	\$233	\$29	\$63.0	\$618.5	\$3,144.5	\$320
Two-A Koali Low Level Slow Sand Filter	\$2,712	\$244	\$ 9	\$52.3	\$542.3	\$3,010.3	\$306
Three Koali High Level Package Water Plant	\$3,026	\$237	\$29	\$66.0	\$648.0	\$3,466.0	\$353
Three-A Koali High Level Slow Sand Filter	\$3,005	\$262	\$ 9	\$55.2	\$542.0	\$3,294.0	\$335
Four Hamoa Package Water Plant	\$3,945	\$327	\$29	\$75.2	\$738.3	\$4,185.3	\$426
Four-A Hamoa Slow Sand Filter	\$3,920	\$352	\$ 9	\$64.4	\$632.3	\$4,209.3	\$429

Notes: (a) Discount rate of 8 percent used
(b) Straight line depreciation assumed

TABLE 2
PRESENT WORTH COST SUMMARY HANA WATER SYSTEM

Alternative	Capital Cost	Salvage Value	Present Worth Salvage	Capital Cost Less Salvage Value (a)	P.W. Replacement Cost (b)	Annual O&M Cost	P.W. Annual O&M Cost (c)	P.W. of Total Cost	Annualized P.W. Cost (d)
Alternative One Wakiu Well "C"	\$1,790,000	\$557,000	\$120,000	\$1,671,000	\$7,000	\$28,900	\$284,000	\$1,962,000	\$200,000
Alternative Two Kawalpapa Well	\$1,964,000	\$658,000	\$141,000	\$1,823,000	\$7,000	\$32,100	\$315,000	\$2,145,000	\$219,000
Alternative Three Hana Tanks Well	\$ 580,000	\$184,000	\$ 40,000	\$ 540,000	\$7,000	\$19,250	\$179,000	\$ 726,000	\$ 74,000
Alternative Four Upper Route for Hamao to Hana Pipeline	\$ 600,000	\$360,000	\$ 77,000	\$ 523,000	-	\$ 4,850	\$ 48,000	\$ 571,000	\$ 58,200
Alternative Five Highway Route for Hamao to Hana Pipeline	\$1,300,000	\$780,000	\$167,000	\$1,133,000	-	\$ 4,850	\$ 48,000	\$1,181,000	\$120,000

(a) 8 percent, 20 year present worth factor single item = 0.2145
(b) 8 percent, 10 year present worth factor single item = 0.4362
(c) 8 percent, 20 year present worth factor series of items = 9.8182
(d) 8 percent, 20 year capital recovery factor = 0.10185

TABLE 3

COMBINED WAILUA-HANA WATER SYSTEM

PRESENT WORTH COST SUMMARY

<u>Capital Cost</u>	<u>Annual Operation and Maintenance Cost</u>	<u>Annualized Present Worth of Total Costs</u>	<u>Cost Per 1000 Gallons</u>
Wailua System (Alternative Three-A)			
\$3,005,000	\$55,000	\$335,000	
Hana System (Alternative Four)			
\$ 600,000	\$ 4,850	\$ 58,200	
Combined System			
\$3,605,000	\$60,050	\$393,200	\$5.16

The costs of the other alternative action/sites are shown on Table 1. Although the annual cost for the recommended alternative is 10 percent higher than the cost of some other alternatives, the difference in annualized present worth cost \$29,000 should be outweighed by considerations of reliability and flexibility. The money to fund the project will come from the State and County. The Maui County Water System's users will pay for a portion of the proposed action in the form of water service and consumption water charges.

H. Phasing/Timing for the Proposed Action

The proposed actions have been planned for phased construction over a period of approximately three years and will be part of a continuing program to improve the entire water distribution system. In 1984, an exploratory well will be scheduled to be drilled in Hamoa by the Department of Land and Natural Resources.

III. DESCRIPTION OF THE ENVIRONMENTAL SETTING

The service area of the Wailua-Hana Water System is located on the eastern end of the island of Maui. (See Figure 1, Location Map, Island of Maui). The area is an agricultural community; cattle ranching and diversified crops are the principal activities. There is a hotel and restaurant which caters primarily to out of state visitors. The homes are low-rise, single-family structures and ranch houses. The area is a relatively isolated area which is accessible through a narrow, winding road; it is a three (3) hour drive from Kahului, the principal city on the island of Maui. The service area has an estimated population of about 1,443. It is estimated that by the year 2000, the population will be 2,176.

The present maximum daily demand for potable water is estimated to be 210,000 gallons; by the year 2000, the maximum daily demand will be 309,000 gallons. The estimated average daily consumption per capita is currently about 108 gallons. By the year 2000 it is expected to be approximately 130 gallons per capita per day.

Further discussions on the service area are found in Section II, subsection B, and Section V.

IV. THE RELATIONSHIP OF THE PROPOSED ACTION TO LAND USE
PLANS, POLICIES, AND CONTROLS FOR THE AFFECTED AREA

The County's General Plan for the Hana District shows that the existing uses are likely to continue. That is, Hana District will remain primarily a rural agricultural community with Hana Town being the most populated area in the District.

The proposed water improvement project will:

1. improve the quality of the potable water;
2. increase the amount of potable water and the reliability of the water service which will be available to the Hana community.

Because of the isolated location and inconvenient access, and the State and County land use designation and zoning, it is not anticipated that these proposed benefits will act as a significant catalyst for urban development and/or population growth in Hana District. The population projection calls for a maximum of 2,176 in the year 2000; should the population increase significantly beyond that figure, the water usage may be significantly increased. Therefore, any new developments (that stimulate the population growth) must be responsible for providing their own water to accommodate their respective projects.

V. THE PROBABLE IMPACTS OF THE PROPOSED ACTION ON
THE ENVIRONMENT

A. Introduction

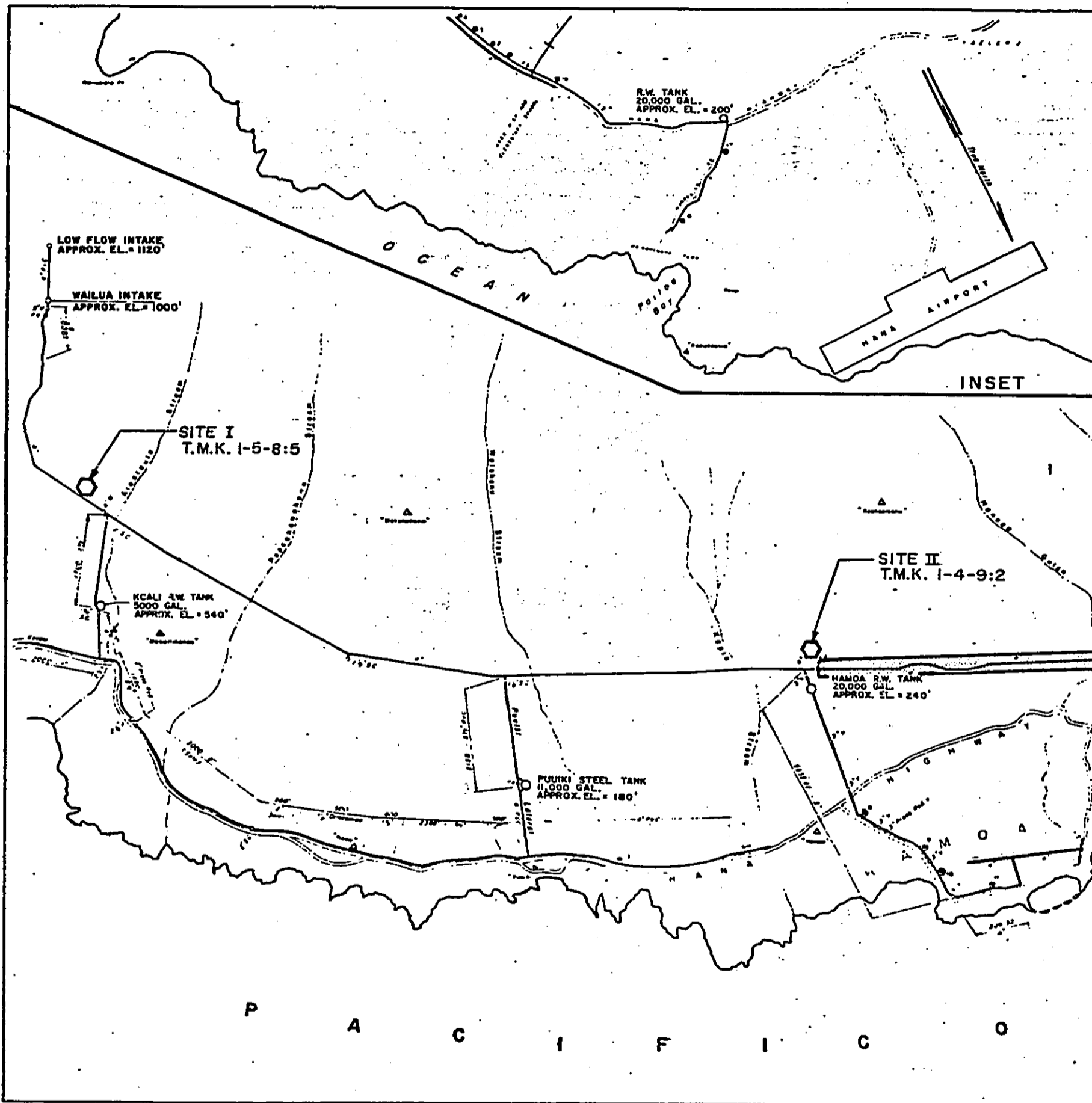
This section considers the environmental impacts of the recommended proposed action. The proposed action will involve three main features at three separate sites. This report will investigate and report on each of the sites individually.

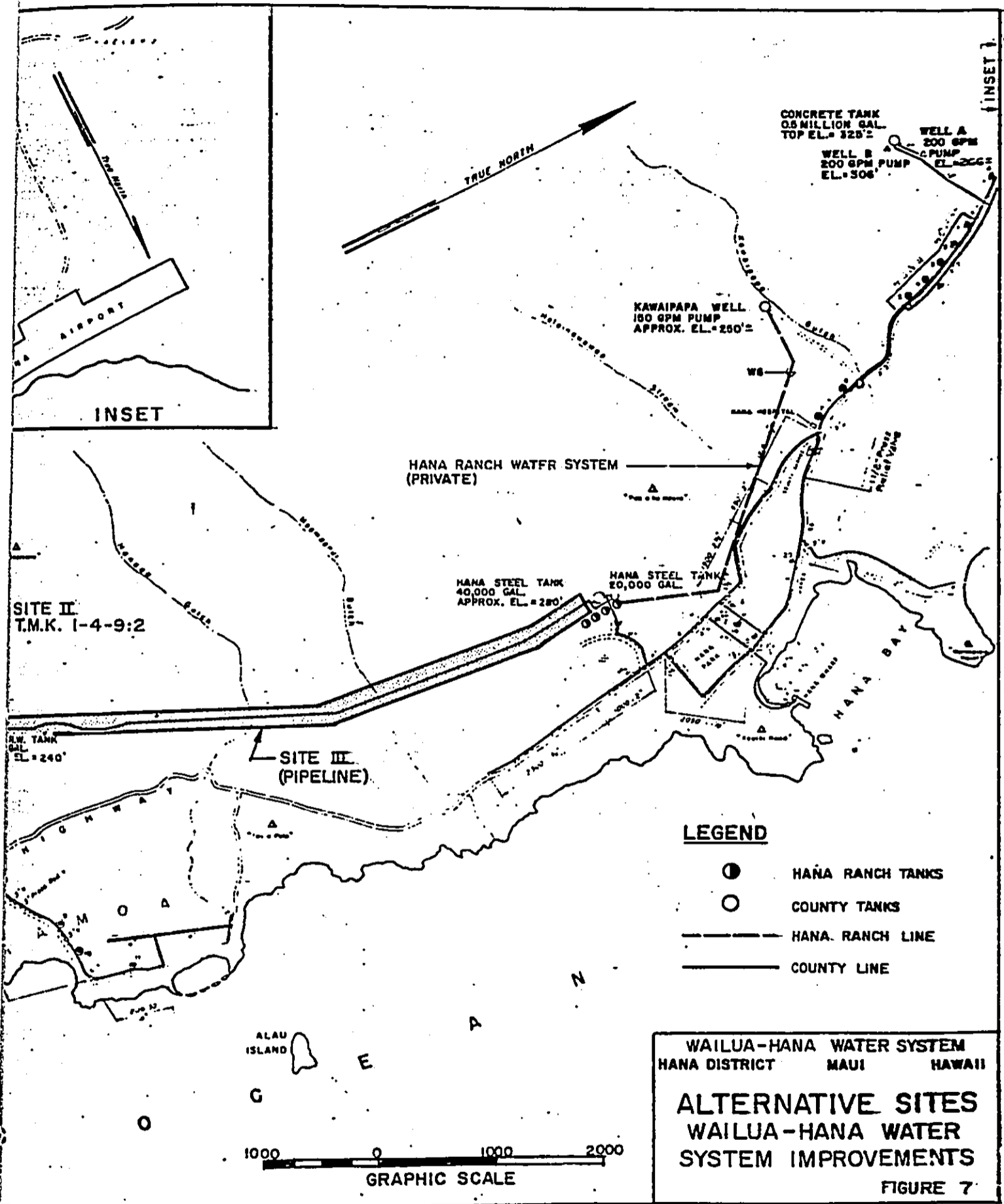
B. Identification of Alternative Actions and Sites

A total of three (3) sites were reviewed. Site I, located above Koali, was investigated as a site of a slow sand filter. Site II at Hamoa was investigated as a site for a groundwater well and new storage tank. Site III is the interconnecting pipeline alignment from the wells at Hamoa to the existing storage tanks above Hana Town, and improvement of the distribution system to provide the total potable water needed for the existing and projected year 2000 population.

C. Alternative Sites/Actions Considered

It should be noted that the sites indicated on Figure 7 show the approximate location only. The exact location will fall within the approximate area identified by the outline rectangular block next to the site. Below, general





information on each site is provided along with discussion of their impacts should the action be taken at the site.

SITE I

Location: Above 5,000-gallon redwood storage tank at Koali.

Tax Map Key: 1-5-8: 5 (Portion of)

Owner: Hanahuli Assn., Ltd. and Others

General Description:

- (1) Site I is located about 2,500 feet from Hana Highway. Access to the site is through pasture lands.
- (2) The terrain is densely vegetated with bushes and tall grass.
- (3) The slope of the land is 40 degrees. The estimated elevation is 900 feet.
- (4) There is no available power or telephone lines within 1,000 feet of the site.
- (5) The site is isolated and located far from any homes.

Proposed Action: Use of the site for slow sand filter system (SSF).

Site development would include the construction of an access road, clearing and grading. Powerlines or a generator would have to be installed. In addition to the installation of the SSF, a 50,000-gallon storage tank would have to be constructed in the Koali area to provide storage capacity for future peak hour use and for the future maximum daily demand.

A slow sand filter is typically a concrete basin, about 9 feet deep, containing a layer of sand about 2.5 to 4 feet thick overlying a layer of gravel two feet thick with pipe underdrains. The filtration rate for slow sand filters range from 0.05 to 0.1 gallons per minute per square foot of surface area. Consequently, a relatively large area is required for treating a significant water flow. Periodically, the residues which build-up on top of the sand in a SSF system must be removed, along with about an inch of sand. This sand can be washed for reuse or disposed of with the residues. The time between successive cleanings depends on the quality of the incoming water.

Three sand filter beds would be provided; two would be in use and the other would serve as a back-up unit.

A slow sand filter treatment facility would require approximately 25,000 square feet of land.

