BOARD OF WATER SUPPLY

CITY AND COUNTY OF HONOLULU

630 SOUTH BERETANIA STREET

HONOLULU, HAWAII 96843

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November 1, 1993

OFC. OF ENV.
QUALITY C.

Mr. Brian J. J. Choy, Director
Office of Environmental Quality Control
220 South King Street, 4th Floor
Honolulu, Hawaii 96813

Dear Mr. Choy:

Subject: Negative Declaration Determination for the Proposed Kuou III Exploratory Well Project, TMK: 4-5-41:11, Kaneohe, Oahu, Hawaii

The Honolulu Board of Water Supply has reviewed the comments received during the 30-day public comment period which began on June 8, 1993. We have determined that the environmental impacts of this project have been adequately addressed as discussed in the Final Environmental Assessment (EA) and are issuing a negative declaration. Please publish notice of this action in the next Office of Environmental Quality Control (OEQC) Bulletin.

The completed OEQC Bulletin Publication Form and four copies of the Final EA are enclosed.

If you have any questions, please contact Barry Usagawa at 527-5235.

Very truly yours,

Kazu Hayashida

KAZU HAYASHIDA
Manager and Chief Engineer

Enclosures

cc: Office of Conservation and Environmental Affairs, DLNR

1993-11-23-OA-FEA-Kuou III Exploratory Well Project NOV 23 1993

ENVIRONMENTAL ASSESSMENT

FOR AN EXPLORATORY WELL AND ACCESS ROAD

AT KUOU SITE III, OAHU, HAWAII

Proposing Agency

HONOLULU BOARD OF WATER SUPPLY
City and County of Honolulu
630 South Beretania Street
Honolulu, Hawaii 96843

Contact

Bert Kuioka, 527-5235

Prepared by:

MAGUIRE GROUP INC.
1600 Kapiolani Boulevard, Suite 601
Honolulu, Hawaii 96814

October 1993

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1.3 AGENCIES CONSULTED IN MAKING THE ASSESSMENT

Office of Environmental Control

1.4 PROJECT OBJECTIVES AND BACKGROUND

In the fiscal year ending June 30, 1991, the Honolulu Board of Water Supply (BWS) system served a population of over 830,000. Average daily water demand on the island during this period was 156 million gallons (mg). According to BWS projections, average daily water demand in the year 2010 will be 191 mg, an increase of 23 percent.

To meet growing demands for water, BWS has initiated a comprehensive groundwater development program. As part of this program, BWS proposes to drill an exploratory well within the watershed of the Kuou stream to determine the yield and quality of water supplies which may be withdrawn from this location. If the Kuou III source is determined to be feasible for development, an estimated 1.0 million gallons per day (mgd) may be added to the BWS system.

1.5 PROJECT AND SITE DESCRIPTION

The proposed exploratory well will be located at the southwestern edge of a banana plantation between the Hoomaluhia Botanical Gardens and the Kaneohe Forest Reserve,

about 100'± north of the newly constructed H3 Highway. The site is on property owned by the City but leased for banana production.

Access to the well site is available from the internal roads in the botanical garden via an unimproved agricultural road used to tend and to harvest the banana plantation. The project will involve drilling a hole about 16 inches in diameter to a depth of about 600 feet. Once the drilling is completed, a 12 inch diameter steel casing will be grouted into place in the hole about 400 feet down and a pump will be installed. See Figure No. 1, Well Detail. A series of pumping tests will be conducted to determine the potential sustained yield and quality of water from the aquifer. Water from the pumping tests will be routed via piping laid on the surface and discharged to Kuou Stream.

Upon completion of the testing, the well driller will remove the pump, cap the well, and clean the area. The total project will require an estimated four months to complete.

1.6 POTENTIAL IMPACTS, MITIGATION MEASURES, AND ALTERNATIVES

No significant adverse impacts are expected during the drilling and pump testing. Short-term impacts during construction of the well and testing will include localized soil disturbance and increases in noise resulting from site access and the operation of drilling equipment. No permanent impacts are anticipated. Mitigation measures will be carried out to minimize soil erosion and short-term impacts of equipment noise.

Three alternatives to the project have been considered. These are: no action, development of alternative sources, delaying the project, and developing sources at other sites. None of these alternatives would enable the Board of Water Supply to successfully achieve its stated objectives.

1.7 GOVERNMENTAL PERMITS AND APPROVALS

The following permits and approvals will be required:

Conservation District Use Permit - Department of Land and Natural Resources

Well Construction Permit - Department of Land and Natural Resources

Water Use Permit - Department of Land and Natural Resources

CHAPTER 2
PROJECT DESCRIPTION

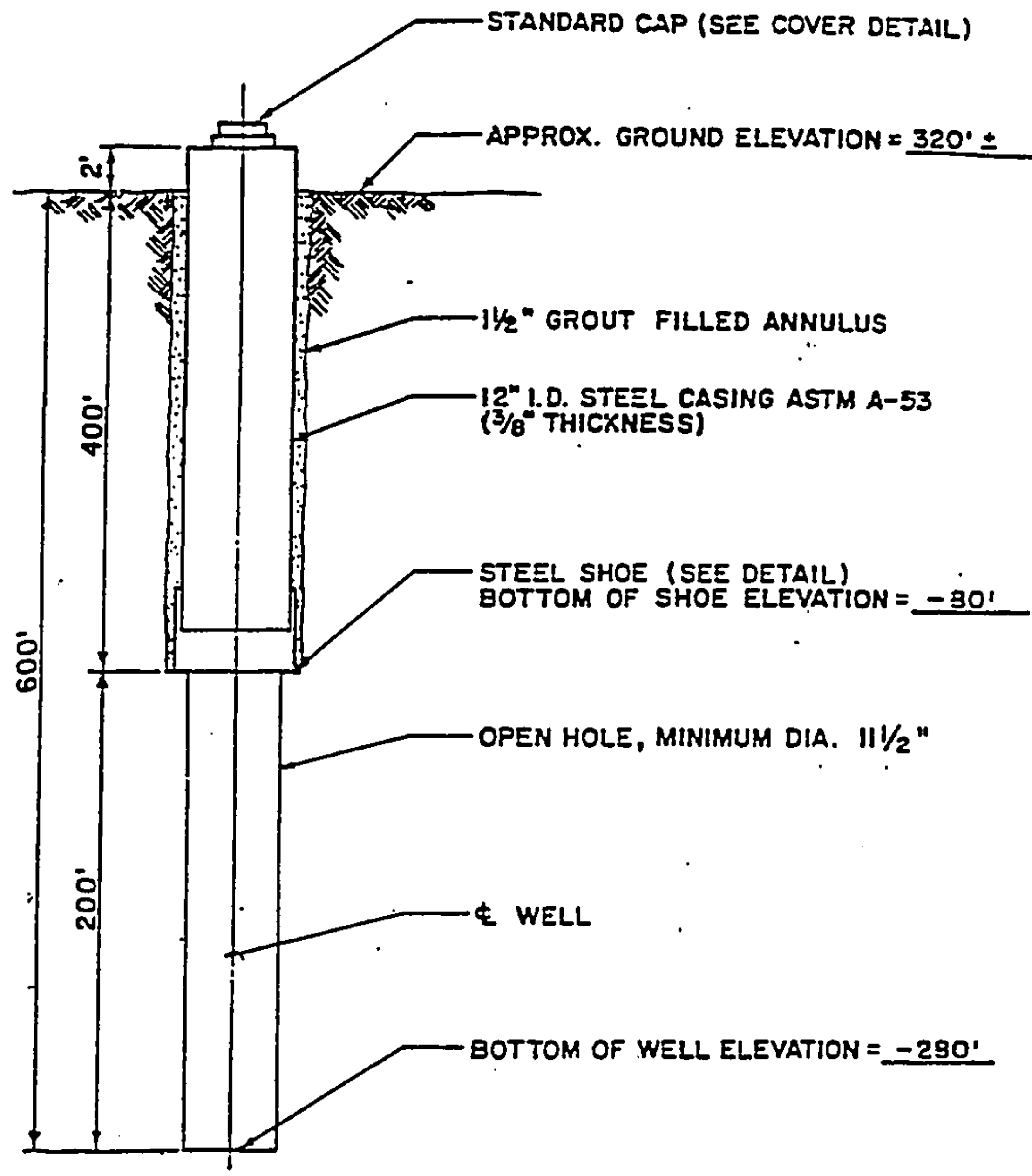
2.1 PROJECT SITE

The site for the proposed exploratory well is near the base of the northeast face of the Koolau Range between the Hoomaluhia Botanical Gardens and the Kaneohe Forest Reserve. Figure 1 is a regional map indicating the general location of the proposed well. The well is about 100 feet northeast of the northbound lanes of the newly constructed highway H-3. Located at an elevation of about 300 feet, the site is at the southern edge of a banana plantation, between the banana groves and the highway. It slopes gently to the northward, toward the Botanical Gardens. It is accessible through the internal roads of the botanical gardens and an unimproved agricultural road through the banana groves. Figure 2 provides photographs of the site location.

The well site [TMK 4-5-41:11] is owned by the City Department of Parks and Recreation which leases the banana groves to Harry Yamashira and Thelma Uechi. The site and surrounding area is designated for park use on the Koolaupoko Development Plan Land Use Map and zoned as P-1, Preservation District. The City lists the planned use of the site as public park. The Department of Parks and Recreation has indicated that although there are no immediate plans for use of the property, over the long term they expect to expand the Botanical Gardens into the areas presently occupied by the banana groves. The well site is located within the General (G) subzone of the State Land Use Conservation District.

2.2 PROPOSED FACILITIES AND ACTIVITIES

The project will involve well installation and pump testing. Well installation will require clearing and grading of a work area, covering about 2500 square feet (50' x 50') for drilling and pumping equipment and a 4000 square feet for a 400 ft. long access road (400' x 10') to the well site. Drilling equipment will be brought in to the cleared site and used to drill a hole about 16 inches in diameter and approximately 600' deep with 400 feet casing. The



WELL DETAIL

NOT TO SCALE

BOARD OF WATER SUPPLY

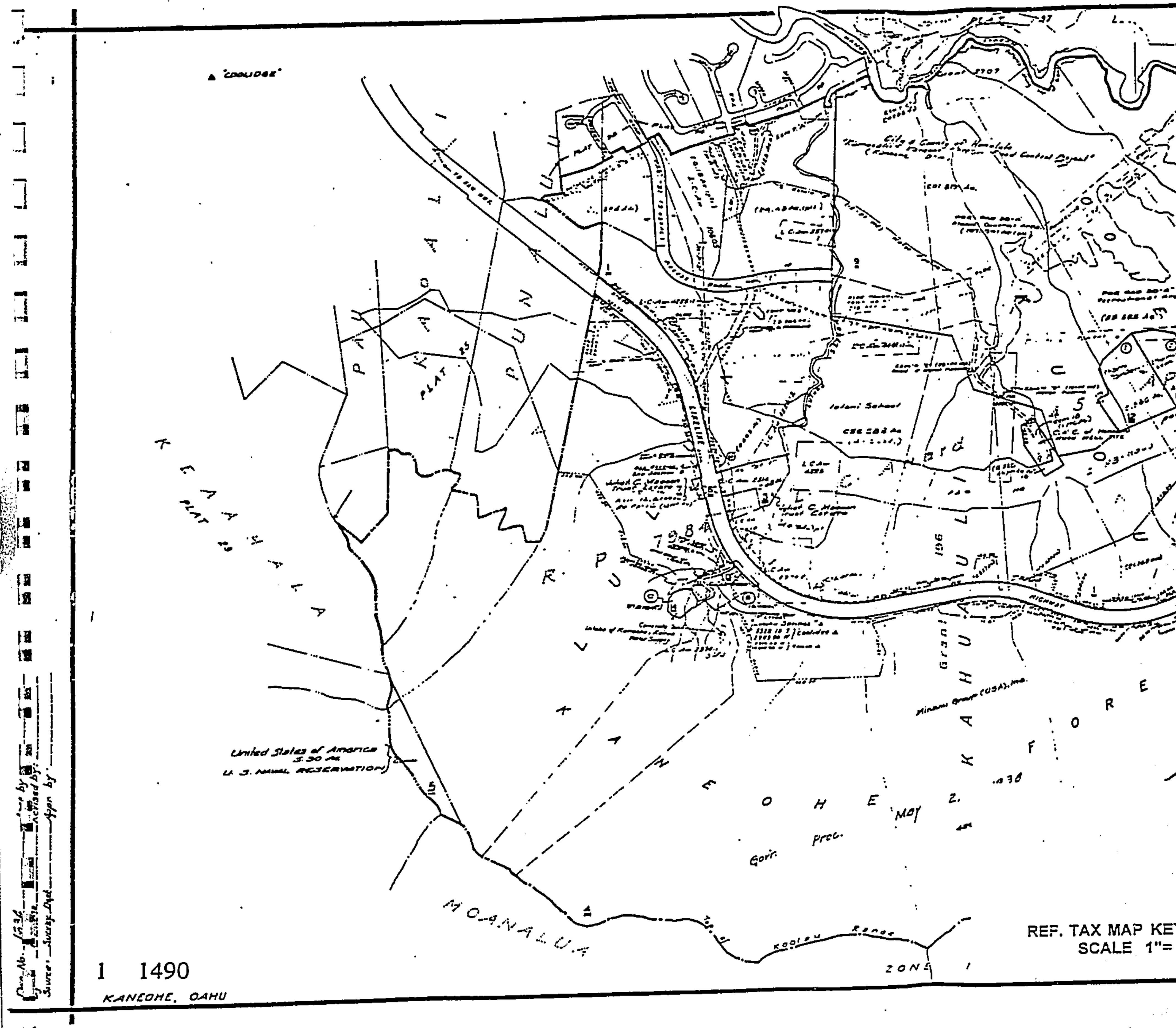
CITY AND COUNTY OF HONOLULU

WELL DETAIL (1)

APPROVED:

