DEPARTMENT OF WATER SUPPLY
COUNTY OF MAUI
P.O. BOX 1109
WAILUKU, MAUI, HAWAII 96793-7109
TELEPHONE (808) 243-7816 • FAX (808) 243-7833

March 2, 1999

Mr. Gary Gill, Interim Director
Office of Environmental Quality Control
235 South Beretania Street, Suite 702
Honolulu, Hawaii 96813

Dear Mr. Gill:

Subject: FINDING OF NO SIGNIFICANT IMPACT FOR KULAMALU WATER TANK AND ASSOCIATED WATERLINE AND APPURTENANT IMPROVEMENTS
TMK 2-3-07:POR. 10, POR. 11, KULA, MAUI, HAWAII

The County of Maui, Department of Water Supply has reviewed the comments received during the 30-day public comment period which began on January 23, 1999. The agency has determined that this project will not have significant environmental effects and has issued a FONSI. Please publish this notice in the March 23, 1999 OEQC Environmental Notice.

We have enclosed a completed OEQC Publication Form and four (4) copies of the final EA. Since the project summary text in the Publication Form submitted with the Draft EA has not changed, no disk or e-mail has been included with the Final EA. Please call me at 808-243-7816 if you have any questions.

Sincerely,

David R. Craddick
Director

/HC:sc
Enclosures: Form
Final EA (4)

1999-03-23-MA-FEA-

Final Environmental Assessment

KULAMALU WATER TANK AND ASSOCIATED WATERLINE AND APPURTENANT IMPROVEMENTS

Prepared for:

Kulamalu Limited Partnership

March 1999

MUNEKIYO, ARAKAWA & HIRAGA, INC.

Final Environmental Assessment

KULAMALU WATER TANK AND ASSOCIATED WATERLINE AND APPURTENANT IMPROVEMENTS

Prepared for:

Kulamalu Limited Partnership

March 1999

MUNEKIYO, ARAKAWA & HIRAGA, INC.

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Preface

Kulamalu Limited Partnership, in coordination with the County of Maui, Department of Water Supply, proposes to construct a 1 million gallon water tank and associated waterline and appurtenant improvements in Kula, Maui, Hawaii. Pursuant to Chapter 343, Hawaii Revised Statutes, and Chapter 200 of Title 11, Hawaii Administrative Rules, Environmental Impact Statement Rules, this Environmental Assessment (EA) documents the project's technical characteristics and environmental impacts, and advances findings and conclusions relative to the project.

In terms of context, it is noted that the service area for the proposed water tank and associated waterline and appurtenant improvements includes the Kulamalu Project. The Final EA for the Kulamalu Project was published in The Environmental Notice on July, 1997. The EA for the Kulamalu Water Tank and Associated Waterline and Appurtenant Improvements is intended to supplement and clarify water system improvements noted in the Kulamalu Project EA.

Chapter I

Project Overview

I. PROJECT OVERVIEW

A. PROPERTY LOCATION, EXISTING USE, AND LAND OWNERSHIP

The applicant for the project is Kulamalu Limited Partnership. The proposed project involves the construction of a one million gallon water tank and associated waterline and appurtenant improvements in Kula, Maui, Hawaii. The proposed improvements would be located on lands designated as TMK 2-3-7:por.10, por.11. Portions of the project also are located within the rights-of-way of Hanamu Road, Haleakala Highway and Kula Highway. See Figure 1. The County of Maui, Department of Water Supply (DWS) will be participating as a funding party in the project.

A portion of the site is located near the Haleakala Highway and Hanamu Road intersection. The proposed water tank and waterlines are located within a cattle pasture, Hanamu Road and a dirt access road. Another segment of waterline is located within the Haleakala Highway and Kula Highway rights-of-way.

Land designated as TMK 2-3-7:10 is owned by Haleakala Dairy, Inc. while TMK 2-3-7:11 is owned by Haleakala Ranch. Hanamu Road is a County roadway. Haleakala Highway and Kula Highway are State roadways.

B. PROPOSED ACTION

The proposed project consists of a one million gallon water tank, an access road to the tank, an overflow line, inflow and outflow lines from the tank, and a separate waterline segment within Haleakala and Kula Highways. See Figure 2.

The water tank site is approximately 1.25 acres in size. The tank is expected to occupy a diameter of 100 feet and reach 19 feet in height. See Figure 3 and Figure 4. The access road would be a 20 feet wide

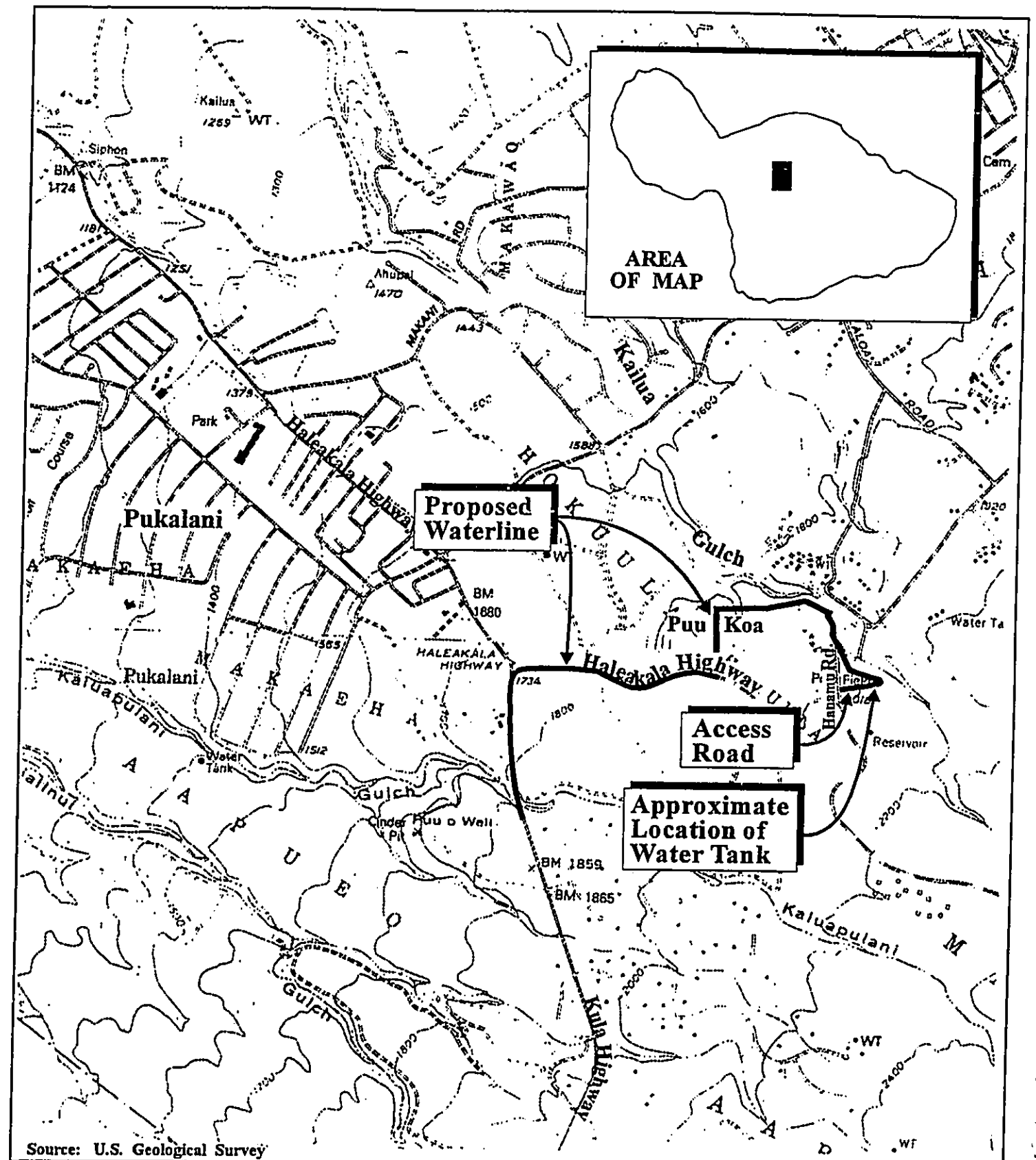


Figure 1

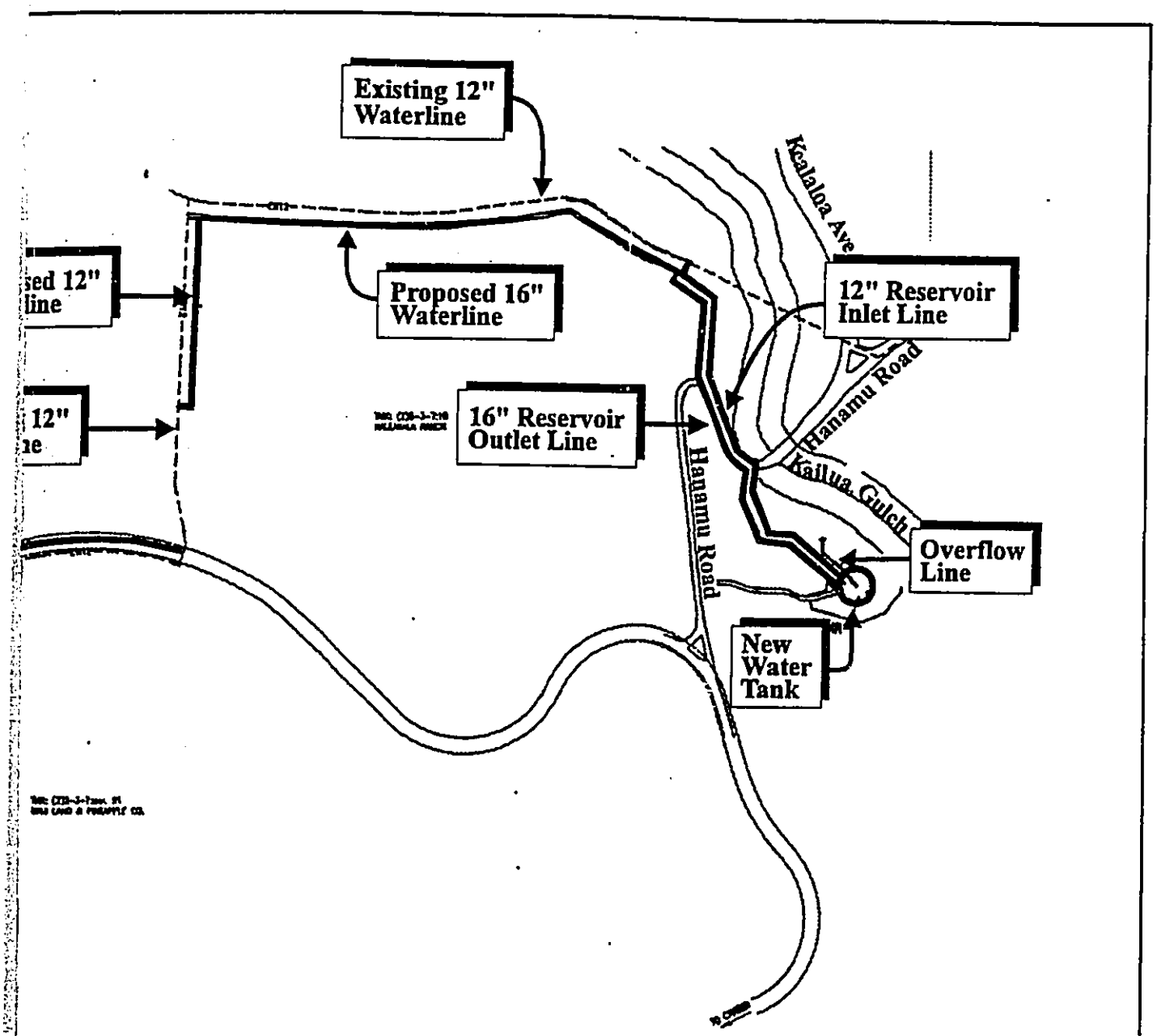
Kulamalu Water Tank and Associated Waterline and Appurtenant Improvements

Regional Location Map

MUNEKIYO, ARAKAWA & HIRAGA, INC.

Prepared for: Kulamalu Limited Partnership

0 1000 2000 4000 Feet



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MUNEKIYO, ARAKAWA & HIRAGA, INC.

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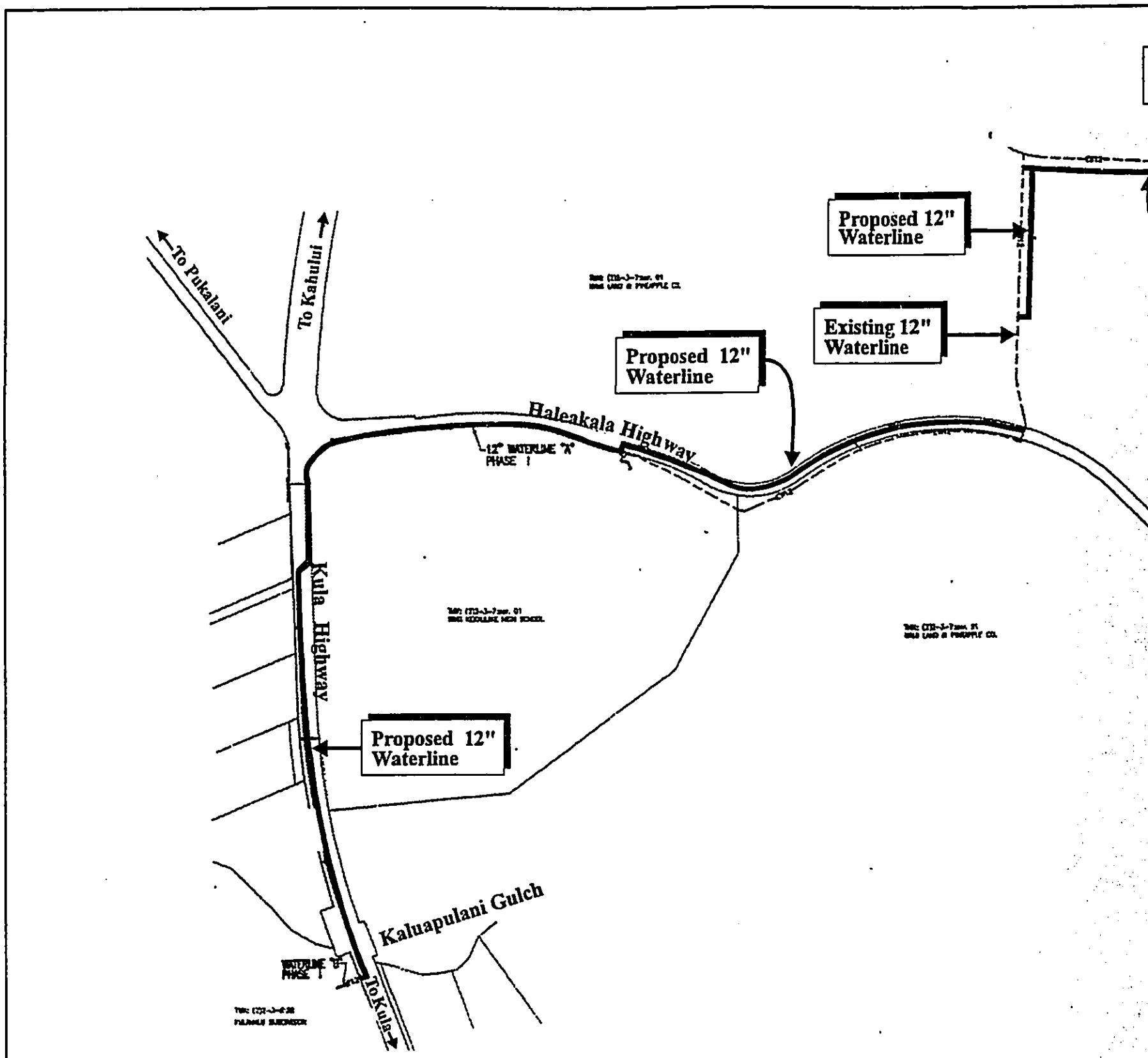
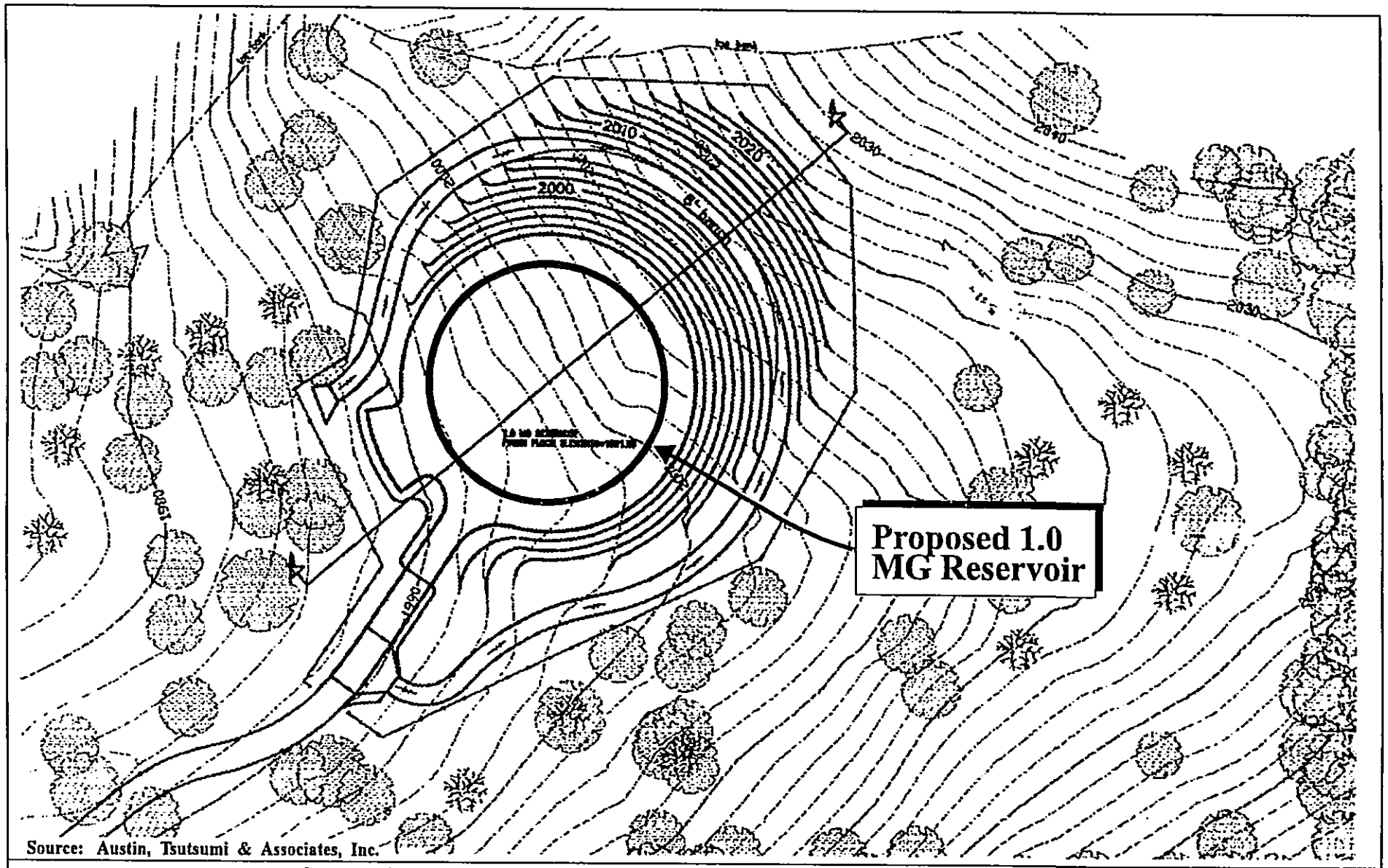


Source: Austin, Tsutsumi & Associates, Inc.

Figure 2

Kulamalu Water Tank and Associate
and Appurtenant Improveme
Vicinity Map

Prepared for: Kulamalu Limited Partnership



Source: Austin, Tsutsumi & Associates, Inc.