Potential Impacts:

Impact on the Physical Geography. Overall impact of the slow sand filter will be minimal. The land form will be modified due to clearing and grading needed to level the surface. There are no unique geological features on the site. The soil on the site is identified as Hana-Makaalae-Kailua association. This soil is described by the Soil Conservation Service, U.S. Department of

Agriculture as:

"Moderately deep and deep, gentle sloping to steep, well-drained soils that have a moderately fine textured or fine textured subsoil or underlying material; on intermediate uplands."

During construction, some impacts relating to land clearing will occur. The hauling of construction materials, vehicular travel to and from the site on paved and unpaved roads will create dust. Land clearing (of vegetation), grading, et cetera, will create dust and will make the affected area more susceptible to soil erosion (especially during heavy rainfall). Even after the land is cleared, the disturbed portions of the site will likely be more susceptible to erosion until vegetation grows back.

No impact on the microclimate and geology is expected because of the small size of the site.

Impact on Water. The proposed use of the site will be to provide treatment of surface water which is already being withdrawn from an existing source. Although the Wailua Stream seldom runs dry, it is not a stable source of water. Because demands for water will increase due to the population increase, additional water will be provided by a well in the Hamoa area.

Therefore, the downstream biota and other terrestrial flora and fauna dependent on Wailua Stream flow will not be further affected. Below the intake, there are no water users.

No impact on other surface (i.e. streams) waters or ocean water is foreseen.

No impact on recharging of groundwater is anticipated. The proposed site will be relatively small and should not create a significant impact on groundwater recharging. (Reference: "Groundwater Development Prospects for Domestic Sources Along South Hana (Wailua System), Maui," Stephen Bowles).

Drinking water quality will increase due to the implementation of the slow sand filter treatment.

Impact on Air Quality. During construction dust will be created. Because the site is isolated and surrounded by agricultural and open space, no homes will be affected by the dust. After the site is in use, some dust can be expected from the use of the access to the site by maintenance personnel. The water treatment facilities will require one man to operate the facility, periodic inspection, etc. Because of this, there will be vehicles going to and from the site. Each time a vehicle goes to and

from the site, dust and carbon monoxide will be emitted. However, considering its isolated location, the dust will settle in the immediate area and the carbon monoxide will be dispersed in an agricultural environment that is well within the State's air quality standards.

Impact on Ambient Noise Levels. Noise in this type of agricultural area is normally below 45 dB (decibels), compared to a normal suburban residential area range of 53 to 57 dB, and an urban residential area range of 58 to 62 dB.

The construction of the SSF will create higher noise levels (construction equipment) such as tractors, backhoes, graders create noise levels of between 72 to 95 dB at 50 feet). However, because of the site's location, no residential areas will be affected. This also holds true for the vehicular noise which will occur as cars go to and from the SSF. Noise will be negligible.

Impact on Flood Hazards. The site is not in an area of flood hazard.

Impact on Flora. The area in which this site is located is identified as a closed guava forest with shrubs. The common vegetation includes guava (Psidium guajava L.) Hilo grass (Paspalum conjugatum), basket grass (Oplismenus hirtellus), kukui (Aleurites moluccana), Boston fern (genus

Nephrolepis), hala (Pandanus odoratissimus), and false staghorn fern (Dicranopteris linearis). Most of these are introduced species and are commonly found throughout the area. There are no known plants which are rare to endangered on the project site or in the vicinity. The clearing of the vegetation for the slow sand filter will not significantly or adversely impact the flora.

Impact on Fauna. Fauna in the area is likely to include mice, rats, mongoose and a variety of birds (see Table 4). These are commonly found in the area and their displacement or possible destruction will not significantly affect the environment. There are no known endangered species of fauna in the site or surrounding areas. It is anticipated that once the treatment facilities are completed and the surrounding vegetation grows back around the facility, the fauna will return to these areas.

TABLE 4

Avifauna Identified in the Hana Area

Common Name	Scientific Name
Cardinal	<u>Cardinalis cardinalis</u>
Barred Dove	<u>Geopelia striata</u>
Elepaio	<u>Chasiempis sandwichensis</u>
I'iwi	<u>Vestiaria coccinea</u>
Mockingbird	<u>Mimus polyglottos</u>
Mynah	<u>Acridotheres tristis tristis</u>
Pueo	<u>Asio flammeus sandwichensis</u>
Ricebird	<u>Lochura punctulata</u>
House Sparrow	<u>Passer domesticus</u>
White Eye	<u>Zosterops j. japonicus</u>
Spotted Dove	<u>Streptopelia chinensis</u>

Sources: Atlas of Hawaii, University of Hawaii at Manoa, Department of Geography, 1973.

Hawaiian Birdlife, Andrew J. Berger, 1972.

Literature Review and Synthesis of Information on Pacific Island Ecosystems, U.S. Department of the Interior, Fish and Wildlife Service, 1979.

Impact on Land Use. The land is designated Agricultural. The use of this small area for water treatment facilities is considered a public facility and is not anticipated to create a catalyst for population growth or expansion in the surrounding area or community. The development of a water treatment facility is intended to serve the existing and planned projected population.

Impact on Recreation. Presently, there is no recreational use on the site. No future recreational uses are foreseen or planned. Subsequently, the site's development will not affect any recreational uses or resources.

Impact on Views and Aesthetics. The impact on scenic views and aesthetics is expected to be minimal. The site is surrounded by vegetation and is not located within an area which has panoramic or scenic views. The use of the site for the water treatment facilities which are low structures, will not noticeably affect the appearance of the site or the surrounding area.

Impact on Utilities. Power will be provided for the operation of the package water treatment facilities. Electrical power will be provided by extending the powerline to service the site. An alternative is to provide the facility with its own power generators. The initial cost of installing the powerlines is higher than installing a power generator, but the annual cost of power is lower using the

powerlines than the power generator. The slow sand filter will require little electrical power.

Impact on Other Socioeconomic Aspects. Due to the nature of this project, other socioeconomic aspects were not reviewed because they are not relevant. These aspects include: accessibility to commercial areas and medical facilities, transportation networks, cultural patterns, and fire services. The County of Maui Police Department has stated that the proposed water improvements (all alternatives and sites) will not affect their facilities or personnel.

Cost to the Maui County Water Users. The action investigated will result in an expenditure of funds for the improvements. The County must pay for a portion of these improvements; to recover this cost, the County may charge the users of the total County Water System. The need for improving water quality is mandated; thus, any increased water charge is unavoidable. However, the cost of the alternative was a factor in selecting the recommended alternative.

SITE II

Location: In the vicinity of the 20,000 gallon storage tank at Hamoa.

Tax Map Key: 1-4-9: 2 (Portion of)

Owner: Hana Ranch, Inc.

General Description: (1) Site II is located about 2,500 feet from Hana Highway.

Access to the site is through pasture lands.

- (2) The terrain is open with tall grass and some shrubs.
- (3) The slope of the land is about 15 degrees. The estimated elevation is 300 feet above mean sea level.
- (4) Power and telephone lines are within 1,500 feet from the site.
- (5) The site location is isolated but new developments are being considered in the area; a private well has been drilled in the area.

Proposed Action:

Use of the site for groundwater wells, a 150,000 gallon storage reservoir, pumps and piping. The area required is less than 1.00 acre.

A private development is planned in the area and a well has already been drilled to test the water supply. The results of the pumping test are shown in the engineering report. Studies indicate that groundwater obtained from a well at this site should be good quality and ample quantity to supply the water requirements. No adverse effects from the withdrawal of water from the aquifer are anticipated. However, the groundwater potential in the area can only be established by a program of exploratory well drilling.

Should these wells be successfully developed, the use of surface water from Wailua Stream would be supplemented. Water from wells at Hamoa could supply, by gravity, the area

Access to the site is through pasture lands.

- (2) The terrain is open with tall grass and some shrubs.
- (3) The slope of the land is about 15 degrees. The estimated elevation is 300 feet above mean sea level.
- (4) Power and telephone lines are within 1,500 feet from the site.
- (5) The site location is isolated but new developments are being considered in the area; a private well has been drilled in the area.

Proposed Action:

Use of the site for groundwater wells, a 150,000 gallon storage reservoir, pumps and piping. The area required is less than 1.00 acre.

A private development is planned in the area and a well has already been drilled to test the water supply. The results of the pumping test are shown in the engineering report. Studies indicate that groundwater obtained from a well at this site should be good quality and ample quantity to supply the water requirements. No adverse effects from the withdrawal of water from the aquifer are anticipated. However, the groundwater potential in the area can only be established by a program of exploratory well drilling.

Should these wells be successfully developed, the use of surface water from Wailua Stream would be supplemented. Water from wells at Hamoa could supply, by gravity, the area

from Hana Town to Haou.

Improvement to the distribution system would also be required for efficient distribution.

Potential Impacts:

Impact on the Physical Geography. The drilling and operation of wells on Site II, will require less than 5,000 square feet. The storage reservoir would require less than one acre. Site clearing and grading will be required. The land form will be modified due to site clearing and grading. There are no unique geological features on the site. The soil on the site is identified as Hana-Makaalae-Kailua association. The soil is described by the Soil Conservation Service, U.S. Department of Agricultural as:

"Moderately deep and deep, gently sloping to steep, well-drained soils that have a moderately fine textured or fine textured subsoil or underlying material; on intermediate uplands."

During construction, impacts relating to land clearing will, for a temporary period (less than one month), occur. The hauling of drilling equipment, pumps, and other construction material over trails to the project site will create dust and make the affected area more susceptible to soil erosion (especially during heavy rainfall). Even after the project is complete, the disturbed portions of the site and the

access road will be more susceptible to erosion until vegetation is reestablished.

No impact on the microclimatic and geologic conditions is expected because of the small size of the site.

Impact on Water. The wells will supplement the present Wailua Surface Water Source. The demand on each well is dependent on the constraints of the existing distribution system and the water available in the Wailua Stream. If this action is implemented the following impacts on water resources will likely occur:

1. The demand for water from surface water source will be reduced. The amount of water flowing downstream from the present intake on Wailua will increase. This may result in higher quantities of water which, in turn, may increase stream biota.
2. The groundwater well source is believed to have sufficient water to meet the present and future potable water demands.
3. Little impact on the aquifer is anticipated. Preliminary study by a hydrogeologist indicates that the well will not adversely affect the aquifer. (Reference: "Groundwater Development Prospects for Domestic Sources Along South Hana (Wailua System), Maui," Stephen Bowles.)

Impact on Air Quality. During site clearing and grading, dust will be created. In the long-term use of the site periodic maintenance/inspections by personnel from the Department of Water Supply will be required. These periodic visits to the site will also cause dust from vehicles traveling to the site. However, because the site is

surrounded by agricultural uses and open space, the dust caused by site clearing and vehicles would be considered minimal. Also, the carbon monoxide from vehicles will be negligible and will, along with the dust, be dispersed in this agricultural environment.

Impact on Ambient Noise Levels. Typical noise levels in this type of agricultural environment are normally below 45 dB. This in in comparison to the dB range of a normal suburban residential area and an urban residential area, 53 to 57 dB, and 58 to 62 dB, respectively.

The drilling of the well and its operation are relatively quiet activities. Also, there are no sensitive receptors (i.e. people) who will be disturbed by any construction, drilling, or pumping sounds. Thus, the impact on noise is expected to be minimal.

Impact on Flood Hazards. The site is not in an area of flood hazard.

Impact on Flora. Base on field observation, the area in which this site is located is a pasture area with tall grasses and some shrubs.

The vegetation consists of introduced species commonly found in the region. There are no known plants which are rare or endangered on the project site or in the vicinity. The clearing of the vegetation for the well will not

significantly or adversely impact the present flora on the site.

Impact on Fauna. Fauna in the area is likely to include mice, rats, mongoose and a variety of birds (see Table 4). These are commonly found in the area and their displacement or possible destruction will not significantly affected the environment. There are no known endangered species of fauna in the site or surrounding area.

Impact on Land Use. The land is designated Agricultural. The well and reservoir are considered public facilities and are not anticipated to create a catalyst for population growth or expansion in the surrounding area or community. The development and storage of the water is for the existing and projected population. Some development may occur in the vicinity of this site in the near future. However, the immediate area of the site will remain in agricultural and open space use. It is anticipated the present and future uses around the site will be compatible with the proposed well and storage reservoir.

Impact on Recreation. Presently, no recreational uses take place on the site. No future recreational uses are foreseen or planned. Subsequently, the site's development will not impact any recreational uses or resources.

Impact on View and Aesthetics. The impact on scenic views and aesthetics is expected to be minimal. The site is surrounded by vegetation and is located in a low-lying area. A well will be slightly noticeable from higher vantage points, but should not adversely impact the view of the total area.

Impact on County Expenditures. The cost of this well and storage reservoir is shown on Table 1.

Impact on Utilities. Power will be needed for the operation of well pumps. Presently, electrical and telephone lines are located within 1,500 feet from the site.

Impact on Other Socioeconomic Aspects. Due to the nature of this project, other socioeconomic aspects were not reviewed because they are not relevant. These aspects include: accessibility to commercial areas and medical facilities, transportation networks, cultural patterns, and fire services.

Cost to the Maui County Water Users. The construction of these facilities will result in the expenditure of public funds. The County must pay for a portion of these improvements; to recover this cost, the County may charge the users of the total County Water System. The need for improving water quality is mandated; thus, the expenditure is unavoidable. However, the cost of the alternatives was a

factor in the selection of this alternative.

Site III

Location:

A pipeline alignment from the new storage reservoir at Hamoa to the existing storage tanks above Hana Town. The alignment generally follows the elevation contours between 350 and 250 feet.

Tax Map Key:

1-4-02: 4, 7, 8, 10
1-4-03: 9, 5, 6
1-4-07: 3, 4
1-4-09: 2

Owner:

Hana Ranch, Inc.

General Description:

- (1) Site III is a pipeline alignment that generally follows an existing water pipeline through pasture land between the proposed new Hamoa reservoir and the existing water tanks above Hana Town.
- (2) A new pipeline will replace the existing deteriorated pipeline and provide an interconnection between Hamoa and Hana. The new pipeline will allow water from the Wailua Stream and the new Hamoa wells to reach Hana Town. Flow is one way only.

Access for pipeline construction and maintenance will be from both ends. Some clearing and grading will be required for the construction. Because the ground will be disturbed and temporary cleared of vegetation, the erosion hazard will be greater until vegetation is restored.

The soil type is similar to that described for Site I and II.

The microclimate and geology of the site will not be modified. There are no unique geological features on the site.

Impact on Water. This is not a water source. There will be no direct impact on water, except as the improvement to quality and increase in quantity.

Impact on Air Quality. Dust will be created during site clearing and grading. This is temporary and may constitute a nuisance. Homes are not immediately adjacent to the site, it is anticipated that the dust will not be a significant problem.

Impact on Ambient Noise Levels. This impact is similar to that of Site II.

Impact on Flood Hazards. The site is not in an area of flood hazard.

Impact on Flora and Fauna. Impact on flora and fauna will not be significant. The flora and fauna found at the site are common, exotic species which also inhabit surrounding areas.

Impact on Land Use. The land is designated Agricultural. The improvements will not interfere with residential or farming activities. These improvements will benefit the community because good quality potable water will be available. The improvements are not expected to stimulate growth in this area because the water provided will meet the existing and projected demand. The water demand was determined based on the population growth over the past ten years, using the 208 Plan.

Impact on Recreation. The site is not used for recreation. There are no future plans or proposals for the site to be used for recreational activities. There is no public right-of-way or easement through the site.

Impact on Views and Aesthetics. The pipeline will not impact the view of the surrounding area. The site may be seen from lower vantage points along the Hana Highway, however, it is expected that after the vegetation has been reestablished the pipe alignment will be nearly invisible.

Impact on County Expenditures. The cost of this facility is shown as Alternative Four on Table 2.

Impact on Utilities. No power or other utilities are required.

Impact on Other Socioeconomic Aspects. Due to the nature of this project, other socioeconomic aspects were not reviewed because they are not relevant. These aspects include: accessibility to commercial areas and medical facilities, transportation networks, cultural patterns, and fire services.

