

BOARD OF WATER SUPPLY

CITY AND COUNTY OF HONOLULU
630 SOUTH BERETANIA STREET
HONOLULU, HAWAII 96843
PHONE (808) 527-6180
FAX (808) 533-2714



March 18, 1999

JEREMY HARRIS, Mayor
EDDIE FLORES, JR., Chairman
FORREST C. MURPHY, Vice Chairman
KAZU HAYASHIDA
JAN M.L.Y. AMI
JONATHAN K. SHIMADA, PhD
BARBARA KIM STANTON
CHARLES A. STED

CLIFFORD S. JAMILE
Manager and Chief Engineer

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

Dear Mr. Gill:

Subject: Finding of No Significant Impact for the Board of Water Supply's
Proposed Haleiwa Well II, Waialua, Oahu, Hawaii, TMK: 6-2-10: 01

99 MAR 25 P 1:19
RECEIVED
OFFICE OF ENVIRONMENTAL QUALITY CONTROL

The Board of Water Supply has reviewed the comments received during the public comment period which began on July 23, 1998. We have determined that the environmental impacts of this project have been adequately addressed as discussed in the final environmental assessment (EA) and are therefore, issuing a finding of no significant impact. We request that our proposed exploratory well project be published as finding of no significant impact in the next Office of Environmental Quality Control (OEQC) Bulletin.

Attached are the completed OEQC bulletin publication form and four (4) copies of the final EA for your review.

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

Very truly yours,


CLIFFORD S. JAMILE
Manager and Chief Engineer

Attachments

cc: Earl Matsukawa, Wilson Okamoto & Associates

APR 8 1999

FILE COPY

1999-04-08-0A-FEA-

**Final Environmental Assessment
and
Finding of No Significant Impact (FONSI)**

**HALEIWA WELL II
EXPLORATORY WELL SITE**

Waialua, Oahu, Hawaii

RECEIVED

'99 MAR 25 P 1:20

OFFICE OF
QUALITY CONTROL

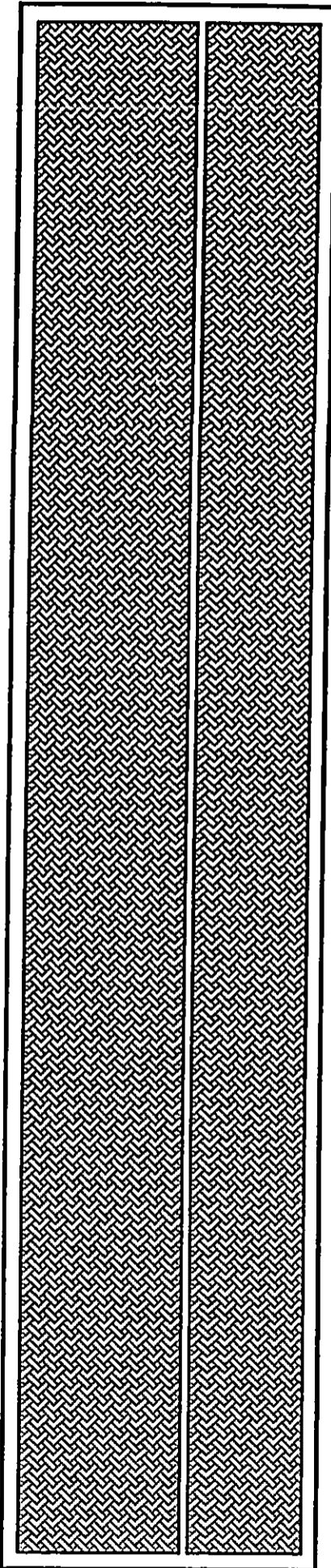
Prepared for:

**City and County of Honolulu
Board of Water Supply**

Prepared by:

**Wilson Okamoto & Associates, Inc.
Engineers and Planners**

March 1999



**Final Environmental Assessment
and
Finding of No Significant Impact (FONSI)**

**HALEIWA WELL II
EXPLORATORY WELL SITE**

Waialua, Oahu, Hawaii

Prepared for:

**City and County of Honolulu
Board of Water Supply
630 South Beretania Street
Honolulu, Hawaii 96813**

Prepared by:

**Wilson Okamoto & Associates, Inc.
Engineers and Planners
1907 South Beretania Street, Suite 400
Honolulu, Hawaii 96826**