CHIEF, PLANNING AND ENGINEERING DIVISION 5/12/92 DATE

FIGURE NO. 1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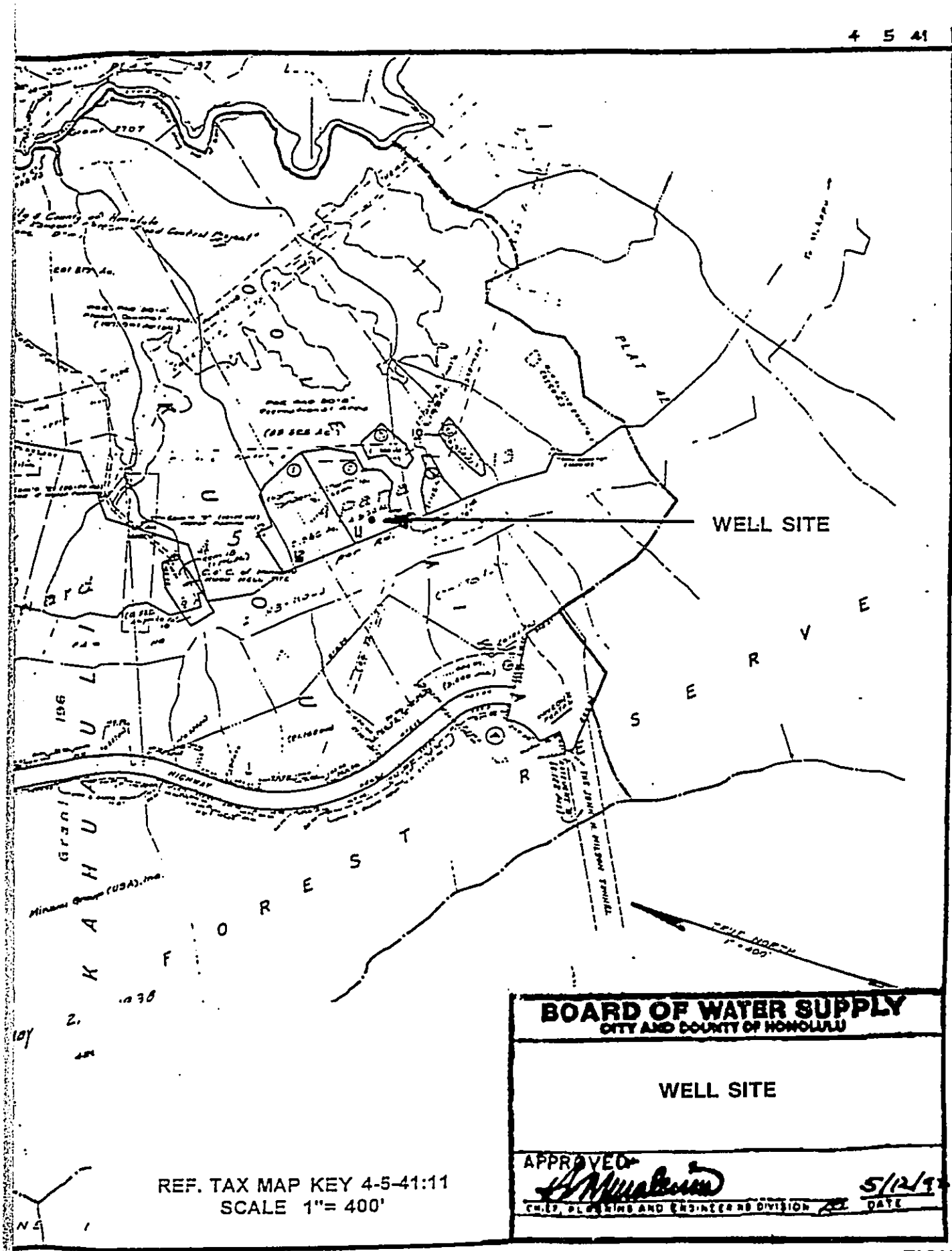
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WELL SITE
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KAHUKU FOREST
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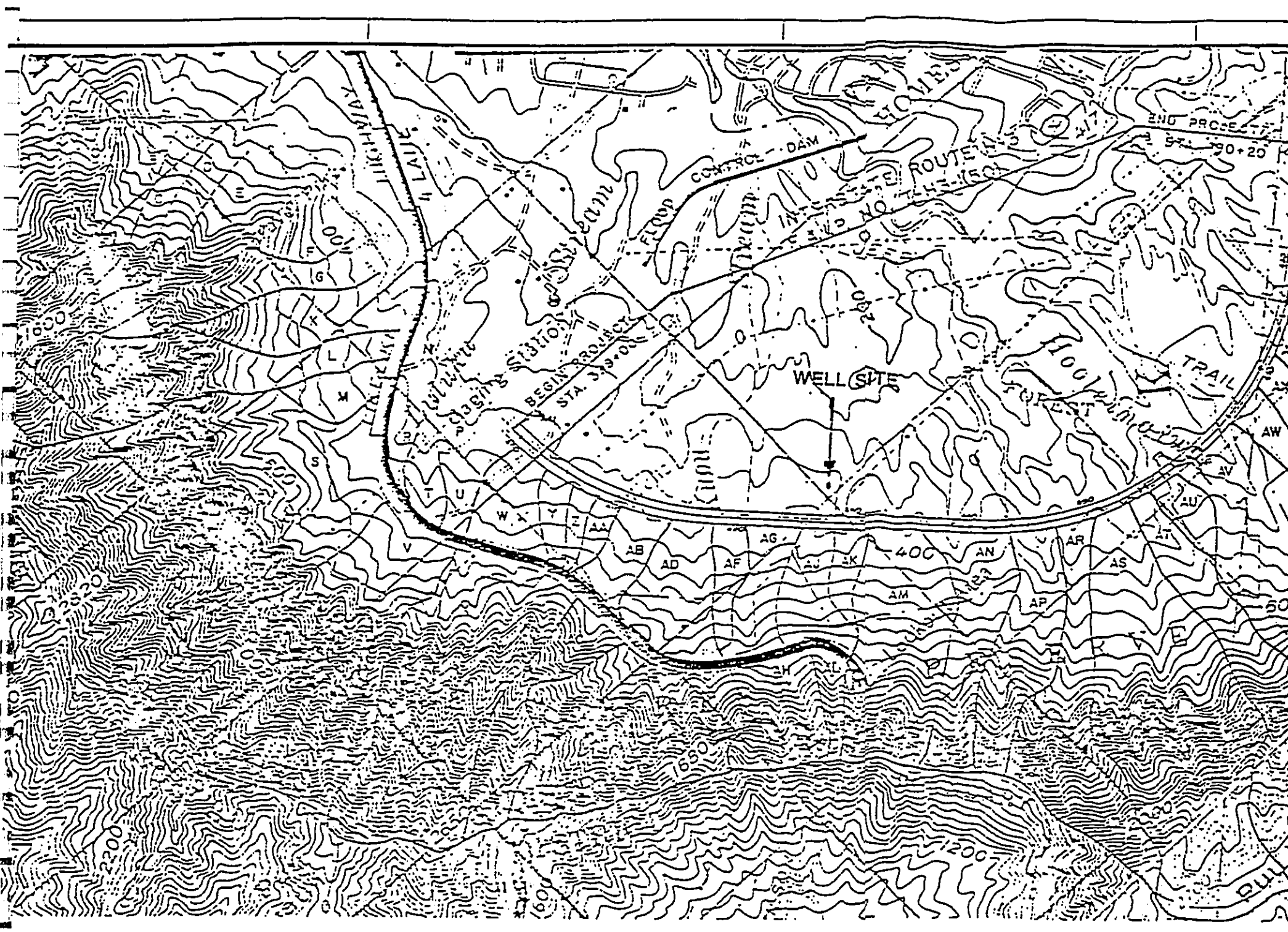
SCALE 1"= 400'
BOARD OF WATER SUPPLY
CITY AND COUNTY OF HONOLULU
WELL SITE
APPROVED
CHIEF, PLANNING AND ENGINEERING DIVISION
DATE
5/12/9

FIGURE NO. 2

Photo 1: View Looking Southward toward Kuou III Site

Photo 2: Proposed Location of Kuou III Test Well



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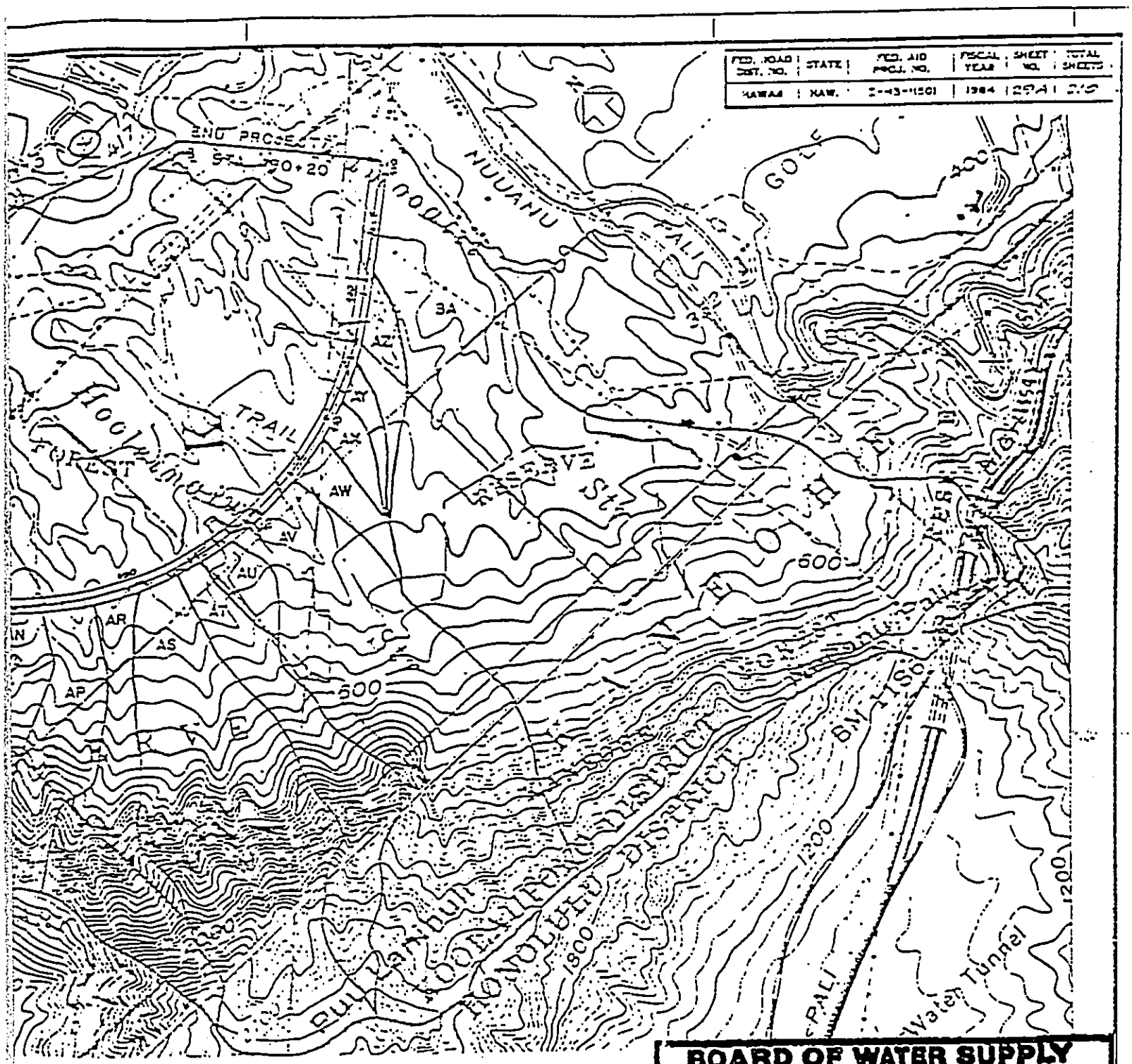

BOARD OF WATER SUPPLY
CITY AND COUNTY OF HONOLULU

LOCATION MAP

APPROVED:
CHIEF, PLANNING AND ENGINEERING DIVISION
5/12/9
DATE

REF. TAX MAP KEY 4-5-41:11
SCALE 1"= 500'

FIGURE NO. 4

DOCUMENT CAPTURED AS RECEIVED

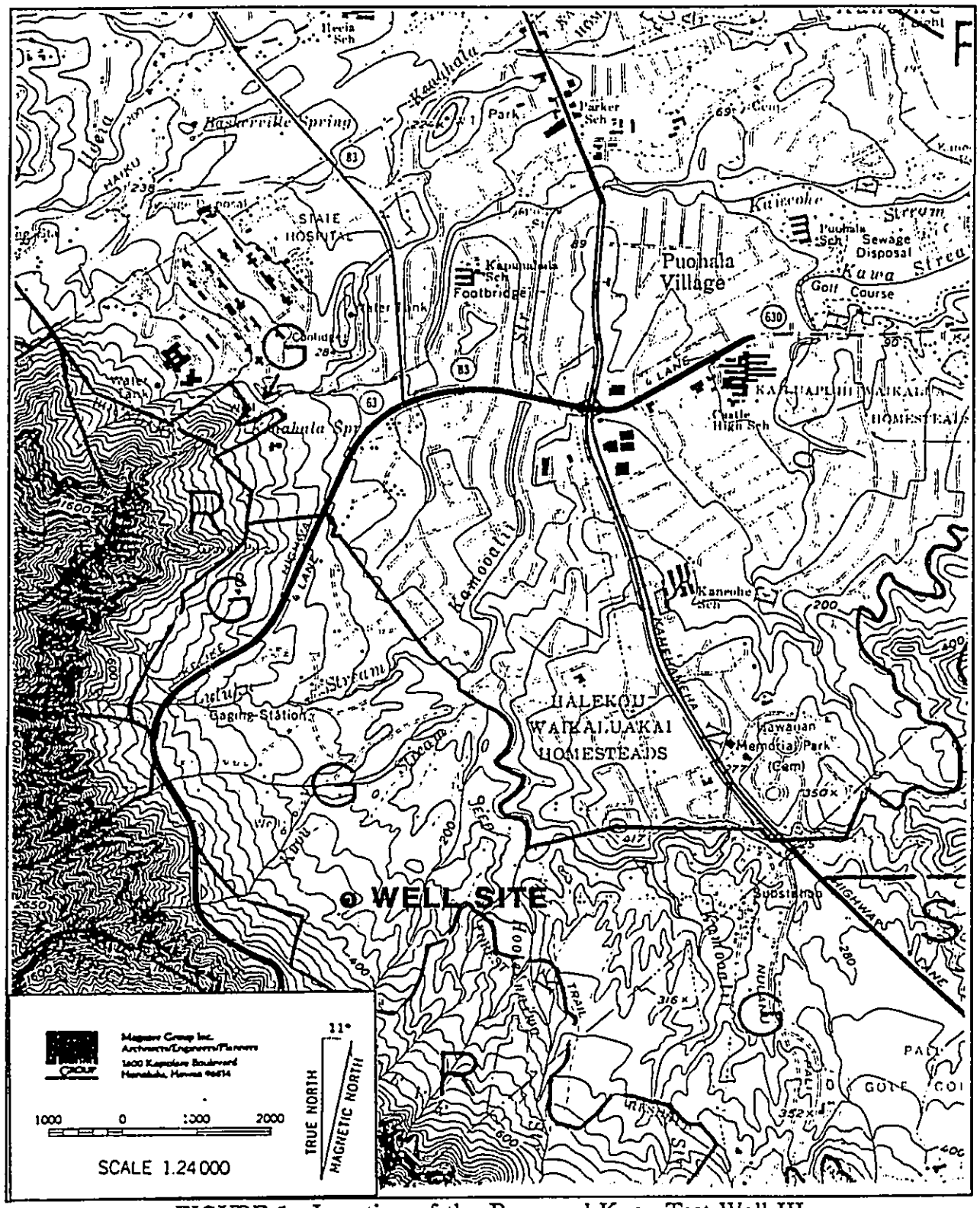

FIGURE 1: Location of the Proposed Kuou Test Well III

depth will be determined by the depth necessary to reach fresh dike confined ground water that is partially prevented from moving seaward by relatively impermeable dikes in the basaltic lava flows of the Koolau range.

Drilling may be accomplished by either of two methods; cable tool drilling or rotary drilling. Cable tool drilling, also known as percussion drilling, is a commonly used method for drilling to depths of 400 or 500 ft. Rotary drilling is generally more expensive and is used for drilling to depths of 800-1000'. Given the projected depth of the Kuou well, the cable tool drilling method is the method most likely to be used. Site preparation and drilling will require about three to four months.

Once the drilling is completed, a 12' diameter steel casing will be grouted into place within the borehole to a depth about 50' below the water table. A test pump will be installed in the well and a discharge line will be routed from the well site down to the Kuou stream to carry the discharge from the pump test. The pump will be used to withdraw water from the well to test water quality and potential yield. Two pumping tests will be conducted to evaluate yield and drawdown. The first will be a short-term test conducted over a 5 hour period. The second will be a long-term test involving continuous pumping over a five day period. When the pump tests have been concluded, the drilling contractor will remove the pump and discharge line, cap the well, and clear out all equipment and miscellaneous materials from the work area.

If the results show that development of the water source penetrated by the test well is feasible, the Board of Water Supply expects to convert the test hole for long-term production. This will require installation and operation of a production well. Production well development will be subject to the environmental review process as stipulated in Chapter 343, Hawaii Revised Statutes, and Chapter 200 of the State Department of Health Regulations.

2.3 PROJECT SCHEDULE AND COST

The project is expected to begin in late 1993. Drilling will begin after clearing and grading of the well site and access road, estimated to take about a week. Drilling will be completed in two to three months. Installation of the casing will take about a week and another two to three weeks will be required to install the pump and run the pump tests. Demobilization will also take approximately two weeks. Total project duration is therefore estimated to be four months.

The project will cost an estimated $380,150. Funds for the project are available in the BWS budget for the fiscal year ending June 30, 1993.

2.4 NEED FOR THE PROJECT

The Board of Water Supply currently serves a population of more than 830,000 persons (Board of Water Supply 1982). Island-wide average daily water demand was about 156 million gallons per day (mgd). The Windward District, extending from Hauula to Waimanalo, served approximately 125,000 to 130,000 residents in 1990. Water demand in the district is presently about 20 mgd. All excess will be diverted to the Honolulu district which produces half of its demand from sources within the district, while the remainder is imported from the Pearl Harbor District. Pumpage from the Pearl Harbor aquifer cannot be further increased without risking encroachment of sea water into the basal water lens. The Department of Land and Natural Resources, Commission on Water Resource Management, currently limits the Honolulu District's total allowed draft from the Pearl Harbor aquifer to 38.14 mgd. The Commission on Water Resource Management recently designated the Windward District as a Water Management Area. All water withdrawals within this area are controlled by the Commission.

Demand for water in the Honolulu District is projected to continue to increase to 92 mgd by the year 2010. During this period, island wide water demand is projected to rise by nearly 23 percent. To meet growing demand, the Board of Water Supply is seeking to

identify, test, and develop new groundwater sources. Some of these new sources will be used to meet demand in the districts within which the sources are developed, some will be transferred to meet the growing demand in Honolulu. If the Kuou III source is determined to be feasible for development, an estimated 1.0 mgd may be added to the BWS system.