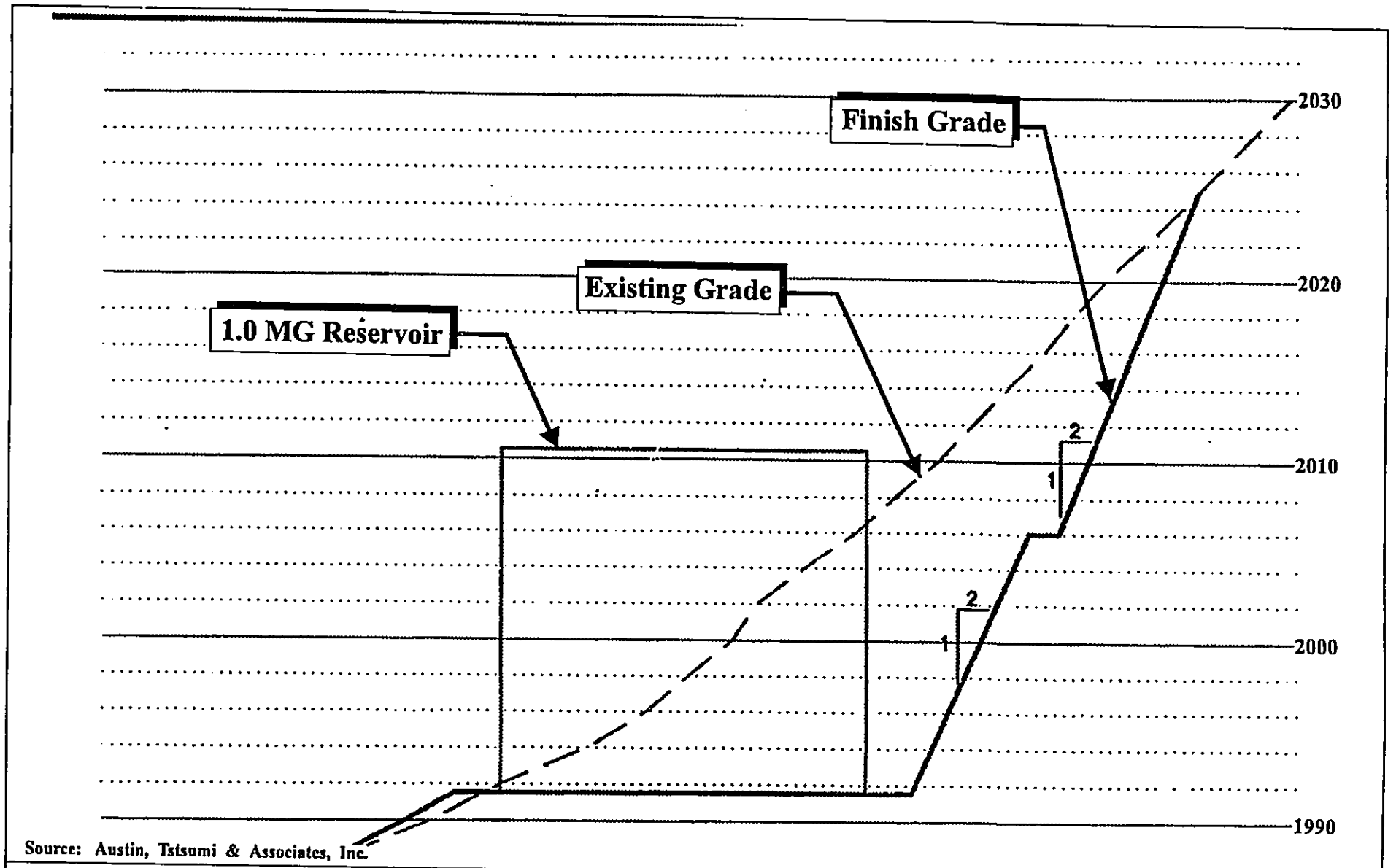
Figure 3 Kulamalu Water Tank and Associated Waterline and Appurtenant Improvement

Site Plan of Water Tank

0 30 60 120 Feet

MUNEKIYO, ARAKAWA & HIRAGA, INC.

Prepared for: Kulamalu Limited Partnership



Source: Austin, Tsutsumi & Associates, Inc.

Figure 4 Kulamalu Water Tank and Associated Waterline and Appurtenant Improvements
Section of Reservoir

Prepared for: Kulamalu Limited Partnership

Horizontal: 1" = 40'
Vertical: 1" = 6'

MUNEKIYO, ARAKAWA & HIRAGA, INC.

easement extending approximately 475 feet from an existing gate at Hanamu Road. An emergency overflow line extends northwest from the tank approximately 300 feet to an area close to Kailua Gulch. The proposed 12-inch inflow line extends approximately 1,100 feet from the existing 12-inch DWS line near Kailua Gulch to the water tank.

A 16-inch outflow line from the water tank extends parallel to the inflow line to the existing DWS iine near Kailua Gulch. From this point, the outflow line extends an additional 1,700 feet west along an existing dirt road and pasture to link with the 12-inch DWS line near Puu Koa.

A new 12-inch waterline is also proposed to extend in a southerly direction approximately 600 lineal feet to link with the existing 12-inch DWS line. This new segment is necessary to address hydraulic design requirements. The existing 12-inch line then proceeds further south and intersects with Haleakala Highway.

Then the existing waterline proceeds in a westerly direction terminating at King Kekaulike High School. Approximately 1,800 lineal feet of new 12-inch water line is proposed within Haleakala Highway which parallels the existing 12-inch water line. This segment is also being included for hydraulic design considerations.

A new 12-inch waterline then proceeds approximately 1,300 lineal feet further in a westerly direction within Haleakala Highway. The proposed waterline then proceeds approximately 2,300 feet in a southerly direction within Kula Highway. This portion of the project describes the extent of improvements needed to reach its service areas.

Since County funds are involved in a portion of the development of the

water system improvements, this Environmental Assessment (EA) has been prepared in compliance with Chapter 343, Hawaii Revised Statutes.

The estimated cost for the project is $2.8 million. Construction is anticipated to begin after all applicable approvals are obtained. Completion is anticipated to be completed in late Summer 1999. The project is intended to enhance storage capacity and improve fire protection services in the area. It would service an area between the 1,860 feet and 1,600 feet elevation which includes portions of the Kulamalu Project proposed to be developed by the Kulamalu Limited Partnership as well as Kamehameha Schools' new facility. Upon completion, the improvements are intended to be dedicated to the DWS.

Chapter II

Description of the Existing Environment

II. DESCRIPTION OF THE EXISTING ENVIRONMENT

A. PHYSICAL ENVIRONMENT

1. Surrounding Land Uses

The proposed water tank site is located near the intersection of Haleakala Highway and Hanamu Road in Kula, Maui, Hawaii.

The predominant land use in the general vicinity is cattle pasture. Eucalyptus trees cover a portion of the tank site. There are several scattered single-family residential structures located in the general vicinity of the project. Haleakala Ranch farm offices are located to the north of the project site.

Kailua Gulch is located near the east and north boundary of the water tank and waterline. A polo field is located on Haleakala Highway near its intersection with Hanamu Road.

To the south and east of the proposed 12-inch waterline within Haleakala Highway and Kula Highway is King Kekaulike High School. To the north are pineapple fields. To the west are an electric substation, church and several residential dwellings.

In a regional context, significant acreages to the east of the project site are in cattle pasture. The Kula region, located to the south, is largely an agricultural and rural area. The town of Pukalani is located to the northwest of the proposed improvements. Makawao Town is located to the northeast.

2. Climate

The Lower Kula area is generally cool and equable the entire year. Average annual rainfall ranges between 30 and 50 inches per year,

with most rainfall occurring between October and April. The temperature ranges between the high 50's and the high 80's.

Like most areas of the islands, the prevailing wind throughout the year is the northeasterly tradewind. These are generally more persistent in summer than in winter. Between about October and April, there may be increased frequency of the southerly winds of Kona storms. In the absence of the trades and nearby storms, winds may become light and variable. Then the diurnal heating and cooling of the land gives rise to onshore sea breezes during the day and offshore land breezes at night.

3. ***Topography and Soil Characteristics***

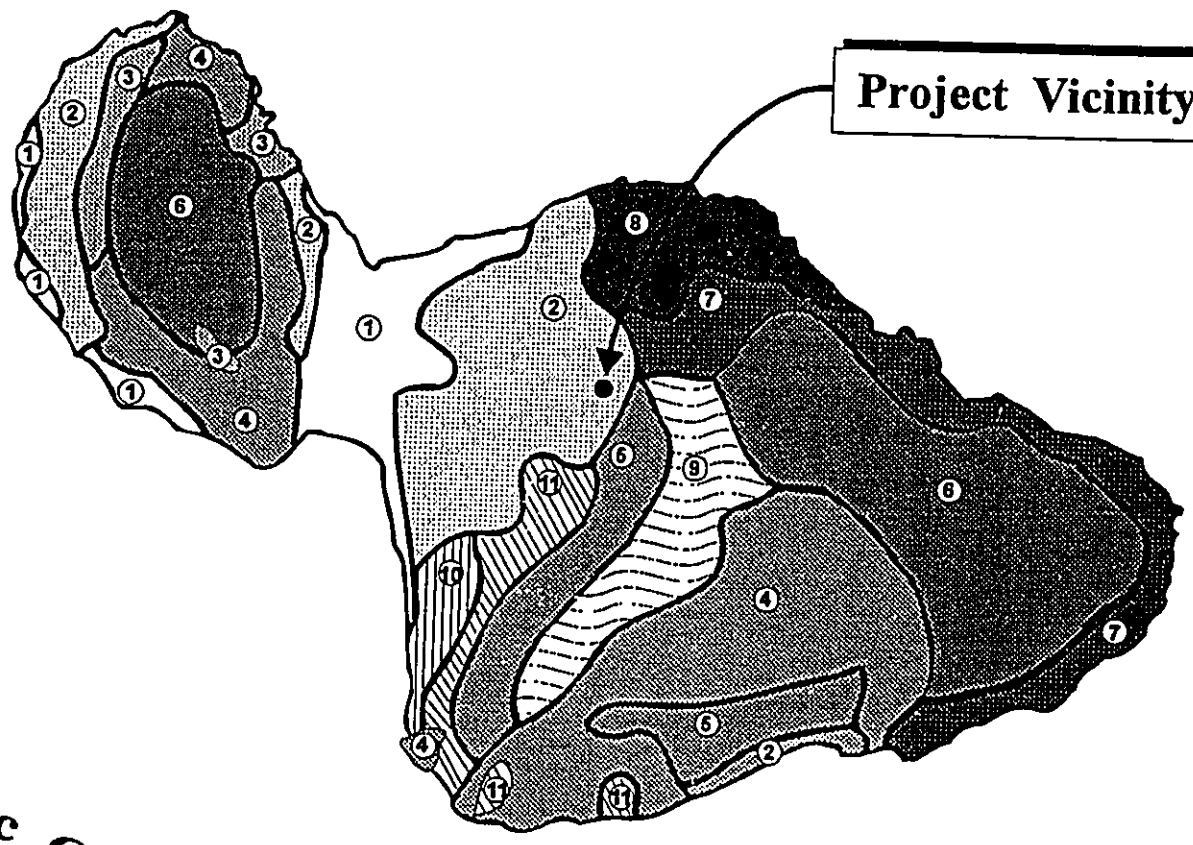
The finish floor elevation of the water tank is approximately 1,990 feet above sea level. Slopes for most of the project site range from approximately 7 to 15 percent. A small unnamed drainage channel near Puu Koa has a slope of approximately 40 percent.

Underlying the site and surrounding lands are soils belonging to the Waiakoa-Keahua-Molokai association. See Figure 5. The specific soil types found underlying the project are Haliimaile silty clay loam, 3 to 7 percent slopes (HgB), Haliimaile silty clay loam, 7 to 15 percent slopes (HgC), Rough broken land (rRR), Pane silt loam, 7 to 25 percent slopes (PXD), Keahua cobbly silty clay, 7 to 15 percent slopes (KnhC), and Rock Land (rRK). See Figure 6.

The Haliimaile series of soils consist of well-drained soils on uplands on the island of Maui. HgB and HgC soils are characterized by medium runoff and a moderate erosion hazard.

LEGEND

- ① Pulehu-Ewa-Jaucas association
- ② Waiakoa-Keahua-Molokai association
- ③ Honolua-Olelo association
- ④ Rock land-Rough mountainous land association
- ⑤ Puu Pa-Kula-Pane association
- ⑥ Hydrandepts-Tropaquods association
- ⑦ Hana-Makaalae-Kailua association
- ⑧ Pauwela-Haiku association
- ⑨ Laumaia-Kaipoipoi-Olinda association
- ⑩ Keawakapu-Makena association
- ⑪ Kamaole-Oanapuka association



Map Source: USDA Soil Conservation Service

Figure 5

Kulamalu Water Tank and Associated Waterline and Appurtenant Improvements

Soil Association Map

MUNEKIYO, ARAKAWA & HIRAGA, INC.

Prepared for: Kulamalu Limited Partnership

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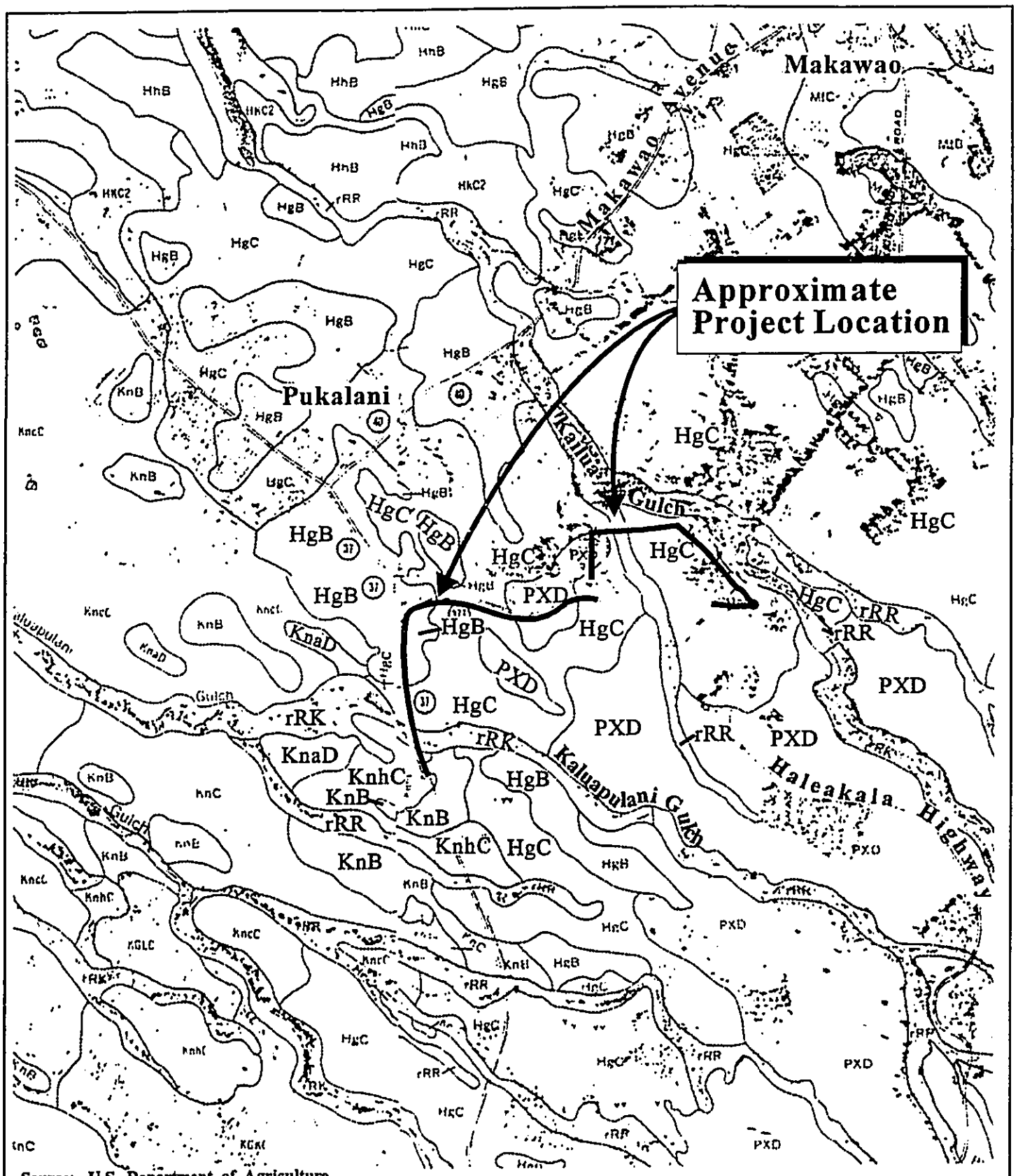


Figure 6

Kulamalu Water Tank and Associated Waterline and Appurtenant Improvements

Soil Classifications Map

MUNEKIYO, ARAKAWA & HIRAGA, INC.

0 1000 2000 4000 Feet

Prepared for: Kulamalu Limited Partnership

Pane silt loam 7 to 25 percent slopes (PXD) is located on rough side slopes and intermediate slopes in the uplands. Permeability is moderately rapid. Runoff is slow to medium, and the erosion hazard is slight to moderate.

Keahua cobbly silty clay 7 to 15 percent slopes (KnhC) is characterized by slow to medium runoff. Erosion hazard is slight to moderate.

Rough broken land (rRR) consists of very steep land, broken by numerous intermittent drainage channels. Rock land (rRK) is made up of areas where exposed rock covers 25 to 90 percent of the surface. Rock outcrops and very shallow soils are the main characteristics.

The State Department of Agriculture has established three (3) categories of Agricultural Lands of Importance to the State of Hawaii (ALISH). The ALISH system classifies lands into "prime", "Unique", and "Other Important Agricultural Land". The remaining lands are "Unclassified". Utilizing modern farming methods, "Prime" agricultural lands have the soil quality, growing season, and moisture supply needed to produce sustained crop yields economically, while "Unique" agricultural lands possess a combination of soil quality, growing season, and moisture supply currently used to produce high yields of a specific crop. "Other Important Agricultural Land" includes those which have not been rated as "Prime" or "Unique".

The lands encompassing the water tank site and connecting waterlines to the Puu Koa area, including the 600 lineal feet

segment extending south to Haleakala Highway, are classified "Other Important Agricultural Land" with the exception of the unnamed drainage channel which is "Unclassified".

The Land Study Bureau's Detailed Land Classification rates the agricultural suitability of soils. A five (5) class productivity rating is applied using the letters A, B, C, D, and E, with "A" representing lands of the highest productivity or very good, and "E" the lowest or very poorly suited for agricultural production. The Land Study Bureau identifies the lands underlying the water tank and connecting waterlines to the Puu Koa area, including the 600 feet lineal segment extending south to Haleakala Highway, as "B" and "C".

4. ***Flood and Tsunami Hazard***

The proposed project site is located within Zone "C" as determined by the Flood Insurance Rate Map for this region. Zone "C" is an area of minimal flooding.

5. ***Flora and Fauna***

The water tank site is located in a pasture area interspersed with Eucalyptus trees. Ground vegetation include a number of introduced species such as buffel grass (Cenchrus ciliaris), other grasses and annual weeds. Eucalyptus (Eucalyptus sp.) trees form the dominant overstory vegetation. Other flora within the general vicinity include silver oak (Greyvillea robusta), Christmas berry (Schinus tereinthifolius), kukui (Aleurites moluccana), 'ilima (Sida fallax), and huehue haole (Passiflora suberosa). Other portions of the project are in pasture use or roadway use. There are no known rare, endangered or threatened species of plants within or

surrounding the project site.

The region's wildlife include a host of introduced birds and mammals. There are no known threatened, rare or endangered species of wildlife in the vicinity of the project site.

There are no wetlands located within or in the near vicinity of the project site.

6. ***Air Quality***

The subject property in general does not experience adverse air quality conditions. Airborne pollutants that do exist can largely be attributed to automobile exhaust from roadways in the area. Other sources include emissions and smoke from sugar cane burning and operations from nearby sugar fields and pineapple operations. These sources are intermittent, however, and the prevailing tradewinds will disperse particulates generated by these temporary sources.

7. ***Noise Characteristics***

Existing background noise in the vicinity of the site is principally attributed to traffic from roadways in the vicinity. Nearby agricultural operations and activities associated with King Kekaulike High School may contribute background noise on an intermittent basis. Other ambient noise conditions are generally attributable to natural conditions such as wind and rain.

8. ***Scenic and Open Space Resources***

There are no notable physical features within the immediate proximity of the project site and the site is not considered unique

in terms of visual resource value.

9. ***Archaeological Resources***

An archaeological inventory survey was conducted for the portion of the project site which includes the water tank, access road, in-flow and outflow lines extending to Puu Koa and the overflow line. There were five (5) sites found in the vicinity of the project site. However, all are located outside of the project area and will not be impacted by the project. See Appendix A. The sites are briefly discussed below.

Site 50-50-10-4677

This site is a retaining wall located in Kailua Gulch near the base of its northern bank. The wall ranges from 1 to 2.2 meters in height and was likely over 40 meters long. Approximately 30 meters appear to have been washed away by flood waters in the past. Intact portions are faced and constructed of basalt cobbles and boulders. The site is significant under Criterion "D" of the Federal and State historic preservation guidelines which means that it must have yielded or may be likely to yield, information important in prehistory or history.

