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GOVERNOR OF HAWAII



STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES

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REF:LD/WL-EK

APR 23 2001

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GILBERT COLOMA-AGARAN
CHAIRPERSON
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DEPUTY
JANET E. KAWELO

AQUATIC RESOURCES
BOATING AND OCEAN RECREATION
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FORESTRY AND WILDLIFE
HISTORIC PRESERVATION
LAND DIVISION
ENGINEERING BRANCH
PLANNING BRANCH
TECHNICAL & SUPPORT BRANCH
STATE PARKS

TO: Ms. Genevieve Salmonson, Director
Office of Environmental Quality Control
Department of Health

FROM: *Ga* Gilbert Coloma-Agaran, Chairperson *Gilbert Coloma-Agaran*

SUBJECT: **Finding of No Significant Impact (FONSI) for the Oahu Exploratory
Wells, Kaimuki Well, TMK 3-2-059:002 & 3-1-042:009, Kaimuki,
Oahu, Hawaii**

We have reviewed the comments received during the 30-day public comment period, which began on February 8, 2001. We have determined that this project will not have significant environmental effects and have issued a FONSI. Please publish this notice in the May 8, 2001, OEQC Environmental Notice.

We have enclosed a completed OEQC Publication Form, four (4) copies of the final EA and the project summary on diskette. Please contact Mr. Andrew Monden, Chief Engineer of the Land Division, Engineering Branch, at 587-0230 if you have any questions.

Attachment

92

MAY 8 2001

FILE COPY

2001-05-08-0A-FEA-Kaimuki

**FINAL ENVIRONMENTAL ASSESSMENT/
FINDING OF NO SIGNIFICANT IMPACT
FOR
THE OAHU (EXPLORATORY WELLS) KAIMUKI WELL
KAIMUKI, OAHU**

Prepared for:



**Department of Land and Natural Resources
State of Hawaii
Engineering Branch
Land Division**

**Prepared By:
Marc M. Siah & Associates, Inc.**

April 2001

 **Marc M. Siah & Associates, Inc.**

Consulting Civil • Structural • Environmental & Ocean Engineers
810 Richards Street, Suite 888, Honolulu, Hawaii 96813

**FINAL ENVIRONMENTAL ASSESSMENT/
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April 2001

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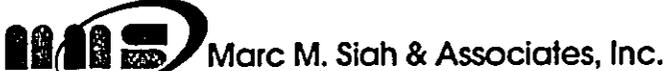
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EXECUTIVE SUMMARY



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EXECUTIVE SUMMARY

This Final Environmental Assessment (FEA) is prepared pursuant to Chapter 343, Hawaii Revised Statutes (HRS) and Title 11, chapter 200, Administrative Rules, Department of Health, State of Hawaii. The Department of Land and Natural Resources (DLNR) proposes to locate a non-potable water source to provide irrigation water for various State facilities in the Diamond Head area, as well as for the campus of Kaimuki Middle School (KMS). State facilities may include the Kapiolani Community College (KCC) campus, areas of the former Fort Ruger, National Guard facilities in the area and the Diamond Head State Monument. The preferred site, herein referred to as Well Site "A" is located on the KMS campus. The alternate site, herein referred to as Well Site "B" is located on the grounds of KCC.

The project will consist of drilling and pump testing a pilot hole at Well Site "A". If the pump test results are deemed successful, an exploratory well will be drilled at Well Site "A". However, if the pump test results of the pilot well are deemed unsuccessful, the pilot hole will be capped and abandoned, and a second pilot hole will be drilled and tested at Well Site "B". If the pump test results of the second pilot hole are deemed unsuccessful, the pilot hole will also be capped and abandoned. If the pump test results are deemed successful, an exploratory well will be drilled and tested at Well Site "B".

Both well sites are located within the Waialae-West Aquifer System. Ground water will come from the Koolau Basal aquifer that underlies younger terrestrial and marine sediments and lavas originating from the post-erosional Honolulu Volcanics (Diamond Head and Kaimuki shield volcanoes). This aquifer system has an available allocation of 1.013 million gallons per day (mgd) based on sustainable yield of 4 mgd and a 2.987 mgd permitted use by the Commission on Water Resource Management (CWRM).

The latest records indicate that there are no streams and wells currently in operation within a one (1)-mile radius of the proposed well sites (See Figure 2-9).

Construction of an exploratory well entails clearing and grubbing of the site and the drilling, casing and pump testing of the well. It is anticipated that a diesel-drilling rig and pump assembly will be used for the drilling and testing of the well. Upon successful completion of the drilling, should the well prove to be viable, DLNR may choose to develop the exploratory well into a production well in the future. The production well could provide irrigation water that would replace or supplement the potable water presently being used for irrigation.

The project is scheduled for the summer and fall months of 2001 and during normal working hours. Special precautions will be taken to protect students and faculty from construction activities and to minimize disruptions to school activities and residences. Both well sites are located within disturbed areas and probably do not contain significant historic and cultural resources; however, if any resources are encountered, construction will be stopped immediately and the State Historic Preservation Office (SHPO) will be contacted. The entire project is expected to take approximately six to eight (6-8) months.

Prior to construction of the proposed exploratory well, DLNR will obtain all necessary permits needed to complete the project. Permits that are anticipated include a Grading permit issued by the Department of Planning and Permitting of the City and County of Honolulu and a Well Construction Permit issued by CWRM. Based on the information presented in this report, prepared in accordance with the requirements of Chapter 343, HRS, the proposed action is anticipated to have no significant impact on the environment which would require the preparation of an Environmental Impact Statement (EIS). The proposed project, therefore, merits a determination of a Finding of No Significant Impact (FONSI).

SUMMARY INFORMATION

SUMMARY INFORMATION

Project Name: The Oahu Exploratory Wells, Kaimuki Well

Proposing Agency: Department of Land and Natural Resources (DLNR)
Land Division, Engineering Branch, State of Hawaii
1151 Punchbowl Street
Honolulu, Hawaii 96813
Phone: (808) 587-0229

EA Preparer: Marc M. Siah & Associates, Inc.
810 Richards Street, Suite 888
Honolulu, Hawaii 96813
Phone: (808) 538-7180
Fax: (808) 528-4352

Approving Agency: Department of Land and Natural Resources (DLNR)
Land Division, Engineering Branch, State of Hawaii
1151 Punchbowl Street
Honolulu, Hawaii 96813
Contact: Andrew Monden, Chief Engineer
Phone: (808) 587-0230
Fax: (808) 587-0283

Project Location: Kaimuki District of Honolulu, Island of Oahu

Landowner: Kaimuki Middle School - City & County of Honolulu
Kapiolani Community College - State of Hawaii

Tax Map Key: Portions of: 3-2-059:002 and 3-1-042:009

State Land Use Designation: Urban

Zoning: R-5 and R-10

Existing Use: Kaimuki Middle School and Kapiolani Community College.

Proposed Action: DLNR proposes to drill and pump test a pilot hole at KMS (Well Site "A") (TMK: 0-2-059:002). If the pump test results are deemed successful, an exploratory well will be drilled at Well Site "A". However, if the pump test results of the pilot hole are deemed unsuccessful, the pilot hole will be capped and abandoned and a second pilot hole will be drilled and tested at KCC (Well Site "B") (TMK: 3-1-042:009). If the pump test results of the second pilot hole are deemed unsuccessful, the pilot hole will also be capped and abandoned. If the pump test results are deemed successful, an exploratory well will be drilled and tested at Well Site "B". Construction of an exploratory well entails clearing and grubbing

SUMMARY INFORMATION

Proposed Action:
(cont'd)

of the site and the drilling, casing and pump testing of the well. It is anticipated that a diesel-drilling rig and pump assembly will be used for the drilling and testing phase.

Impacts:

Based on the environmental consequences associated with the construction of the proposed exploratory well and comments recieved on the Draft, a Finding of No Significant Impact (FONSI) is issued. Short-term noise and air quality impacts are anticipated on the surrounding area. All applicable government rules and regulations will be followed during the construction phase to minimize these impacts.

SECTION 1
INTRODUCTION AND PROJECT DESCRIPTION

SECTION 1

INTRODUCTION AND PROJECT DESCRIPTION

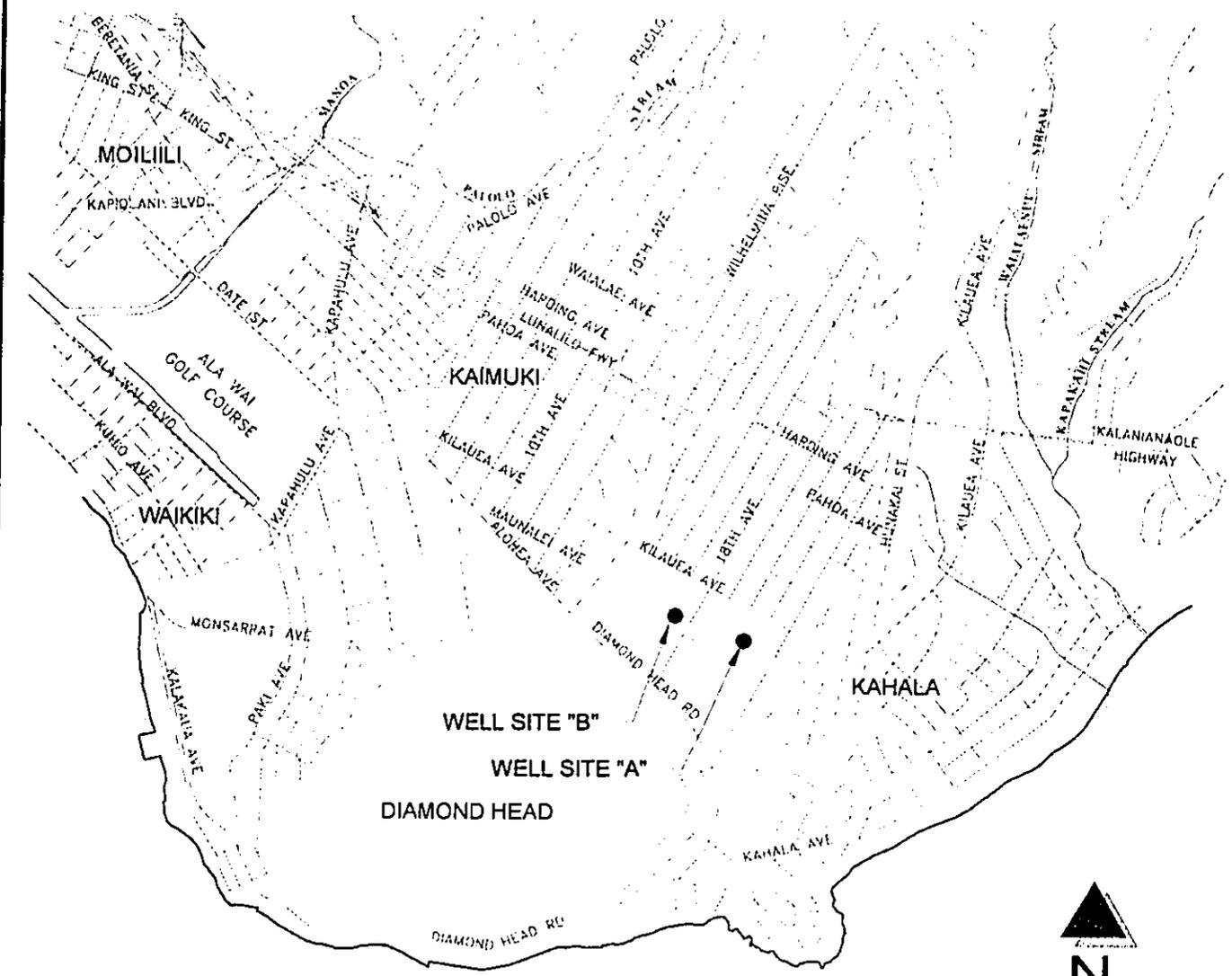
1.1 Introduction

The Department of Land and Natural Resources (DLNR) proposes to locate a non-potable water source to provide irrigation water primarily for the Kaimuki Middle School (KMS) campus and various State facilities in the Diamond Head area. State facilities may include the, Kapiolani Community College (KCC), areas of the former Fort Ruger, National Guard facilities in the area and the Diamond Head State Monument. The project will consist of drilling and pump testing a pilot hole at Well Site "A". If the pump test results are deemed successful, an exploratory well will be drilled at Well Site "A". However, if the pump test results of the pilot hole are deemed unsuccessful, the pilot hole will be capped and abandoned, and a second pilot hole will be drilled and tested at Well Site "B". If the pump test results of the second pilot hole are deemed unsuccessful, the pilot hole will also be capped and abandoned. If the pump test results are deemed successful, an exploratory well will be drilled and tested at Well Site "B". If both wells prove to be unsuccessful, they will be sealed and abandoned or converted into monitor well(s) and used as a source for future ground water information. The general locations of the two (2) wells are depicted in Figure 1-1.

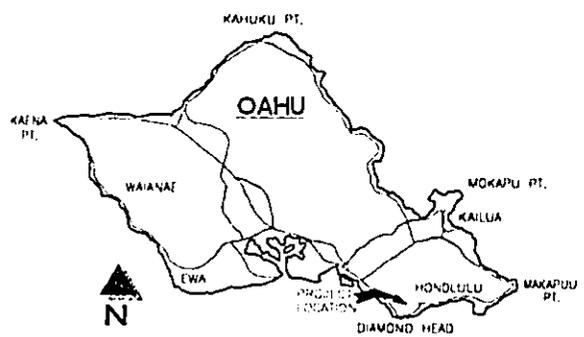
The objective of an exploratory well is to evaluate the aquifer's potential for development of a groundwater source. The pump test will be conducted and will determine the quantity and quality of water the well is capable of yielding. If there are chloride levels above potable water standards, then a non-potable water well and system could be developed and the water used for irrigation at the various State facilities in the vicinity as well as the Kaimuki Middle School. The non-potable water would also replace the potable water currently being used for irrigation. If the water is of potable quality, the well could be developed and dedicated to the Honolulu Board of Water Supply (BWS) for integration into the BWS system in exchange for water allocation credits. Water samples will be collected and analyzed to determine if the water is of non-potable or potable quality.

In compliance with HRS Chapter 343, DLNR is preparing this Final Environmental Assessment to evaluate and assess potential impacts of the proposed action on the environment. If the results of the pump test prove successful, the exploratory well may be converted into a production well. All phases of a production well will be evaluated in a separate Environmental Assessment.

Figure 1-1 General Location of the Project



PACIFIC OCEAN



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1.2 Project Location

1.2.1 Well Site "A"

Well Site "A", is located on a 17.5 acre parcel of land identified by TMK: 3-2-059:002 encompassing the Kaimuki Middle School (KMS) campus. KMS is located on southeast Oahu in the Kaimuki district of Honolulu. The school property is bounded along its north and south sides by Kilauea and Iwalani Streets respectively. The east and west boundaries of the school property are 18th and 22nd Avenues respectively. The property is currently owned by the City & County of Honolulu; however, all property management decisions are made by the Department of Education.

The proposed exploratory well will be located near the southern boundary of the property at the midpoint between 18th and 22nd Avenues. The site occupies an 80-foot by 80-foot flat, open grassy area on the grounds of the KMS with an average elevation of 42 feet above Mean Sea Level (MSL). A general view of the proposed well site and its surroundings are shown in Figure 1-2. A section of the school's perimeter fence defines the southern boundary of the site separating it from the Diamond Head Memorial Park Cemetery and private residences along Iwalani Street. The nearest private residential unit to the site is approximately 100 feet to the west. The closest school building to the proposed site is approximately 150 feet to the north of the site. There are five 20-foot long containers, used as temporary storage space, located roughly 15 feet west of the proposed well site. The physical education (PE) building is situated about 200 feet east of the site and encompasses a basketball court and an exercise field. The site would be accessible from an existing paved road off of 18th Avenue.

According to utilities plans for KMS on file at the Department of Accounting and General Services (DAGS), an existing 4-inch water line passes through the southern section of the proposed well site, running parallel to the perimeter fence. In addition, an abandoned gas line crosses partially through the well site. The gas line used to supply the custodian cottage which has since been demolished.

A 42-inch storm drain also runs north and east of the proposed well site. Figure 1-3 depicts the existing utilities on the KMS campus surrounding the well site. Due to these existing conditions the contractor is required to tone the well site to locate existing live and abandoned utility lines prior to any drilling activities.

1.2.2 Well Site "B"

As mentioned earlier, should the exploratory Well Site "A" prove to be unsuccessful during the pump test, Well Site "B" will be drilled. Well Site "B" is located on a portion of a 46.7 acre parcel of land identified by TMK: 3-1-042:009 housing the Kapiolani Community College (KCC). The

Figure 1-2 A General View of Well Site "A" and its Surroundings

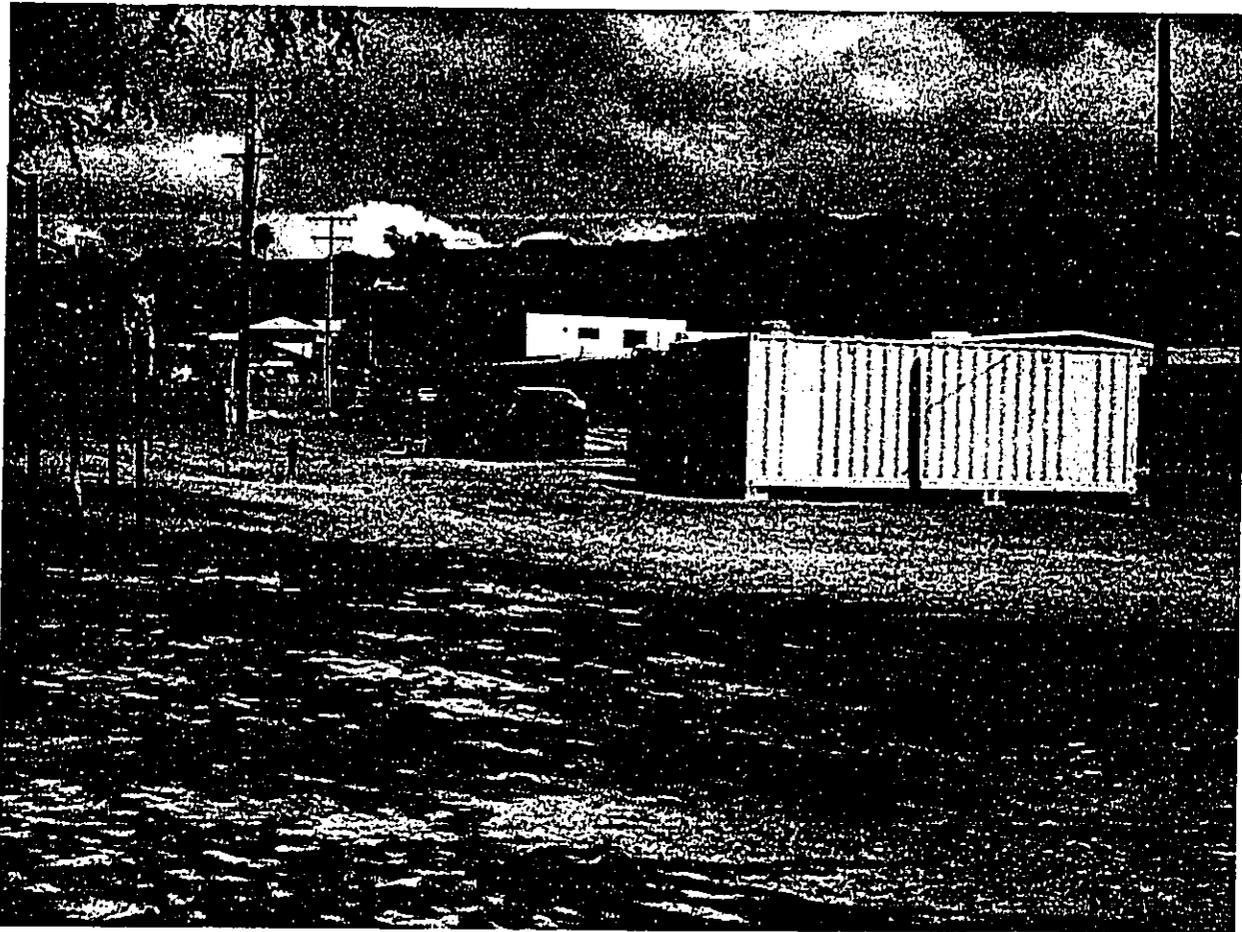
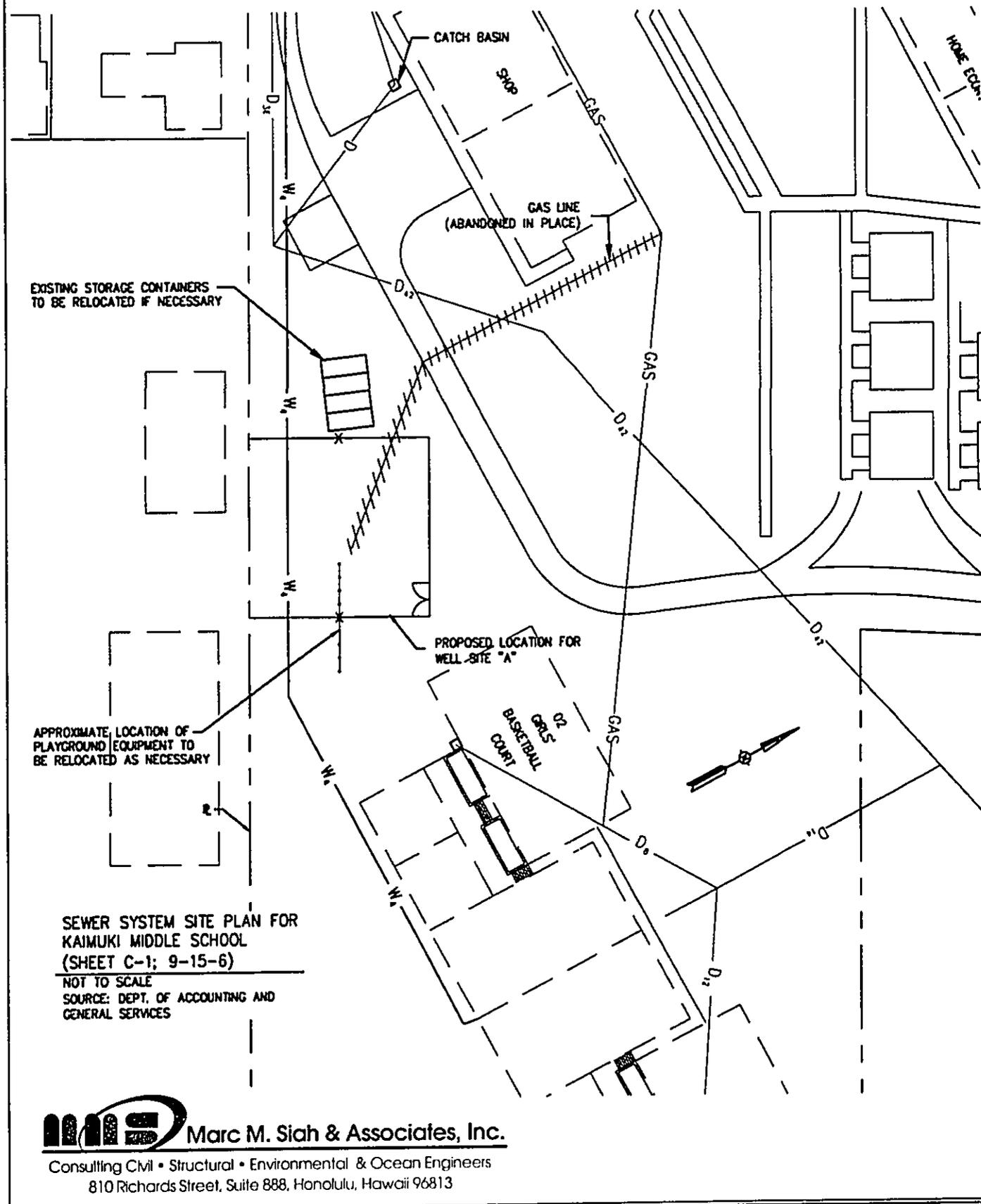