The BWS has considered a number of alternatives for production of potable water. Water conservation programs are already in place to try and reduce per capita water demand. Alternatives to expanded use of groundwater sources include desalination, development of surface systems, use of brackish sources with dilution, and recycling of treated wastewater. At present, each of these alternatives is presently considered unacceptable for technical, health, and/or cost reasons.

CHAPTER 3
EXISTING CONDITIONS

3.1 PHYSICAL ENVIRONMENT

3.1.1 Geology

Windward Oahu is located on the northeast side of the Kò'olau Volcano. Profound erosion by Windward streams and marine influences have removed the formations beyond the caldera. Eventual linkage of their headwalls joined to form the steep cliffs which are now characteristic of the windward side of the Ko'olau range. During this same period, alluvial and marine sediments accumulated in the valleys as sea level rose and fell during glacial and inter-glacial periods.

A major feature of the Ko'olau range is an extensive dike system which formed in the rift zone. The dikes were formed when molten rock flowed into fissures in the volcano and then cooled and solidified. Because these flows solidified under pressure, they formed rock which is much denser and much less permeable than the older, surrounding lava flows. Rainfall not lost to evapotranspiration or surface runoff infiltrates into the highly porous Ko'olau basalt and is stored as groundwater between the relatively impermeable dikes.

3.1.2 Hydrology

The proposed well site is located in the watershed of the Kuou Stream. The Kuou stream is a small perennial stream which originates high in the Ko'olau range in the Kaneohe Forest Reserve. It flows generally northeastward through the Hoomaluhia Botanical Gardens and into the Kamooallii stream near the Halekou Waikaluakai Homesteads. It is fed by runoff, dike leakage and possibly dike overflow. The well site is located just south of the stream and is expected to tap into the water bearing basalts of the Koolau marginal dike zone. Flows in the Kuou stream are not gaged, but average daily flow in the Kamooallii stream has been gaged at about 10 cfs.

3.1.3 Topography

The proposed well site is located at an elevation of about 320' above sea level. It is located near the base of the nearly vertical northeast face of the Ko'olau range on land which slopes gently toward the northeast.

3.1.4 Climate

Average monthly temperature in the vicinity of the proposed well site is approximately 75°. It ranges from 72° in January to 78.5° in August (State of Hawaii Data Book, 1987). Exposed to the prevailing northeast tradewinds off the ocean, the windward coast of Oahu experiences very little variation in temperature between day and night. Rainfall in the area originates when tradewinds are intercepted and forced upward by the peaks of the Ko'olau range, dropping their moisture as they rise and cool. The proposed well site is in an area which receives a mean annual rainfall of about 75" (Atlas of Hawaii, 1973).

3.1.5 Soil

Soils in the vicinity of the proposed well site are classified by the U.S. Department of Agriculture Soil Conservation Service (SCS) as belonging to the Lolekaa-Waikane association (SCS 1972). These are deep, nearly level to very steep, well-drained soils that have a dominantly fine-textured subsoil and are found on fans, terraces and uplands. More specifically, the soils at the proposed site are classified as Lolekaa silty clay.

The Lolekaa soils developed in old, gravelly colluvium and alluvium. The SCS describes a representative profile as follows:

> "The surface layer is dark-brown silty clay about 10 inches thick. The subsoil is 46 to more than 70 inches thick. The upper part is dark brown silty clay that has a subangular blocky structure, and the lower part is dark yellowish-brown loam that has subangular blocky structure. The substratum is strongly weathered gravel. The soil is strongly acid in the surface layer and strongly acid to extremely acid in the subsoil."

Erosion hazard for the Lolekaa soils varies from slight to severe depending upon the slope. Given the relatively gentle slope and vegetative cover at the well site, the erosion potential at the site is slight. The soil capability classification also varies depending upon slope, with a rating of IIe applicable to the proposed well site. Class II soils have moderate limitations that reduce the choice of plants or that require moderate conservation practices. Subclass IIe soils are subject to moderate erosion if they are cultivated and not protected, indicating that it is important to provide erosion protection when vegetation is removed from the proposed well location.

The proposed well site is on land which is presently in agricultural use. The U.S. Department of Agriculture Soil Conservation Service and the Hawaii Department of Agriculture classify Lolekaa silty clay soils at slopes of less than 15% as "prime" agricultural land (Dept. of Agriculture, 1977). Prime agricultural land is land with ideal characteristics for food production or other agricultural production.

3.1.6 Natural Hazards

According to the National Flood Insurance Program Flood Insurance Rate Map, the proposed well site is in zone D, an area in which flood hazards are undetermined (FEMA, 1987). This generally indicates that the risk of flooding within the area is not significant enough to warrant detailed study by FEMA. Given the site elevation and relationship to the stream, the risk of flooding of the site can be considered negligible.

Earthquake risk in the vicinity is also minimal. The island of Oahu is classified as a Seismic Zone 1 area, in which damage would be minor in the event of an earthquake (Uniform Building Code, 1988).

3.1.7 Flora and Fauna

A biological assessment of the project area was performed in October of 1992 by the B.P. Bishop Museum biological staff. Their report on the site is appended to this Environmental

Assessment. The dominant vegetation on the site includes the banana plantation. There was no native vegetation observed on the site. The banana plants are the only plants in the overstory or understory.

None of the species found on this site are listed or proposed for listing on the federal list of threatened or endangered species (USFWS, 1990) and none are considered threatened, endangered or rare species at the state level (State of Hawaii, 1990). The presence of the Hoomaluhia Botanical Gardens has led to the cultivation of a number of rare plant species near the project area, but none of these plants are located in the immediate vicinity of the proposed well site and none are to be disturbed by the proposed well testing program.

3.1.8 Archaeology

An archaeological inspection of the proposed well site was conducted in October of 1992 by archaeological staff of the B.P. Bishop Museum. The archaeologists report is appended to this Environmental Assessment. Findings of the archaeologist generally indicate there are no archaeological finds that exist which would be impacted.

3.2 Socio-economic Environment

Located between the H-3 highway and the Botanical Gardens, the proposed well site is not in the immediate vicinity of any particular residential, commercial or industrial development. Its impact is expected to be regional in nature. The population on the island of Oahu has been steadily increasing. The Windward district is one of the locations within which continued growth has been forecasted to occur. City, County and State population projections indicate that the Windward district population will reach 126,013 by the year 2000, with a predicted daily water usage of 20.2 million gallons. The proposed Kuou test well is one of several sources of water proposed for development to meet the needs of our expanding population. The BWS goal is to integrate our sources to provide system flexibility and reliable, high quality water service to all customers. Water from the proposed source

would first be used to meet the needs of consumers in the Windward District. Water in excess of this need would then be available for consumers in other areas.

CHAPTER 4
POTENTIAL IMPACTS AND MITIGATION MEASURES

4.1 TEMPORARY IMPACTS

The development of a test well at the Kuou III site will result in short-term impacts on the environment in the immediate vicinity of the project area. No significant adverse impacts are expected during the drilling and pump testing. Short-term impacts during construction of the well and testing will include localized soil disturbance and temporary increases in noise resulting from the operation of drilling equipment.

Localized soil disturbance will result from clearing and grading of the vicinity of the well head to provide a work area for installation of the well and pumping equipment and for clearing associated with the construction of a 400' long access road. It is anticipated that the affected area will be about 50' x 50' (2500 SF) plus 400' x 10' (4000 SF). Because of the potential for soil erosion once the vegetation is removed from the Lolekaa soils, every effort will be made to minimize the amount of soil disturbance and the site will be revegetated with grass species as soon as possible after completion of the installation and testing work. It is planned to require the Contractor to incorporate structural measures, such as swales and berms or a settling basin, to retain silt-laden runoff on the project site. Revegetation will begin as soon as practical following the soil disturbance. Because the site is less than one (1) acre, a National Pollutant Discharge Elimination System (NPDES) permit for stormwater runoff associated with construction activity, as well as, an Erosion Control Plan will not be required.

Noise will be produced by the drilling equipment and by the operation of the pumps. This minor increase in noise levels will not result in any significant adverse impacts due to the distance between the well location and populated areas and because of the proximity of the site to the H-3 highway, a more significant potential source of noise generation.

4.2 IMPACTS ON STREAM FLOW AND STREAM ENVIRONMENT

The well testing will require that water be withdrawn from the aquifer penetrated by the well. This water will be discharged to the Kuou stream, resulting in a temporary increase in flow in the streambed. The increase in flow is expected to be within the range of peak flows normally experienced within the stream system and will not result in any flooding or adverse impacts in downstream areas. Water from the pump test will be routed to the Kuou stream via conduit to prevent soil erosion and the introduction of excessive turbidity into the stream flow which might otherwise occur.

Intermittent flows in the Kuou stream are fed by runoff and by groundwater spilling over or leaking out of the dike system in the upper elevations of the Ko'olau range. To the extent that the pump tests lower the elevation of the groundwater table, they may reduce the hydraulic head and may affect the groundwater leakage into the stream. In practice, this effect is likely to be so small as to be undetectable. The existing Kuou wells I and II have had only minor impacts on water table elevations and have not resulted in significant reduction of flows in the Kuou stream. Long term impacts on flows in the Kuou stream are therefore also likely to be negligible. BWS will contract with the U.S. Geological Survey (USGS) to gage stream flow before, during and after the pump tests to determine impacts to Kuou Stream. If the flows are reduced below the interim instream flow standards set by the Commission on Water Resource Management, BWS will petition the commission to amend the interim instream flow standard for Kuou Stream. Test pumping will occur during dry weather periods when effect or stream flow is most evident.

Possible reduction of stream flows over the long term may have adverse effects on the streams aquatic environment. Mitigative measures such as short term pumping or pumping during wet weather conditions are possible. The pump tests for the exploratory well will have little effect on aquatic environment, however, if the tests are favorable and a production well is planned, and at that time the potential for reducing flows in Kuou Stream will be evaluated further.

4.3 IMPACTS ON AGRICULTURAL SOILS

As noted in Chapter 3, the proposed well site is located in an area which has been designated as "prime farmland" by the Federal and State Departments of Agriculture. Prime farmland is land which is ideally suited to the production of food or other crops. Development of the proposed test will require temporary disturbance of prime agricultural soils and, if the well proves out, permanent displacement of some part of that prime agricultural land. This impact is not significant because of the relatively small amount of land which would be affected. Only about 6500 square feet of land will be needed for the proposed project, an amount which is not sufficient to significantly alter the potential production capability of the area designated as "prime".

4.4 IMPACT ON ARCHAEOLOGICAL RESOURCES

As noted in Chapter 3, archaeological review has indicated that there are no archaeological resources within the immediate vicinity of the site. The project will therefore not result in any adverse impacts to archaeological resources.

CHAPTER 5
ALTERNATIVES

5.1 NO ACTION

The no action alternative would not meet the objectives of the Board of Water Supply for this project. This project is part of an overall groundwater development program intended to increase the municipal water supply to meet growing demand. If the Board did not seek new water sources it would not be able to provide adequately for the water needs of the population of the island in the future.

5.2 ALTERNATIVE SOURCES

The Board of Water Supply has considered a variety of other alternatives to the development of new groundwater sources. Alternatives considered include direct use of streamflow, blending and use of brackish water resources, demineralization of brackish water sources, desalinization of sea water and direct reuse of treated wastewater. None of these alternatives offers the potential to economically or cost-effectively produce water supplies of the quality which can be obtained through the proposed program.

5.3 DELAYED PROJECT

Delay in the proposed well testing program would increase the risk that population growth will lead to increasing water demands in excess of the available supplies. Delay of the project will not materially alter the environmental impacts of the project and has the potential to increase project costs.

5.4 ALTERNATIVE WELL SITES

In addition to evaluating alternative water sources, the Board of Water Supply has plans to test a number of other potential sites for development of groundwater resources. These alternative sites also offer opportunities as groundwater supply sources, but are to be considered in addition to, rather than as alternatives to, the proposed well testing program. The Kuou III test location has been selected by geologic and hydrologic experts at the Board of Water Supply because it offers the potential to supply a relatively large quantity of high quality water which may not be obtainable at alternative sites. Developing and testing a well at the Kuou III site is the most reasonable alternative given the relative remoteness of the site and the insignificant impacts associated with its development.

CHAPTER 6
DETERMINATION

In accordance with Chapter 343, Hawaii Revised Statutes, it has been determined that an Environmental Impact Statement is not required for the proposed Kuou III exploratory well and pump testing program. This determination has been made based primarily on the short duration of the project and its minimal impacts on the environment. The project will result in some negative impacts, but these can be minimized or alleviated by the suggested mitigation measures. The identified impacts have been determined to be insignificant in comparison to the potential benefits to be provided by the water supplies which may be obtainable from the Kuou III well.

APPENDIX

REFERENCES

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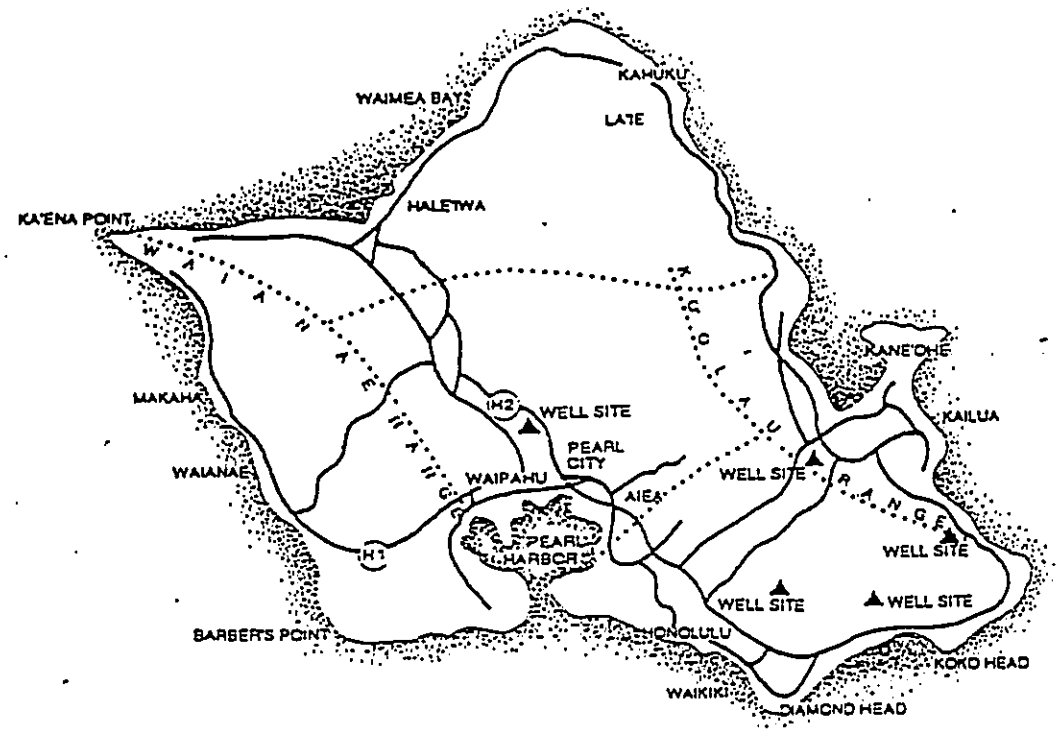
Wagner et. al., 1990 - Wagner, W.L., Herbst, D.R., and Sohmer, S., *Manual of the Flowering Plants of Hawaii.*, Vols. 1 & 2. University of Hawaii Press, 1990.

ARCHAEOLOGICAL REPORT

AN ARCHAEOLOGICAL RECONNAISSANCE OF FIVE BOARD OF WATER SUPPLY WELLS ON O'AHU, HAWAI'I



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October 27, 1992

Revised
October 15, 1993

Public Archaeology Section
Applied Research Group
Bishop Museum
Honolulu, Hawai'i

Project #503
MS #102792

AN ARCHAEOLOGICAL RECONNAISSANCE OF FIVE BOARD OF WATER SUPPLY WELLS ON O'AHU, HAWAI'I

Prepared by

Boyd Dixon, Ph.D.
Supervising Archaeologist

Prepared for

Maguire Group, Inc.
Architects/Engineers/Planners
1600 Kapiolani Blvd.
Honolulu, Hawai'i 96814

Revised
October 15, 1993

Anthropology Department
Bishop Museum
Honolulu, Hawaii

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ABSTRACT

During October 1992, the Applied Research Group of the Bishop Museum conducted an Archaeological Reconnaissance as part of an Environmental Impact Assessment for five (5) exploratory water wells proposed by the Board of Water Supply for the City and County of Honolulu, under contract to the Maguire Group, Inc. Four of these locations-- Waipahu, Kāne'ohe, Waimānalo, and Mānoa failed to yield any cultural remains on the surface. The fifth location, in Kūpaua Valley, contained the remains of a culturally-modified bedrock terrace and one polished stone adze, on the surface, near the proposed well site on the east bank. Survey of the access road along the west bank also encountered possibly-modified bedrock terracing above the stream bed.