March 1999

TABLE OF CONTENTS

PREFACE iii

SUMMARY iv

1. INTRODUCTION AND PROJECT DESCRIPTION 1-1

 1.1 Introduction 1-1

 1.2 Project Location 1-1

 1.3 Existing and Surrounding Uses 1-1

 1.4 Project Need 1-4

 1.5 Project Description 1-6

 1.6 Test Pumping 1-6

 1.7 Project Schedule and Cost 1-8

2. DESCRIPTION OF THE EXISTING ENVIRONMENT, IMPACTS AND
MITIGATION MEASURES 2-1

 2.1 Climate 2-1

 2.2 Geology and Topography 2-1

 2.3 Soils 2-2

 2.4 Hydrology 2-2

 2.4.1 Surface Water 2-2

 2.4.2 Ground Water 2-4

 2.5 Flood Hazard 2-9

 2.6 Drainage 2-11

 2.7 Flora and Fauna 2-11

 2.8 Noise 2-12

 2.9 Traffic 2-13

 2.10 Air Quality 2-14

 2.11 Archaeological/Historic Resources 2-15

 2.12 Aesthetics 2-15

 2.13 Socio-Economic 2-16

3. RELATIONSHIP TO PLANS, POLICIES AND CONTROLS 3-1

 3.1 State Land Use District 3-1

 3.2 City and County of Honolulu General Plan 3-1

 3.3 City and County of Honolulu Development Plan 3-2

 3.4 City and County of Honolulu Land Use Ordinance and Zoning 3-3

 3.5 City and County of Honolulu Special Management Area 3-3

4. ALTERNATIVES TO THE PROPOSED ACTION 4-1

 4.1 No Action 4-1

 4.2 Delayed Action 4-1

 4.3 Alternative Location 4-1

 4.4 Alternative Sources 4-2

5. PERMITS REQUIRED 5-1

6. CONSULTATION 6-1

 6.1 Pre-Assessment Consultation 6-1

 6.2 Agencies and Organizations Consulted on the Draft EA 6-2

7. REFERENCES 7-1

LIST OF FIGURES

Figure 1 Location Map 1-2

Figure 2 Tax Map Key 6-2-10: 1 (por.) 1-3

Figure 3 Well Cross Section 1-7

Figure 4 Soils Map 2-3

Figure 5 Oahu Groundwater Map 2-6

Figure 6 Existing Well Sites 2-8

Figure 7 Flood Map 2-10

LIST OF TABLES

Table 1 Waialua Aquifer System Groundwater Use and Sustainable Yield (mgd) . . 2-7

Table 2 Waialua Aquifer System Water Source Inventory 2-9

APPENDICES

- Appendix A Botanical Survey
- Appendix B Pre-Assessment Consultation Letters
- Appendix C Draft Environmental Assessment Consultation Letters

PREFACE

PREFACE

This Final Environmental Assessment (EA) and Finding of No Significant Impact (FONSI) has been prepared pursuant to Chapter 343, Hawaii Revised Statutes (HRS) and Title 11, Chapter 200, Administrative Rules, Department of Health, State of Hawaii. Proposed is an agency action involving the expenditure of City and County of Honolulu funds by the Board of Water Supply (BWS). The BWS proposes to drill, case and test a single exploratory well at the Haleiwa Well II site in the Haleiwa area of the district of Waialua, Oahu.

It is anticipated that this EA will be processed as a Finding of No Significant Impact (FONSI) by the BWS, determining that the impacts of this project are not sufficient to require the preparation of an environmental impact statement and, thus, satisfying the requirements of Chapter 343, HRS.

SUMMARY

SUMMARY

Proposing Agency: City and County of Honolulu
Board of Water Supply
630 South Beretania Street
Honolulu, Hawaii 96813
Contact: Barry Usagawa
Phone: (808) 527-5235
Fax: (808) 527-6195

EA Preparer: Wilson Okamoto & Associates, Inc.
1907 South Beretania Street, Suite 400
Honolulu, Hawaii 96826
Contact: Earl Matsukawa, AICP
Project Manager
Phone: (808) 946-2277
Fax: (808) 946-2253

Approving Agency: City and County of Honolulu
Board of Water Supply
630 South Beretania Street
Honolulu, Hawaii 96813
Contact: Clifford S. Jamile
Phone: (808) 527-6180
Fax: (808) 527-2714

Project Location: Por. Opaeha, Waialua, Oahu

Tax Map Key: 6-2-10: 01 (por.)