Archaeological and/or Historical Sites. No sites of archaeological or historical importance are known to exist in the site. Therefore no impact on this area is foreseen.

VI. ANY PROBABLE ADVERSE ENVIRONMENTAL EFFECTS
WHICH CANNOT BE AVOIDED

The recommended alternatives to drill groundwater wells at Hamoa, to construct a slow sand filter at Koali and to construct the pipeline to Hana Town, will not have significant long-term environmental impacts. Some temporary impacts such as fugitive dust, potential soil erosion, and noise will occur during the construction period. After construction no further adverse impacts are anticipated. Agricultural land (pasture) will be affected; however, the total amount of land affected will be small and its withdrawal from agricultural use will have a negligible impact.

VII. ALTERNATIVES TO THE PROPOSED ACTION

Alternative treatments for surface water, alternative sites and alternative actions for improving the distribution system were investigated and evaluated from an economic standpoint in the engineering report. The twelve alternatives reported herein for the most part utilized the same sites in varying combinations and with different treatment processes. It was determined that additional water source(s) had to be developed and that groundwater was the most viable source available.

A no action alternative cannot be considered because compliance with the drinking water standards is mandatory by State and Federal laws.

Should non-compliance occur, the State and Federal authorities could bring a civil suit against the water supplier to force compliance and impose a fine on the water supplier.

VIII. THE RELATIONSHIP BETWEEN LOCAL SHORT-TERM USES OF
ENVIRONMENT AND THE MAINTENANCE AND
ENHANCEMENT OF LONG-TERM PRODUCTIVITY

The proposed project is believed to be beneficial to the human population in the Hana area. The new groundwater wells and treated water from Wailua Stream will provide good quality potable water and a consistent source of water. Based on the review of the objective of the proposed action the environmental and socioeconomic impacts, it was found that the proposed action should enhance the short- and long-term uses of man's environment with little physical, socioeconomic, and land use impacts.

IX. MITIGATION MEASURES PROPOSED TO MINIMIZE
ADVERSE IMPACTS

For the recommended action, only short-term construction related impacts are anticipated. Subsequently, if construction adheres to the County's grading regulations and good construction practices, no other mitigation measures are required.

X. ANY IRREVERSIBLE AND IRRETRIEVABLE COMMITMENTS
OF RESOURCES THAT WOULD BE INVOLVED
IN THE PROPOSED ACTIONS

The proposed action will result in the commitment of land, groundwater, and labor. The land committed would be less than two acres. The groundwater is felt to be a renewable resource, approximately 100,000 gallons per day would be utilized by the year 2000. Based on the hydrogeologist report, the quality and quantity of groundwater in this area should satisfy the present and future demands for Hana. Finally, labor in form of construction workers and periodic inspection by the County water personnel will occur. Personnel from the Hana Department of Water Supply can be used; labor utilized will be compensated.

These resources will be committed and/or used for the proposed action. This consumption of resources are normal; no other significant or unique impacts are foreseen.

XI. AN INDICATION OF WHAT OTHER INTERESTS AND
CONSIDERATIONS OF GOVERNMENTAL POLICIES ARE THOUGHT
TO OFFSET THE ADVERSE ENVIRONMENTAL EFFECTS OF THE
PROPOSED ACTION

Table 5 on the following page identifies the Governmental laws and regulations which must be complied with prior or during the implementation of the proposed action.

It is felt that should the proposed action take place, the impacts will be minimized by following these laws and/or regulations.

TABLE 5

GOVERNMENT LAWS AND REGULATIONS
AFFECTING THE PROPOSED ACTION

	<u>FEDERAL</u>	<u>STATE</u>	<u>COUNTY</u>
LAWS STATUTES ORDINANCES	PL 95-523: Safe Drinking Water Act	Chapter 340 E: HRS, Safe Drinking Water Act	None
REGULATIONS	The Clean Water Act; The National Interim Primary Drinking Water Regulations (with Amendments)	Chapter 20 Potable Water Systems, Title 11, Administration Rules, Department of Health	Rules and Regulations of the Dept. of Water Supply
STANDARDS	National Secondary Drinking Water Regulations		

XII. ORGANICATIONS AND PERSONS CONSULTED DURING
THE EIS CONSULTATION PERIOD

Table 6 identifies the agencies and individuals receiving a copy of the EIS Preparation Notice. A total of 39 government agencies and community groups were contacted. Additionally, three (3) agencies/individuals requested status as "consulting parties". Fourteen (14) responses were received on the EIS Preparation Notice, of these seven (7) had substantial comments to provide. Those letters (having substantial comments) were responded to, and copies are included in Section XIII.

TABLE 6

WAILUA-HANA WATER SYSTEM IMPROVEMENTS
 ORGANIZATIONS AND PERSONS CONSULTED DURING EIS
 CONSULTATION PERIOD

Agency	Date Notice Mailed	Date of Comment	Date of Response
City and County of Honolulu			
Department of Land Utilization	3/06/81	--	--
State of Hawaii			
Office of Environmental Quality Control, Department of Health	3/06/81	--	--
Department of Agricultural	3/06/81	3/24/81	4/10/81
Department of Accounting and General Services	3/06/81	3/19/81 **	--
Department of Land and Natural Resources	3/06/81	--	--
State Historic Preservation Officer, DLNR	3/06/81	--	--
Department of Health	3/06/81	--	--
Department of Planning and Economic Development	3/06/81	4/02/81 **	--
Department of Transportation	3/06/81	4/02/81	4/10/81
Environmental Center, UH at Manoa	3/06/81	--	--
Water Resources Research Center, UH at Manoa	3/06/81	--	--
Senator Gerald K. Machida	3/06/81	--	--
Senator Mamoru Yamasaki	3/06/81	--	--
State Representative William W. Monahan	3/06/81	--	--
State Representative Anthony T. Takitani	3/06/81	--	--
State Representative Mark J. Andrews	3/06/81	--	--
Federal			
U.S. Environmental Protection Agency	3/06/81	3/17/81	4/10/81
U.S. Army Corps of Engineers, DOA	3/06/81	3/31/81	4/10/81
Geological Survey, Water Resources Division	3/06/81	--	--

U.S. Department of Agriculture, Soil Conservation Service	3/06/81	--	--
Fish and Wildlife Service			
Division of Ecological Services	3/06/81	--	--
County of Maui			
Hana Soil Conservation Service	3/06/81	--	--
U.S. Dept. of Interior, Haleakala National Park	3/06/81	3/17/81	4/10/81
Office of the Mayor	3/06/81	--	--
County Council	3/06/81	3/11/81 **	--
County Clerk	3/06/81	3/20/81 **	--
Department of Parks and Recreation	3/06/81	--	--
Department of Public Works	3/06/81	3/18/81 **	--
Office of Economic Development Agency	3/06/81	3/16/81 **	--
Planning Department	3/06/81	3/12/81 **	--
County Fire Department	3/06/81	--	--
Police Department	3/06/81	3/23/81	4/10/81
Utilities			
Maui Electric Company, Ltd.	3/06/81	--	--
Hawaiian Telephone Company-Maui	3/06/81	--	--
Other Organizations			
Hana Community Association	3/06/81	--	--
The Sierra Club *	3/18/81	--	--
Brock and Associates *	3/24/81	4/01/81	4/10/81
EDAW *	3/30/81	--	--

* Request Consulting Party status.

** No Comment Response

XIII. REPRODUCTION OF COMMENTS AND RESPONSES MADE
DURING THE CONSULTATION PROCESS

The written letters commenting on the EIS Preparation Notice and the written responses provided back to the reviewers (on substantial comments) are included in this section. These copies were reduced to half-size from the actual copies and are provided in chronological order as shown on Table 7.

TABLE 7

REPRODUCTION OF COMMENTS AND RESPONSES MADE DURING THE
CONSULTATION PROCESS

Pages 66 to 78 contain reduced size copies of the comments and responses to the comments during the EIS Consultation Period. Where a substantial comment was received, the written response immediately follows the letter. The comments/reponses are provided in the following order:

<u>Agency/Organization (date of letter)</u>	<u>Copy of Comment/Letter Page No.</u>
<u>Agencies with No Comment/Response:</u>	
County Council, County of Maui (3/11/81)	66
Planning Department, County of Maui (3/12/81)	66
Department of Economic Development, County of Maui (3/16/81)	67
Department of Public Works, County of Maui (3/18/81)	67
Division of Public Works, Department of Accounting and General Services, State (3/19/81)	68
Office of County Clerk, County of Maui (3/20/81)	68
State Department Planning and Economic Development (4/02/81)	69
<u>Agencies Requesting to be Consulting Parties:</u>	
Sierra Club, Maui Group (3/12/81)	70
Brock and Associates (3/16/81)	71
EDAW (3/30/81 - Verbal Request)	

CORRECTION

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

TABLE 7

REPRODUCTION OF COMMENTS AND RESPONSES MADE DURING THE
CONSULTATION PROCESS

Pages 66 to 78 contain reduced size copies of the comments and responses to the comments during the EIS Consultation Period. Where a substantial comment was received, the written response immediately follows the letter. The comments/reponses are provided in the following order:

<u>Agency/Organization (date of letter)</u>	<u>Copy of Comment/Letter Page No.</u>
<u>Agencies with No Comment/Response:</u>	
County Council, County of Maui (3/11/81)	66
Planning Department, County of Maui (3/12/81)	66
Department of Economic Development, County of Maui (3/16/81)	67
Department of Public Works, County of Maui (3/18/81)	67
Division of Public Works, Department of Accounting and General Services, State (3/19/81)	68
Office of County Clerk, County of Maui (3/20/81)	68
State Department Planning and Economic Development (4/02/81)	69
<u>Agencies Requesting to be Consulting Parties:</u>	
Sierra Club, Maui Group (3/12/81)	70
Brock and Associates (3/16/81)	71
EDAW (3/30/81 - Verbal Request)	

TABLE 7 (continued)

	Copy of Comment/Letter <u>Page No.</u>
<u>Agencies Having Comments and Receiving Written Responses:</u>	
U.S Environmental Protection Agency (3/17/81)	73
Police Department, County of Maui (3/23/81)	74
State Department of Agriculture (3/24/81)	75
U.S. Army Engineer District (3/31/81)	76
Brock and Associates (4/01/81)	77
State Department of Transportation (4/02/81)	78

County of Maui
M. Hirota
Vice-Chairman
of Planning
Commission
1981
Hon. A. A. A.
Hon. B. B. B.
Hon. C. C. C.
Hon. D. D. D.
Hon. E. E. E.
Hon. F. F. F.
Hon. G. G. G.
Hon. H. H. H.
Hon. I. I. I.
Hon. J. J. J.
Hon. K. K. K.



COUNTY COUNCIL
COUNTY OF MAUI
WAILUKU, MAUI, HAWAII 96793

Director of County Services

MAUI PLANNING COMMISSION
1981
Hon. A. A. A.
Hon. B. B. B.
Hon. C. C. C.
Hon. D. D. D.
Hon. E. E. E.
Hon. F. F. F.
Hon. G. G. G.
Hon. H. H. H.
Hon. I. I. I.
Hon. J. J. J.
Hon. K. K. K.



COUNTY OF MAUI
PLANNING DEPARTMENT
288 S. HIGH STREET
WAILUKU, MAUI, HAWAII 96793

March 11, 1981

Mr. Dennis I. Hirota, Ph.D., P.E.
Vice President
Sam O. Hirota, Inc.
345 Queen Street - Suite 500
Honolulu, Hawaii 96813

Dear Mr. Hirota:

Your notice regarding Environmental Assessments/EIS Preparation Notice for (1) Hana Water System Improvements; (2) Keanae Water System Improvements; (3) Kaupo Water System Improvements; has been received.

Your notice will be placed on the Council's March 20th Agenda, and referred to the appropriate committee for review and discussion.

Should you have any comments or questions, please let me know.

Yours sincerely,
Bob Kakaone
BOB KAKAONE
COUNCIL CHAIRMAN

BH/1c

MARCELO TAVARES
1981
TOSII ISHIKAWA
Planning Director
CHRISTOPHER L. HART
Deputy Planning Director

RECEIVED
MARCH 11 1981

Sam O. Hirota, Inc./SIL

March 12, 1981

Mr. Dennis I. Hirota, Ph.D., P.E.
Vice President
Sam O. Hirota, Inc.
345 Queen Street, Suite 500
Honolulu, Hawaii 96813

Dear Mr. Hirota:

RE: ENVIRONMENTAL ASSESSMENT/EIS PREPARATION NOTICE FOR
(1) HANA WATER SYSTEM IMPROVEMENTS
(2) KEANAЕ WATER SYSTEM IMPROVEMENTS
(3) KAUPU WATER SYSTEM IMPROVEMENTS

This acknowledges receipt of your communication dated March 6, 1981, with attachments pertaining to the environmental assessment preparation notices for the various proposed projects as referenced.

Please be advised that we will reserve the right to comment on the final Environmental Impact Statement.

Please call my office should you have any questions.

Yours very truly,
Tosii Ishikawa
TOSII ISHIKAWA
Planning Director

APR - 9 1981

MAR 20 1981

BAL TAVARES
Supp



COUNTY OF MAUI

DEPARTMENT OF ECONOMIC DEVELOPMENT
MAILUKE, MAUI, HAWAII 96753
TELEPHONE 244-3710

FRED MATSUMOTO
Coordinator

RECEIVED

MAR 16 1981

Sam O. Hirota, Inc./Tos.
by _____

Mr. Dennis I. Hirota, Ph.D., P.E.
Vice President
Sam O Hirota, Incorporated
145 Queen Street, Suite 500
Honolulu, Hawaii 96813

Dear Mr. Hirota:

67

Subject: Environmental Assessment/EIS
Preparation Notice for the Hana, Keanae,
and Kaupo Water System Improvements.

The Department of Economic Development have reviewed
the subject Environmental Assessment and Impact Statement
and find that, in general it has adequately identified
and assessed the major environmental impacts which can be
anticipated to result from the proposed project.

We have no other comments to offer at this time,
however, we thank you for the opportunity to review the
Environmental Assessment/EIS Preparation Notice.

Sincerely,

Fred Matsumoto
FRED MATSUMOTO
Economic Development
Coordinator

cc: Mr. Bill Raines

APR - 9 1981

MANNIBEL TAVARES
Supp
RALPH HAYASHI
Director of Public Works
SAMUEL MATSUO, Ph.D.
Deputy Director of Public Works



COUNTY OF MAUI Sam O. Hirota, Inc./Tos.
DEPARTMENT OF PUBLIC WORKS

200 South King Street
Wailuku, Maui, Hawaii 96793

March 18, 1981

MM-470

DIVISIONS
Engineering
Highway Construction
and Maintenance
Land Use and
Census Information
Waste Management

RECEIVED

Dr. Dennis I. Hirota
Vice President
Sam O. Hirota, Inc.
145 Queen St., Suite 500
Honolulu, HI 96813

Dear Dr. Hirota:

SUBJECT: ENVIRONMENTAL ASSESSMENT/EIS PREPARATION NOTICE FO
1) Hana Water System Improvements
2) Keanae Water System Improvements
3) Kaupo Water System Improvements

Thank you for the opportunity to comment on the above subject
matter.

We have reviewed your submittal and have no comments to offer.

Very truly yours,

Ralph Hayashi
Ralph Hayashi
Director of Public Works

Bl:ym

MAR 24 1981



STATE OF HAWAII
 DEPARTMENT OF ACCOUNTING AND GENERAL SERVICES
 DIVISION OF PUBLIC AFFAIRS

RECEIVED
 MARCH 10 1981
 LETTER NO (P) 1262.1

MAR 10 1981

Sam O. Hirota, Inc. P.S.

Dr. Dennis I. Hirota
 Sam O. Hirota, Inc.
 Suite 300
 345 Queen Street
 Honolulu, Hawaii 96813

Dear Dr. Hirota:

Subject: Environmental Assessment/EIS
 Preparation Notice for
 (1) Hana Water System Improvements;
 (2) Keanae Water System Improvements; and
 (3) Kaupo Water System Improvements

We have reviewed the subject documents and do not have
 any comments on the subject improvements.

