

AUG 10 1990

JOHN WAIHEE
GOVERNOR



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OFFICE OF THE DIRECTOR
DEPT. OF HEALTH

JOSEPH K. CONANT
EXECUTIVE DIRECTOR

RECEIVED STATE OF HAWAII
DEPARTMENT OF BUDGET AND FINANCE '90 AUG -9 A9:06 IN REPLY REFER TO:
HOUSING FINANCE AND DEVELOPMENT CORPORATION

'90 AGO 21 P12:16 SEVEN WATERFRONT PLAZA, SUITE 300
500 ALA MOANA BOULEVARD
HONOLULU, HAWAII 96813
FAX (808) 543-8841

OFFICE OF ENVIRONMENTAL
QUALITY CONTROL

90:DEV/3715

August 6, 1990

To: The Honorable Bruce S. Anderson, Ph.D.
Acting Director, Department of Health
Office of Environmental Quality Control

From: *Joseph K. Conant*
Joseph K. Conant, Executive Director
Housing Finance and Development Corporation

Subject: NEGATIVE DECLARATION FOR THE DEVELOPMENT OF THE
MILOLI'I WATER SYSTEM AT MILOLI'I, SOUTH KONA, HAWAII
TMK: (3)-8-9-04:PARCELS 7,10,11,13,14,15,16, AND 22

Submitted herewith are four (4) copies of the Environmental Assessment and one (1) copy of the Negative Declaration on the above project as required by the Office of Environmental Quality Control in compliance with EIS Regulations, Chapter 343, 1:31 c2, H.R.S.

Should you have any questions, please contact Francis Blanco, Project Coordinator, at 543-2949 or James Fujimori, Assistant Project Coordinator, at 543-2942.

JKC:FB:pv

Enclosures

178

1990-09-08 HA-FEA

ENVIRONMENTAL ASSESSMENT

FOR

★ THE DEVELOPMENT OF THE MILOLI'I
WATER SYSTEM★

Prepared for

HOUSING FINANCE AND DEVELOPMENT CORPORATION

BY

HAWAII COUNTY ECONOMIC OPPORTUNITY COUNCIL

(Parts based on a prior DHHL report)

MAY 1990

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Introduction

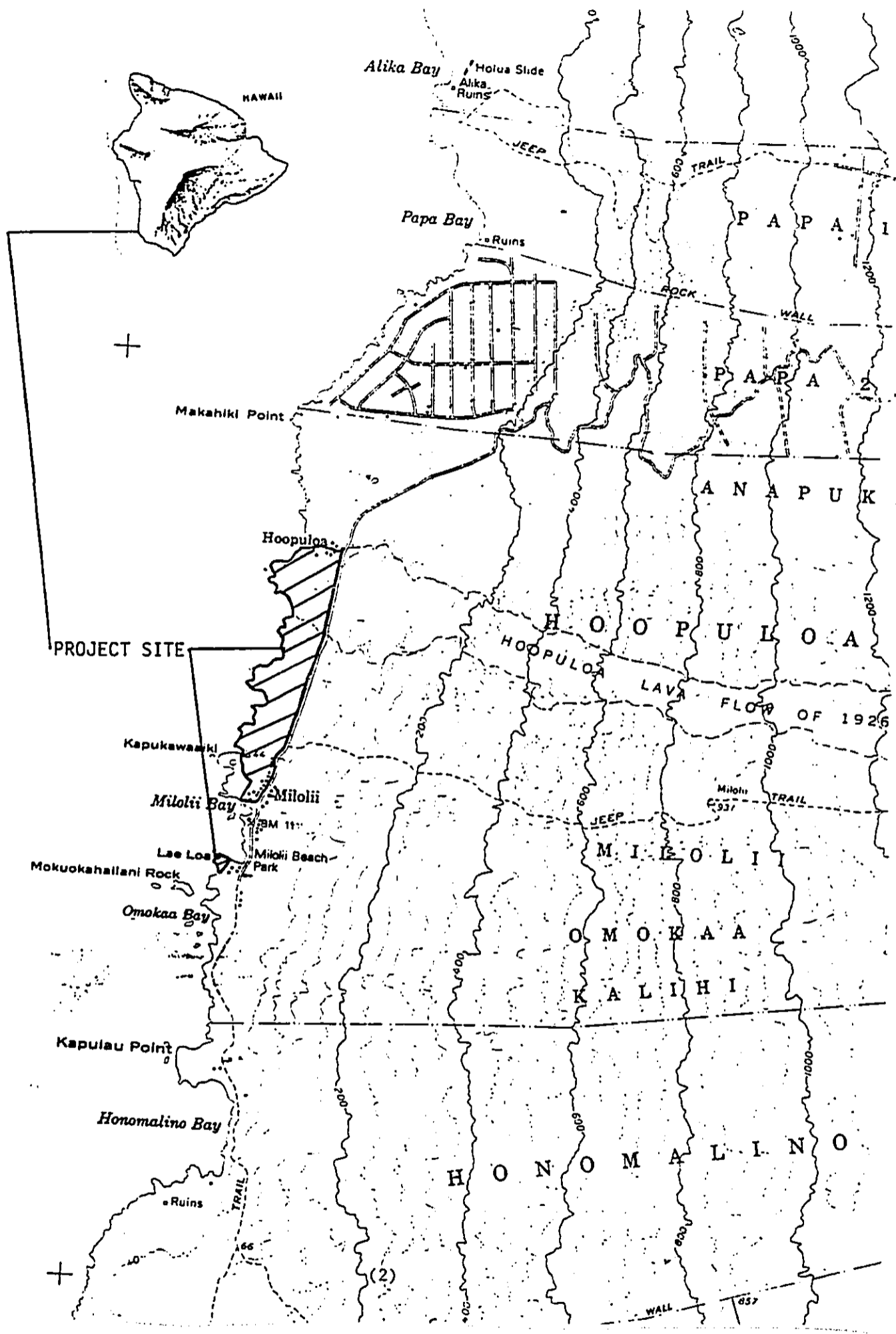
Hawaii County Economic Opportunity Council (HCEOC) proposes to develop a water system to serve the Village of Miloli'i, South Kona, County of Hawaii.

The project will be constructed in the area shown on a survey map in Pgs. 2-4 . Major components are: a demonstration low temperature desalination facility, a shallow brackish water well, two water storage tanks of about 50,000 gallons each, distribution piping for both brackish and potable water, and pumping and electrical facilities necessary to operate the system.

The project will serve approximately fifty homes in the village which are constructed along the existing government road. Each home will be connected to the brackish water distribution system so that the water may be utilized for operation of household toilet facilities and exterior uses. The homes will not be connected to the potable water supply, but will receive potable water at intermittent intervals through placement in the existing catchment holding tank systems.

Project Area

This project is located on the island of Hawai'i at Miloli'i. The proposed project site consists of about 53 acres of mostly undeveloped state land identified on TMK 8-9-04 as parcels 7, 10, 11, 13, 14, 15, 16 and 22. The area is in Miloli'i coastal zone and stretches between the ahupua'a of Ho'opuloa and Miloli'i.



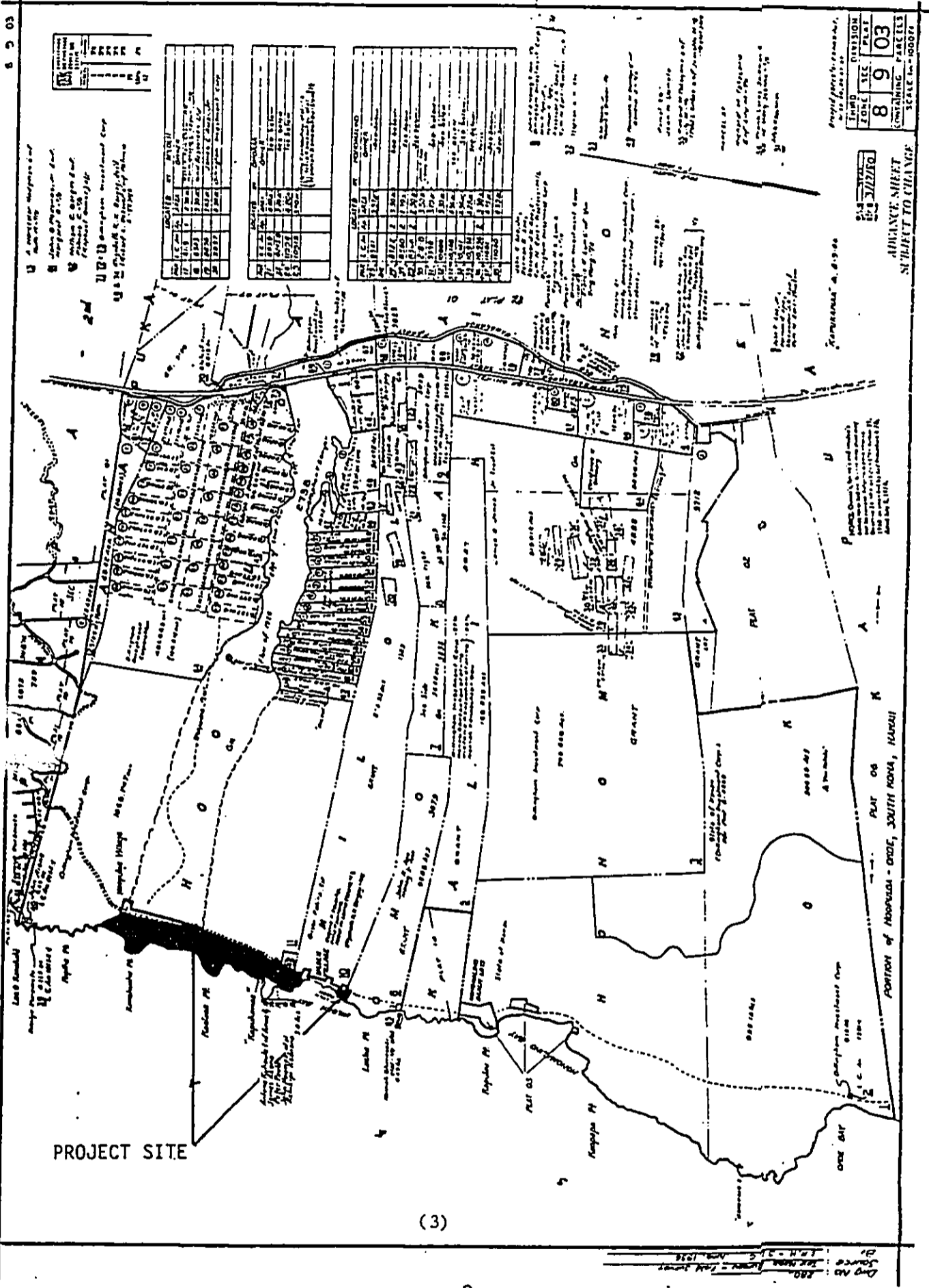


TABLE C

NO.	DESCRIPTION	DATE
1
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NO.	DESCRIPTION	DATE
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NO.	DESCRIPTION	DATE
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U. S. DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT
HONOLULU, HAWAII

PLAT 08
PLAT 06
PLAT 05

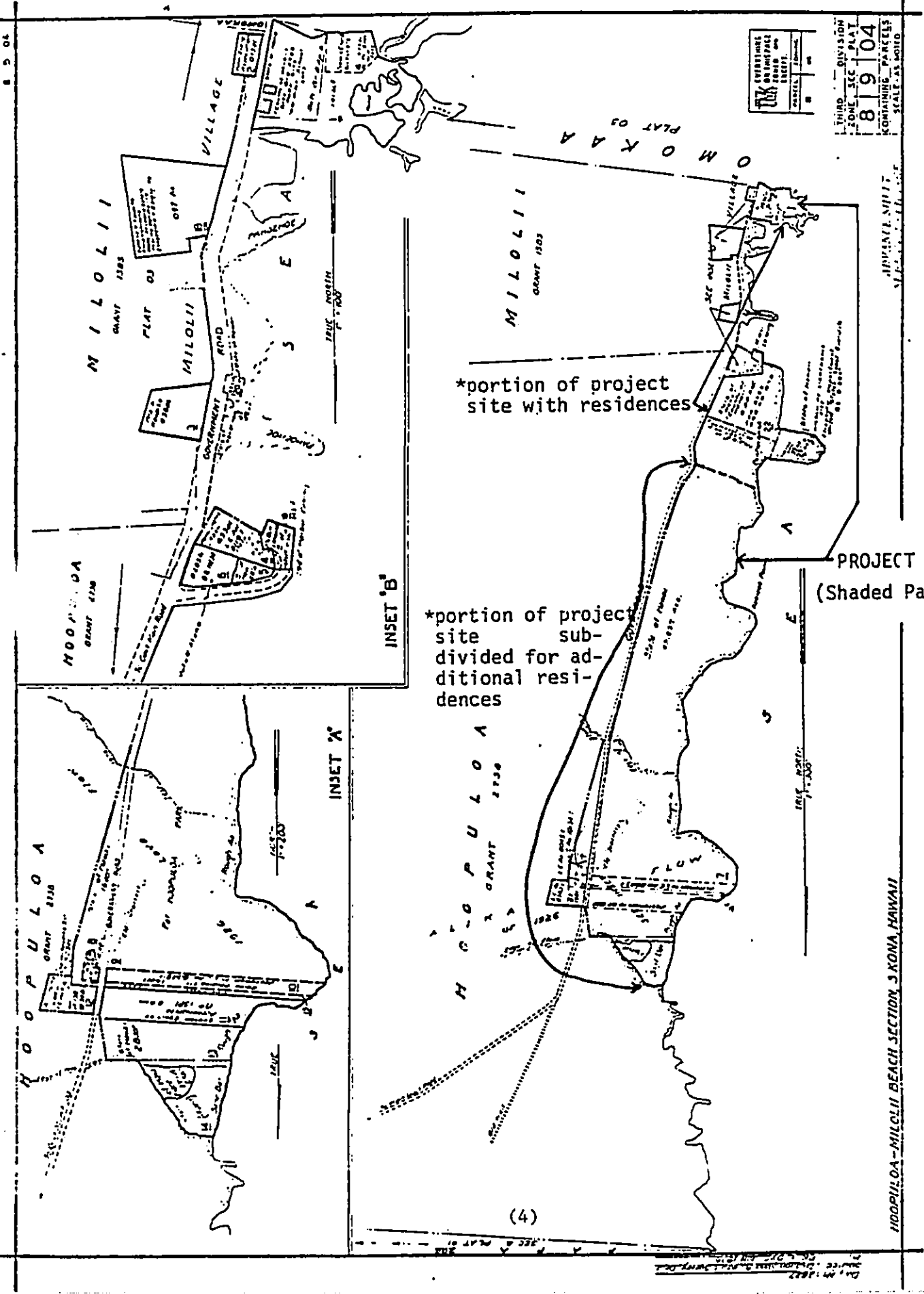
PORTION OF HONOLULU - OROKAI, SOUTH KOOLA, HAWAII

ADVANCE SHEET
SUBJECT TO CHANGE

8 9 03

SCALE 1" = 100 FT.

ENG. NO. 100
DATE: 10/15/1938
BY: [Signature]



8 5 04

HOOPULO A
GRANT 1504

MILOLII
GRANT 1505

PLAT 03

VILLAGE

SCALE 1:500

INSET 'B'

INSET 'A'

*portion of project site subdivided for additional residences

*portion of project site with residences

PROJECT SITE
(Shaded Parcels)

(4)

HOOPULO A
GRANT 1504

MILOLII
GRANT 1503

PLAT 03
OMOKA A

SCALE 1:500

HOOPULO A - MILOLII BEACH SECTION, 3 KONA, HAWAII

REVISIONS	DATE	BY

THIRD DIVISION
ZONE SEC PLAT
8 9 04
CONTAINING PARCELS
SCALE 1:500

INVENTED BY
SCALE 1:500

DATE: 12/15/82
DRAWN: [illegible]
CHECKED: [illegible]

The project site falls within the state's Conservation Land Use District and is designated as subzone G. Hawai'i County's General Plan indicates that the Miloli'i area is zoned CONSERVATION and OPEN AREA. The project site is zoned OPEN AREA. The draft Kona Regional Plan identifies the Miloli'i area as an UNPLANNED AREA.

The State Land Board amended Subchapter 2, Chapter 2, Sub-title 1, Title 13 of its Rules and Regulations to designate the project parcels at Miloli'i as a SPECIAL SUBZONE; and the County of Hawai'i designated the Miloli'i community as a SPECIAL MANAGEMENT AREA.