Area: .75 acres

Recorded Fee Owner: Kamehameha Schools Bernice Pauahi Bishop Estate

Existing Land Use: Diversified Agriculture

State Land Use Classification: Agricultural District

Development Plan Land Use Map: Agriculture

Development Plan Public Facilities Map: No symbols in the vicinity

Zoning: AG-1 Restricted Agricultural District

Proposed Action: The City and County of Honolulu Board of Water Supply (BWS) proposes to drill, case and pump test a single exploratory well, located in the Haleiwa area of Waialua on the North Shore of Oahu, one mile east of Haleiwa Town. The project site is located at an elevation of approximately 220 feet above mean sea level about 4,600 feet east of Kamehameha Highway along Opaepa Road. The well site is situated on a .75-acre parcel, owned by Kamehameha Schools Bernice Pauahi Bishop Estate and currently under lease to Dole Food Company, Inc. The area will be cleared to accommodate the well drilling, support equipment and necessary supplies. Once the area has been cleared, a single test well will be bored to an estimated depth of 350 feet. Test pumping will be conducted to determine the quality and quantity of water that can be produced. The proposed well is anticipated to yield about 1.5 million gallons of potable water per day.

Impacts: No significant impacts are anticipated from construction or testing at the exploratory well site. Construction work, primarily drilling, is anticipated to have insignificant short-term noise and air quality impacts in the surrounding area. All government rules and regulations will be followed during construction to minimize impacts.

Agencies Consulted in

Pre-Assessment Process: Federal

U.S. Department of Agriculture
Natural Resources Conservation Service
U.S. Department of the Interior
Geological Survey, Water Resources Division
Fish and Wildlife Service, Ecological Services

State of Hawaii

Department of Agriculture
Department of Business Economic Development and Tourism
Office of Planning
Department of Health
Safe Drinking Water Branch
Office of Environmental Quality Control
Department of Land and Natural Resources
Water Resource Management Division
State Historic Preservation Division
Office of Hawaiian Affairs

City and County of Honolulu

Board of Water Supply
Department of Planning and Permitting (formerly the Department
of Land Utilization)
Planning Department

Other

Kamehameha Schools Bernice Pauahi Bishop Estate
North Shore Neighborhood Board No. 27
University of Hawaii, Environmental Center

**Agencies Consulted
in Draft EA Process:**

Federal

U.S. Army Corps of Engineers
U.S. Department of Agriculture
 Natural Resources Conservation Service
U.S. Department of the Interior
 Geological Survey, Water Resources Division
 Fish and Wildlife Service, Ecological Services

State of Hawaii

Department of Agriculture
Department of Business Economic Development and Tourism
 Office of Planning
Department of Health
 Safe Drinking Water Branch
 Office of Environmental Quality Control
Department of Land and Natural Resources
 Aquatic Resources Division
 Water Resource Management Division
 State Historic Preservation Division
Office of Hawaiian Affairs

City and County of Honolulu

Board of Water Supply
Department of Planning and Permitting (formerly the Department
 of Land Utilization)
Planning Department
Department of Transportation Services

Other

District I City Councilmember Rene Mansho

Kamehameha Schools Bernice Pauahi Bishop Estate
North Shore Neighborhood Board No. 27
University of Hawaii, Environmental Center