Figure 1-3 Existing Utilities Surrounding the Proposed Well Site "A"



proposed well site is located approximately 1000 feet west of Well Site "A" near a section of the college's perimeter fence separating it from the nearby Diamond Head film studio. Well Site "B" is located on a flat area with an average elevation of 80 feet above MSL, ewa of the lower campus parking lot on the eastern side of the parcel. The proposed well will be located approximately 900 feet makai of Kilauea Avenue outside of the perimeter fence of the BWS's Ruger Tunnel. A general view of the proposed well site and its surroundings are shown in Figure 1-4. The site would be accessible from an existing service road for the Ruger Tunnel off of 18th Avenue.

Well Site "B" is located on State owned land and no transfer of lands will be required. Well Site "A" is located on land owned by the City and County of Honolulu; however, the Department of Education manages all construction activities on the property. Figure 1-5 shows the parcel map for the well sites. The project will be financed by the DLNR and no long-term financial arrangements to fund the project will be incurred.

1.3 Proposed Action

Construction of an exploratory well begins with the clearing and grubbing of the site and drilling and pump testing a pilot hole at Well Site "A". If the pump test results are deemed successful, and exploratory well will be drilled at Well Site "A". However, if the pump test results of the pilot hole are deemed unsuccessful, the pilot hole will be capped and abandoned, and a second pilot hole will be drilled at Well Site "B". If the pump test results of the second pilot hole are deemed unsuccessful, the pilot hole will also be capped and abandoned. If the pump test results are deemed successful, an exploratory well will be drilled and tested at Well Site "B".

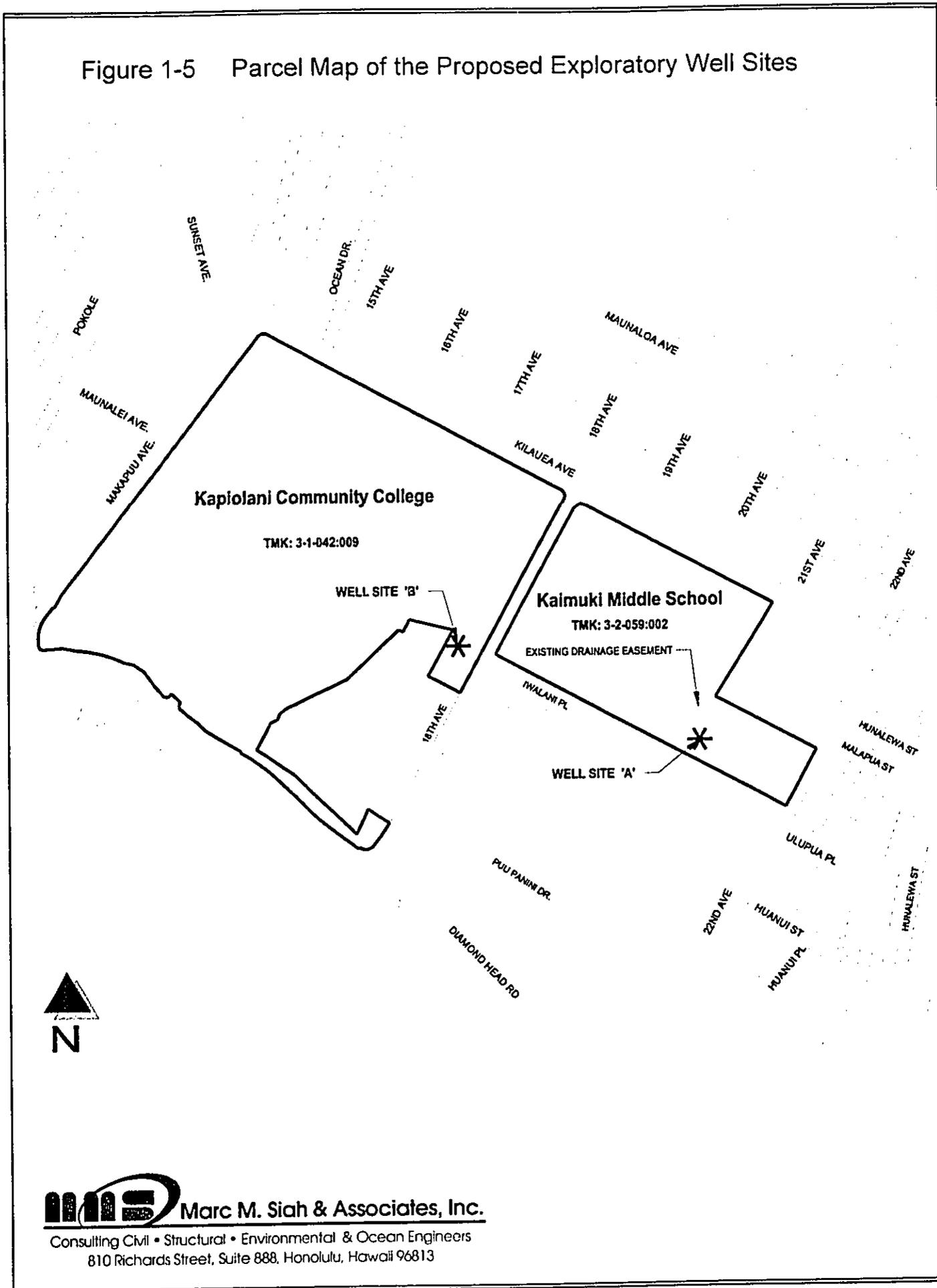
Based on available data, the total depth of the exploratory well will be approximately 420 feet with a bottom hole elevation of approximately -378 feet below MSL for Well Site "A" and -340 feet below MSL for Well Site "B". The exact depth of the well may change depending upon the soil formation and hydrogeological conditions encountered at the site during construction. The borehole would have a minimum diameter of 19 inches. Solid steel casing will be installed in the upper 350 feet of the hole with approximately 50 feet of perforated casing to be installed below it. If warranted by conditions encountered during drilling, the well may require an open hole with a minimum diameter of 11 inches beneath the cased portion of the well. The expected depth of this hole is about 20 feet; however, this depth will be determined based on actual conditions in the field. Drilling and installation of the proposed well entails the following specific tasks:

1. Mobilize and install temporary fencing around the proposed well site.
2. Drill a pilot hole at Well Site "A" to a maximum elevation of -30 feet below MSL and protect the pilot hole if necessary.

Figure 1-4 A General View of Well Site "B" and its Surroundings



Figure 1-5 Parcel Map of the Proposed Exploratory Well Sites



INTRODUCTION AND PROJECT DESCRIPTION
SECTION ONE

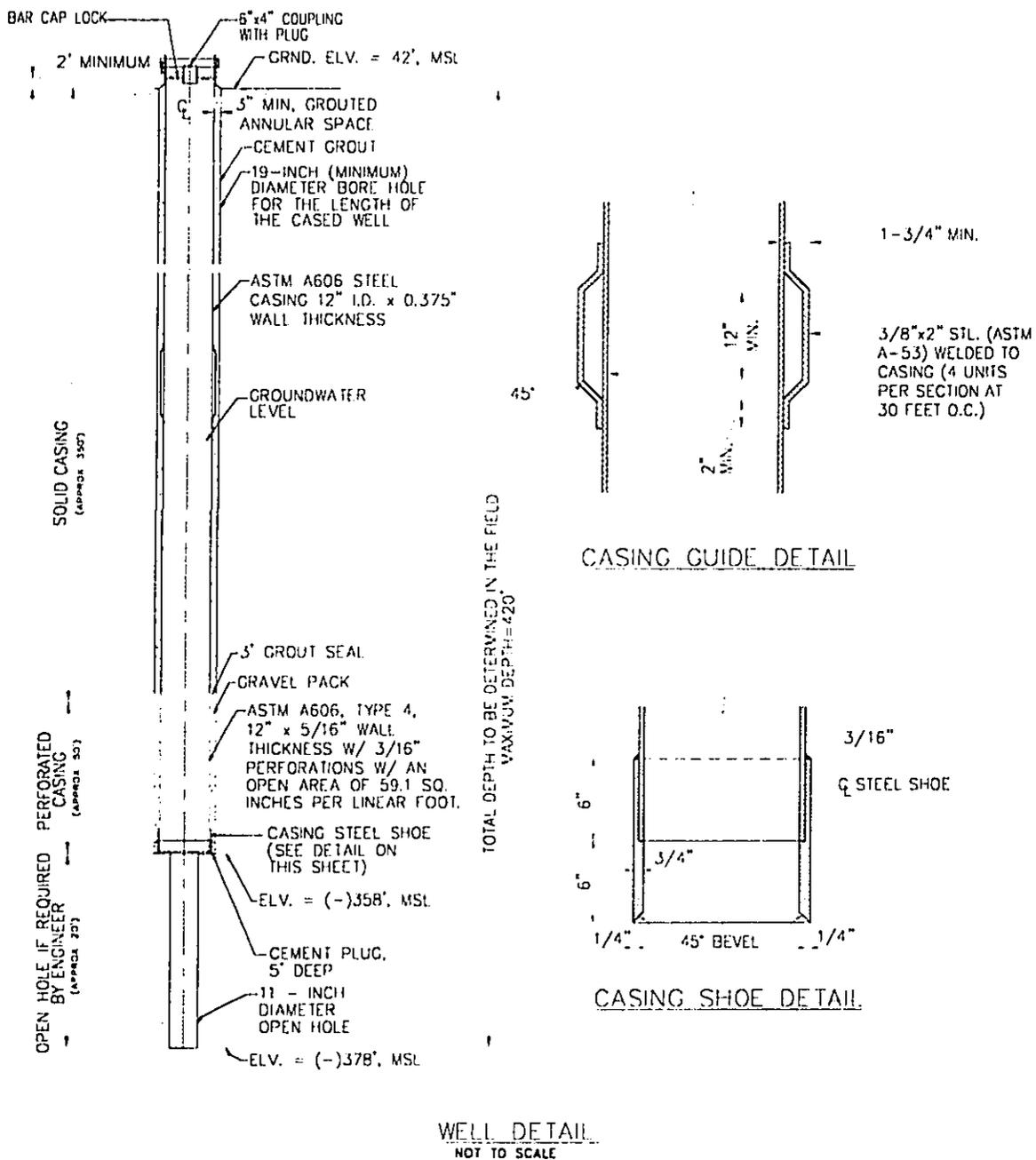
3. Install test pump and pump test as directed by the Engineer.
4. Continue drilling the pilot hole to a maximum depth of -100 feet below MSL. Measure water and salinity levels at the beginning and end of each work shift.
5. Install pump and pump test as directed by the Engineer.
6. If pumping test is successful, ream and drill well from ground surface to elevation of bottom casing (approximately -320 feet below MSL for Well Site "A" and -358 feet below MSL for Well Site "B").
7. Measure water and salinity levels at the beginning of each work shift.
8. Bail well clean and run plumbness of the well.
9. Rest well until water column is clear, then run video log.
10. Install perforated and solid well casing to final depth.
11. Install water-level monitor tube in the annular space on outside of the well casing.
12. Cement plug, gravel pack, seal, and grout annular space.
13. Drill well to open hole depth if deemed necessary and determined in the field by the Engineer.

If pump testing of the pilot hole at Well Site "A" is not successful, the pilot hole at Well Site "A" shall be capped and abandoned and steps 1 through 13 shall be performed at Well Site "B". A typical section through the proposed exploratory wells are shown in Figures 1-6A and 1-6B.

Exploratory Well Site "A" requires minimal clearing before a drilling rig can be brought to the site. An existing HECO power pole and overhead line is located very close to the proposed well site. If practical, instead of using a diesel fueled generator to power the drilling rig and pump assembly, a power line may be extended from this or nearest service line within the school grounds to the well site. Portable water tanks and toilets would be required during drilling and testing of the well. The entire drilling and testing operation is anticipated to take approximately two to three (2-3) months.

Once the pump testing of the exploratory well (described in Section 1.5) has been successfully completed, should the water quality and yield of the proposed exploratory well prove sustainable, DLNR may decide to outfit the well with a deep submersible pumping unit and motor assembly, and convert it into a production well. At that time, DLNR will also construct a

Figure 1-6a Typical Section Through the Proposed Exploratory Well at Site "A"

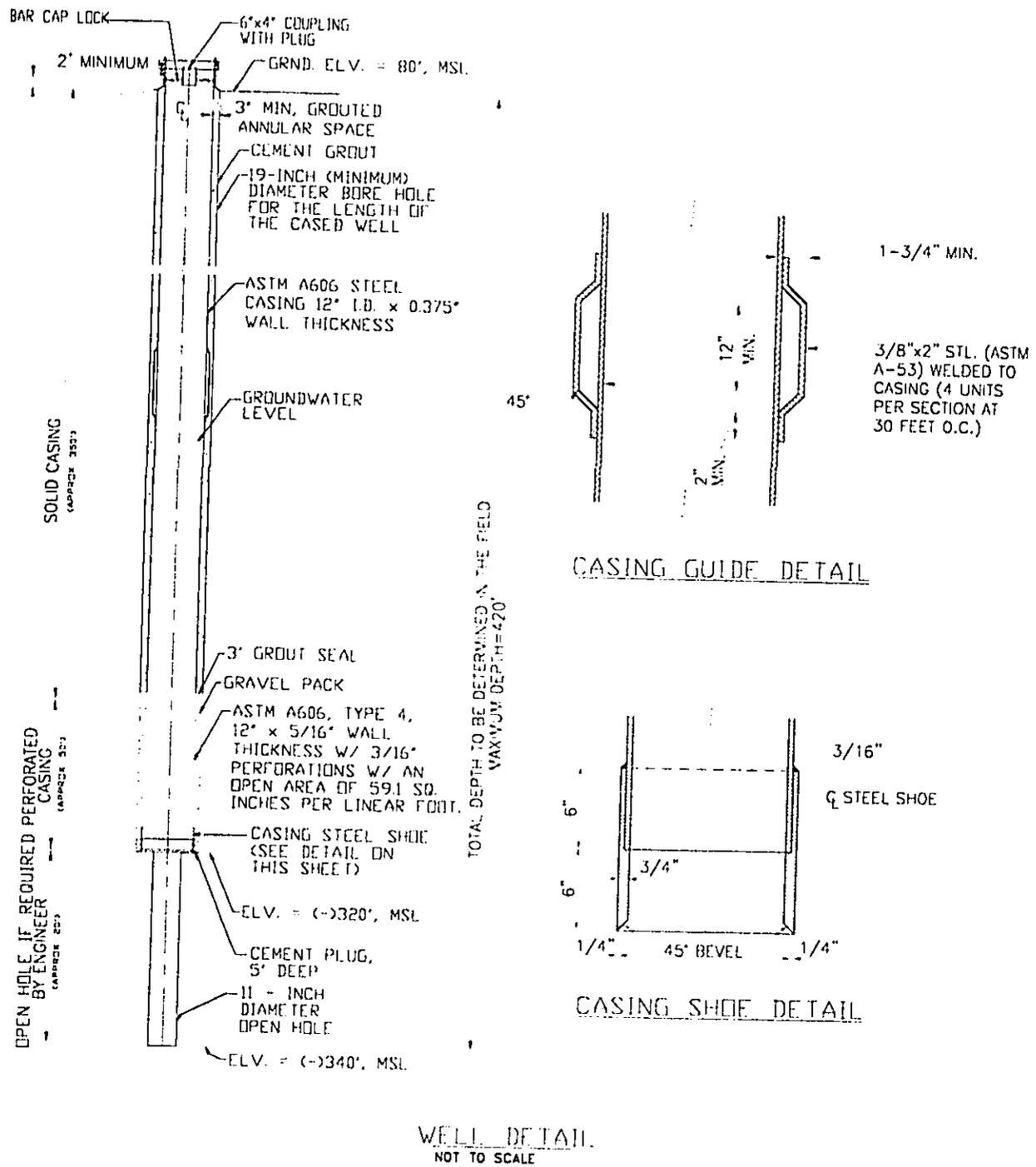


WELL DETAIL
NOT TO SCALE

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Figure 1-6b Typical Section Through the Proposed Exploratory Well at Site "B"



6-foot by 10-foot, single story, CMU control building which would house the motor control center, electrical equipment, alarm system and chlorination systems. Should the water be classified as a non-potable source, the State will maintain control of the production well to provide irrigation water for various State facilities in the Diamond Head area. If, however, the water is classified as a potable source, the resultant production well will then be integrated into the existing BWS water system in the area. The actions and improvements necessary in order to convert the exploratory well into a production well will be addressed and assessed in a separate Environmental Assessment which will be prepared for the production well.

1.4 Project Need

In order to meet the projected demand for water sources for various State facilities as well as the Kaimuki Middle School campus, DLNR is taking a proactive approach to locate new sources of this precious resource. State facilities may include Kapiolani Community College (KCC), areas of the former Fort Ruger, National Guard facilities in the area and the Diamond Head State Monument. This approach is in line with the objectives of the Water and Land Development Program, which mandates promotion of economic development and enhancement of the public welfare by developing water supply sources on State lands. A non-potable water source could replace or supplement the potable water, which is presently being used for irrigation. Also, if developed, this well could provide water to the wetland pond and native landscaping within the Diamond Head Crater in accordance with the Diamond Head State Monument Master Plan Update.

1.5 Test Pumping

Following installation of the proposed exploratory well, tests will be conducted with a diesel powered test pump to determine the quantity (yield) and quality of water that can be produced. There are two (2) tests that are conducted. The first is a step drawdown test that pumps water from the well at variable rates for a duration of 72 hours. The objective of this test is to determine a well's specific capacity or the amount of water extracted for each foot the water surface is drawn down. The second test is called a constant rate pump test. In this test, the well is pumped at a constant rate for 240 hours. The objective of this test is to determine the sustainable capacity or long-term amount of water that the well can produce. During this test, water samples will be collected. It is anticipated that a diesel powered rig and pumping unit will be utilized for this phase of the project.