ACKNOWLEDGMENTS

The author would like to thank Mr. Ken Rappolt of the Maguire Group for the cooperation and patience he has shown in dealing with the sometimes alien profession of archaeology. In particular, his willingness to accompany Bishop Museum staff on a preliminary tour of the five water well locations greatly facilitated our work in the field from a logistical standpoint.

Within the Applied Research Group at the Bishop Museum, fieldwork was shared equally by Steve Clark, Maurice Major, and Angela Steiner-Horton, who also assisted with the cataloging of documents, photos, and artifacts. Hemantha Jayatilleke prepared the illustrations for this report, while Lana Pigao, Jinni Mitchell, and Chris Alper produced the final draft report. Peggy Chee and Marie Paresa coordinated our field needs, while Alan Haines was a rock of support in much more than just contracts.

INTRODUCTION

Under contract to the Maguire Group, Inc., the Applied Research Group of Bishop Museum conducted an archaeological reconnaissance of five exploratory water well locations on the island of O'ahu during October 1992. All were surveyed as part of an Environmental Impact Assessment being submitted by the City and County of Honolulu Board of Water Supply in accordance with the State of Hawaii, Title 11, Department of Health, Chapter 200, Environmental Impact Statement Rules. Any subsequent implementation of the exploratory well plans should ensure compliance with State Historic Preservation Division draft guidelines which may require additional research at these properties.

PROJECT LOCATIONS

The five exploratory water well locations are scattered around the island of O'ahu (Figure 1), situated above the 200 ft above mean sea level (famsl) elevation at the base of the Ko'olau mountain range to access known aquifers, in most cases already providing drinking water for local populations.

Waimānalo Well III

This well is located at approximately 240 famsl on Waimanalo State Forest Reserve land (TMK 4-1-11) in the *ahupua'a* (traditional land division) of Waimanalo, Koo'lau Poko District (Figure 2). Access to the project area crosses State land currently leased to Meadow Gold Dairies via trails starting at the end of Kulawai Street *mauka* from the beach park in Waimanalo. The well site and access road are on land presently forested with *Eucalyptus* as the dominant genus, although a nearby powerline has encouraged the invasion of a dense weedy understory.

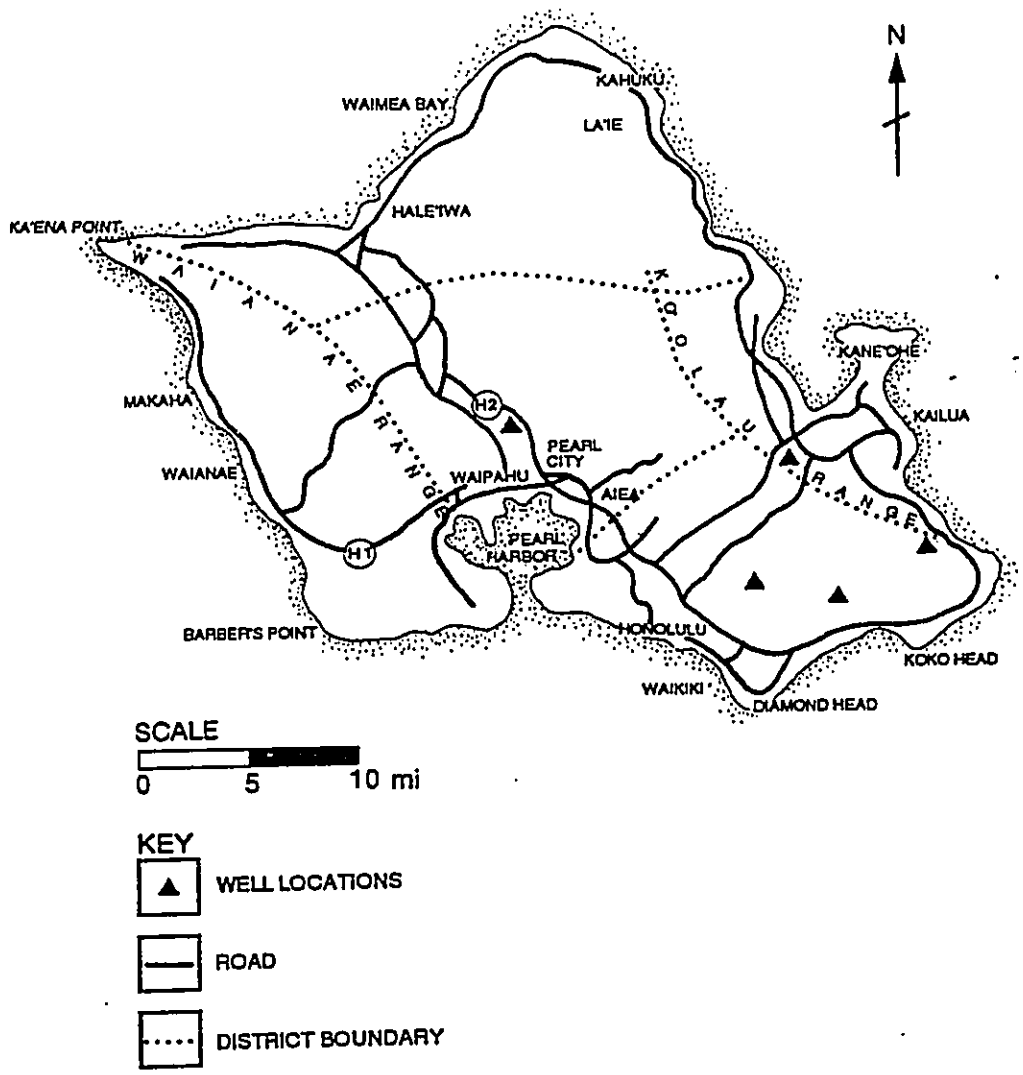

Figure 1. Location of the Five Water Wells on the Island of O'ahu.

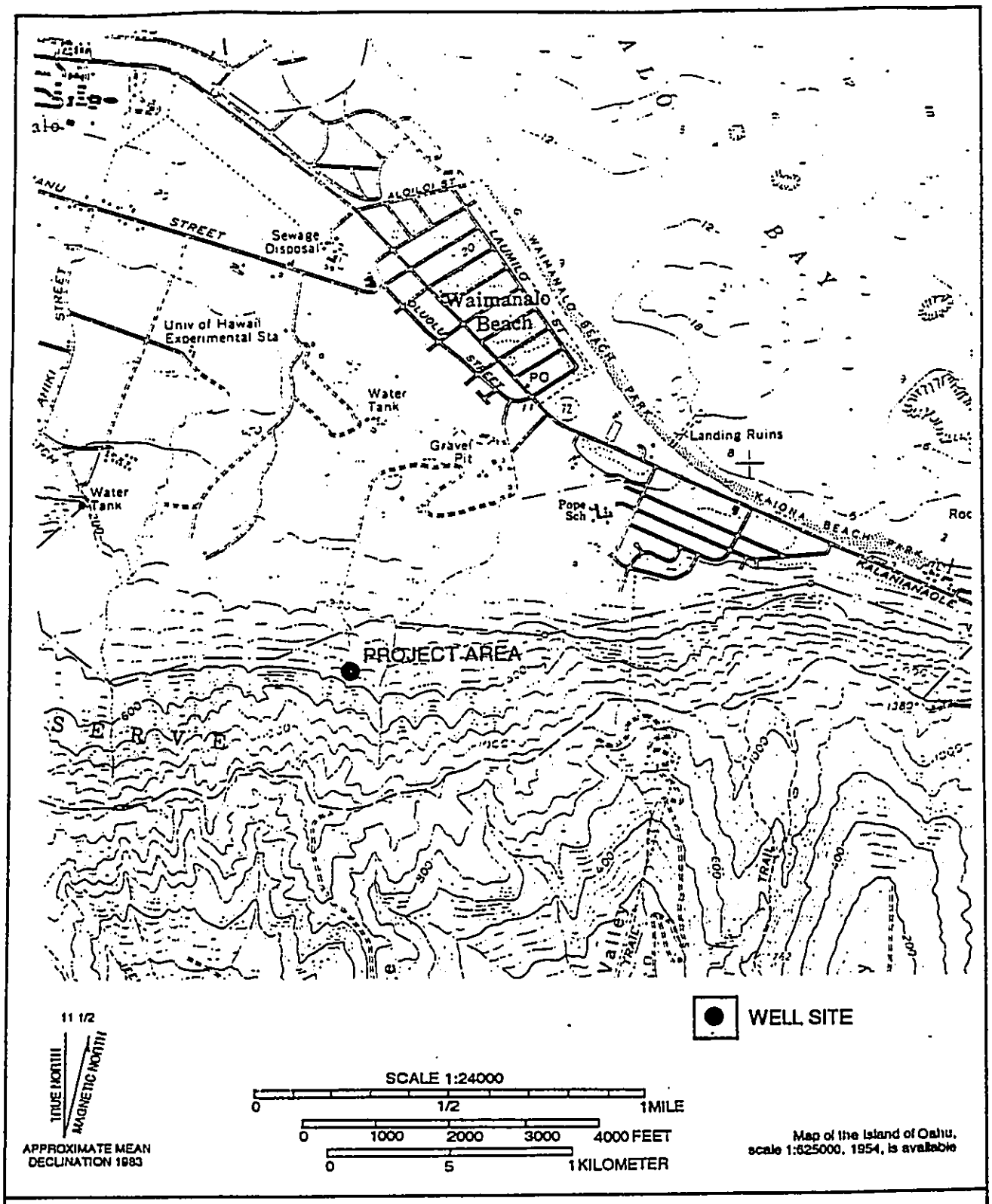

Figure 2. Location of the Waimānalo Well III.

Waipahu Well III

This well is located at approximately 280 famsl on Castle and Cooke, Ltd. land (TMK 9-4-5:74) in the *ahupua'a* of Waipio, 'Ewa District (Figure 3). Access to the well site, located in a fallow pineapple field, is provided by Kamehameha Highway, which runs immediately adjacent (east) to the project area.

Kuou Well III

This well is located at approximately 280 famsl within Ho'omaluhia Park (TMK 4-5-41) in the *ahupua'a* of Kāne'ohe, Ko'olau Poko District (Figure 4). Access to the well site is provided by a trail from the main park road, which is situated just *makai* of the H-3 Highway right-of-way and fenceline. The area is currently planted with banana trees that appears to have been there for some time.

Mānoa Well

This well is located at approximately 200 famsl within Mānoa Valley Park on City and County of Honolulu land (TMK 2-9-36) in the *ahupua'a* of Mānoa, Kona District (Figure 5). Access off Mānoa Road is provided on the lawn between the tennis courts *mauka* of Mānoa School and a small gulley bordering residential housing. The proposed location of the well is currently covered in low grasses.

Kūpaua Wells

These two alternate wells are located at approximately 300 famsl on land owned by Hawaiian Trust Co. Ltd. and the Hawaiian Humane Society (TMK 3-7-04:01) in the *ahupua'a* of Niu, Kona District (Figure 6). Access today is by a trail along the east bank of Kūpaua Stream although the route of a proposed access road up the opposite stream bank was surveyed in October. Two exploratory well locations were also surveyed, one on both sides of the stream. The entire project area is wooded with secondary regrowth of *koa haole, kiawe*, and various tall grasses although banyan, mango, and *wiliwili* trees were also observed.

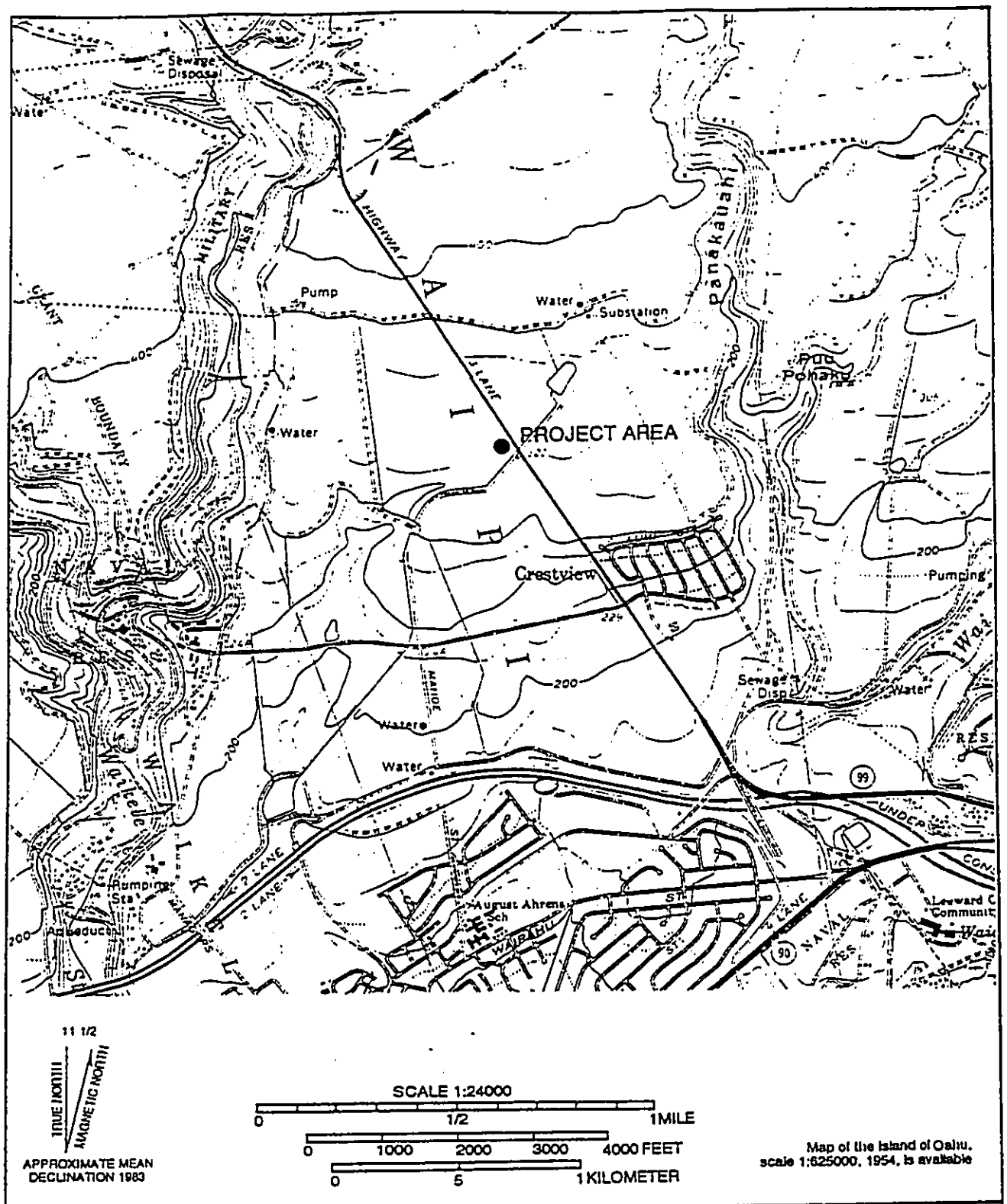

Figure 3. Location of the Waipahu Well III.