Chapter 1

INTRODUCTION AND PROJECT DESCRIPTION

1. INTRODUCTION AND PROJECT DESCRIPTION

1.1 Introduction

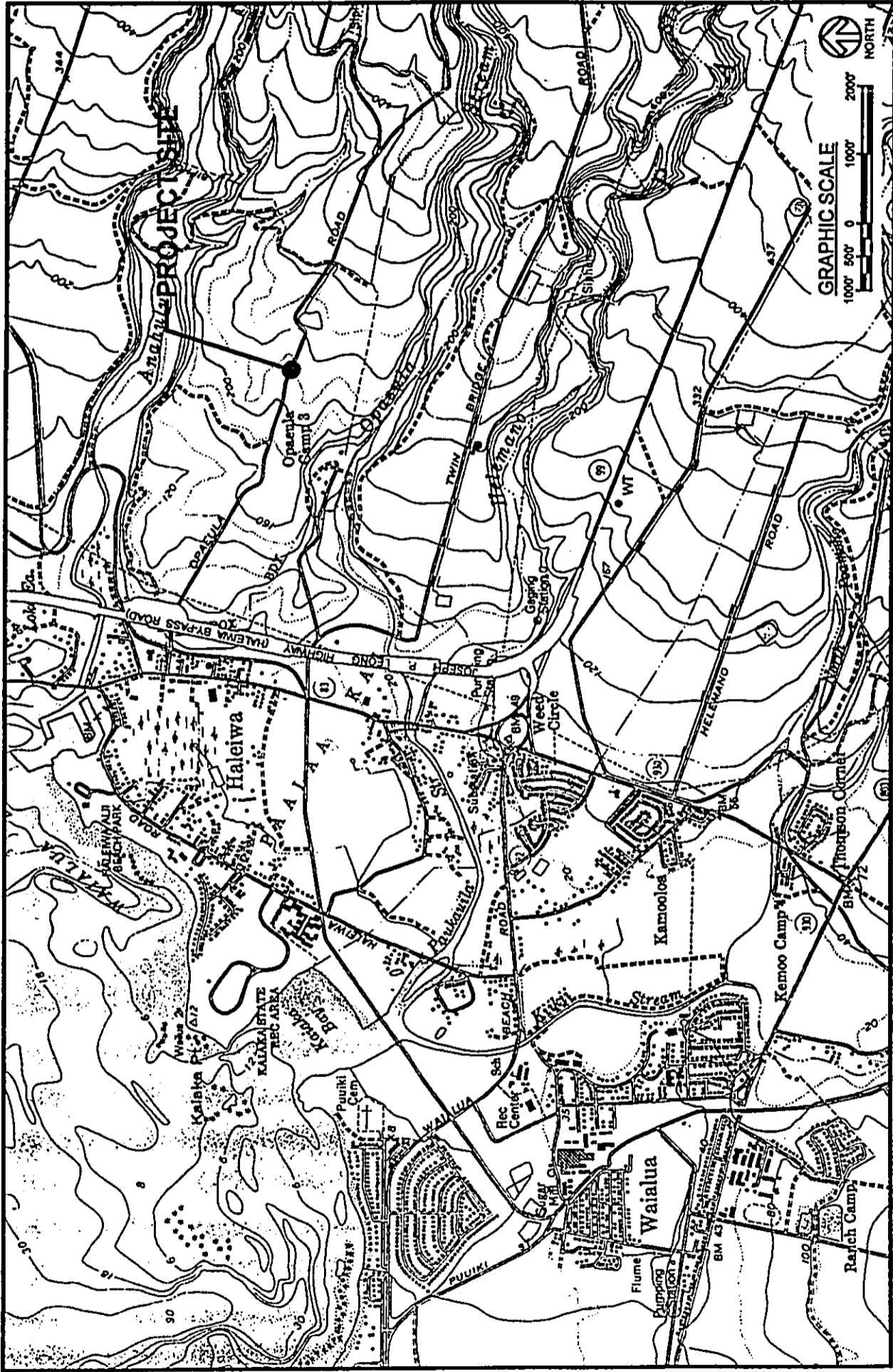
The City and County of Honolulu Board of Water Supply (BWS) is responsible for the management, control and operation of Oahu's municipal water system. As part of this responsibility, the BWS first identifies potential well sites based on a hydrogeologic assessment of the area. If the site appears promising as a groundwater source, the BWS then conducts exploratory drilling and productivity and quality tests to determine the suitability of a well for eventual production of potable water. The Haleiwa Well II exploratory well site has been identified as a potential groundwater source. In accordance with its mandated responsibilities, the BWS proposes to drill, case and test a single exploratory well at the project site in the Haleiwa area of Waialua, Oahu.

1.2 Project Location

The Haleiwa Well II exploratory well site is located in the Haleiwa area of the Waialua district on the North Shore of Oahu, about 1 mile east of Haleiwa Town (see Figure 1). The project site will occupy approximately a .75-acre portion of Tax Map Key (TMK): 6-2-10: 01 (see Figure 2), owned by the Kamehameha Schools Bernice Pauahi Bishop Estate (KSBE) and currently under lease to Dole Food Company. The project site is located at an elevation of approximately 220 feet above mean sea level (msl), about 4,600 feet east of Kamehameha Highway along Opaepala Road. Vehicular access to the project site will be via Opaepala Road.