At least one (1) seepage pit shall be used for on-site collection of the drilling slurry produced during the drilling phase at both well sites. The drilling slurry will be mixed with the well cuttings, dewatered and hauled off-site by the Contractor to the nearest landfill. The seepage pit shall be completed prior to the start of the pumping test. Should it be necessary, one or more additional seepage pits shall be constructed. The water produced during the pumping

INTRODUCTION AND PROJECT DESCRIPTION
SECTION ONE

test of the Exploratory Well Site "A" will be diverted, by the Contractor, into an existing storm drain inlet located at the corner of 18th Avenue and Iwalani Place. Should the exploratory well be installed at Well Site "B", pump test waters withdrawn from the well will be diverted to an existing ponding basin. The basin is located approximately 200 feet southeast of Well Site "B" on the north east corner of a parcel of land, identified by TMK: 3-1-042:033, contiguous to the KCC campus. No water will be disposed of into streams or natural drainage courses in the area. The well cuttings, produced as a result of the drilling phase of the project, are to be collected and removed from the premises and taken to a landfill by the Contractor.

Water quality testing to be conducted will include the analyses mandated by the State Department of Health for a new potable source, which entails analyses for chlorides, pesticides, heavy metals and organics. The tests for contaminants will determine if any treatment processes will be required when the well is put into production. Following testing, the well will be capped and all equipment removed. If development of the well for production is deemed feasible, the exploratory well can be outfitted into a production well. This phase of the project will be covered under a separate Environmental Assessment (EA).

1.6 Project Schedule and Cost

The project is scheduled for the summer and fall months of the year 2001 and will be conducted during normal working hours. Upon approval of the required permits and a Finding of No Significant Impact, the construction and drilling of the well would commence and could last approximately six to eight (6-8) months. Funds for this project are available from Act 328, SLH 1997, as amended by Act 116 SLH 1998, Item A-25, and have been released by the Governor. Construction cost of the proposed exploratory well is estimated at approximately \$385,000. This cost includes drilling, casing and pump testing of the well. Funds for future development of the well will need to be obtained through the legislature.

SECTION 2
DESCRIPTION OF EXISTING ENVIRONMENT

SECTION 2

DESCRIPTION OF THE EXISTING ENVIRONMENT

2.1 Existing Land Use

The Hawaii Land Use Statute of Chapter 205, Hawaii Revised Statutes (HRS), classifies all lands in the State into four (4) land use districts: Urban, Agricultural, Conservation and Rural. According to the State Land Use District Boundary Map Well Site "A" and Well Site "B", as well as the surrounding areas, are designated as Urban. The Diamond Head Memorial Park Cemetery immediately to the south of Well Site "A" is designated as Conservation. Well Site "A" is zoned as R-5 Residential and Well Site "B" is zoned as R-10 Residential on the County's General Plan as depicted on Figure 2-1. Installation of the proposed exploratory well on either site, therefore, does not conflict with the general objectives and specific terms of the land use plans, policies, and controls of the State Land Use Commission and is compatible with the sites existing land use.

2.2 Climate

The climate observed in the Hawaiian Islands is a function of the upper air circulation in the region. The dominant circulation pattern is that of an anticyclone which is generally located to the northeast of the Islands. The result of this anticyclone is the production of trade winds that blow out of the northeast approximately 60 percent of the year. A trademark of the trade winds is that warm air masses passing over the ocean become moisture laden and are subjected to orographic uplift when they reach the islands and forced to move over the mountains. The result of this is that the air becomes cool and saturated as it rises producing rainfall. This effect is most pronounced on the windward side of the Islands. It also accounts for the fact that rainfall amounts have a high spatial variability, with areas located up slope or towards the mountains on the windward side of the Islands receiving more than areas along the coast.

The project is located on the leeward side of the island of Oahu and is in the rain shadow of the Koolau mountain range. Average annual precipitation in the area of the project is 24.13 inches, with the largest percentage occurring during the winter months of December through March. Temperature fluxes between summer and winter time periods is approximately 7° F with the average maximum daily temperature of 88° F during August and the average minimum temperature of 64.3° F occurring in December. Figure 2-2 depicts the isohyetal map of rainfall on the island of Oahu.

2.3 Topography and Geology

The most pronounced salient features in the area of both well sites are Diamond Head Crater which is located makai of the well sites, and the more gentle and eroded Kaimuki crater ewa of the well sites. To the east of both well sites lies the coastal plain zone which is bounded by Black Point to the southwest and Waialae Stream to the northeast. The general topography of Well Site "A" is characterized as a relatively flat plain that extends out from the base of the

Figure 2-1 Land Use Map for Proposed Exploratory Well Sites

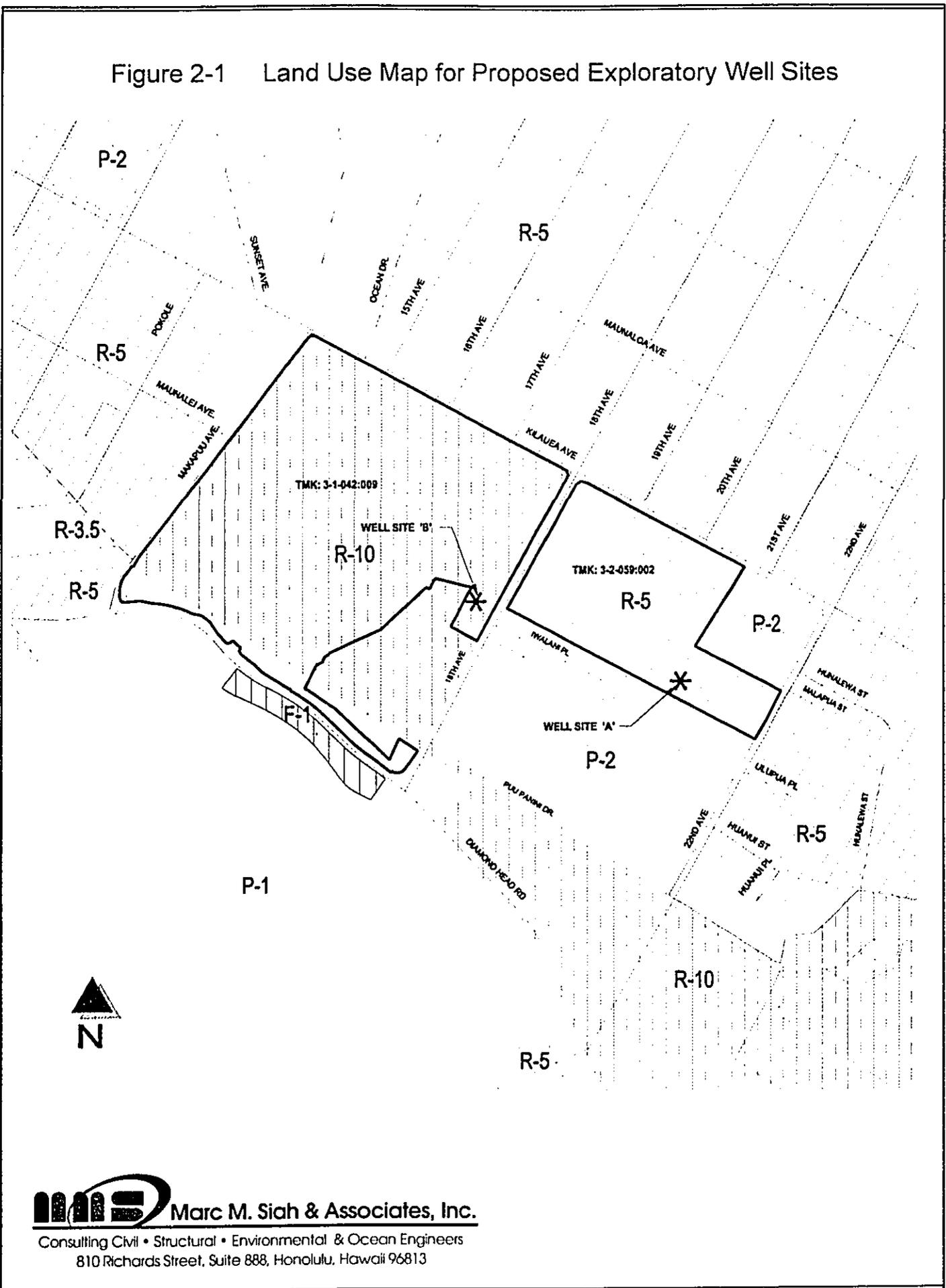
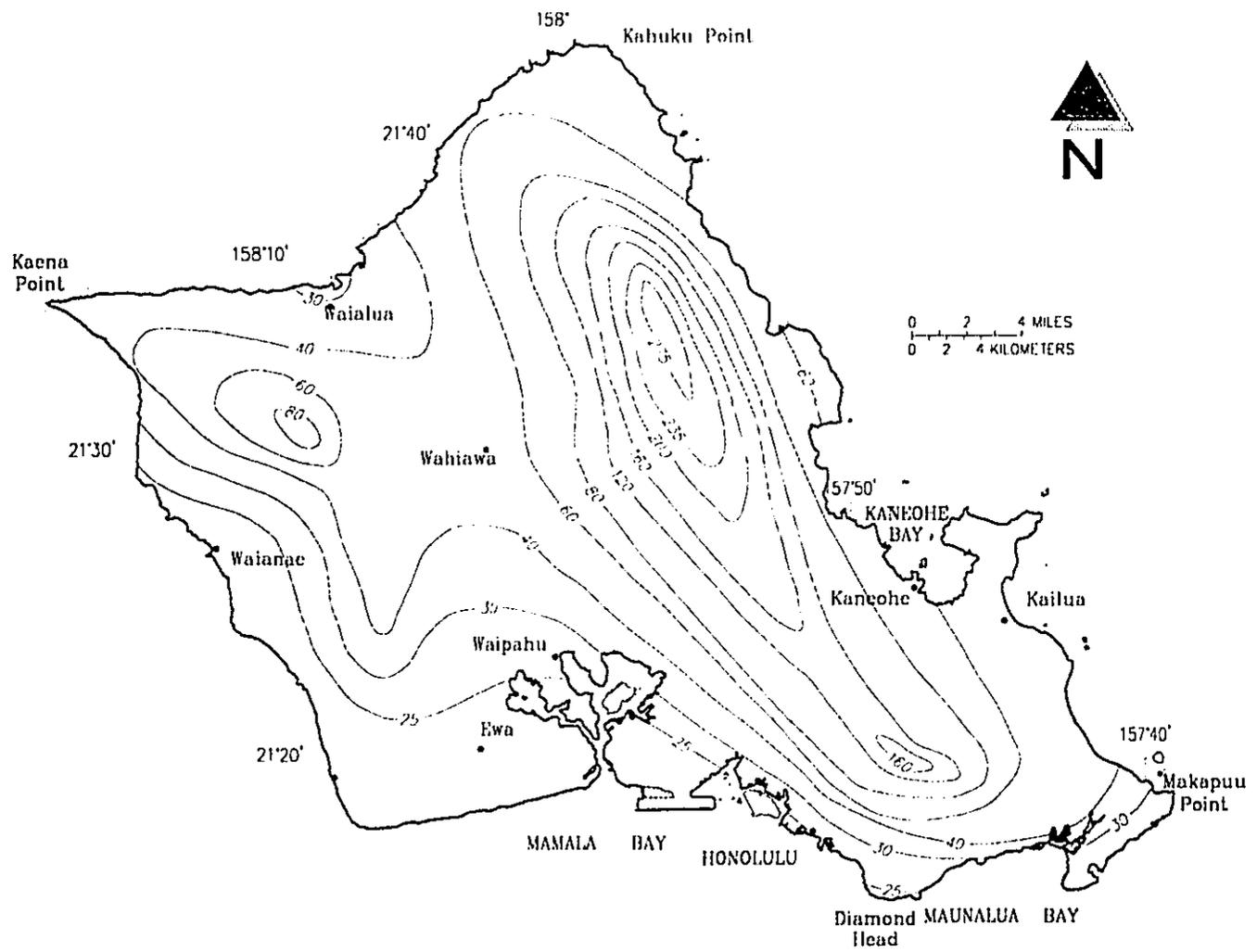


Figure 2-2 Mean Annual Rainfall



LEGEND

--- 40 --- LINE OF EQUAL MEAN ANNUAL PRECIPITATION
Interval in inches, is variable

saddle between Diamond Head and Kaimuki crater. The mild slopes of the area around the site trend from the west to east. More specifically the proposed exploratory Well Site "A" is very flat with an elevation of approximately 42 feet above Mean Sea Level (MSL). Well Site "B" is located up gradient above the base of the slope between the two craters with general slopes in the vicinity of this site in a west to east direction. The average grade in the vicinity of this sites is approximately 8 percent. Elevations at Well Site "B" range between 80 and 100 feet above MSL. A similar characteristic to both sites is the lack of surface features such as the dissection by streams or gullies. Figure 2-3 depicts the general topography of the proposed exploratory Well Site "A" and Well Site "B". Views of existing topographic conditions at both sites are depicted in Figures 2-4 and 2-5.

The surficial geology of both sites is dominated by Diamond Head Tuffs and to a lesser degree alluvial deposits. The tuff material extends from the ground surface down to sea level. The geological formations beneath these surface layers is based on interpretations of well logs and geological studies by various investigators. Based on these data it is conjectured that from sea level to a depth of -280 feet MSL a clay lense exists. The probable origin of this lense is Koolau Basalts. From -280 feet to approximately -500 feet elevations above MSL is a layer of Koolau Basalt. In addition to these geological features there are other layers that may be present to a lesser degree which include gravel and alluvium deposits, Mauumae Basalt, and Kaimuki Basalts. Figure 2-6 depicts the geological features of the island of Oahu.

2.4 Soils

The U.S. Natural Resources Conservation Service (NRCS) classifies the soil at the proposed well sites and the surrounding area as Lualualei-Fill Land-Ewa Association. This association consists of well-drained, fine textured and moderately fine textured soils on fans and in drainage ways on the southern and western coastal plains on the island of Oahu. The soils for this association are nearly level to moderately sloping. The Lualualei soils have a surface layer of very dark grayish-brown, very sticky and very plastic clay that cracks widely upon drying. They are underlain by coral, gravel, sand, or clay at a depth below 40 inches. Fill land consists of various kinds of fill material. Ewa soils have a surface layer and subsoil of dark reddish-brown, friable silty clay loam. The substratum is gravelly alluvium or coral limestone.

Well Site "A" is situated in an area consisting of two (2) soil series which the NRCS categorizes as Molokai (MuC) and Lualualei (LuA). The MuC soil series is described as a silty clay loam with a fine to medium texture that occurs on fill land and coastal plains. The soil is moderately well drained, has low to moderate permeability, and has slopes of 7-15 percent with moderate potential for runoff and erosion hazard. The soil depth for MuC ranges from 0-55 inches depending on the site-specific depositional environment. The LuA soil series is described as a clay with a fine to medium texture that and also occurs on fill land and coastal plains. The soil is moderately well drained, has low permeability, and has slopes of 0-2 percent with a slow potential for runoff and an erosion hazard no more than slight. The soil depth for LuA ranges from 37-42 inches.

DESCRIPTION OF THE EXISTING ENVIRONMENT
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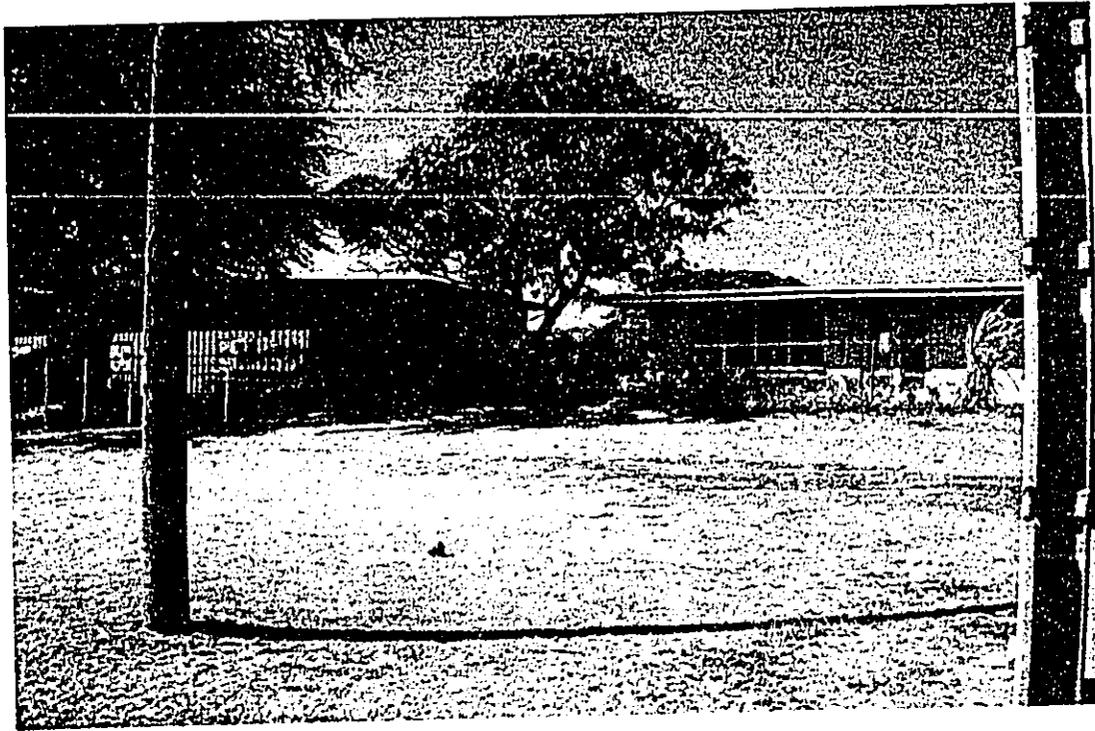
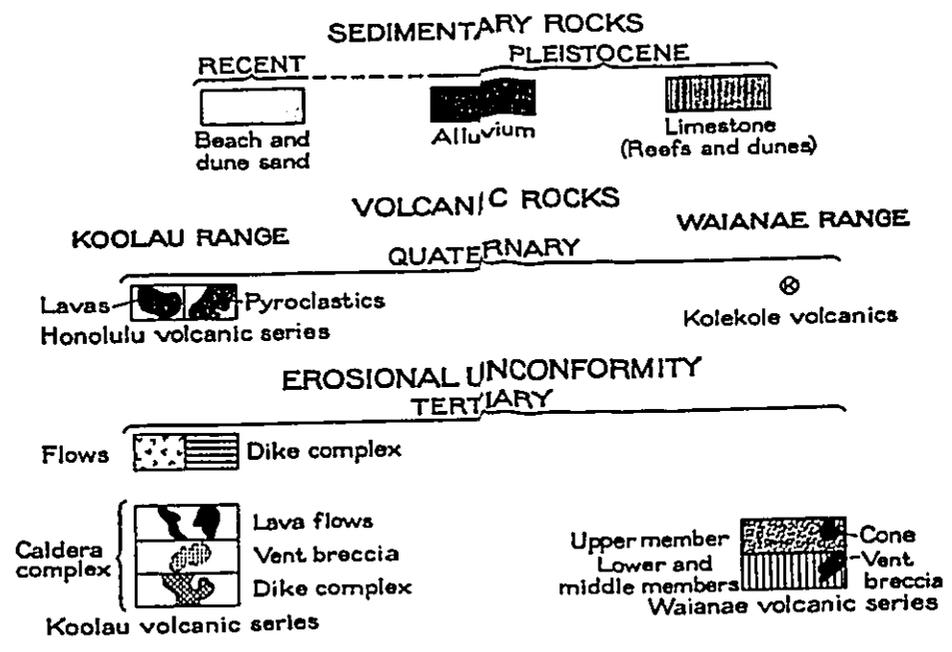
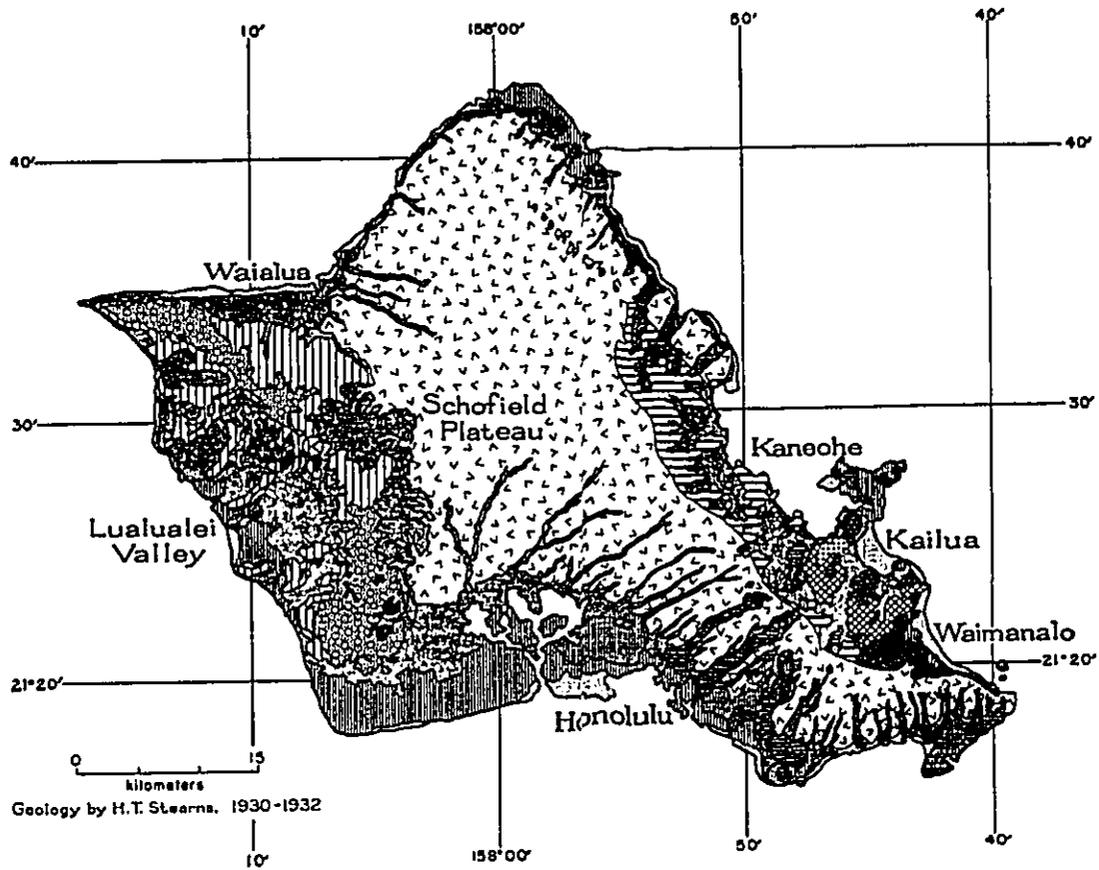


Figure 2-4 View of Existing Topography at Well Site "A".