A CONSERVATION DISTRICT USE APPLICATION (CDUA) was filed and granted in June 1984.

In developing and completing this project, all rules and regulations of the Environmental Shoreline Protection Act will be followed, and all other applicable county, state, and federal regulations will be satisfied.

The following section reviews the impacts of this project on Miloli'i specifically and on the Kona District generally. Project Impacts A. GEOLOGY

Existing Conditions:

The Island of Hawai'i is the youngest and the largest of the Hawaiian Islands. It consists of 4,038 square miles and three of its five volcanoes have been active within the last two hundred years; Hualalai (8,271 feet), Mauna Loa (13,677 feet), and Kilauea (4,090 feet).

Miloli'i and its surrounding area have been influenced by the lava flows from Mauna Loa. Between 1832 and 1975, the volcano has erupted thirty eight times. Eight have reached down the slopes into North and South Kona and four have reached the ocean (1859, 1919, 1926, and 1950).

The project site is located on 'a'a lava from prehistoric and 1926 flows. The 1926 flow which destroyed the village of Ho'opuloa came from Pu'u o Ke'oke'o on Mauna Loa's flank.

Proposed Action:

The proposed action will allow for construction of proposed water facilities.

Impact:

The project will have no determined impact on the geologic characteristics at the site or in the surrounding area of Miloli'i.

B. TOPOGRAPHY

Existing Conditions:

Miloli'i is a coastal village located on the relatively flat Kapalilua coastline plain. Its shoreline features include a black sand beach at Ho'opuloa Bay; broad, flat, and gently sloping seaward extensions of lava flows between Ho'opuloa and Miloli'i Bays and Kapulau Point; and shallow and exposed lava platform reefs separating Miloli'i and Omoka'a Bays. The coastal lava flows are derived from prehistoric flows and the 1926 flow. A tongue of lava from

the 1926 flow enters the water south of Ho'opuloa Bay and then rises about thirty feet above the adjacent lava flows

The elevation gradient of the uplands is steady and moderate, reaching 200 feet about 3,000 feet inland of Miloli'i. The three embayments in the area, Ho'opuloa Bay, Miloli'i Bay, and Omoka'a Bay, offer little or no protection from ocean wave and surge conditions.

Four small anchialine ponds are located in the area. Three of the ponds are located just south of the village between Miloli'i Bay and Kapulau Point; while one is found just inshore from Kapulau Point. These ponds have surface areas less than 1,100 square feet. Three are less than one inch in depth and one is less than four inches in depth. All have sandy or sandy/rocky bottoms.

A shallow shelf fifteen to twenty-five feet in depth is located off the village area. The shelf drops and then rises again to form a ledge. It, then, falls off again with a gradually increasing slope reaching a depth of about 120 feet about 1,800 feet offshore.

The US Army Corps of Engineers has identified three basic bottom types of Miloli'i. From Ho'opuloa Bay to the north end of Miloli'i Bay there is a smooth to somewhat irregular lava pavement covered by boulders (eight to twelve feet in diameter), cobbles, and sand.

Offshore from the 1926 flow is a dense cover of

irregular and angular boulders and rock outcrops. Finally, from Miloli'i Bay along the north side of Omoka'a Bay and off Kapulau Point the bottom is a shallow, flat-topped platform sometimes having a "veneer" of coral rubble and sand. These platforms have sheer twenty to thirty foot drop offs along their edges which are from five to ten feet below sea level. There are also numerous deep fissures and channels which penetrate shoreward into the platforms. Large boulders lie at the foot of these drop offs. The boulder cover gradually declines until at about sixty feet, the shelf breaks into a bottom composed mostly of sand.

Proposed Action:

The project site is located on lava created from prehistoric flows and the 1926 flow. The area within the project sited slated for water facilities is between forty and sixty feet above sea level and at least 500 feet from the shoreline. Grading will be done in this area generally to level the terrain for water tanks and an access road to them. All other facilities will be constructed in areas already graded.

Impact:

The planned grading will have some impact upon the area's current topography. This should be slight, however, as grading will be minimal and will not alter the existing drainage conditions.

1 Nolan, Ron and Daniel Cheney; West Hawaii Coral Reef Inventory, US Army Corps of Engineers, Hawa, March 4, 1981: pg. 366.

C. CLIMATE

Existing Conditions:

Miloli'i's climate is similar to that of other coastal areas in the Kapalilua area. Though the island lies in the path of the northeast trade winds, Miloli'i is not influenced by them. Hualalai, Mauna Loa, and Kilauea because of their high elevations force the the trade winds upward. When the winds hit colder air at the higher elevations rain occurs. As the winds pass over the volcanoes they tend to remain at the higher elevations and do not descend to the lower elevations until they have passed well over the island. This action creates a "wind shadow" throughout the Kona District. The lack of trades limits rainfall a Miloli'i to that caused by convection; rainfall caused by the temperature differences between the land and the ocean. And, while there is no lon-term rainfall data for Miloli'i, the median annual rainfall for the Miloli'i -Ho'opuloa area is about twenty four inches.

Temperatures at Miloli'i are fairly constant throughout the year. The average range in temperature is greater over the course of a day than it is from season to season. Based on the accepted standard coastal temperature for the Kona area the annual mean temperature is about 80^o F.

Proposed Action:

The project will not affect the climate at the site or

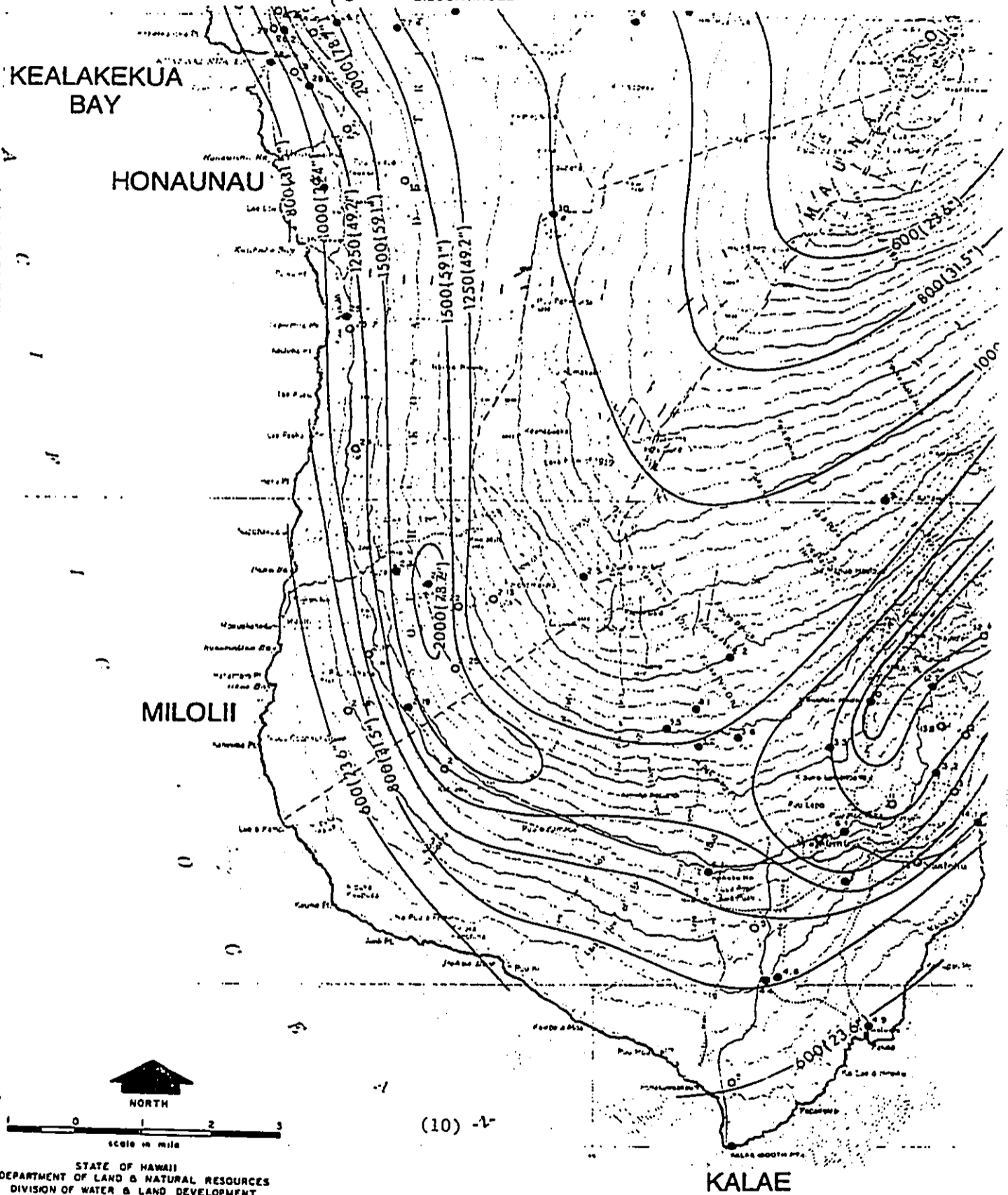
MEDIAN ANNUAL RAINFALL

ISOHYETS IN MILLIMETERS AND (INCHES)
DATA BASED TO 1975

RAIN GAGES

○ 103 GAGE AND NUMBER
● 198 DISCONTINUED

(Map from: Median Rainfall,
PLND Circular C88)



STATE OF HAWAII
DEPARTMENT OF LAND & NATURAL RESOURCES
DIVISION OF WATER & LAND DEVELOPMENT

in the surrounding areas.

Impact:

There will be no climatic impacts from this project.

D. SOILS

Existing Conditions:

The soils of the Kona District are representative of the fact that the area is geologically young. There are six identified soil-types in the Molili'i area; all of which exhibit a stony or rocky character.

'A'A Lava (rLV)

Rough broken land (RB)

Kaimu Extremely Stony Peat (rKED)

Punalu'u Extremely Rocky Peat (rPYD)

Puna Extremely Stony Muck (rPXE)

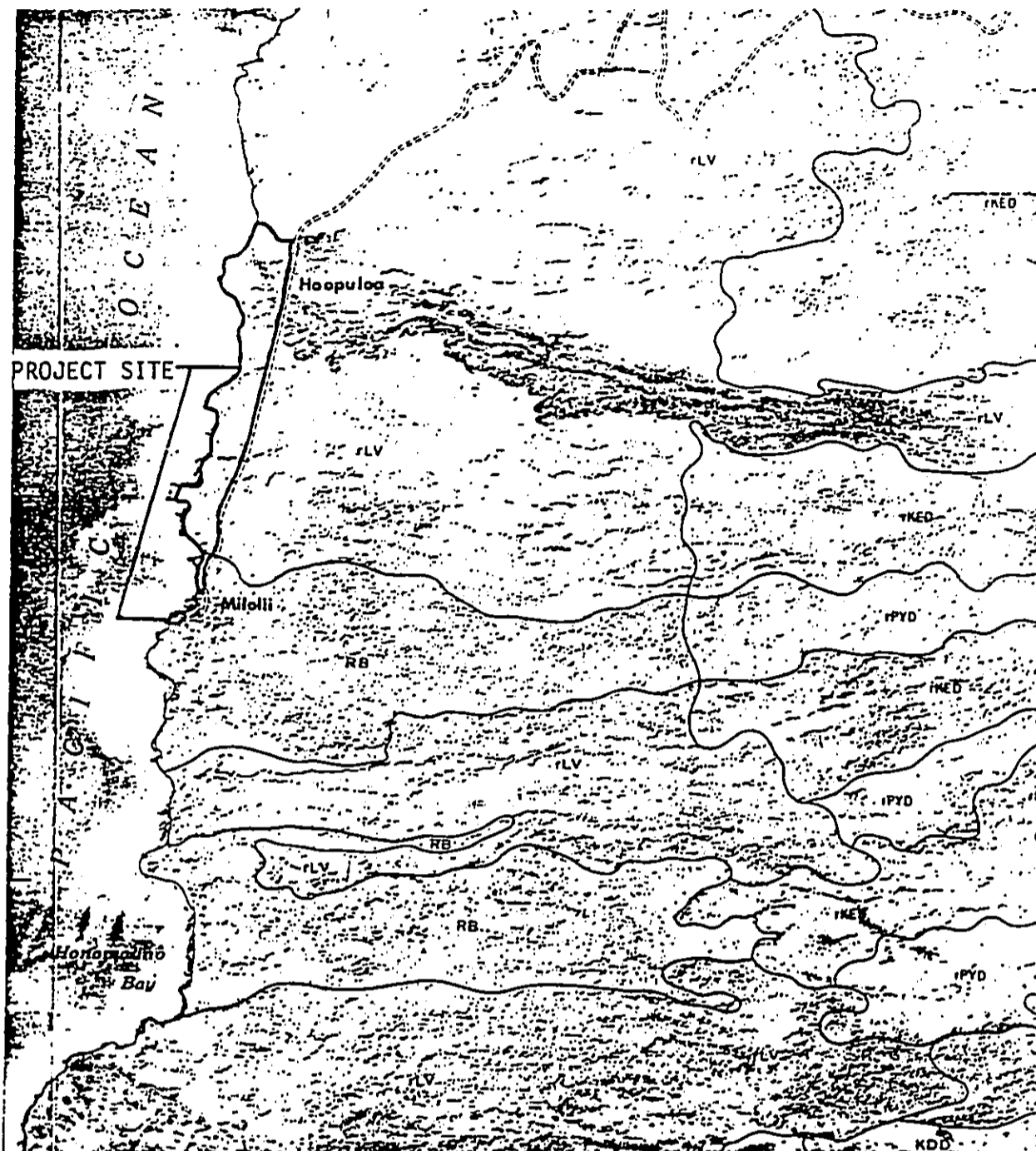
Kainaliu Very Stony Silty Clay Loam (KDD)

Two of these six soil types are present at the project site; 'A'A lava and Rough Broken Land.

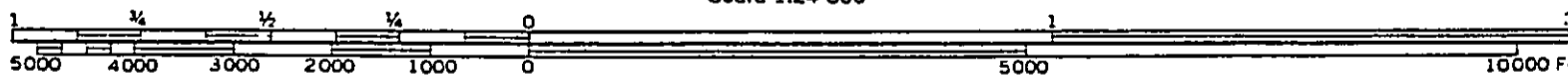
'A'A Lava (rLV)

This lava has practically no soil covering and is are of vegetation except for mosses, lichens, ferns, and a few small shrubs and trees (See Part H: Vegetation). It is rough and broken and has a mass of clinkery, hard, glassy, sharp pieces of lava piled in tumbled heaps. The 1926 flow has no soil and very little growth of any kind.

Rough Broken Land (RB)



Scale 1:24 000



(Map from: Soil Survey of Island of Hawaii, US Dept of Agriculture in co-operation with UH Agricultural Experiment Station, December 1973, Sheet 174)

This area is lava from a prehistoric lava flow. There is little soil except that brought into the area by residents or created by crushing the lava into cinders. Vegetation is more advanced than on the 1926 flow with large kiawe trees, shrubs, grasses, and miscellaneous introduced ornamentals.

Proposed Action:

Construction at the project site will involve minimum grading.

Impact:

Grading activities at the project site will level and compact the irregular lava mounds at the tank site. Heavy equipment needed to accomplish this may generate some dust. Winds in the area are generally light, however, and current residents at Miloli'i are not expected to be inconvenienced by the grading. State Department of Health rules and regulations for dust control will be adhered to (Chapter 43, Section 10).

E. WATER RESOURCES AND WATER USEAGE

Existing Conditions:

Currently, the Miloli'i community is dependent upon rainfall catchment for its water supply. In times of drought and water shortfalls, residents do use the county's water spigot at the intersection of the Ho'okena access road and Mamahaloa Highway.

Groundwater resources do occur in the area as indicated by the presence of the anchialine ponds referred to earlier. The extent of this resource is not known but the ponds do have a low salinity (5-6 ppt) which indicates a fairly stable resource.

Proposed Action:

Each residential unit is equipped with a water catchment system. Desalinated water will be distributed to those catchment system on an irregular basis as supply and demand warrant.

Brackish water will be distributed to each house via a connection to the toilet and one out-door spigot for those washing and watering uses which can withstand brackish water.