Site 50-50-10-4678

This site is an unexcavated cave which lies along the base of the northern bank of the gulch. The entrance is up to 2.2 meters high by 1.8 meters wide. This shelter cave has two (2) chambers that branch off from an access tunnel approximately 6 meters long. Each channel extends approximately 6 meters from the main tunnel. The site is

likely associated with Chinese laborers in the mid- to late 1800's and qualifies for significance under Criterion "D".

Site 50-50-10-4679

The third site also lies in Kailua Gulch. It is interpreted as a shelter cave. Entrance dimensions are approximately 5 meters wide by 2.5 meters high. Because of its difficult accessibility, no interior inspection was made. The site likely qualifies for significance under Criterion "D".

Site 50-50-10-4680

This site is a retaining wall, possibly associated with a former access road along the southern bank of Kailua Gulch. It is approximately 13.5 meters long by up to 1 meter thick by 0.6 to 0.7 meter high. This alignment is approximately 20 meters to the north and downslope from the water line corridor.

Site 50-50-10-4681

This site lies at the top of a pu'u approximately 200 meters southwest of the waterline corridor. Site 4681 contains what may be two (2) burials. Feature A is marked with a concrete monument with no inscription and water worn cobbles. Feature B consists of an oblong arrangement of cobbles and small boulders approximately 2 meters by 2.5 meters. This site qualifies for significance under Criterion "D" and possibly Criterion "E" which means that it has an important traditional cultural value to the native Hawaiian people or to another ethnic group of the state due to associations with traditional cultural practices, beliefs, events, or oral accounts.

The alignment of approximately 600 lineal feet of 12-inch waterline extending south from Kailua Gulch near Puu Koa, as well as waterline segments within Haleakala and Hana Highways, were also subject to archaeological review. Field work conducted for this component of the project did not reveal any significant cultural resources. See Appendix A-1.

B. COMMUNITY SETTING

1. Land Use and Community Character

The Makawao-Pukalani-Kula region is a sprawling agricultural, rural and suburban region on the western slope of Haleakala. Pineapple cultivation, smaller independent farming and cattle ranching are the predominant agricultural activities within the region. The towns of Makawao and Pukalani reflect its agricultural roots with the latter the more recently developed of the two. Kula's residential settlements reflect a lower density over a larger area with smaller commercial clusters in Pulehu, Waiakoa, and Keokea. The region also serves a residential suburban function for people working within other regions of the island.

2. Population

The population of Maui has exhibited relatively strong growth over the past decade with the 1990 population estimated at 100,504, a 41.8 percent increase over the 1980 population of 70,847. Growth in the County is expected to continue, with resident population projections to the year 2000 and 2010, estimated to be 124,562 and 145,872, respectively (Community Resources, Inc., 1994).

The estimated 1990 population of the Makawao-Pukalani-Kula Community Plan region is 18,923. A projection of the region's

population shows an increase to 21,760 by the year 2000. By the year 2010, population is anticipated to increase to 23,830 (Community Resources, Inc., 1994).

3. *Economy*

Agriculture and tourism are vital components of Maui's economy. The cultivation of pineapple and sugar cane and the tourist industry provides for much of the island's economic stability.

The Makawao-Pukalani-Kula region provides the backdrop for ranching of cattle and other farm animals. There are a number of farms in the Kula region growing products such as cabbages, onions, tomatoes, corn, carnation and protea. Pineapple is also cultivated on fields surrounding the area. Sugar cane cultivation takes place on lower elevation lands extending to the central isthmus.

C. *PUBLIC SERVICES*

1. *Police and Fire Protection*

The County of Maui's Police Department is headquartered at its Wailuku Station. The Department consists of several patrol, investigative, and administrative divisions. The Department's Upcountry Patrol covers the Makawao-Pukalani-Kula region. The nearest police substation is located at the Eddie Tam Gymnasium in Makawao, approximately 1.7 miles away.

Presently, fire prevention, suppression and protection for the region is offered by the County's Department of Fire Control Makawao and Kula Stations. The Makawao Station, is located on Makawao Avenue, approximately 1.5 miles from the project site. The Kula

Station is located adjacent to Kula Elementary School, approximately 5.8 miles away.

2. ***Medical Facilities***

Maui Memorial Hospital, the only major medical facility on the island, services the Makawao region. Acute, general and emergency care services are provided by the 185-bed facility which is located in Wailuku. Medical/dental offices are located in Pukalani and Makawao to serve the Upcountry region's residents.

3. ***Solid Waste***

With the closure of the Makawao Landfill, all solid wastes generated in the Upcountry region are transported to the Central Maui Landfill in Puunene. Outside of Hana, the Central Maui Landfill is the only disposal site on the island of Maui. For the year 1994, solid waste arrived at the Central Maui Landfill at an estimated rate of approximately 400 tons per day. The Makawao-Pukalani-Kula and Paia-Haiku regions accounted for approximately 16 percent of the volume entering the landfill (R.W. Beck, December 1994).

4. ***Schools***

The State of Hawaii, Department of Education, operates five (5) public schools in Upcountry Maui. Makawao Elementary, Pukalani Elementary, and Kula Elementary all cover grades K to 5. Public school students in the Upcountry area would then be serviced by Samuel Kalama Intermediate School in Makawao which covers grades 6 to 8. King Kekaulike High School serves as the region's high school.

Kamehameha Schools recently opened its temporary facilities within the Pukalani Terrace area serving grades K to 5. A permanent Kamehameha School facility serving grades K to 8 is under construction in the Aapueo area near Lower Kula. The new facility should be completed in August 1999. The region is also served by privately operated Haleakala School (grades K to 8) and Seabury Hall (grades 6-12).

5. *Recreation Facilities*

Upcountry Maui is served by numerous recreational facilities offering diverse opportunities for the region's residents. These facilities include the County's Eddie Tam Park/Gym, Pukalani Recreation Center, Keokea Park, Rice Park, Kula Gym and the Kula Ball Park.

D. *INFRASTRUCTURE*

1. *Roadways*

The water tank site is located close to the intersection of Haleakala Highway and Hanamu Road. Haleakala Highway is a major arterial between Hana Highway and the Haleakala National Park and passes by the town of Pukalani. In the vicinity of the project site, Haleakala Highway is a two-way, two-lane arterial. Access to the proposed water tank is from Hanamu Road.

Hanamu Road is a local road which links with Kealaloa Avenue, Meha Road and Olinda Road. These roadways provide access to Makawao Town.

Kula Highway is a major arterial extending from its intersection with Haleakala Highway. It provides access to the Kula region.

2. ***Water***

The Makawao-Haiku system is supplied by surface water runoff collected on the windward slopes of Haleakala. This water is collected and conveyed by the Wailoa irrigation ditch and tunnel system, owned and maintained by the East Maui Irrigation Company (EMI), with a capacity of 190 million gallons per day (MGD). The DWS has an agreement with EMI to draw up to 12 MGD at Kamole Weir forebay.

This water is then treated by the Kamole Weir Water Treatment Plant (WTP), owned and operated by DWS. Kamole Weir WTP is located northeast of Haliimaile near the intersection of Baldwin Avenue and Haliimaile Road. It has a 300,000 gallon concrete treated water storage tank at a floor elevation of 1,114 feet above mean sea level (msl), and can treat up to 8 MGD in compliance with EPA Safe Drinking Water standards.

Water from the Kamole Weir WTP is transmitted by pumping to Makawao through a 24-inch diameter force main along Baldwin Avenue and Olinda Road. Storage is provided by the 0.3 and 2.0 million gallon (mg) Pookela tanks at floor elevations of 1,808 and 1,830 feet msl, respectively.

Water is then pumped via an 18-inch force main to the 0.5 mg Maluhia Tank at 2,051 feet msl. From the Maluhia Tank, there is a 12-inch main running along Olinda Road and Hanamu Road. Near Kailua Gulch, the 12-inch main extends west through pasture area, then proceeds south to link with Haleakala Highway to the new King Kekaulike High School.

3. ***Wastewater***

There are no County wastewater treatment facilities serving the Kula-Pukalani area. Other than a private wastewater treatment plant which serves existing Pukalani Terrace residents, wastewater disposal is accommodated via cesspools or individual wastewater treatment systems (e.g., septic tanks).

4. ***Drainage***

A preliminary grading and drainage report was prepared for a portion of the project site which includes the water tank, access road, inflow and outflow lines to Puu Koa and the overflow line. Runoff generally flows in a northeasterly direction toward neighboring Kailua Gulch. A moderately defined drainageway through the basin carries most of the offsite and onsite runoff. Existing onsite and offsite runoff is calculated at 2.1 cfs and 24.4 cfs, respectively. There are no improved drainage systems within the project site. See Appendix B.

The alignment of approximately 600 lineal feet of 12-inch waterline extending south from Kailua Gulch near Puu Koa, as well as proposed waterline segments within Haleakala Highway and Kula Highway, will not involve changes in topographic or cover conditions. There are no drainage impacts anticipated with these elements of the project.

5. ***Electrical and Telephone Systems***

Electrical and telephone services in the Pukalani-Kula region are provided by Maui Electric Company and GTE Hawaiian Telephone, respectively.

Chapter III

Potential Impacts and Mitigation Measures

III. POTENTIAL IMPACTS AND MITIGATION MEASURES

A. IMPACTS TO THE PHYSICAL ENVIRONMENT

1. Surrounding Uses

Lands comprising the project are currently utilized for cattle pasture and roadway purposes. There are significant acreages in pasture use in the general vicinity. The use of approximately 1.25 acres for a water tank and approximately 9,500 square feet of access road will not affect surrounding uses. The proposed waterline would be located underground and will not affect surrounding uses.

2. Topography and Soil Characteristics

The proposed project will involve the construction of a one million gallon water tank and associated waterline and appurtenant improvements. The finished contours will follow existing grades to minimize earthwork costs and maintain existing drainage patterns which tie into immediately surrounding lands. The project will not disturb the slope and land use characteristics of Kailua Gulch, surrounding properties and roadways.

3. Flora and Fauna

Vegetative cover, including several eucalyptus trees will be removed to accommodate the new tank facility. However in the context of the surrounding vegetation and tree cover, the proposed action does not adversely impact the botanical character of the immediate surrounding environs.

There are no known significant habitats or rare, endangered or threatened species of flora, fauna or avifauna at the project site. As such, the proposed action will not result in an adverse impact to this component of the natural environment.

4. ***Air Quality and Noise***

Air quality impacts attributed to the project will include dust generated by short-term construction activities. Site work such as clearing and grubbing, for example, will generate air-borne particulates. Dust control measures, such as regular watering and sprinkling, will be implemented to minimize wind blown emissions.

Once the project is completed, project-related vehicular traffic will generate minimal automotive emissions. Security and maintenance inspections will be conducted by the Department of Water Supply's employees on an intermittent basis. Project-related emissions are not expected to adversely impact local and regional ambient air quality conditions.

Ambient noise conditions will be temporarily impacted by construction activities. Construction equipment would be the dominant source of noise during the construction period. All construction activities will be limited to daylight working hours to the greatest extent practicable. The contractor will be required to coordinate with the State Department of Health regarding the applicability of a noise permit.

5. ***Visual Resources***

The proposed water tank will be constructed in a pasture area. Even after construction, there will be eucalyptus trees surrounding the tank which provides a visual buffer. The tank is proposed to reach 19 feet in height and will be painted in a color complementary with its surroundings, likely a shade of light green. The waterline is proposed to be placed underground and would have no impact upon visual resources. The proposed project is not

anticipated to adversely impact the open space and scenic character of the area.

6. ***Archaeological Resources***

The initial archaeological inventory survey was done for the water tank site, access road, inflow and outflow lines to Puu Koa, and the overlow line. This survey discovered six (6) sites in the vicinity of the project. However, the six (6) sites are all located outside of the project boundary limits and no sites were found within the areas impacted by the proposed project. See Appendix A.

Subsequent archaeological review was completed for other components of the project. These include an approximately 600 lineal feet segment of 12-inch waterline extending south from Kailua Gulch near Puu Koa as well as waterline segments within Haleakala and Hana Highways. No significant cultural resources were encountered during this review. See Appendix A-1.

In the event significant cultural deposits or human burials are encountered during the project's construction activities, work will cease in the area of the find and the State Historic Preservation Division will be notified to determine appropriate mitigation measures.

B. *IMPACTS TO COMMUNITY SETTING*

1. *Population and Local Economy*

On a short-term basis, the project will support construction and construction-related employment.

The proposed project will provide additional water storage capacity and fire protection services to the area.

2. Agriculture

The proposed water tank and access road will occupy a land area of slightly more than an acre which is presently utilized for pasturage. Compared to existing lands in the vicinity currently used for this purpose, as well as lands within the State Agricultural District on the island of Maui, there are no significant impacts to agricultural endeavors as a result of the project.

C. IMPACTS TO PUBLIC SERVICES

1. Public Services

The proposed project is not anticipated to affect the service area limits or requirements for emergency services, such as police, fire and medical services. Furthermore, the project will not affect recreational facilities and schools.

2. Solid Waste

A solid waste management plan will be developed in coordination with the Solid Waste Division of the County Department of Public Works and Waste Management for the disposal of clearing and grubbing material from the site during construction.

D. IMPACTS TO INFRASTRUCTURE

1. Roadways

The alignment for the proposed access roadway to the water tank is intended to be grubbed and graded. Loose gravel or asphalt concrete pavement is intended to be used as the access surface. It is intended to be used by DWS personnel when maintenance

and monitoring of the proposed water tank is required.

During waterline construction within Haleakala Highway and Kula Highway, at least one (1) lane of traffic will remain open at all times. During periods of non-construction (i.e. nighttime, weekends, holidays), steel plates will be utilized to cover trenching in order to allow full use of the right-of-way.

The proposed project will not generate a significant amount of vehicular traffic and is not anticipated to have an adverse traffic impact in the vicinity.

2. ***Water***

During grading and construction, non-potable water is intended to be used for dust control, as appropriate.

Upon its completion, the proposed project will enhance the Makawao Water system by providing additional water storage and delivery capacity which benefits the Pukalani and Lower Kula area which includes the Kulamalu and new Kamehameha Schools campus.

3. ***Wastewater***

No impacts are anticipated to the County's wastewater system since the proposed project does not require connections to the County's sewer system.

4. ***Drainage***

The proposed grading plan will require excavation for the construction of the reservoir site, access road, and other utilities.

Slopes will typically be graded at 2:1. Benches will be graded within the slopes to mitigate erosion hazards.

Onsite runoff will be allowed to flow in a northeasterly direction, pursuant to the existing condition. A portion of the onsite runoff will be intercepted via proposed concrete drainage swales and released downstream of the reservoir site. Offsite runoff entering the reservoir site will be intercepted and redirected by the proposed concrete drainage swales surrounding the reservoir site.

Developed onsite runoff is calculated at 3.3 cfs, an increase of 1.6 cfs due to the proposed site improvements. The rational method was used to calculate the runoff based on a 10-year storm recurrence interval.

The proposed grading and drainage plan improvements should not produce any adverse effects of storm runoff to adjacent properties. All proposed improvements conform to County of Maui standards. See Appendix B.

Other portions of the project, such as the 600 lineal feet of waterline near Puu Koa and waterline construction within Haleakala and Kula Highways, will not affect the extent of impermeable surface and thus will not increase runoff rates. Required improvements will conform to applicable County of Maui standards and will be coordinated with the County DPWWM and State Department of Transportation.

Chapter IV

Relationship to Governmental Plans, Policies and Controls

IV. RELATIONSHIP TO GOVERNMENTAL PLANS, POLICIES AND CONTROLS

A. STATE LAND USE DISTRICTS

Chapter 205, Hawaii Revised Statutes, relating to the Land Use Commission, establishes the four (4) major land use districts in which all lands in the State are placed. These districts are designated "Urban", "Rural", "Agricultural", and "Conservation". Most of the subject project site is within the State "Agricultural" District with a small portion within the "Urban" District. See Figure 7. The proposed action involves the use of property for a water storage tank, waterlines and related appurtenances which are compatible with the "Agricultural" and "Urban" classification.

B. MAUI COUNTY GENERAL PLAN

The Maui County General Plan sets forth broad objectives and policies to help guide the long-range development of the County. As stated in Section 8-8.5 of the Maui County Charter:

> "The General Plan shall recognize and state the major problems and opportunities concerning the needs and the development of the county and the social, economic and environmental effects of such development and shall set forth the desired sequence, patterns and characteristics of future development."

The proposed action is in keeping with the following General Plan objectives and policies:

Objective:

To provide an adequate supply of potable and irrigation water to meet the needs of Maui County's residents.

Policies:

1. Support the improvement of water transmission systems to those

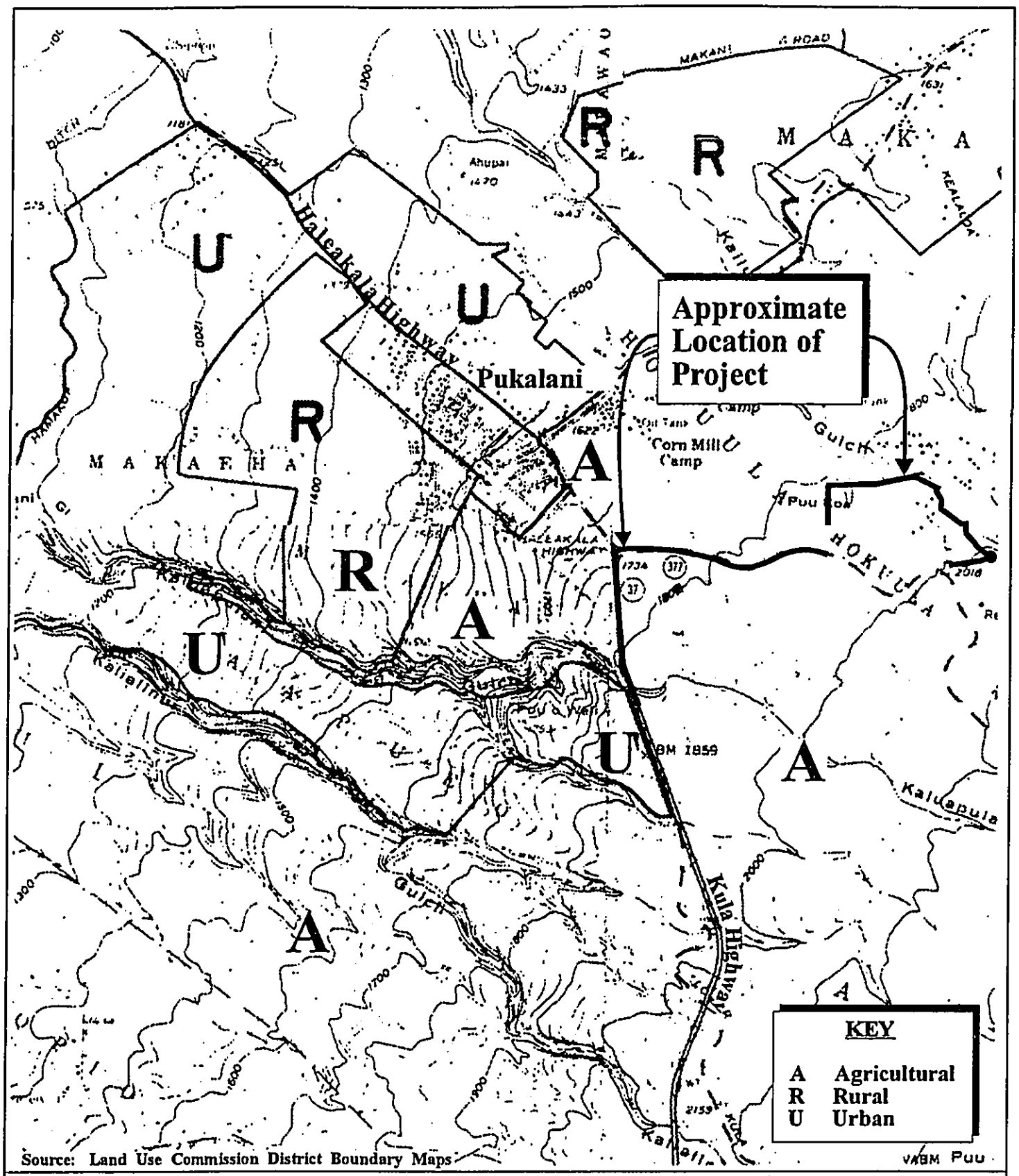


Figure 7

Kulamalu Water Tank and Associated Waterline and Appurtenant Improvements

State Land Use District Classifications

MUNEKIYO, ARAKAWA & HIRAGA, INC.

1000 0 2000 4000 Feet

Prepared for: Kulamalu Limited Partnership

areas which historically experience critical water supply problems provided the improvements are consistent with the water priorities and the County's Water Use and Development Plan provisions for the applicable community plan area.