Figure 2-5 View of Existing Topography at Well Site "B".

Figure 2-6 Geological Features of the Island of Oahu



The NRCS categorizes the soil series at Well Site "B" as Molokai (MuD). The soil is described as a silty clay loam with a fine to medium texture. The soil is moderately well drained, with a low permeability and slopes of 15 to 25 percent. There is a medium potential for runoff and the erosion hazard is severe. Figure 2-7 depicts the soil map of the area in the immediate vicinity of the proposed well sites.

2.5 Hydrology

2.5.1 Aquifer and Hydrological Unit Status

According to the Aquifer Classification adopted by the State, aquifers underlying the island of Oahu are classified into six Aquifer Sectors and twenty-four Aquifer Systems. Aquifer Sectors define a region of the island with strong hydrological similarities, whereas Aquifer Systems define an area within the sector showing hydrological continuity. The proposed Kaimuki exploratory well sites are located within the Honolulu Aquifer Sector (01) on the Waialae-West Aquifer System (05). Boundaries for the various aquifer sectors and systems on the Island of Oahu are shown in Figure 2-8. The boundary for the Honolulu Aquifer Sector begins at Makapuu Point, at the southeastern portion of the island, and follows the drainage divide along the crest of the Koolau Range then crossing west southwest, through Moanalua, to the eastern side of the mouth to Pearl Harbor. The Waialae-West Aquifer System boundary extends from the coast east northeast across the center portion of Diamond Head Crater to the crest of the Koolau Range where it turns east traversing along the crest of the range to Makapuu Point at the southeastern portion of Oahu.

Within the Waialae-West Aquifer System are three aquifer types. The upper elevations of the sector are comprised of high level dike aquifers classified as 212 by the State. This aquifer type extends from the crest of the Koolau Range approximately 1.25 miles down the face of the mountain. Below this boundary lies the basal horizontally aligned lava aquifer classified as 111. The northern boundary of this aquifer is located at the base of the Koolau Range while its makai boundary located approximately two (2) miles inland runs parallel to the coast. The coastal plain is underlain by the third aquifer type, classified as basal sedimentary layers of nonvolcanic lithology. The State further delineates this basal aquifer into two (2) separate aquifer units, an upper and lower, classified as 116 and 121, respectively. This is due to the presence of a sedimentary caprock that is located between the two (2) aquifers. Both Well Site "A" and Well Site "B" are located over the coastal basal aquifers.

In addition to aquifer classification code, the State uses a five-digit system for classifying the status of an aquifer. The upper and lower aquifers below the proposed well sites are classified as 23421 and 21113 respectively.

The Waialae-West Aquifer System has an available allocation of 1.013 million gallons per day (mgd) based on a sustainable yield of 4 mgd, and a 2.987 mgd permitted use by the Commission of Water Resource Management (CWRM).

Figure 2-7 Soil Map of Proposed Exploratory Well Site

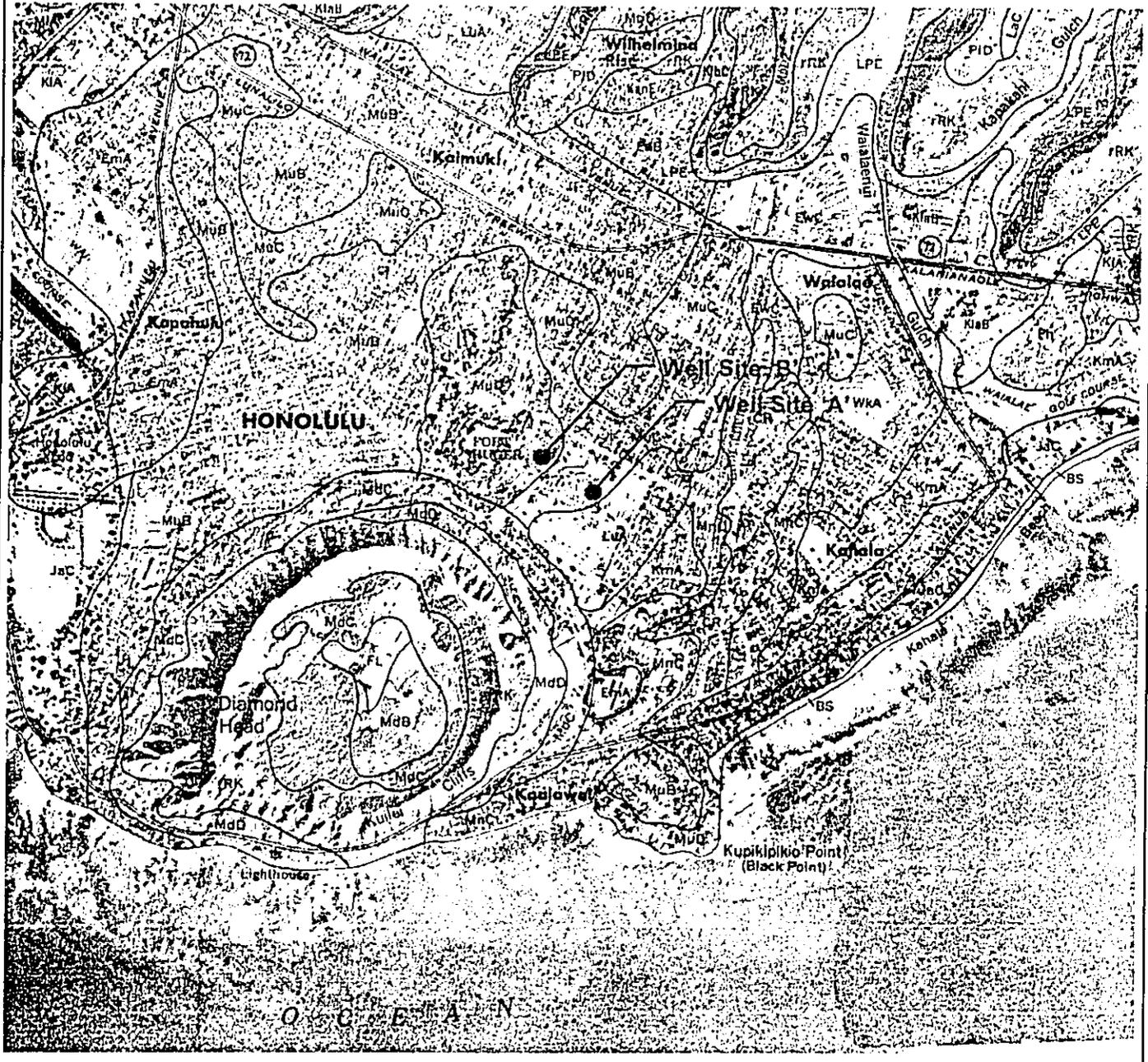
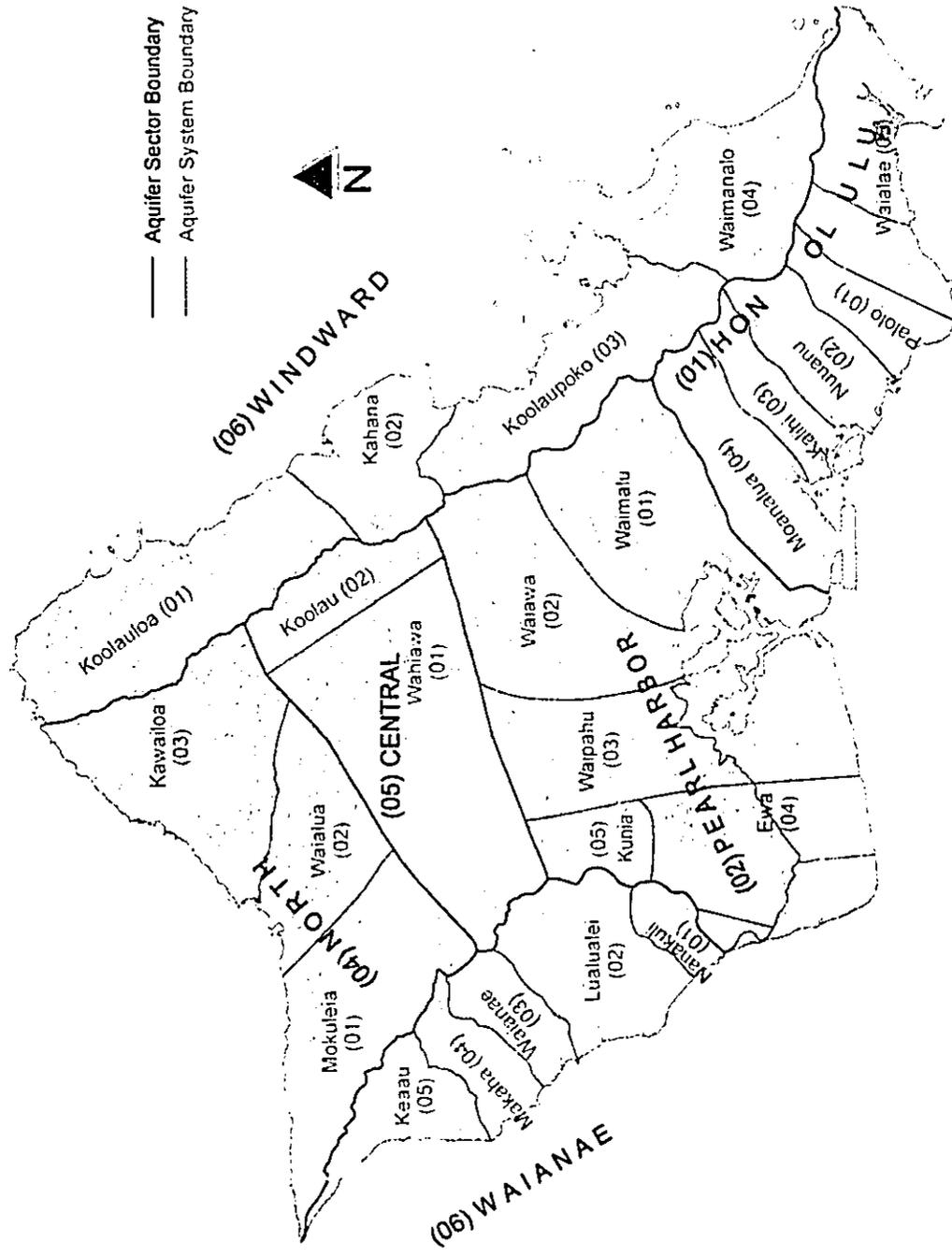


Figure 2-8 Boundaries of Aquifer Sectors and Systems on Oahu



**DESCRIPTION OF THE EXISTING ENVIRONMENT
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Records of wells compiled by the State Department of Land and Natural Resources indicate five wells are located within a one (1)-mile radius of the proposed well sites. Among these five wells there is one which does not lie within the boundaries of the Waialae-West Aquifer System. The Kaimuki Well (1648-01) is located in the Palolo Aquifer System, thus it does not provide any representative data for the aquifer system where the proposed wells will be situated. The surrounding wells and the general area of the proposed well are depicted in Figure 2-9. All of the five well sites located in the one (1)-mile radius of the proposed well site are out of operation. Detailed information about these wells is presented in Table 2-1 below.

Table 2-1 Data on Wells Located in the Vicinity of the Project Site

Existing wells	1547-01	1647-01	1647-02	1647-03	1648-01
Ground Elevation (msl)	0'	8'	0'	0'	185'
Well Depth (ft)	70'	70'	60'	70'	196'
Bottom of hole elevation (msl)	-70'	-68'	-60'	-70'	-11'
Bottom of solid casing (msl)	N/A	N/A	N/A	N/A	-161'
Test date	1/1/56	1/1/37	1/1/54	10/24/65	1/1/36
Pump rate (gpm)	N/A	N/A	N/A	N/A	1000
Drawdown (ft)	N/A	N/A	N/A	N/A	1.2'

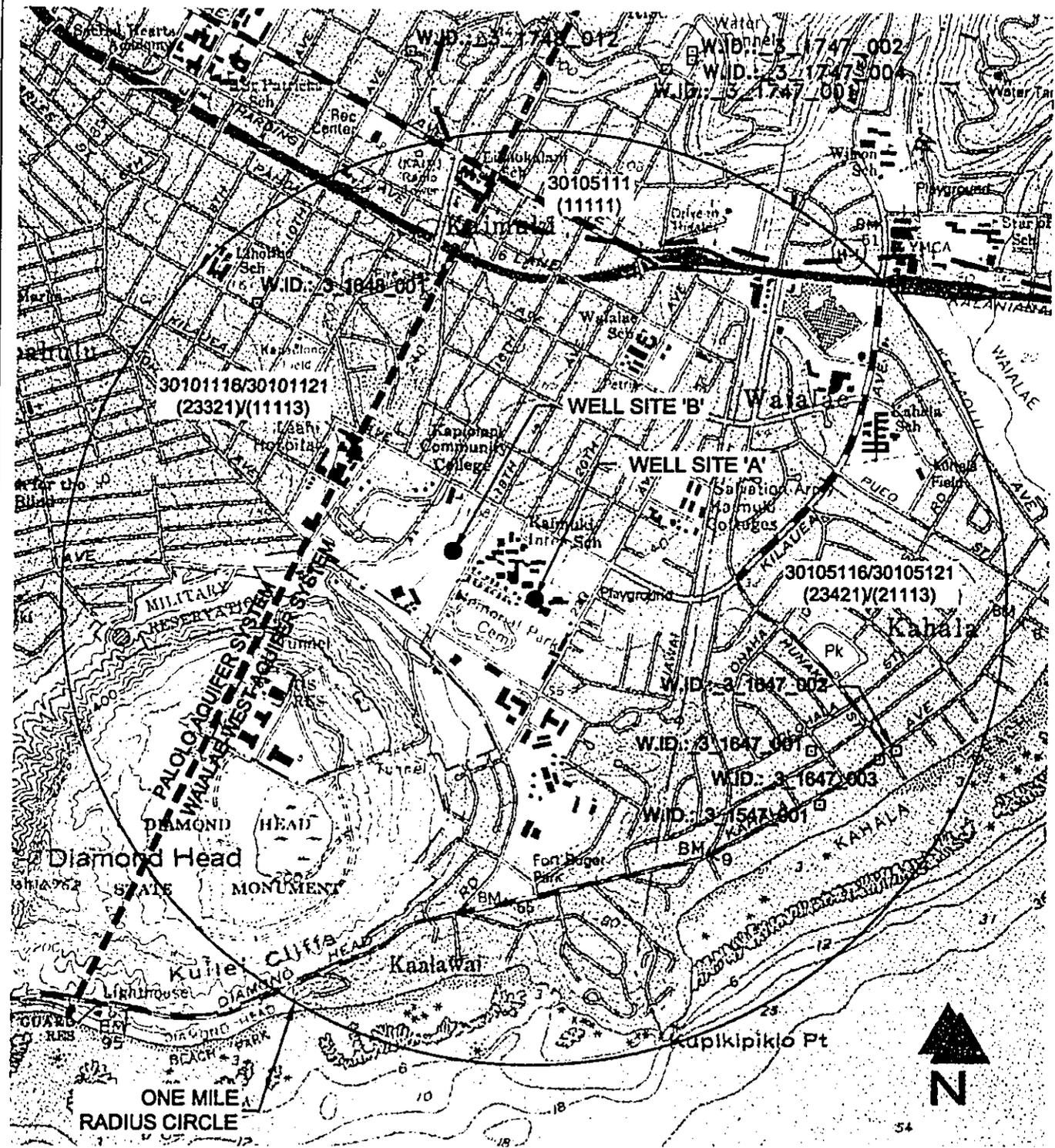
Source: Commission on Water Resources Management, Well Database

There are three (3) irrigation wells located approximately 1.3 miles to the west of the proposed well sites. The Kapiolani 1 Well (1649-013), Kapiolani 2 Well (1649-014), and the Alawai Pit #2 Well (1649-018) are all owned and used by the City and County of Honolulu Department of Parks and Recreation for irrigation purposes. All three (3) of these wells are located within the boundaries of the Palolo Aquifer System and therefore would not be indicative of water quality which could be expected at the proposed well sites in the Waialae-West Aquifer System. Production wells which are located outside of the one (1)-mile radius of the proposed well site will not be affected by the by the pumping test at Well Site "A" or Well Site "B".

2.5.2 Surface Water

There are no natural surface water bodies within a one (1)-mile radius of the proposed well sites. There are, however, two (2) drainage culverts, which convey the storm runoff to the sea, approximately one (1)-mile to the east of the proposed well sites. These culverts are channelized and serve as improved drainage pathways for conveyance of storm water rather than functioning as natural streams. The closer channel is fed by the runoff from the Waialae Nui Gulch and the Kapakahi Gulch of the Koolau Range. The other drainage system which runs parallel to Pueo Street conveys runoff from its contributory watershed which extends mauka of the H-1 Freeway.

Figure 2-9 Existing Wells in the Vicinity of the Proposed Well Sites



- Existing Wells
- Aquifer System Boundary
- - - Aquifer Type Boundary

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2.6 Contamination Analysis and Vulnerability Assessment

The general area surrounding the proposed Exploratory Well Sites have historically been used for residential and agricultural activities. Based upon the State Department of Health's groundwater contamination map for the State of Hawaii, as depicted in Figure 2-10, a few wells in the area have shown contamination. The Aina Koa Well (1746-01), 1.5 miles southeast of the proposed sites, and the Kaimuki Wells (1748-03 to 10), 1.75 miles to the west of the sites, have shown traces of Dieldrin in the water. According to results of laboratory testing of water samples from wells 1748-03 to 10 conducted on November 4, 1998, the level of Dieldrin detected was 0.015 ppb. Similarly Dieldrin was detected in well 1746-01 at 0.013 ppb. Dieldrin, an agricultural insecticide, has not been proven to cause cancer in humans; therefore, no threshold limit has been set by the Environmental Protection Agency or the State of Hawaii for this contaminant. Currently, all of these wells are in service as drinking water wells.