68

Very truly yours,

[Signature]
 RIKIO NISHIOKA
 State Public Works Engineer

HLJZ

MAR 24 1981

MANUEL N. OHTANI
 County Clerk



OFFICE OF
 COUNTY CLERK
 389 SOUTH HIGH STREET
 WAILUKU, HAWAII 96793

March 20, 1981
 Sam O. Hirota, Inc./Tel.
 JY

Dr. Dennis I. Hirota
 Vice President
 Sam O. Hirota, Inc.
 345 Queen Street - Suite 300
 Honolulu, Hawaii 96813

Dear Dr. Hirota:

Your memorandum dated March 6, 1981, concerning the
 EIS preparation notice for the Hana, Keanae, and Keupo
 water systems improvements, was presented to the Council
 of the County of Maui on March 20, 1981, and referred to
 its Planning Committee for attention.

Very truly yours,

[Signature]
 WAKES S. USHIJIMA
 County Clerk

1/yc

MAR 24 1981



DEPARTMENT OF PLANNING
AND ECONOMIC DEVELOPMENT

1405 IOLANA
FLOOR
FALCON SQUARE
1555 KALANANĀHUI DRIVE, SUITE 200
HONOLULU, HAWAII 96813

April 2, 1981

Ref. No. 2944

RECEIVED

APR - 7 1981

Dr. Dennis I. Hirota
Vice-President
Sam O. Hirota, Inc.
345 Queen Street, Suite 500
Honolulu, Hawaii 96813

By _____
Sam O. Hirota, Inc./fas.

Dear Dr. Hirota:

SUBJECT: Environmental Assessment/EIS Preparation Notice for:
(1) Hana Water System Improvements
(2) Keanae Water System Improvements
(3) Kaupō Water System Improvements

We have reviewed the above documents and find that they have adequately assessed the major environmental impacts which can be anticipated from the implementation of these projects.

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

Sincerely,

Hideto Kono

cc: Office of Environmental Quality Control
Department of Water Supply, County of Maui

APR - 9 1981



The Sierra Club

HAUAI GROUP, HAWAII CHAPTER
P. O. BOX 416
HAIKU, HAWAII, 96708



F. J. RODRIGUEZ
DIRECTOR

ENVIRONMENTAL
COMMUNICATIONS
INC.

March 18, 1981

Mr. John Bose, II
Chairman
The Sierra Club
Hauai Group, Hawaii Chapter
P. O. Box 416
Haiku, Maui, Hawaii 96708

Dear Mr. Bose,

Subject: Environmental Assessment/EIS Preparation Notice for
Kaupo, Kaupo, and Keane Water System Improvements

We have received your letter of March 12, 1981, requesting copies of
the Preparation Notices, Draft EIS's, and other relevant documents
regarding the aforementioned subject.

Enclosed please find copies of the Environmental Assessment/EIS
Preparation Notice for the Proposed Kaupo Water System Improvements,
Keane Water System Improvements, and Haui Water System Improvements,
Your comments on the EIS Preparation Notices are requested on or before
April 18, 1981. Comments should be sent to:

Mr. Ralph Morita
Sam O. Hirotsu, Inc.
345 Queen Street, Suite 500
Honolulu, Hawaii 96813

We appreciate your interest in these EIS Preparation Notices.

Very truly yours,

F. J. Rodriguez
F. J. Rodriguez

cc: Sam O. Hirotsu, Inc. - Ralph Morita

Enclosures

FJR:ck:tpi

MAR 18 1981

1111 KUPAUNA AVENUE, SUITE 104 • P O BOX 114 • HONOLULU HAWAII 96811 • TELEPHONE 808/531-1881

Mr. Ralph Morita
Sam O. Hirotsu, Inc.
345 Queen Street, Suite 500
Honolulu, HI 96813

By _____
Sam O. Hirotsu, Inc./Ves.

March 12, 1981

Dear Mr. Morita:

Please list this organization as a consulted party in the
preparation of environmental impact statements for the following
projects:

Kaupo Water System Improvements
Keane Water System Improvements
Haui-Waia Water System Improvements
Department of Water Supply. Please send copies of Preparation
Notices, subsequent Draft EIS's, and other relevant documents.

Sincerely yours,

John Bose, II
John Bose, II
Hauai Group Chairman

BROCK AND ASSOCIATES
SURVEYORS - ENGINEERS - PLANNERS

FILE 7000
March 16, 1981

Mr. Ralph Morita
Sam O. Hirota, Inc.
345 Queen Street, Suite #500
Honolulu, Oahu, Hawaii 96813

Dear Mr. Morita:

According to the Environmental Quality Commission Bulletin of March 8, 1981, your firm will be preparing projects:

- Kaupo Water System Improvements, Kaupo, Maui
- Kaanee Water System Improvements, Kaanee, Maui
- Mauius-Hana Water System Improvements, Hana, Maui

We wish to be granted "consulted party" status during your preparation of the Environmental Impact Statements. With all three water systems and will comment on all drafts sent to us.

Thank you in advance for your cooperation.

Very truly yours,
BROCK AND ASSOCIATES

Julie R. Abramson
Julie R. Abramson
Planner

igka

49 Waioli Street
Honolulu, Hawaii 96813
808-734-3428
TELE 501-3933
2385 Waioli Parkway
Lahaina, Maui, Hawaii 96761
808-661-7407

RECEIVED
MAR 24 1981

Sam O. Hirota, Inc./Tel.
By _____

ENVIRONMENTAL
COMMUNICATIONS
INC.

March 24, 1981

Ms. Julie R. Abramson, Planner
Brock and Associates
48 Market Street
Maui, Maui, Hawaii 96793

Dear Ms. Abramson,

Subject: Environmental Assessment/EIS Preparation Notice for
Hana, Kaupo, and Kaanee Water System Improvements

We have received your letter of March 16, 1981 on the above mentioned EIS Preparation Notices. In compliance with your request we are providing you with copies of the Notices for your review and comments. The Environmental Impact Statement Regulations provide a 30-day review period for consulting parties to submit written comments on the EIS Preparation Notice. Therefore, your written comments are due on or before April 14, 1981. Your comments should be sent to:

Mr. Ralph Morita
Sam O. Hirota, Inc.
345 Queen Street, Suite 500
Honolulu, Hawaii 96813

Your prompt review and response will be most appreciated. Your company will be placed on the EIS mailing lists for these proposed projects.

Very truly yours,
T. J. Rodriguez
T. J. Rodriguez

Enclosures

cc: Sam O. Hirota, Inc.

MAR 24 1981

ENVIRONMENTAL
COMMUNICATIONS
INC.

F. J. RODRIGUES
MEMPHIS

March 30, 1981

Ms. Wendy Hee
EDAW
1136 Union Mall, Suite 201
Honolulu, Hawaii 96813

Dear Ms. Hee,

SUBJECT: EIS Preparation Notice for the Proposed Hana Water System
Improvements, Keanae Water System Improvements, and Kaupo
Water System Improvements

As requested, via your telephone conversation with Ralph Morita of
Sam O. Hirota, Inc., we are providing you with copies of the abovementioned
EIS Preparation Notices. It is our understanding that should your or-
ganization comment on the EIS Preparation Notices, the response will be
provided on or before April 7, 1981. Your response should be sent to:

Mr. Ralph Morita
Sam O. Hirota, Inc.
345 Queen Street, Suite 500
Honolulu, Hawaii 96813

Thank you for your concern in this matter. Your expeditious response
would be most appreciated.

Very truly yours,
F. J. Rodrigues
F. J. Rodrigues

Enclosures

cc: Department of Water Supply, County of Maui
Environmental Quality Commission
Sam O. Hirota, Inc.

1111 BIRCH BLDG., SUITE 101 • P.O. BOX 126 • HONOLULU, HAWAII 96813 • TELEPHONE 833-1231



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
 REGIONAL OFFICE
 215 Fremont Street
 San Francisco, Ca. 94102

April 10, 1981

Mr. Ralph Morita
 Sam O. Hirota, Inc.
 345 Queen Street, Suite 500
 Honolulu, HI 96813

By Sam O. Hirota, loc./inc.

Dear Mr. Morita:

The Environmental Protection Agency (EPA) Region IX office has received your letter requesting comments on proposed water treatment plants for Umi, Kaunae and Kaupo. The Hawaii State Department of Health has primary enforcement responsibilities (primacy) of the Safe Drinking Water Act (SDWA) and the National Pollutant Discharge Elimination System (NPDES) Program. Thus, any questions or comments regarding water or wastewater treatment plants and their associated permits should be directed to the State Department of Health. My copy of this letter I have taken the liberty of forwarding your request to:

Thomas Arisumi, Chief
 Drinking Water Program
 Hawaii State Department of Health
 P.O. Box 3378
 Honolulu, HI 96801
 Phone: (808) 548-1682

Sincerely yours,

William M. Thurston
 William M. Thurston
 Chief, Water Supply Section
 Water Division

cc: Thomas Arisumi, Chief, Drinking Water Program, Hawaii State Department of Health

SAM O. HIROTA, INC.

April 10, 1981

Mr. William M. Thurston
 Chief, Water Supply Section
 Water Division
 U.S. Environmental Protection Agency
 Region IX Office
 215 Fremont Street
 San Francisco, California 94103

Dear Mr. Thurston:

Subject: Environmental Assessments/ZIS Preparation Notices for
 Hana, Kaupo, and Keanae Water System Improvements

Thank you for your letter of March 17, 1981, informing us of the transfer of the ZIS Preparation Notices to the Hawaii State Department of Health. Please note that we have sent copies of the ZIS Preparation Notices to that same Department.

We appreciate your interest in this matter.

Very truly yours,

Sam O. Hirota
 SAM O. HIROTA, INC.
 Dennis I. Hirota, Ph. D.
 Vice President

cc: Department of Water Supply,
 County of Maui

Norman Saito Engineering Consultants
 Attention: Tats Imada

Environmental Communications, Inc.
 Attention: Y. J. Rodriguez

APR - 9 1981

Surveying • Engineering • Computer Graphics • Green Screens
 345 QUEEN STREET • SUITE 500 • HONOLULU, HAWAII 96813 • TELEPHONE (808) 547-8777



POLICE DEPARTMENT

COUNTY OF MAUI
MAILUKU, MAUI, HAWAII 96703

REFERENCE AC/YYC
REFERENCE

March 23, 1981



Address All
Communications to
John S. San Diego, Sr.
Chief of Police
Joseph C. Carrillo
Deputy Chief of Police

SAM O. HIROTA, INC.

Sam O. Hirota, Inc.
345 Queen Street, Suite 500
Honolulu, Hawaii 96813
Attention: Dennis I. Hirota
Vice President
Dear Mr. Hirota:

Please be informed there is no apparent adverse impact on police services relative to the proposed improvements to the Hana, Kaupo and Keane water systems.

Very truly yours,
John S. San Diego, Sr.
JOHN S. SAN DIEGO, SR.
Chief of Police

cc: Board of Water Supply
County of Maui

RECEIVED

MAR 28 1981

Sam O. Hirota, Inc./Isa.

By _____

April 10, 1981

Chief John S. San Diego, Sr.
Chief of Police
Police Department
County of Maui
Mailuku, Maui, Hawaii 96703
Dear Chief San Diego:

Subject: Environmental Assessments/ZIS Preparation Notice for Hana, Kaupo, and Keane Water System Improvements

Thank you for your letter of March 23, 1981, on the above-mentioned ZIS Preparation Notices.

The information provided regarding police services will be included in the respective Environmental Impact Statements.

We appreciate your concern in this matter.

Very truly yours,
Sam O. Hirota
SAM O. HIROTA, INC.
Dennis I. Hirota, Ph. D.
Vice President

cc: Department of Water Supply,
County of Maui
Norman Saito Engineering Consultants
Attention: Tats Inada
Environmental Communications, Inc.
Attention: Y. J. Rodriguez

APR - 9 1981

Inventory Engineering • Computer Graphics • Ocean Survey
346 QUEEN STREET • SUITE 500 • HONOLULU, HAWAII 96813 • TELEPHONE (808) 837-6771

STATE OF HAWAII
DEPARTMENT OF AGRICULTURE
1428 SOUTH KING STREET
HONOLULU, HAWAII 96814

March 24, 1981

MEMORANDUM

To: Mr. Dennis I. Hirota, Vice Pres.
Sam O. Hirota, Inc.

Subject: Environmental Assessment/EIS Preparation Notice
(1) Iiwa Water System Improvements
(2) Keanae Water System Improvements
(3) Kaupo Water System Improvements

The Department of Agriculture has reviewed the subject assessments and offers the following comments.

We agree with the assessment that there is a need for additional information on potential agricultural uses of the sites in order to fully determine the impacts of the proposed projects. We believe that the treatment plants or sedimentation basins should then be located on sites with the least agricultural potential.

With the nuclear of alternatives available for the Keanae Water System, we believe Site 1 should not be chosen due to its impact on taro. The 1979 taro harvest decreased 14 percent from 1978 and acreage in taro decreased from 450 acres to 405 acres. (Statistics of Hawaiian Agriculture, 1979) The acreage involved in the Keanae Site 1 may be small, but due to the nature of taro plots and the effort and expenses involved in relocating for the farmer, the impact may be greater than it would first appear.

Thank you for the opportunity to comment.

JOHN FARIAS, JR.
Chairman, Board of Agriculture

cc: Dept. of Water Supply, County of Maui

RECEIVED

MAR 26 1981

Sam O. Hirota, Inc./Tos.

BY

APR - 9 1981

SAM O. HIROTA, INC.

April 10, 1981

Mr. John Farias, Jr.
Chairman, Board of Agriculture
Department of Agriculture
State of Hawaii
1428 South King Street
Honolulu, Hawaii 96814

Dear Mr. Farias:

Subject: Environmental Assessments/EIS Preparation Notices for Iiwa, Kaupo, and Keanae Water System Improvements

Thank you for your comments of March 24, 1981, regarding the abovesentioned EIS Preparation Notices.

We note that the site alternatives selected for each of the water system improvements have minimal impact on agricultural lands of importance. We will be sending your Department copies of the Draft EIS for each project, so that you may comment on their impact on agriculture lands. We appreciate your concern in this matter.

Very truly yours,

SAM O. HIROTA, INC.
[Signature]
Dennis I. Hirota, Ph. D.
Vice President

cc: Department of Water Supply,
County of Maui
Norman Saito Engineering Consultants
Attention: Tetsu Inada
Environmental Communications, Inc.
Attention: F. J. Rodriguez

Surveying • Engineering • Computer Graphics • Ocean Sciences
343 QUEEN STREET • SUITE 400 • HONOLULU, HAWAII 96813 • TELEPHONE (808) 537-8871



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

PODZD-PV

31 March 1981

Mr. Dennis I. Hirota, Vice President
Sam O. Hirota, Inc.
245 Queen Street, Suite 500
Honolulu, HI 96813

Dear Mr. Hirota:

We have reviewed your Environmental Assessment (EA)/ZIS Preparation Notice for
Lana, Keano, and Keano Water System Improvements
We provide the following comments:

- a. Any work which requires the deposit of fill materials in streams may require a Department of the Army permit under Section 404 of the Clean Water Act.
- b. All three parcels indicated in the EA are not within a designated floodway area and are areas of minimal flooding as indicated by a Zone C designation, as shown on the federal flood insurance map (Incl 1). None of the proposed sites would be subject to any regulatory practices with regard to flood hazard mitigation under the Zone C designation.

Thank you for the opportunity to review the subject ZIS.

Sincerely,

Ng Suk Cheung
NG SUK CHEUNG
Chief, Engineering Division

1 Incl
As stated

RECEIVED

APR - 1 1981

Sam O. Hirota, Inc./Tel.
BY _____

APR - 9 1981

Sam O. Hirota, Inc.
SAM O. HIROTA, INC.