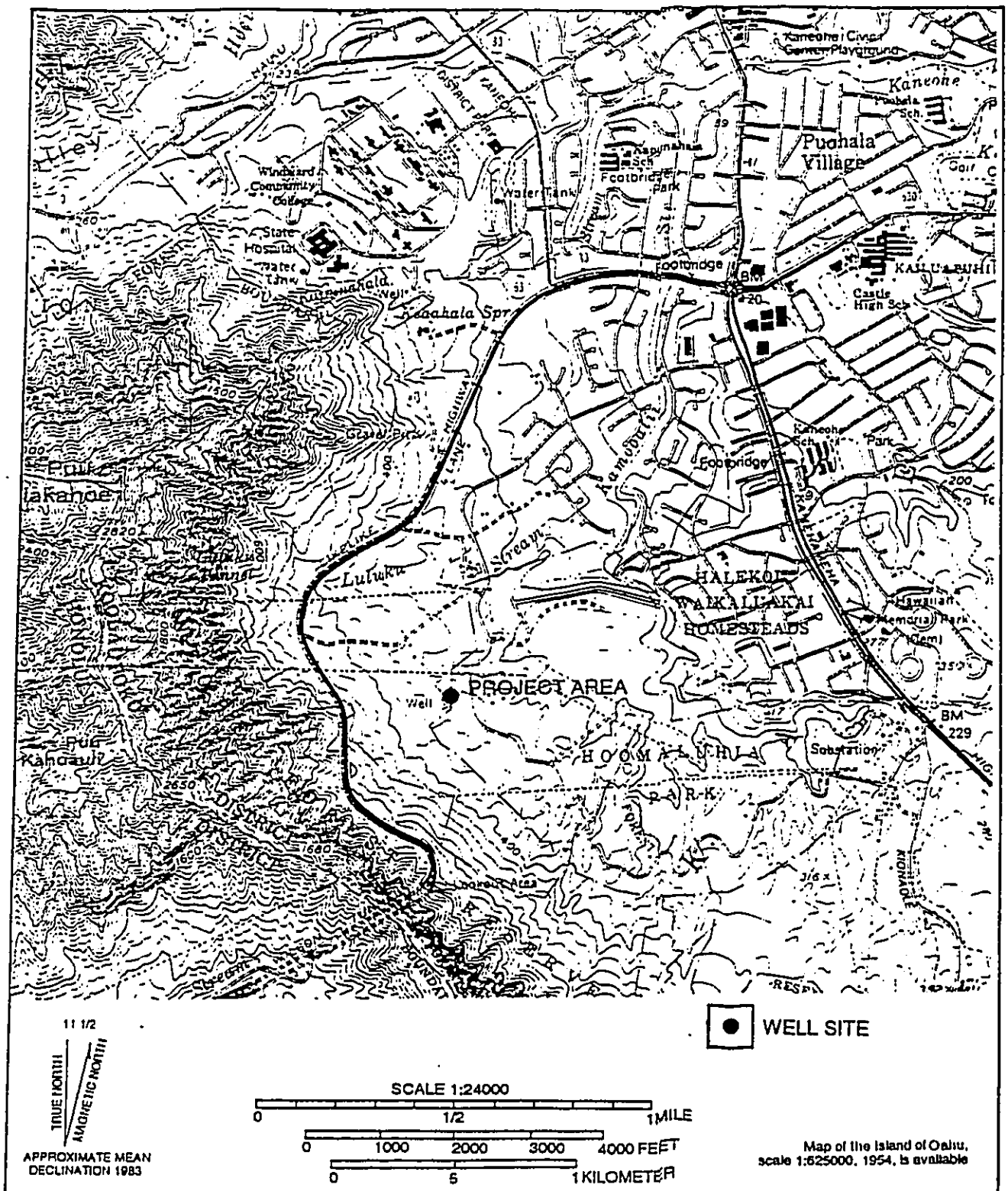

Figure 4. Location of the Kuou Well III.

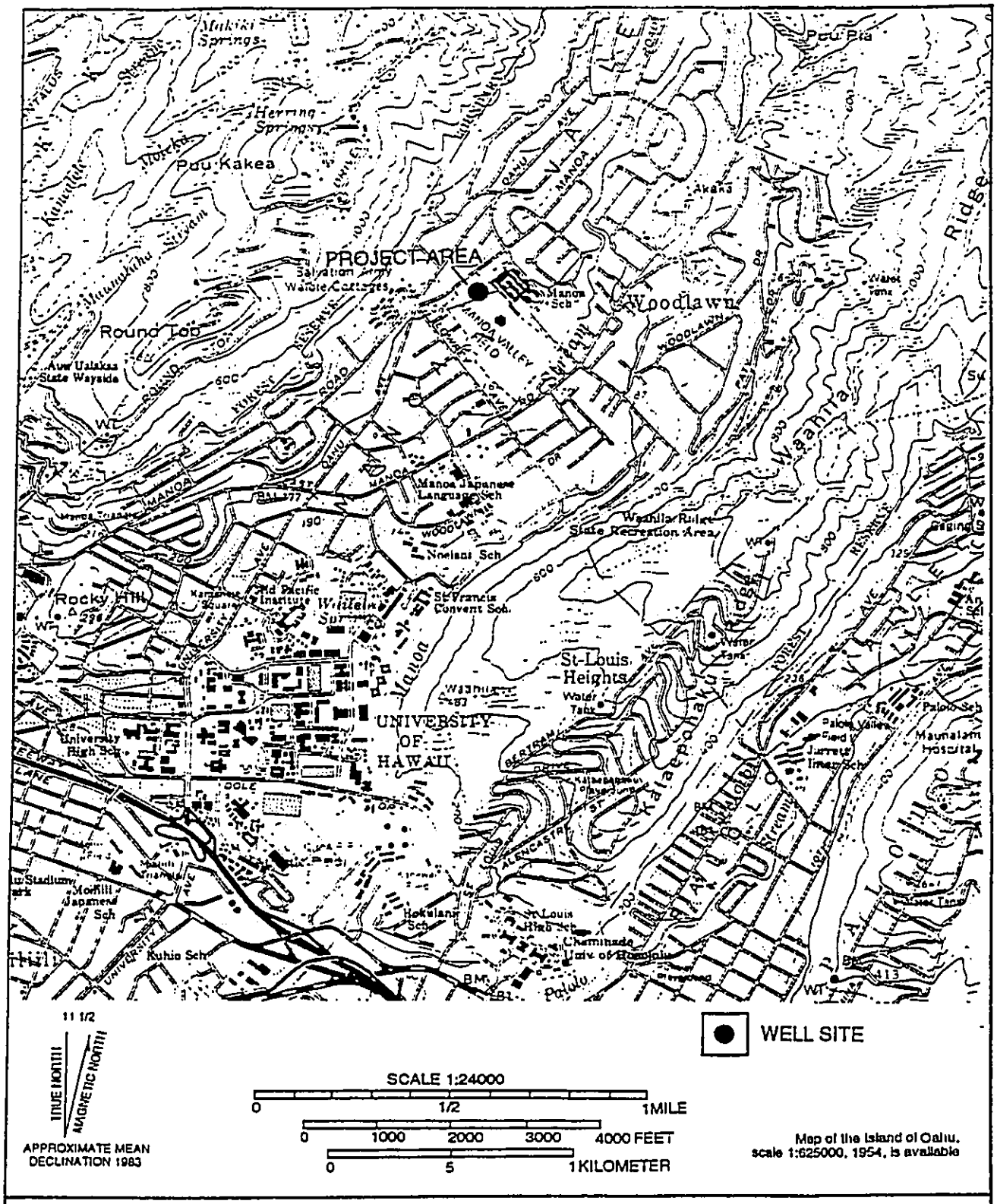

Figure 5. Location of the Mānoa Well.

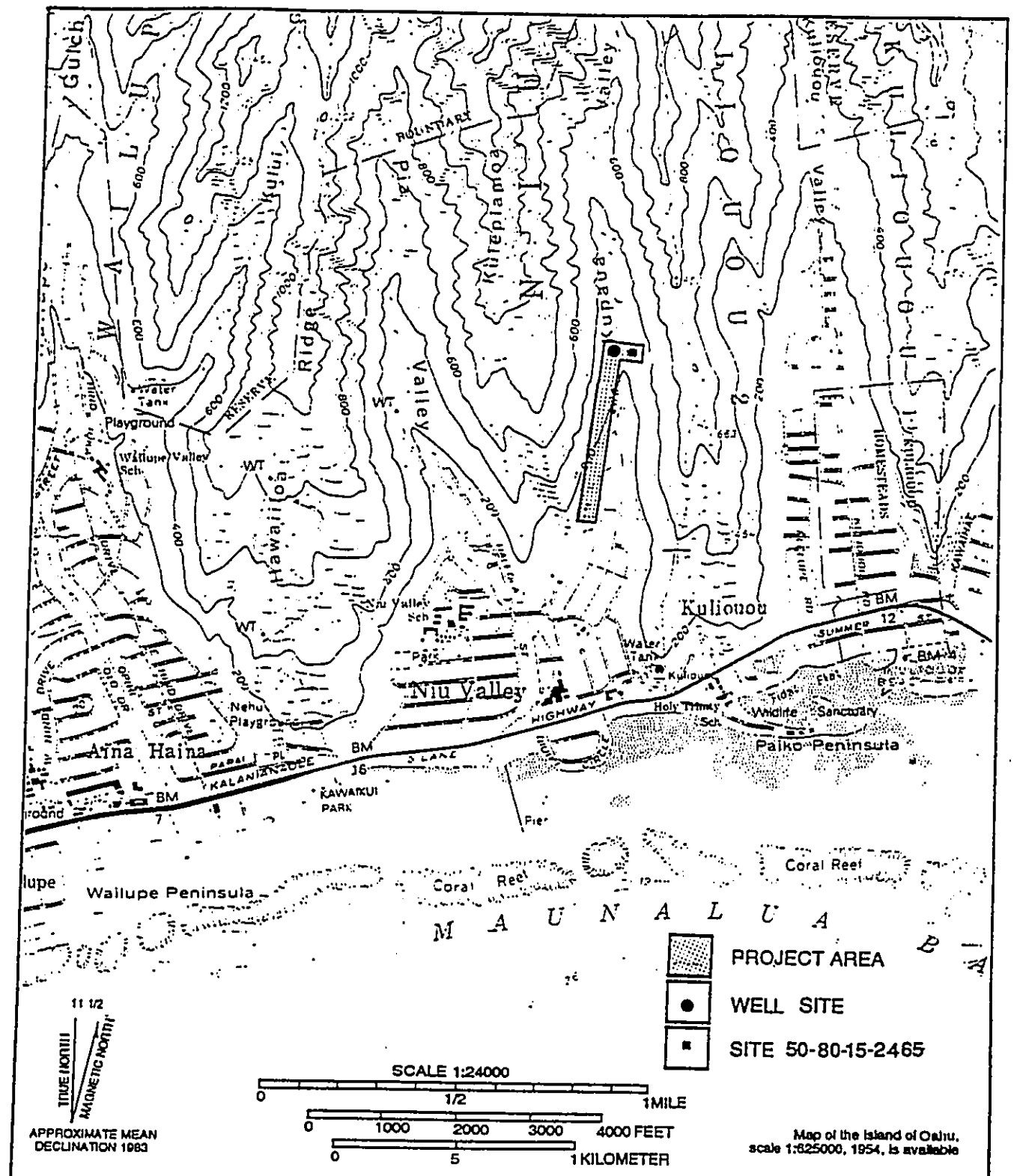

Figure 6. Location of the Kūpaua Wells and Access Road Survey.

PREVIOUS ARCHAEOLOGY

A thorough review of the previous archaeology for each *ahupua'a* containing a proposed exploratory water well location is not required for an Environmental Assessment reconnaissance prior to an Inventory level-survey (SHPD 1989). Nevertheless, a cursory search of traditional sources in the archaeological literature on the island of O'ahu (McAllister 1933; Sterling and Summers 1978; James 1992) was conducted in advance of the field survey of all five proposed well locations. In no instance was a known archaeological site located within the immediate vicinity of these project areas, although none of these areas has ever been subject to a systematic archaeological survey, according to a search of Bishop Museum Anthropology Department files. Future research in any of the five well sites should include a review of State Historic Preservation Division files as well.

Archaeological remains expected for the five areas varied with the setting, influenced as much by environmental factors as by proximity to larger coastal population centers in pre- and early post-Contact periods. On the slopes behind Waimānalo, terracing of the windward soils might be expected, as was the case *mauka* of the Kuou Well III site along Luluku Stream in Kāne'ohe (Allen 1987). In Waipahu, just above the 'Ewa Plain, leeward agricultural utilization of the slopes might have produced minimal modification of the landscape similar to that encountered *makai* of the project area (Davis 1988). But a recent survey just *mauka* of the well location revealed severe disturbances due to Historical Period agriculture (Goodman and Nees 1991). The upper valley of Mānoa was famed for its taro ponds and Historical Period royal residences (Sterling and Summers 1978:281-290; McAllister 1933:78-80) while the lower Niu Valley supported a more leeward agricultural regime (Handy 1940:155) with a *heiau* (temple) situated at the foot of the middle ridge between both streams (McMahon 1988:3).

FIELD METHODS

Methods employed during the archaeological reconnaissance varied with the degree of impact already found at each proposed water well location, but were restricted to pedestrian survey with no subsurface testing. At the Waipahu III and Mānoa well sites, only a cursory examination by the author was required, due to the extreme destruction of the previous landscape by agricultural and residential activities respectively. At the Kuou, Waimānalo, and Kūpaua well sites and access roads, a field crew of four ARG archaeologists conducted a pedestrian survey at 10-m-wide intervals across the entire length of the project areas. Bedrock outcrops were inspected for cultural modification and eroded gulleys, and surfaces were inspected to look for cultural materials.

RECONNAISSANCE RESULTS

Archaeological reconnaissance of the five exploratory water well locations on the island of O'ahu revealed four of these to have been impacted sufficiently in the Historic to recent past to effectively erase any traces of Native Hawaiian utilization of the landscape on the surface. Inspection of the exposed surfaces, moreover, failed to yield any evidence of subsurface features or activity areas. It therefore seems likely that these four well locations (Waimānalo III, Waipahu III, Kuou III, and Mānoa) were never subject to any intensive habitation or agricultural use that would have produced obvious archaeological residues, probably due to the somewhat peripheral setting of these locations in relation to water resources and traditional or historic population centers.

This assessment does not negate the possibility of subsurface remains (i.e. firepits, *imu*, or human burials) being present at all these locales, however. Downslope erosion in the case of Waimānalo and Kūpaua, agricultural soil modification at the Waipahu and Kuo locations, and urban landscaping in Mānoa may well have buried pre-Contact period deposits once visible.

KŪPAUA WELL ACCESS ROAD

Surface reconnaissance of the proposed access road alignment to the well site on the west bank of the Kūpaua Stream was conducted with four ARG archaeologists traversing dense underbrush over extremely rough exposed bedrock in many places. While these field methods were found adequate to cover the first four well locations, it was felt that a more intensive form of surface survey with clearing of vegetation and subsurface testing would be necessary along this access road to ascertain the true nature of several possibly modified bedrock outcrops encountered during the pedestrian reconnaissance.

Especially in the lower reaches of the project area just above the spillway (Figure 7), large boulder alignments paralleling the stream bed were found to contain many smaller cobbles creating a somewhat clear area immediately behind these probably natural terraces. The actual location of the proposed exploratory well on the west bank of the stream, however, appears to be free of this type of modification.

Given the setting of these potential features immediately above a permanent stream bed less than 1 km *mauka* of a substantial Native Hawaiian fishpond and *heiau* (McAllister 1933:70), the likelihood that the landscape was utilized in the past is quite high. The identification of more convincing cultural remains on the other side of the stream during this surface reconnaissance demonstrates the validity of this hypothesis.

STATE SITE 50-80-15-2465

This site consists of at least one modified cobble terrace wall located on the east bank of the Kūpaua Stream approximately 5 m *makai* of an alternate well location proposed to avoid crossing the stream drainage (Figure 7). The terrace itself is roughly 10 m long, and only stands some 30 cm tall, being a modification of a natural alignment of bedrock, probably to impede soil loss from downslope erosion.

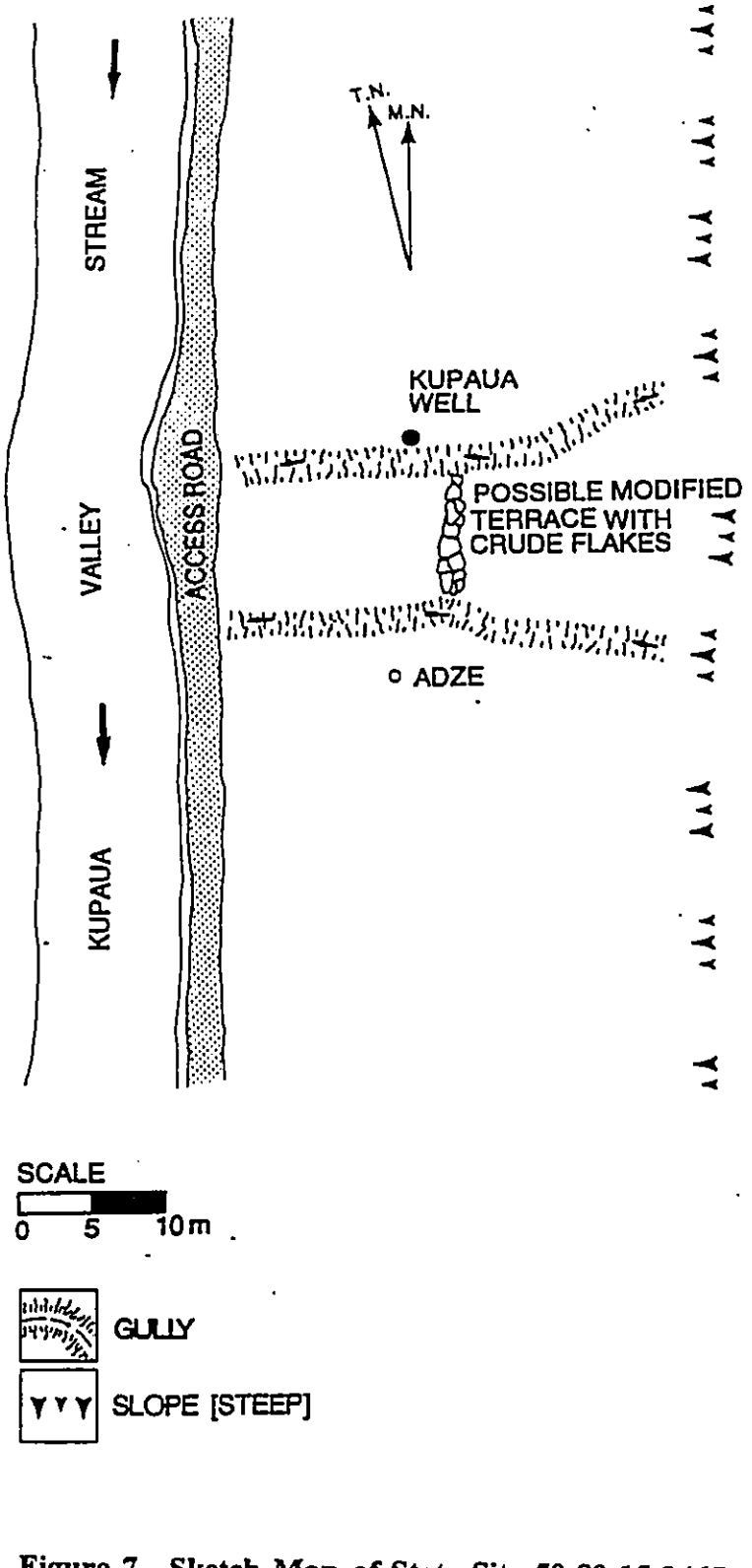

Figure 7. Sketch Map of State Site 50-80-15-2465.