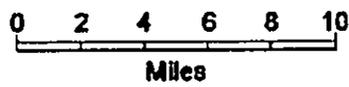
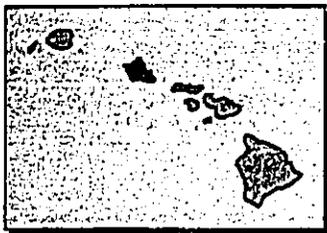
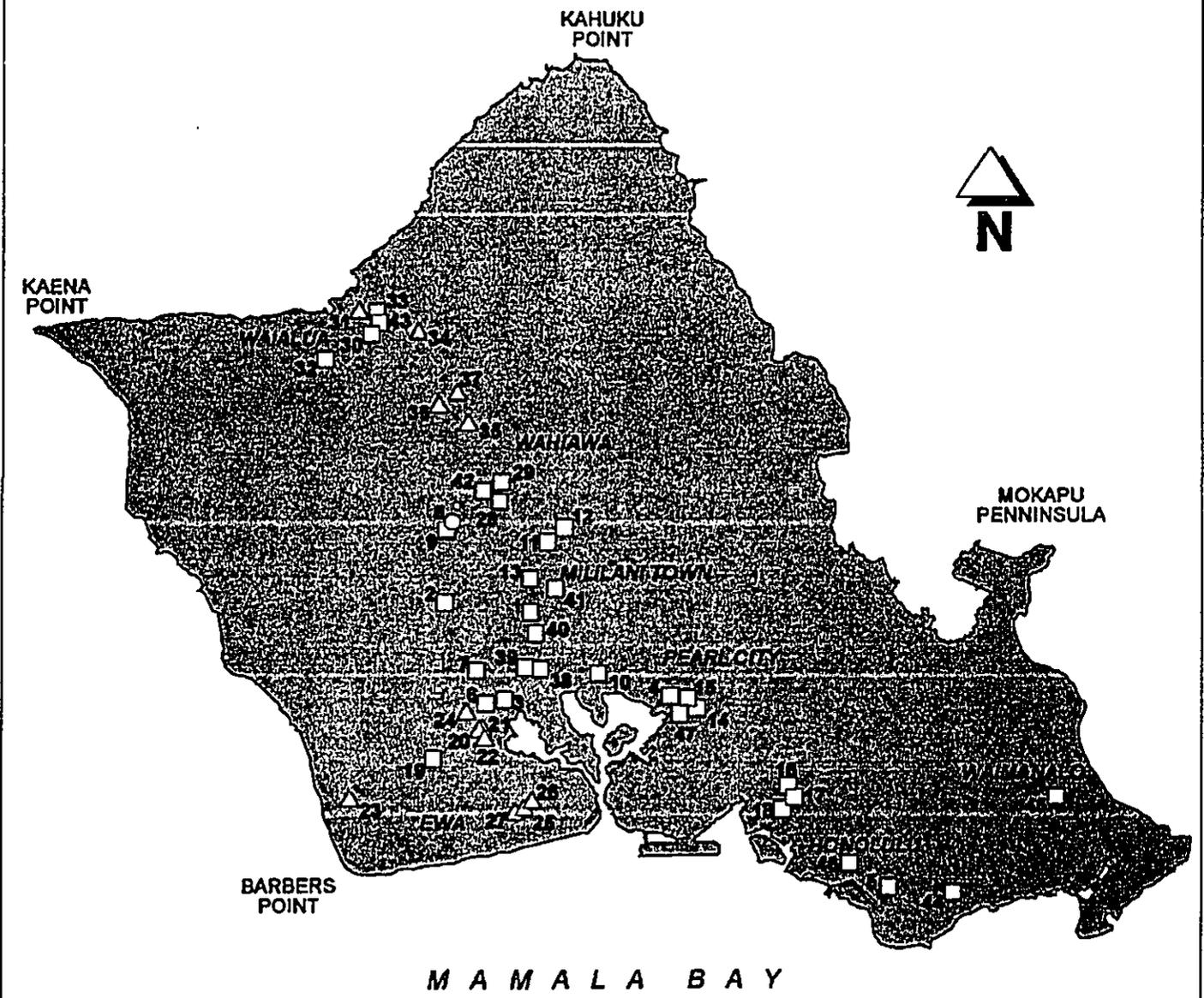
A review of the State Department of Health's UST and LUST databases showed several underground storage tanks within a one (1)-mile radius of the proposed well site. Detailed information on these tanks is listed in Table 2-2. Of the UST's in the area there are two facilities which reported a leak into the environment. The first site is the Handi Pantry (Facility ID No. 9-100752) located at 3625 Harding Avenue. There are two tanks used for the storage of gasoline, which have leaked at this site. The tanks are both currently in use and a LUST cleanup has been initiated at this site. The second site is the Diamond Head Monument (Facility ID No. 9-102976) located on Diamond Head Road. The two tanks at this site were used for storage of gasoline and diesel. This cleanup for this site is complete and both tanks are permanently out of use. Neither of the sites is within the critical quarter mile radius from the proposed well sites and are not expected to have any effect on the quality of the water in the proposed exploratory well.

A communication with the State Department of Health Hazard Evaluation and Emergency Response Office for hazardous waste sites indicated one such site in the area of the proposed well. The site is an aboveground storage tank used by the Hawaii Army National Guard to store Petroleum Hydrocarbon Distillate—a highly flammable liquid. The tank is located at 3949 Diamond Head Road approximately 3000 feet southeast from the proposed well sites. There has never been a leak or unauthorized release of the distillate from the storage tank to the environment.

According to the State Department of Health's Wastewater Branch, there are four abandoned cesspools in the area located on the Kaimuki Middle School campus. These cesspools which were constructed in late 50's and early 60's have since been abandoned. Wastewater from the school is conveyed to two eight inch vitrified clay pipe sewer lines along Kilauea Ave. and 18th Ave.

The closest landfill to the proposed well site is the Kapaa Landfill located approximately nine miles north of the site in Kailua on the other side of the Koolau Range. The closest solid waste transfer station is located in Waimanalo.

Figure 2-10 Map of Contaminated Well Sites, Island of Oahu



LEGEND	
□	- Drinking Water Well(s)
△	- Irrigation Well
○	- Industrial Well

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Table 2-2 Data on Underground Storage Tanks in the Vicinity of the Project Site

Facility ID No.	Facility Name	Address	Number of Tanks	Status of Tank		Leak Detected	Substance in Tank
				Currently in Use	Permanently Out of Use		
9-100043	Harding Union Service	3608 Harding Ave.	8	5	3	No	Used Oil, Gasoline, Other
9-100181	Cleanwell Cleaners	1151A 12th Ave.	1	0	1	No	Diesel
9-100190	Diamond Head Memorial Park	529 18th Ave.	2	0	2	No	Gasoline
9-100207	FAA Diamond Head RML	4204 Diamond Head Rd.	3	2	1	No	Diesel
9-100752	Handi Pantry	3625 Harding Ave.	2	2	0	LUST Cleanup Initiated	Gasoline
9-100760	Christian Broadcasting	3555 Harding Ave.	1	0	1	No	Diesel
9-100761	Christian Broadcasting	1148 12th Ave.	1	0	1	No	Diesel
9-100872	Waialae Laundry	4210 Waialae Ave.	1	0	1	No	Diesel
9-101062	Leahi Hospital	3675 Kilauea Ave.	2	2	0	No	Diesel
9-101092	Kapiolani Community College	N/A	1	0	1	No	Other
9-101108	Kaimuki Chevron	3541 Harding Ave.	6	5	1	No	Used Oil, Gasoline, Other
9-101412	Salvation Army	845 22nd Ave.	1	0	1	No	Gasoline
9-101805	Civil Defense	Diamond Head Crater	1	1	0	No	Diesel
9-101844	Organizational Maintenance Shop	3949 Diamond Head Rd.	2	2	0	No	Diesel, Gasoline
9-101846	Combine Support Maintenance Shop	3949 Diamond Head Rd.	1	0	1	No	Gasoline
9-102976	Diamond Head Monument	Diamond Head Rd.	2	0	2	Site Cleanup Complete	Diesel, Gasoline
9-102528	Shogakukan Production, USA	2405 Waialae Ave.	1	0	1	No	N/A
9-103147	Fort Ruger	Diamond Head Crater	3	3	0	No	Diesel

Source: State Department of Health UST and LUST Databases

2.7 Earthquake Hazards

The Hawaiian Islands are divided into three (3) seismic zones as specified by the Uniform Building Code (UBC) for the purpose of structural design. The entire island of Oahu is classified as Zone 2A as per UBC (1994), which is a seismically active area of the state. Given that the least active zone is Zone 0, and the most active zone is Zone 4, the possibility of an earthquake occurring on the island of Oahu is moderate. All new structures will be designed and constructed to resist stresses produced by lateral forces, which apply to Seismic Zone 2A.

2.8 Flood Considerations

Flood Insurance Rate Maps (FIRM) are used to evaluate the potential for flooding at the proposed exploratory well site. Based on FIRM Map Number 15003C0370 E dated November 20, 2001 the project site is designated as Zone X. This designation refers to areas situated outside of the 500-year flood plain as shown in Figure 2-11.

2.9 Flora and Fauna

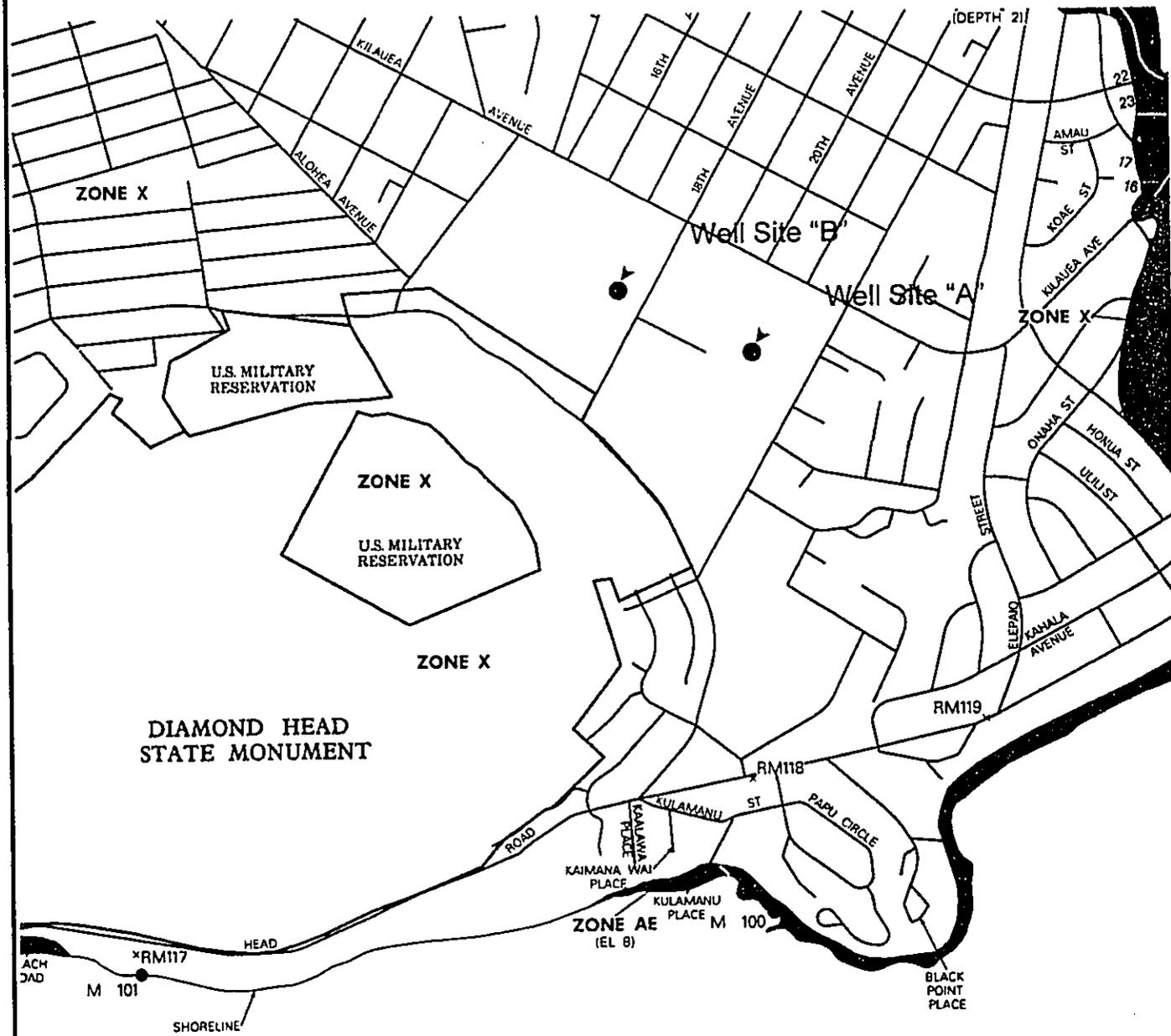
The proposed sites are located in an area that was primarily disturbed during 50's and 60's to accommodate construction of residential subdivisions and the community college campus. The area is mostly residential with some open field used for diversified agriculture. The biological communities that occupy the Kaimuki district of Honolulu have been impacted by anthropogenic activities and as such only some endemic flora species occur in the area. Terrestrial mammals located in the vicinity of the site consist are few. Those that do exist in the area are introduced species. The avian species located in the vicinity of the site are comprised of mostly introduced species.

The areas surrounding the proposed Well Site "A" and Well Site "B" contain a few Plumeria trees, Kiawe trees and perennial grasses—all of which are not native to Hawaii. Plant communities in the area have been significantly altered and no known threatened or endangered species occupy the site. Figure 2-12 through 2-15 show views of the various vegetation, plant types and the general character of the proposed exploratory well sites.

2.10 Wetlands

Based on U.S. Fish and Wildlife Service criteria, a wetland must have one or more of the following three attributes: one, it supports predominantly hydrophytes, periodically; two, the substrate is mainly undrained hydric soil; and three, the substrate is saturated with water or covered by shallow water at some time during the growing season. As shown in Figure 2-16, the project site is not located in a wetland zone.

Figure 2-11 Flood Insurance Rate Map



DESCRIPTION OF THE EXISTING ENVIRONMENT
SECTION TWO



Figure 2-12 Vegetation and General Site View of Proposed Well Site "A".



Figure 2-13 Close up View of Vegetation on Well Site "A".



Figure 2-14 Vegetation and General Site View of Well Site "B".

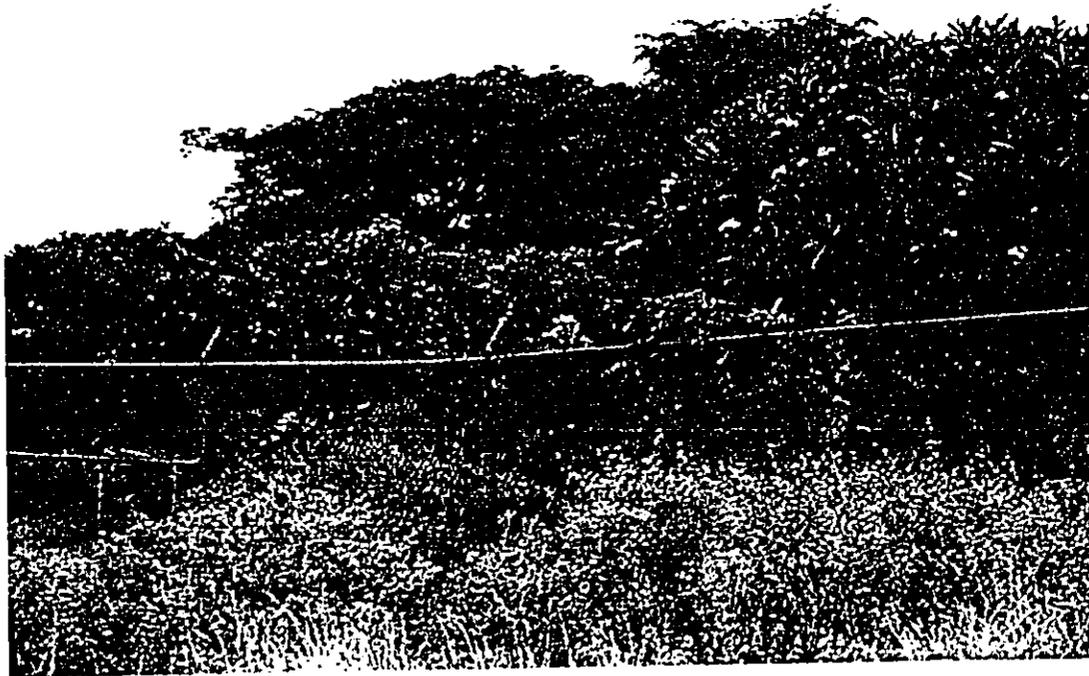
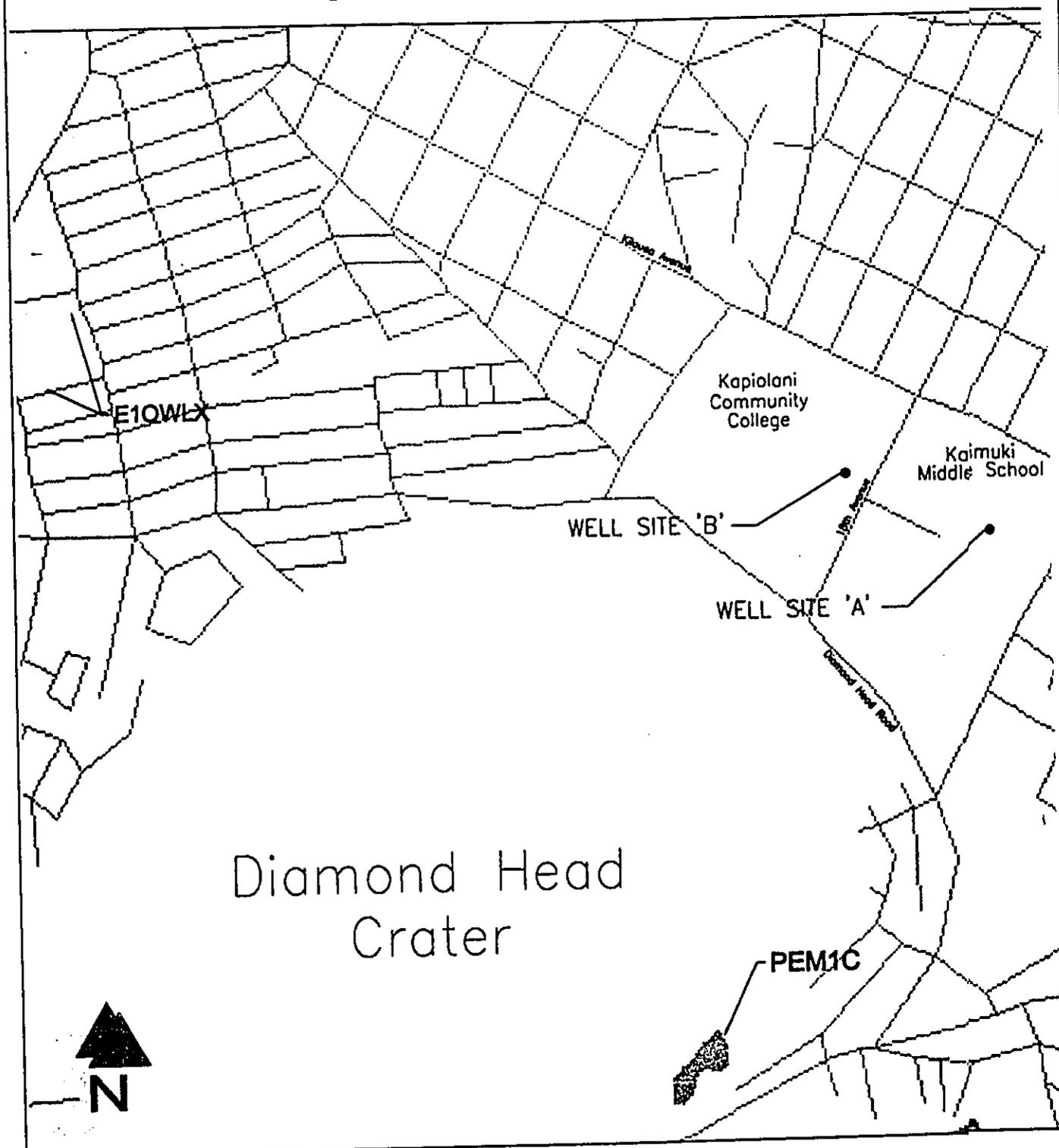


Figure 2-15 Close up View of Vegetation on Well Site "B".

Figure 2-16 Wetland Map



E1OWLx - An excavated open water, subtidal estuarine of unknown depth.

PEM1C - A persistent seasonal emergent palustrine.

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2.11 Archaeological and Historic Sites

Both the proposed exploratory Well Site "A" and Well Site "B", are located on parcels of land that have been previously disturbed and altered during construction of the Kaimuki Middle School and Kapiolani Community College. Based on the records at the State Historic Preservation Division (SHPD), there is no historic or culturally sensitive sites on either of the two parcels. A copy of the letter from SHPD is included in Appendix A. In addition based on surveys performed by the Bishop Museum for the Hawaii State Parks Division, there are also no archeological sites in the immediate vicinity of the either well site. Should any historic artifacts and/or burial sites be found during installation of the exploratory well, work must be stopped and the State Historic Preservation Office must be contacted for implementation of a proper monitoring and preservation program.