2. Develop improved systems to provide better fire protection.

3. Maintain the right to manage the County's water sources and transmission systems at the County level.

Objective:

To make more efficient use of our ground, surface and recycled water sources.

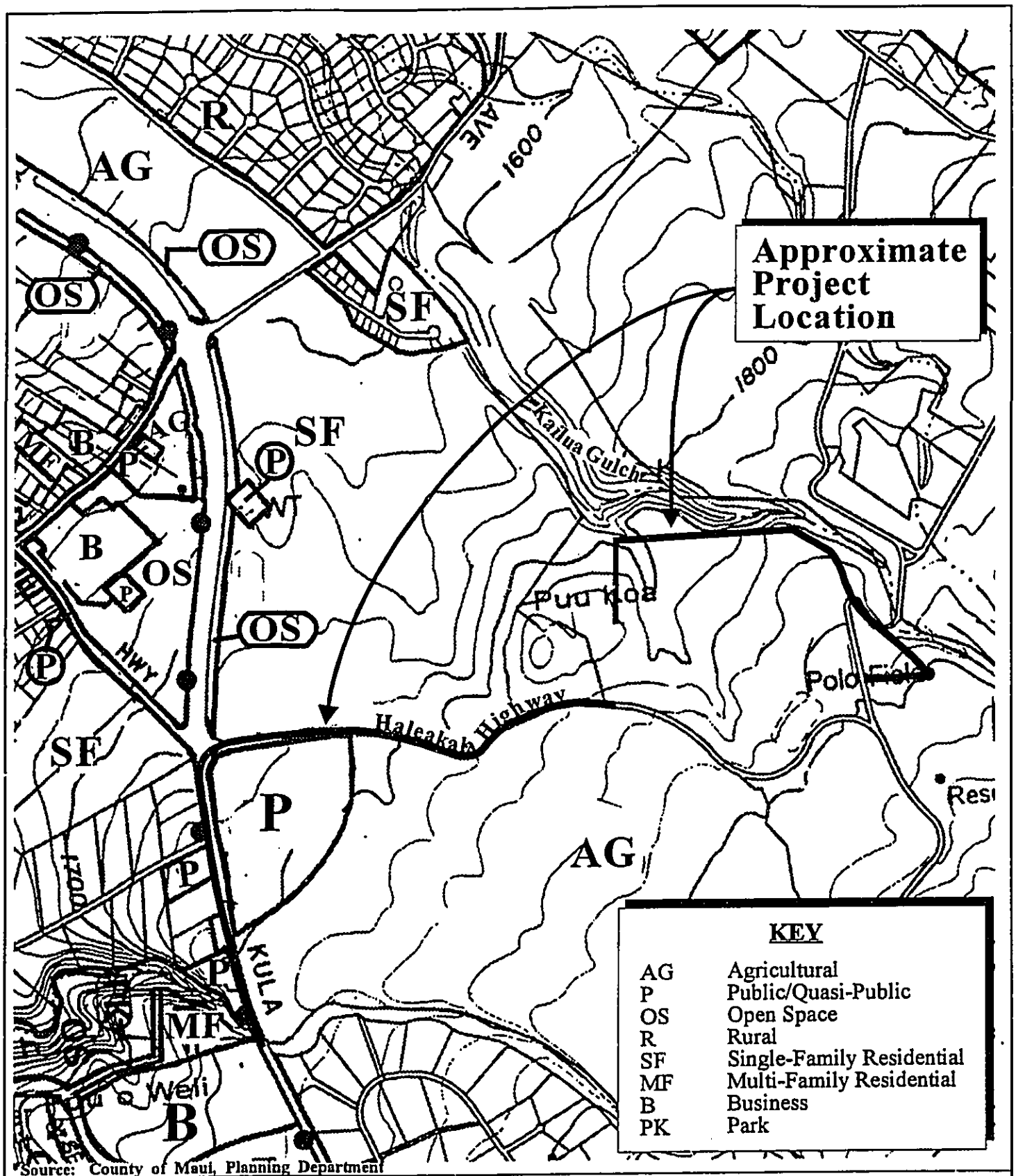
Policy:

1. Maximize use of existing water sources by expanding storage capabilities.

C. *MAKAWAO-PUKALANI-KULA COMMUNITY PLAN*

The project site is located in the Makawao-Pukalani-Kula Community Plan region which is one (1) of nine (9) Community Plan regions established in the County of Maui. Planning for each region is guided by the respective Community Plans, which are designed to implement the Maui County General Plan. Each Community Plan contains recommendations and standards which guide the sequencing, patterns and characteristics of future development in the region.

Land use guidelines are set forth by the Makawao-Pukalani-Kula Community Plan Land Use Map. The project site is designated "Agriculture" by the Community Plan. The Haleakala and Kula Highway waterline segment also abuts lands designated Public/Quasi-Public, Single-Family Residential, Open Space, Multi-Family Residential, and Business. See Figure 8. The proposed project is in keeping with the



Source: County of Maui, Planning Department

Figure 8

Kulamalu Water Tank and Associated Waterline and Appurtenant Improvements
Makawao-Pukalani-Kula Community Plan

MUNEKIYO, ARAKAWA & HIRAGA, INC.

0 500 1000 2000 Feet

Prepared for: Kulamalu Limited Partnership

following Makawao-Pukalani-Kula Community Plan provisions:

Goal:

The timely and environmentally sensitive development and maintenance of infrastructure systems which protect and enhance the safety and health of Upcountry's residents and visitors, including the provision of domestic water, utility and waste disposal services, and effective transportation systems which meet the needs of residents and visitors while maintaining the region's rural character.

Objectives and Policies:

Encourage the construction of additional storage capacity by the Department of Water Supply, commercial developers, and individual farmers to help alleviate the inadequate water supply.

Implementing Actions

Systematically improve and upgrade the existing water delivery system.

D. *COUNTY ZONING*

The recent passage of Ordinance No. 2749 has zoned lands Agricultural District if it is designated as Agriculture by the Community Plan. Thus, the zoning for the water tank site and waterline segments within pasture areas and dirt roads is Agricultural District. The proposed use is in keeping with this zoning designation. Waterline segments within Hanamu Road, Haleakala Highway and Kula Highway rights-of-way are unzoned.

E. *SPECIAL MANAGEMENT AREA OBJECTIVES AND POLICIES*

Pursuant to Chapter 205A, Hawaii Revised Statutes, all lands within the state are considered within the coastal zone. This section addresses the project's relationship to applicable coastal zone management considerations, as set forth in Chapter 205A.

1. ***Recreational Resources***

Objective: Provide coastal recreational resources accessible to the public.

Policies:

a. Improve coordination and funding of coastal recreational planning and management; and

b. Provide adequate, accessible and diverse recreational opportunities in the coastal zone management area by:

(i) Protecting coastal resources uniquely suited for recreation activities that cannot be provided in other areas;

(ii) Requiring replacement of coastal resources having significant recreational value, including but not limited to surfing sites, fishponds and sand beaches, when such resources will be unavoidably damaged by development; or requiring reasonable monetary compensation to the State for recreation when replacement is not feasible or desirable;

(iii) Providing and managing adequate public access, consistent with conservation of natural resources, to and along shorelines with recreational value;

(iv) Providing an adequate supply of shoreline parks and other recreational facilities suitable for public recreation;

(v) Ensuring public recreational use of county, state and federally owned or controlled shoreline lands and waters having recreational value consistent with public safety standards and conservation of natural resources;

(vi) Adopting water quality standards and regulating point and non-point sources of pollution to protect and where feasible, restore the recreational value of coastal waters;

(vii) Developing new shoreline recreational opportunities,

where appropriate, such as artificial lagoons, artificial beaches, and artificial reefs for surfing and fishing; and

(viii) Encouraging reasonable dedication of shoreline areas with recreational value for public use as part of discretionary approvals or permits by the Land Use Commission, Board of Land and Natural Resources, County Planning Commission; and crediting such dedication against the requirements of Section 46-6 of the Hawaii Revised Statutes.

Response: The proposed project is not located on the shoreline and is not anticipated to affect existing coastal or inland recreational resources.

2. ***Historical/Cultural Resources***

Objective: Protect, preserve and where desirable, restore those natural and man-made historic and prehistoric resources in the coastal zone management area that are significant in Hawaiian and American history and culture.

Policies:

a. Identify and analyze significant archaeological resources;

b. Maximize information retention through preservation of remains and artifacts or salvage operations; and

c. Support State goals for protection, restoration, interpretation and display of historic resources.

Response: An archaeological inventory survey done for a portion of the project area found six (6) sites in proximity to the project. None will be affected by construction of the project. If any additional sites are found during construction, work will cease in the area of the find and the State Historic Preservation Division will be

notified to determine appropriate mitigative measures.

Supplemental archaeological field work conducted for the remainder of the project did not encounter any significant cultural resources.

3. ***Scenic and Open Space Resources***

Objective: Protect, preserve and where desirable, restore or improve the quality of coastal scenic and open space resources.

Policies:

a. Identify valued scenic resources in the coastal zone management area;

b. Ensure that new developments are compatible with their visual environment by designing and locating such developments to minimize the alteration of natural land forms and existing public views to and along the shoreline;

c. Preserve, maintain and, where desirable, improve and restore shoreline open space and scenic resources; and

d. Encourage those developments which are not coastal dependent to locate in inland areas.

Response: The project will not impact coastal scenic and open space resources. Furthermore, the project will not affect public views to and along the shoreline.

4. ***Coastal Ecosystems***

Objective: Protect valuable coastal ecosystems, including reefs, from disruption and minimize adverse impacts on all coastal ecosystems.

Policies:

a. Improve the technical basis for natural resource management;

b. Preserve valuable coastal ecosystems, including reefs of significant biological or economic importance;

c. Minimize disruption or degradation of coastal water ecosystems by effective regulation of stream diversions, channelization, and similar land and water uses, recognizing competing water needs; and

d. Promote water quantity and quality planning and management practices which reflect the tolerance of fresh water and marine ecosystems and prohibit land and water uses which violate State water quality standards.

Response: The proposed improvements are not expected to adversely impact coastal ecosystems. The proposed tank site and waterline improvements are located approximately seven (7) miles from the shoreline. Erosion control measures will be implemented during construction to ensure that coastal ecosystems are not impacted.

5. ***Economic Uses***

Objective: Provide public or private facilities and improvements important to the State's economy in suitable locations.

Policies:

a. Concentrate coastal dependent development in appropriate areas;

b. Ensure that coastal dependent development such as harbors and ports, and coastal related development, such as visitor facilities, and energy-generating facilities are located, designed and constructed to minimize adverse social, visual and environmental impacts in the coastal zone management area; and

c. Direct the location and expansion of coastal dependent developments to areas presently designated and used for such developments and permit reasonable long-term growth at such areas, and permit coastal dependent development outside of presently designated areas when:

(i) Use of presently designated locations is not feasible;

(ii) Adverse environmental effects are minimized; and

(iii) The development is important to the State's economy.

Response: The project would have a beneficial short term impact on the economy during construction. In the long term, the project provides additional water storage and fire protection services which indirectly benefits economic viability.

6. *Coastal Hazards*

Objective: Reduce hazard to life and property from tsunami, storm waves, stream flooding, erosion, subsidence, and pollution.

Policies:

a. Develop and communicate adequate information about storm wave, tsunami, flood, erosion, subsidence, and point and nonpoint source pollution hazards;

b. Control development in areas subject to storm wave, tsunami, flood, erosion, subsidence, and point and nonpoint source pollution hazards;

c. Ensure that developments comply with requirements of the Federal Flood Insurance Program; and

d. Prevent coastal flooding from inland projects; and

e. Develop a coastal point and nonpoint source pollution control program.

Response: Erosion control measures will be incorporated during the construction period to minimize soil loss and erosion hazards. No significant adverse drainage impacts to downstream properties should result from the proposed project.

7. Managing Development

Objective: Improve the development review process, communication, and public participation in the management of coastal resources and hazards.

Policies:

a. Use, implement, and enforce existing law effectively to the maximum extent possible in managing present and future coastal zone development;

b. Facilitate timely processing of applications for development permits and resolve overlapping of conflicting permit requirements; and

c. Communicate the potential and short and long-term impacts of proposed significant coastal developments early in their life-cycle and in terms understandable to the general public to facilitate public participation in the planning and review process.

Response: Early consultation and public review comments will be solicited as part of the Environmental Assessment process.

Applicable State and County requirements will be adhered to in the design and construction of the proposed project.

8. Public Participation

Objective: Stimulate public awareness, education, and participation in coastal management.

Policies:

a. Maintain a public advisory body to identify coastal management problems and to provide policy advice and assistance to the coastal zone management program;

b. Disseminate information on coastal management issues by means of educational materials, published reports, staff contact, and public workshops for persons and organizations concerned with coastal-related issues, developments, and government activities; and

c. Organize workshops, policy dialogues, and site-specific mediations to respond to coastal issues and conflicts.

Response: Comments are being solicited as part of the Environmental Assessment process. The proposed project is not contrary to the objective of public awareness, education, and participation.

9. ***Beach Protection***

Objective: Protect beaches for public use and recreation.

Policies:

a. Locate new structures inland from the shoreline setback to conserve open space and to minimize loss of improvements due to erosion;

b. Prohibit construction of private erosion-protection structures seaward of the shoreline, except when they result in improved aesthetic and engineering solutions to erosion at the sites and do not interfere with existing recreational and waterline activities; and

c. Minimize the construction of public erosion-protection structures seaward of the shoreline.

Response: The project is located approximately seven (7) miles from the nearest shoreline. Consequently, the proposed project is

not anticipated to adversely impact any beaches.

10. Marine Resources

Objective: Implement the State's ocean resources management plan.

Policies:

(A) Exercise an overall conservation ethic, and practice stewardship in the protection, use, and development of marine and coastal resources;
(B) Assure that the use and development of marine and coastal resources are ecologically and environmentally sound and economically beneficial;
(C) Coordinate the management of marine and coastal resources and activities management to improve effectiveness and efficiency;
(D) Assert and articulate the interests of the State as a partner with federal agencies in the sound management of ocean resources within the United States exclusive economic zone;
(E) Promote research, study, and understanding of ocean processes, marine life, and other ocean resources in order to acquire and inventory information necessary to understand how ocean development activities relate to and impact upon ocean and coastal resources; and
(F) Encourage research and development of new, innovative technologies for exploring, using, or protecting marine and coastal resources.

Response: The proposed project is not anticipated to have adverse effects upon marine and coastal resources in the vicinity.

F. OTHER REGULATORY AND PERMITTING CONSIDERATIONS

The proposed project involves the construction of an overflow line which terminates above the high water mark within Kailua Gulch and does not involve any construction of a discharge point within the stream itself. The project also does not involve any other work which results in a discharge of dredge or fill material into jurisdictional waters of the United States,

including wetlands. Accordingly, regulatory permits, such as the Department of the Army (DA) permit, Section 401 Water Quality Certification, and the Hawaii Coastal Zone Management (CZM) Program Consistency Assessment are not applicable to this project. There are also no provisions of the project which trigger a Stream Channel Alteration permit or a National Pollutant Discharge Elimination System (NPDES) permit.

Applicable construction permits (e.g., building permit and grading permit) will be obtained prior to the start of construction.

Chapter V

Summary of Adverse Environmental Effects Which Cannot be Avoided

V. SUMMARY OF ADVERSE ENVIRONMENTAL EFFECTS WHICH CANNOT BE AVOIDED

The proposed project will result in unavoidable construction-related impacts which include noise-generated impacts occurring from the proposed improvements. In addition, there may be temporary air quality impacts associated with dust generated from exhaust emissions discharged by construction equipment.

The proposed project is not anticipated to create significant, long-term environmental effects.

Chapter VI

Alternatives Analysis

VI. ALTERNATIVES ANALYSIS

A. ALTERNATIVE A

Alternative A represents the proposed action. This alternative provides for the construction of a one million gallon water tank and associated waterline and appurtenant improvements. The proposed improvements will enhance water storage capacity and fire protection services in the area. The specific location of the tank is based on engineering criteria in order to fill the water tank and deliver adequate water pressure to the end users.

The proposed project is not anticipated to create any significant, short-term or long-term adverse environmental effects.

B. ALTERNATIVE B

Alternative B is the no action alternative. The proposed improvements are considered necessary and fulfill the requirements of the Board of Water Supply to increase storage capacity and enhance fire protection services.

Chapter VII

Irreversible and Irretrievable Commitments of Resources

VII. IRREVERSIBLE AND IRRETRIEVABLE COMMITMENTS OF RESOURCES

The construction of the proposed improvements would involve the commitment of land, labor, funding and material resources for the proposed action.

There are no other significant irreversible and irretrievable commitments of resources which have been identified in connection with the proposed action.

Chapter VIII

Findings and Conclusions

VIII. FINDINGS AND CONCLUSIONS

The "Significance Criteria", Section 12 of the Administrative Rules, Title 11, Chapter 200, "Environmental Impact Statement Rules", were reviewed and analyzed to determine whether the proposed project will have significant impacts to the environment. The following analysis is provided:

1. ***No Irrevocable Commitment to Loss or Destruction of any Natural or Cultural Resource Would Occur as a Result of the Proposed Project***

   The project will not result in any adverse environmental impacts. There are no known, rare, endangered or threatened species of flora, fauna or avifauna located within the project site.

   There are no known archaeological sites which would be impacted by the project. Should any cultural remains be identified during construction, work will stop in the immediate vicinity and the State Historic Preservation Division will be consulted to establish an appropriate mitigation strategy.

2. ***The Proposed Action Would Not Curtail the Range of Beneficial Uses of the Environment***

   The proposed project and the commitment of land resources would not curtail the range of beneficial uses of the environment.

3. ***The Proposed Action Does Not Conflict with the State's Long-term Environmental Policies or Goals or Guidelines as Expressed in Chapter 334, Hawaii Revised Statutes***

   The State's Environmental Policy and Guidelines are set forth in Chapter 344, Hawaii Revised Statutes and were reviewed in connection with the proposed project. The proposed action is in consonance with the following guidelines:

Environmental Policy:

Conserve the natural resources, so that land, water, mineral, visual, air and other natural resources are protected by controlling pollution, by preserving or augmenting natural resources, and by safeguarding the State's unique natural environmental characteristics in a manner which will foster and promote the general welfare, create and maintain conditions under which man and nature can exist in productive harmony, and fulfill the social, economic, and other requirements of the people of Hawaii.

Establishing a commitment on the part of each person to protect *and enhance Hawaii's environment and reduce the drain on* nonrenewable resources.

Guideline:

Land, water, mineral, visual, air and other resources

(1) Encourage management practices which conserve and fully utilize all natural resources.

(2) Encourage management practices which conserve and protect watersheds and water sources, forest, and open space areas.

4. *The Economic or Social Welfare of the Community or State Would Not be Substantially Affected*

The proposed project provides additional water storage capacity to enhance service to this area of the island. The construction of the new tank and related waterline improvements will also improve the delivery system to service customers. There are no adverse economic or social welfare impacts associated with the proposed action.

5. *The Proposed Action Does Not Affect Public Health*

The proposed action will improve water service reliability for area residents and businesses. While there are no public health issues associated with the proposed action, general community welfare is deemed to be enhanced with the water system improvements.

6. ***No Substantial Secondary Impacts, Such as Population Changes or Effects on Public Facilities are Anticipated***

The proposed project is not anticipated to have an adverse effect upon the area's roadways. At least one (1) lane of traffic will be open along Haleakala Highway and Kula Highway at all times during construction. The project is not expected to impact public services, such as police and medical services. The project should benefit service and reliability for fire protection. Impacts upon recreational, educational and solid waste parameters are negligible.

The construction of the proposed project should not adversely affect the Island's population base and should not place significant new demands on the Island's public services.

7. ***No Substantial Degradation of Environmental Quality is Anticipated***

During the construction phase of the project, there will be short-term air quality and noise impacts as a result of the project. In the long term, effects upon air quality and noise parameters should be minimal. The project is not anticipated to significantly affect the open space and scenic character of the area.

No substantial degradation of environmental quality resulting from the project is anticipated.

8. ***The Proposed Action Does Not Involve a Commitment to Larger Actions, Nor Would Cumulative Impacts Result in Considerable Effects on the Environment***

The proposed project does not involve a commitment to larger water system improvement actions.

9. ***No Rare, Threatened or Endangered Species or Their Habitats Would be Adversely Affected by the Proposed Action***

There are no rare, threatened or endangered species of flora or fauna or their habitats on the subject property.

10. ***Air Quality, Water Quality or Ambient Noise Levels Would Not be Detrimentally Affected by the Proposed Project***

Construction activities will result in short-term air quality and noise impacts. Dust control measures, such as regular watering and sprinkling, will be implemented to minimize wind-blown emissions. Noise impacts will occur primarily from construction-related activities. It is anticipated that construction will be limited to daylight working hours.