Several large primary flakes of reasonable quality basalt are also located within and around the feature, although a cursory inspection of the surface (admittedly overgrown and covered with sheetwashed soil) failed to yield any smaller flakes to indicate traditional tool manufacture. This possibility was strengthened, however, by the recovery of a small polished stone adze (Figure 8) on the surface approximately 5 m *makai* of the terrace wall (Figure 7).

The issue of whether this artifact represents local use of a raw material resource would have to be resolved by basalt sourcing analysis, although the nature of the Kūpaua Valley lithic material has yet to be established (Kevin Johnson, personal communication 1992). Regardless of these analyses, however, the presence of a small polished adze, more commonly associated with wood-working, rather than forest clearing, is interesting, given its association with probable agricultural terracing. It appears likely therefore, that evidence of domestic habitation may be present in the vicinity, but more likely further up the slopes above seasonal flash floods for which the Niu Valley is known today.

CONCLUSIONS

Archaeological reconnaissance of five proposed exploratory water well locations on the island of O'ahu found four of these to contain no evidence of previous cultural remains or activities. The Waipahu III well site has been completely impacted by pineapple road construction and mechanized agriculture, as is the case for the Kuou III well site which is under banana production. The Mānoa well site, in turn, has been completely modified by landscaping associated with the construction of tennis courts adjacent to the Mānoa Elementary School. The Waimānalo III well site, on the other hand, has not been impacted by urban or commercial agricultural development, but does appear to have deforested and partially graded, both by historic ranching and more recent powerline construction.

The fifth location in the Kūpaua Valley, however, did contain artifactual and architectural evidence to suggest Native Hawaiian utilization of the area in the pre-

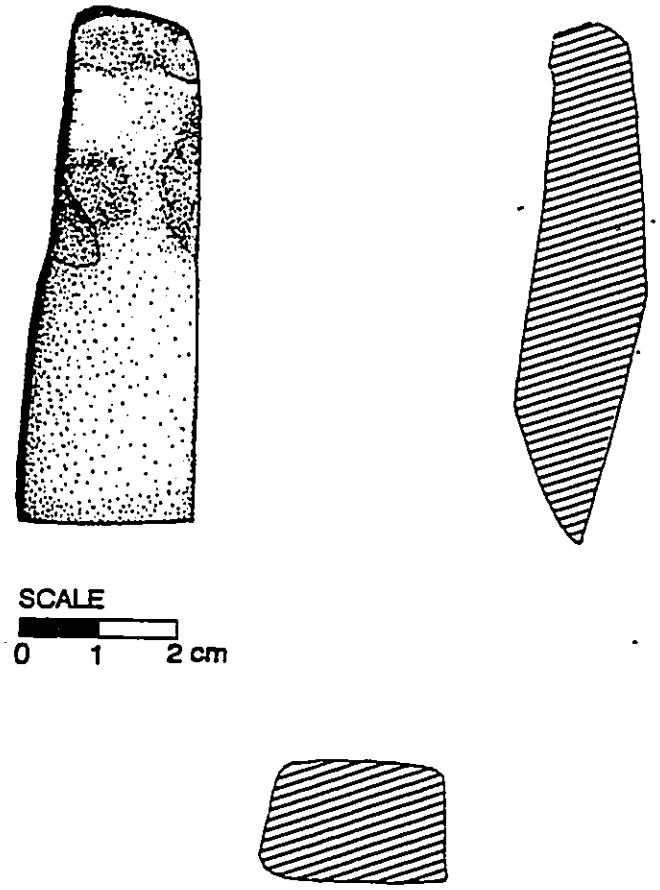

Figure 8. Stone Adze Recovered from State Site 50-80-15-2465.

or early post-Contact era. Recommended efforts to assess the nature of this occupation in Kūpaua Valley and the potential for subsurface deposits at the other four locations, are outlined below.

RECOMMENDATIONS

Given the absence of cultural remains in four of the proposed water well locations and access roads, it is recommended that an archaeological monitor be present during construction at the Waimānalo Well III, Waipahu Well III, Kuou Well III, and the Mānoa Well, if surface disturbances are minimal. This assessment can also be recommended for the well site located on the west bank of the Kūpaua Stream, if access is provided from the east bank.

The presence of positively identified cultural remains at the location of the proposed Kūpaua Well on the east bank of the stream, however, make archaeological Site 50-80-15-2465 potentially eligible to the National Register of Historic Places under Criterion D, due to its potential contribution to knowledge of past history and lifeways. The same assessment may also be the case for possible agricultural terracing located along the access road to the Kūpaua well location on the west bank of the stream. It is therefore recommended that two courses of action be undertaken to avoid negative impact to these cultural resources:

1 Access the west bank exploratory well location from across the stream bed, via the existing jeep trail.

2 Perform an Archaeological Inventory level survey of the west bank access road corridor before the route is more firmly established, to ascertain the true nature of the possible cultural remains located during the reconnaissance survey.

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1987 *Five Upland 'Ili.* Departmental Report Series, Report 87-1, Department of Anthropology, Bishop Museum, Honolulu.

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McMahon, Nancy
1988 Archaeological Reconnaissance Survey of a Five-Acre Parcel in Niu Valley, O'ahu Island, Hawai'i, TMK 3-07-04:19 and Por. 1 and 12. MS on file, Anthropology Department, Bishop Museum, Honolulu.

State Historic Preservation Division
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Sterling, Elspeth, and Catherine Summers
1978 *Sites of Oahu.* Honolulu: Bishop Museum Press.

BOTANIST'S REPORT

by

Dr. Loyal A. Mehrhoff
Department of Botany
Bishop Museum

Detailed Observations of Vegetation

Summary. Construction of water wells and attendant road systems does not appear to impact on any endangered or rare plant populations. The Hawaii Heritage Program's data base on the location of rare or endangered plants was searched in order to determine historical distributions of rare species. Only the Kupaua and Waimanalo Well Sites were located near know locations of rare plants. Field surveys of all sites were conducted to determine the present status of vegetation at the sites. None of the five proposed well sites have intact or high quality native ecosystems. In fact, the vegetation at four of the sites is composed entirely of alien plants. Only the Kupaua Well site has any native vegetation and this is composed entirely of scattered individual plants. Of the five native species found at this site, only two are endemic and neither of these are considered rare or endangered.

1. **Proposed Manoa Well [TMK 2-9-36]** is located entirely on a grassy lawn in a residential area of Manoa Valley. THERE ARE NO NATIVE PLANT COMMUNITIES WHICH COULD BE NEGATIVELY IMPACTED BY WELL CONSTRUCTION.

2. **Proposed Waimanalo Well III [TMK 4-1-11]** is located in a forest of alien weed trees. The dominant species are *Eucalyptus* sp., *Leucaena leucephala*, and *Rivina humilis*. Two species or rare plants are known from the vicinity or this well site; *Nesoluma polynesicum* and *Vigna o-wahuensis*. Neither species was observed in the area. THERE ARE NO NATIVE PLANT COMMUNITIES WHICH COULD BE NEGATIVELY IMPACTED BY WELL CONSTRUCTION.

3. **Proposed Waipahu Well III** is located in an existing agricultural field. No native plants were observed and there are no rare plants known from the area. THERE ARE NO NATIVE PLANT COMMUNITIES WHICH COULD BE NEGATIVELY IMPACTED BY WELL CONSTRUCTION.

4. **Proposed Kuou Well III [TMK 4-5-41]** is located in an existing banana plantation. No native plants were observed and there are no rare plants known from the area. THERE ARE NO NATIVE PLANT COMMUNITIES WHICH COULD BE NEGATIVELY IMPACTED BY WELL CONSTRUCTION.

5. **Proposed Kupaua Well [TMK 3-7-04:01]** is located in Niu Valley above existing residential areas. Niu Valley is one of the most famous collecting localities on Oahu. Many of the early Hawaiian botanists visited this valley so there is a good record of the vegetation present in the 1800's. The Hawaii Heritage Program data base has records from Niu Valley for 14 rare plants; *Bonamia menziesii, Cyanea grimesiana* ssp. *grimesiana, Eurya sandwicensis, Ctenitis squamigera, Tetraplasandra gymnocarpa, Delissea subcordata, Exocarpos gaudichaudii, Chamaesyce celastroides* var. *kaenana, Joinvillea ascendens* ssp. *ascendens, Lobelia monostachya, Phyllostegia parviflora* var. *parviflora, Rollandia lanceolata* ssp. *calycina, Melicope saint-johnii,* and *Schiedea nuttallii*. However, the current vegetation has only a few native plants, with the site dominated by alien weeds such as; *Leucaena leucephala, Schinus terebinthifolius, Asystasia gangetica,* and *Panicum maximum*. Four native species were observed; *Dodonaea viscosa* (a few scattered plants), *Sida fallax* (a small area with 20 to 30 plants), *Lipochaeta lobata* ssp. *lobata* (25 to 50 plants at the base of the cliffs), and *Erythrina sandwicensis* (several plants along the existing road on the east side of the creek). None of these species is considered rare or endangered and only the *Erythrina sandwicensis* should have special consideration (destruction of individual trees should be avoided). IT DOES NOT APPEAR THAT WELL CONSTRUCTION WOULD NEGATIVELY IMPACTED ON EITHER RARE PLANTS OR NATIVE PLANT COMMUNITIES.

AGENCIES' REVIEWS

AND

RESPONSES

Agencies' Reviews and Responses

(Agency) State of Hawaii Office of Environmental Quality Control	May 19, 1993
(Response) Board of Water Supply Office of Environmental Quality Control Brian J. J. Choy, Director	June 10, 1993
(Agency) City & County of Honolulu Dept. of Public Works	May 19, 1993
(Response) Board of Water Supply Dept. of Public Works C. Michael Street, Director & Chief Engineer	June 10, 1993
(Agency) City & County of Honolulu Planning Dept.	June 7, 1993
(Response) Board of Water Supply Planning Dept. Robin Foster, Chief Planning Officer	June 18, 1993
(Agency) City & County of Honolulu Dept. of Parks & Recreation	June 7, 1993
(Response) Board of Water Supply Dept. of Parks & Recreation Walter M. Ozawa, Director	June 22, 1993
(Agency) City & County of Honolulu Dept. of Land Utilization	June 10, 1993
(Response) Board of Water Supply Dept. of Land Utilization Donald A. Clegg, Director	July 8, 1993
(Agency) State of Hawaii Dept. of Health	June 30, 1993
(Response) Board of Water Supply Dept. of Health John C. Lewin, M.D., Director	September 3, 1993

Agencies' Reviews and Responses (cont'd)

Native Hawaiian Advisory Council	July 8, 1993
(Response) Board of Water Supply Native Hawaiian Advisory Council David L. Martin, Water Claims Manager	October 8, 1993
(Agency) State of Hawaii Dept. of Land & Natural Resources	July 15, 1993
(Response) Board of Water Supply Dept. of Land & Natural Resources Keith W. Ahue, Chairperson	August 2, 1993
(Agency) State of Hawaii Dept. of Land & Natural Resources	August 4, 1993
(Response) Board of Water Supply Dept. of Land & Natural Resources Keith W. Ahue, Chairperson	August 25, 1993
Bishop Museum letter to Maguire Group (A. Reed)	August 11, 1993
(Agency) State of Hawaii Dept. of Land & Natural Resources *(including memos)*	September 7, 1993
(Response) Board of Water Supply Dept. of Land & Natural Resources Don Horiuchi, Staff Planner	October 8, 1993

P-247/93

JOHN WAIHEE
GOVERNOR

BRIAN J. J. CHOY
Director

STATE OF HAWAII
OFFICE OF ENVIRONMENTAL QUALITY CONTROL
220 SOUTH KING STREET
FOURTH FLOOR
HONOLULU, HAWAII 96813
TELEPHONE (808) 586-4185

May 19, 1993

Mr. Kazu Hayashida
Manager and Chief Engineer
Board of Water Supply
City and County of Honolulu
630 South Beretania Street
Honolulu, Hawaii 96843

Attention: Mr. Roy Doi

Dear Mr. Hayashida:

Subject: Draft Environmental Assessment for the Proposed Kuou III Exploratory Well Project, TMK: 4-5-41: 11, Kaneohe, Oahu

Thank you for the opportunity to review the subject document. We have the following comments.

Please consult with the agencies listed below:

1. Department of Land and Natural Resources, Office of Conservation and Environmental Affairs regarding the Conservation District Use Permit;

2. Department of Land and Natural Resources, Commission on Water Resource Management relating to the Well Drilling and Water Use Permits; and

3. Department of Health, Clean Water Branch concerning the National Pollutant Discharge Elimination System Permit.

If you have any questions, please call Jeyan Thirugnanam at 586-4185.

Sincerely,

Brian J. J. Choy

Brian J. J. Choy
Director

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

June 10, 1993

Mr. Brian J. J. Choy
Director
State of Hawaii
Office of Environmental Quality Control
220 South King Street, Fourth Floor
Honolulu, Hawaii 96813

Dear Mr. Choy:

Subject: Your Letter of May 19, 1993 Regarding the Draft Environmental Assessment (EA) for the Proposed Kuou III Exploratory Well Project, TMK: 4-5-41: 11, Kaneohe, Oahu

Thank you for reviewing the Draft EA for our proposed project. We have the following response to your comments:

1. The Draft EA is currently being reviewed by the Department of Land and Natural Resources (DLNR) and the Department of Health (DOH). Their comments will be included in the final EA.

2. We understand that DLNR Conservation District Use Application, Well Drilling and Water Use permits and a DOH National Pollutant Discharge Elimination System permit for hydrotesting will be required.

If you have any questions, please contact Roy Doi at 527-5235.

Very truly yours,

KAZU HAYASHIDA
Manager and Chief Engineer

OM.

931331

DEPARTMENT OF PUBLIC WORKS

CITY AND COUNTY OF HONOLULU

650 SOUTH KING STREET
HONOLULU, HAWAII 96813

FRANK F. FASI
MAYOR

C. MICHAEL STREET
DIRECTOR AND CHIEF ENGINEER

FELIX B. LIMTIACO
DEPUTY DIRECTOR

ENV 93-122

May 19, 1993

MEMORANDUM

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

FROM: C. MICHAEL STREET, DIRECTOR AND CHIEF ENGINEER

SUBJECT: DRAFT ENVIRONMENTAL ASSESSMENT (DEA)
KUOU III EXPLORATORY WELL PROJECT
TMK:4-5-41:11

We have reviewed the subject DEA and have the following comments:

1. We have no objection to the proposed project.

2. The DEA should address the potential impact on storm water discharge associated with construction activities on water quality of the receiving waters.

Should you have any questions, please contact Mr. Alex Ho, Environmental Engineer, at 523-4150.