2.12 Cultural Resources

Under Act 50, 2000 Session Laws of Hawaii an investigation must be performed in order to determine what impact, if any, the proposed construction will have on any cultural activities in the area. In an effort to ascertain information regarding the cultural significance of the proposed well sites those persons knowledgeable of the activities which take place on the campuses of KMS and KCC were contacted. The principal of Kaimuki Middle School, Frank Fernandes, indicated (via phone conversation) that he knew of no groups which congregated at or near the proposed Well Site "A". Similarly, John Messina, Auxiliary Services Officer of Kapiolani Community College, stated that there were no groups which met at or near the proposed Well Site "B". A copy of the Draft Environmental Assessment was sent to the Kaimuki Neighborhood Board for review and comment; however, no response was received. Neither site contains any native herbs or plants which native plant gatherers would require access to. The construction area at both sites are relatively small and therefore will not restrict access to any of the surrounding terrain.

2.13 Aquatic Resources :

There are no standing or flowing bodies of water on or near the proposed exploratory well site.

2.14 Scenic and Aesthetic Resources

Both the proposed exploratory Well Site "A" and Well Site "B" are located on parcels of land along 18th Avenue, in the Kaimuki district of Honolulu. Well Site "A" is surrounded by a residential subdivision, a mortuary and small agricultural plots on the south and classrooms / administration buildings on the north. The site is relatively flat with average elevation of about 42 feet above MSL. The site does not offer any special scenic view plane. Views of the

DESCRIPTION OF THE EXISTING ENVIRONMENT
SECTION TWO

mountains, and the Diamond Head are occluded by trees, residential and existing structures. The proposed exploratory well will be very innocuous and will not include any structure or improvement which obstruct and/or affect the existing view planes at either well site.

SECTION 3
PROJECT IMPACTS AND MITIGATION MEASURES

SECTION 3

PROJECT IMPACTS AND MITIGATION MEASURES

The following subsections describe the potential impacts of the proposed project and the mitigation measures that will be implemented to address them. Some of the impacts discussed include construction noise, air quality, flora and fauna, surface and groundwater quality, archaeological and historical resources, traffic, public health and safety, and socioeconomic and cultural conditions.

3.1 Short Term Impacts and Mitigation Measure

Since the proposed Well Site "A" and Well Site "B" have already been disturbed, installation of an exploratory well at either site will have minimal impact associated with site clearing, grubbing, and grading. Potential impacts of the project at either site will be mainly due to drilling, pump testing, and landscaping. These activities are limited to the project site and will occur only during two to three (2-3) months of well installation. Additionally, impacts to the groundwater resources may occur and will be limited to the pumping test period of the project. If the exploratory well is converted into a production well, a separate EA will be prepared in which all long-term impacts and mitigation measures associated with a production well will be addressed.

3.2 Construction Noise

Noise generated from drilling and construction activities will likely be unavoidable during the entire drilling and construction phase. Drilling and pump testing at Well Site "A" will be scheduled to begin during the summer months of 2001 when school is in recess. Should the need arise to develop a well at site B, special care will be given not to disrupt activities at a child care facility for children under the age of five. This facility is located approximately 250 feet to the east of the Well Site "B". Unavoidable construction noise impacts will be mitigated to some degree by the Contractor's compliance with the provisions of the State Department of Health Administrative Rules, Chapter 11-46, "Community Noise Control". Construction work will be done during working hours and is prohibited during the weekends and holidays. To mitigate any noise impacts generated from well drilling, the Contractor will be required to use muffling devices to inhibit or reduce noise from construction equipment. Construction equipment shall be properly maintained to prevent mechanical delays in the project schedule. In addition, strict compliance with DOH noise control regulations regarding hours of operation by heavy equipment will be strictly adhered to. No significant noise impacts from the pumping test are anticipated.

3.3 Air Quality

The project is not expected to have significant impacts on ambient air quality. Short-term ambient air quality at the project site is expected to be minimally affected by construction

activities such as clearing, grubbing, and grading as well as vehicular emissions from construction equipment. All operations must be performed in compliance with the State Department of Health regulations regarding vehicular emissions. The contractor will be responsible for employing dust control measures such as regular watering and sprinkling to minimize particulate suspension. Graded areas will be seeded as soon as feasible to establish long term dust abatement. Ambient air quality may also be adversely affected by emissions from construction equipment and other motor vehicles; thus, all construction equipment shall be equipped with adequate emission control measures. Potential exhaust emissions from construction equipment are anticipated to have negligible impacts on ambient air quality in and around the project areas.

3.4 Flora and Fauna

Both the Well Site "A" and Well Site "B" have already been substantially disturbed. Both of the well sites are vacant and relatively clear of any vegetation. No known threatened or endangered species of flora and fauna are found at either site. Thus, it is anticipated that the proposed project will have no short-term impacts on sensitive and endangered species or their environment. To limit potential impacts on the flora and fauna on adjacent areas, construction activities will be limited to the well site. No construction equipment and/or machinery will be placed or stored in the surrounding area of the proposed well site.

3.5 Surface Water and Groundwater Quality

Our latest records indicate that there are no streams or wells currently in operation within a one (1)-mile radius of either of the two well sites. The nearest surface water feature to the either well site is a flood control ditch which only contains flow during storm events. The quality of coastal water in the general area of Diamond Head Crater is classified as Class A marine water according to the Department of Health Water Quality Standards Map.

The extent of alteration at either of the proposed well sites is so minimal that runoff patterns and volume from the site will be hardly affected. Drilling slurry and the well cuttings produced during the drilling phase of both sites will be collected in on-site seepage pits to be constructed by the Contractor. The water withdrawn during the pumping test of Well Site "A" will be diverted, by the Contractor, into an existing storm drain inlet located at the corner of 18th Avenue and Iwalani Place. The pump test waters of Well Site "B" will be directed to an existing ponding basin located on the lot contiguous to the south eastern edge of the KCC campus. This ponding basin is the primary means of drainage in the area. The discharge of water withdrawn from the wells at either site will be in accordance with the requirements of the Department of Health's NPDES permit program.

Impacts of the proposed wells on the groundwater resources are considered insignificant since the anticipated capacity of the proposed wells is well below the available safe yield of the aquifer. Well annulus will be grouted to sea level or below to impede potential surface contamination of the well.

3.6 Archaeological and Historical Sites

No archaeological or historical sites are known to exist at either of the two (2) well sites, and no short-term impacts due to construction are expected. Although the KCC parcel was formerly part of Fort Ruger, this parcel was not included in the Fort Ruger Historic District (SIHP 50-80-14-1350) on either the National Register or the Hawaii State Register of Historic Places inventory. Both of the parcels have been extensively developed and it is unlikely subsurface sites will be found at either locations. Should any artifact and or burial site be encountered during construction on-site, all activities will be ceased and the SHPD will be notified. After consultation with this office and implementation of a monitoring program, construction activities will be allowed to continue.

3.7 Cultural Resources

There are no cultural gathering sites known to exist at either of the two (2) well sites, and no short-term impacts, due to construction, are expected.

3.8 Traffic

Traffic in the general area of the proposed well sites are mainly local. 18th Avenue, which will be used to access both well sites, is a two (2)-lane paved street with adequate capacity to traffic volume ratio. Temporary increases in traffic volume from vehicles transporting equipment and supplies to and from the well site during drilling and well testing are anticipated to be very minimal. The additional traffic volume is not expected to adversely impact the private vehicular or pedestrian traffic along 18th Avenue. If necessary, to mitigate any potential traffic congestion and delays, the movement of construction vehicles can be restricted to off-peak traffic hours. It is anticipated that all construction related vehicles would park in the vicinity of the project site.

3.9 Public Health and Safety

The Contractor shall be responsible for implementing appropriate measures to ensure public health and safety during the construction period. The construction area will be delineated and properly marked, to provide adequate safety and restrict access.

3.10 Socioeconomic Conditions and Cultural Environment

Construction of the proposed well may provide short-term additional opportunities for local construction workers. It will also benefit the local material suppliers, in both retail and service sectors. The additional requirements for community service generated from the construction are expected to be minimal since only a few workers are needed.

The proposed wells are compatible with existing uses of the land in the area and is not expected to infringe on or alter any uses on the lands surrounding the sites. Thus, the proposed project will have no impact on community service needs.

3.11 Stream Flow and Groundwater

No long-term impacts to surface water flow and groundwater resources are anticipated to occur as a result of installation of the proposed exploratory well. The nearest waterway in the area is a concrete lined flood control channel that experiences flow condition during storms. The exploratory well is expected to be drilled to a depth of approximately -420 feet below the ground surface, making the point of extraction around -335 feet below MSL. The depth of the well coupled with the presence of a sedimentary layer that separates the upper aquifer from the lower aquifer eliminates any potential impacts due to withdrawals from the lower basal aquifer. Additionally the potential impacts of the proposed project on the groundwater in the area are also considered insignificant since the limited pumping anticipated from the well is a small fraction of the potential yield of the aquifer.

3.12 Drainage

Both Well Site "A" and Well Site "B" are fairly flat and require no grading. During installation of the proposed exploratory well, no impermeable surfaces will be constructed and therefore, the increase in surface run-off will be negligible. The only significant discharge from the site will be the pump testing water, which will be diverted into an existing storm drain inlet along 18th Avenue at Well Site "A" or an existing ponding basin adjacent to the well site at Well Site "B". Upon completion of the pumping test, the well will be sealed and the site will be seeded including implementation of proper Best Management Practices (BMPs) to mitigate erosion—if necessary. The project has no significant impacts on drainage in the area.

3.13 Scenic and Aesthetic Resources

Installation of the proposed exploratory well, at either Well Site "A" or Well Site "B", is expected to have little impact on the scenic and aesthetic resources in the area. The project will not include construction of any above ground structures which may block the view planes in the area. There is the need for minimal clearing and grading of an area of approximately one-quarter acre at either of the two well sites. Equipment such as the drilling rig will only occupy the site during the drilling and pumping test. After completion of drilling and testing there will be no structures or equipment on-site which would differentiate it from the surrounding area. Any impacts to the view plain or aesthetic resources are expected to be minimal and only for a short duration of the well installation and testing phases.

SECTION 4
ALTERNATIVES TO THE PROPOSED ACTION

SECTION 4

ALTERNATIVES TO THE PROPOSED ACTION

The alternatives for the proposed exploratory well project include "No Action", "Delayed Action" and "Alternative Sources".

4.1 No Action

The objective of the exploratory well is to determine if the site could be used as a source of potable water for DLNR facilities. "No Action" means that no exploratory well will be drilled. This alternative would result in a lack of a non-potable water source for DLNR to meet its responsibility to provide water for State facilities on Oahu. As such the "No Action" alternative is not a desirable and/or practical option.

4.2 Delayed Action

The "Delayed Action" alternative means that the exploratory well will be drilled some time in the future. This action would result in a continued reliance on BWS potable water for irrigation uses and lead to higher project costs in the future. This alternative is not fiscally sound, nor does it meet the goals of meeting immediate increases in water, as such, this alternative is not desirable.

4.3 Alternative Sources

4.3.1 Enhanced Water Conservation

The proposed well is intended to help meet the demand for irrigation water by the State facilities. This is in line with the objective of the Water and Land Program of the State of Hawaii Department of Land and Natural Resources, mandated to promote economic development and enhance public welfare by developing water supplies on State lands. The implementation of any state-sponsored project requiring water service from the BWS system must obtain a water allocation before it can receive a building permit. The Land Division of DLNR, as the State's water developer, receives water allocation credits by developing water facilities and turning them over to BWS. Water credits may still be obtained for a non-potable well since the water can replace or supplement the potable water, which is presently being used for irrigation. Water conservation measures may reduce water used by existing facilities, however the potential reductions in use are most likely much less than anticipated demands due to increases in users. In addition, BWS and City and County of Honolulu Building Codes and Ordinances have already initiated programs to promote conservation measures. The use of low flow fixtures is required for all new construction and renovation projects. BWS is also engaged in promoting xeriscape program, leak detection program and low fixture retrofit program.

4.3.2 Wastewater Reuse

The City and County of Honolulu has already initiated wastewater reuse program. A major wastewater effluent reuse facility at Honouliuli Wastewater Treatment Plant was recently completed. The facility, has the capacity of treating up to 13,000,000 gallons of secondary treated waster water effluent to be mainly used for Golf course irrigation. Reuse of wastewater effluent to replace potable demand at State facilities is neither a viable option nor acceptable by the community at this time.

4.3.3 Rainwater Catchments and Surface Water

Rainfall harvest is an impractical alternative in light of the fact that harvesting catchments to collect enough water to meet demands would be costly. In addition, water collected in water catchments is subject to costly treatment process and not viable at this time. Use of surface water alternatives are severely limited due to the limited availability and the plethora of potential conflicts concerning instream flow issues. These alternatives are not viable options and are not acceptable to DLNR.

4.3.4 Alternative Time Frames

The projected potable water demand for existing and planned State facilities requires expeditious development of alternative sources in various parts of the island. Consequently, delaying the project is not a viable alternative. In addition, the project is already funded and on fast-track construction timetable to meet the urgent need for water by the State facilities.

In conclusion the implementation of the proposed action is the most feasible option in order for the DLNR to meet its goal for providing water for State facilities.

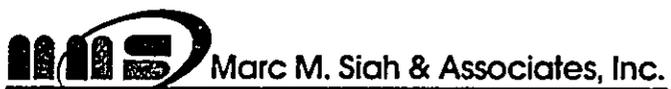
SECTION 5
IRREVERSIBLE AND IRRETRIEVABLE COMMITMENT
OF RESOURCES AND UNRESOLVED ISSUES

SECTION 5

IRREVERSIBLE AND IRRETRIEVABLE COMMITMENTS OF RESOURCES AND UNRESOLVED ISSUES

The proposed exploratory well project involves irreversible and irretrievable uses of energy, labor, materials, and capital funds by the Department of Land and Natural Resources. There are no unresolved issues in regard to the proposed exploratory well at the present time.

SECTION 6
LIST OF NECESSARY PERMITS AND APPROVALS



Marc M. Siah & Associates, Inc.

Consulting Civil • Structural • Environmental & Ocean Engineers
810 Richards Street, Suite 888, Honolulu, Hawaii 96813

SECTION 6

LIST OF NECESSARY PERMITS AND APPROVALS

The following permits and approvals are anticipated for the development of the proposed Kaimuki exploratory well project:

6.1 Permits

- I. Grading Permit – Department of Planning and Permitting, City and County of Honolulu
- II. Well Construction Permit – Commission on Water Resource Management, Department of Land and Natural Resources, State of Hawaii.
- III. Pump Installation Permit – Commission on Water Resource Management, State of Hawaii.
- IV. Non-Point Discharge Elimination System, NPDES Permit – State Department of Health

6.2 Approvals

- V. Plan Approval –Engineering Branch, Land Division, DLNR, State of Hawaii.
- VI. State Historic Preservation Office, Department of Land and Natural Resources, State of Hawaii. (See Appendix A - Letter dated July 24, 2000)
- VII. Commission on Water Resources Management, Department of Land and Natural Resources, State of Hawaii.
- VIII. Office of Environmental Quality Control, State of Hawaii.

SECTION 7
FINDINGS, DETERMINATION, AND
REASONS SUPPORTING DETERMINATION



Marc M. Siah & Associates, Inc.

Consulting Civil • Structural • Environmental & Ocean Engineers
810 Richards Street, Suite 888, Honolulu, Hawaii 96813

SECTION 7

FINDINGS, DETERMINATION, AND REASONS SUPPORTING DETERMINATION

7.1 Significance Criteria

This Draft Environmental Assessment (DEA) is prepared pursuant to Chapter 343, Hawaii Revised Statutes (HRS) and Title 11, chapter 200, Administrative Rules, Department of Health, State of Hawaii. The Department of Land and Natural Resources (DLNR) proposes to locate a non-potable water source to provide irrigation water for the campus of Kaimuki Middle School (KMS) and various State facilities in the Diamond Head. State facilities may include the, Kapiolani Community College (KCC), areas of the former Fort Ruger, National Guard facilities in the area and the Diamond Head State Monument.

The preferred site, referred to as Well Site "A", is located on the KMS campus on a portion of the parcel identified by TMK: 3-2-059:002. The alternate site, referred to as Well Site "B", is located on the grounds of KCC on a portion of the parcel identified by TMK: 3-1-042:009. The project will consist of drilling and pump testing a pilot hole at Well Site "A". If the pump test results are deemed successful, an exploratory well will be drilled at Well Site "A". However, if the pump test results of the pilot well are deemed unsuccessful, the pilot hole will be capped and abandoned, and a second pilot hole will be drilled and tested at Well Site "B". If the pump test results of the second pilot hole are deemed unsuccessful, the pilot hole will also be capped and abandoned. If the pump test results are deemed successful, an exploratory well will be drilled and tested at Well Site "B".

The proposed installation of the Oahu Exploratory Wells, Kaimuki Well project will have no significant adverse impact on the environment. Therefore, an Environmental Impact Statement is not required for the project. Based on the "Significant Criteria", listed in Section 12 of HRS Title 11, Chapter 200, an applicant or agency must determine whether an action may have a significant impact on the environment, including all phases of the project, its expected consequences both primary and secondary, its cumulative impact with other projects, and its short and long-term impacts. In making the determination, the "Significant Criteria" Rules established are employed as the basis for identifying whether the proposed project has significant environmental impacts. Based on these rules the following conclusions are reached:

1. ***The Kaimuki Exploratory Wells project would not result in irrevocable commitment to loss or destruction of any natural or cultural resources.*** The proposed exploratory well will be constructed on vacant land. No significant natural resources are present at the project site. No known cultural resources would be impacted.

2. ***The proposed project would not curtail the range of beneficial uses of the environment.*** The proposed project, will not curtail beneficial uses of the site and the surrounding area. The area used for the proposed wells is very small in proportion to the entire area of the property. Installation of the well at this site by no means curtails the use of the remaining portion of the property from any beneficial use. The water to be withdrawn from the proposed well will be a small fraction of the developable yield of the aquifer.

3. ***The proposed action does not conflict with the State's long-term environmental policies or goals and guidelines.*** The State policies as set forth in Chapter 344; Hawaii Revised Statutes espouse conservation of natural resources, and enhancement of the quality of life. The project is in line with the objective of the Water and Land Development Program of the State DLNR which was established to promote economic development and enhance the public welfare by developing water supplies on State lands. The proposed use of the non-potable water withdrawn from the wells for irrigation purposes is also in accordance with the Oahu Water Management Plan, Hawaii Drought Plan, State Water Projects Plan, Hawaii Water Plan and CWRM policy.

4. ***The economic or social welfare of the community or State would not be substantially affected.*** The proposed well will provide a reliable source of non-potable water for existing and future state facilities. Its development may allow the DLNR to receive water credit from the BWS and to offset higher costs that would likely occur if they depend on BWS to develop other sources in the future.

5. ***The proposed action does not substantially affect public health.*** The proposed project would provide for an additional source of more reliable non-potable water for State facilities and allow enhancement of public welfare.

6. ***No substantial secondary impacts, such as population changes or affects on public facilities, are anticipated.*** The proposed project will provide non-potable water for existing and already planned future state facilities. It will not have any impacts on public facilities and/or population increases in the area.

7. ***No substantial degradation of environmental quality is anticipated.*** The project sites are located on a vacant land with no significant environmental or cultural feature. It will not adversely impact the overall environmental quality of the area.

8. ***The proposed action does not involve a commitment to larger actions, nor would cumulative impacts result in considerable affects on the environment.*** The proposed project is self-contained. The project will provide reliable non-potable water for State facilities

FINDINGS, DETERMINATION, AND REASONS SUPPORTING DETERMINATION
SECTION SEVEN

9. ***No rare, threatened or endangered species or their habitats would be affected.*** No known endangered, threatened or candidate flora and fauna species are present at the site or may be affected by the proposed action.

10. ***Air quality, water quality or ambient noise levels would not be detrimentally affected.*** The proposed project will not adversely affect air or water quality. It also will not generate solid wastes or produce emissions that will have significant impacts on the public health or the environment. Short-term impacts from construction activity include increased noise levels, dust and exhaust from construction machinery which will be mitigated by implementation of standard methods that the DLNR will require from the Contractor.

11. ***The project would not affect environmentally sensitive areas, such as flood plains, tsunami zones, erosion-prone areas, geologically hazardous lands, fresh waters or coastal waters.*** No environmentally sensitive areas would be affected by the proposed well construction. The proposed project is on a mild slope, located out of the active flood plain and inland of coastal flooding and tsunami inundation zones. No seismic risks or volcanic hazards are anticipated.

12. ***The project does not substantially affect scenic vistas and view plains in the County or State plans and studies.*** Equipment such as the drilling rig will only occupy the site during the drilling and pump test. The view of the equipment from off site will be obstructed somewhat by the vegetation that surrounds the well site. After completion of drilling and testing there will be no structures or equipment on-site which would differentiate the site from the surrounding area.

13. ***The proposed project does not require substantial energy consumption.*** If practical, power will be provided to the Well Site "A" from the nearest HECO overhead line along 18th Avenue. Electric pumps to be used for pump testing will not require substantial energy consumption, otherwise a diesel generator will be used for drilling and pump testing.