1.3 Existing and Surrounding Uses

Formerly in sugar cane cultivation, the project site is currently being cultivated for diversified agriculture.

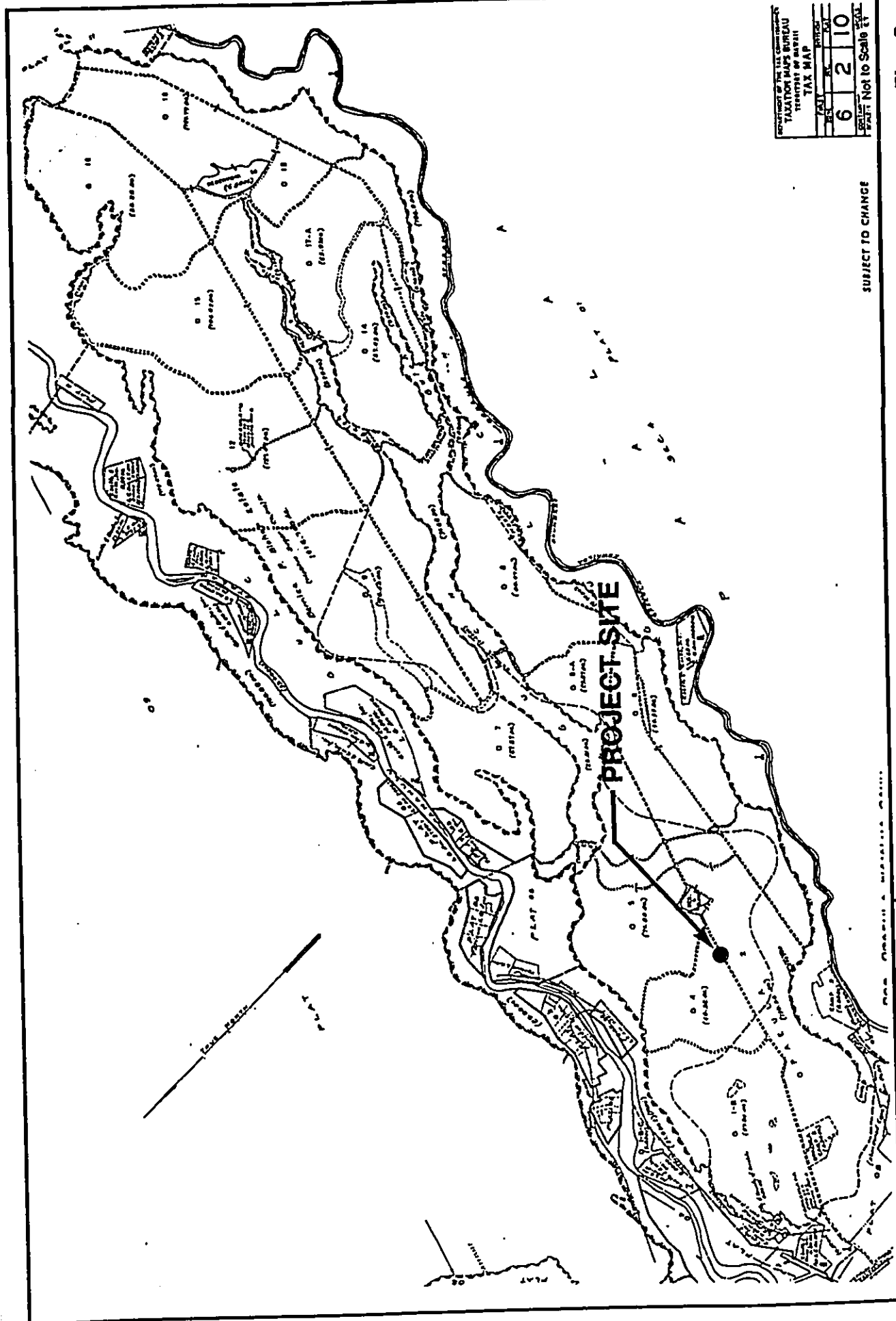


**HALEIWA WELL II
EXPLORATORY WELL SITE**

**Fig. 1
LOCATION MAP**

Prepared for:
CITY AND COUNTY OF HONOLULU
BOARD OF WATER SUPPLY

Prepared by:
WILSON OKAMOTO &
ASSOCIATES, INC.