In the long term, the project is not anticipated to have a significant impact on air quality or noise parameters.

11. ***The Proposed Project Would Not Affect Environmentally Sensitive Areas, Such as Flood Plains, Tsunami Zones, Erosion-prone Areas, Geologically Hazardous Lands, Estuaries, Fresh Waters or Coastal Waters***

The project is not located within and would not affect environmentally sensitive areas. The project site is not subject to flooding or tsunami inundation. Soils of the project site are not erosion-prone. There are no geologically hazardous lands, estuaries, or coastal waters within or adjacent to the project site.

12. ***The Proposed Action Would Not Substantially Affect Scenic Vistas and Viewplanes Identified in County or State Plans or Studies***

The project site is not identified as a scenic vista or viewplane.

13. ***The Proposed Action Would Not Require Substantial Energy Consumption***

The proposed action is not anticipated to require substantial energy consumption.

Based on the foregoing findings, it is concluded that the proposed action will not result in any significant impacts.

Chapter IX

Agencies Contacted Prior to or During the Preparation of the Environmental Assessment

IX. AGENCIES CONTACTED PRIOR TO OR DURING THE PREPARATION OF THE ENVIRONMENTAL ASSESSMENT

The following agencies were contacted during the preparation of the Draft Environmental Assessment:[1]

1. Lolly Silva
   Department of the Army
   U.S. Army Engineer District, Hnl.
   Attn: Operations Division
   Bldg. T-1, Room 105
   Fort Shafter, Hawaii 96858-5440

2. Brooks Harper
   U.S. Fish and Wildlife Service
   Pacific Islands Office
   P. O. Box 50167
   Honolulu, Hawaii 96850

3. Neal Fujiwara
   U.S. Department of Agriculture
   Natural Resources Conservation Service
   210 Imi Kala Street, Suite 209
   Wailuku, Hawaii 96793

4. Herb Matsubayashi
   Department of Health
   54 High Street
   Wailuku, Hawaii 96793

5. Don Hibbard, Administrator
   Department of Land and Natural Resources
   State Historic Preservation Division
   33 S. King Street, 6th Floor
   Honolulu, Hawaii 96813

6. Bradley Mossman, Director
   Department of Business, Economic Development and Tourism
   Office of Planning
   P. O. Box 2359
   Honolulu, Hawaii 96804

7. Michael Wilson, Director
   Department of Land and Natural Resources
   P.O. Box 621
   Honolulu, Hawaii 96809

8. Lisa M. Nuyen, Director
   Department of Planning
   250 S. High Street
   Wailuku, Hawaii 96793

9. Charles Jencks, Director
   Department of Public Works and Waste Management
   200 S. High Street
   Wailuku, Hawaii 96793

10. Ronald Davis, Chief
    Department of Fire Control
    200 Dairy Road
    Kahului, Hawaii 96732

11. Kula Community Association
    P.O. Box 419
    Kula, Hawaii 96790

[1] An initial request for early consultation comments was sent to the listed agencies/organizations on October 21, 1998. Several components were subsequently added to the scope of the project. These included an approximately 600 lineal feet segment of waterline adjacent to the Puu Koa area. Another segment of waterline was added within the Haleakala Highway and Kula Highway right-of-way. Accordingly, a second request for early consultation comments was sent to the listed agencies/organizations on December 21, 1998.

Chapter X

Early Consultation Comments

X. EARLY CONSULTATION COMMENTS

The letters incorporated in this chapter were received in response to requests for early consultation comments.

United States
Department of
Agriculture

Natural
Resources
Conservation
Service

210 Imi Kala St.
Suite 209
Wailuku, Hi
96793-2100

Our People...Our Islands...In Harmony

October 30, 1998

Mr. Milton Arakawa, Project Manager
Munekiyo, Arakawa & Hiraga, Inc.
305 High St., Suite 104
Wailuku, HI 96793-2100

Dear Mr. Arakawa,

Subject: Honokohau Water System Improvements
Kulamalu Water Tank

I have no comments to offer on either subject at this time.

Thank you for the opportunity to comment.

Sincerely,

Neal S. Fujiwara
District Conservationist

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

REPLY TO
ATTENTION OF

November 2, 1998

Operations Branch

Mr. Milton Arakawa
Munekiyo, Arakawa and Hiraga, Inc.
305 High Street, Suite 104
Wailuku, Hawaii 96793

Dear Mr. Arakawa:

This is in response to your letter dated October 21, 1998, regarding the proposed water storage improvements in Kula, Maui. The project involves construction of a 1 million gallon water tank, an access road, and overflow, inflow, and outflow lines.

Based on the preliminary information provided, it is not possible to reach a conclusive determination regarding Department of the Army (DA) permit requirements at this time. For your reference, the proposed work will not require a DA permit provided: (a) the terminal end of the outflow line is located away from or above the ordinary high water mark within Kailua Gulch; (b) the discharge point of the overflow line is not constructed within the stream itself; and (c) the project does not involve any other work which will result in the discharge of dredge or fill material into jurisdictional waters of the U.S., including wetlands. A final determination regarding DA permit requirements for this project will be made after our office has had the opportunity to review the Environmental Assessment (EA).

Thank you for the opportunity to review the preliminary project scope. Please provide our office a copy of the draft EA when it is available. File Number 990000033 is assigned to this project. Please refer to this number in any future correspondence with our office. Should you need additional information, please contact Ms. Lolly Silva of my staff at (808) 438-9258, extension 17.

Sincerely,

George P. Young, P.E.
Chief, Operations Branch

NOV 12 1998

BENJAMIN J. CAYETANO
GOVERNOR

LAWRENCE MIIKE
DIRECTOR OF HEALTH

ALFRED M. ARENSDORF, M.D.
District Health Officer

STATE OF HAWAII
DEPARTMENT OF HEALTH
MAUI DISTRICT HEALTH OFFICE
54 HIGH STREET
WAILUKU, MAUI, HAWAII 96793

November 10, 1998

Milton Arakawa
Project Manager
Munekiyo, Arakawa &
Hiraga, Inc.
305 High Street, Suite 104
Wailuku, Hawaii 96793

Dear Mr. Arakawa:

Subject: **Kulamalu Water Tank**
TMK: (2) 2-3-7: por. 10 & 11

Thank you for the opportunity to provide input prior to the Environmental Assessment. We have the following comments to offer:

1. NPDES coverage will be required for discharges into state waters which includes intermittent streams.

2. The noise created during the construction phase of the project may exceed the maximum allowable levels as set forth in Hawaii Administrative Rules, Chapter 11-46, "Community Noise Control". A noise permit may be required and should be obtained prior to the commencement of work.

Should you have any questions, please call me at 984-8230.

Sincerely,

HERBERT S. MATSUBAYASHI
District Environmental Health Program Chief

NOV 2 3 1998

LINDA CROCKETT LINGLE
MAYOR

RONALD P. DAVIS
CHIEF

HENRY A. LINDO, SR.
DEPUTY CHIEF

COUNTY OF MAUI
DEPARTMENT OF FIRE CONTROL

200 DAIRY ROAD
KAHULUI, MAUI, HAWAII 96732
(808) 243-7561

November 17, 1998

Mr. Milton Arakawa, Project Manager
Munekiyo, Arakawa & Hiraga, Inc.
305 High Street
Wailuku, HI 96793

RE: Kulamalu Water Tank,

Dear Mr. Arakawa,

Thank you for the opportunity to comment on the Kulamalu Water Tank project.

The Department of Fire Control has reviewed the draft environmental assessment and has no comment.

If you have any questions, direct them in writing to the Fire Prevention Bureau, 21 Kinipopo Street, Wailuku, HI 96793.

Sincerely,

LEONARD F NIEMCZYK
Captain, Fire Prevention Bureau

cc: Inspection L. Montalvo

MFD-Kulamalu Water Tank (11.98)

BENJAMIN J. CAYETANO, GOVERNOR
STATE OF HAWAII

DEC 0 7 1998

MICHAEL D. WILSON, Chairperson*♦

Gilbert S. Coloma-Agaran, Deputy to the Chairperson*
Timothy E. Johns, Deputy Director♦

* *Board of Land and Natural Resources*
♦ *Commission on Water Resource Management*

- Aquatic Resources
- Boating and Ocean Recreation
- Conveyances
- Office of the Chairperson
  - Administrative Services
  - Kahoolawe Island Reserve Commission
  - Licenses/Permits/Store/Visitor Center
  - Personnel
  - Public Information
  - Volunteer Services Coordinator
- Conservation and Resources Enforcement
  - Hunter Education
- Forestry and Wildlife
- Historic Preservation
- Land
- State Parks
- Water Resource Management

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES

P.O. BOX 621
HONOLULU, HAWAII 96809

November 17, 1998

Milton Arakawa
Munekiyo, Arakawa, & Hiraga, Inc.
Planning, Environmental Studies, Project Management
305 High Street, Suite 104
Wailuku, Hawaii 96793

LOG NO: 22501
DOC NO: 9811CD02

Dear Mr. Arakawa:

SUBJECT: Chapter 6E-42 Historic Preservation Review of the Proposed Construction of the Kulamalu Water Tank,
Hoku'ula Ahupua'a, Makawao District, Island of Maui
TMK: 2-3-07: por. 010, por. 011

Thank you for the opportunity to comment on the proposed construction of the Kulamalu Water Tank.

Fieldwork for an archaeological inventory survey was conducted by Xamenek for these properties. We have received a summary of findings. The final report is forthcoming. With the understanding that an acceptable inventory survey report must be submitted to our Division, we can proceed with our review at this point.

No historic sites were located within the project area. Therefore we believe that this project will have "no effect" on significant historic sites. Again, this finding is made with the understanding that we will receive an acceptable final report.

Please call Cathleen Dagher at 692-8023 if you have any questions.

Aloha,

Don Hibbard, Administrator
State Historic Preservation Division

CD: jen

c: Dean Uchida, Administrator, Land Division, DLNR
Dept. of Water Supply, County of Maui

NOV 2 0 1998

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

NOV 1 9 1998

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

Mr. Milton Arakawa
Project Manager
Munekiyo Arakawa & Hiraga, Inc.
305 High Street, Suite 104
Wailuku, Maui, HI 96793

Dear Mr. Arakawa:
Subject: Kulamalu Water Tank

Thank you for the opportunity to review the prepared material related to the development of a Draft Environmental Assessment on the subject matter. We have no comments to offer at this time.

Should you have any questions, or require further assistance please contact staff planner Ed Henry at (808) 587-0380.

Aloha,

for Michael D. Wilson,
Chairperson

LINDA LINGLE
Mayor

CHARLES JENCKS
Director

DAVID C. GOODE
Deputy Director

Telephone: (808) 243-7845
Fax: (808) 243-7955

COUNTY OF MAUI
DEPARTMENT OF PUBLIC WORKS AND WASTE MANAGEMENT
200 SOUTH HIGH STREET
WAILUKU, MAUI, HAWAII 96793

RALPH NAGAMINE, L.S., P.E.
Land Use and Codes Administration

EASSIE MILLER, P.E.
Wastewater Reclamation Division

LLOYD P.C.W. LEE, P.E.
Engineering Division

BRIAN HASHIRO, P.E.
Highways Division

Solid Waste Division

November 25, 1998

Mr. Milton Arakawa
Munekiyo, Arakawa and Hiraga, Inc.
305 High Street, Suite 104
Wailuku, Hawaii 96793

Dear Mr. Arakawa:

SUBJECT: EARLY CONSULTATION
KULAMALU WATER TANK
TMK: (2) 2-3-007:010 & 011

We reviewed the subject submittal and have the following comments.

1. We need more information to address drainage or traffic impacts.

2. Prior to construction, submit a Solid Waste Management Plan for construction waste disposal/recycling.

If you have any questions, please call David Goode at 243-7845.

Sincerely,

CHARLES JENCKS
Director of Public Works
and Waste Management

CJ:co/mt
S:\LUCA\CZM\KULAMALU.WPD

RECD DEC - 3 1998

LINDA LINGLE
Mayor

LISA M. NUYEN
Director

DONALD A. SCHNEIDER, II
Deputy Director

CLAYTON I. YOSHIDA
Planning Division

AARON H. SHINMOTO
Zoning Administration and
Enforcement Division

COUNTY OF MAUI
DEPARTMENT OF PLANNING
November 30, 1998

Mr. Milton Arakawa, Project Manager
Munekiyo, Arakawa & Hiraga, Inc.
305 High Street, Suite 104
Wailuku, Hawaii 96793

Dear Mr. Arakawa:

RE: Kulamalu Water Tank Environmental Assessment (EA) Early Consultation

Thank you for the opportunity to provide you with input for this project. This Department's only concern is with the potential for visual impacts. Please provide a description of the site, location and color of the tank, and any other useful information regarding this issue.

If you have any questions, please contact Mr. William Spence, Staff Planner, of this office at 243-7735.

Sincerely,

for LISA M. NUYEN
Director of Planning

LMN:WRS:cmb
c: Clayton Yoshida, AICP, Planning Program Administrator
William Spence, Staff Planner
Project File
General File
S:\ALL\WILL\CORESPON\MALUWATE.WPD

DEC 2 9 1998

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

REPLY TO
ATTENTION OF

December 24, 1998

Operations Branch

Mr. Milton Arakawa
Munekiyo, Arakawa and Hiraga, Inc.
305 High Street, Suite 104
Wailuku, Maui, Hawaii 96793

Dear Mr. Arakawa:

This is in response to your letter dated December 21, 1998, regarding the proposed water storage improvements in Kula, Maui, the U.S. Army Corps of Engineers will defer additional comments until a review of the draft Environmental Assessment has been completed.

File Number 990000033 is assigned to this project. Should you need additional information, please contact Ms. Lolly Silva of my staff at (808) 438-9258, extension 17.

Sincerely,

for George P. Young, P.E.
Chief, Operations Branch

JAN 0 7 1999

BENJAMIN J. CAYETANO
GOVERNOR

BRUCE S. ANDERSON, Ph.D.
Director of Health

ALFRED M. ARENSDORF, M.D.
DISTRICT HEALTH OFFICER

STATE OF HAWAII
DEPARTMENT OF HEALTH
MAUI DISTRICT HEALTH OFFICE
54 HIGH STREET
WAILUKU, MAUI, HAWAII 96793

January 6, 1999

Milton Arakawa
Project Manager
Munekiyo, Arakawa &
Hiraga, Inc.
305 High Street, Suite 104
Wailuku, Hawaii 96793

Dear Mr. Arakawa:

Subject: Kulamalu Water Tank and Associated Waterlines
TMK: (2) 2-3-7: por. 10 & 11

This is in response to your request for early input on revisions to the original Kulamalu Water Tank project to include associated waterlines and appurtenant improvements. Our original comments are still valid and applies to the entire project. We have no additional comments to offer at this time.

Should you have any questions, please call me at 984-8230.

Sincerely,

HERBERT S. MATSUBAYASHI
District Environmental Health Program Chief

FAXED 01/11/99

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Pacific Islands Ecoregion
300 Ala Moana Boulevard, Room 3122
Box 50088
Honolulu, Hawaii 96850

In Reply Refer To: DII

Milton Arakawa
Munekiyo, Arakawa & Hiraga, Inc.
305 High St, Suite 104
Wailuku, HI 96793

Re: Pre-Environmental Assessment, Tank and Waterline Appurtenant Improvements, Kula, Maui, Hawaii

Dear Mr. Arakawa;

The U.S. Fish and Wildlife Service (Service) has reviewed your letter indicating that you will be preparing a Draft Environmental Assessment (DEA) for the Kula Water System Improvements project and requesting our early input. The project sponsor is the County of Maui Department of Water Supply (DWS). The proposed project is to construct a 1-million gallon water tank adjacent to the Haleakala Highway-Hanamu Road intersection. The water tank site will occupy an area of approximately 1.25 acres and be accessed by an easement/road extending 475 linear feet from a gate at Hanamu Road. In addition, the project will require some 8,400 lineal feet of 12- to 16-inch pipe for inflow, outflow, and emergency overflow of the system. Much of this pipe-system lies adjacent to roads and/or existing waterlines. The Service offers the following comments for your consideration.

In general, the DEA should describe the proposed project and alternatives and identify the significant fish and wildlife species and habitats at the proposed project site as well as adjacent areas that may be affected. In particular, the DEA should address species and habitats present in Kailua Gulch and the potential impacts that could result from project activities such as construction or water overflow. Anticipated project-related impacts to fish and wildlife resources, particularly to any endangered or threatened species, should be assessed. The DEA should describe how unnecessary impacts will be avoided and how unavoidable impacts will be minimized and should propose compensation for any significant impacts to fish and wildlife resources.

Tank and Waterline Appurtenant Improvements
Kula, Maui, Hawaii

The project summary provided by your office does not clearly describe where construction of the new pipeline will impact areas not previously disturbed (*e.g.*, those without previous pipelines or roads). The DEA should clearly indicate where the proposed pipeline will cross undisturbed areas versus those sections of the pipeline that will cross previously disturbed areas. The DEA should also adequately address other construction activities such as clearing of vegetation and should provide potential mitigation measures for those activities.

The Service encourages the early review of proposed projects and we appreciate the opportunity to provide early input on this proposal. We hope this information is of use to you in the completion of the DEA and look forward to receiving a copy of it when it is completed. If you have questions regarding our comments, please contact Fish and Wildlife Biologist David Hopper by phone at (808) 541-3441 or by facsimile transmission at (808) 541-3470.

Sincerely,

Barbara A. Maxfield, acting
for Robert P. Smith
Pacific Islands Manager

cc: DOFAW, Maui
DWS, Maui

LINDA LINGLE
Mayor

CHARLES JENCKS
Director

DAVID C. GOODE
Deputy Director

RALPH NAGAMINE, L.S., P.E.
Land Use and Codes Administration

Wastewater Reclamation Division

LLOYD P.C.W. LEE, P.E.
Engineering Division

Solid Waste Division

BRIAN HASHIRO, P.E.
Highways Division

COUNTY OF MAUI
DEPARTMENT OF PUBLIC WORKS
AND WASTE MANAGEMENT
LAND USE AND CODES ADMINISTRATION
250 SOUTH HIGH STREET
WAILUKU, MAUI, HAWAII 96793

January 11, 1999

Mr. Milton Arakawa
MUNEKIYO, ARAKAWA & HIRAGA, INC.
305 South High Street, Suite 104
Wailuku, Hawaii 96793

SUBJECT: DRAFT ENVIRONMENTAL ASSESSMENT
FOR KULAMALU WATER TANK AND WATERLINE
TMK (2) 2-3-007: 010 & 011

Dear Mr. Arakawa:

This is in response to your December 21, 1998, letter requesting comments on the draft Environmental Assessment (EA) which was prepared for Kulamalu's water tank and waterline project.

We reviewed the draft EA and we have no objections to the proposed water project proceeding further at this time.

Please call me at 243-7379 if you have any questions regarding this letter.

Very truly yours,

RALPH M. NAGAMINE
Land Use and Codes Administrator

RMN P:\PLANNING\PLANNING\MAUI\COMMENTS\EA\KULAMALU.H2O

c: Planning Department

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

January 12, 1999

Mr. Milton Arakawa
Munekiyo, Arakawa, and Hiraga, Inc.
305 High Street, Suite 104
Wailuku, Hawaii 96793

LOG NO: 227722
DOC NO: 9901CD04

Dear Mr. Arakawa:

SUBJECT: **Chapter 6E-42 Historic Preservation Review of the Proposed Kulamalu Water Tank and Associated Waterline and Appurtenant Improvements**
Hoku'ula Ahupua'a, Makawao District, Island of Maui
TMK: 2-3-07: por. 10 and por. 11

We made comments on this project previously (DOC: 9811CD02). We understand that additional components have been subsequently included within the scope of the project; a new 600 ft segment of waterline is proposed to be placed adjacent to the Pu'u Koa area and another segment of waterline is to be placed within the Kula Highway and Haleakala Highway right-of-way.

We believe the segments of waterline to be placed within the Kula Highway and Haleakala Highway right-of-way will not affect significant historic sites, due to past land alteration in these areas. However, the proposed location for the new 12 inch waterline which is to extend 600 feet to link with the existing waterline in the Pu'u Koa area was not covered during Xamanek Researches archaeological inventory survey (final report forthcoming).

Since the Pu'u Koa area has not undergone an archaeological study, we recommend an archaeological inventory survey be conducted, with an acceptable inventory survey report submitted to this office, prior to the commencement of any ground altering activities. This can simply be an addendum to the survey for the rest of the project.

Please call Cathleen Dagher at 692-8023 if you have any questions.