April 10, 1981

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

Dear Mr. Cheung:

Subject: Environmental Assessments/ZIS Preparation Notices for
Lana, Keano, and Keano Water System Improvements

We have received and reviewed your letter of March 31, 1981, commenting on
the above-mentioned ZIS Preparation Notices.
We will include your comments in the Draft ZIS now being prepared.

Thank you for providing the information to us. We appreciate your
concern in this matter.

Very truly yours,

SAM O. HIROTA, INC.

Dennis I. Hirota
Dennis I. Hirota, Ph. D.
Vice President

cc: Department of Water Supply,
County of Maui

Norman Saito Engineering Consultants
Attention: Taty Inada

Environmental Communications, Inc.
Attention: F. J. Rodriguez

Surveying • Engineering • Computer Graphics • Ocean Sciences
345 QUEEN STREET • SUITE 500 • HONOLULU, HAWAII 96813 • TELEPHONE (808) 537-9971

BROCK AND ASSOCIATES
SURVEYORS - ENGINEERS

FILE: 7000
April 1st, 1981
reply to Wailuku office

Mr. Ralph Morita
Sam O. Hirots, Inc
345 Ousem Street, Suite 500
Honolulu, Oahu, Hawaii 96793

Dear Mr. Morita:

We have reviewed the Environmental Assessment/EIS Pro-
piration Notice for the proposed Kaupo Water System
improvements.

The notice is well prepared and adequately covers all of
our concerns.

We would appreciate receiving a draft of the EIS when it
is prepared and will probably comment on the alternative
selected when that information is known.

Very truly yours,
BROCK AND ASSOCIATES

James Helath Brock
Senior Principal

48 MARKET STREET
WAILUKU, MAUI, HAWAII 96793
TELEPHONE (808) 242-7484

RECEIVED

APR - 3 1981

Sam O. Hirots, Inc./fax
By _____

SAM O. HIROTA, INC.

April 10, 1981

Mr. James Helath Brock
Senior Principal
Brock and Associates
48 Market Street
Wailuku, Maui, Hawaii 96793

Dear Mr. Brock:

Subject: Environmental Assessments/EIS Preparation Notices for
Hana, Kaupo, and Keanae Water System Improvements

We appreciate your letter of April 1, 1981 on the above-mentioned EIS
Preparation Notices.

Please be assured that your name will be retained on the Distribution
List of the Draft EISs for all three projects.

We appreciate your concern on these matters.

Very truly yours,

SAM O. HIROTA, INC.



Dennis I. Hirots, Ph. D.
Vice President

cc: Department of Water Supply,
County of Maui

Moruan Saito Engineering Consultants
Attention: Tetsu Inada

Environmental Communications, Inc.
Attention: F. J. Rodriguez

APR - 9 1981

Surveying - Engineering - Computer Graphics - Ocean Sciences
345 QUEEN STREET, SUITE 600, HONOLULU, HAWAII 96813 - TELEPHONE (808) 537-8911



STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
REGISTRATION

APR 2 1981
Sam O. Hirota, Inc./181

Dr. Dennis Hirota, Ph.D., P.E.
Vice President
Sam O. Hirota, Inc.
345 Queen Street, Suite 500
Honolulu, Hawaii 96813

Dear Mr. Hirota:

Environmental Assessment/EIS Preparation Notice
(1) Hana Water System Improvements
(2) Keenae Water System Improvements
(3) Kaupo Water System Improvements

Thank you for the opportunity to express our concerns on the subject proposals.

We suggest the following points be added to the assessment:

1. Any work within the State highway right-of-way shall be subject to review and approval by the Highways Division, State Department of Transportation.
2. Any heavy equipment needed for construction shall be moved only during non-peak traffic hours to minimize interference with traffic on Hana Highway.

Very truly yours,

Ryokichi Higashimura
Ryokichi Higashimura
Director of Transportation

APR - 9 1981

SAM O. HIROTA, INC

April 10, 1981

Mr. Ryokichi Higashimura
Director
Department of Transportation
State of Hawaii
869 Punchbowl Street
Honolulu, Hawaii 96813

Dear Mr. Higashimura:

Subject: Environmental Assessment/EIS Preparation Notices for Hana, Kaupo, and Keenae Water System Improvements

Thank you for your letter of April 2, 1981, commenting on the above-mentioned EIS Preparation Notices.

We will include your comments (items 1 and 2) in our Draft EIS documents. We appreciate your concern on these matters.

Very truly yours,

Dennis I. Hirota
Dennis I. HIROTA, INC
Vice President

cc: Department of Water Supply,
County of Maui

Norman Esito Engineering Consultants
Attention: Tats Inada

Environmental Communications, Inc.
Attention: F. J. Rodriguez

Surveying • Engineering • Computer Graphics • Ocean Services
345 QUEEN STREET, SUITE 500 • HONOLULU, HAWAII 96813 • TELEPHONE (808) 837-4971

XIV. SUMMARY OF UNRESOLVED ISSUES

At this time, there are no unresolved issues from the standpoint of potential environmental impacts.

XV. LIST OF NECESSARY APPROVALS

Table 8 identifies the necessary approvals and/or permits that may be required for the proposed action prior to its construction.

TABLE 8

PERMIT AND APPROVAL REQUIREMENTS
FOR HANA WATER SYSTEM IMPROVEMENTS

ENVIRONMENTAL IMPACT STATEMENT

An Environmental Impact Statement is required for all public projects.

STATE LAND USE

State Land Use Commission regulations (Part III, Section III) permit the location of water treatment facilities and accessory buildings in Agricultural Districts. The State Department of Land and Natural Resources (DLNR) must, however, be notified of the proposed construction by a letter describing the facility.

Conservation Districts are governed by Regulation No. 4 of the DLNR. The location of a water treatment facility in a Conservation District will require the establishment of a General (G) type subzone for which applications must be submitted to the DLNR.

WELL DRILLING

None of the alternatives under current consideration provide for well drilling in a Designated Groundwater Control Area, however, a Well Drilling Permit must still be obtained from the DLNR. Information to be included in the application must include a description of the well, usage and amount of the water proposed to be withdrawn and the name of the drilling contractor.

HISTORIC SITES

The Historic Sites Branch of the DLNR says permits are not required for construction near heiaus or other historic Hawaiian sites. It is recommended, however, that an archaeological survey be made prior to construction to ascertain the exact location of any historic site and the degree of historic significance. Although there are no laws regulating this, it is considered prudent to stay at least 200 feet away from any archaeological structure of site of significance.

FLOOD ZONE

Flood hazard ratings have been determined for all sites under consideration.

Flood Zone C describes an area of minimal flooding.

Flood Zone B describes an area between the limits of a 100 and 500-year flood, or certain areas subject to 100-year flooding with average depths less than 1 foot, or where the contributing drainage area is less than one square mile.

SPECIAL MANAGEMENT AREA (SMA)

A Special Management Area Use Permit is required for projects in the designated area which cost over \$25,000, or which have significant adverse environmental or ecological effects. Application for a permit to construct in a SMA is processed by the Maui County Planning Department.

OTHER PERMITS AND LICENSES

In addition to the above, there are other agencies to be notified and other permits to be obtained before construction or well drilling may commence.

The Department of Health must be notified of the type, nature and scope of any proposed development of a new water source or of a treatment plant.

Maui County Department of Public Works must issue a grubbing permit and grading permit before construction can start. Title, leases and easements for the land to be used must be obtained for the project.

XVI. DRAFT EIS COMMENTS

Comments from reviews of the Draft EIS and responses are included in Appendix C.

APPENDIX A

POPULATION PROJECTION FOR HANA DISTRICT

APPENDIX A - POPULATION PROJECTION FOR HANA DISTRICT

The purpose of this population study is to provide a basis for estimating future water demands for the County Water Systems in the Hana District which includes the communities of Hana, Keanae, Kaupo, Nahiku, and Kipahulu (see Figure A-1). In turn, the future water demands will be the basis of determining the capacity of the proposed treatment facility.

The State Department of Health makes periodic field surveys to estimate the resident population served by the County Water Systems. The Department of Health estimates the number of people being serviced by the County Water System in 1980 are shown below in Table A-1.

TABLE A-1
DEPARTMENT OF HEALTH RESIDENT POPULATION SURVEY FOR THE
HANA DISTRICT (REFERENCES 1 and 2)

Community	County Water System	Private Water System	Total Population
Hana	891	260	1151
Keanae	241	-	241
Kaupo*	22	21	43
Nahiku	68	-	68
Kipahulu	-	55	55
TOTAL	1222	336	1558

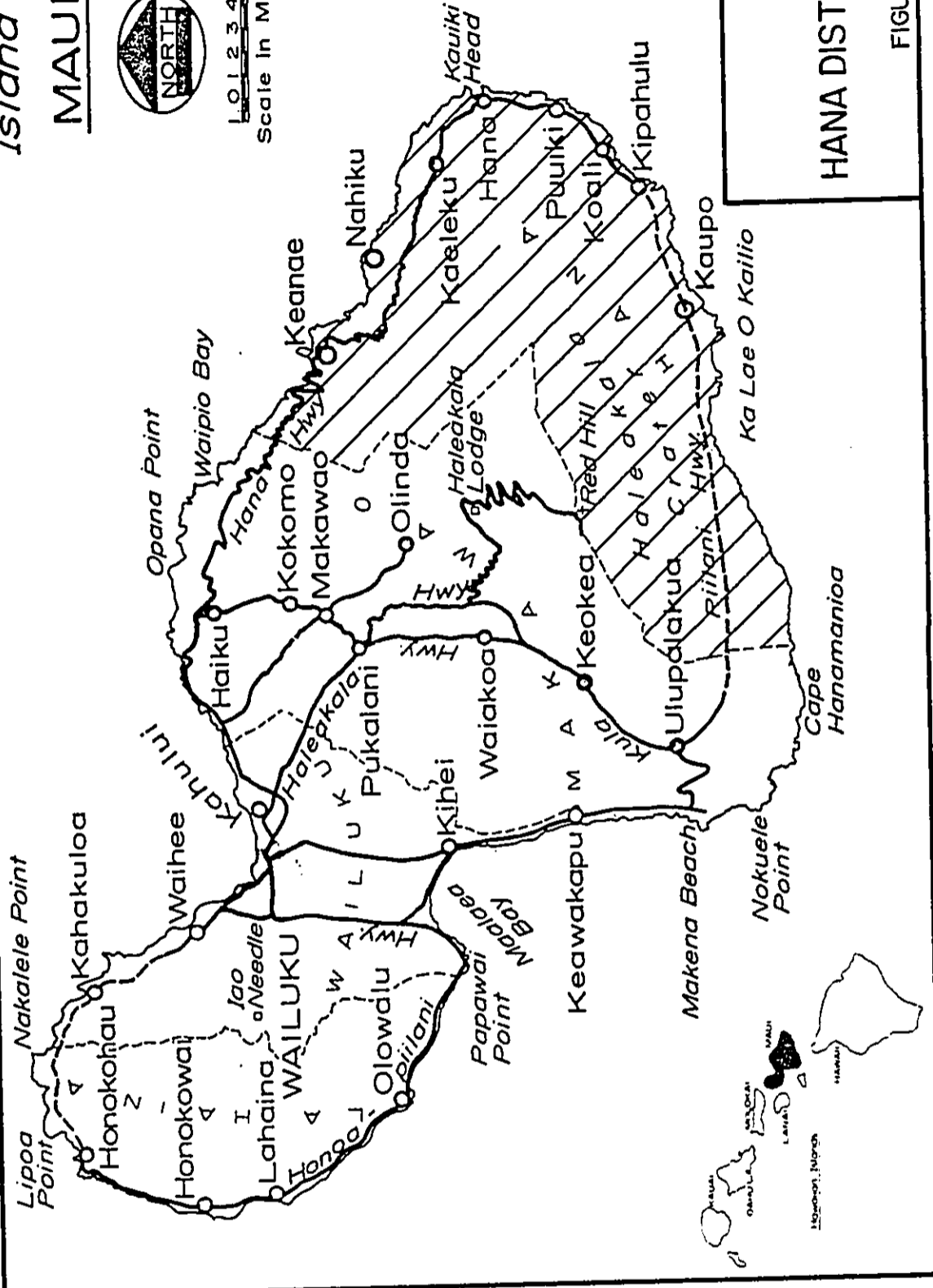
(*State Department of Health shows that Kaupo has 65 people using the County's Water System based on 3.4 people/meter (19 meters). However, from an interview with Mr. Carl Bredhoff, Kaupo Ranch Manger, on 2 February, 1981, there appears to be approximately 22 people on the County's

Island of

MAUI



Scale In Miles
0 1 2 3 4 5



HANA DISTRICT

FIGURE A-1

Water System and 21 people using the Kaupo Ranch System. The County Department of Water Supply indicated that in 1978 there were 19 people and 19 meters on record, of which eight meters were connected to cattle troughs and two were serving vacant houses (Reference 5). Based on the above information the estimated population for Kaupo was adopted as being 43 people.)

Kaupo Ranch's system serves about 21 people and 2,000 head of cattle. Therefore, the resident population estimate for the Hana District using the Department of Health figures is 1,558 people.

The Department of Health estimate of 1,558 people is higher than the 1980 census data for the Hana District of 1,423 people (Reference 2). The resident population distribution of the Hana District as estimated by the Department of Health will be used for this report.

The Department of Health estimate includes only those individuals residing in the Hana District. The estimated population would be more representative to consider the total population of the Hana District. The total population was determined by adding the estimated number of overnight visitors to the estimated resident population of the Hana District.

The commercial accommodations for visitors are mainly in Hana Town and it was assumed that an insignificant number of visitors stayed overnight at the communities of Keanae, Kaupo, Nahiku, and Kipahulu. According to the Hawaii Visitor's Bureau, the representative commercial accommodations in Hana Town are the Hotel Hana-Maui, the Hotel Hana-Kai Resort, the Heavenly Hana Inn, and the Kanakea Cottages (Purdy Ranch). Wainapanapa State Park with its cabins is a popular vacation place for local people and was included in this study. All accommodations except Hotel Hana-Maui receive water from the County's Water System. Hotel Hana-Maui is served by the privately owned Hana Ranch Water System. Table A-2 below shows the estimated number of visitors who stay overnight at Hana Town. The occupancy rates were based on average occupancy rates during peak visitor periods.

TABLE A-2

ESTIMATED NUMBER OF VISITORS STAYING OVERNIGHT IN HANA

A. Served by County
Water System

Hotel/Apt/ Cabin	Source of Information	Number of Rooms	Ave Number of People Per Room	Occupancy Rate	Ave Number of People Per Day
Hotel Hana- Kai Resort	Manager (Ref. 7)	19 units	8-studios=2 11-singles=4	95%	57
Heavenly Hana Inn	Manager (Ref. 8)	4 units	4	95%	15
Kanakea Kottages (Purdy Ranch)	Manager (Ref. 9)	3 cabins	1-cabin=4 1-cabin=6 1-cabin=8	95%	17
Wainapanapa State Park	DLNR (Ref. 10)	12 cabins	6	100%	72
					161
B. Served by Private Water System					
Hotel Hana- Maui	Manager (Ref. 11)	61 units	53-singles=2 8-cottages=4	95%	131
TOTAL					292

The total population of the Hana District is estimated at 1,850 people (1,558 + 292 = 1,850 people).

According to the 208 Water Quality Management Plan for the County of Maui, three State documents were used to estimate population growth. The 208 Plan divides the island of Maui into five Hydrographic Areas. The Hana District is closely represented by Hydrographic Areas IV and V (see Figure A-2). The 208 Plan population projection and distribution for Hydrographic Area IV and V from the year 1980 to 2000 is shown in Table A-3.