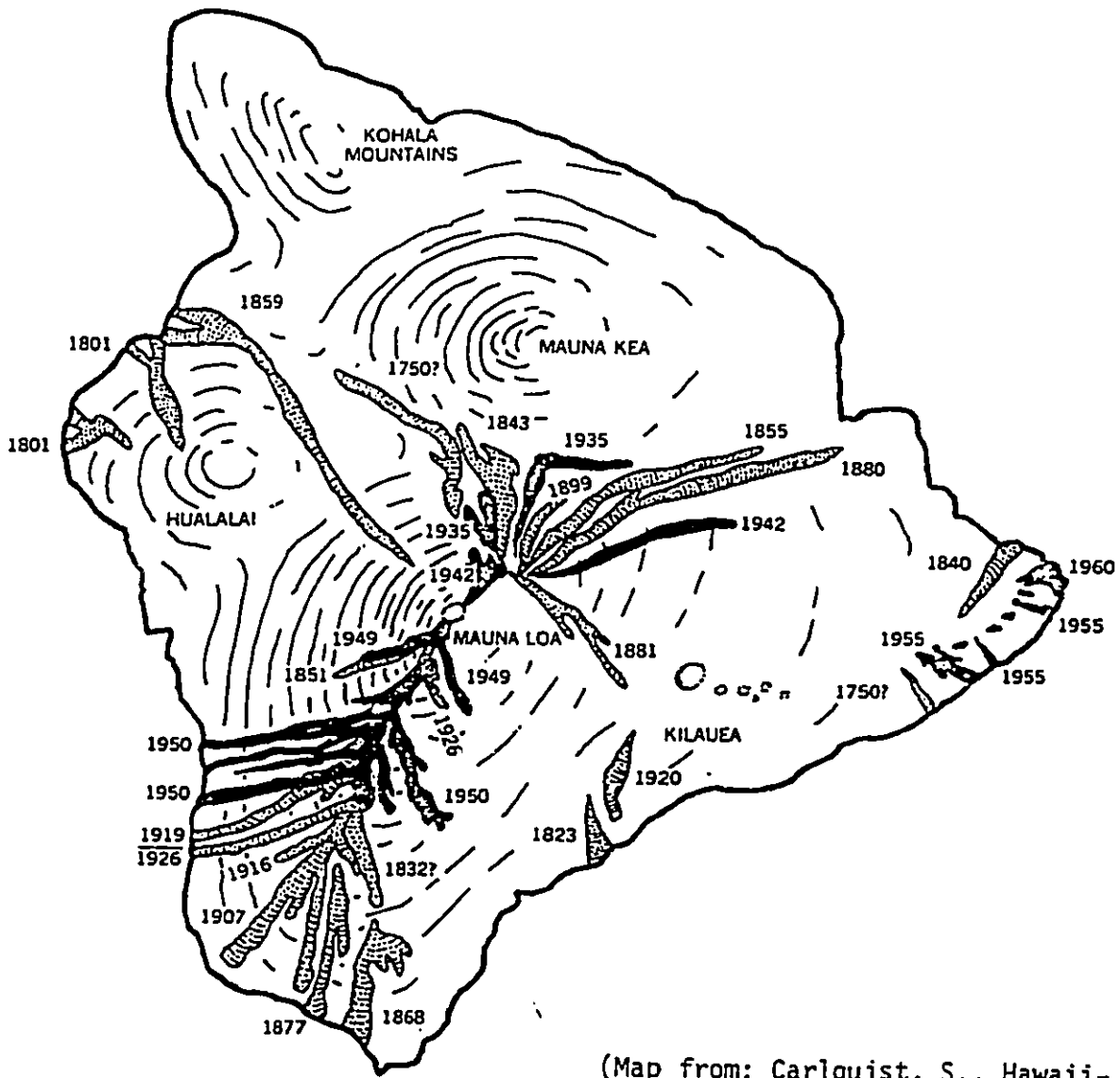
Impact:

The project will supplement current water resources in the area.

NATURAL HAZARDS

Existing Conditions:

Because of Hawai'i's volcanic origins, earthquakes and tsunamis occur with some frequency. The threat from lava flows is ever-present as witnesses by the presence of the 1926 flow, but this is not at frequent an occurrence as as has been noted previously (See Map-pg.24). Since historic time (1778), two flows have entered into the Miloli'i area (1919 and 1926). There are two fault zones in the Kona District and both are situated on the south-west flank of Mauna Loa in the



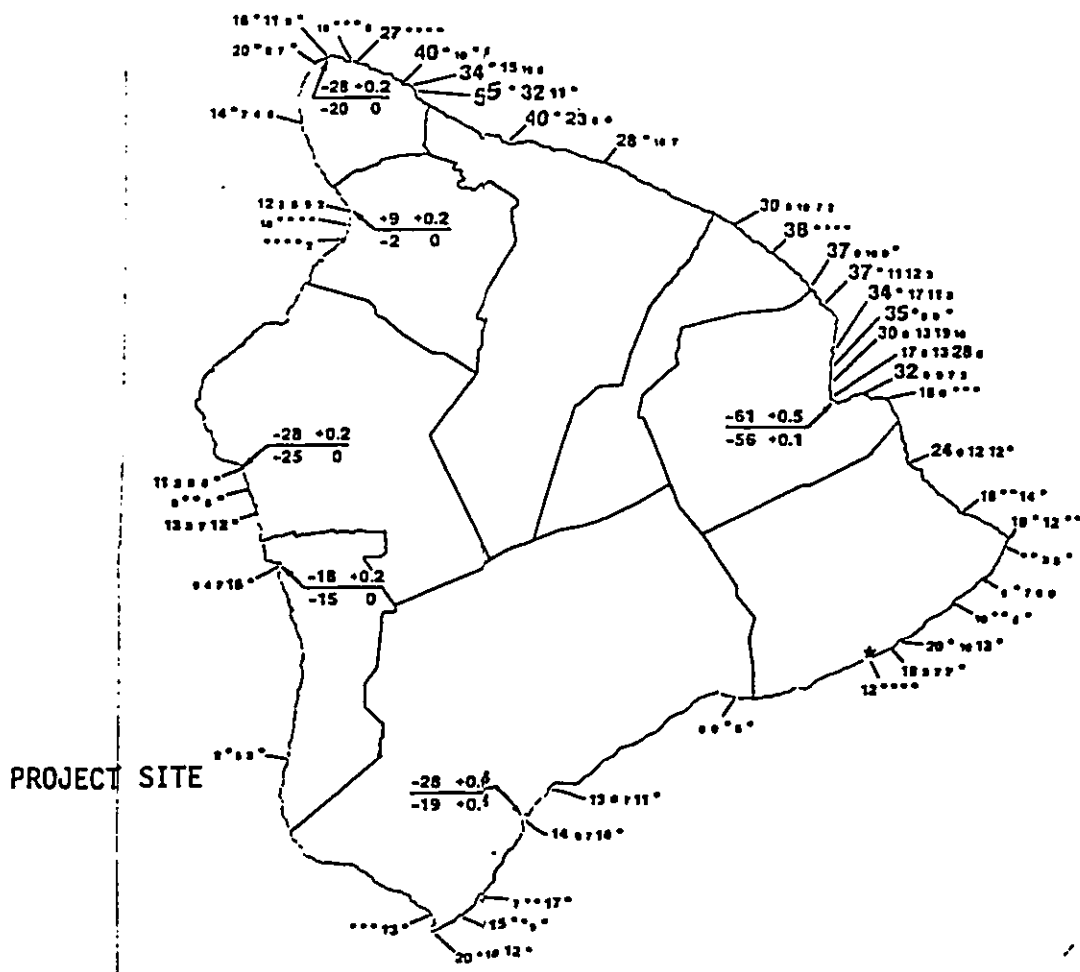
(Map from: Carlquist, S., Hawaii-
A Natural History; p. 9)

Kapalilua area.

The Kaholo fault system runs parallel to the shoreline just below the 1,000 foot elevation level between Papa Bay and Ki'ilae Bay. It has not been significantly active in historic times. The Kealakekua fault system, however, has generated a number of major earthquakes and small tsunamis. The project site is located in an area which is susceptible to damage from volcanic hazards be it from lava, earthquakes, and/or tsunamis.¹

Of the three potential hazards, perhaps, tsunamis offer the greatest threat. Over the years, tsunamis have damaged properties at Miloli'i. However, according to the latest data, the hazard is not great. Over the years the average runup of tsunamis at Miloli'i has been about eight feet.¹ The project site averages 18 to 85 feet above sea level and would not be affected by tsunamis except perhaps the area in which the uninhabited desalination facility is constructed. According to the latest data from the Federal Emergency Management Agency on Flood Insurance, the project site is subject to some flooding hazard over a 100 year period.² The next four pages detail the natural hazards from tsunamis and flooding at Miloli'i (See pg. 66-ACE opinion).

¹ Mullineaux, D. and D. Peterson; Volcanic Hazards on the Island of Hawaii; Open-file report 74-239, Hawaii, 1974.



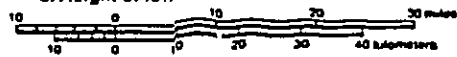
TSUNAMIS AND TIDES

Recorded heights of tsunami run-up in feet above mean lower low water datum

- (a)(b)(c)(d)(e)
- 0 0 0 0 0
- a. 1945 (from Aleutian Islands) d. 1960 (from Chile)
- b. 1952 (from Kamchatka, U.S.S.R.) e. 1964 (from Alaska)
- c. 1957 (from Aleutian Islands)

Not surveyed after tsunami run-up
 * Epicenter of 1975 earthquake; tsunami affected entire southeast coast of Hawaii Island

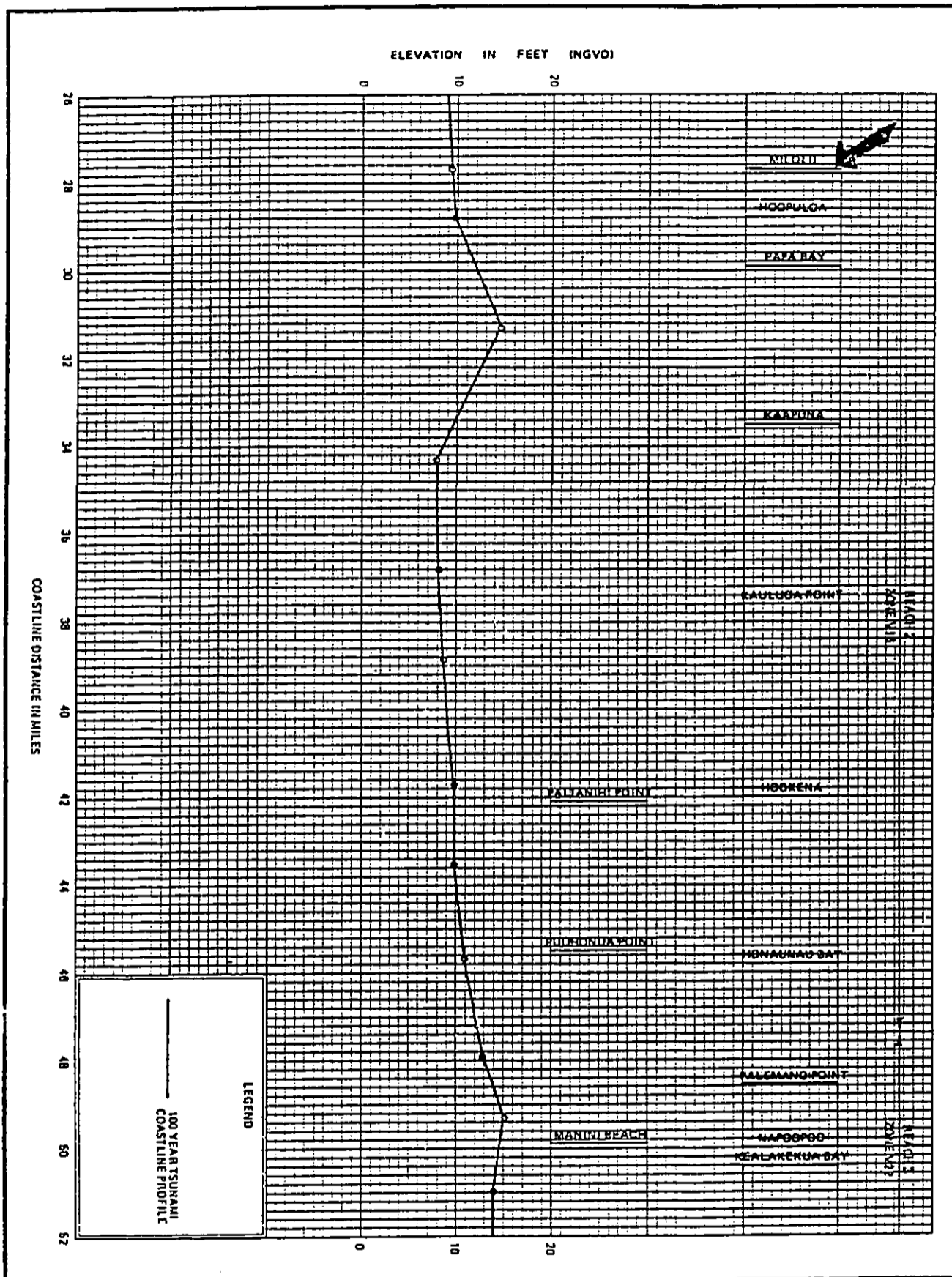
- Tidal differences compared to Honolulu
- (a) (b)
 - 0 0
 - (c) (d)
 - a. Time of high tide before or after Honolulu (minutes)
 - b. Time of low tide before or after Honolulu (minutes)
 - c. Height of high tide above or below Honolulu (feet or ratio)
 - d. Height of low tide above or below Honolulu (feet or ratio)



Source: Hawaii Institute of Geophysics, Univ. of Hawaii

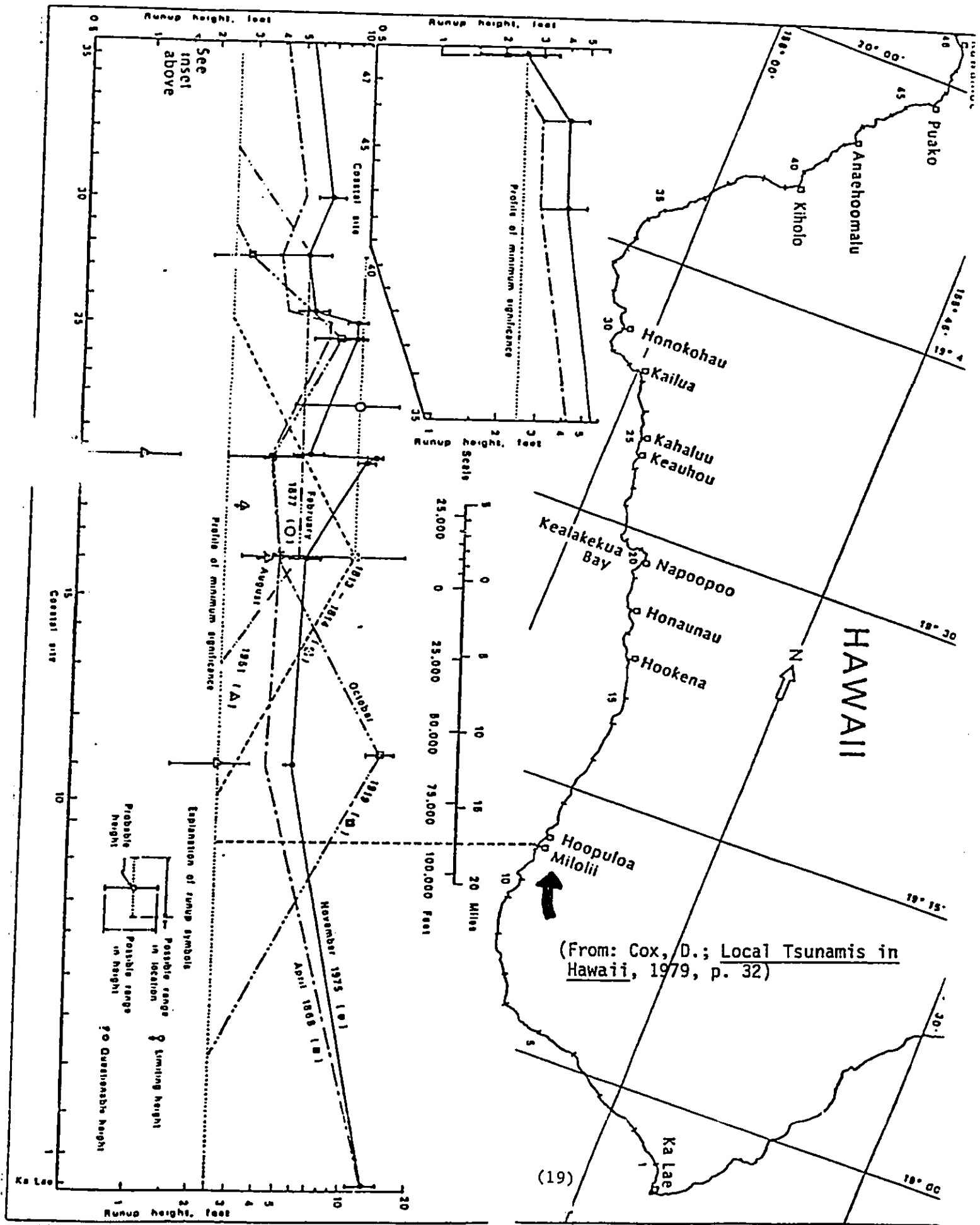
1982

(From: UH Dept. of Geography; Atlas of Hawaii, p. 58)