7.2 Notice of Determination

On the basis of the foregoing information, this EA has determined that the proposed exploratory well would not have significant impacts on the environment. As such, a notice of a determination of *Finding of No Significant Impact (FONSI)* for the proposed project is appropriate.

7.3 Reasons Supporting the Determination

The nature and scale of the proposed project are such that no significant environmental affects are anticipated. A few negative impacts, which have been identified in this Environmental Assessment, can be mitigated or minimized through sensitive site planning and engineering design, implementation of careful construction methods and compliance with all governmental requirements including those of the State Department of Health.

SECTION 8
AGENCIES CONSULTED



Marc M. Siah & Associates, Inc.

Consulting Civil • Structural • Environmental & Ocean Engineers
810 Richards Street, Suite 888, Honolulu, Hawaii 96813

SECTION 8

AGENCIES CONSULTED

Federal Agencies

U. S. Department of Agriculture
Natural Resource Conservation Service
P. O. Box 50004
300 Ala Moana Blvd.
Honolulu, HI 96850

U. S. Department of the Interior
Fish and Wildlife Service, Ecological Services
P. O. Box 50156
300 Ala Moana Blvd.
Honolulu, HI 96850

State of Hawaii

Department of Land and Natural Resources
Water Resources Management Division
1151 Punchbowl Street
Honolulu, Hawaii 96813

Land Division
DLNR, State of Hawaii
P.O. Box 621
Honolulu, Hawaii 96809

Department of Land and Natural Resources
State Historic Preservation Division
601 Kamokli BLVD, Room 555
Kapolei, Hawaii 96707

State Land Use Commission
State Office Tower, 4th Floor
235 S. Beretania Street
Honolulu, Hawaii 96813

**AGENCIES CONSULTED
SECTION EIGHT**

Department of Health
Clean Water Branch
919 Ala Moana Blvd, Room 301
Honolulu, Hawaii 96814

Senator Matt Matsuanga, District 9
Hawaii State Capitol, Room 226
415 South Beretania Street
Honolulu, HI 96813

Senator Les Ihara, Jr., District 10
Hawaii State Capitol, Room 214
415 South Beretania Street
Honolulu, HI 96813

Representative Mindy Jaffe, District 19
Hawaii State Capitol, Room 322
415 South Beretania Street
Honolulu, HI 96813

Department of Health-NPDES
Kinau Hale
1250 Punchbowl Street
Honolulu, Hawaii 96813

Department of Health
Environmental Health Division
919 Ala Moana Blvd, Room 309
Honolulu, Hawaii 96814

Department of Business, Economic
Development, and Tourism
250 S. Hotel Street,
4th Floor, EWA Wing
Honolulu, Hawaii 96813

Paul Lemahieu
Department of Education
P.O. Box 2360
Honolulu, Hawaii 96804

**AGENCIES CONSULTED
SECTION EIGHT**

Kapiolani Community College
Physical Facilities Planning and Construction
4303 Diamond Head Road
Manele Building, Rm. 103
Honolulu, Hawaii 96816

City and County of Honolulu

Councilmember Bainum, District 4
530 S. King St.
Honolulu, Hawaii 96813

Department of Planning and Permitting
Zoning Division, Land Use
City and County of Honolulu
650 South King Street
Honolulu, Hawaii 96813

Kaimuki No. 4
c/o Neighborhood Commission
City Hall, Room 400
Honolulu, Hawaii 96813

Board of Water Supply
City and County of Honolulu
630 South Beretania Street
Honolulu, Hawaii 96843

REFERENCES

 **Marc M. Siah & Associates, Inc.**

Consulting Civil • Structural • Environmental & Ocean Engineers
810 Richards Street, Suite 888, Honolulu, Hawaii 96813

REFERENCES

1. U.S. Department of Agriculture, Soil Conservation Service, Soil Survey of the Island of Oahu, State of Hawaii, 1972.
2. University of Hawaii, Department of Geography, Atlas of Hawaii (3rd Ed.), University of Hawaii Press, Honolulu, Hawaii, 1998.
3. State of Hawaii, Department of Land and Natural Resources, Division of Water and Land Development, Rainfall Atlas of Hawaii, R76, 1976.
4. Macdonald, Gordon A.; Abbott, Agatin T.; and Peterson, Frank L., Volcanoes in the Sea, University of Hawaii Press, Honolulu, Hawaii, 1990.
5. Stearns, Harold T., Geology of the State of Hawaii, Pacific Books, Palo Alto, California, 1985.
6. Hawaii Well Construction & Pump Installation Standards, Department of Land and Natural Resources, Commission on Water Resource Management, Honolulu, Hawaii, 1997.
7. Marc M. Siah & Associates, Inc., Oahu Exploratory Well Site Selection Study, December 1999.
8. Macdonald, G.A. and W. Kyselka, Anatomy of an Island, Bishop Museum Press, Honolulu, Hawaii, 1967.
9. Wilson Okamoto and Associates, Oahu Water Management Plan, January 1998.
10. Mink, J.F. and L.S. Lau, Aquifer Identification and Classification for Oahu; Groundwater Protection Strategy for Hawaii, Water Resources Research Center, University of Hawaii at Manoa, Honolulu, Hawaii, February 1990.
11. Federal Emergency Management Agencies, Flood Insurance Rate Map, City and County of Honolulu, Hawaii, September 1987.

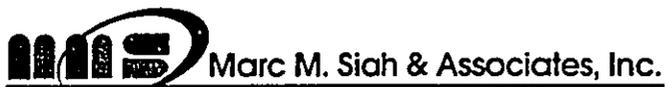
APPENDICES



Marc M. Siah & Associates, Inc.

Consulting Civil • Structural • Environmental & Ocean Engineers
810 Richards Street, Suite 888, Honolulu, Hawaii 96813

Appendix A - Letters of Correspondence



Marc M. Siah & Associates, Inc.

Consulting Civil • Structural • Environmental & Ocean Engineers
810 Richards Street, Suite 888, Honolulu, Hawaii 96813



1147 1.2
Marc M. Siah & Associates, Inc.

Engineering & Science of the Environment

July 7, 2000

Mr. Don Hubbard
Administrator
Historic Preservation Division
601 Kamokila Blvd., Room 555
Kapolei, HI 96707

**RE: REQUEST FOR CULTURAL AND ARCHEOLOGICAL INFORMATION FOR
PORTIONS OF THE LAND PARCELS WITH TMK 3-2-059:002 AND TMK 3-1-042:009.**

Dear Mr. Hubbard,

We are writing this letter to request any cultural and archeological information your office may have on the two parcels with TMK 3-2-059:002 and TMK 3-1-042:009 in Kaimuki, Oahu. The first parcel houses Kaimuki Intermediate School, whereas the second parcel encompasses the Kapiolani Community College campus.

On behalf of the Department of Land and Natural Resources, Marc M. Siah and Associates, Inc. is currently preparing an Environmental Assessment (EA). The scope of the EA is to review and assess the impact of a proposed exploratory well to be sited and drilled on a portion of the parcel with TMK 3-2-059:002. Should this exploratory well prove to be unproductive during the pumping test, an alternate well will be drilled on a portion of the parcel with TMK 3-1-042:009. Enclosed are a site map depicting the two parcels and the specific locations for the proposed exploratory well and alternative well sites.

We would appreciate your assistance in providing any existing cultural and archeological information for these sites. The information submitted by your office will be included in the EA report.

If you have any questions regarding this request or need additional information and/or clarification please do not hesitate to give me a call at 538-7180.

Sincerely,
Marc M. Siah and Associates, Inc.

Andy Keane
Environmental Engineer

Enc. TMK Maps
Site Plan

CIVIL • STRUCTURAL • ENVIRONMENTAL • WATER RESOURCES • COASTAL

BENJAMIN J. CAYetano
GOVERNOR OF HAWAII

RECEIVED AUG 2 2000



STATE OF HAWAII

DEPARTMENT OF LAND AND NATURAL RESOURCES

HISTORIC PRESERVATION DIVISION
Kakuhikewe Building, Room 555
501 Kamohāiwa Boulevard
Honolulu, Hawaii 96813

TIMOTHY E. JOHNS, CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES
DEPUTIES
JANET E. KAWALO

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

July 24, 2000

Andy Keane
Environmental Engineer
Marc M. Siah & Associates, Inc.
City Center Building, Suite 888
810 Richards Street
Honolulu, Hawaii 96813

LOG NO: 25835 ✓
DOC NO: 0007EJ18

Dear Mr. Keane:

**SUBJECT: Chapter 6E-8 Historic Preservation Review -- Pre- EA Consultation on the DLNR
Proposed Exploratory Well at Kaimuki Intermediate School and at Kapi`olani
Community College Parcels
Waialae, Kona, O`ahu
TMK: 3-2-059:002 and 3-1-042:009**

Thank you for the opportunity to provide comment for an EA on the proposed DLNR Exploratory Well at Kaimuki Intermediate School and at Kapi`olani Community College Parcels at. Our review is based on historic reports, maps, and aerial photographs maintained at the State Historic Preservation Division; no field inspection was made of the project areas.

A review of our records shows that there are no known historic sites at these locations. Both parcels have been extensively altered during the development of Fort Ruger, the community college and intermediate school. Although the KCC parcel was formerly part of Fort Ruger, this parcel was not included in the Fort Ruger Historic District (SIHP 50-80-14-1350) on either the National Register or Hawaii State Register of Historic Places inventory. Because the parcels have been extensively developed and it is unlikely subsurface sites will be found, we believe that the proposed well sites will have "no effect" on historic sites.

Should you have any questions, please feel free to call Sara Collins at 692-8026 or Elaine Jourdan at 692-8027.

Aloha,

A handwritten signature in black ink, appearing to read "Don Hibbard".

Don Hibbard, Administrator
State Historic Preservation Division

EJ:jk

Appendix B - Early Consultation

BOARD OF WATER SUPPLY

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



JEREMY HARRIS, Mayor
EDDIE FLORES, JR., Chairman
CHARLES A. STED, Vice Chairman
JAN M.L.Y. AMII
HERBERT S.K. KAOPUA, SR.
BARBARA NIM STANTON

KAZU HAYASHIDA, Ex-Officio
ROSS S. SASAMURA, Ex-Officio

CLIFFORD S. JAMILE
Manager and Chief Engineer

September 26, 2000

Mr. Timothy E. Johns, Chairperson
Department of Land and Natural Resources
State of Hawaii
P. O. Box 621
Honolulu, Hawaii 96809

Attention: Andrew Monden

Dear Mr. Johns:

Subject: Your Letter of September 8, 2000 on Proposed
Kaimuki Exploratory Nonpotable Well

As instructed in your letter, we request being a consulted party during the preparation of the Environmental Assessment for this project. We would like to know if the state will be operating the system if the well is successful.

Should you have any questions, please contact Herbert Minakami at 527-6183.

Very truly yours,



FOR CLIFFORD S. JAMILE
Manager and Chief Engineer

00 SEP 29 PM 10:43 WATER & LAND

DEPARTMENT OF PARKS AND RECREATION
CITY AND COUNTY OF HONOLULU

650 SOUTH KING STREET, 10TH FLOOR • HONOLULU, HAWAII 96813
PHONE: (808) 523-4182 • FAX: 523-4054

JEREMY HARRIS
MAYOR



WILLIAM D. BALFOUR, JR.
DIRECTOR

MICHAEL T. AMII
DEPUTY DIRECTOR

September 18, 2000

Mr. Andrew Monden, Chief Engineer
Department of Land and Natural Resources
P. O. Box 373
Honolulu, Hawaii 96809

Dear Mr. Monden:

Subject: Pre-Assessment Consultation for the Proposed Kaimuki
Exploratory Well, Honolulu, Oahu, Hawaii,
TMK's: 3-2-059:002 & 3-1-042:009

Thank you for the opportunity to review and comment on the
Pre-Assessment Consultation relating to the Proposed Kaimuki
Exploratory Well.

We have no comments on the proposed non-potable water source
project, and it is not necessary for us to remain a consulted
party to the balance of the Environmental Impact Statement
process.

Should you have any questions, please contact Mr. John Reid,
Planner, at 547-7396.

Sincerely,

A handwritten signature in black ink that reads "W. D. Balfour, Jr." with a stylized flourish at the end.

WILLIAM D. BALFOUR, JR.
Director

WDB:cu
(00-2460JR)

cc: Mr. Don Griffin, Department of Design and Construction

00 SEP 22 AM 08:52 WATER & LAND

BENJAMIN J. CAYETANO
GOVERNOR OF HAWAII



BRUCE S. ANDERSON, Ph.D., M.P.H.
DIRECTOR OF HEALTH

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

In reply, please refer to:
File:

November 4, 2000

00-191/epo

Mr. Andrew Monden, Chief Engineer
Department of Land and Natural Resources
P.O. Box 373
Honolulu, Hawaii 96809

Dear Mr. Monden:

Subject: Pre-Assessment Consultation
Kaimuki Exploratory Well
Honolulu, Hawaii
TMK: 3-2-59:2

Thank you for allowing us to review and comment on the subject project. We have the following comments to offer:

Safe Drinking Water Branch

The information provided indicates that the proposed well will provide nonpotable water for irrigating various State facilities (Kaimuki Middle School, Kapiolani Community College, Fort Ruger, and the Diamond Head State Monument). This will create a dual water system at each of these facilities. The potable and nonpotable water systems must be carefully designed and operated to prevent cross-connections and backflow conditions. The two systems must be clearly labeled and physically separated by air gaps or reduced pressure principle backflow preventers to avoid contaminating the potable water supply. The Board of Water Supply should be kept informed of this project, as they may need to increase backflow protection measures on their service connection to these State facilities. In addition, all nonpotable spigots and irrigated areas should be clearly labeled with warning signs to prevent the inadvertent consumption of nonpotable water.

If you have any questions, please contact Mr. Stuart Yamada of the Safe Drinking Water Branch at 586-4258.

Sincerely,

GARY GILL
Deputy Director
Environmental Health Administration

c: SDWB

NOV 08 PM 02:07 HAWAII & LAND

Appendix C - Comments and Responses to Draft EA



Marc M. Siah & Associates, Inc.

Engineering & Science of the Environment

January 17, 2001

City & County of Honolulu, Dept. of Planning and Permitting
Zoning Division, Land Use
650 South King Street
Honolulu, Hawaii 96813
ATTENTION: RANDALL FUJIKI, AIA

RE: OAHU EXPLORATORY WELLS, KAIMUKI WELL

Dear Mr. Fujiki:

On behalf of the Department of Land and Natural Resources (DLNR), State of Hawaii, we are enclosing one (1) copy of the Draft Environmental Assessment (DEA) for the proposed exploratory well construction in Kaimuki. The DLNR proposes to install an exploratory well to provide irrigation water for various State facilities in the Diamond Head area.

If you wish to provide comments on the project at this time please review the enclosed DEA and submit your written response to the address below by March 10, 2001. Comments received will be considered in the preparation of the Final Environmental Assessment. When the final is completed, a copy will be sent to you upon request for your review.

Thank you for your interest and participation.

Sincerely,
Marc M. Siah and Associates, Inc.

Andrew P. Keane
Environmental Engineer

Enclosure: Draft Environmental Assessment

RECEIVED MAR 17 2001

DEPARTMENT OF PLANNING AND PERMITTING
CITY AND COUNTY OF HONOLULU

650 SOUTH KING STREET • HONOLULU, HAWAII 96813
TELEPHONE: (808) 523-4414 • FAX: (808) 527-6743 • INTERNET: www.co.honolulu.hi.us

JEREMY HARRIS
MAYOR



RANDALL K. FUJIKI, AIA
DIRECTOR
LORETTA K.C. CHEE
DEPUTY DIRECTOR

2001/CLOG-210(RY)

March 19, 2001

Mr. Andrew P. Keane
Marc M. Siah and Associates, Inc.
810 Richards Street, Suite 888
Honolulu, Hawaii 96813

Dear Mr. Keane:

Subject: Draft Environmental Assessment for Proposed Oahu Exploratory Wells,
Kaimuki Well, Kaimuki, Oahu

The State Department of Land and Natural Resources seeks to establish nonpotable irrigation wells for its facilities in Kaimuki which is commendable. If successful, these wells will reduce the amount of potable water currently consumed for irrigation in the area.

The following are comments to be addressed in the final environmental assessment:

1. The EA should provide a preliminary feasibility analysis of a new nonpotable water system. The need and cost for pumps and transmission lines and the possible distribution to City parks in the area and private users such as Diamond Head Cemetery should be addressed. This may benefit the State in its evaluation of this project.
2. Exploratory wells do not require a Development Plan Public Facilities Map amendment.
3. This project conforms to one of the strategies of the Oahu Water Management Plan to develop and use nonpotable water sources, wherever feasible, for irrigation uses.
4. The Existing Land Use section (p.2-1) makes no mention of surrounding uses and mis-identifies the LUO. The Diamond Head Memorial Park Cemetery just makai of Site A is mis-identified as the city morgue (p. 1-3, para. 2). There is no mention of the State's Diamond Head film studio as a neighbor of Site B (page 2-1). One of the areas that would receive the nonpotable water may need to be identified as "areas of the former Fort Ruger." The National Guard facilities on Diamond Head Road are another State facility that might benefit from this project.

Mr. Andrew P. Keane
Marc M. Siah and Associates, Inc.
Page 2
March 19, 2001

If you have any questions, please contact Raymond Young of our staff at 527-5839.

Sincerely yours,


for RANDALL K. FUJIKI, AIA
Director of Planning and Permitting

RKF:lh

Doc 77837

BENJAMIN J. CAYETANO
GOVERNOR OF HAWAII



GILBERT COLOMA-AGARAN
CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES
DEPUTY
JANET E. KAWELO

REF:LD/WL-EK

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES

P. O. BOX 621
HONOLULU, HAWAII 96809

AQUATIC RESOURCES
BOATING AND OCEAN RECREATION
CONSERVATION AND RESOURCE
ENFORCEMENT
CONVEYANCES
FORESTRY AND WILDLIFE
HISTORIC PRESERVATION
LAND DIVISION
ENGINEERING BRANCH
PLANNING BRANCH
TECHNICAL & SUPPORT BRANCH
STATE PARKS

Mr. Randall K. Fujiki, Director
Department of Planning and Permitting
City and County of Honolulu
650 South King Street
Honolulu, Hawaii 96813

APR 19 2001

Dear Mr. Fujiki:

Oahu Exploratory Wells, Kaimuki Well

Thank you for your letter of March 19, 2001 (attached), commenting on the Draft Environmental Assessment (DEA) for the subject project. We offer the following responses to your comments:

Comment # 1: "The DEA should provide a preliminary feasibility analysis of a new non-potable water system...."

Response: If the exploratory well is developed, a preliminary feasibility analysis of a new non-potable water system would be provided. Also, if the well is developed, the need and cost for pumps and transmission lines and the possible distribution to City parks in the area and other users would be addressed in a separate Environmental Assessment.

Comment # 2: Exploratory wells do not require a Development Plan Public Facilities Map amendment.

Response: We acknowledge that this project will not require a Development Plan Public Facilities Map amendment.

Comment # 3: This project conforms to one of the strategies of the Oahu Water Management Plan to develop and use non-potable water sources, wherever feasible, for irrigation uses.

Response: We acknowledge that this project conforms to the Oahu Water Management Plan as stated in item no. 3 in Subsection 7.1 of the DEA.

Comment # 4 The Existing Land Use section makes no mention of surrounding uses and misidentifies the LUO. The Diamond Head Memorial Park Cemetary ...is mis-identified as the city morgue. There is no mention of the State's Diamond Head film studio as a neighbor.... One of the areas that would receive the non-potable water may need to be identified as "areas of the former Fort Ruger." The National Guard facilities on Diamond Head Road are another State facility that might benefit from this project.

Response: These comments have been addressed in the Final Environmental Assessment.

Should you have any questions, please contact Mr. Andrew Monden, Chief Engineer, at 587-0230

Sincerely,

GILBERT COLOMA-AGARAN

Attachment

BENJAMIN J. CAYETANO
GOVERNOR OF HAWAII



GILBERT COLOMA-AGARAN
CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES

DEPUTY
JANET E. KAWELO

AQUATIC RESOURCES
BOATING AND OCEAN RECREATION
CONSERVATION AND RESOURCES
ENFORCEMENT
CONVEYANCES
FORESTRY AND WILDLIFE
HISTORIC PRESERVATION
LAND DIVISION
ENGINEERING BRANCH
PLANNING BRANCH
TECHNICAL & SUPPORT BRANCH
STATE PARKS

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
LAND DIVISION
ENGINEERING BRANCH
P.O. BOX 373
HONOLULU, HAWAII 96809

REF:LD/WL-EK

JAN 22 2001

TO: Ms. Genevieve Salmonson, Director
Office of Environmental Quality Control
Department of Health

FROM: *GC* Gilbert Coloma-Agaran, Chairperson *J. Coloma-Agaran*

SUBJECT: Draft Environmental Assessment for the Oahu Exploratory Wells,
Kaimuki Well, TMK: 3-2-059:002 & 3-1-042:009, Kaimuki, Oahu, Hawaii

We have reviewed the Draft Environmental Assessment (DEA) for the subject project, and anticipate a Finding of No Significant Impact (FONSI) determination. Please publish notice of availability for this project in the February 8, 2001, OEQC Environmental Notice.