C. Michael Street

C. MICHAEL STREET
Director and Chief Engineer

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

June 10, 1993

TO: C. MICHAEL STREET, DIRECTOR AND CHIEF ENGINEER
DEPARTMENT OF PUBLIC WORKS

FROM: KAZU HAYASHIDA, MANAGER AND CHIEF ENGINEER
BOARD OF WATER SUPPLY

SUBJECT: YOUR MEMORANDUM OF MAY 19, 1993 REGARDING THE DRAFT ENVIRONMENTAL ASSESSMENT (EA) FOR THE PROPOSED KUOU III EXPLORATORY WELL PROJECT, TMK: 4-5-41: 11, KANEOHE

Thank you for reviewing the Draft EA for our proposed project. We have the following response to your comments:

1. We note that you have no objections to the proposed project.

2. The stormwater runoff associated with construction activity will have little impact because the graded area is approximately 6,500 square feet. The contractor will incorporate structural measures, such as swales and berms or a settling basin, to retain silt laden runoff on the project site. The total project area is less than one acre and, therefore, will not require a National Pollutant Discharge Elimination System (NPDES) permit for stormwater runoff associated with construction activity nor an Erosion Control Plan.

If you have any questions, please contact Roy Doi at 527-5235.

P

PLANNING DEPARTMENT

CITY AND COUNTY OF HONOLULU

650 SOUTH KING STREET
HONOLULU, HAWAII 96813

Jun 9 3 30 PM '93

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FRANK F. FASI
MAYOR

ROBIN FOSTER
CHIEF PLANNING OFFICER

ROLAND D. LIBBY, JR.
DEPUTY CHIEF PLANNING OFFICER

MM 5/93-1254

June 7, 1993

PE

MEMORANDUM

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

FROM: ROBIN FOSTER, CHIEF PLANNING OFFICER
PLANNING DEPARTMENT

SUBJECT: DRAFT ENVIRONMENTAL ASSESSMENT (EA) FOR THE PROPOSED KUOU III EXPLORATORY WELL PROJECT, TAX MAP KEY: 4-5-41: 11, KANEOHE, OAHU

We have reviewed the subject Draft EA for the Kuou Exploratory Well and have the following comments to offer:

1. The Project Description on page 4 states that the Development Plan Land Use designation is P-1. This should be corrected to indicate that the subject site is designated for Park use on the Koolaupoko Development Plan Land Use Map and that the zoning is P-1 Preservation District.

2. The proposal is consistent to the Koolaupoko Development Plan Public Facilities Map which shows a symbol for a Well, site determined, within six years.

Thank you for the opportunity to comment. Should you have any questions, please contact Mel Murakami of our staff at 527-6020.

Robin Foster

ROBIN FOSTER
Chief Planning Officer

RF:js

ow

BOARD OF WATER SUPPLY

CITY AND COUNTY OF HONOLULU

630 SOUTH BERETANIA STREET

HONOLULU, HAWAII 96843

June 18, 1993

TO: ROBIN FOSTER, CHIEF PLANNING OFFICER
PLANNING DEPARTMENT

FROM: KAZU HAYASHIDA, MANAGER AND CHIEF ENGINEER
BOARD OF WATER SUPPLY

SUBJECT: YOUR MEMORANDUM OF JUNE 7, 1993 REGARDING THE DRAFT ENVIRONMENTAL ASSESSMENT (EA) FOR THE PROPOSED KUOU III EXPLORATORY WELL PROJECT, TMK: 4-5-41: 11, KANEOHE

Thank you for reviewing the Draft EA for our proposed project. We will indicate in the final EA that the project site is designated for Park use on the Koolaupoko Development Plan Land Use Map and that the zoning is P-1 Preservation District.

If you have any questions, please contact Roy Doi at 527-5235.

DEPARTMENT OF PARKS AND RECREATION

CITY AND COUNTY OF HONOLULU

931467

650 SOUTH KING STREET
HONOLULU, HAWAII 96813

RECEIVED
BOARD OF WATER SUPPLY
Jun 8 11 43 AM '93

FRANK F. FASI
MAYOR

WALTER M. OZAWA
DIRECTOR

ALVIN K.C. AU
DEPUTY DIRECTOR

June 7, 1993

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

FROM: WALTER M. OZAWA, DIRECTOR

SUBJECT: DRAFT ENVIRONMENTAL ASSESSMENT FOR THE PROPOSED KUOU III EXPLORATORY WELL PROJECT
KANEOHE, OAHU, HAWAII
TAX MAP KEY 4-5-41: 11

We have reviewed the draft environmental assessment for the subject project and have no objections to the project.

Thank you for the opportunity to review this project.

For WALTER M. OZAWA, Director

WMO:ei

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

June 22, 1993

TO: WALTER M. OZAWA, DIRECTOR
DEPARTMENT OF PARKS AND RECREATION

FROM: KAZU HAYASHIDA, MANAGER AND CHIEF ENGINEER
BOARD OF WATER SUPPLY

SUBJECT: YOUR MEMORANDUM OF JUNE 7, 1993 REGARDING THE DRAFT ENVIRONMENTAL ASSESSMENT (EA) FOR THE PROPOSED KUOU III EXPLORATORY WELL PROJECT, TMK: 4-5-41: 11, KANEOHE

Thank you for reviewing the Draft EA for our proposed project. We have the following response to your comments:

1. We note that you have no objections to the proposed project.

2. The contractor will apply for a park right-of-entry permit prior to construction.

If you have any questions, please contact Roy Doi at 527-5235.

931571

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

JUN 13 11 40 AM '93

FRANK F. FASI
MAYOR

DONALD A. CLEGG
DIRECTOR

LORETTA K.C. CHEE
DEPUTY DIRECTOR

93-03633 (DT)

June 10, 1993

MEMORANDUM

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

FROM: DONALD A. CLEGG, DIRECTOR

SUBJECT: DRAFT ENVIRONMENTAL ASSESSMENTS (DEA) FOR KUOU III AND MANOA IV EXPLORATORY WELL PROJECTS
TAX MAP KEYS: 4-5-41: 11 AND 2-9-36: 3

We have reviewed the above-described DEAs to drill exploratory wells in the Kaneohe and Manoa Valley areas. The proposed wells will determine the yield and quality of water supplies which may be withdrawn from these two locations. We have no comments to offer at this time. Thank you for the opportunity to review these project proposals.

Loretta Chee

DONALD A. CLEGG
Director of Land Utilization

DAC:ak

9303633.djt

BOARD OF WATER SUPPLY

CITY AND COUNTY OF HONOLULU

630 SOUTH BERETANIA STREET

HONOLULU, HAWAII 96843

July 8, 1993

TO: DONALD A. CLEGG, DIRECTOR
DEPARTMENT OF LAND UTILIZATION

FROM: KAZU HAYASHIDA, MANAGER AND CHIEF ENGINEER
BOARD OF WATER SUPPLY

SUBJECT: YOUR MEMORANDUM OF JUNE 10, 1993 REGARDING THE DRAFT ENVIRONMENTAL ASSESSMENTS (EA) FOR THE PROPOSED KUOU III AND MANOA IV EXPLORATORY WELL PROJECTS, TMK: 4-5-41: 11 AND 2-9-36: 3

Thank you for reviewing the Draft EA for our proposed exploratory well projects.

We acknowledge you have no comments at this time.

If you have any questions, please contact Roy Doi at 527-5235.

931758

JOHN WAIHEE
GOVERNOR OF HAWAII

JOHN C. LEWIN, M.D.
DIRECTOR OF HEALTH

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

In reply, please refer to:

June 30, 1993

93-150/epo

Mr. Kazu Hayashida
Manager & Chief Engineer
Board of Water Supply
City & County of Honolulu
630 South Beretania Street
Honolulu, Hawaii 96843

Dear Mr. Hayashida:

Subject: Draft Environmental Assessment for the Proposed Kuou III Exploratory Well Project
Kaneohe, Oahu
TMK: 4-5-41: 11

Thank you for allowing us to review and comment on the subject project. We do not have any comments to offer at this time.

Very truly yours,

JOHN C. LEWIN, M.D.
Director of Health

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

September 3, 1993

John C. Lewin, M.D.
Director
State Department of Health
P. O. Box 3378
Honolulu, Hawaii 96801

Dear Dr. Lewin:

Subject: Your Letter of June 30, 1993 Regarding the Draft Environmental Assessments for our Proposed Kuou III, TMK: 4-5-41:11, and Manoa IV, TMK: 2-9-36: 3, Exploratory Well Projects

Thank you for reviewing and responding to our draft environmental assessments for our proposed exploratory well projects.

We note you have no comments at this time. If the test pump results are favorable to construct permanent well facilities, we will comply with all Department of Health requirements.

If you have any questions, please contact Roy Doi at 527-5235.

Very truly yours,

KAZU HAYASHIDA
Manager and Chief Engineer

931837

RECEIVED
BD OF WATER SUPPLY
JUL 12 3 28 PM '93

NATIVE HAWAIIAN ADVISORY COUNCIL
A NONPROFIT CORPORATION
1088 Bishop Street, Suite 1204, Honolulu, Hawaii 96813
Telephone (808) 523-1445
Facsimile (808) 599-4380

1993 July 8

TO: Honolulu Board of Water Supply

RE: Draft Environmental Assessment [DEA] for an Exploratory Well and Access Road at Kuou Well Site III, Oahu, Hawaii

GENERAL COMMENTS

Does BWS intend to prepare another EA for its Production Well at Kuou Well Site III? Will this EA address a broad range of environmental impacts stemming from both the general allocation of water to BWS from the Koolaupoko Ground Water Management Area and the specifics of extracting that allocation from the aquifer at the proposed site? Since BWS already applied to the Commission on Water Resource Management (COWRM) for a Water Use Permit, we objected to that application on the grounds that the environmental review process for the allocation has not been completed. We object to this DEA because it fails to address the allocation and extraction impacts in the comprehensive manner required to inform COWRM water use permit decisionmaking. Also note that COWRM has recently taken a position that permit applications are not complete and cannot be taken up for decisionmaking until environmental review processes are completed.

There is huge confusion and problems with the current timing, sequence, and coordination of environmental review processes for both exploratory and production wells (including HRS 343 processes, Conservation district use permitting, and DOH processes) and COWRM permitting processes (water use, well construction, and pump installation). The DEA should explain the BWS view and those of other agencies concerning the timing, sequence, and coordination of these processes. This would provide a starting point for working with all parties to integrate the processes for the greatest mutual benefit.

SPECIFIC COMMENTS

Page 3. DLNR does not issue a "Well Drilling Permit." The correct terminology is "Well Construction Permit" and Pump Installation Permit."

It also seems that Section 401 Water Quality Certification from DOH would be required, as well as County grading permits.

Pages 2 & 5. Since BWS has already applied for a water use permit from COWRM, the Project Description (page 2) and Proposed

Facilities and Activities (page 5) should mention the quantity of water requested by BWS for extraction by the proposed facility, rather than hiding this important information under Need for the Project (page 7). The DEA should also tabulate the sustainable yield, existing uses, allocated uses, and pending allocations in the Ko'olaupoko Ground Water Management Area.

Page 7. Alternatives to expanded use of potable groundwater also include:

1. Reduction of existing uses (consume less for the same purposes)

2. Reduction or stabilization of existing demands [eliminating use of potable water where brackish water or untreated wastewater (such as domestic grey water and stormwater) would suffice]

3. Conservation of existing uses (increasing system efficiencies)

We believe that the assessment and evaluation of alternatives is incomplete in both the range of alternatives examined and the sophistication of the analysis of cost/benefit and other trade-offs.

Page 8. What is the shortest linear distance from the well site to the stream bed? What is the change in elevation along this line? What is the estimated water table elevation at the well site? What is known about the gaining or losing nature of Kuou stream? What are the results of any seepage runs or other streamflow measurement conducted by USGS or others?

Page 12. Can BWS guarantee that the proposed source would always be used to meet the needs of the Windward Water District rather than the needs of other districts?

Page 13. Absent a County grading permit and associated mandatory erosion control measures, what are the specific efforts that will be made to minimize soil disturbance during construction?

Why can't revegetation begin concurrent with installation and testing work rather than after completion?

Page 14. Please quantify the "minor impacts on water table elevations" and insignificant "reduction of flows in the Kuou stream" caused by the existing Kuou Well I and II.

Page 16. See previous comments on inadequacy of assessment of alternative sources (page 7).

Page iii. The biologist preparing the report should be identified.

Mahalo

David L. Martin

David L. Martin, Water Claims Manager

pc: Maguire Group Inc.
OEQC
Office of the Governor
Water Commission and Commissioners
Water Code Review Commission and Commissioners
DOH (Environmental Planning)
DLNR OCEA
UH Environmental Center
BLNR members
Sierra Club Legal Defense Fund
Native Hawaiian Legal Corp.
Ka Lahui Hawai'i
Office of Hawaiian Affairs

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

October 8, 1993

Mr. David L. Martin
Water Claims Manager
Native Hawaiian Advisory Council
1088 Bishop Street, Suite 1204
Honolulu, Hawaii 96813

Dear Mr. Martin:

Subject: Your Letter of July 8, 1993 Regarding the Draft Environmental Assessment (DEA) for the Proposed Kuou III Exploratory Well Project, TMK: 4-5-41: 11, Kaneohe, Oahu

Thank you for reviewing the DEA for our proposed project. We have the following response to your comments:

General Comments:

1. If we decide to develop the exploratory well for the production of potable water, a separate EA will be prepared for the project to address the related environmental impacts.

2. We would support and welcome participation in any efforts to coordinate the permitting and environmental review processes for exploratory and production wells.

Specific Comments:

1. Page 3: The correct terminology, Well Construction Permit, will be incorporated into the final EA. Section 401 Water Quality Certification is not required for the project as stream channel work requiring a Department of Army permit is not proposed. Our contractor will be obtaining the necessary County grading permits prior to construction. Grading will be minimal as access to the project site is via an existing unimproved road within the banana patch.

2. Pages 2 and 5: We agree that the potential benefit of the proposed exploratory well should be more prominent in the EA. The estimated potential yield of 1.0 million gallons per day (mgd) will be added to Page 1, Section 1.4, Project Objectives and Background. The information regarding the Koolaupoko Groundwater Management Area is best obtained from the Commission on Water Resource Management which controls all water withdrawals from this area. The groundwater management area does not coincide with the Board of Water Supply (BWS) Windward Water District and we can only provide information pertaining to our resources and requirements. For your information, the 12-month moving average for BWS pumpage in the Windward area, from Hauula to Waimanalo, is 22.22 mgd as of August 1993. Our tabulation indicates a current commitment of 0.8 mgd for this area.

3. Page 7: We continue to pursue water conservation, water reclamation and best management practices for improvements in water system efficiencies as alternatives to the expanded use of potable groundwater. However, at the present time, these and the other alternative sources specified in the EA do not offer the potential to economically or cost-effectively produce water supplies of the quality which can be obtained through an effective groundwater development program. An expanded range of alternatives and a more sophisticated analysis of the related costs and benefits will be included in the EA for the pump station facility at the Kuou III site, which will be proposed for development only if the exploratory well is successful.

4. Page 8: The shortest linear distance from the well site to the stream bed is approximately 1,000 feet. The change in elevation along this line is approximately 30 feet. the water table elevation at the well site will be determined after the well is drilled and cased. Kuou stream is of a losing rather than

gaining nature. Stream flow measurements were not conducted by the U. S. Geological Survey for the BWS during the test pumping of the Kuou II exploratory well since there was no visible flow.

5. Page 12: This well project is being developed to meet the anticipated needs of various water users within our system. The BWS' goal is to integrate our sources to provide system flexibility and reliable, high quality water service to all customers. Water from the proposed source would first be used to meet the needs of consumers in the Windward district. Water in excess of this need would then be available for consumers in other areas.

6. Page 13: The area of disturbance is less than 15,000 square feet and neither a National Pollutant Discharge Elimination System permit or Erosion Control Plan is required. However, soil disturbance will be minimized by restricting clearing and grading operations to the minimum area required for the construction. The contractor will incorporate measures to retain stormwater runoff on the project site through the use of swales and berms. Revegetation will begin as soon as practical following the soil disturbance.

7. Page 14: Kuou Wells I and II were drilled in 1955 and 1986 respectively. The lack of reliable data prior to the Kuou Well drillings and the continuous fluctuation of stream flows make it difficult to precisely quantify the impact of the existing wells. Grouted well casings several hundred feet deep tapped lower horizons which are not hydraulically connected to the higher horizons because of impermeable layers. The water levels within the wells were substantially below the stream elevation and no measurable effect on stream flows was observed.

8. Page iii: The biologist's report was prepared by Dr. Loyal A. Mehrhoff of the Bishop Museum's Department of Botany.

If you have any questions, please contact Roy Doi at 527-5235.