021	FEDERAL EMERGENCY MANAGEMENT AGENCY	TSUNAMI COASTLINE PROFILE
	HAWAII COUNTY, HI (UNINCORPORATED AREAS)	(18) COASTLINE OF HAWAII COUNTY

(From: Flood Insurance Study: Federal Emergency Management Agency) 27



(From: Cox, D.; Local Tsunamis in Hawaii, 1979, p. 32)

FLOODING SOURCE	PANEL ¹	ELEVATION DIFFERENCE ² BETWEEN 1.0% (100-YEAR) FLOOD AND			FHF	ZONE	BASE FLOOD ³ ELEVATION (NGVD)
		10% (10 YR.)	2% (50 YR.)	0.2% (500 YR.)			
Coastline of Hawaii County	Reach 1	1800,1875, 1900	-10.6	- 2.2	+ 6.2	V21	Varies
	Reach 2	1158,1166, 1169,1425, 1625, 1775, 1800	- 8.1	- 2.2	+ 5.1	V16	Varies
	Reach 3	926,928,929, 937,939, 1152,1156, 1158	-12.2	- 3.3	+ 7.9	V22	Varies
	Reach 4	25,75,128, 137,139,267, 268,269,277, 278,466,467, 468,477,478, 481,681,683 691,692,694 713,926	- 7.4	- 2.3	+ 5.2	V15	Varies
	Reach 5	25,50,100	-12.3	- 2.3	+11.7	V22	Varies

¹Flood Insurance Rate Map panels do not show all coastal flooding zones due to cliff conditions or

²map scale limitations

³Weighted average

³Rounded to nearest foot - see map

(From: Flood Insurance Study; Federal Emergency Management Agency)

FEDERAL EMERGENCY MANAGEMENT AGENCY

HAWAII COUNTY, HI
(UNINCORPORATED AREAS)

TABLE 3

FLOOD INSURANCE ZONE DATA

COASTLINE OF HAWAII COUNTY

Proposed Action:

The project site is set back from the coastline and high enough in elevation to negate tsunami danger, except as noted above. Potential problems from future lava flows may occur but can not be predicted with any certainty. Finally, danger from earthquakes will be minimized by using materials which are generally flexible enough to withstand motion.

Impact:

The project will not have any impact on the likely hood of natural hazards. Disaster warning devices are in the community and maintained by the county. An evacuation plan has been developed for the community.

¹
Cox, Doak; Local Tsunamis in Hawaii-Implications for Hazard Zoning, Hawaii Institute of Geophysics, Environmental Center CN 0020, August 1979: pg.

²
Flood Insurance Study, Hawaii County; Federal Emergency Management Agency, Community Number 155166, February 1, 1982: pg. 28.

G. COASTAL WATER QUALITY AND MARINE BIOLOGY

The coastal waters around Miloli'i are classified by the state Department of Health as class AA waters and as such are protected for "oceanographic research, the support and propagation of shellfish and other marine life, conservation of coral reefs and wilderness areas, compatible recreation, and aesthetic enjoyment."¹

All shoreline ecosystems and bottom ecosystems north of Miloli'i Bay (except the area around the 1926 lava flow) are class II. All other bottom ecosystems, including the 1926 flow, are give class I designation.

The nearshore and offshore waters in the vicinity of the project site have been surveyed by the US Army Corps of Engineers.² The platform reef extending from Miloli'i to Omoka'a Bays was found to have "outstanding physical features" because of the "highly variable and spectacular relief that occurs on the outer margins of the platform."¹ Also noteworthy is the fact that because of the 1926 flow's relatively recent exposure to the ocean, scientists have been able to use the area in comparative ecological succession studies.

¹ State Public Health Regulations, Chapter 37-A.

² West Hawaii Coral Reef Inventory; US Army Corps of Engineers, March 4, 1981.

Much of the information that follows was obtained from the US Army Corp's study.

In general, coral development on the lava platforms offshore Miloli'i Bay and other platform areas is patchy and in many cases the tops and sides of these ledge areas are bare except for a few scattered coral heads. In the high surge area colonies of Pocillopora meandrina are common, while in the medium surge zone Pocillopora meandrina and Porites lobata colonies are common. The large coulders at the base of the lava platforms, noted in Part B: Topography, are encrusted with a heavy coral growth consisting mainly of Porites lobata. The terrace bottom is dominated by finger coral (Porites compressa), and beyond the ninety foot depth level the coral cover is rare or completely absent.

The major echinoderms found in the Miloli'i area are sea urchins of the Tripneustes gratilla, Diadema paucispinum, and Echinothrix diadema species. It is interesting to note that at the time of the study, sea urchins were common except in the area offshore from the 1926 lava flow.

Ibid; pg. 368

Subtidal seaweeds are not that prevalent in the Miloli'i area except for small patches of Ulva sp. (limu pahapaha). Other species, usually heavily grazed upon by local fish, include Pterocladia capillacea (limu loloa), Pterocladia caerulescens, Sargassum sp. (limu kala, 'akala) and Turbinaria ornata (limu kala). Two species of red algae, Liagora spp. and Trichogloea spp., are abundant on rubble surfaces between patches of living coral at depths below thirty feet.

In 1970, the state conducted a fish survey at Miloli'i¹ and found the following species to be the more prevalent:

Parupeneus multifasciatus (Moana)

Pomacentrus jenkinsi (Jenkin's Damsel Fish)

Chromis vanderbilti (Vanderbilt's Damsel Fish)

Acanthurus nigrofuscus (Blackish-Brown Surgeon Fish)

Zebrasoma flavescens (La'i pala, Lau'ipala, Laukipala)

Acanthurus mata (Pualu, Puwalu)

Ctenochaetus strigosus (Kole)

Generally, the study found that the reef fish populations are "well-developed and little disturbed by local residents."

¹
Fish Transect: Miloli'i Bay, State Department of Land and Natural Resources, Division of Fish and Game, Honolulu, 1971.

The inter-tidal communities are similar to those already described. At Papa Bay and Alika Bay where fresh water is discharged into the ocean, the green seaweed, Ulva Fasciata (limu pahapaha), is plentiful. The following listing of seaweeds is a review of the various species found along the shoreline either in the water or clinging to exposed rocks:

Green: Caulerpa racemosa (hulu manu, ai a ka honu, hulu moa, limoa)

Dictyosphaeria versluysii

Enteromorpha spp. (limu 'ele'ele)

Ulva fasciata (limu pahapaha)

Chaetomorpha antennina

Brown: Dictyota friabilis (limu lipoa) Padina spp.

Sargassum sp. (limu kala)

Turbinaria ornata (limu kala)

Chinoospora spp.

Sphacelaria sp.

Giffordia sp.

Red: Centroceras clavulatum

Ceramium sp.

Galaxaura spp.

Hypnea spp.

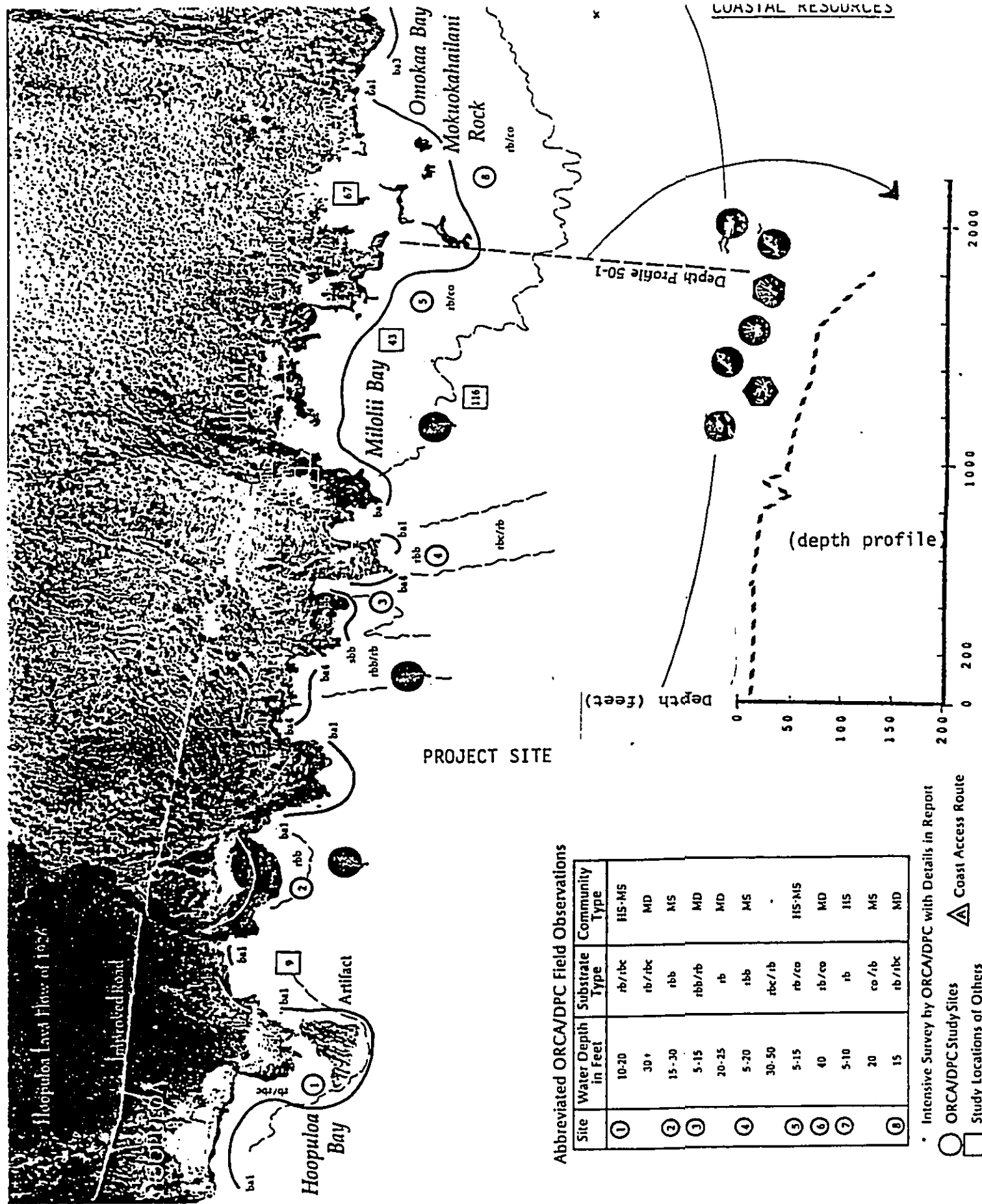
Pterocladia capillacea (limu loloa)

Ahnfeltia concinna

Amansia glomerata (limu ha'ula)

Corallina spp.

Desmia sp.



(From: West Hawaii Coral Reef Inventory, Atlas- Map. 50)
(26)

Laurencia spp.

Porphyra spp. (limu lu'au lipahe'e)

Proposed Action:

The project will divert a portion of the brackish sub-surface water flow into Miloli'i more people interested in.

Impact:

The project is not expected to have impact on the ocean resources presently found at Miloli'i.

H. VEGETATION

Existing Conditions:

The existing vegetation at Miloli'i is representative of those species associated with dry and moderate rainfall such as kiawe (Prosopis pallida), lantana (Lantana camara), and koa haole (Leucaena leucocephala). The vegetation cover varies considerably along the coast due to the relative ages of the lava flows. Vegetation at the head of Alika and Papa Bays is particularly heavy indicating the presence of subsurface ground water. Vast areas within the project site are void of vegetation, especially that portion located on the 1926 flow. At the southern end of the existing village there is a large grove of ironwood trees (Casuarina spp.), and throughout the village there are various species of ornamentals and plants associated with human settlement such as the coconut (Cocos nucifera). Christmas berry (Schinus

terebinthifolius) is found extensively throughout the project site.

While the area within the project site covered by the 1926 flow is void of vegetation, the portion where human settlement occurred first is planted. Additional residential development has sparse vegetation consisting of kiawe, koa haole, and smaller shrubs and grasses along the road.

No native Hawaiian plants have been identified within the project site.

Proposed Action:

The project will involve grading a portion of the project site and burying pipelines.

Impact:

All unburied structures are located in areas without vegetation. No pipeline will be installed through a vegetated area. The existing native plants will not be affected by the project. No "threatened" or "endangered" species have been found at Miloli'i. Community will work with representatives from the state Department.

I. FAUNA

Existing Conditions:

The vegetation, or lack of it, and the young geologic age of the Miloli'i area do not provide suitable habitats for native Hawaiian fauna or endangered Hawaiian avifauna. The

Hawaiian bat (Lasiurus cinereus semotus) is the only known "endangered" native mammal in the Kaqpalilua area. The bat is highly mobile and tends to favor the coastal upland regions. No sightings have been recorded of this creature in the Miloli'i area.

The following is a list of fauna and avifauna which presumably inhabit the Miloli'i area and probably traverse the project site on occasion:

Mammals: Hawaiian Bat (Lasiurus cinereus semotus) Feral Pig (Sus scrofa) Domestic Dog (Canis familiaris) Domestic Cat (Felis catus) Mongoose (Herpestes auropunctatus) House Mouse (Mus musculus) Polynesian Rat (Rattus exulans) Roof Rat (Rattus rattus)

Birds: Mynah (Acridotheres t. tristis) House Finch (Carpodacus mexicanus frontalis) Ricebird (Lonchura punctulata) Barred Dove (Geopelia striata) House Sparrow (Passer domesticus) Northern Cardinal (Cardinalis cardinalis) Spotted Dove (Streptopelia chinensis) Japanese White-Eyed (Zosterpos j. japonica) Pacific Golden Plover (Pluvialis dominca)

Additional life has been identified in the inland ponds¹ at Miloli'i. Three species of mollusks, Melania spp.,

Theodoxus spp., and Assimineae sp., and one species of shrimp have been found living in the three ponds; none of which is near the project site.

Proposed Action:

The project calls for the grading of a portion of the project site for construction of water tanks and ditching of road shoulders for pipeline installation.

Impact:

The impact of the project actions on the existing fauna, avifauna, and other biota at Miloli'i will be minimal and temporary.

¹ Maciolek, John and R.E. Brock; Aquatic Survey of the Kona Coastal Ponds, Sent Grant Advisory Report, University of Hawaii, 1974.

J. ARCHAEOLOGICAL SITES:

Existing Conditions:

Human settlement in the Miloli'i area undoubtedly extends back into the first millennium A.D. though little remains in the area to tell of this story. Less than a mile to the north of the project site at Alike Bay are the visible remains of a holua sled course and a number of ancient house sites. Less than a mile to the south at Honomalino Bay are more ancient house sites. Authorities differ on the etymology of "Miloli'i." Some feel that the word means "fine twist" in reference to the excellent sennit which was produced by the villagers.¹ Others indicate another possible meaning; "small swirling" in reference to the many ocean currents which generally flow past the village.²

The project site also includes part of the ancient village of Ho'opuloa which was covered by lava in 1926. This word has the connotation of "having been put in together for long time"; a reference to the activities of an ali'i husband and wife who lived in the village in ancient times.

¹
Nolan, Ron and Daniel Cheney; West Hawaii Coral Reef Inventory, US Army Corps of Engineers, Hawaii, March 4, 1981: pg. 369

²
Pukui, Mary K., Samuel Elbert and Esther Mookini; Place Names of Hawai'i, University of Hawaii Press, 1981: pg. 151.

Omoka'a and his wife, Okoe, developed a reputation for "putting" visitors to their home into the imu where they stayed "for a long time." These activities were finally broken up and the couple separated and placed into different areas; thus, the two neighboring ahupua'a of Omoka'a and okoe were formed. Note that they are separated by the ahupua'a of Kalihi and Honomalino.