DEPARTMENT OF THE TAX COMMISSIONER
TAXATION MAPS BUREAU
TERRITORY OF HAWAII
TAX MAP

KEY	6	2	10
DATE	MAY 1964		
SCALE	AS SHOWN		
REVISIONS	NONE		

DO NOT SCALE

SUBJECT TO CHANGE

Fig. 2

TAX MAP KEY 6-2-10: 1 (por.)

HALEIWA WELL II
EXPLORATORY WELL SITE

Prepared for:
CITY AND COUNTY OF HONOLULU
BOARD OF WATER SUPPLY

Prepared by:
WILSON OKAMOTO &
ASSOCIATES, INC.

1.4 Project Need

In addition to its responsibility to manage, control and operate Oahu's municipal water system, the BWS is also mandated by law to provide potable water sources to meet growing consumer demand to the extent of available water resources. The BWS utilizes population data to project future consumer demands on the water system, thereby allowing for timely decisions regarding the financing and development of source, storage, and transmission facilities to meet those demands.

The BWS's *Oahu Water Plan* includes the following water use planning objectives:

- *Investigate, prepare for, and timely develop additional potable groundwater sources and alternative sources requiring treatment, to provide for anticipated consumer demands.*
- *Attempt to insure that growth in consumer demand will be compatible with available water supply.*

In order to accomplish the BWS's responsibilities and these objectives, long-term water demand estimates are projected and commensurate water system facilities are planned to meet the projected demand. BWS's water demand projections are based on the City and County of Honolulu Planning Department's population distribution projections for the Development Plan (DP) areas.

It is anticipated that most of the water from future production wells at this site will be used to meet demands outside of the watershed, which is designated as the Waialua Water Management Area (WMA) by the State Commission on Water Resource Management (CWRM). Although pipeline routes to transport the water and the areas to be served have yet to be determined, future pipeline connections to the Waianae Coast, Central Oahu and Windward Oahu are being considered. It is BWS's policy, however, to meet the demands within the watershed before transmitting excess supply to other areas. Any transmission of water outside of a watershed would need the approval of the CWRM through the Water Use Permit (Section 174C-49(c) of the State Water Code) which is required before the well can be put into production.

With regard to water demand in the North Shore DP Area, the current water demand in the North Shore area is approximately 2.7 mgd. It is projected that demands for the area will increase to about 3.7 mgd by 2020. The demand projections are based on the City and County estimates that the North Shore population will increase to 19,560 by 2020. Factors contributing to water demands include, available excess capacity, connection for an islandwide system and agricultural water demand of the North Shore area, which are currently being evaluated in the BWS Waialua-Kawailoa-Mokuleia Study.

The exploratory well site is one of three currently proposed in the Waialua-Haleiwa area. The estimated production capacity of each is 1.5 mgd, for a total of 4.5 mgd. Assuming that no alternative water sources are used or developed, 1.0 mgd would be needed to meet the projected urban demand on the North Shore through the year 2020. Thus, the amount of water available for agriculture or transmission to other areas would be approximately 3.5 mgd, if no alternative water sources for the North Shore DP area are used. The North Shore infrastructure is currently being evaluated in the BWS's ongoing feasibility study. Elements of the North Shore water system infrastructure that would take approximately 15 to 20 years to complete include source, transmission and storage.

In the past, heavy water usage by the sugar industry resulted in increasing saline content when withdrawals exceeded 40 mgd from the Waialua aquifer, which is the aquifer that the BWS's three planned wells are expected to tap. The data from the sugar industry's past practices was used as the basis for establishing the current maximum sustainable yield at 40 mgd for the Waialua aquifer. According to the most recent data from the CWRM, withdrawals from the aquifer averaged 11.867 mgd between July, 1996 and July, 1997, indicating that 28.133 mgd is unused and seeping into the sea. The three planned BWS wells would utilize approximately 4.5 mgd of that unused capacity when they are put into production.