Aloha,

Don Hibbard, Administrator
State Historic Preservation Division

CD:jen

ENJAMIN J. CAYETANO, GOVERNOR
TATE OF HAWAII

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

MICHAEL D. WILSON, Chairperson* ♦

Gilbert S. Coloma-Agaran, Deputy to the Chairperson*
Timothy E. Johns, Deputy Director♦

* *Board of Land and Natural Resources*
♦ *Commission on Water Resource Management*

- Aquatic Resources
- Boating and Ocean Recreation
- Conveyances
- Office of the Chairperson
  - Administrative Services
  - Kahoolawe Island Reserve Commission
  - Licenses/Permits/Stars/Visitor Center
  - Personnel
  - Public Information
  - Volunteer Services Coordinator
- Conservation and Resources Enforcement
  - Hunter Education
- Forestry and Wildlife
- Historic Preservation
- Land
- State Parks
- Water Resource Management

November 17, 1998

Milton Arakawa
Munekiyo, Arakawa, & Hiraga, Inc.
Planning, Environmental Studies, Project Management
305 High Street, Suite 104
Wailuku, Hawaii 96793

LOG NO: 22501 ✓
DOC NO: 9811CD02

Dear Mr. Arakawa:

SUBJECT: **Chapter 6E-42 Historic Preservation Review of the Proposed Construction of the Kulamalu Water Tank,**
Hoku'ula Ahupua'a, Makawao District, Island of Maui
TMK: 2-3-07: por. 010, por. 011

Thank you for the opportunity to comment on the proposed construction of the Kulamalu Water Tank.

Fieldwork for an archaeological inventory survey was conducted by Xamenek for these properties. We have received a summary of findings. The final report is forthcoming. With the understanding that an acceptable inventory survey report must be submitted to our Division, we can proceed with our review at this point.

No historic sites were located within the project area. Therefore we believe that this project will have "no effect" on significant historic sites. Again, this finding is made with the understanding that we will receive an acceptable final report.

Please call Cathleen Dagher at 692-8023 if you have any questions.

Aloha,

Don Hibbard, Administrator
State Historic Preservation Division

CD: jen

DEC -3 1998

c: Dean Uchida, Administrator, Land Division, DLNR
Dept. of Water Supply, County of Maui

Hawai'i Earth's Best

ES "KIMO" APANA
MAYOR

JAN 1 7 1998
CLAYTON T. ISHIKAWA
CHIEF
FRANK E. FERNANDEZ, JR.
DEPUTY CHIEF

COUNTY OF MAUI
DEPARTMENT OF FIRE CONTROL

200 DAIRY ROAD
KAHULUI, MAUI, HAWAII 96732
(808) 243-7561

January 14, 1998

Mr. Milton Arakawa, Project Manager
Munekiyo, Arakawa & Hiraga, Inc.
305 High Street
Wailuku, HI 96793

RE: Kulamalu Water Tank

Dear Mr. Arakawa,

Thank you for the opportunity to comment on the Kulamalu Water Tank project.

The Department of Fire Control has reviewed the draft environmental assessment that includes the 600 lineal feet segment of waterline added and has no comment.

If you have any questions, direct them in writing to the Fire Prevention Bureau, 21 Kinipopo Street, Wailuku, HI 96793.

Sincerely,

LEONARD F NIEMCZYK
Captain, Fire Prevention Bureau

cc: Inspection L. Montalvo

JAMES "KIMO" APANA
Mayor

JOHN E. MIN
Director

CLAYTON I. YOSHIDA
Deputy Director

COUNTY OF MAUI
DEPARTMENT OF PLANNING

January 14, 1999

Mr. Milton Arakawa, Project Manager
Munekiyo, Arakawa & Hiraga, Inc.
305 High Street, Suite 104
Wailuku, Hawaii 96793

Dear Mr. Arakawa:

RE: Kulamalu Water Tank and Associated Waterline and Appurtenant Improvements Draft Environmental Assessment (DEA) Early Consultation

Thank you for the opportunity to provide you with input for this modified project. Our comments are as follows:

1. Visual. As with our previous comments, the Maui Planning Department's primary concern is with the potential for visual impacts. Please provide a description of the site, location and color of the tank, and any other useful information regarding this issue.

2. Traffic. There may be impacts associated with the construction of the waterline, such as traffic delays. The DEA should include a description of any mitigation measures necessary regarding this matter.

We will look forward to reviewing the draft document.

If you have any questions, please contact Mr. William Spence, Staff Planner, of this office at 243-7735.

Very truly yours,

JOHN E. MIN
Director of Planning

JEM:WRS:cmb
c: Clayton Yoshida, AICP, Deputy Director of Planning
William Spence, Staff Planner
General File
S:\ALL\WILL\AACORESP\MALUWAT2.WPD

Chapter XI

Letters Received During and After the Draft Environmental Assessment Public Comment Period and Responses to Substantive Comments

JAN 29 1999

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

REPLY TO ATTENTION OF

January 28, 1999

Operations Branch

Mr. Milton Arakawa
Project Manager
Munekiyo, Arakawa & Hiraga, Inc.
305 High Street, Suite 104
Wailuku, Hawaii 96793

Dear Mr. Arakawa:

This is in regards to your letter dated January 21, 1999 requesting comments on the draft Environmental Assessment for the Kalamalu Water Tank and Associated Waterline and Appurtenant Improvements. Based on the information you provided, it appears that a Department of the Army permit will not be required for the project.

If you have any questions concerning this determination, please contact Mr. William Lennan of my staff at (808) 438-9258, extension 13, and mention File Number 990000033.

Sincerely

George P. Young, P.E.
Chief, Operations Branch

BENJAMIN J. CAYETANO
GOVERNOR

BRUCE S. ANDERSON, Ph.D.
Director of Health

ALFRED M. ARENSDORF, M.D.
DISTRICT HEALTH OFFICER

STATE OF HAWAII
DEPARTMENT OF HEALTH
MAUI DISTRICT HEALTH OFFICE
54 HIGH STREET
WAILUKU, MAUI, HAWAII 96793

January 29, 1999

Mr. Milton Arakawa
Project Manager
Munekiyo, Arakawa &
Hiraga, Inc.
305 High Street, Suite 104
Wailuku, Hawaii 96793

Dear Mr. Arakawa:

Subject: **Draft Environmental Assessment**
Kulamalu Water Tank
TMK: (2) 2-3-7: por. 10 & 11

Thank you for the opportunity to comment on the Environmental Assessment. We have the following comments to offer:

1. NPDES coverage will be required for discharges into state waters which includes intermittent streams.

2. The noise created during the construction phase of the project may exceed the maximum allowable levels as set forth in Hawaii Administrative Rules, Chapter 11-46, "Community Noise Control". A noise permit may be required and should be obtained prior to the commencement of work.

Should you have any questions, please call me at 984-8230.

Sincerely,

HERBERT S. MATSUBAYASHI
District Environmental Health Program Chief

MUNEKIYO, ARAKAWA & HIRAGA, INC.

February 19, 1999

Herbert Matsubayashi
District Environmental Health Program Chief
State of Hawaii
Department of Health
Maui District Health Office
54 High Street
Wailuku, Hawaii 96793

SUBJECT: Draft Environmental Assessment for Kulamalu Water Tank and Associated Waterline and Appurtenant Improvements

Dear Mr. Matsubayashi:

Thank you for your letter of January 29, 1999 transmitting comments on the proposed project. Our response is as follows:

1. No portions of the project would be constructed below the high water mark within Kailua Gulch. There are no other aspects of the project which would trigger NPDES coverage.

2. The contractor will be required to coordinate with the Department of Health regarding the applicability of a noise permit during the construction phase of the project.

We appreciate your interest and comments on the project. If there are any questions or if additional information is needed, please do not hesitate to contact us.

Very truly yours,

Milton Arakawa

Milton Arakawa, Project Manager

MA:tav
dowling\kulamawt\doh.ltr

Planning • Environmental Studies • Project Management
305 High Street, Suite 104 • Wailuku, Hawaii 96793 • Phone: (808) 244-2015 • Fax: (808) 244-8729

JAMES "KIMO" APANA
MAYOR

CLAYTON T. ISHIKAWA
CHIEF

FRANK E. FERNANDEZ, JR.
DEPUTY CHIEF

FEB 0 2 1999

COUNTY OF MAUI
DEPARTMENT OF FIRE CONTROL

200 DAIRY ROAD
KAHULUI, MAUI, HAWAII 96732
(808) 243-7561
FAX (808) 243-7919

January 29, 1999

Mr. Milton Arakawa, Project Manager
Munekiyo, Arakawa & Hiraga, Inc.
305 High Street, Suite 104
Wailuku, HI 96793

RE: Kulamalu Water Tank and Associated Waterline and Appurtenant Improvements

Dear Mr. Arakawa,

Thank you for the opportunity to comment on the draft environmental assessment for the above project.

The Department of Fire Control has no comment on the draft environmental assessment.

If you have any questions, direct them in writing to the Fire Prevention Bureau, 21 Kinipopo Street, Wailuku, HI 96793.

Sincerely,

LEONARD F NIEMCZYK
Captain, Fire Prevention Bureau

cc: Inspector L. Montalvo

MFD-DEA Kulamalu (01.99)

United States
Department of
Agriculture

Natural
Resources
Conservation
Service

50 Imi Kala St.
Suite 209
Wailuku, HI
96793-2100

FEB 0 3 1999

Our People...Our Islands...In Harmony

February 2, 1999

Mr. Milton Arakawa, Project Manager
Munekiyo, Arakawa, & Hiraga, Inc.
305 High Street, Suite 104
Wailuku, Hawaii 96793

Dear Mr. Arakawa,

Subject: Kulamalu Water Tank and Associated Waterline and
Appurtenant Improvements

We have reviewed the Draft EA of the subject project and have no comments.

Thank you for the opportunity to comment.

Sincerely
Neal S. Fujiwara
Neal S. Fujiwara
District Conservationist

JAMES "KIMO" APANA
Mayor

JOHN E. MIN
Director

CLAYTON I. YOSHIDA
Deputy Director

COUNTY OF MAUI
DEPARTMENT OF PLANNING

February 24, 1999

Mr. Milton Arakawa, Project Manager
Munekiyo, Arakawa & Hiraga, Inc.
305 High Street, Suite 104
Wailuku, Hawaii 96793

Dear Mr. Arakawa:

RE: Kulamalu Water Tank and Associated Waterline and Appurtenant Improvements Draft Environmental Assessment (DEA)

Thank you for the opportunity to provide you with comments regarding the revised draft document. Our comments are as follows:

1. Visual. The Maui Planning Department (Department) appreciates the additional information on this resource. Though the project site itself may not be "considered unique in terms of visual resource value," this section of Haleakala Highway is very scenic and traveled by over 1.5 million visitors a year, in addition to the island's residents. It would be unfortunate for visitors, as well as our residents, if this tank were to become a notable physical blemish on the natural landscape. The document notes that the tank will be painted "likely a shade of light green." We recommend that the color sheme of the tank match the surrounding area as closely as possible.

2. Traffic. The Department appreciates that both Haleakala and Kula Highways will remain open during construction. We note, however, that Haleakala Highway is very narrow in the vicinity of the King Kekaulike High School, includes a one-lane bridge, and is heavily traveled by busses taking visitors to and from Haleakala National Park. The draft document is not clear if any special provisions need to be made to accommodate bus traffic over this section of the highway. The Final Environmental Assessment should include discussion on how the proposed traffic

control can accommodate this traffic, or if other mitigation is necessary. We believe that re-routing bus traffic through residential areas would not be appropriate.

3. Zoning. The document is incorrect in stating that it is within the Interim District. The project site has been zoned "Agriculture," in accordance with Ordinance No. 2749, signed into law on December 31, 1998. Water tanks are considered "minor utility facilities," and are permitted in the district.

Thank you for the opportunity to comment. The Department believes this is an important project in helping the ongoing water situation in the Upcountry area.

If you have any questions, please contact Mr. William Spence, Staff Planner, of this office at 243-7735.

Very truly yours,

JOHN E. MIN
Director of Planning

JEM:WRS:cmb
c: Clayton Yoshida, AICP, Deputy Director of Planning
William Spence, Staff Planner
Project File
General File
S:\ALL\WILL\AACORESP\MALUWAT4.WPD

MUNEKIYO, ARAKAWA & HIRAGA, INC.

March 4, 1999

John Min, Director
Department of Planning
County of Maui
250 South High Street
Wailuku, Hawaii 96793

SUBJECT: Kulamalu Water Tank and Associated Waterline and Appurtenant Improvements

Dear Mr. Min:

Thank you for your letter of February 24, 1999 pertaining to the subject project. We offer the following response to your comments.

1. We would like to confirm our intent to paint the proposed water tank in a light green color to complement its location within an existing pasture. Existing eucalyptus trees provide an additional buffer between the tank and Haleakala Highway.

2. We would like to note that the one-lane bridge in the vicinity of the polo field on Haleakala Highway will not be affected by the proposed project. The proposed waterline intersects Haleakala Highway between King Kekaulike High School and the aforementioned bridge. The waterline then proceeds toward the high school.

3. The text in the Final EA will be amended to note that the site has been zoned as Agricultural District pursuant to Ordinance No. 2749. Portions of the project within public rights-of-way have, however, remained unzoned.

Planning • Environmental Studies • Project Management
305 High Street, Suite 104 • Wailuku, Hawaii 96793 • Phone: (808) 244-2015 • Fax: (808) 244-8729

We appreciate your interest and comments on the project. If there are any questions or if additional information is needed, please do not hesitate to contact us.

Very truly yours,

Milton Arakawa, Project Manager

MA:tav
dowling\kulamawf\min.ltr

FEB 2 4 1999

Kula Community Association
P. O. Box 417
Kula, Maui, Hawaii 96790
http://kulamaui.com

"The specific purpose of this corporation is to improve the quality of life for the residents of Kula, to promote civic welfare and generally to benefit the community of Kula."

The vision of the Kula Community Association is to preserve open space, support agriculture, maintain a rural residential atmosphere, and to work together as a community.

February 22, 1998

Mr. Milton Arakawa
Munekiyo, Arakawa & Hiraga, Inc.
305 High Street, Suite 104
Wailuku, Hawaii 96793

Dear Mr. Arakawa:

The Kula Community Association's Board of Directors reviewed the Draft Environmental Assessment for the Kulamalu Water Tank and Associated Waterline project. The major concern was the mitigation of the traffic impact on Kula Highway (re. III D.1., pg.27) particularly the road related construction between the Kulamalu subdivision and the Haleakala Highway junction fronting King Kekaulike High School. Hours of traffic constriction, if any, should avoid school ending and starting times with the increase in traffic to and from the High School.

Dust control measures on the roadway fronting the school during hours of operation may have to increased. The wind during the day blows up slope toward the school from the Kula Highway.

Questions concerning this response may be directed to me at 878-6440 in the evenings or at 243-7844 during work hours.

Sincerely,

John D. Wilson
President, Kula Community Association

MUNEKIYO, ARAKAWA & HIRAGA, INC.

March 4, 1999

John J. Wilson, President
Kula Community Association
P.O. Box 417
Kula, Hawaii 96790

SUBJECT: Kulamalu Water Tank and Associated Waterline and Appurtenant Improvements

Dear Mr. Wilson:

We have received your letter dated February 22, 1999 pertaining to the subject project.

Your concern regarding traffic and dust impacts upon King Kekaulike High School during the construction phase of the project is appreciated. Every effort will be made to minimize traffic impacts upon King Kekaulike High School and other surrounding uses. Construction during periods of heavier traffic congestion will be avoided to the greatest extent practicable. Dust control will be monitored closely to assure minimal impacts.

We appreciate your interest and comments on the project. If there are any questions or if additional information is needed, please do not hesitate to contact us.

Very truly yours,

Milton Arakawa, Project Manager

MA:tav
dowling\kulamawt\kulasso.ltr

Planning • Environmental Studies • Project Management
305 High Street, Suite 104 • Wailuku, Hawaii 96793 • Phone: (808) 244-2015 • Fax: (808) 244-8729

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

FEB 25 1999

AQUACULTURE DEVELOPMENT PROGRAM
AQUATIC RESOURCES
BOATING AND OCEAN RECREATION
CONSERVATION AND RESOURCES ENFORCEMENT
CONVEYANCES
FORESTRY AND WILDLIFE
HISTORIC PRESERVATION
LAND DIVISION
STATE PARKS
WATER RESOURCE MANAGEMENT

FEB [illegible]

Ref: PS:EH

Mr. Milton Arakawa
Munikyo, Arakawa & Hinaka, Inc.
305 High Street
Suite 104
Wailuku, Maui 96793

Dear Mr. Arakawa:

Subject: Kulamalu Water Tank and Associated Waterline and Appurtenant Improvements Draft Environmental Assessment (DEA)

We have reviewed the subject document and have no comments to offer on the proposed project.

Thank you for the opportunity to review this matter.

Very truly yours,

Dean Uchida,
Administrator

References

References

Community Resources, Inc., Maui County Community Plan Update Program Socio-Economic Forecast Report, January 1994.

County of Maui, The General Plan of the County of Maui 1990 Update, 1990.

County of Maui, Makawao-Pukalani-Kula Community Plan, May 1995.

Land Study Bureau, Detailed Land Classification - Island of Maui, May 1967.

Michael T. Munekiyo Consulting, Inc., Environmental Assessment - 'Aina O Ka Hale Pili Subdivision, May 1992.

Munekiyo & Arakawa, Inc., Final Environmental Assessment, Kulamalu Project, July 1997.

R.W. Beck, Solid Waste Characterization Study - Maui, Hawaii, December 1994.

University of Hawaii, Department of Geography, Atlas of Hawaii, Second Edition, 1983.

U.S. Department of Agriculture, Soil Conservation Service, Soil Survey of Islands of Kauai, Oahu, Maui, Molokai and Lanai, State of Hawaii, 1972.

Appendices

Appendix A

Field Work Summary for Archaeological Inventory Survey

XAMANEK RESEARCHES
P.O. BOX 131
PUKALANI, MAUI, HAWAII 96788
Phone/FAX: (808) 572-8900
Phone/FAX: (808) 572-6118

Munekiyo, Arakawa & Hiraga, Inc.
305 High Street, Suite 104
Wailuku, Maui, Hawaii 96793
FAX: (808) 244-8729

Attention: Milton Arakawa **28 October, 1998**

Subject: Field work summary report for an archaeological inventory survey for the proposed Kulamalu water tank and pipeline project, Kula, Makawao District, Island of Maui. (Note: Final report is pending)

Xamanek Researches conducted an archaeological inventory survey on a c. 1.2 acre portion of land and a right-of-way corridor in Kula, Makawao District, Island of Maui in October 1998. This survey was conducted in order to assess the presence of cultural resources on the project area. Plans call for the construction of a 1 million gallon water tank and a 12 inch water line. This project, when completed, will supply water to the new Kulamalu development that is located c. 5 km. to the southwest of this project. The surveyed area is located in a mesic forest community dominated by alien plant species.

The project area ranges from a high of 2040 ft. AMSL in the vicinity of the proposed water tank to a low of 1820 ft. AMSL where the proposed 12 in. pipeline will tie in to an existing water line. Annual rainfall in this part of Maui averages from 30 to 40 inches. Kailua Gulch lies along the northern and northeastern boundaries of much of the project. Observed ground vegetation consisted of alien species including buffle grass (*Cenchrus ciliaris*), other grasses, and annual weeds. Eucalyptus (*Eucalyptus sp.*) trees form the dominant overstory vegetation on much of the study area. Other trees noted included silver oak (*Greyvillea robusta*), Christmas berry (*Schinus tereinthifolius*), and isolated *kukui* (*Aleurites moluccana*). A few scattered, indigenous *'ilima* (*Sida fallax*) shrubs were also observed during our transects. Finally, several vines of *huehue haole* (*Passiflora suberosa*) were seen growing up different trees.

A total of 5 sites were located and subsequently assigned SIHP No. 50-50-10-4677 through 4681. These include a probable ranch era retaining wall, an excavated

shelter cave, a probable overhang shelter, a retaining wall, and 2 probable graves. All sites are outside the impact areas associated with the project. The sites are briefly discussed below.

Site 50-50-10-4677

This site is located in Kailua Gulch near the base of its northern bank. This retaining wall ranges from 1 to 2.2 m. in height and was likely over 40 m. long. Much of it (c. 30 m.) appears to have been washed away by flood waters in the past. Intact portions are faced and constructed of basalt cobbles and boulders. This site is deemed significant under Criterion "d" of the Federal and State historic preservation guidelines.

Site 50-50-10-4678

This second site also lies along the base of the northern bank of the gulch. It consists of an excavated cave. The entrance is up to 2.2 m. high by 1.8 m. wide. This shelter cave has 2 chambers that branch off from a c. 6 m. long access tunnel. Each chamber extends c. 6 m. from the main tunnel (i.e. magnetic bearing of 310° and 130°). This site is likely associated with Chinese laborers in the mid to late 1800's. It qualifies for significance under Criterion "d" of Federal and State guidelines.