Hawaiian historian, Mary Kawena Pukui, makes reference to Miloli'i in her recently published work on Hawaiian¹ proverbs:

No Miloli'i aku la paha,
Ke loli'i ala.

Perhaps the person is from
Miloli'i, to be so relaxed

(Said of one who takes it
easy)

O ka iki hawa'e 'iho
la no ia o Miloli'i

Here is the little sea
urchin of Miloli'i

(A boast-I am small but
potent)

Additional information about the Miloli'i area is being gathered from elders associated with the village community.

No documented archaeological sites have been found in the area of the project site slated for water facility development.

¹ Pukui, Mary Kawena; 'Olelo No'eau, Bernice P. Bishop Museum Special Publication #71, Honolulu, 1983: pp.254 and 163.

The portion of the project site that was covered by the 1926 flow may have had sites that were destroyed by lava. Legend has it that an ali'i from kua'i is buried on a small rise, Umi Haihai, within the project site. History does indicate that there was a relationship between the ali'i of Kua'i and those of Kapalilua. The supposed burial site, however, is not threatened by any of the planned development in the area. There may be other areas such as lava tubes used as burial sites within the surrounding area which, as yet, are not known.

Proposed Action:

The planned building and construction of water facilities on portions of the project site may lead to further archaeological discoveries in the area.

Impact:

If archaeological sites are found in the development of this project, they will be preserved and protected by the community working in concert with the Historic Sites Division of the state Department of Land and Natural Resources.

1
Negative Declaration for Improvements at Miloli'i, Hawaii;
JOB H.C. 6058, State Department of Transportation, December
14, 1977.

2
Ellis, William; Journal of William Ellis, Advertiser
Publishing Company, Hawaii 1963; pg. 125.

In 1977, the state did conduct a brief archaeological survey in filing a "Negative Declaration for Improvements at Miloli'i" and no sites were found in the impact area.¹

K. HISTORICAL SITES:

Existing Conditions:

Historically, Miloli'i has experienced a similar transition as have other small coastal villages along the South Kona shoreline. In the early nineteenth century, missionaries occasionally would make the long journey from Kailua to preach and instruct in the wawys of the Gospel. The Rev. William Ellis and his party by-passed the village but spent the night at nearby Honomalino. Their impression of the area is interesting.

Nothing can exceed the barren and solitary appearance of this part of the island, not only from the want of fresh water, but from the rugged and broken tracts of lava of which it appears to be entirely composed.²

This was in 1823. By 1854, Miloli'i was the site of one of the six major churches in the Kona District and had a congregation of 140 members.¹ By 1883, the size of the congregation had grown to warrant the Miloli'i Church (Hau'oli Kamana'o) designated as a separate mission.

¹ Hawaii Register of Historic Places File #10/65/7352; Historic Sites Division, State Department of Land and Natural Resources.

As with many of the smaller coastal communities, however, Miloli'i's population declined towards the turn of the century, and by 1920, only a handful of people lived in the village. When Ho'opuloa was destroyed by the lava flow in 1926, many of the residents moved to Miloli'i and the community began to grow again.

Between 1972 and 1974, the state conducted a survey in the Miloli'i area in an attempt to identify sites and structures for the "Hawaii Register of Historic Places." A number of churches and characteristic structures were identified. In the village of Miloli'i these included:

Magoon House - an example of the unique architecture ("small, wooden Kona House" built in the late nineteenth century") of the area.

St. Peter's Catholic Church - and example of architectural style. The church was built in 1932 by Father Steffen to replace an earlier St. Peter's destroyed by the 1926 lava flow.

Apo House - an example of typical architecture of the older houses in the Miloli'i District.

Miloli'i School - an example of architectural style. Hau'oli Kamana'o Congregational Church - an example of architectural style with historical significance.

The church was built about 1887 and is an excellent example of early missionary wood construction.

Many of these structures are in poor repair and need immediate action if they are to be preserve.

Impact:

There will be no impact on the identified historical sites from this project.

L. SOCIO-ECONOMIC CHARACTERISTICS

Existing Conditions:

Miloli'i's present resident population numbers about eighty-five people. This varies as family members may come and go for periods of time. While there is no age distribution data for the community, almost all the residents are members of family units. Almost all are native Hawaiian and have had family living at Miloli'i and/or Ho'opuloa for generations.

The major economic activity at Miloli'i is fishing. Fish are marketed in Hilo or in the Kona area depending upon fish prices at any given time. In the village there is a small store with a gasoline pump. The boat ramp is rough, but it does allow residents a launching area in their community.

Proposed Action:

The proposed action of constructing water facilities into long-term leases will have minimal physical impact on the village.

Generally, this project is not expected to have an adverse socio-economic impact on Miloli'i or in the South

Kona area. People in the proposed project site will have a more secure water supply and may be less likely to leave the area.

M. RECREATIONAL RESOURCES

Existing Conditions:

Presently, Miloli'i is the site of a county beach park which is primarily used by the residents because of its great distance from Mamalahoa Highway. The area offers swimming, shore fishing, throw netting, gill netting, and snorkeling. There is also a trail which begins at the county beach park and extends a number of miles southwards along the coast through Honomalino and Kapu'a. Future plans are to link the trail with another which winds its way northwards along the coast to Alike Bay and beyond (See Map - pg. 47).

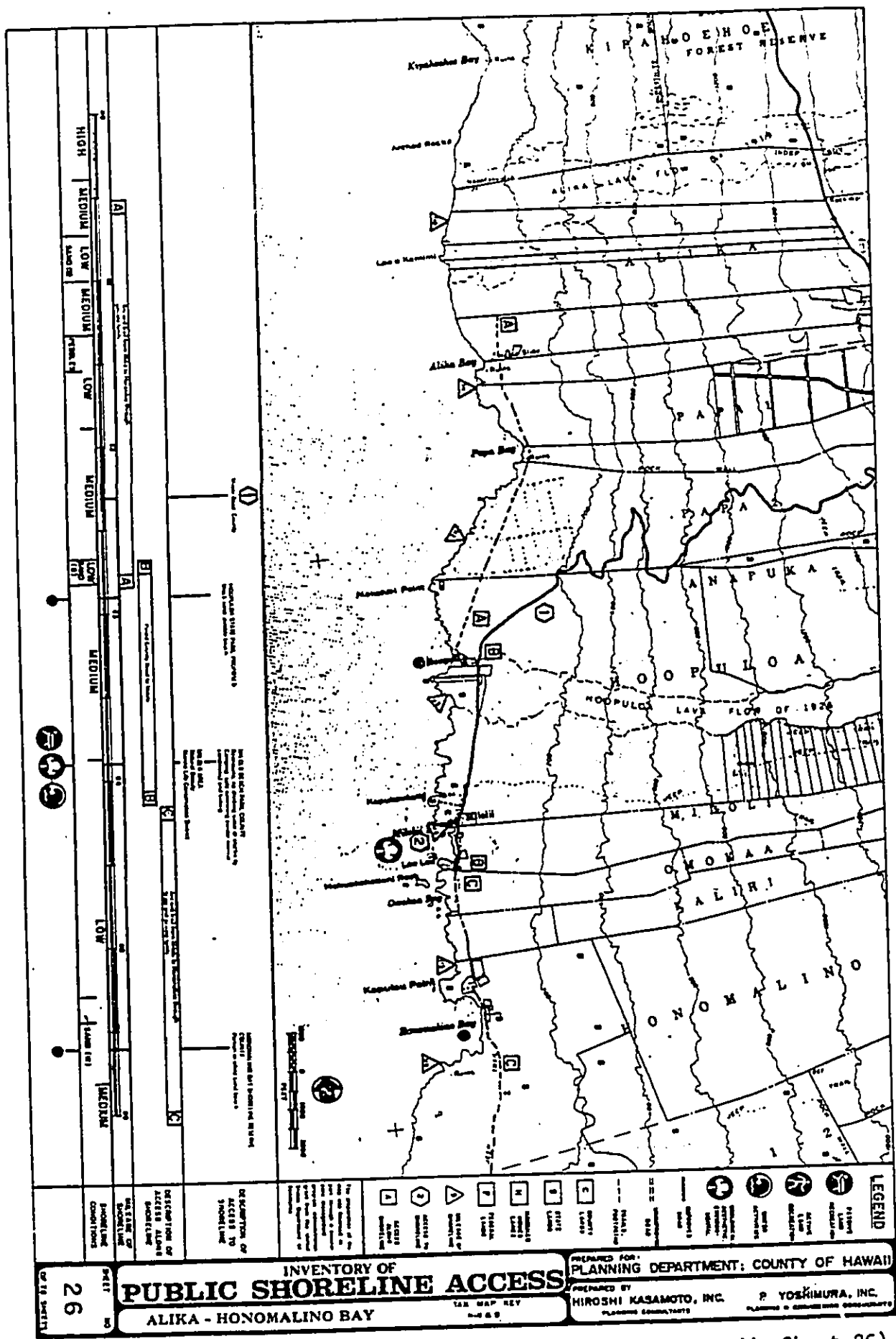
The community has expressed a desire to develop additional recreational programs for the community including paddling.

Proposed Action:

The project will not impact on existing recreational facilities at Miloli'i.

Impact:

No greater use of the existing facilities will result from this project.



(38)

(From: Inventory of Public Shoreline Access, County of Hawaii, Sheet 26)

N. INFRASTRUCTURE

1. Water Distribution -

Existing Conditions:

Presently, individual families' water needs are provide through water catchment systems attached to family residences. A county water source does exist at the intersection of Ho'okena Access Road and Mamalahoa Highway for residents needing additional water.

Proposed Action:

The project will not alter the current water distribution process. It will supplement rainfall by an amount expect to be 15% of daily demand for potable water and reduce existing demand for waste water by about 20%.

Impact:

The project's impact will not alter current distribution practices, but will make the existing system last longer in times of drought.

This additional resource is not expected to make a significant impact on existing use patterns, however.

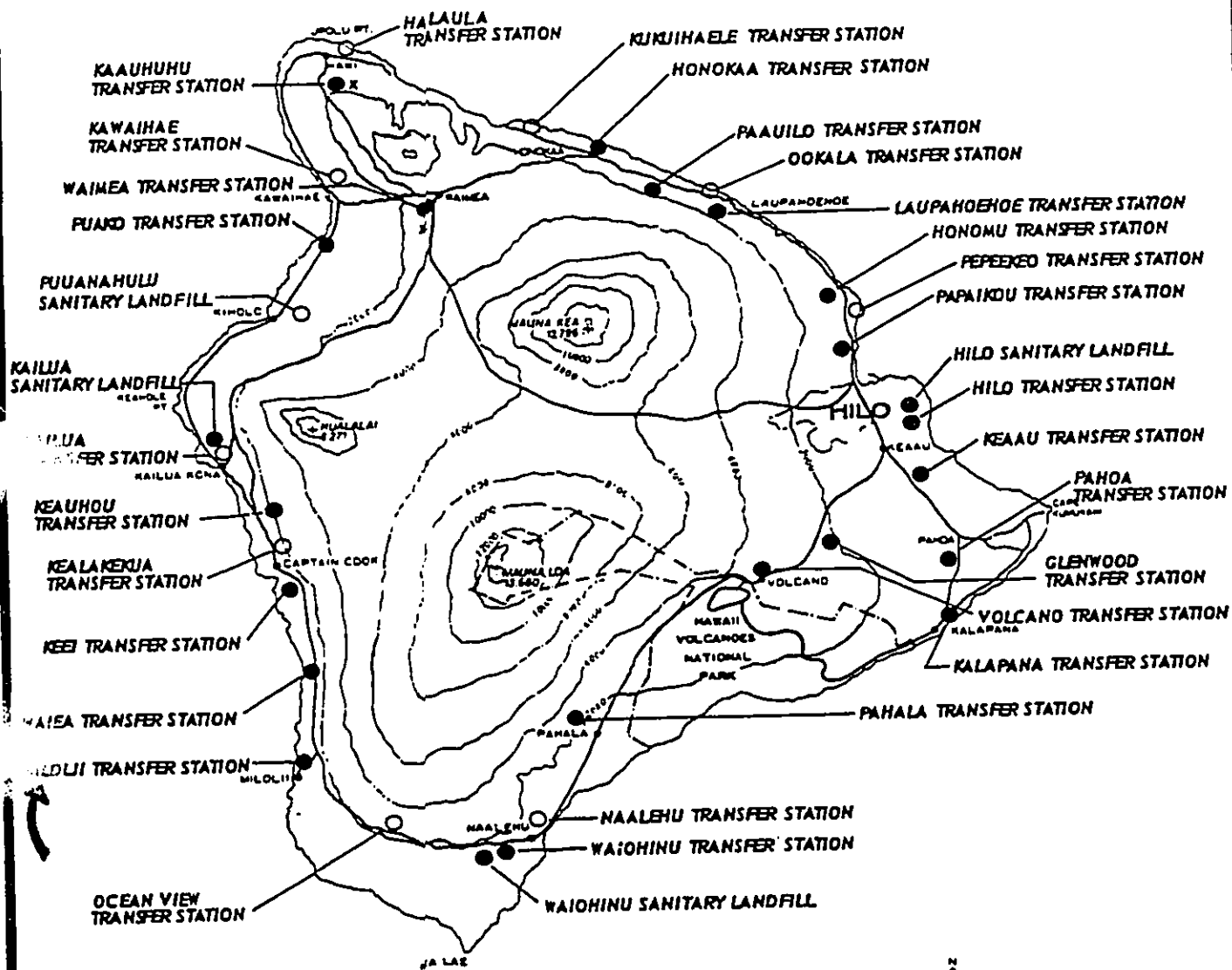
2. Sewage Disposal -

Existing Conditions:

Miloli'i residences presently are equiped with outdoor latrine toilet facilities and/or cesspools and septic tank systems for sewage disposal.

EXISTING AND PROPOSED DISPOSAL FACILITIES ON HAWAII

(From: Municipal Solid Waste in Hawaii; DPED, 1983, p. 16)



- EXISTING
- PROPOSED
- x OPEN DUMP TO BE CLOSED

Prepared by
STATE OF HAWAII
DEPARTMENT OF PLANNING AND ECONOMIC DEVELOPMENT
JUNE 1983

Source: County of Hawaii Department of Public Works

Proposed Action:

Brackish water will be substituted for potable water in existing and future septic tank systems.

Impact:

This project will have no impact on sewage disposal.

3. Solid Waste Disposal

Existing Conditions:

Presently, Miloli'i is serviced by a county refuse transfer station which is located in the community near the project site (See Map - pg.51).

Proposed Action:

Installation of water line along the roadway next to the transfer station.

Impact:

No impact is expected except some minimal reduction of access during construction.

4. Drainage -

Existing Conditions:

There is no drainage infrastructure at Miloli'i presently. Rapid natural drainage occurs because of the porous nature of the lava.

Proposed Action:

The conditions at the project site will generally negate the need for a major drainage system.

Impact:

The water project will not create any additional need for drainage facilities.

5. Traffic and Roads -

Existing Conditions:

Access to Miloli'i and to the project site is by a narrow winding county road (10 feet wide) which runs from Mamalahoa Highway.

Generally, traffic on the highway at this location is considered light. Traffic counts taken at the intersection by the state Department of Transportation indicate that during a given twenty-four hour day, traffic averages about 900 vehicles; with AM peak hour traffic close to 100 vehicles per hour going both directions, and PM peak hour traffic going both directions averaging about 70 vehicles per hour. The highway is designed to handle an hourly volume of 2,000 vehicles.

Proposed Action:

The project will require construction across and along the existing county road.

Impact:

The current road is excellent but narrow. Construction along the road will have no impact on the road's durability. The current right-of-way twenty-five feet. The road

shoulder is wide enough in most places to allow construction equipment to operate off the roadway. When pipelines must be constructed under the road one way traffic will be allowed at all times and the road surface will be repaired and returned to original condition.

Existing Conditions:

Electric power is not available at Miloli'i. Some residents do have portable generators. Telephone service has been extended to the village.

Proposed Action:

Facilities and pipelines will be constructed near existing telephone pole lines.

Impact:

The project will not impact on telephone service.

O. PUBLIC SERVICES

1. Emergency Services (Police/Fire/Ambulance) -Existing Conditions:

The closest emergency services for Miloli'i residents is Captain Cook, about fourteen miles away. Under ideal conditions response time to Miloli'i and the project site is about twenty-five minutes.