We have enclosed a completed OEQC Publication Form, four (4) copies of the DEA, and the project Summary on disk. Please contact Mr. Andrew Monden, Chief Engineer of the Land Division, Engineering Branch, at 587-0230 if you have any questions.

Enclosures

BENJAMIN J. CAYETANO
GOVERNOR



RECEIVED MAR 8 2001

GENEVIEVE SALMONSON
DIRECTOR

STATE OF HAWAII
OFFICE OF ENVIRONMENTAL QUALITY CONTROL

235 SOUTH BERETANIA STREET
SUITE 702
HONOLULU, HAWAII 96813
TELEPHONE (808) 586-4185
FACSIMILE (808) 586-4188

March 7, 2001

Mr. Andrew Monden
Department of Land and Natural Resources
1151 Punchbowl Street
Honolulu, Hawai'i 96813

Dear Mr. Monden:

We have reviewed the draft environmental assessment (DEA) for the Kaimuki Exploratory Wells, Tax Map Key 3-2-59: 2, and 3-1-42-9, Honolulu District, and submit the following comments for your consideration and response.

1. **EARLY CONSULTATION WITH INDIVIDUALS AND ORGANIZATIONS OTHER THAN AGENCY IS REQUIRED BY RULE:** Section 11-200-9, Hawai'i Administrative Rules, requires that you consult with "other agencies having jurisdiction or expertise as well as those citizen groups and individuals which the proposing agency reasonably believes to be affected." As proposing agency, it is reasonable to believe that your consumers of water will be affected. In addition to consulting with the neighborhood board, please consult with community associations, and environmental groups.
2. **CULTURAL IMPACT ASSESSMENT UNDER ACT 50, 2000 SESSION LAWS OF HAWAII:** Enclosed are the guidelines for assessing cultural impacts of the proposed project, required now by law. Please consult with cultural practitioners and native gatherers in the region and determine what impact if any, your project may have on such practices.
3. **FINANCIAL ARRANGEMENTS, PROJECT SCHEDULE AND COST:** In certain instances, a well is explored/developed by private financing, the transfer of public lands to government or private developers, or in return for a water allocation credit to supply a development. The environmental assessment needs to disclose if any of the above factors are relevant to this project.
4. **WATERSHED AND LAND USE ANALYSIS:** The environmental assessment should contain a discussion of how waters from the well would be used, and an analysis of how the proposed well development may affect land and water uses in the region and on the island (see enclosed guidance for details).

To ensure that your next submittal meets the administrative content requirements defining an environmental assessment, and hence is eligible for publication in the *Environmental Notice*, as a Chapter 343, HRS, document, please ensure that each of the above items is addressed. If there are any questions, please call Mr. Leslie Segundo, Environmental Health Specialist, at (808) 586-4185.

Sincerely,

A handwritten signature in cursive script, appearing to read "Genevieve Salmonson".

GENEVIEVE SALMONSON
Director

Enclosures

c: • Mr. Marc Siah, Marc M. Siah and Associates, Inc.

BENJAMIN J. CAYETANO
GOVERNOR OF HAWAII



STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES

P. O. BOX 621
HONOLULU, HAWAII 96809

APR 19 2001

GILBERT COLOMA-AGARAN
CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES
DEPUTY
JANET E. KAWELO

AQUATIC RESOURCES
BOATING AND OCEAN RECREATION
CONSERVATION AND RESOURCES
ENFORCEMENT
CONVEYANCES
FORESTRY AND WILDLIFE
HISTORIC PRESERVATION
LAND DIVISION
ENGINEERING BRANCH
PLANNING BRANCH
TECHNICAL & SUPPORT BRANCH
STATE PARKS

REF:LD/WL-EK

TO: Ms. Genevieve Salmonson, Director
Office of Environmental Quality Control
Department of Health

FROM:  Gilbert Coloma-Agaran, Chairperson 

SUBJECT: Draft Environmental Assessment for the Oahu Exploratory Wells,
Kaimuki Well, TMK: 3-2-059:002 & 3-1-042:009, Kaimuki, Oahu, Hawaii

Thank you for your letter of March 7, 2001 (attached), commenting on the subject project. We offer the following responses:

1. Copies of the Draft Environmental Assessment (DEA) were sent to various individuals including the Kaimuki Middle School, Kapiolani Community College, Kaimuki Neighborhood Board, Kaimuki Public Library, City and County Department of Planning and Permitting, State Office of Planning, and the Department of Health.

We made a presentation of the project to the Kaimuki Neighborhood Board on September 6, 2000. The purpose of this presentation was to provide information and solicit consultation and feedback from agencies, organizations, and individuals within the community. A representative from the Greater East Honolulu Community Alliance (GECHA) was present but had no comments or questions. No member of the Kaimuki Business and Professional Association (KPBA) was present.

Taking into consideration the nature and location of the project site, we believe we have solicited adequate consultation.

2. A cultural impact assessment has been incorporated into Section Two (2) of the DEA- "Description of the Existing Environment." Per discussion with Mr. Leslie Segundo of your staff, and based on the nature and location of the project, we believe our level of effort in assessing the cultural impacts from the project, is adequate.

3. Section 1.6 of the DEA-"Project Schedule and Cost" was modified to reflect that funds for this project are available from Act 328, SLH 1997, as amended by Act 116 SLH 1998, Item A-25, and have been released by the Governor. Funds for the development of the well will come from future legislative appropriations.
4. For information relating to watershed and land use analysis, please refer to Section 2.5.1 and Section 7 of the DEA.

Should you have any questions, please contact Mr. Andrew Monden, Chief Engineer at 587-0230.

Attachment



January 17, 2001

State of Hawaii, Department of Health
Director's Office
1250 Punchbowl, 3rd floor
Honolulu, Hawaii 96813
ATTENTION: GARY GILL, DEPUTY DIRECTOR OF ENVIRONMENTAL HEALTH

RE: OAHU EXPLORATORY WELLS, KAIMUKI WELL

Dear Mr. Gill:

On behalf of the Department of Land and Natural Resources (DLNR), State of Hawaii, we are enclosing one (1) copy of the Draft Environmental Assessment (DEA) for the proposed exploratory well construction in Kaimuki. The DLNR proposes to install an exploratory well to provide irrigation water for various State facilities in the Diamond Head area.

If you wish to provide comments on the project at this time please review the enclosed DEA and submit your written response to the address below by March 10, 2001. Comments received will be considered in the preparation of the Final Environmental Assessment. When the final is completed, a copy will be sent to you upon request for your review.

Thank you for your interest and participation.

Sincerely,
Marc M. Siah and Associates, Inc.

Andrew P. Keane
Environmental Engineer

Enclosure: Draft Environmental Assessment



January 17, 2001

Kapiolani Community College
Physical Facilities Planning and Construction
4303 Diamond Head Road
Manele Building, Rm. 103
Honolulu, Hawaii 96816
ATTENTION: MAYNARD YOUNG, DIRECTOR

RE: OAHU EXPLORATORY WELLS, KAIMUKI WELL

Dear Mr. Young:

On behalf of the Department of Land and Natural Resources (DLNR), State of Hawaii, we are enclosing one (1) copy of the Draft Environmental Assessment (DEA) for the proposed exploratory well construction in Kaimuki. The DLNR proposes to install an exploratory well to provide irrigation water for various State facilities in the Diamond Head area.

If you wish to provide comments on the project at this time please review the enclosed DEA and submit your written response to the address below by March 10, 2001. Comments received will be considered in the preparation of the Final Environmental Assessment. When the final is completed, a copy will be sent to you upon request for your review.

Thank you for your interest and participation.

Sincerely,
Marc M. Siah and Associates, Inc.

Andrew P. Keane
Environmental Engineer

Enclosure: Draft Environmental Assessment

BENJAMIN J. CAYETANO
GOVERNOR OF HAWAII



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

1141 KAIMUKI
RECEIVED FEB 8 2001
1.1.2
BRUCE S. ANDERSON, Ph.D., M.P.H.
DIRECTOR OF HEALTH

In reply, please refer to:
EMD / SDWB

February 1, 2001

Mr. Andrew Keane
Marc M. Siah and Associates, Inc.
810 Richards Street, Suite 888
Honolulu, HI 96813

Dear Mr. Keane:

SUBJECT: DRAFT ENVIRONMENTAL ASSESSMENT
THE OAHU EXPLORATORY WELLS, KAIMUKI WELL
KAIMUKI, OAHU
TMK: 3-2-059: 002 AND 3-1-042: 009

Thank you for the opportunity to review and comment on the subject document. We have examined the Draft Environmental Assessment (DEA) and have the following comments to offer:

1. The DEA indicates that the proposed well will provide non-potable water for irrigating various State facilities (Kaimuki Middle School, Kapiolani Community College, Fort Ruger, and the Diamond Head State Monument). This will create dual water systems at each of these facilities. The potable and non-potable water systems must be carefully designed and operated to prevent cross-connections and backflow conditions. The two systems must be clearly labeled and physically separated by air gaps or reduced pressure principle backflow preventers to avoid contaminating the potable water supply. The Board of Water Supply should be kept informed of this project as they may need to increase backflow protection measures on their service connection to these State facilities. In addition, all non-potable spigots and irrigated areas should be clearly labeled with warning signs to prevent the inadvertent consumption of non-potable water.

Andrew Keane
February 1, 2001
Page 2

2. The introduction states:

If the water is of potable quality, the well could be developed and dedicated to the Honolulu Board of Water Supply (BWS) for integration into the BWS system in exchange for water allocation credits.

Hawaii Administrative Rules, Title 11, Chapter 20, Rules Relating to Potable Water Systems, Section 11-20-29 of Chapter 20 requires that all new sources of potable water serving a public water system be approved by the Director of Health prior to its use. Such an approval is based primarily upon the submission of a satisfactory engineering report which addresses the requirements set in Section 11-20-29.

3. The engineering report must identify all potential sources of contamination and evaluate alternative control measures which could be implemented to reduce or eliminate the potential for contamination, including treatment of the water source. In addition, water quality analyses, performed by a laboratory certified in the state of Hawaii, must be submitted as part of the report to demonstrate compliance with all drinking water standards. Additional tests may be required by the Director upon his review of the information submitted.

If you have any questions concerning drinking water, please contact Stuart Yamada of the Safe Drinking Water Branch, Engineering Section, at 586-4258.

Sincerely,



WILLIAM WONG, P.E., Chief
Safe Drinking Water Branch
Environmental Management Division

SY:la

BENJAMIN J. CAYETANO
GOVERNOR OF HAWAII



STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
LAND DIVISION
ENGINEERING BRANCH
P.O. BOX 373
HONOLULU, HAWAII 96809

GILBERT COLOMA-AGARAN
CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES
DEPUTY
JANET E. KAWELO
AQUATIC RESOURCES
BOATING AND OCEAN RECREATION
CONSERVATION AND RESOURCES
ENFORCEMENT
CONVEYANCES
FORESTRY AND WILDLIFE
HISTORIC PRESERVATION
LAND DIVISION
ENGINEERING BRANCH
PLANNING BRANCH
TECHNICAL & SUPPORT BRANCH
STATE PARKS

APR 12 2001

TO: William Wong, Chief
Environmental Management Division, Safe Drinking Water Branch
Department of Health

FROM: Andrew Monden, Chief Engineer

A handwritten signature in black ink that reads "Andrew Monden".

SUBJECT: Oahu Exploratory Wells, Kaimuki Well

Thank you for your letter of February 1, 2001 (attached), commenting on the Draft Environmental Assessment (DEA) for the subject project. We offer the following responses to your comments:

Comment # 1: "...the potable and non-potable water systems must be carefully designed and operated to prevent cross-connections and backflow conditions."

Response: If the well is developed into a non-potable source, the design of the potable and non-potable water systems will be carefully designed and operated to prevent cross-connections and backflow conditions. The development of the well will require a separate Environmental Assessment (EA).

Comment # 2 "...all new sources of potable water serving a public water system be approved by the Director of Health prior to its use. Such an approval is based primarily upon the submission of a satisfactory engineering report..."

Response: If the well is developed into a potable water source, an engineering report will be submitted for DOH approval prior to its use. This issue will also be addressed in a separate EA if the well is developed into a potable water source.

Comment # 3 "The engineering report must identify all potential sources of contamination... In addition, water quality analyses, performed by a laboratory...must be submitted..."

Response: Water quality samples will be taken and analyzed by certified laboratories as required by DOH rules and regulations. Please refer to Sections 1.5 and 2.6 of the DEA, which address water quality testing, and sources of contamination respectively.

Should you have any questions, please contact Mr. Eric Yuasa of our Planning Section at 587-0229.

CC:ek
Attachment

University of Hawai'i

COMMUNITY COLLEGES

Office of the Senior Vice President, University of Hawai'i and Chancellor for Community Colleges
Physical Facilities, Planning and Construction

March 2, 2001

Mr. Andrew P. Keane
Environmental Engineer
Marc M. Siah & Associates, Inc.
810 Richards Street, Suite 888
Honolulu, Hawai'i 96813

**SUBJECT: Draft Environmental Assessment (DEA)
The Oahu Exploratory Wells, Kaimuki Well**

Dear Mr. Keane:

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

1. Summary Section, Page vii, Impacts: the second sentence states: "Short-term noise and air quality impacts are anticipated on the surrounding area." Once operational, what noise level (decibel level) will the pump operate at: Will the pump operate on a continuous basis or will it cycle on and off?
2. In Section 7, Findings and Notice of Anticipated Determination, 7.1 Significant Criteria, Item 13 on page 7-3, there is a reference to provide power, if practical, from the HECO overhead line along 18th Avenue. Will the electrical lines cross the Kapi'olani Community College property at the Honolulu Board of Water Supply Roadway or over Building 6936 'Alani Child Care Center?

Thank you for the opportunity to comment.

Sincerely,


Maynard Young
Director

MY:ikt

cc: Ann Kinningham, Kapi'olani CC

BENJAMIN J. CAYETANO
GOVERNOR OF HAWAII



STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
LAND DIVISION
ENGINEERING BRANCH
P.O. BOX 373
HONOLULU, HAWAII 96809

GILBERT COLOMA-AGARAN
CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES

DEPUTY
JANET E. KAWELO

AQUATIC RESOURCES
BOATING AND OCEAN RECREATION
CONSERVATION AND RESOURCES
ENFORCEMENT
CONVEYANCES
FORESTRY AND WILDLIFE
HISTORIC PRESERVATION
LAND DIVISION
ENGINEERING BRANCH
PLANNING BRANCH
TECHNICAL & SUPPORT BRANCH
STATE PARKS

APR 12 2001

TO: Maynard Young, Director
Physical Facilities Planning and Construction
Office of the Chancellor for Kapiolani Community College

FROM: Andrew Monden, Chief Engineer *Andrew Monden*

SUBJECT: **Exploratory Well Site on Kapiolani Community College Campus (KCC)**

Thank you for your letter of March 2, 2001 (attached), commenting on the Oahu Exploratory Well, Kaimuki Well Draft Environmental Assessment. We offer the following responses:

1. The exploratory well is to be completed in two (2) phases, the drilling and the pump testing phases. The majority of impacts to air quality and noise will occur during the initial drilling phase. It is anticipated that the noise level from the diesel-powered generator to be around 100 decibels and will occur only during the normal working hours (usually between 8:30 a.m. to 3:30 p.m.). The noise and air quality impacts will be mitigated in accordance with the Department of Health rules and regulations. During the pump-testing phase, the well will be pumped continuously for 24 hours a day for seven (7) to ten (10) days. The noise generated from the generator/compressor during the pump testing is expected to be around 75-80 decibels. All required permits would be obtained prior to the construction of the project.
2. The use of power from the existing HECO power line is intended only for the exploratory well on the Kaimuki Middle School (KMS) site. A diesel-powered generator will be used at the KCC site. Please note that KCC is considered the alternative site and may be used if the KMS site is deemed unsuccessful.

If you have any questions, please call Mr. Eric Yuasa of our Planning Section at 587-0229.

CC:ek
Attachment



Consulting Engineers

Marc M. Siah & Associates, Inc.

Engineering & Science of the Environment

January 17, 2001

State of Hawaii, Planning Department
State Office Tower
235 South Beretania
Honolulu, Hawaii 96813
ATTENTION: DAVID BLANE, DIRECTOR OFFICE OF PLANNING

RE: OAHU EXPLORATORY WELLS, KAIMUKI WELL

Dear Mr. Blane:

On behalf of the Department of Land and Natural Resources (DLNR), State of Hawaii, we are enclosing one (1) copy of the Draft Environmental Assessment (DEA) for the proposed exploratory well construction in Kaimuki. The DLNR proposes to install an exploratory well to provide irrigation water for various State facilities in the Diamond Head area.

If you wish to provide comments on the project at this time please review the enclosed DEA and submit your written response to the address below by March 10, 2001. Comments received will be considered in the preparation of the Final Environmental Assessment. When the final is completed, a copy will be sent to you upon request for your review.

Thank you for your interest and participation.

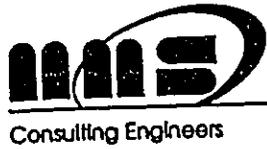
Sincerely,
Marc M. Siah and Associates, Inc.

Andrew P. Keane
Environmental Engineer

Enclosure: Draft Environmental Assessment

CIVIL • STRUCTURAL • ENVIRONMENTAL • WATER RESOURCES • COASTAL

810 Richards Street • City Center Building • Suite 888 • Honolulu, HI 96813 • Phone: (808) 538-7180 • Fax: (808) 528-4352 • Email: msiah@mmsengineering.com



Marc M. Siah & Associates, Inc.

Engineering & Science of the Environment

January 17, 2001

Kaimuki Middle School
631 18th Avenue
Honolulu, Hawaii 96816
ATTENTION: FRANK FERNANDEZ, PRINCIPAL

RE: OAHU EXPLORATORY WELLS, KAIMUKI WELL

Dear Mr. Fernandez:

On behalf of the Department of Land and Natural Resources (DLNR), State of Hawaii, we are enclosing one (1) copy of the Draft Environmental Assessment (DEA) for the proposed exploratory well construction in Kaimuki. The DLNR proposes to install an exploratory well to provide irrigation water for various State facilities in the Diamond Head area.

If you wish to provide comments on the project at this time please review the enclosed DEA and submit your written response to the address below by March 10, 2001. Comments received will be considered in the preparation of the Final Environmental Assessment. When the final is completed, a copy will be sent to you upon request for your review.

Thank you for your interest and participation.

Sincerely,
Marc M. Siah and Associates, Inc.

Andrew P. Keane
Environmental Engineer

Enclosure: Draft Environmental Assessment



Consulting Engineers

Marc M. Siah & Associates, Inc.

Engineering & Science of the Environment

January 17, 2001

Kaimuki No.4
c/o Neighborhood Commission
City Hall, Rm. 400
630 South Beretania Street
Honolulu, Hawaii 96843

RE: OAHU EXPLORATORY WELLS, KAIMUKI WELL

To Whom It May Concern:

On behalf of the Department of Land and Natural Resources (DLNR), State of Hawaii, we are enclosing one (1) copy of the Draft Environmental Assessment (DEA) for the proposed exploratory well construction in Kaimuki. The DLNR proposes to install an exploratory well to provide irrigation water for various State facilities in the Diamond Head area.

If you wish to provide comments on the project at this time please review the enclosed DEA and submit your written response to the address below by March 10, 2001. Comments received will be considered in the preparation of the Final Environmental Assessment. When the final is completed, a copy will be sent to you upon request for your review.

Thank you for your interest and participation.

Sincerely,
Marc M. Siah and Associates, Inc.

Andrew P. Keane
Environmental Engineer

Enclosure: Draft Environmental Assessment



Consulting Engineers

Marc M. Siah & Associates, Inc.

Engineering & Science of the Environment

January 17, 2001

Kaimuki Public Library
1041 Koko Head Road
Honolulu, Hawaii 96816

RE: OAHU EXPLORATORY WELLS, KAIMUKI WELL

To Whom It May Concern:

On behalf of the Department of Land and Natural Resources (DLNR), State of Hawaii, we are enclosing one (1) copy of the Draft Environmental Assessment (DEA) for the proposed exploratory well construction in Kaimuki. The DLNR proposes to install an exploratory well to provide irrigation water for various State facilities in the Diamond Head area.

If you wish to provide comments on the project at this time please review the enclosed DEA and submit your written response to the address below by March 10, 2001. Comments received will be considered in the preparation of the Final Environmental Assessment. When the final is completed, a copy will be sent to you upon request for your review.

Thank you for your interest and participation.

Sincerely,
Marc M. Siah and Associates, Inc.

Andrew P. Keane
Environmental Engineer

Enclosure: Draft Environmental Assessment



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