Currently, there are Water Use Permits allocating up to 39.941 mgd of water from the Waialua aquifer; mostly for sugar cane irrigation. Since sugar is no longer being cultivated and water withdrawals have declined as a result, the CWRM is planning to revoke some of those allocations. Revocation of those allocations would be required before the CWRM could reallocate the water to the planned BWS wells through the Water Use Permit. As mentioned

previously, the Water Use Permit would be required before a well could be put into production; not at the presently proposed exploratory stage.

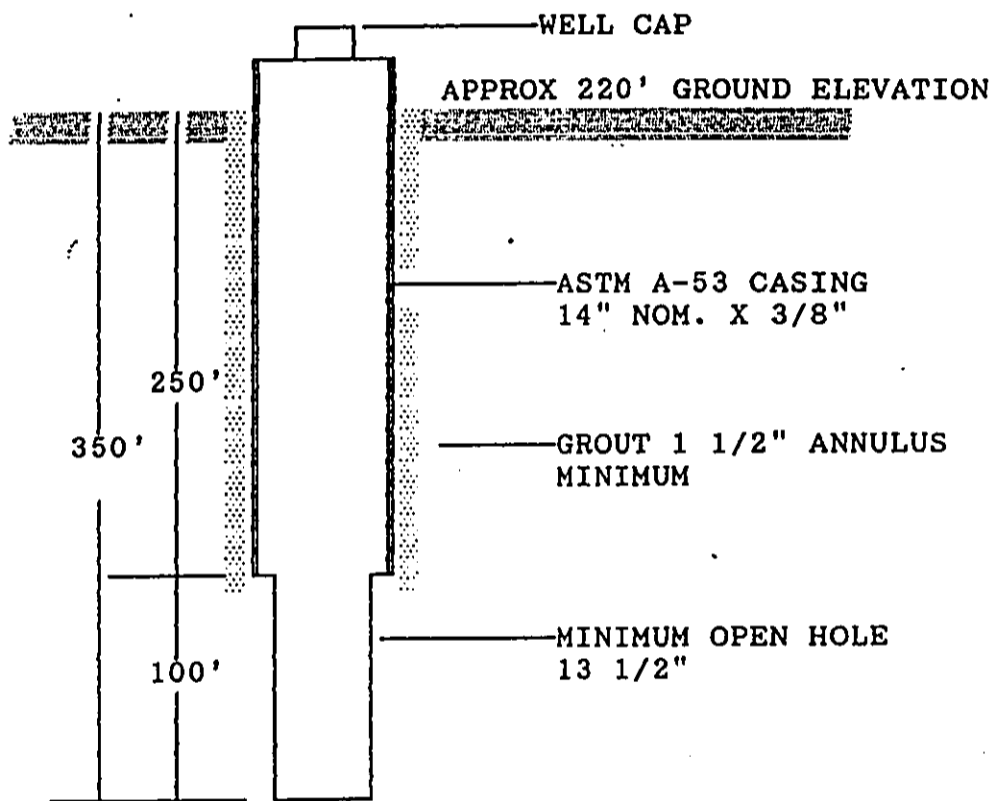
1.5 Project Description

An area of approximately .75-acre will be cleared at the project site to accommodate the well drilling, support equipment and necessary supplies. Once the area has been cleared, a single test well will be bored at the site. The diameter of the bore will be approximately 18 inches and the estimated depth is 350 feet. The method of boring will be determined by the contractor submitting the winning bid, but either a cable tool or rotary drill will likely be used. The amount of time required to achieve the required depth would vary, from approximately one month for the rotary drill to up to three months for the cable tool. A 14-inch diameter steel casing approximately 250 feet long will be grouted in place within the bore hole (see Figure 3). Spoils from the boring operation will be disposed of on-site. Appropriate containment and erosion control measures, including but not limited to, silt fences, local grading and berming will be implemented to minimize temporary impacts. The excavated material will be hydromulched, seeded or otherwise vegetated to provide soil stabilization.

1.6 Test Pumping

Following construction of the exploratory well, tests will be conducted with a diesel powered test pump to determine the quantity and quality of water that can be produced. Quantity testing will include yield drawdown tests spanning approximately one hour at each rate and a sustained pumping test spanning 120 hours. Power for the pump will be supplied by electric generators using either gasoline or diesel fuel. Water withdrawn from these tests will be disposed of on-site in the surrounding agricultural fields and/or irrigation ditches; no water will be disposed of into streams or other natural drainage courses. A National Pollutant Discharge Elimination System (NPDES) Permit will not be required, as water withdrawn during test pumping will not be discharged into any surface streams or coastal waters.