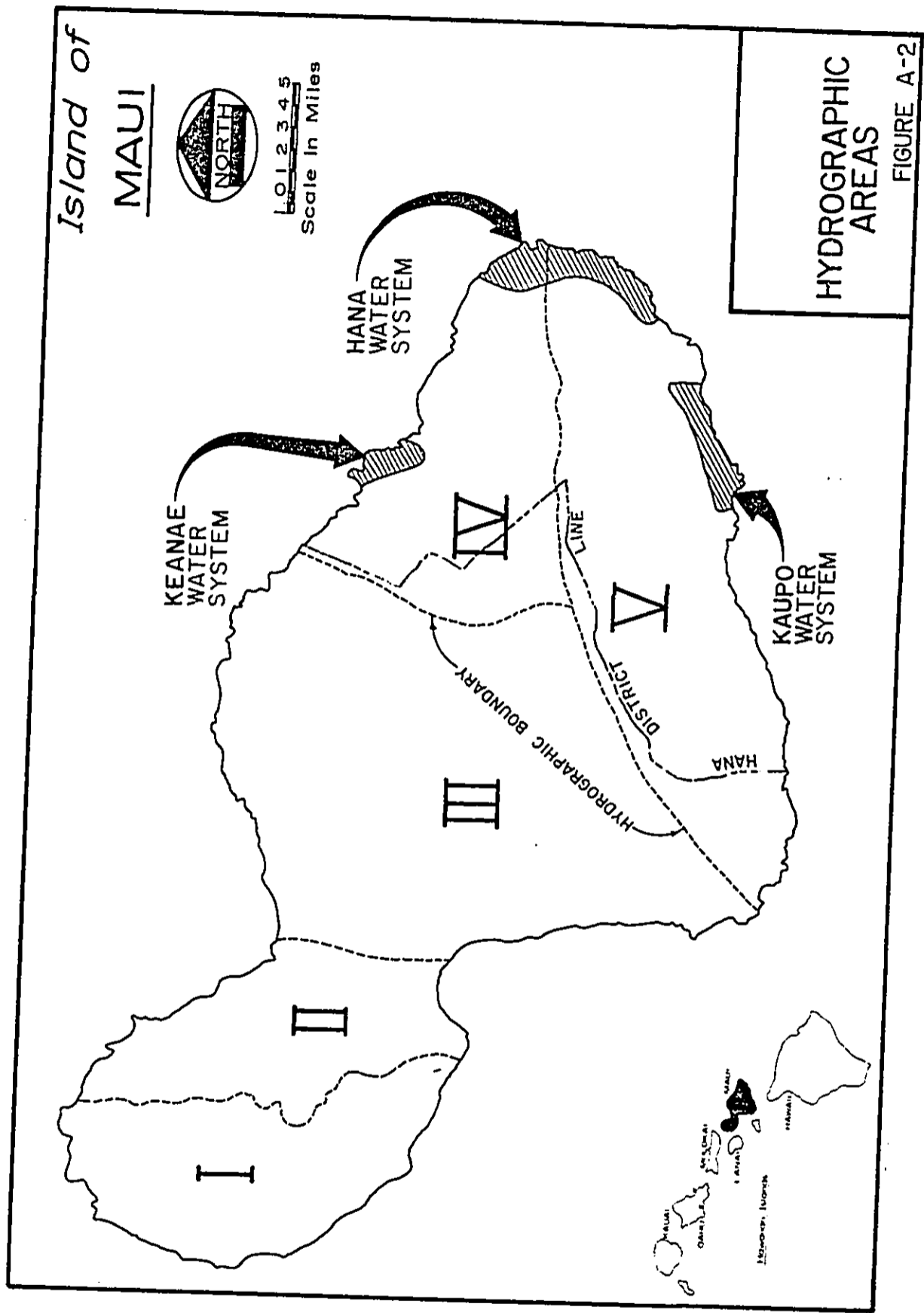


TABLE A-3

208 PLAN POPULATION ESTIMATE OF THE HANA DISTRICT

Hydrographic Area	Year				
	1980	1985	1990	1995	2000
Hydrographic Area IV (Keanae to Nahiku to Hana Town)	1,150	1,323	1,484	1,676	1,938
Hydrographic Area V (Portion of Hana to Cape Hanamanioa)	550	610	665	734	861
Hana District (TOTAL)	1,700	1,933	2,149	2,410	2,799

The 208 Plan population projection for the 1980 resident population in the Hana District is 1,700 (Reference 4). This number is within ten percent of the total population estimated from the Department of Health data for the Hana District. It is assumed that the basic growth pattern of the Hana District would be the 208 Plan population projection and the population distribution throughout the Hana District is assumed to remain the same during the period. Therefore the estimated populations projected for each community within the Hana District was based on the growth rate of the Hydrographic Areas of the 208 Plan. Table A-4 shows the relative population distribution in the Hana area based on the 1980 population. These factors were applied to the 208 Plan population projections resulting in Table A-5 which shows the projected total population for Hana District Communities from the year 1980 to year 2000.

TABLE A-4
 RELATIVE POPULATION DISTRIBUTION FOR HANA DISTRICT
 COMMUNITIES BASED ON HYDROGRAPHIC AREA IV AND V

Hydrographic Area	1980 Population	Relative Dist. %	Comments
Total (IV)	1,251		$\frac{1150}{1700} \times 1850 = 1251$
Hana (Portion)	942	75.3	Calculated $942 = 1251 - (241 - 68)$
Keanae	241	19.3	
Nahiku	68	5.4	
Total (VI)	599		$\frac{550}{1700} \times 1850 = 599$
Hana (Portion)	501	83.6	Calculated $501 = 599 - (55 + 43)$
Kipahulu	55	9.2	
Kaupo	43	7.2	

TABLE A-5
TOTAL POPULATION PROJECTION FOR HANA DISTRICT
COMMUNITIES - YEAR 1980 TO YEAR 2000

Community (Hydrographic Area)	Year				
	1980*	1985	1990	1995	2000
Hana (IV+V)	1,443	1,506	1,673	1,876	2,176
Keanae (IV)	241	255	286	323	374
Kaupo (V)	43	44	48	52	62
Nahiku (IV)	68	72	81	91	105
Kipahulu (V)	55	56	61	68	79
Hana District	1,850*	1,933	2,149	2,410	2,799

*1980 total population derived from Department of Health figures and the estimated visitor count.

For the study areas of Hana, Keanae and Kaupo, there are two private water systems, one in Hana and the other in Kaupo. The distribution of the population being served by the County Water System and private water system was assumed to be the same as the 1980 distribution throughout the study period. Table A-6 shows the percent distribution of the total population being served between County and private water systems and Table A-7 shows the projected population being served by County and private water systems, respectively.

TABLE A-6
 POPULATION DISTRIBUTION OF HANA DISTRICT COMMUNITIES
 SERVED BETWEEN COUNTY WATER SYSTEMS AND PRIVATE
 WATER SYSTEMS, IN YEAR 1980

Community	County Water System Population Distribution (%)	Private Water System Population Distribution (%)
Hana	1052/1443 = 72.90	391/1443 = 27.10
Keanae	241/241 = 100.00	0 = 0.0
Kaupo*	22/43 = 51.16	21/43 = 48.84
Nahiku	68/68 = 100.00	0 = 0.0
Kipahulu	0 = 0.0	55/55 = 100.00

TABLE A-7
 POPULATION PROJECTION FOR STUDY AREAS SERVED BY
 COUNTY WATER SYSTEMS AND PRIVATE WATER SYSTEMS
 YEAR 1980 TO YEAR 2000

Year	1980		1985		1990		1995		2000	
	C	P	C	P	C	P	C	P	C	P
Hana	1052	391	1098	408	1220	453	1368	508	1588	591
Keanae	241	0	255	0	286	0	323	0	374	0
Kaupo	22	21	23	21	25	23	27	25	32	30

C = County Water System
 P = Private Water System

APPENDIX A - REFERENCES

1. S&S Engineers, Inc., Final Report, Interim Drinking Water Study, Municipal Water Systems, Department of Health, State of Hawaii, November 1977.
2. S&S Engineers, Inc., Final Report, Interim Drinking Water Study, Private Water Systems, Dept. of Health, State of Hawaii, April 1978.
3. Dept. of Planning and Economic Development, Research and Economic Analysis Division, State of Hawaii, The Population of Hawaii, 1980; Final Census Results, Statistical Report 143, March 18, 1981.
4. State Dept. of Health and County of Maui, Water Quality Management Plan of the County of Maui, December 1980.
5. County of Maui DWS letter dated 19 January 1978 to State Department of Health.
6. Telephone interview by Ralph Morita, SOH, Inc., with Mr. Carl Bredhoff, manager of Kaupo Ranch on 2 February 1981.
7. Telephone interview by Ralph Morita, SOH, Inc., with Mrs. Liberman, manager of Heavenly Hana-Inn on 19 August 1981.
8. Telephone interview by Ralph Morita, SOH, Inc., with Ms. Mary Purdy, manager of Kanakea Kottages on 10 August 1981.
9. Telephone interview by Ralph Morita, SOH, Inc., with Ms. Danielle Lam, DLNR State Parks, on 10 August 1981.
10. Telephone interview by Ralph Morita, SOH, Inc., with Mr. Gil Moss, manager of Hotel Hana-Maui on 10 August 1981.

APPENDIX B

Sampling Results
for
Primary and Secondary
Contaminants

CONTAMINANTS			INORGANIC CHEMICALS									ORGANIC CHEMICALS			
			ARSENIC	BARIIUM	CADMIUM	CHROMIUM	LEAD	MERCURY	SELENIUM	SILVER	FLUORIDE*	NITRATE	ENDRIN	LINDANE	METH...
UNITS			ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l
M.C.L.			0.05	1.0	0.010	0.05	0.05	0.002	0.01	0.05	1.4	10.0	0.0002	0.004	
LOCATION	LAB	DATE													
1. WAILUA INTAKE	DOH	06/16/75	<0.005	<0.1	<0.001	<0.005	<0.01		<0.001	<0.01	<0.05	0.03			
	BR (DWS)	05/12/80	0.005	<0.1	<0.005	<0.05	<0.05	<0.00001	<0.002	<0.01	<0.01	0.40	<0.000001	<0.000001	<0.000001
	BR (DWS)	07/08/80	<0.002	<0.1	<0.005	<0.05	<0.05	0.00008	0.002	<0.01	<0.01	2.50	<0.000001	<0.000001	<0.000001
	BR (DWS)	02/12/81	<0.002	<0.1	<0.005	<0.05	<0.05	0.000129	<0.002	<0.01			<0.000001	<0.000001	<0.000001
	BR (SOH)	11/12/81			<0.005		<0.05								
3. DWS GARAGE	DOH	03/20/78	ND*	ND	ND	ND	ND	ND	ND	ND	ND	0.1			
	DOH	06/12/79											<0.0002	<0.002	
	DOH	08/20/79	<0.02	0.8	<0.005	<0.01	<0.02	<0.0005	<0.01	<0.03	0.2	0.2			
	DOH	10/14/80	<0.02	<0.8	<0.005	<0.01	<0.02	<0.0005	<0.01	<0.03	<0.20	0.2			
	BR (SOH)	11/21/81			<0.005										
4. WAKIU WELL "A"	DLNR (DWS)	09/01/77									0.1				
5. WAKIU WELL "B"	BR (SOH)	02/12/81	<0.002	<0.1	<0.005	<0.05	<0.05	0.000057	<0.002	<0.01	0.32	0.05	<0.000001	<0.000001	<0.000001
	DLNR (DWS)	08/31/77									0.010				

NOTES:

- MAXIMUM CONTAMINANT LEVEL
- LAB (SAMPLED BY)
 - BR BREWER CHEMICAL (SOH) SAM. O. HIROTA, INC.
 - PEL PACIFIC ENVIRONMENTAL LABORATORY (DWS) DEPARTMENT OF WATER SUPPLY
 - DOH STATE OF HAWAII DEPARTMENT OF HEALTH
 - DLNR REPORTED BY DEPARTMENT OF LAND AND NATURAL RESOURCES
- FLUORIDE M.C.L. BASED ON ANNUAL MEAN HIGH TEMPERATURE OF 80.1 DEGREES FAHRENHEIT
- ND NOT DETECTED IN SIGNIFICANT AMOUNTS
- EXCEEDS MAXIMUM CONTAMINANT LEVEL
- AMENDED TO THE NATIONAL INTERIM TEMPORARY DRINKING WATER REGULATIONS
- NOT REQUIRED FOR POPULATIONS LESS THAN 10,000

LITRAGE	ORGANIC CHEMICALS						NIPDWR AMENDMENTS			
	ENDRIN	LINDANE	METHOXYCHLOR	TOXAPHENE	2,4-D	SILVEX	TOTAL TRIHALOMETHANES*	POTENTIAL	SODIUM	CORROSIVITY
mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	L.F.
10.0	0.0002	0.004	0.1	0.005	0.1	0.01	0.10		20	>0.0
0.03										
0.40	<0.000001	<0.000001	<0.000005	<0.000001	<0.010	<0.010				
2.50	<0.000001	<0.000001	<0.000005	<0.000001	<0.010	<0.010				
	<0.000001	<0.000001	<0.000005	<0.000005	<0.01	<0.01			6.3	-1.80
							0.00017	0.00016		
0.1										
	<0.0002	<0.002	<0.004	<0.005	<0.002	<0.0004				
0.2										
0.2										
							0.00024	0.00035		
									96.4	-1.01
0.05	<0.000001	<0.000001	<0.000005	<0.000005	<0.01	<0.01			43.3	-0.34

WAILUA-HANA WATER SYSTEM
HANA DISTRICT MAUI HAWAII
SAMPLING RESULTS
PRIMARY CONTAMINANTS
TABLE B-1

B-1

RADIONUCLIDES

CONTAMINANTS	NATURAL		MAN MADE (c)		
	GROSS ALPHA pCi/l	COMBINED RA 226 RA 228 pCi/l	GROSS BETA pCi/l	TRITIUM pCi/l	STRONTIUM-90 pCi/l
UNITS	15	5	50	20,000	8
MCL					
LOCATION	LAB (g)	DATE			
HANA GARAGE	CDOH	1978(g)	0.2±0.5		
"	CDOH	1980(g)	- (d)	2.8±1.3	- (f)
HANA RANCH	CDOH	1978(h)	0.0±0.4	-	-
"	CDOH	1980(h)	0.2±0.7	-	-
	CDOH	1980(i)	0.2±0.5	-	-

NOTES:

- a. CDOH - CALIFORNIA DEPARTMENT OF HEALTH
- b. CDOH LETTER DATED 8/12/78 TO DR. JAMES S. KUMAGAI, STATE DEPARTMENT OF HEALTH
- c. CDOH LETTER DATED 2/21/80 TO DR. JAMES S. KUMAGAI, STATE DEPARTMENT OF HEALTH
- d. CDOH LETTER DATED 8/21/78. "SINCE GROSS ALPHA LESS THAN 2.0 pCi/l, NO RADIUM ANALYSIS REQUIRED."
- e. MAN MADE RADIONUCLIDES APPLICABLE TO COMMUNITY SYSTEM SERVING A POPULATION OF 10,000 OR MORE. THEREFORE THIS REQUIREMENT IS NOT APPLICABLE TO THE HANA WATER SYSTEM.
- f. CDOH LETTER DATED 8/21/78. "GROSS BETA LESS THAN 3.0 pCi/l. THEREFORE IF ALL BETA ACTIVITY FROM STRONTIUM-90, A LARGE CONTRIBUTION FROM TRITIUM WOULD BE NECESSARY AND IN THIS CASE UNLIKELY."