Site 50-50-10-4679

This third site also lies in Kailua Gulch. It is interpreted as a shelter cave. Entrance dimensions are approximately 5 m. wide by 2.5 m. high. It was inaccessible without safety gear such as rope, therefore no interior inspection was made. It likely qualifies for significance under Criterion "d".

Site 50-50-10-4680

This fourth site rests on the southern bank of Kailua Gulch. It appears to be a retaining wall, possibly associated with a former access road. It is c. 13.5 m. long by up to 1 m. thick by 0.6 to 0.7 m. high. This alignment is c. 20 m. to the north and downslope from the water line corridor. It is deemed significant under Criterion "d".

Site 50-50-10-4681

This last site was found while we were taking overall project photographs of the project corridor. It lies at the top of a pu'u c. 200 m. southwest of the water line corridor. Site 4681 contains what may be 2 burials. Feature A is marked with a concrete monument (no inscription) and water worn cobbles, while Feature B consists of an oblong arrangement of cobbles and small boulders c. 2.0 m. by 2.5 m. This site is well off the corridor and was recorded only for informational purposes. It will not be

impacted by the proposed project. Site 4681 qualifies for significance under Criterion "d" and, possibly Criterion "e".

All of the above sites are outside the project limits of the proposed Kulamalu water improvements project. Sites 4677 through 4680 lie in relatively close proximity to the project boundary limits, while Site 4681 is well outside the corridor. No further archaeological work beyond the inventory level is recommended for the present corridor or tank area. Our final report will be forthcoming.

Please feel fee to contact us if you have any questions or comments about this Field Summary report.

Sincerely,

Erik M. Fredericksen

Erik M. Fredericksen

cc: Cathy Daeger, SHPD O'ahu Office
cc: Dr. Ross Cordy, SHPD O'ahu Office

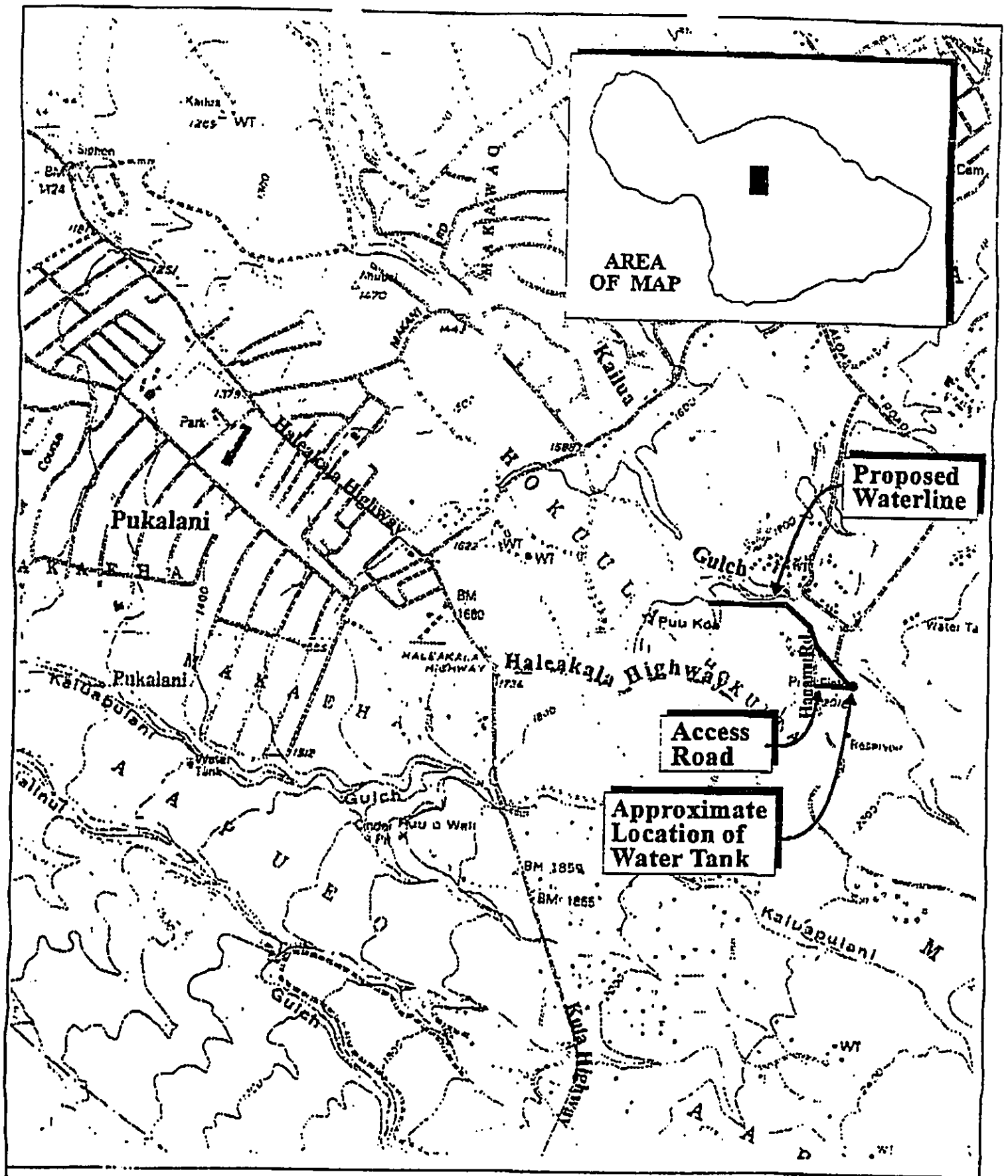


Figure 1 Kulamalu Water Tank

Regional Location Map

1000 0 4000 Feet

MUNEKIYO, ARAKAWA & HIRAGA, INC.

Prepared for: Dowling Company, Inc.

Appendix A-I

Supplemental Field Work Summary for Archaeological Inventory Survey

XAMANEK RESEARCHES
P.O. BOX 131
PUKALANI, MAUI, HAWAII 96788
Phone/FAX: (808) 572-8900
Phone/FAX: (808) 572-6118

Munekiyo, Arakawa & Hiraga, Inc.
305 High Street, Suite 104
Wailuku, Maui, Hawaii 96793
FAX: (808) 244-8729

Attention: Milton Arakawa

29 December, 1998

Subject: Supplemental field work summary report for an archaeological inventory survey for the proposed Kulamalu water tank and pipeline project, Kula, Makawao District, Island of Maui. (Note: Final report is pending)

Xamanek Researches conducted Phase 1 of an archaeological inventory survey on a c. 1.2 acre portion of land and a right-of-way corridor in Kula, Makawao District, Island of Maui in October 1998 (see Fredericksen to Arakawa 28 October 1998 letter). We were subsequently asked to survey an additional c. 200 m. section of corridor, and portions of the State right-of-way on Haleakala and Kula Highways. The overall survey was conducted in order to assess the presence of cultural resources on the project area. Plans call for the construction of a 1 million gallon water tank and a 12 inch water line. This project will supply water to the new Kulamalu development that is located c. 5 km. to the southwest of the proposed water tank.

The additional project area ranges from a high of c. 1820 ft. AMSL near 3 existing County of Maui water valves to a low of c. 1400 ft. AMSL where the proposed 12 in. pipeline will tie in with the Kulamalu project. The planned water line will cross a pasture and then be placed in the State right-of-ways of Haleakala and Kula Highways.

Annual rainfall in this part of Maui averages from 30 to 40 inches. Observed ground vegetation consisted of alien species including buffle grass (*Cenchrus ciliaris*), other grasses, and annual weeds. Eucalyptus (*Eucalyptus sp.*) trees form the dominant overstory vegetation on wooded portions of much of the project area. Other trees noted included silver oak (*Greyvillea robusta*), Christmas berry (*Schinus tereinthifolius*), and isolated *kukui* (*Aleurites moluccana*). A few scattered, indigenous *'ilima* (*Sida fallax*) shrubs were also observed in this portion of the corridor. Jacaranda (*Jacaranda sp.*) trees are found along portions of the Haleakala Highway and Kula Highway right-of-ways..

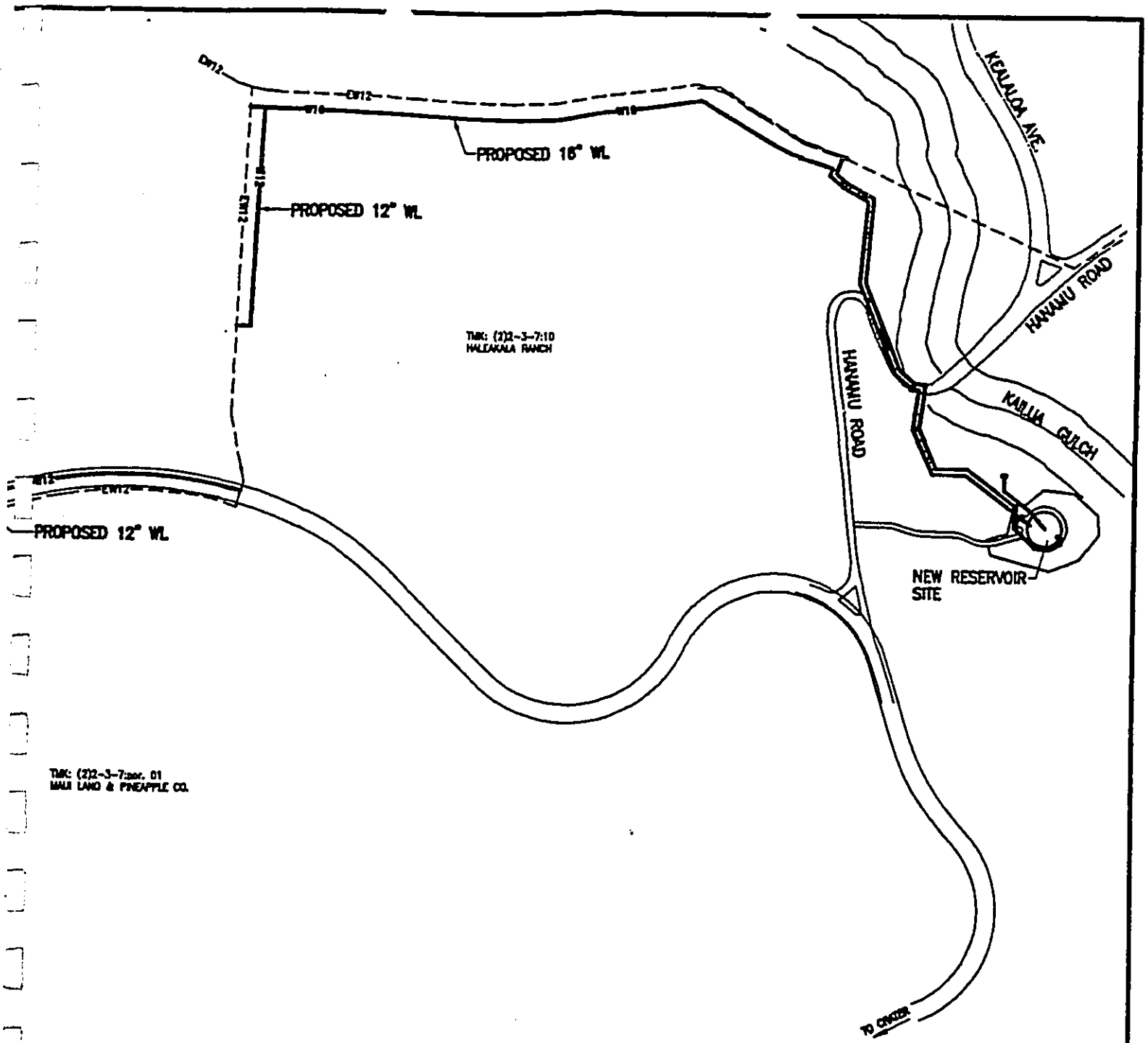
During the course of this additional inventory level work no significant cultural resources were encountered. The corridor will pass within 150 m. east of Site 50-50-10-4681. This site consists of 2 features which are probable burials. It should be noted, however, that Site 4681 is well off the corridor. No further archaeological work beyond the inventory level is recommended for the present corridor or tank area. Our final report will be forthcoming.

Please feel fee to contact us if you have any questions or comments about this Field Summary report.

Sincerely,

Erik M. Fredericksen

cc: Cathy Daeger, SHPD O'ahu Office
cc: Dr. Ross Cordy, SHPD O'ahu Office



KULAMALU OFFSITE RESERVOIR
AND
OFFSITE WATERLINE

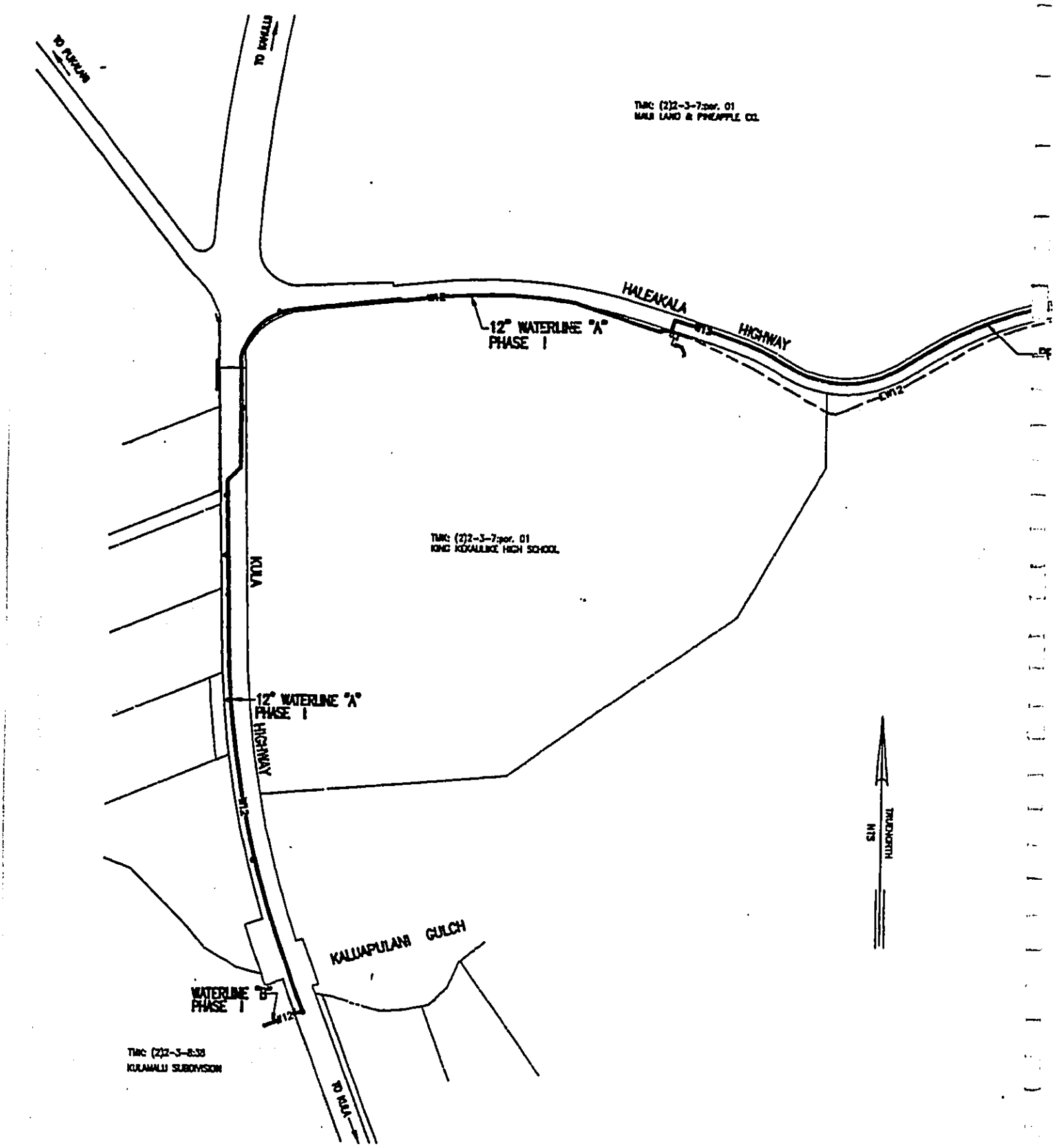
KULA, MAKAWAO, MAUI

AUSTIN, TSUTSUMI & ASSOCIATES, INC.
ENGINEERS, SURVEYORS • HONOLULU, HILO, WAILUKU, HAWAII

LOCATION MAP

EXHIBIT

12/08


TO PUKALANI
TO KIHEI
TMK: (2)2-3-7:por. 01
MAUI LAND & PINEAPPLE CO.
HALEAKALA
HIGHWAY
12" WATERLINE "A"
PHASE I
DW12
TMK: (2)2-3-7:por. 01
KING KEKAULIKE HIGH SCHOOL
KULA
HIGHWAY
12" WATERLINE "A"
PHASE I
W12
N15
TRUE NORTH
KALUAPULANI GULCH
WATERLINE "B"
PHASE I
W12
TMK: (2)2-3-8:33
KULAMALU SUBDIVISION
TO KULA

Appendix B

Preliminary Drainage Report

PRELIMINARY

GRADING AND DRAINAGE REPORT

FOR

KULAMALU OFFSITE RESERVOIR

TMK: 2-3-07:11

KULA, MAKAWAO, MAUI, HAWAII

Prepared For:

Kulamalu Limited Partnership

Prepared By:

Austin, Tsutsumi & Associates, Inc.
Civil Engineers & Surveyors

November 9, 1998

AUSTIN, TSUTSUMI & ASSOCIATES, INC.
CIVIL ENGINEERS • SURVEYORS

TABLE OF CONTENTS

AUSTIN, TSUTSUMI & ASSOCIATES, INC.
CIVIL ENGINEERS • SURVEYORS

PRELIMINARY GRADING AND DRAINAGE REPORT FOR KULAMALU OFFSITE RESERVOIR

I. INTRODUCTION

The purpose of this report is to evaluate existing and proposed grading and drainage plans for the proposed project.

II. PROPOSED PROJECT

A. LOCATION

The project site is located in Kula, Makawao, Maui, Hawaii. The area is designated by Tax Map Key (2)2-3-07:11. Refer to Exhibits 1 & 2: Project Location and Vicinity Map.

B. PROJECT DESCRIPTION

The proposed project involves construction of a new 1.0 MG reservoir. This construction project also includes excavation of the site, grading for an access road and drainage swales, installation of waterlines and fencing, and connection to existing water mains. Refer to Exhibit 3: Site Plan

III. EXISTING CONDITIONS

A. ADJACENT LAND USE

The project site is bordered on the east by Kailua Gulch. Situated to the north and west is Kealaloa Avenue. Directly south of the site are eucalyptus forest areas.

B. TOPOGRAPHY AND SOIL CONDITIONS

The project site slopes in a northeasterly direction toward Kailua Gulch. Slopes within the drainage basin varies between 5 and 30 percent. Elevations range from 1,950 feet to 2,240 feet mean sea level (msl). The site mainly consists of trees and grasses typically found in the forest areas.

Soil found within the drainage basin are of the Haliimaile and Pane Soil Series. The lower one-fourth of the site consists of Haliimaile Silty Clay Loam (HgC) and the remaining three-fourths is Pane Silt Loam (PXD). The HgC soil type is found usually in the upland areas of East Maui, typically between the 500 foot and 2,000 foot elevations on 7 to 15 percent slopes. This type of soil is well-drained, runoff is medium and erosion hazard is moderate. The PXD soil type is found on the rough and intermediate upland areas of East Maui, between the 2,000 foot and 3,500 foot elevations on 7 to 25 percent slopes. This soil type is characterized as well-drained, having moderately rapid permeability, slow to medium runoff, and a slight to moderate erosion hazard. All soil classifications are recorded in the U.S. Department of Agriculture Soil Conservation Service's publication, "Soil Survey of the Islands of Kauai, Oahu, Maui, Molokai and Lanai".

C. CLIMATE

The area is generally cool and sunny throughout the year with a mean annual temperature of 75 degrees Fahrenheit. Annual rainfall for this area of Maui amounts between 30 and 50 inches. Northeasterly tradewinds prevail during the dry season, May through September. During the rainy season, October through April, the winds occasionally shift to a southerly direction that mark the approach of winter cyclonic "Kona" storms.

D. DRAINAGE

Runoff generally flows in a northeasterly direction toward neighboring Kailua Gulch. A moderately defined drainage way through the basin carries most of the offsite and onsite runoff. Existing onsite and offsite runoff is calculated at 2.1 cfs and 24.4 cfs respectively.

E. FLOOD ZONE

The proposed project site along with the surrounding areas are classified as Flood zone "C". Flood zone "C" is described as an area of minimal flooding. Flood zone information is based on Flood Insurance Rate Maps (FIRM) as issued by the Federal Emergency Management Agency (FEMA), revised March 16, 1995.