Proposed Action:

The development of additional water resources will allow the construction of water hydrants suitable for recharging fire tank trucks.

Impact:

The additional water supply will extend existing tank truck capability. It will not supply in enough volume for most pump trucks to utilize directly.

2. Schools -

Existing Conditions:

The state Department of Education buses youngsters living at Miloli'i to schools in the Kona District. The majority of youngsters attend Ho'okena Elementary/Intermediate School in Captain Cook. High school students attend Konawaena High School in Kealahou.

Proposed Action:

The water facilities will be constructed along a road used by a school bus.

Impact:

The project will not adversely impact on Kona District schools.

Section IV will review this project in relation to the existing public plans and policies.

Project Relationships to Public Policies and Plans

The development of this project is in response to the State Legislature's desire to provide additional services to Miloli'i's residents.

In order for this to be accomplished, a procedure has

been defined and discussed in Section II. That procedure, once adopted, will comply with existing public plans and policies for the Miloli'i area.

The following is a brief listing of those plans and/or policies which have a bearing on this project:

1. Hawai'i State Plan

This plan sets the parameters for development and activity in the state as it relates to public programs. This project is compatible with the State Plan's objectives and policies for the physical environment for it will provide adequate shoreline setback and continued beach and shoreline access. It will also protect Hawai'i's historic sites and allow for the continuation of a cultural lifestyle.

2. Interim State Functional Plans

This project will touch upon at least four of the twelve state functional plans; Water Resources Development, Health, Housing, and conservation Lands. In every instance, there is positive benefit to Miloli'i's residents and to the state. As conceived, the project does not conflict with any of the functional plans.

3. Hawai'i Coastal Zone Management Program

The major objectives of the Coastal Zone Management Program are to protect "valuable and vulnerable resources" such as coastal ecosystems, special scenic and cultural values, and recreational opportunities.

This project will not alter or disturb recreational activities normally associated with the shoreline. It will identify and protect any identified archaeological sites and there will be no construction fronting the shoreline. Additionally, there will be no point discharge of treated or untreated sewage into the offshore waters. And, finally, while Miloli'i is located in a flood hazard zone (V16), the project site is above most tsunami run-up levels and is not prone to flooding.

4. County of Hawai'i Special Management Area

The county's Special Management Area extends inland from the shoreline 300 feet and is a mechanism for controlling development activities which may not be desirable or warranted.

This project will involve development, but it will be controlled to within the project site. Grading will be done.

5. County of Hawai'i's General Plan

Hawai'i County's General Plan established the parameters for growth and development on the Big Island. The plan identifies Miloli'i as an OPEN AREA. An application to amend this designation as it relates to Miloli'i and the project site was filed and the state redefined and designated Miloli'i as a Special Subzone.

The General Plan does recognize the urban nature of Miloli'i as it does identify the lands around the village as URBAN.

6. Kona Regional Plan

The draft Kona Regional Plan does not include the project site within its conceptual land use map, thus, leaving it and Miloli'i as an UNPLANNED AREA.

7. County of Hawai'i's Inventory of Public Shoreline Access

Hawai'i County's Public Access Plan identifies various sites in Miloli'i (See Map-pg. 47). None of the sites will be affected by this project.

8. Hawaii State Comprehensive Outdoor Recreation Plan(SCORP)

The state plan identified resources which have been noted in this text (trail development). This project will not affect the proposed trail development for the area.

9. Hawai'i Water Resources Plan (Hawai Water Resources Regional Study)

As with the State Functional Plans, there are a number of areas where this project will touch upon objectives noted in the Water Resources Plan. In implementing this project the plan goals are furthered.

10. State Tourist Study

This study identifies the major areas which are of interest to tourist. It should be noted that Miloli'i and its county park were not included in the inventory. Miloli'i is a minor tourist attraction.

The project facilities will have minimal impact on view planes that could affect tourism.

SECTION V

References:

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Draft Kona Plan, 1983.
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- Neal, Marie; Hawaiian Marine Algae, Bishop Museum Bulletin 67, Honolulu, 1930.
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- Pukui, Mary Kawena; 'Olelo No'eau, Bishop Museum Special Publication 71, Honolulu, 1983.

State of Hawai'i:

Interim Functional Plans, 1981.

- o State Transportation Plan
- o State Water Resources Development Plan
- o State Historic Preservation Plan
- o State Recreation Plan
- o State Health Plan
- o State Education Plan
- o State Housing Plan
- o State Conservation Lands Plan

Water Quality Management Plan for the County of Hawai'i. Department of Health, vol. 1 and II (20B study), October, 1978.

Fish Transit: Miloli'i Bay. Department of Land and Natural Resources, Division of Fish and Game, Honolulu, 1971.

Hawai'i Register of Historic Sites File 10/65/7352. Department of Land and Natural Resources, Historic Sites Division, Honolulu.

Hawai'i Water Resources Plan. Department of Land and Natural Resources, Hawai'i Water Resources Regional Study, Honolulu, January, 1979.

Median Rainfall, State of Hawai'i. Department of Land and Natural Resources, Division of Water and Land Development Circular C88, June, 1982.

Municipal Solid Waste in Hawaii. Department of Planning and Economic Development, Honolulu, July, 1983.

State Comprehensive Outdoor Recreation Plan. Department of Planning and Economic Development, December, 1975.

Negative Declaration for Improvements at Miloli'i, Hawai'i. Department of Transportation, JOB H.C. 6058, December 14 1977.

Atlas of Hawai'i. University of Hawai'i Department of Geography, Honolulu, 1983.

US Government:

Flood Insurance for Hawai'i County. Emergency Management Agency, Community Number 155166, February 1, 1982.

Soil Survey of Island of Hawai'i, State of Hawai'i. Soil Conservation Service in cooperation with Hawaii Agricultural Experiment Station, December, 1973.

ATTACHMENTS

STATE OF HAWAII
ALLOTMENT ADVICE

RECEIVED
 H.F.D.C.

1988 12 10 16 AM '90

TO: The Honorable Yukio Takemoto, Director
Department of Budget and Finance

ADVICE NO. 90-0703
 XXXXXXXX

COMPTROLLER'S NO. _____
 XXXXXXXX

I have this day approved the following allotment from general obligation bond fund
 appropriation authorized by Section 280, Act 216, SLH 1987, as amended by Act 390,
 SLH 1988, for the purpose indicated:

TC	F	YR	APP	D	ALLOT. CAT.	ITEM	TITLE AND PURPOSE OF ALLOTMENT	AMOUNT
XXX	X	XX	XXX	XX	XX	XXXX	(20 X)	XXXXXXXXXXXX X
		88	428	C		A-35A	Milolii Village (C) Construction of water wells, water desalination, storage tanks, water lines and any necessities to provide water for Milolii residents in fulfillment of health requirements by the DOH.	200,000 00
474	B	88	800	O		A-35A	Milolii Village (C)	200,000 00
531	B	88	800	O		A-35A	Milolii Village (C)	200,000 00
							Total Allotment - \$200,000.00	
							Purpose: To finance construction to provide water for Milolii residents, South Kona, Hawaii.	
							Statewide Project No. HF89030C	
							Note: As authorized by Section 317 of Act 216, SLH 1987, as amended by Act 390, SLH 1988, the above funds were delegated to the Executive Director of the Housing Finance and Development Corporation by the	

STATE OF HAWAII
ALLOTMENT ADVICE

RECEIVED
 H.F.D.C.

MAR 12 10 16 AM '90

TO: _____

ADVICE NO. 90-0703
 XXXXXXXX

COMPTROLLER'S NO. _____
 XXXXXXXX

TC	F	YR	APP	D	ALLOT. CAT.	ITEM	TITLE AND PURPOSE OF ALLOTMENT	AMOUNT
XX	X	XX	XXX	XX	XX	XXXX	(20 X)	XXXXXXXXXXXX XX
							Chairperson of the Board of Land and Natural Resources per memorandum dated August 22, 1989.	

John W. Wick
 GOVERNOR, STATE OF HAWAII

[Signature]
 DIRECTOR OF BUDGET AND FINANCE

DATE: March 5, 19 90



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

JAN 06 1984

January 4, 1984

REPLY TO
ATTENTION OF

Mr. Hardy Spoehr
Director, Community Development Program
Native Hawaiian Development Office
Department of Hawaiian Home Lands
State of Hawaii
P. O. Box 1879
Honolulu, Hawaii 96805

Dear Mr. Spoehr:

We are responding to your letter of December 13, 1983, requesting potential flood and tsunami hazards for property along the southwest coast of the island of Hawaii, described as follows:

MILOLII COMMUNITY PROJECT

Tax Map Keys 8-9-03 and 8-9-04 (Enclosure 1)

Identifying coastal areas situated within the Hawaiian land divisions "Ahupuaas" Okoe, Honomalino, Kalihi, Omokaa, Milolii, and Hoopuloa at South Kona, Hawaii.

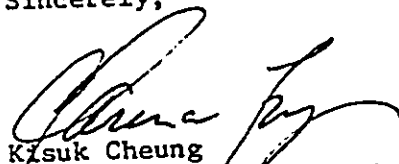
Based on the best available data for tsunami flood hazards in the area, we are providing the following information:

a. According to the Flood Insurance Study for the County of Hawaii prepared by the Federal Insurance Administration (FIA) in May 1982, the entire tax map plats are designated Zone C or areas of minimal flooding. Zone C areas are not regulatory flood plain areas under the National Flood Insurance Program. Tsunami inundation is minimal along this stretch of coastline according to the FIA flood study and, therefore, no FIA flood hazard maps were printed for the area.

b. Recorded tsunami wave heights along the coastline of Hawaii are presented in technical report HIG-76-5/NOAA-JTRE-161, entitled "Tsunami Wave Runup Heights in Hawaii", dated May 1976, and prepared by the Hawaii Institute of Geophysics at the University of Hawaii and the Joint Tsunami Research Effort of the National Oceanic and Atmospheric Administration (Enclosure 2). Recorded measurements of wave heights at the shoreline along this particular coastline range from 2 to 5 feet referenced to Mean Lower Low Water (MLLW) for tsunami data taken in 1946, 1957, and 1960. Measurements can be referenced to Mean Sea Level, which is approximately 0.8 foot above MLLW, and is more commonly used as a reference datum for local development and planning purposes.

We hope the furnished information is useful in assisting the Milolii Community in developing a plan for establishing native Hawaiian Homestead lands. You may direct any inquiries on the above or on other flood-related matters to our Flood Plain Management Section at 438-2883.

Sincerely,


Kisuk Cheung
Chief, Engineering Division

Enclosures

Copy Furnished: with/enclosure

Mr. Edward Harada
Chief, Engineer, Department of
Public Works
County of Hawaii
25 Aupuni Street
Hilo, Hawaii 96720

TSUNAMI WAVE RUNUP HEIGHTS IN HAWAII

By

HAROLD G. LOOMIS

MAY 1976

HAWAII INSTITUTE OF GEOPHYSICS
UNIVERSITY OF HAWAII, HONOLULU
and
JOINT TSUNAMI RESEARCH EFFORT
PACIFIC MARINE ENVIRONMENTAL LABORATORY
ENVIRONMENTAL RESEARCH LABORATORIES, NOAA

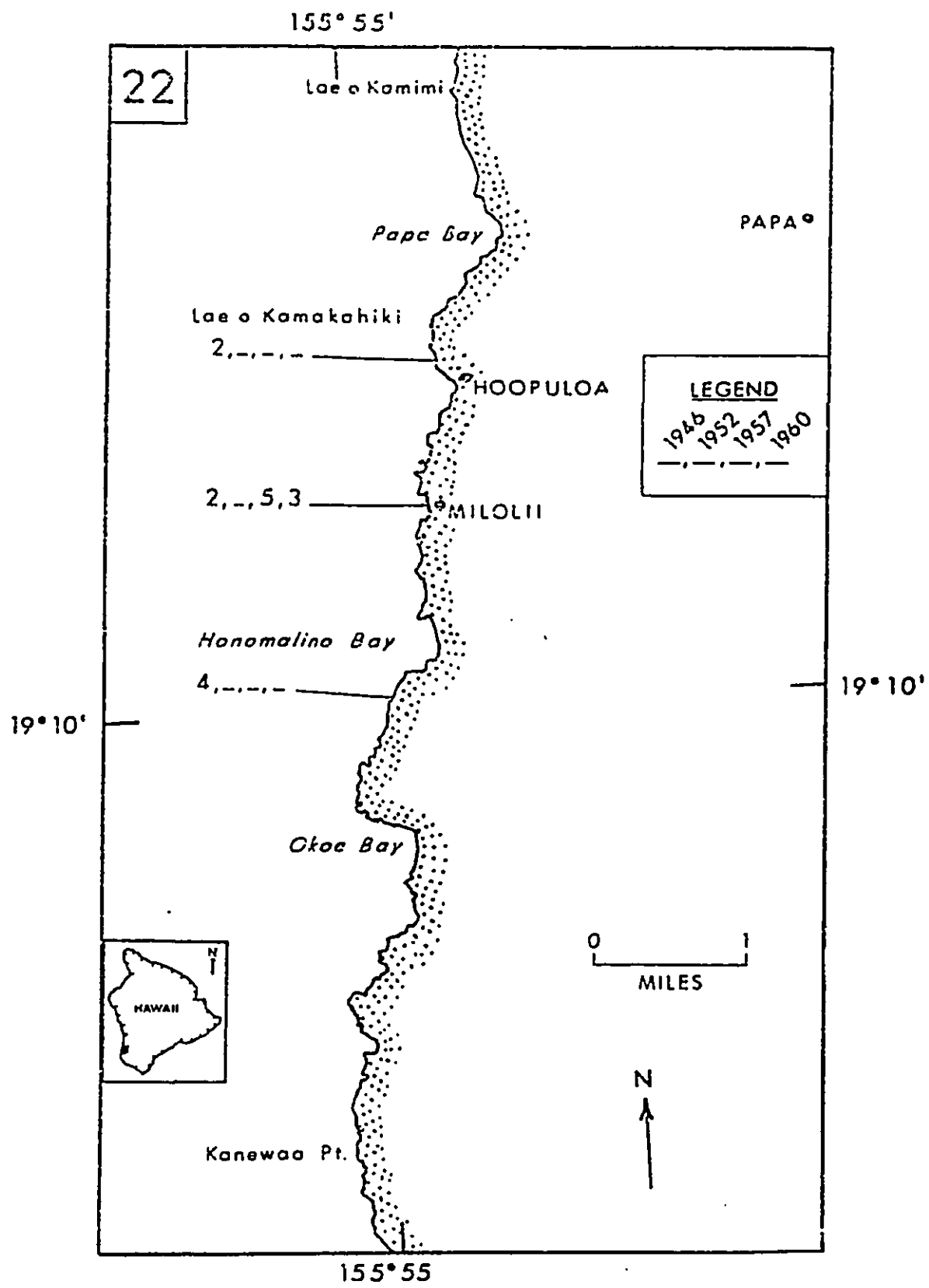
HAWAII INSTITUTE OF GEOPHYSICS
UNIVERSITY OF HAWAII



Encl. 2

ABSTRACT

This report presents maps of the shorelines of the Hawaiian Islands on which are recorded the wave heights of tsunamis in 1946, 1952, 1957, 1960, 1964, and 1975. A brief history of tsunamis in Hawaii since 1819 is given along with a section on the statistics of tsunami prediction.