WAILUA-HANA WATER SYSTEM
HANA DISTRICT MAUI HAWAII

SAMPLING RESULTS PRIMARY CONTAMINANTS

TABLE B-2

TURBIDITY AT KOALI

DATE	MONTHLY			NUMBER OF TIMES
	AVERAGES (NTU)	HIGH (NTU)	LOW (NTU)	2-DAY AVERAGE OVER 5.0 NTU
JUL 1977	1.4	6.4	0.5	5
AUG	1.4	6.5	0.5	0
SEP	1.2	3.5	0.4	0
OCT	1.8	6.4	0.6	0
NOV	1.8	12+	0.5	2
DEC	1.4	4.1	0.5	0
JAN 1978	1.2	3.8	0.4	0
FEB	1.4	9.8	0.6	2
MAR	1.9	6.7	0.7	2
APR	1.9	8.2	0.5	1
MAY	3.0	8.2	0.6	2
JUN	2.9	12+	0.5	7
JUL	2.4	8.4	0.7	2
AUG	4.2	11+	1.1	11
SEP	2.4	6.5	0.8	1
OCT	4.4	18.0	0.1	10
NOV	3.6	11.0	0.7	8
DEC	2.1	6.5	0.7	2
JAN 1979	3.5	28.0	0.8	6
FEB	6.8	32.0	0.9	17
MAR	3.4	24.0	0.7	5
APR	5.2	25.0	0.7	12
MAY	3.2	11.0	0.9	7
JUN	3.4	9.5	0.5	5
JUL	3.3	12.0	0.9	4
AUG	3.3	12.0	0.9	6
SEP	2.1	16.0	0.5	3
OCT	5.2	27+	0.7	7
NOV	8.0	19+	1.0	21
DEC	3.5	9.2	0.9	9
JAN 1980	4.0	96.0	0.6	4
FEB	2.5	9.5	0.7	3
MAR	5.8	-	-	15
APR	5.8	-	-	11
MAY	5.4	-	-	17
JUN	5.8	19.0	0.5	14
JUL	9.0	-	-	23
AUG	6.8	-	-	15
SEP	7.5	-	-	14
OCT	6.5	35.0	1.0	13

REF: SAMPLES AND TESTS BY COUNTY OF MAUI
DEPARTMENT OF WATER SUPPLY. SAMPLES
TAKEN AT TAP IN COMMUNITY OF KOALI.

WAILUA-HANA WATER SYSTEM
HANA DISTRICT MAUI HAWAII

SAMPLING RESULTS
PRIMARY CONTAMINANTS

TABLE B-3.

MICROBIOLOGY RESULTS

SAMPLE DATE	MEMBRANE FILTER	5 - 10 ml TUBE	CHLORINE
	COUNT	FERMENTATION (NO. POSITIVE)	RESIDUAL mg/l
08-16-77	<1		0.0
09-20-77	<1		0.0
10-18-77	<1		-
11-15-77	2		-
12-13-77	<1		0.2
01-17-78	<1		0.0
03-28-78	<1		0.0
04-18-78	<1		0.0
05-16-78	<1		0.0
06-20-78	<1		-
08-15-78	<1		0.75
09-19-78	<1		0.5
10-24-78	<1		0.0
11-21-78	<1		0.4
12-19-78	<1		0.8
01-16-79	<1		0.6
02-21-79	16		0.8
03-05-79	<1		0.7
03-07-79	<1		0.9
03-20-79	<1		0.5
04-24-79	<1		0.7
05-15-79	<1		0.7
06-19-79	<1		0.5
07-17-79	<1		0.7
08-21-79	<1		0.6
09-18-79	<1		0.6
10-16-79		0	0.3
11-18-79		2	0.0
12-17-79		0	0.0
01-15-80		0	0.0
02-19-80		0	0.4
03-17-80		0	0.5
04-21-80		0	0.5
05-19-80		0	0.3
01-16-80		0	0.3

WAILUA-HANA WATER SYSTEM
 HANA DISTRICT MAUI HAWAII
SAMPLING RESULTS
PRIMARY CONTAMINANTS

TABLE B-4

CONTAMINANTS			CHLORIDE	COLOR	COPPER	FOAMING AGENT	IF
UNITS			mg/l	COLOR U	mg/l	mg/l	mg
M.C.L. ^a			250	15	1.0	0.5	0.
LOCATION	LAB ^b	DATE					
1. WAILUA INTAKE	DOH	06/16/75	8	10	<0.02		0.
"	BR (DWS)	07/08/80	7				<0.
"	BR (SOH)	02/12/81	7	18 ^c	0.02		0.
"	PEL (DWS)	05/08/81					<0.
"	BR (SOH)	11/12/81				<0.2	0.
3. DWS GARAGE	DOH	03/20/78	189				
"	DOH	08/20/79	35				
"	DOH	10/14/80	17				
"	BR (SOH)	11/12/81	258 ^c	5	<0.02		0.
4. WAKIU WELL "A"	DLNR	09/01/77	190				0.
5. WAKIU WELL "B"	BR (SOH)	02/12/81	142	5	<0.02		<0.
"	DLNR (DWS)	08/31/77	70				

NOTES:

- a. MAXIMUM CONTAMINANT LEVEL
- b. LAB (SAMPLED BY)
 - BR BREWER CHEMICAL (SOH) SAM C. HIROTA, INC.
 - PEL PACIFIC ENVIRONMENTAL LABORATORY (DWS) DEPARTMENT OF WATER SUPPLY
 - DOH STATE OF HAWAII DEPARTMENT OF HEALTH
 - DLNR REPORTED BY DEPARTMENT OF LAND AND NATURAL RESOURCES
- c. EXCEEDS MAXIMUM CONTAMINANT LEVEL
- d. TOTAL DISSOLVED SOLIDS

PER	FOAMING AGENT	IRON	MANGANESE	ODOR	SULFATE	T.D.S. ^a	ZINC	pH
/1	mg/l	mg/l	mg/l	TON	mg/l	mg/l	mg/l	
0	0.5	0.30	0.05	3.0	250	500	5	6.5-8.5
02		0.02	<0.03	1.0		44	1.0	
		<0.03				102		
02		0.45 ^c	0.03	5.7 ^c		31.6	0.014	6.88
		<0.03						
	<0.2	0.12						
						388		
						116		
						92		
02		0.11	<0.01		30.8	603 ^c	0.216	7.62
		0.01	0		26	392		7.8
02		<0.03	<0.01	2.8		319	0.027	7.09
			0		7.5	182		8.0

INC.
WATER SUPPLY

WAILUA-HANA WATER SYSTEM
HANA DISTRICT MAUI HAWAII
SAMPLING RESULTS
SECONDARY CONTAMINANTS
TABLE B-5

APPENDIX C
COMMENTS AND RESPONSES TO
DRAFT EIS

Yoligo L.
E5

HANNIBAL TAVARES
Mayor
TELEPHONE 254-7533



OFFICE OF THE MAYOR
HONOLULU, MAUI, HAWAII 96725

April 24, 1984



University of Hawaii at Manoa

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

8 November 1983

Mr. William S. Haines, Director
Department of Water Supply
County of Maui
P. O. Box 1109
Wailuku, Maui 96793

Dear Mr. Haines:

SUBJECT: Environmental Impact Statement for the Wailua-Hana Water System Improvements, Hana, Maui, Hawaii, September 1983

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

1. P. 2, the indicated 180 inches of annual rainfall is too high. The area shown on Fig. 1 (p. 8) has a median annual rainfall of about 75 inches. Hana town gets about 70 inches annually. The 180 inches figure is also given on p. 7.
2. P. 16, paragraph 1, regarding effects of water diversions. What, if any, measures will be taken to mitigate the adverse effects of the diversion?

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

Sincerely,

Edwin T. Murabayashi
Edwin T. Murabayashi
EIS Coordinator

ETH:ja

cc: Letitia Uyehara
Mayor Hannibal Tavares
Sam O. Hirota, Inc.

AN EQUAL OPPORTUNITY EMPLOYER

Mr. Edwin Murabayashi
EIS Coordinator
Water Resources Research Center
Holmes Hall 283
2540 Dole Street
Honolulu, Hawaii 96822

Dear Mr. Murabayashi:

Subject: Environmental Impact Statement (EIS) for Hana-Wailua Water System Improvements, Hana, Maui.

Reference is made to your letter dated 8 November, 1983, commenting on the subject draft Environmental Impact Statement. Your concerns are addressed by making the suggested corrections on pages 2, 7 of the Final Environmental Impact Statement. Concerns regarding the description and evaluation of impact of fauna and flora of Wailua Stream by the new project construction are addressed as follows:

On page 16, the Environmental Impact Statement text has been revised to reflect that except for repairs on Wailua stream intake, no other construction work will be done on Wailua Stream. Any additional water requirements will be provided by the new source of water which will be the new well at Hamoa. Therefore, no additional effects on the fauna and flora of Wailua stream is anticipated.

Thank you for reviewing our Environmental Impact Statement for the Hana-Wailua Water System Improvements.

Yours very truly,
Hannibal Tavares
Hannibal Tavares
Mayor

80119
EIS Reports

HANNIBAL TAVARES
Mayor
TELEPHONE 344-7100



OFFICE OF THE MAYOR
COUNTY OF MAUI
WAILUKU, MAUI, HAWAII 97115

April 24, 1984

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

Dear Mr. Kramer:

Subject: Environmental Impact Statement (EIS) for Hana-Wailua Water System Improvements, Hana, Maui.

Reference is made to your letter dated 2 November, 1983, commenting on the subject draft Environmental Impact Statement. Your concerns regarding the description and evaluation of impact of fauna and flora of Wailua Stream by the new project construction are addressed as follows.

On page 16, the Environmental Impact Statement text has been revised to reflect that except for repairs on Wailua Stream intake, no other construction work will be done on Wailua Stream. Any additional water requirements will be provided by the new source of water which will be the new well at Hamoa. Therefore, no additional effects on the fauna and flora of Wailua Stream is anticipated.

Thank you for reviewing our Environmental Impact Statement for the Hana-Wailua Water System Improvements.

Yours very truly,
Hannibal Tavares
Hannibal Tavares

Mayor

U.S. FISH AND WILDLIFE SERVICE
P.O. Box 50167
Honolulu, Hawaii 96850

Room 6307

NOV 2 1983

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

Re: Wailua-Hana Water System Improvements

Dear Ms. Uyehara:

The Service has reviewed the Environmental Impact Statement (EIS) which was forwarded to us with your letter of October 21, 1983 concerning the Wailua-Hana Water System Improvements. The EIS lacks information on aquatic stream fauna which may be affected by the subsequent increase in water export from Wailua Stream. Discussion should be expanded to address impacts on water quality and quantity resulting from increased diversion. We further recommend that the final EIS discuss the instream uses related to fish and wildlife resources in Wailua Stream. The document should also give consideration to protection of appropriate instream flows in the Wailua watershed. We appreciate this opportunity to comment.

Sincerely,

(s)

William R. Kramer
Acting Project Leader
Office of Environmental Services

cc: DMS, Maui
Eva J. Nicora, Inc. ✓
HONAR
HDFCA
EPA, San Francisco

801190
E/S

HANNIBAL TAVARES
Mayor
TELEPHONE 316-1515



OFFICE OF THE MAYOR
COUNTY OF MAUI
WAILUKU, MAUI, HAWAII 96793
April 24, 1984

Honorable Hannibal H. Tavares
Mayor
County of Maui
200 South High Street
Wailuku, Maui 96703

Dear Mayor Tavares:

Thank you for the opportunity to comment on the environmental impact statement (EIS) for improvements to the Wailuku-Hana water system.

The EIS omits all description of fauna and flora of Wailuku Stream, and contains no evaluation of the impact of the project on these life forms. There is also no provision for monitoring the effect of reduced stream flow on biota below the proposed intake.

Sincerely,
Susumu Ono
SUSUMU ONO
Chairperson

cc: Dept. of Water Supply,
County of Maui
S. O. Hirota, Inc.

Hr. Susumu Ono
Chairperson
Department of Land and Natural Resources
1151 Punchbowl Street
Honolulu, Hawaii 96813

Dear Hr. Ono:


Subject: Environmental Impact Statement (EIS) for Hana-Wailuku Water System Improvements, Hana, Maui.

Reference is made to your letter dated 21 November, 1983, commenting on the subject draft Environmental Impact Statement. Your concerns regarding the description and evaluation of impact of fauna and flora of Wailuku Stream by the new project construction are addressed as follows:

On page 16, the Environmental Impact Statement text has been revised to reflect that except for repairs on Wailuku stream intake, no other construction work will be done on Wailuku Stream. Any additional water requirements will be provided by the new source of water which will be the new well at Hamoa. Therefore, no additional effects on the fauna and flora of Wailuku stream is anticipated.

Thank you for reviewing our Environmental Impact Statement for the Hana-Wailuku Water System Improvements.

Yours very truly,
Hannibal Tavares
Hannibal Tavares
Mayor



 RECEIVED

 DEC - 2 1983

 STATE OF HAWAII

 DEPARTMENT OF HEALTH

 SAM O. HIROLA

 NOVEMBER 29, 1983

Mailus-Hana

 -2-

 November 29, 1983

The Department supports the project objective to bring the Mailus-Hana drinking water system into compliance with the State and Federal drinking water regulations.

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.

cc: Mr. William S. Haines

 Sam O. Hiroka, Inc.

 DHO, Maui



 Charles G. Cook

MEMORANDUM

 To: Honorable Hannibal H. Tavares, Mayor, County of Maui

 Ms. Letitia H. Uyehara, Interim Director, DEQC

 From: Director of Health

 Subject: Environmental Impact Statement (EIS) for Mailus-Hana Water System Improvements, Hana, Maui

Thank you for allowing us to review and comment on the subject EIS.

It is our understanding that the proposed improvements to the Mailus-Hana water system consist of three independent actions: (1) treatment of the existing Mailus Stream source by slow sand filtration, (2) replacement of the existing 4-inch transmission pipeline between Hana and Hana Town, and (3) drilling of a new groundwater well source near the 20,000-gallon storage tank at Hana.

The proposed groundwater well will require compliance with Section 11-20-29, Title 11, Administrative Rules. This section requires Department of Health approval of all new potable water sources serving public water systems. Such approval is based upon the submission of an engineering report satisfactorily addressing all concerns set down in Section 11-20-29, Title 11, Administrative Rules.

Concerns for well sources identified in section 11-20-29 of Title 11, include but are not limited to:

1. Nature of the soil and stratum overlying the water source;
2. Nature, distance, direction of flow and time of travel of contaminants from present and projected domestic, industrial and agricultural sources of pollution, and waste injection wells and other waste disposal facilities;
3. Probability and effect of surface drainage or contaminated underground water entering the subject water source; and
4. Water quality and quantity data during normal and stress periods.

HANNIBAL TAVARES
Mayor
TELEPHONE 244-7835



OFFICE OF THE MAYOR
COUNTY OF MAUI
WAILUKU, MAUI, HAWAII 96793

April 24, 1984

Mr. Charles G. Clark
Director of Health
State of Hawaii
Department of Health
P.O. Box 3378
Honolulu, Hawaii 96801

Dear Mr. Clark:

Subject: Environmental Impact Statement (EIS) for Hana-Wailua
Water System Improvements, Hana, Maui.

Reference is made to your letter dated 29 November, 1983, commenting on the subject draft Environmental Impact Statement. Your concerns on the proposed ground water well and the compliance with Section 11-20-29, Title 11, Administrative Rules, are addressed in the preliminary engineering report which will be completed with well pumping and water quality data for submission to the Dept of Health prior to well operation.

Thank you for reviewing our Environmental Impact Statement for the Hana-Wailua Water System Improvements.

Yours very truly,

A handwritten signature in cursive script that reads "Hannibal Tavares".

Hannibal Tavares

Mayor

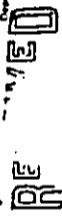
MAUI PLANNING COMMISSION
Secretary
Victoria Chung, Vice Chairman
Jesse Brown
James J. Foy
David J. Foy
Lee Z. Haring
Raymond K. Kiser
Ralph H. Kiser, Jr.
William H. Kiser, Jr.