IV. GRADING AND DRAINAGE PLANS

A. GRADING PLAN

The proposed grading plan will require excavation for the construction of the reservoir site, access road, and other utilities. Slopes will typically be graded at 2:1. Benches will be graded within the slopes to mitigate erosion hazards.

B. DRAINAGE PLAN

Onsite runoff will be allowed to flow in a northeasterly direction, per the existing condition. A portion of the onsite runoff will be intercepted via proposed concrete drainage swales and released downstream of the reservoir site. Offsite runoff entering the reservoir site will be intercepted and redirected by proposed concrete drainage swales surrounding the reservoir site.

C. HYDROLOGY

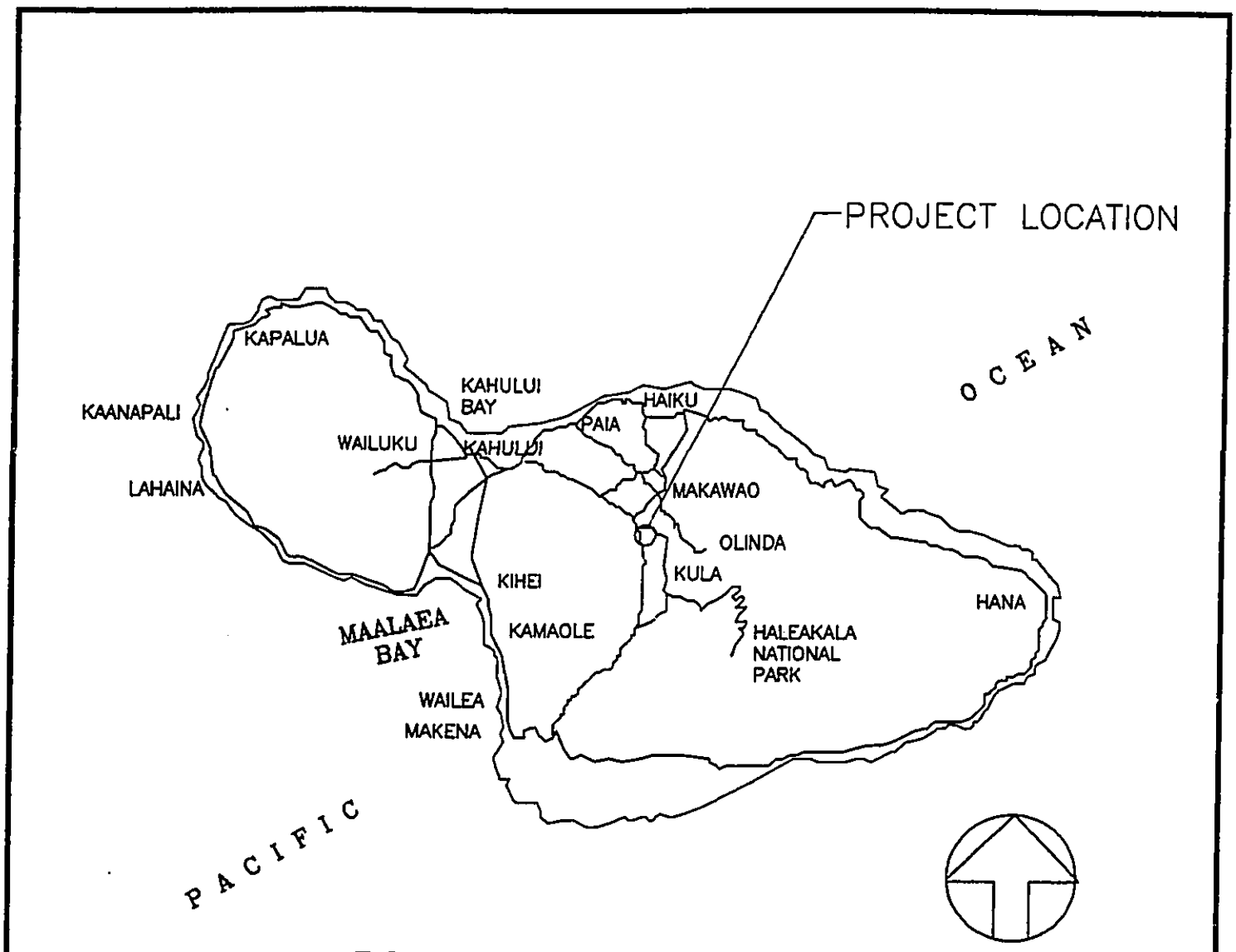
Hydrology calculations were done according to the "Rules for the Design of Storm Drainage Facilities in the County of Maui", November 12, 1995, by the County of Maui, Department of Public Works and Waste Management. The rational method was used based on a 10-year storm recurrence interval. Existing on-site and off-site runoff was calculated at 2.1 cfs and 24.4 cfs respectively. Developed onsite runoff is calculated at 3.3 cfs, an increase of 1.6 cfs due to the proposed site improvements. See Appendix for hydrology calculations.

V. CONCLUSION

The proposed grading and drainage plan improvements are designed to produce no adverse effects by storm runoff to adjacent properties. All proposed drainage improvements conform to County of Maui standards.

AUSTIN, TSUTSUMI & ASSOCIATES, INC.
CIVIL ENGINEERS • SURVEYORS

E X H I B I T S



ISLAND OF MAUI

5 0 5 10 15

SCALE IN MILES

PRELIMINARY DRAINAGE & GRADING REPORT
KULAMALU OFFSITE RESERVOIR

KULA, MAKAWAO, MAUI

AUSTIN, TSUTSUMI & ASSOCIATES, INC.
ENGINEERS,SURVEYORS • HONOLULU, HILO, WAILUKU, HAWAII

PROJECT LOCATION

EXHIBIT 1

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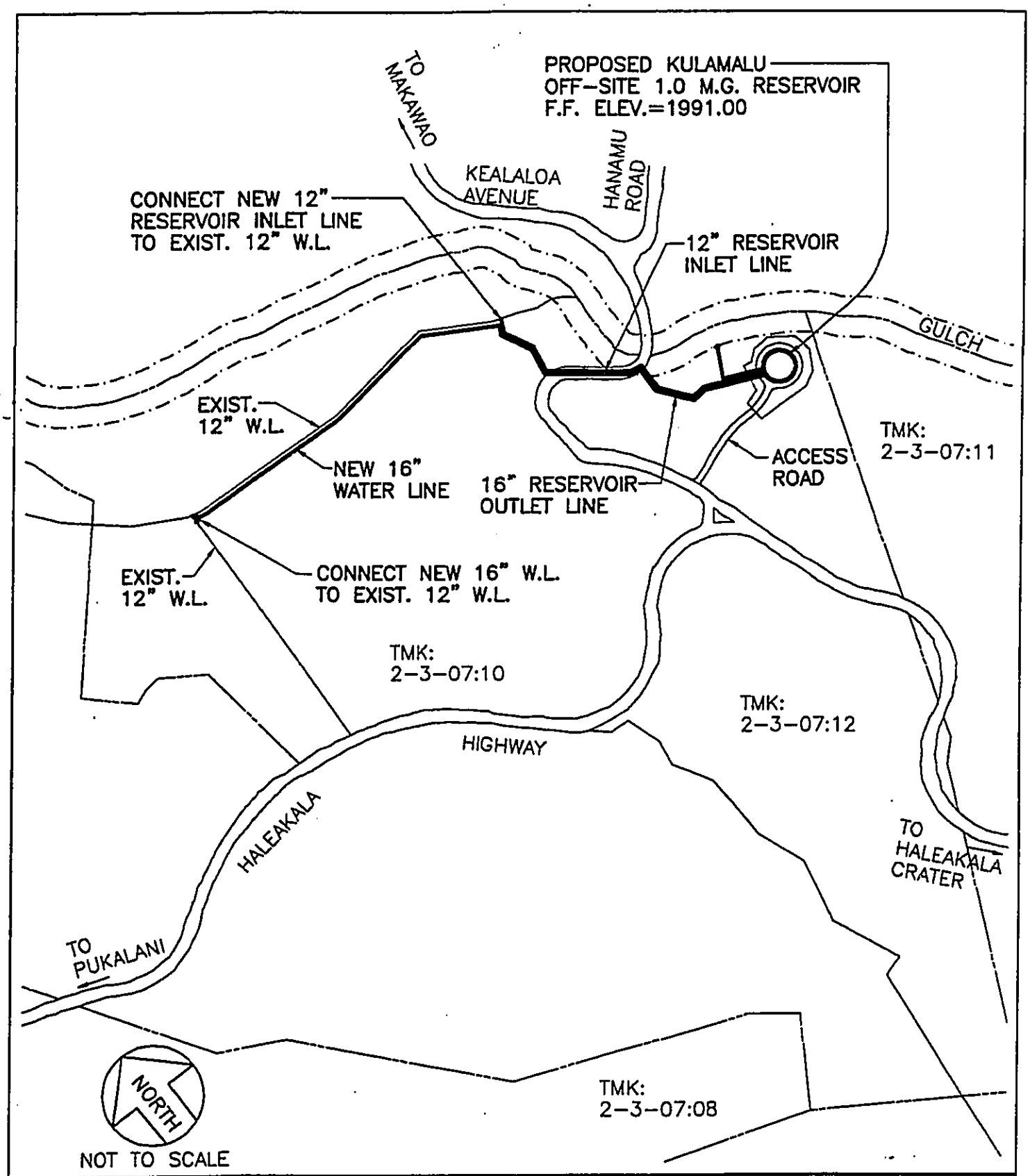

PRELIMINARY DRAINAGE & GRADING REPORT KULAMALU OFFSITE RESERVOIR KULA, MAKAWAO, MAUI	AUSTIN, TSUTSUMI & ASSOCIATES, INC. ENGINEERS, SURVEYORS • HONOLULU, HAWAII VICINITY MAP	EXHIBIT 2

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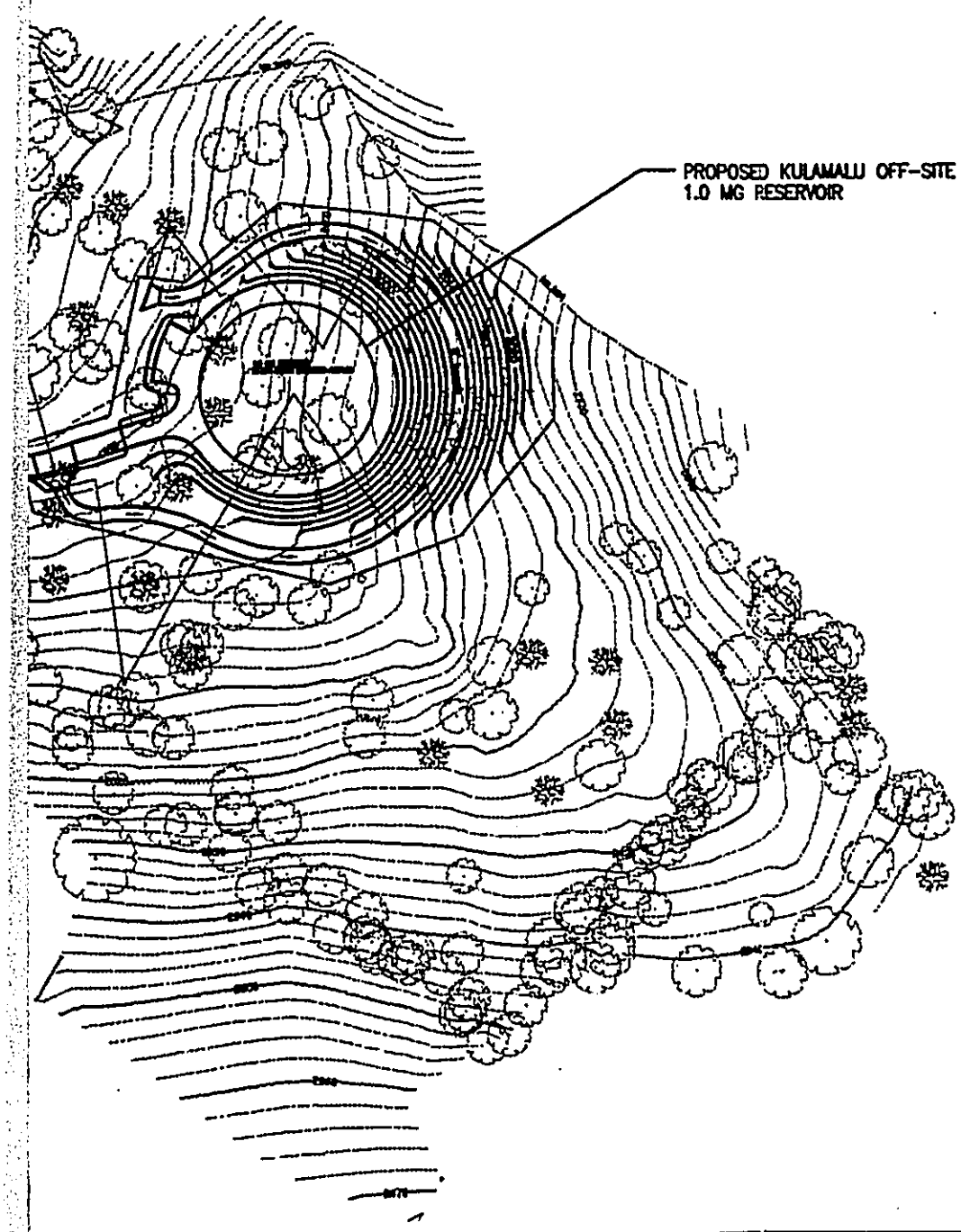


TRUE NORTH
SCALE: 1" = 100'

PRELIMINARY DRAINAGE & GRADING REPORT
KULAMALU OFFSITE RESERVOIR

KULA, MAKAWAO, MAUI

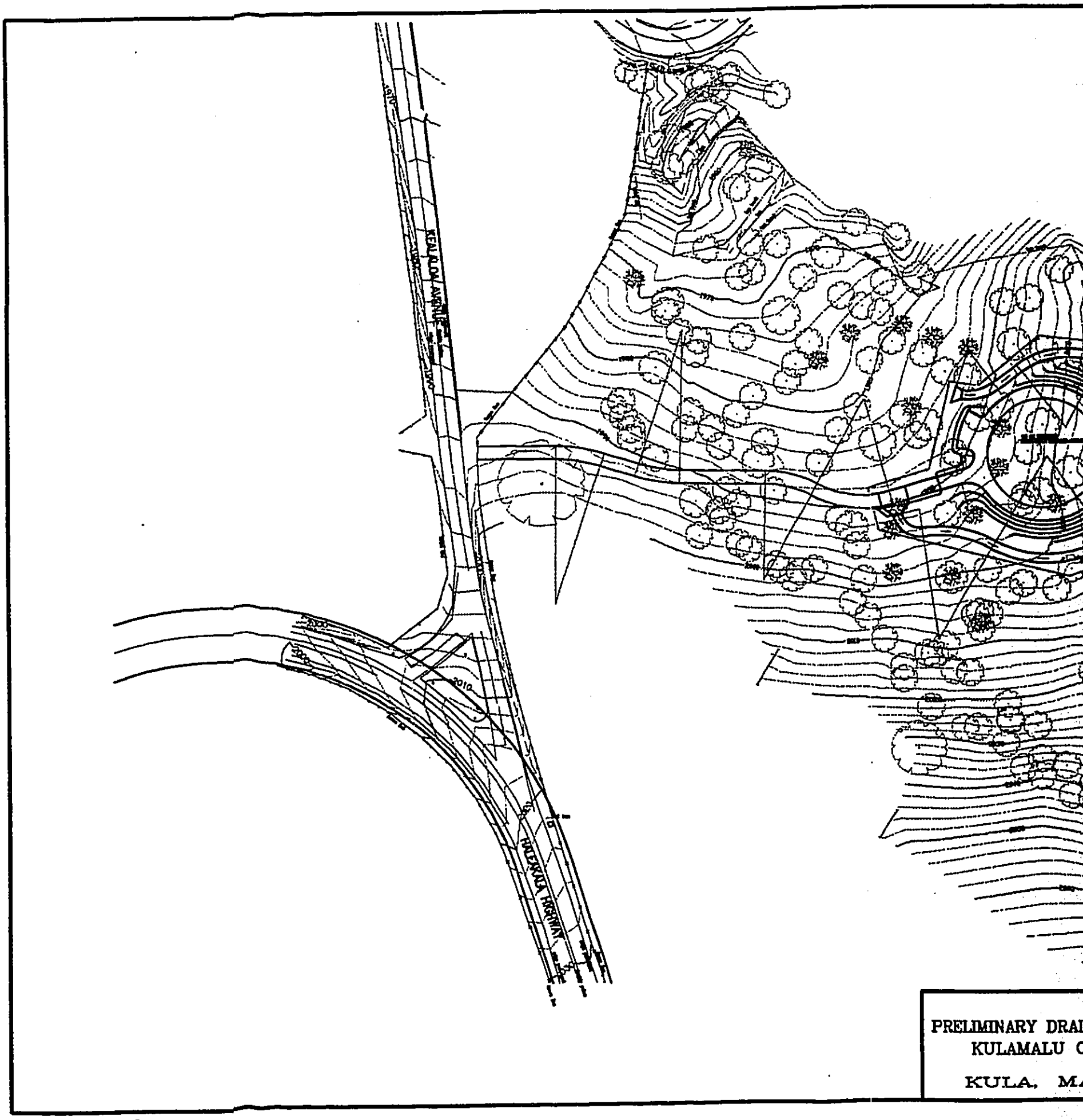
AUSTIN, TSUTSUMI & ASSOCIATES, INC.
ENGINEERS, SURVEYORS • HONOLULU, HILO, WAILUKU, HAWAII

SITE PLAN

EXHIBIT

3

11/98



PRELIMINARY DRAI
KULAMALU C
KULA, MA

JOB NO. M97505

AUSTIN, TSUTSUMI & ASSOCIATES, INC.
CIVIL ENGINEERS • SURVEYORS

APPENDIX

HYDROLOGY COMPUTATION

Drainage Area	Area, A, (Acre)	Runoff Coefficient, C	Rainfall Intensity, I, (In./Hr.)	Length of Reach, L, (Ft.)	Slope, S, (Ft./Ft.)	Time of Concentration, T_c, (Min.)	Correction Factor	Runoff Discharge Q = CIA, (CFS)	Accumulated Q, (CFS)	Remarks
ON-SITE	1.048	0.30	6.6	250	.152	3.2	—	2.08		PRE DEVELOPMENT ON-SITE
ON-SITE	1.048	0.48	6.6	250	.152	3.2	—	3.32		POST DEVELOPMENT ON-SITE (SEE SHT 2 FOR CALCULATION OF RUNOFF COEFFICIENT)
OFF-SITE	27.55	0.30	2.95	2,900	.100	43.94	—	24.38		OFFSITE RUNOFF

Reference: RULES FOR THE DESIGN OF STORM DRAINAGE FACILITIES IN THE COUNTY OF MAUI, DEPT OF PUBLIC WORKS & WASTE MANAGEMENT COUNTY OF MAUI NOV. 12, 1995

PROJECT: KULAMALU OFFSITE RESERVOIR
KULA, MAKAWAO, MAUI, HAWAII
TMK: (2) 2-3-07:11

JOB NO. 497505

BY NY DATE 11/10/00
CHKD _____ DATE _____
SHT. NO 1 OF 2

AUSTIN, TSUTSUMI & ASSOCIATES, INC. CIVIL ENGINEERS • SURVEYORS
1871 WILI PA LOOP SUITE A
WAILUKU, MAUI, HAWAII 96793

COMPUTATIONS FOR RUNOFF COEFFICIENTS (C):

C VALUES:

0.30	UNIMPROVED AREAS
0.95	ROADWAYS, CONCRETE, ASPHALT
0.35	GRASSED AREAS, HEAVY SOIL, > 7%
0.22	GRASSED AREAS, HEAVY SOIL, FLAT TO 2%
0.35	ACCESS ROAD

WEIGHTED COMPUTATION FOR ON SITE POST DEVELOPMENT CONDITION

AREAS:

TANK = 0.18 ACS
SWALES = 0.09 ACS
SLOPES = 0.29 ACS
ACCESS = 0.12 ACS
FLAT GRADED AREAS = 0.09 ACS
UNIMPROVED = 0.278 ACS

TOTAL SITE AREA: 1.048 ACS

$$C = \frac{.18(.95) + .09(.95) + .29(.35) + .12(.35) + .09(.22) + .278(.30)}{1.048}$$

$$= 0.46$$

PROJECT: KULAMALU OFFSITE RESERVOIR KULA, MAKAINAO, MAUI, HAWAII TMK: (2) 2-3-07:11	JOB NO. M97505	BY NY DATE 11/10/22 CHKD. DATE SHT. NO. 2 OF 2	