NEGATIVE DECLARATION
FOR THE
DEVELOPMENT OF A WATER SYSTEM

SITUATE AT
MILOLI'I, SOUTH KONA, HAWAII

FILE COPY

I. IDENTIFICATION OF PROPOSING AGENCY

Housing Finance and Development Corporation

II. IDENTIFICATION OF APPROVING AGENCY

Housing Finance and Development Corporation State of
Hawaii

III. IDENTIFICATION OF AGENCIES CONSULTED IN MAKING
ASSESSMENT

A. State of Hawaii:

1. Housing Finance and Development Corporation
2. Department of Health - Drinking Water Section
3. Department of Land and Natural Resources
Department of Water and Land Development -
(DOWALD)

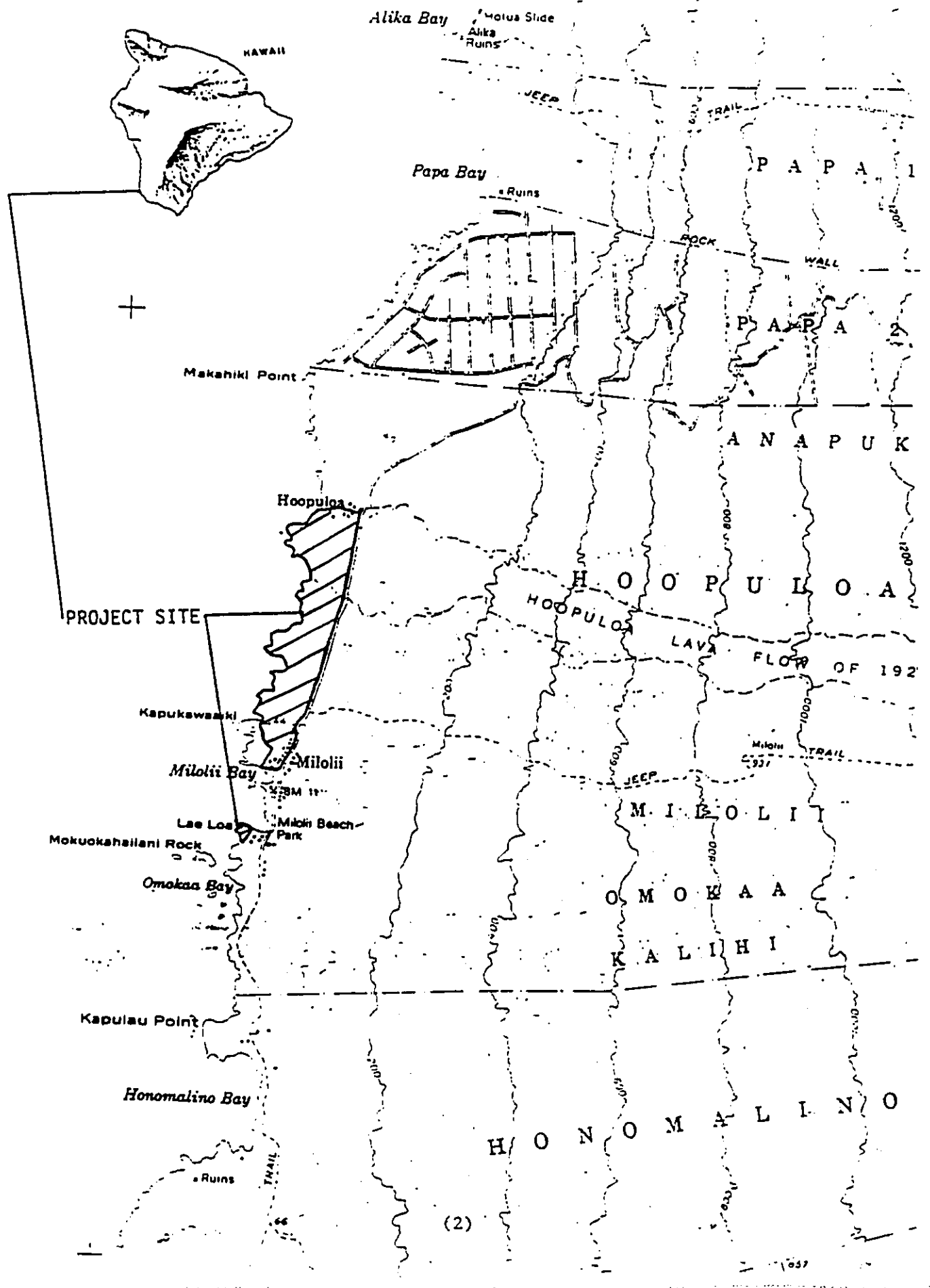
B. County of Hawaii

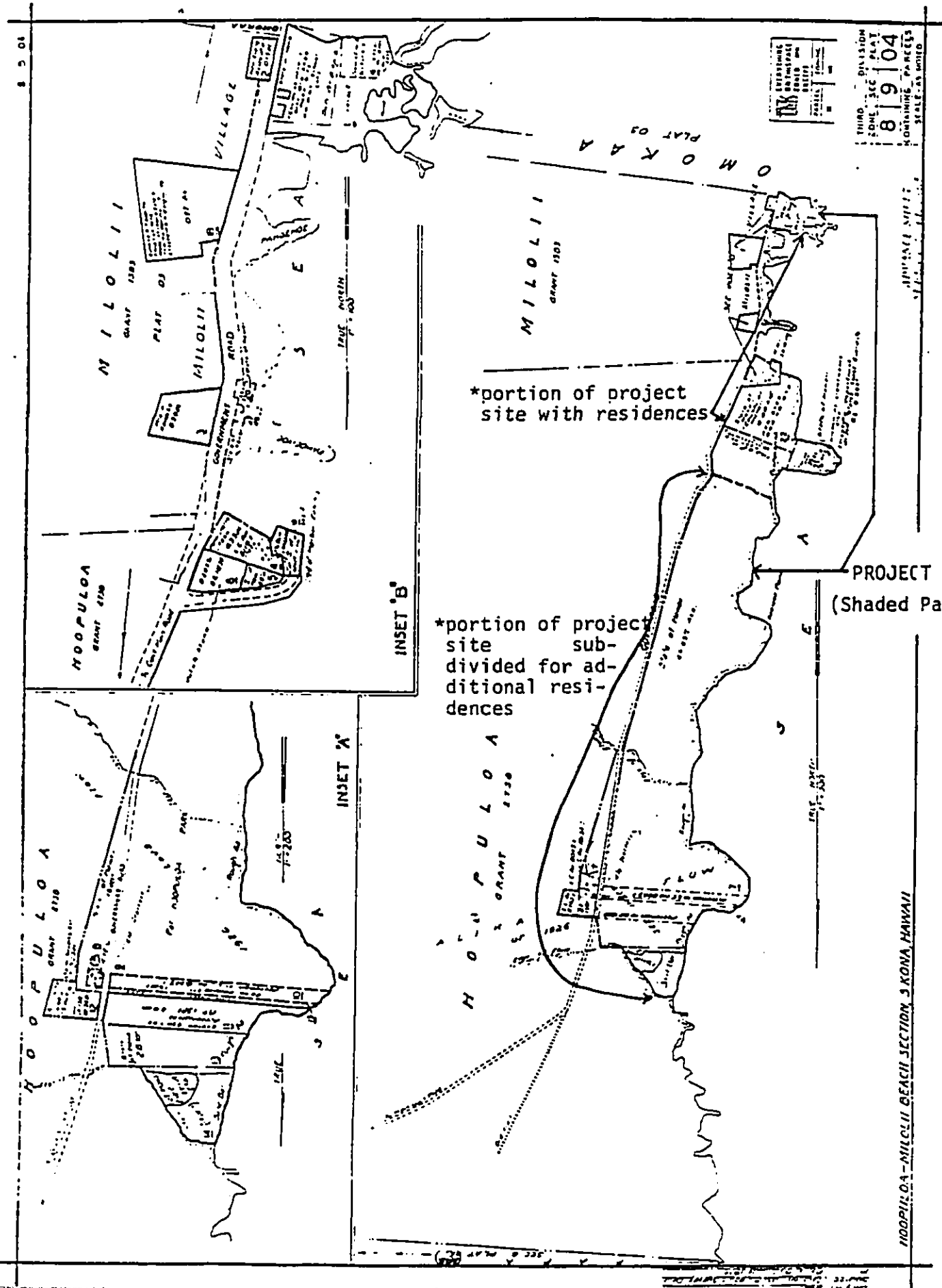
None

IV. GENERAL DESCRIPTION AND ENVIRONMENTAL CHARACTERISTICS
OF THE PROPOSED PROJECT AREA

Hawaii County Economic Opportunity Council (HCEOC) proposes to develop a water system to serve the Village of Miloli'i, South Kona, County of Hawaii. The project will be constructed in the area shown on a survey map in Pgs. 2-4. Major components are: a demonstration low temperature desalination facility, a shallow brackish water well, two water storage tanks of about 50,000 gallons each, distribution piping for both brackish and potable water, and pumping and electrical facilities necessary to operate the system.

The project will serve approximately fifty homes in the village which are constructed along the existing government road. Each home will be connected to the brackish water distribution system so that the water may be utilized for operation of household toilet facilities and exterior uses. The homes will not be connected to the potable water supply, but will receive potable water at intermittent intervals





8 2 0 1

M I L E L E I I
GRANT 2103

PLAT OF

M I L E L E I I
GRANT 2103

M O O P U L O A
GRANT 2120

INSET 'B'

INSET 'A'

M I L E L E I I
GRANT 2103

*portion of project site with residences

*portion of project site subdivided for additional residences

M O O P U L O A
GRANT 2120

O M O K A A
PLAT OF

THIRD DIVISION
SOME SEC PLAT
8 | 9 | 04
CONTAINING PARCELS
SCALE AS SHOWN

PROJECT SITE
(Shaded Parcels)

MOOPULOA - MILELEII BEACH SECTION 3 KONA, HAWAII

through placement in the existing catchment holding tank systems.

This project is located on the island of Hawai'i at Miloli'i. The proposed project site consists of about 53 acres of mostly undeveloped state land identified on TMK 8-9-04 as parcels 7, 10, 11, 13, 14, 15, 16 and 22. The area is in Miloli'i coastal zone and stretches between the ahupua'a of Ho'opuloa and Miloli'i.

The project site falls within the state's Conservation Land Use District and is designated as subzone G. Hawai'i County's General Plan indicates that the Miloli'i area is zoned CONSERVATION and OPEN AREA. The project site is zoned OPEN AREA. The draft Kona Regional Plan identifies the Miloli'i area as an UNPLANNED AREA.

The State Land Board amended Subchapter 2, Chapter 2, Sub-title 1, Title 13 of its Rules and Regulations to designate the project parcels at Miloli'i as a SPECIAL SUBZONE; and the County of Hawai'i designated the Miloli'i community as a SPECIAL MANAGEMENT AREA. A CONSERVATION DISTRICT USE APPLICATION (CDUA) was filed and granted in June 1984.

In developing and completing this project, all rules and regulations of the Environmental Shoreline Protection Act will be followed, and all other applicable state, and federal regulations will be satisfied.

The following section reviews the impacts of this project on Miloli'i specifically and on the Kona District generally.

V. SUMMARY DESCRIPTION OF THE AFFECTED ENVIRONMENT INCLUDING SUITABLE AND ADEQUATE LOCATION AND SITE MAPS

A. GEOLOGY

The Island of Hawai'i is the youngest and the largest of the Hawaiian Islands. It consists of 4,038 square miles and three of its five volcanos have been active within the last two hundred years; Hualalai (8,271 feet), Mauna Loa (13,677 feet), and Kilauea (4,090 feet).

Miloli'i and its surrounding area have been influenced by the lava flows from Mauna Loa.

Between 1832 and 1975, the volcano has erupted thirty eight times. Eight have reached down the slopes into North and South Kona and four have reached the ocean (1859, 1919, 1926, and 1950).

The project site is located on 'a'a lava from prehistoric and 1926 flows. The 1926 flow which destroyed the village of Ho'opuloa came from Pu'u o Ke'oke'o on Mauna Loa's flank.

B. TOPOGRAPHY

Miloli'i is a coastal village located on the relatively flat Kapalilua coastline plain. Its shoreline features include a black sand beach at Ho'opuloa Bay; broad, flat, and gently sloping seaward extensions of lava flows between Ho'opuloa and Miloli'i Bays and Kapulau Point; and shallow and exposed lava platform reefs separating Miloli'i and Omoka'a Bays. The coastal lava flows are derived from prehistoric flows and the 1926 flow. A tongue of lava from the 1926 flow enters the water south of Ho'opuloa Bay and then rises about thirty feet above the adjacent lava flows

The elevation gradient of the uplands is steady and moderate, reaching 200 feet about 3,000 feet inland of Miloli'i. The three embayments in the area, Ho'opuloa Bay, Miloli'i Bay, and Omoka'a Bay, offer little or no protection from ocean wave and surge conditions.

Four small anchialine ponds are located in the area. Three of the ponds are located just south of the village between Miloli'i Bay and Kapulau Point; while one is found just inshore from Kapulau Point. These ponds have surface areas less than 1,100 square feet. Three are less than one inch in depth and one is less than four inches in depth. All have sandy or sandy/rocky bottoms.

A shallow shelf fifteen to twenty-five feet in depth is located off the village area. The shelf drops and then rises again to form a ledge. It, then, falls off again with a gradually increasing slope reaching a depth of about 120 feet about 1,800 feet offshore.

The US Army Corps of Engineers has identified three basic bottom types of Miloli'i. From Ho'opuloa Bay to the north end of Miloli'i Bay there is a smooth to somewhat irregular lava pavement covered by boulders (eight to twelve feet in diameter), cobbles, and sand.

Offshore from the 1926 flow is a dense cover of irregular and angular boulders and rock outcrops.

Finally, Miloli'i Bay along the north side of Omoka'a Bay and off Kapulau Point the bottom is a shallow, flat-topped platform sometimes having a "veneer" of coral rubble and sand. These platforms have sheer twenty to thirty foot drop offs along their edges which are from five to ten feet below sea level. There are also numerous deep fissures and channels which penetrate shoreward into the platforms. Large boulders lie at the foot of these drop offs. The boulder cover gradually declines until at about sixty feet, the shelf breaks into a bottom composed mostly of sand.

C. CLIMATE

Miloli'i's climate is similar to that of other coastal areas in the Kapalilua area. Though the island lies in the path of the northeast trade winds, Miloli'i is not influenced by them. Hualalai, Mauna Loa, and Kilauea because of their high elevations force the trade winds upward. When the winds hit colder air at the higher elevations rain occurs. As the winds pass over the volcanos they tend to remain at the higher elevations and do not descend to the lower elevations until they have passed well over the island. This action creates a "wind shadow" throughout the Kona District. The lack of trades limits rainfall a Miloli'i to that caused by convection; rainfall caused by the temperature differences between the land and the ocean. And, while there is no long-term rainfall data for Miloli'i, the median annual rainfall for the Miloli'i-Ho'opuloa area is about twenty four inches. Temperatures at Miloli'i are fairly constant throughout the year. The average range in temperature is greater over the course of a day than it is from season to season. Based on the accepted standard coastal temperature for the Kona area the annual mean temperature is about 80 F.

D. SOILS

The soils of the Kona District are representative of the fact that the area is geologically young. There are six identified soil-types in the Miloli'i area; all of which exhibit a stony or rocky character.

'A'A Lava (rLV)

Rough broken land (RB)
Kaimu Extremely Stony Peat (rKED)
Punalu'u Extremely Rocky Peat (rPYD)
Puna Extremely Stony Muck (rPXE)
Kainaliu Very Stony Silty Clay Loam (KDD)
Two of these six soil types are present at the
Project site; 'A'A lava and Rough Broken Land.

'A'A Lava (rLV)

This lava has practically no soil covering and is
are of vegetation except for mosses, lichens,
ferns, and a few small shrubs and trees (See Part
H: Vegetation). It is rough and broken and has a
mass of clinkery, hard, glassy, sharp pieces of
lava piled in tumbled heaps. The 1926 flow has no
soil and very little growth of any kind.

Rough Broken Land (RB)

This area is lava from a prehistoric lava flow.
There is little soil except that brought into the
area by residents or created by crushing the lava
into cinders. Vegetation is more advanced than on
the 1926 flow with large kiawe trees, shrubs,
grasses, and miscellaneous introduced ornamentals.

E. WATER RESOURCES AND WATER USAGE

Currently, the Miloli'i community is dependent upon
rainfall catchment for its water supply. In times
of drought and water shortfalls, residents do use
the county's water spigot at the intersection of
the Ho'okena access road and Mamalahoa Highway.
Groundwater resources do occur in the area as
indicated by the presence of the anchialine ponds
referred to earlier. The extent of this resource
is not known but the ponds do have a low salinity
(5-6 ppt) which indicates a fairly stable resource.

F. NATURAL HAZARDS

Because of Hawai'i's volcanic origins, earthquakes
and tsunamis occur with some frequency. The threat
from lava flows is ever-present as witnesses by the
presence of the 1926 flow, but this is not at
frequent an occurrence as has been noted
previously.

Since historic time (1778), two flows have entered
into the Miloli'i area (1919 and 1926). There are
two fault zones in the Kona District and both are
situated on the south-west flank of Mauna Loa in
the Kapalilua area. The Kaholo fault system runs

parallel to the shoreline just below the 1,000 foot elevation level between Papa Bay and Ki'ilae Bay. It has not been significantly active in historic times. The Kealakekua fault system, however, has generated a number of major earthquakes and small tsunamis. The project site is located in an area which is susceptible to damage from volcanic hazards be it from lava, earthquakes, and/or tsunamis.