COUNTY OF MAUI
PLANNING DEPARTMENT
200 S. HIGH STREET
HAILUKU, MAUI, HAWAII 96793

November 9, 1983

9010
83
HANNIBAL TAVARES
Mayor
1001 KAMALAMA
Planning Director
CIVIL ENGINEER
County Planning Director



NOV 14 1983
SAM O. HIROTA, L.H.C.

Mayor Hannibal Tavares
County of Maui
200 S. High Street
Hailuku, HI 96793

Dear Mayor Tavares:

- Re: Environmental Impact Statements for:
- 1) Hailua-Hana Water System Improvements
 - 2) Kaupo Water System Improvements
 - 3) Keanae Water System Improvements

Thank you for the opportunity to review the referenced environmental impact statements.

We find the statements to be adequate in identifying and assessing the impacts which can be anticipated in the proposed projects. Please note, however, that Special Management Area Permits are processed and approved by the Planning Department and Commission respectively. The E.I.S.'s indicate that this is a function of the Department of Public Works.

Should there be any questions, please contact me at any time.

Very truly yours,

Tosh Ishikawa
TOSH ISHIKAWA
Planning Director

:di

cc: William Haines
Sam O. Hirota

HANNIBAL TAVARES
TELEPHONE 8447383



OFFICE OF THE MAYOR
HAILUKU, MAUI, HAWAII 96793

April 24, 1984

Mr. Tosh Ishikawa
Director of Planning
County of Maui
200 South Street
Hailuku, Maui, Hawaii 96793

Dear Mr. Ishikawa:

Subject: Environmental Impact Statement (EIS) for Hana-Hailua Water System Improvements, Hana Maui.

Reference is made to your letter dated 9 November, 1983, commenting on the subject draft Environmental Impact Statement. Your concern that processing and approval of Special Management Area Permits by the Planning Department and Commission rather than by the Public Works Department has been corrected in the Final Environmental Impact Statement.

Thank you for reviewing our Environmental Impact Statement for the Hana-Hailua Water System Improvements.

Yours very truly,
Hannibal Tavares

Hannibal Tavares
Mayor

HANNIBAL TAVARES
Mayor
RALPH HAYASHI, P.E.
Director of Public Works
LESTER NAKASATO, P.E.
Deputy Director of Public Works
LOUIS ABREU
Superintendent of Highways
FREDERICK
Engineering Head
EDWIN KAGEHRO
Water Management Chief
ABEON SHIMOTO
Land Use Administrator



RECEIVED

501160
EIS

JUL - 1983

COUNTY OF MAUI
DEPARTMENT OF PUBLIC WORKS/M. O. HIRCIA, INC.
289 SOUTH HIGH STREET
WAILUKU, MAUI, HAWAII 96791

November 28, 1983

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

Dear Ms. Uyehara:

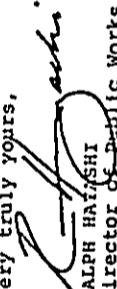
Subject: EIS for Wailua-Hana Water System Improvements,
Hana, Maui, Hawaii

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

1. A subdivision of the tank site and access road is required.
2. A variance is required for a substandard lot.
3. A building permit is required for the tank.
4. Page 83 - SMA permit is required unless project is exempted. SMA minor permit may be issued if valuation is \$65,000 or less.

Thank you for the opportunity to review and comment.

Very truly yours,


RALPH HAYASHI
Director of Public Works

cc: Mayor Hannibal Tavares
William S. Haines
Director of Water Supply
Sam O. Hirota, Inc.
LUCA

HANNIBAL TAVARES
TELEPHONE 848-7383



OFFICE OF THE MAYOR
COUNTY OF MAUI
WAILUKU, MAUI, HAWAII 96793

April 24, 1984

Mr. Ralph Hayashi
Director of Public Works
County of Maui
200 South Street
Wailuku, Maui, Hawaii 96793


Dear Mr. Hayashi:

Subject: Environmental Impact Statement (EIS) for Hana-Wailua
Water System Improvements, Hana Maui.

Reference is made to your letter dated 28 November, 1983, commenting on the subject draft Environmental Impact Statement. Your concerns regarding the tank site and access road have been addressed by sending the Department of Water Supply the required information and subdivision map. Submission of variance application and building permit will be made prior to the construction by the Department of Water Supply, Maui County.

Thank you for reviewing our Environmental Impact Statement for the Hana-Wailua Water System Improvements.

Yours very truly,



Hannibal Tavares

Mayor



SAM O. HIROTA, INC.

April 20, 1984

Mr. Gordon Okazaki
Department of Water Supply
County of Maui
P.O. Box 1109
Wailuku, Maui, Hawaii 96793

Dear Mr. Okazaki:

Subject: Environmental Impact Statement (EIS) for Hana-
Wailua Water System Improvements, Hana, Maui.

The following letters require no response:

a. Federal

U.S. Department of Interior
(Geological Survey)
U.S. Department of Agriculture
(Soil Conservation Service)
U.S. Coast Guard
U.S. Navy
U.S. Air Force

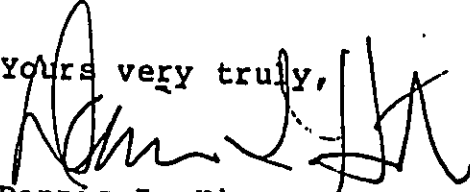
b. State of Hawaii

Office of Environmental Quality Control
Department of Agriculture
Department of Planning and Economic Development
Department of Accounting and General Services
Department of Defense (Adjutant General)

c. Non-Governmental Agencies

Maui Electric Company

Yours very truly,


Dennis I. Hirota, PhD, P.E.

Vice President

Surveying • Engineering • Computer Graphics • Ocean Sciences
345 QUEEN STREET • SUITE 500 • HONOLULU, HAWAII 96813 • TELEPHONE (808) 537-9971

C-8

80190
CS



United States Department of the Interior

GENEOLOGICAL SURVEY
Water Resources Division
P.O. Box 50166
Honolulu, Hawaii 96850

November 21, 1983

RECEIVED
NOV 21 1983

SAM O. HIROTA, INC.

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

Dear Ms. Uyehara:

RE: Mailua-Hana Water System Improvements

The U.S. Geological Survey, Water Resources Division, Hawaii District, has no comments at this time regarding the above subject matter.

We appreciate the opportunity allowed to us to review the above environmental impact statement.

Sincerely,

Stanley P. Kapuska
Stanley P. Kapuska
District Chief

Enclosure

cc: Mayor Hannibal M. Tavares, Mailuku, Maui
Mr. William S. Haines, Mailuku, Maui
Mr. Sam O. Hirota, Honolulu, Hawaii

COPY

P.O. Box 50004
Honolulu, Hawaii
96850

United States
Department of
Agriculture



November 16, 1983

RECEIVED
NOV 19 1983

SAM O. HIROTA, INC.

Ms. Leticia 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 the Mailua-Hana Water System Improvements, Hana, Maui, HI

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

Thank you for the opportunity to review the document.

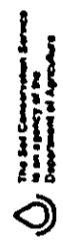
Sincerely,

Francis C.H. Lum
FRANCIS C.H. LUM
State Conservationist

cc: Honorable Hannibal M. Tavares
Mayor, County of Maui
200 South High Street
Mailuku, Maui, HI 96793

Mr. William S. Haines, Director
Department of Water Supply
County of Maui
P.O. Box 1109
Mailuku, HI 96793

Sam O. Hirots, Inc.
345 Queen Street, Suite 500
Honolulu, HI 96813





Commander (dpl)
Fourteenth Coast Guard District

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

80190
E's response



HEADQUARTERS
NAVAL BASE PEARL HARBOR
BOX 110
PEARL HARBOR, HAWAII 96860

IN REPLY REFER TO:
0028:MKL:jmm
Ser 2341
1 NOV 1983

RECEIVED

NOV - 2 1983

Mayor Hannibal M. Tavares
County of Maui
200 South High Street
Mailuku, Maui 96793

Dear Mayor Tavares:

Environmental Impact Statement
Mailuu-Hana Water System Improvements

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

Dear Ms. Uyebara:

The Fourteenth Coast Guard District has reviewed the EIS for the Mailuu-Hana Water System Improvements and has no objection or constructive comments to offer at the present time.

The EIS for the Mailuu-Hana Water System Improvements has been reviewed and the Navy has no comments to offer. As this command has no further use for the EIS, the EIS is being returned to the Environmental Quality Commission, by copy of this letter.

Thank you for the opportunity to review the EIS.

Sincerely,

J. E. SCHWARTZ
Commander, U. S. Coast Guard
District Planning Officer

By direction of
Commander, Fourteenth Coast Guard District

Copies to: (1) Mayor, County of Maui
(2) Department of Water Supply, Maui
(3) Sam O. Hirota, Inc., Honolulu

Sincerely,

M. M. DALLAM
CAPTAIN, U. S. NAVY
FACTORIAL ENGINEER
BY DIRECTION OF THE COMMANDER

Enclosure

Copy to:
Department of Water Supply, Maui
Sam O. Hirota, Inc.
Environmental Quality Commission

80190
DS

DEPARTMENT OF THE AIR FORCE
HEADQUARTERS 15TH AIR BASE WING (FACAF)
HICKAM AIR FORCE BASE, HAWAII 96813



80190
Hana Es Rpt

GEORGE S. ANTONE
DIRECTOR



Letitia N. Uyehara
Interim Director
TELEPHONE NO.
84-4413

STATE OF HAWAII
OFFICE OF ENVIRONMENTAL QUALITY CONTROL
180 HALEKAWILA ST.
ROOM 301
HONOLULU, HAWAII 96813

RECEIVED

31 OCT 1983

REPLY TO: DEEV (Mr Yamada, 449-1831)
ATTN OF: _____

SUBJECT: Environmental Impact Statements for the Kaupo, Mailua-Hana and Keanae Water Systems Improvements

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

1. This office has reviewed the following EISs and has no comment relative to the proposed projects:

- a. Kaupo Water System Improvements
- b. Mailua-Hana Water System Improvements
- c. Keanae Water System Improvements

2. We greatly appreciate your cooperative efforts in keeping the Air Force apprised of your projects and thank you for the opportunity to review the documents. The EISs are returned for your file.

Robert M. Okazaki
ROBERT M. OKAZAKI
Chief, Engrg & Envrmtl Plng Div
Directorate of Civil Engineering

- 3 Atch
- 1. EIS-Keanae Water Sys Imp
- 2. EIS-Mailua-Hana Water Sys Imp
- 3. EIS-Kaupo Water Sys Imp

cc: Mayor Hannibal M. Tavares w/o Atch
County of Maui
200 South High Street
Mailuku, Maui 96793

Mr William S. Haines, Director w/o Atch
Dept of Water Supply
County of Maui
P. O. Box 1109
Mailuku, Maui 96793

Mr Sam O. Hirota w/o Atch
345 Queen Street, Suite 500
Honolulu, HI 96813

November 28, 1983
BY: _____

Mr. William S. Haines, Director
Department of Water Supply
County of Maui
P.O. Box 1109
Mailuku, Maui, Hawaii 96793

Dear Mr. Haines:

Subject: Draft Environmental Impact Statement for the Mailua-Hana Water System Improvements

We have reviewed this EIS and have no objections to this project. Thank you for providing us the opportunity to comment.

Sincerely,

Letitia N. Uyehara
Letitia N. Uyehara
Interim Director

cc: Sam O. Hirota, Inc.

GEORGE R. ABIYOSHI
GOVERNOR



JACK K. SUMA
CHAIRMAN, BOARD OF AGRICULTURE
SUZANNE D. PETERSON
DEPUTY TO THE CHAIRMAN

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

November 2, 1983

Mailing Address:
P.O. Box 8359
Honolulu, Hawaii 96822



DEPARTMENT OF PLANNING
AND ECONOMIC DEVELOPMENT

Ref. No. 8359

November 10, 1983

COPY

MEMORANDUM

TO: Honorable Hannibal H. Tavares
Mayor, County of Maui

SUBJECT: Environmental Impact Statement (EIS) for
Wailea-Hana Water System Improvements
Department of Water Supply, Maui County
TRK: 1-5-08: por. 5 (Site I)
1-4-09: por. 2 (Site II)
1-4-02: 4, 7, 8, 10 (Site III)
1-4-07: 3, 4
1-4-09: 2
Hana, Maui

The Department of Agriculture has reviewed the subject EIS and does not foresee any significant adverse impacts upon agricultural activities as a result of the development of the proposed improvements.

Thank you for the opportunity to comment.

JACK K. SUMA, CHAIRMAN
Board of Agriculture

cc: Maui County Department of Water Supply
Sam O. Hirota, Inc.
Ms. Leticia M. Uyehara, Interim Director
Office of Environmental Quality Control

Ms. Leticia M. Uyehara
Interim Director
Office of Environmental Quality
Control
550 Halekuanila Street, Room 501
Honolulu, Hawaii 96813

Dear Ms. Uyehara:

Subject: Environmental Impact Statement for:
1) Hana Water System Improvements
2) Keanae Water System Improvements
3) Hairo Water System Improvements

We have reviewed the above documents and find that they adequately assess the major environmental impacts which can be anticipated from the proposed water system improvements.

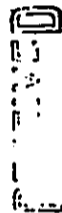
Thank you for the opportunity to comment on this matter.

Very truly yours,
Kent H. Keith
Kent H. Keith

cc: Mr. William S. Haines, Director
County of Maui, Department of Water Supply
Sam O. Hirota, Inc.

"Support Hawaiian Agricultural Products"

8049
65 Per



NOV - 4 1983

SAM O. HIROTA, INC.

(P)1885.3

NOV 3 1983

By



STATE OF HAWAII
DEPARTMENT OF DEFENSE
OFFICE OF THE ADJUTANT GENERAL
240 DUNDON ROAD, HONOLULU, HAWAII 96818

CHRISTOPHER A. JENNINGS

ALLEN T. LAM
DANIEL S. C. LI

26 OCT 1983

HIENG

Honorable Hannibal M. Tavares
Mayor
County of Maui
200 South High Street
Wailuku, Maui 96793

Dear Mayor Tavares:

Subject: Environmental Impact Statements for
(1) Wailua-Hana Water System Improvements
(2) Kaupo Water System Improvements
(3) Keanae Water System Improvements

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

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

Very truly yours,

HIDEO MURAIAMI
State Comptroller

RY:jl
cc: Ms. L. Uyehara
Mr. W. Haines
✓ Sam O. Hirota, Inc.

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

Dear Ms. Uyehara:

Kaupo Water System Improvements
Keanae Water System Improvements
✓Wailua-Hana Water System Improvements

Thank you for providing us the opportunity to review the above subject Environmental Impact Statements.

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

Yours truly,

JERRY M. MATSUDA
Major, HANG
Contr & Engr Officer

Hon Hannibal M. Tavares/Mayor, County of Maui
Mr. W. S. Haines/Dept of Water Supply
County of Maui
✓ Sam O. Hirota, Inc
Env Quality Commission w/EIS's

RECEIVED

OCT 28 1983

SAM O. HIROTA, INC.



gull/c

CUST
H-W

MAUI ELECTRIC COMPANY, LIMITED

November 8, 1983

STATE OF HAWAII
Office of Environmental Quality Control
550 Halekauwila Street, Room 301
Honolulu, Hawaii 96813

ATTENTION: Ms. Letitia N. Uyehara
Interim Director

SUBJECT: Wailea-Hana Water System Improvements (EIS)
Hana, Maui

We are in receipt of subject project's Environmental Impact Statement (EIS) submitted with your October 21, 1983 transmittal letter.

We have reviewed the EIS and concur with the Department of Water Supply, County of Maui, regarding statements contained therein regarding power availability, if applicable, for this project.

Attached is the EIS, since we have no further use for it.

Donald Chai

DONALD CHAI
Customer Engineering Supervisor

DC:rt

Enc.

cc: County of Maui
Dept. of Water Supply, Maui
Sam O. Hirota, Inc. ✓