Very truly yours,

KAZU HAYASHIDA
Manager and Chief Engineer

931910

JOHN WAIHEE
GOVERNOR OF HAWAII

Keith W. Ahue, Chairperson
BOARD OF LAND AND NATURAL RESOURCES

DEPUTIES
John P. Keppeler, II
Dona L. Hanaike

AQUACULTURE DEVELOPMENT PROGRAM
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CONSERVATION AND ENVIRONMENTAL AFFAIRS
CONSERVATION AND RESOURCES ENFORCEMENT
CONVEYANCES
FORESTRY AND WILDLIFE
HISTORIC PRESERVATION PROGRAM
LAND MANAGEMENT
STATE PARKS
WATER AND LAND DEVELOPMENT

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

REF:OCEA:KCK

JUL 15 1993

File No.: 93-655
DOC. ID.: 3115

PE

The Honorable Kazu Hayashida
Manager and Chief Engineer
Board of Water Supply
City and County of Honolulu
630 South Beretania Street
Honolulu, Hawaii 96813

Dear Mr. Hayashida:

Subject: Draft Environmental Assessment (DEA) for the Proposed Kuou III Exploratory Well Project, Kaneohe, Oahu, TMK: 4-5-41: 11

We have reviewed the DEA information for the proposed exploratory well project transmitted by your letter dated May 14, 1993, and have the following comments:

Office of Conservation and Environmental Affairs

The Office of Conservation and Environmental Affairs (OCEA) comments that the Final EA should indicate that subject well site is located within the General "G" subzone of the State Land Use Conservation District. A map illustrating the location of the exploratory well with respect to the Conservation District Boundaries should also be included.

OCEA confirms that a Conservation District Use Permit (CDUP) is required for the subject activity within the Conservation District pursuant to the Conservation District Rules (Rules), Title 13, Chapter 2, Hawaii Administrative Rules.

Division of Aquatic Resources

The Division of Aquatic Resources (DAR) comments that the well will access dike water and is not expected to affect stream flows if converted to production. Kuou Stream feeds the Hoomaluhia flood control reservior and does not harbor amphidromous native stream species, the migratory patterns of which have been blocked by the peculiar design of the reservoir spillway.

It is likely that significant aquatic invertebrate fauna exists, but no surveys for these species have been performed. The stream is fed by runoff and ground water from the dike system, which suggests that stream flows could be reduced by an operational well. Two other wells near Kuou have not reduced flows in the stream.

The BOWS has agreed to contract with the U.S. Geological Survey to gauge stream flow before, during, and after the pump tests, to determine whether instream flows have been affected. If the flows are in fact reduced, the BOWS will petition the Commission on Water Resource Management (CWRM) to amend the instream flow standard for Kuou Stream. DAR would like to emphasize that even though Kuou Stream no longer provides habitat for native fishes, it could still be vitally important for damselflies and other biologically significant native invertebrate species.

If the pump tests show a reduction in stream flows, the BOWS should be prepared to conduct a thorough biological reconnaissance survey of the stream before petitioning the CWRM for an amendment to the instream flow standard.

Division of Land Management

The Division of Land Management comments that they have no objections to the project provided that the applicant obtain the necessary Federal, State, and County permits for the project.

We will forward our Historic Preservation Division comments as they become available.

We have no other comments to offer at this time. Thank you for the opportunity to comment on this matter.

Please feel free to call Steve Tagawa at our Office of Conservation and Environmental Affairs, at 587-0377, should you have any questions.

Very truly yours,

KEITH W. AHUE

BOARD OF WATER SUPPLY

CITY AND COUNTY OF HONOLULU

630 SOUTH BERETANIA STREET

HONOLULU, HAWAII 96843

August 2, 1993

Mr. Keith W. Ahue, Chairperson
Department of Land and Natural
Resources
State of Hawaii
P. O. Box 621
Honolulu, Hawaii 96809

Dear Mr. Ahue:

Subject: Your Letter of July 15, 1993 Regarding the Draft Environmental Assessment (EA) for the Proposed Kuou III Exploratory Well Project, TMK: 4-5-41: 11, Kaneohe, Oahu

Thank you for reviewing the draft EA for our proposed project. We have the following response to your comments:

1. The final EA will indicate that the well site is located within the General "G" subzone of the State Land Use Conservation District. A map illustrating the location of the exploratory well site with respect to the Conservation District boundaries will be included.

2. The application for a Conservation District Use Permit for the exploratory well drilling has been filed.

3. Your comments regarding the Kuou Stream habitat are noted. If we decide to develop the well for the production of potable water and require an amendment to the interim instream flow standards for Kuou Stream, we will be prepared to meet the petition requirements of the Commission on Water Resource Management.

4. The necessary Federal, State, and County permits for the project will be obtained.

If you have any questions, please contact Roy Doi at 527-5235.

Very truly yours,

KAZU HAYASHIDA
Manager and Chief Engineer

JOHN WAIHEE
GOVERNOR OF HAWAII

93249

KEITH W. AHUE, CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES

DEPUTIES
JOHN P. KEPPELER, II
DONA L. HANAIKE

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES

P. O. BOX 621
HONOLULU, HAWAII 96809

AQUACULTURE DEVELOPMENT PROGRAM
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CONSERVATION AND RESOURCES ENFORCEMENT
CONVEYANCES
FORESTRY AND WILDLIFE
HISTORIC PRESERVATION
LAND MANAGEMENT
STATE PARKS
WATER AND LAND DEVELOPMENT

REF:OCEA:SKB

AUG 4 1993

File No.: 93-655a
DOC. ID.: 3211

Dep'g.
PE

The Honorable Kazu Hayashida
Manager and Chief Engineer
Board of Water Supply
City and County of Honolulu
630 South Beretania Street
Honolulu, Hawaii 96813

Dear Mr. Hayashida:

Subject: Draft Environmental Assessment (DEA) for the Proposed Kuou III Exploratory Well Project, Kaneohe, Oahu, TMK: 4-5-41: 11

The following are our Commission on Water Resource Management (CWRM) and Historic Preservation Division's (HPD) comments on the subject project which supplement those forwarded in our previous letter dated July 15, 1993.

Commission on Water Resource Management

Though the present project contemplates the drilling of an exploratory well alone, with no intention of subsequently placing the well into production, the location of the well within a water management area requires that the Honolulu Board of Water Supply first apply for a Water Use Permit as well as a Well Construction Permit before proceeding with the project. This step would conform to the State CWRM's established procedures relating to the construction of wells within designated water management areas.

Historic Preservation Division

The archaeological reconnaissance survey report attached to the DEA reports that no historic sites were found at this proposed well site. The report does not explain why historic sites are apparently absent at this location. We require an explanation before we can determine the potential effect of this project on historic sites. Perhaps the easiest way to accomplish this would be to have the field archaeologist write us a letter explaining more completely the circumstances in the field that led to the conclusion that no sites are present.

We have no other comments to offer at this time. Thank you for the opportunity to comment on this matter.

Please feel free to call Steve Tagawa at our Office of Conservation and Environmental Affairs, at 587-0377, should you have any questions.

Very truly yours,

John P. Keppeler II

for KEITH W. AHUE

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

August 25, 1993

Mr. Keith W. Ahue, Chairperson
Department of Land and Natural Resources
State of Hawaii
P. O. Box 621
Honolulu, Hawaii 96809

Dear Mr. Ahue:

Subject: Your Letter of August 4, 1993 Regarding the Draft Environmental Assessment (EA) for the Proposed Kuou III Exploratory Well Project, TMK: 4-5-41: 11, Kaneohe, Oahu

Thank you for reviewing the Draft EA for our proposed project. We have the following response to your comments:

1. Applications for Water Use and Well Construction Permits for the exploratory well drilling have been filed.

2. The comments of the Historic Preservation Division were forwarded to the field archaeologist. Their response is attached and will be included with your letter and this reply in the Final EA.

If you have any questions, please contact Roy Doi at 527-5235.

Very truly yours,

KAZU HAYASHIDA
Manager and Chief Engineer

BISHOP MUSEUM CELEBRATING A CENTURY OF DISCOVERY

August 11, 1993

Attn: Al Reed
Maguire Group, Inc.
Architects/Engineers/Planners
1600 Kapi'olani Blvd.
Honolulu, HI 96814

SUBJECT: Archaeological Reconnaissance of Kuou III Well Site, Kaneohe, O'ahu Island

Dear Al:

I am writing in response to the DLNR letter to the Board of Water Supply dated 8/4/93 questioning the conclusion that there were "no historic sites" encountered at the Kuou Well III site in Kaneohe.

Before conducting the archaeological reconnaissance of the project area in October of 1992, Bishop Museum archaeologists reviewed current archaeological literature in the SHPD office and in Museum Anthropology Department files to assure that no known historic or archaeological sites were located in the immediate vicinity. No such evidence was revealed for the Kuou Well III site or any of the other four well sites visited.

A field reconnaissance involving four Bishop Museum staff archaeologists was then conducted on the property located at the end of a banana field access road in Ho'omaluhia Park, immediately *ma kai* of the new H-3 Highway right-of-way. No remains of either pre-Contact Native Hawaiian or historic period refuse or architecture was observed at the proposed well site or on the access road leading into the location. Presumably, mechanized clearing and plowing of the area for banana planting had altered the landscape as we see it today. But the total absence of any surface remains such as either basalt flakes or bottle glass and ceramic sherds indicates that no domestic use of the area is likely in the past. Possible use of the area for Native Hawaiian agriculture is conceivable given the results of archaeological research in the Luluku area further upslope, but no evidence of terrace systems was noted in this portion of the park.

If there is some reason to believe that an historic site did indeed exist in this exact location at some time in the past, then it is recommended that one of two following courses of action be undertaken:

The State Museum of Natural and Cultural History
1525 Bernice Street • P.O. Box 19000A • Honolulu, Hawai'i • 96817-0916
Telephone: (808) 847-3511 • Fax: (808) 841-8968

1) conduct an archaeological inventory survey in the form of subsurface testing

2) have a qualified archaeologist present to monitor well pad construction activities

In either case, the Bishop Museum would be happy to provide this service to the Maguire Group. Please feel free to contact me at 847-8279 if you or DLNR has any further questions regarding the archaeological reconnaissance conducted last year.

Mahalo nui loa,

Boyd Dixon

Dr. Boyd Dixon
Supervising Archaeologist
Anthropology Department
Bishop Museum
1525 Bernice St.
Honolulu, HI 96817

JOHN WAIHEE
GOVERNOR OF HAWAII
BD OF WATER SUPPLY

SEP 10 11 04 AM '93

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

KEITH W. AHUE, CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES

J32611

DEPUTIES
JOHN P. KEPPELER II
DONA L. HANAIKE

AQUACULTURE DEVELOPMENT PROGRAM
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CONSERVATION AND ENVIRONMENTAL AFFAIRS
CONSERVATION AND RESOURCES ENFORCEMENT
CONVEYANCES
FORESTRY AND WILDLIFE
HISTORIC PRESERVATION
LAND MANAGEMENT
STATE PARKS
WATER AND LAND DEVELOPMENT

File No.: OA-2650

September 7, 1993

Board of Water Supply
City and County of Honolulu
630 South Beretania Street
Honolulu, Hawaii 96843
Attn: Bert Kuioka

Subject: Conservation District Use Application for Exploratory Well and Access Road at Kuou Site III

Dear Mr. Kuioka,

I have enclosed copies of two memo from our Divisions regarding your proposed project. They indicate that some problems exist with the proposal. It would be to your benefit to respond to these concerns before the matter is presented to the Board.

Please contact me at 587-0381 if you have any questions or need to discuss this further.

Sincerely,

Don Horiuchi

Don Horiuchi
Staff Planner

Encl.

STATE OF HAWAII

DEPARTMENT OF LAND AND NATURAL RESOURCES

STATE HISTORIC PRESERVATION DIVISION
33 SOUTH KING STREET, 6TH FLOOR
HONOLULU, HAWAII 96813

August 25, 1993

MEMORANDUM

LOG NO: 9081
DOC NO: 9308td27

TO: Roger C. Evans, Administrator
Office of Conservation and Environmental Affairs

FROM: Don Hibbard, Administrator
Historic Preservation Division

SUBJECT: **Conservation District Use Application, Exploratory Well at Ho`omaluhia Park (File No. OA-2650)**
Kane`ohe, Ko`olaupoko, O`ahu
TMK: 4-5-41: 11

The applicant proposes to grade 6,500 square feet, 4,000 square feet for an access road and 2,500 square feet for drilling and pumping equipment, and to drill a 16" diameter well.

The Department Master Application Form states that no historic sites will be affected by the proposed project. An archaeological reconnaissance survey report appended to the Environmental Assessment (EA) reports that no historic sites were found and concludes that the project area was "never subject to any intensive habitation or agricultural use that would have produced obvious archaeological residues" (p. 10). These conclusions are summarized in the EA as "findings of the archaeologist generally indicate there are no archaeological finds that exist which would be impacted" (p. 11).

We believe that these conclusions are in error, and that it is likely that significant historic sites will be uncovered during grading activities. Surface survey for the windward H3 freeway, which is located 100' mauka of the project area, yielded a single possible prehistoric site. However, grading for the road revealed 17 subsurface sites with a total of 107 features. Two of these subsurface sites were found immediately mauka of the project area.

We believe that the best way to identify and treat historic sites in this case is to have an archaeologist perform an inventory survey during grading of the access road and drilling platform. Should historic sites be found, work in the vicinity must stop until the sites are recorded and samples are collected for analysis. Historic preservation review will be complete when an acceptable report of survey findings, including analyses of appropriate samples, is submitted to the Historic Preservation Division.

If you have any questions please call Tom Dye at 587-0014.

TD:jt

State of Hawaii
DEPARTMENT OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT
Honolulu, Hawaii

AUG 27 1993

File No. OA-2650

MEMORANDUM

TO: Mr. Roger C. Evans, Administrator
Office of Conservation & Environmental Affairs

FROM: Rae M. Loui, Deputy Director

SUBJECT: Request for Comments
Conservation District Use Application
Hoomaluhia Park, Kaneohe, Oahu (TMK: 4-5-41:11)

Regarding the issuance of Water Use and Well Construction Permits, the Commission on Water Resource Management (CWRM) has requested the Board of Water Supply (BWS) for more information on future projects to justify needs.

The Division of Historic Preservation has requested the CWRM to defer the Water Use Permit until an archaeological report has been submitted by the BWS.

→ A standard aquifer (pump) test protocol is being established to estimate surface water impacts. If it is determined that the well interacts with Kuou Stream, a Petition to Amend Interim Instream Flow Standards may be required for the project.

Thank you for the opportunity to comment on this matter.

RH:JZ:ko

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

October 8, 1993

Mr. Don Horiuchi, Staff Planner
Department of Land and Natural Resources
State of Hawaii
P. O. Box 621
Honolulu, Hawaii 96809

Dear Mr. Horiuchi:

Subject: Your Letter of September 7, 1993 Regarding the Conservation District Use Application (CDUA) for the Proposed Kuou III Exploratory Well Project, File No. OA-2650, TMK: 4-5-41: 11, Kaneohe, Oahu

Thank you for your letter regarding our CDUA for the Exploratory Well and Access Road at Kuou Site III. We have the following response to the concerns raised by your Divisions:

State Historic Preservation Division (SHPD)

1. We understand that the requirement for an archaeological inventory survey during grading will be deferred by SHPD until a full production facility is constructed at the site. Access to the site is via an existing agricultural road and the proposed project site is fairly level. The grading associated with the exploratory well project will be minimal and is not anticipated to impact on any existing historic sites. If we decide to develop the well for the production of potable water, the grading associated with the project will be more substantial and we will have an archaeologist perform an inventory survey during grading of the access road and drilling platform.

2. Should any unforeseen archaeological or historical artifacts be encountered during construction of the exploratory well, all work will be stopped and the State Historic Preservation Office will be notified.

Commission on Water Resource Management (CWRM)

1. The Board of Water Supply continues to provide the CWRM with requested information on future projects to justify need. In the case of the Kuou Well III, the well would be used for general municipal use in the Windward Water

District. Excess capacity would be used in the Honolulu Water District. The source is needed to meet a projected increase in the combined districts' water demand of 7 million gallons per day (mgd), from 105 mgd in 1992 to 112 mgd by the year 2000. The combined population for the Windward and Honolulu districts is projected to increase from 564,218 in 1990 to 588,652 by the year 2000.

2. We understand that a standard aquifer (pump) test protocol is being established. Our letter to CWRM of July 23, 1993 contained our comments regarding the proposed procedures.

3. We acknowledge that if it is determined that the well interacts with Kuou Stream, a Petition to Amend Interim Instream Flow Standards may be required for the development of a full production facility at the site.

If you have any questions, please contact Roy Doi at 527-5235.

Very truly yours,

Kazu Hayashida

KAZU HAYASHIDA
Manager and Chief Engineer