Of the three potential hazards, perhaps, tsunamis offer the greatest threat. Over the years, tsunamis have damaged properties at Miloli'i. However, according to the latest data, the hazard is not great. The average runup of tsunamis at Miloli'i has been about eight feet. The project site averages 18 to 85 feet above sea level and would not be affected by tsunamis except perhaps the area in which the uninhabited desalination facility is constructed. According to the latest data from the Federal Emergency Management Agency on Flood Insurance, the project site is subject to some flooding hazard over a 100 year period.

The project site is set back from the coastline and high enough in elevation to negate tsunami danger, except as noted above. Potential problems from future lava flows may occur but can not be predicted with any certainty. Finally, danger from earthquakes will be minimized by using materials which are generally flexible enough to withstand motion.

G. COASTAL WATER QUALITY AND MARINE BIOLOGY

The coastal waters around Miloli'i are classified by the state Department of Health as class AA waters and as such are protected for "oceanographic research, the support and propagation of shellfish and other marine life, conservation of coral reefs and wilderness areas, compatible recreation, and aesthetic enjoyment."

All shoreline ecosystems and bottom ecosystems north of Miloli'i Bay (except the area around the 1926 lava flow) are class II. All other bottom ecosystems, including the 1926 flow, are given class I designation.

The nearshore and offshore waters in the vicinity of the project site have been surveyed by the US Army Corps of Engineers. The platform reef extending from Miloli'i to Omoka'a Bays was found

to have "outstanding physical features" because of the "highly variable and spectacular relief that occurs on the outer margins of the platform." Also noteworthy is the fact that because of the 1926 flow's relatively recent exposure to the ocean, scientists have been able to use the area in comparative ecological succession studies.

In general, coral development on the lava platforms offshore Miloli'i Bay and other platform areas is patchy and in many cases the tops and sides of these ledge areas are bare except for a few scattered coral heads. In the high surge area colonies of Pocillopora meandrina are common, while in the medium surge zone Pocillopora meandrina and Porites lobata colonies are common. The large boulders at the base of the lava platforms, noted in Part B: Topography, are encrusted with a heavy coral growth consisting mainly of Porites lobata. The terrace bottom is dominated by finger coral (Porites compressa), and beyond the ninety foot depth level the coral cover is rare or completely absent.

The major echinoderms found in the Miloli'i area are sea urchins of the Tripneustes gratilla, Diadema paucispinum, and Echinothrix diadema species. It is interesting to note that at the time of the study, sea urchins were common except in the area offshore from the 1926 lava flow.

Subtidal seaweeds are not that prevalent in the Miloli'i area except for small patches of Ulva sp. (limu pahapaha). Other species, usually heavily grazed upon by local fish, include Pterocladia capillacea (limu loloa), Pterocladia caerulea, Sargassum sp. (limu kala, 'akala) and Turbinaria ornata (limu kala). Two species of red algae, Liagora spp. and Trichogloea spp., are abundant on rubble surfaces between patches of living coral at depths below thirty feet.

In 1970, the state conducted a fish survey at Miloli'i and found the following species to be the more prevalent: Parupeneus multifasciatus (Moana) Pomacentrus jenkinsi (Jenkin's Damsel Fish) Chromis vanderbilti (Vanderbilt's Damsel Fish) Acanthurus nigrofuscus (Blackish-Brown Surge Fish) Zebrasoma flavescens (La'i pala, Lau'ipala, Laukipala) Acanthurus mata (Pualu, Puwalu) Ctenochaetus strigosus (Kole) Generally, the study found that the reef fish populations are "well-developed and little disturbed by local residents."

At Papa Bay and Alika Bay where fresh water is discharged into the ocean, the green seaweed, Ulva Fasciata (limu pahapaha), is plentiful. The following listing of seaweeds is a review of the various species found along the shoreline either in the water or clinging to exposed rocks:

Green: Caulerpa racemosa (hulu manu, ai a ka honu, hulu moa, limoa), Dictyospha aerea versluysii, Enteromorpha spp. (limu 'ele'ele), Ulva fasciata (limu pahapaha), Chaetomorpha antennina

Brown: Dictyota friabilis (limu lipoa) Padina Sargassum sp. (limu kala), Turbinaria ornata (limu kala), Chinoospora spp., Sphacelaria sp., Giffordia sp.

Red: Centroceras clavulatum, Ceramium sp., Galaxaura spp., Hypnea spp., Pterocladia capillacea (limu loloa), Ahnfeltia concinna, Amansia glomerata (limu ha'ula), Corallina spp., Desmia sp., Laurencia spp., Porphyra spp. (limu lu'au lipahe'e)

H. VEGETATION

The existing vegetation at Miloli'i is representative of those species associated with dry and moderate rainfall such as kiawe (Prosopis pallida), lantana (Lantana camara), and koa haole (Leucaena leucocephala). The vegetation cover varies considerably along the coast due to the relative ages of the lava flows. Vegetation at the head of Alika and Papa Bays is particularly heavy indicating the presence of subsurface ground water. Vast areas within the project site are void of vegetation, especially that portion located on the 1926 flow. At the southern end of the existing village there is a large grove of ironwood trees (Casuarina spp.), and throughout the village there are various species of ornamentals and plants associated with human settlement such as the coconut (Cocos nucifera). Christmas berry (Schinus terebinthifolius) is found extensively throughout the project site.

While the area within the project site covered by the 1926 flow is void of vegetation, the portion where human settlement occurred first is planted.

No native Hawaiian plants have been identified within the project site.

I. FAUNA

The vegetation, or lack of it, and the young geologic age of the Miloli'i area do not provide

suitable habitats for native Hawaiian fauna or endangered Hawaiian avifauna. The Hawaiian bat (Lasiurus cinereus semotus) is the only known "endangered" native mammal in the Kaaupali area. The bat is highly mobile and tends to favor the coastal upland regions. No sightings have been recorded of this creature in the Miloli'i area.

The following is a list of fauna and avifauna which presumably inhabit the Miloli'i area and probably traverse the project site on occasion:

Mammals: Hawaiian Bat (Lasiurus cinereus semotus)
Feral Pig (Sus scrofa), Domestic Dog (Canis familiaris), Domestic Cat (Felis catus), Mongoose (Herpestes auropunctatus), House Mouse (Mus musculus), Polynesian Rat (Rattus exulans), Roof Rat (Rattus rattus)

Birds: Mynah (Acridotheres t. tristis), House Finch, (Carpodacus mexicanus frontalis), Ricebird (Lonchura punctulata), Barred Dove (Geopelia striata), House Sparrow (Passer domesticus), Northern Cardinal (Cardinalis cardinalis), Spotted Dove (Streptopelia chinensis), Japanese White-Eyed (Zosterops j. japonica), Pacific Golden Plover (Pluvialis dominica)

Additional life has been identified in the inland ponds at Miloli'i. Three species of mollusks, Melania spp., Theodoxus spp., and Assiminea sp., and one species of shrimp have been found living in the three ponds; none of which is near the project site.

J. ARCHAEOLOGICAL SITES:

Human settlement in the Miloli'i area undoubtedly extends back into the first millenium A.D. though little remains in the area to tell of this story. Less than a mile to the north of the project site at Alike Bay are the visible remains of a holua sled course and a number of ancient house sites. Less than a mile to the south at Honomalino Bay are more ancient house sites. Authorities differ on the etymology of "Miloli'i." Some feel that the word means "fine twist" in reference to the excellent sennit which was produced by the villagers. Others indicate another possible meaning; "small swirling" in reference to the many ocean currents which generally flow past the village.

The project site also includes part of the ancient

village of Ho'opuloa which was covered by lava in 1926. This word has the connotation of "having been put in together for a long time"; a reference to the activities of an ali'i husband and wife who lived in the village in ancient times.

Omoka'a and his wife, Okoe, developed a reputation for "putting" visitors to their home into the imu where they stayed "for a long time." These activities were finally broken up and the couple separated and placed into different areas; thus, the two neighboring ahupua'a of Omoka'a and okoe were formed. Note that they are separated by the ahupua'a of Kalihi and Honomalino.

No documented archaeological sites have been found in the area of the project site slated for water facility development.

The portion of the project site that was covered by the 1926 flow may have had sites that were destroyed by lava. Legend has it that an ali'i from kua'i is buried on a small rise, Umi Haihai, within the project site. History does indicate that there was a relationship between the ali'i of Kua'i and those of Kapalilua. The supposed burial site, however, is not threatened by any of the planned development in the area. There may be other areas such as lava tubes used as burial sites within the surrounding area which, as yet, are not known. In 1977, the state did conduct a brief archaeological survey in filing a "Negative Declaration for Improvements at Miloli'i" and no sites were found in the impact area.

K. HISTORICAL SITES:

Historically, Miloli'i has experienced a similar transition as have other small coastal villages along the South Kona shoreline. In the early nineteenth century, missionaries occasionally would make the long journey from Kailua to preach and instruct in the ways of the Gospel. The Rev. William Ellis and his party by-passed the village but spent the night at nearby Honomalino. Their impression of the area is interesting.

" Nothing can exceed the barren and solitary appearance of this part of the island, not only from the want of fresh water, but from the rugged and broken tracts of lava of which it appears to be entirely composed."

This was in 1823. By 1854, Miloli'i was the site

of one of the six major churches in the Kona District and had a congregation of 140 members. By 1883, the size of the congregation had grown to warrant the Miloli'i Church (Hau'oli Kamana'o) designated as a separate mission.

As with many of the smaller coastal communities, however, Miloli'i's population declined towards the turn of the century, and by 1920, only a handful of people lived in the village. When Ho'opuloa was destroyed by the lava flow in 1926, many of the residents moved to Miloli'i and the community began to grow again.

Between 1972 and 1974, the state conducted a survey in the Miloli'i area in an attempt to identify sites and structures for the "Hawaii Register of Historic Places." A number of churches and characteristic structures were identified. In the village of Miloli'i these included:

Magoon House - an example of the unique architecture ("small, wooden Kona House" built in the late nineteenth century") of the area.

St. Peter's Catholic Church - and example of architectural style. The church was built in 1932 by Father Steffen to replace an earlier St. Peter's destroyed by the 1926 lava flow.

Apo House - an example of typical architecture of the older houses in the Miloli'i District.

Miloli'i School - an example of architectural style.

Hau'oli Kamana'o Congregational Church-an example of architectural style with historical significance. The church was built about 1887 and is an excellent example of early missionary wood construction.

Many of these structures are in poor repair and need immediate action if they are to be preserved.

L. SOCIO-ECONOMIC CHARACTERISTICS

Miloli'i's present resident population numbers about eighty-five people. This varies as family members may come and go for periods of time. While there is no age distribution data for the community, almost all the residents are members of family units. Almost all are native Hawaiian and have had family living at Miloli'i and/or Ho'opuloa

for generations.
The major economic activity at Miloli'i is fishing. Fish are marketed in Hilo or in the Kona area depending upon fish prices at any given time. In the village there is a small store with a gasoline pump. The boat ramp is rough, but it does allow residents a launching area in their community.

M. RECREATIONAL RESOURCES

Presently, Miloli'i is the site of a county beach park which is primarily used by the residents because of its great distance from Mamalahoa Highway. The area offers swimming, shore fishing, throw netting, gill netting, and snorkeling. There is also a trail which begins at the county beach park and extends a number of miles southwards along the coast through Honomalino and Kapu'a. Future plans are to link the trail with another which winds its way northwards along the coast to Alika Bay and beyond.

The community has expressed a desire to develop additional recreational programs for the community including paddling.

N. INFRASTRUCTURE

Water Distribution -

Presently, individual families' water needs are provide through water catchment systems attached to family residences. A county water source does exist at the intersection of Ho'okena Access Road and Mamalahoa Highway for residents needing additional water.

Sewage Disposal -

Miloli'i residences presently are equipped with outdoor latrine toilet facilities and/or cesspools and septic tank systems for sewage disposal.

Solid Waste Disposal-

Presently, Miloli'i is serviced by a county refuse transfer station which is located in the community near the project site.

Drainage-

There is no drainage infrastructure at Miloli'i presently. Rapid natural drainage occurs because of the porous nature of the lava.

Traffic and Roads -

Access to Miloli'i and to the project site is by a narrow winding county road (10 feet wide) which runs from Mamalahoa Highway. Generally, traffic on the highway at this location is considered light. Traffic counts taken at the intersection by the state Department of Transportation indicate that during a given twenty-four hour day, traffic averages about 900 vehicles; with AM peak hour traffic close to 100 vehicles per hour going both directions, and PM peak hour traffic going both directions averaging about 70 vehicles per hour. The highway is designed to handle an hourly volume of 2,000 vehicles.

O. PUBLIC SERVICES

Emergency Services (Police/Fire/Ambulance) -

The closest emergency services for Miloli'i residents is Captain Cook, about fourteen miles away. Under ideal conditions response time to Miloli'i and the project site is about twenty-five minutes.

Schools -

The state Department of Education buses youngsters living at Miloli'i to schools in the Kona District. The majority of youngsters attend Ho'okena Elementary/ Intermediate School in Captain Cook. High school students attend Konawaena High School in Kealahou.

VI. DISCUSSION OF THE ASSESSMENT PROCESS AS DELINEATED IN 1:30 OF EIS REGULATIONS

POTENTIAL IMPACTS- No significant adverse impacts upon land use patterns, social or economic issues, or physical environmental qualities are indicated by the development of this project. In addition, it is not evident that significant additional demands will be placed on governmental or private services by the proposed project.

ADDITIONAL ACTIONS- The proposed project shows no considerable effect upon the environment and does not involve a commitment for larger action.

VII. IDENTIFICATION SUMMARY OF MAJOR IMPACTS AND ALTERNATIVES CONSIDERED

MAJOR IMPACTS- None are anticipated from the proposed project.

SHORT TERM EFFECTS- During the construction of the project, a certain amount of noise and dust will be generated. Since construction will comply with OSHA and State regulations, the effects of the project will be minimal, short term and can be easily mitigated.

LONG TERM EFFECTS- The proposed project will not adversely affect existing air, noise, or water quality of the area.

VIII. MEASURES TO MITIGATE ENVIRONMENTAL EFFECTS

The proposed project will conform to all County, State and Federal regulations pertaining to air, water and noise pollution.

IX. DETERMINATION

Chapter 200 of title 11, Administrative Rules of the Department of Health entitles " Environmental Impact Statement Rules" establishes criteria for evaluating whether an action may have a significant effect on the environment. The relationship of the proposed project to these criteria are discussed below.

- A. Involves an irrevocable commitment to loss or destruction of any natural or cultural resources.

Less than one acre of existing a' a lava flow will be converted to graded area for this project. No existing vegetation of any kind will be affected. No archaeological or other cultural artifacts or sites will be affected by this project.

- B. Curtails the range of beneficial uses of the environment.

Most other beneficial uses of the project area would require water supplies, which this project is to provide. Thus the project expands the range of beneficial uses.

- C. Conflicts with the State's long term environmental policies or goals and guidelines as expressed in Chapter 344, Hawaii Revised Statutes, and any revisions thereof and amendments thereto, court decisions or executive orders.

The projects does not conflict with any of the above.

- D. Substantially affects the economic or social welfare of the community or State; and

- E. Substantially affects public health;

The proposed project will not substantially affect the social or economic welfare of the community or it's health. The effects the project will have on the above will be positive, however.

- F. Involves substantial secondary impacts, such as population changes or effects on public facilities.

The project will have minimal secondary impacts.

- G. Involves a substantial degradation of environmental quality.

No degradation of environmental quality is foreseen

- H. Is individually limited but cumulatively has considerable effect upon the environment or involves a commitment for larger actions.

No cumulative effect or larger commitment is involved.

- I. Substantially affects a rare, threatened or endangered species, or its habitat.

No such affects will be a consequence of this project.

- J. Detrimentally affects air or water quality or ambient noise levels.

Such affects will be minimal and of very short term duration.

- K. Affects an environmentally sensitive area such as a floodplain, tsunami zone, erosion-prone area, geologically hazardous land, estuary, fresh water or coastal waters.

The only sensitive area involved by this project is a small area that may be subject to tsunami inundation. No habitable structures are to be constructed in that area and should the structures that are constructed be destroyed by a tsunami, no secondary environmental degradation would occur.

X. FINDINGS AND REASONS SUPPORTING DETERMINATION

No significant adverse impacts were found by the Environmental Assessment made in support of this declaration.