HALEIWA II EXPLORATORY WELL



NOT TO SCALE

HALEIWA WELL II
EXPLORATORY WELL SITE

WELL CROSS SECTION

Fig. 3

Prepared for:
CITY AND COUNTY OF HONOLULU
BOARD OF WATER SUPPLY

Prepared by:
WILSON OKAMOTO &
ASSOCIATES, INC.

Water quality testing will include those for detecting chlorides (salts) as well as pesticides, heavy metals and organics. The tests for contaminants will determine if treatment processes will be required when the wells are put into production. Due to potential contamination associated with past agricultural practices, a Granular Activated Charcoal (GAC) treatment facility may be required. If required, the facility would be constructed either at the well site when it is developed for production, or at an additional site area. A separate EA will be required if the well is put into production, at which time the specific site requirements for the facility and its impacts will be addressed.

Following testing, the well will be capped and all equipment removed. If development of the well for production is deemed feasible, a subsequent environmental assessment will be prepared for that activity as a separate action.

1.7 Project Schedule and Cost

At present, exploratory well drilling at the Haleiwa Well II exploratory well site is not scheduled; however, upon approval of the required permits, the expected construction length for well drilling should be approximately 180 calendar days. The capital cost for the construction and testing phase is estimated at \$200,000.

Chapter 2

**DESCRIPTION OF THE EXISTING ENVIRONMENT,
IMPACTS AND MITIGATION MEASURES**

2. DESCRIPTION OF THE EXISTING ENVIRONMENT, IMPACTS AND MITIGATION MEASURES

2.1 Climate

The climate of the North Shore area of Oahu is characteristically mild with persistent northeast trade winds. Average temperatures range from a low of approximately 70 degrees in the coolest month, to a high of approximately 80 degrees in the warmest month. Average annual rainfall is about 35 inches. Light northeasterly tradewinds of about 14 to 16 knots are present most of the year.

Impacts and Mitigation Measures

The proposed project will not impact the area's general climate.

2.2 Geology and Topography

The island of Oahu is a volcanic doublet formed by the Waianae Range to the west and the younger Koolau Range to the east. Both are the remnants of great shield volcanoes, but the term "range" indicates that they have lost most of the original shield outlines and are now long narrow ridges shaped largely by erosion.

Basaltic lava from the Koolau and Waianae Volcanic Series, which ranges in depth from 2,000 feet to more than 3,100 feet thick, underlies the project area. At the surface, the site is underlain by residual soils developed on Koolau lava. The Waialua-Mokuleia coastal plain is underlain by interbedded marine and terrestrial sediments deposited when the various glacial stages caused fluctuations of sea level. These sediments confine the basal groundwater that occurs within the basaltic lava flows.

Impacts and Mitigation Measures

Construction of the proposed well will require a bore hole into the subsurface basalt rock. No significant impacts on the geology and topography of the project site are anticipated during the construction and operation of the proposed project.

2.3 Soils

Soils at the site are classified by the U.S. Department of Agriculture Soil Conservation Service as Lahaina silty clay, 7 to 15 percent slopes (LaC) and Lahaina silty clay, 3 to 7 percent slopes (LaB). These are well-drained soils found in the uplands of the islands of Lanai, Maui, Molokai and Oahu. These soils developed in material weathered from basic igneous rock. Runoff is medium and the erosion hazard is moderate. Soils of this nature are commonly used for sugarcane and pineapple cultivation (see Figure 4).

Impacts and Mitigation Measures

No significant impacts on the soils at the project site are anticipated with the construction and operation of the proposed project.

2.4 Hydrology

2.4.1 Surface Water

There are no natural surface water bodies on the project site. Two perennial stream systems are located within one-half mile of the project site. Anahulu River is located approximately 1,700 feet to the north, and Opaepala Stream, a tributary of the Paukauila Stream system, is located approximately 1,500 feet to the south. Both the Anahulu River system and Opaepala Stream have perennial stream flow, meaning the stream flows to the sea year round. The lower reaches are perched upon alluvium whereas, the channel inverts are much higher than the water table further upstream.

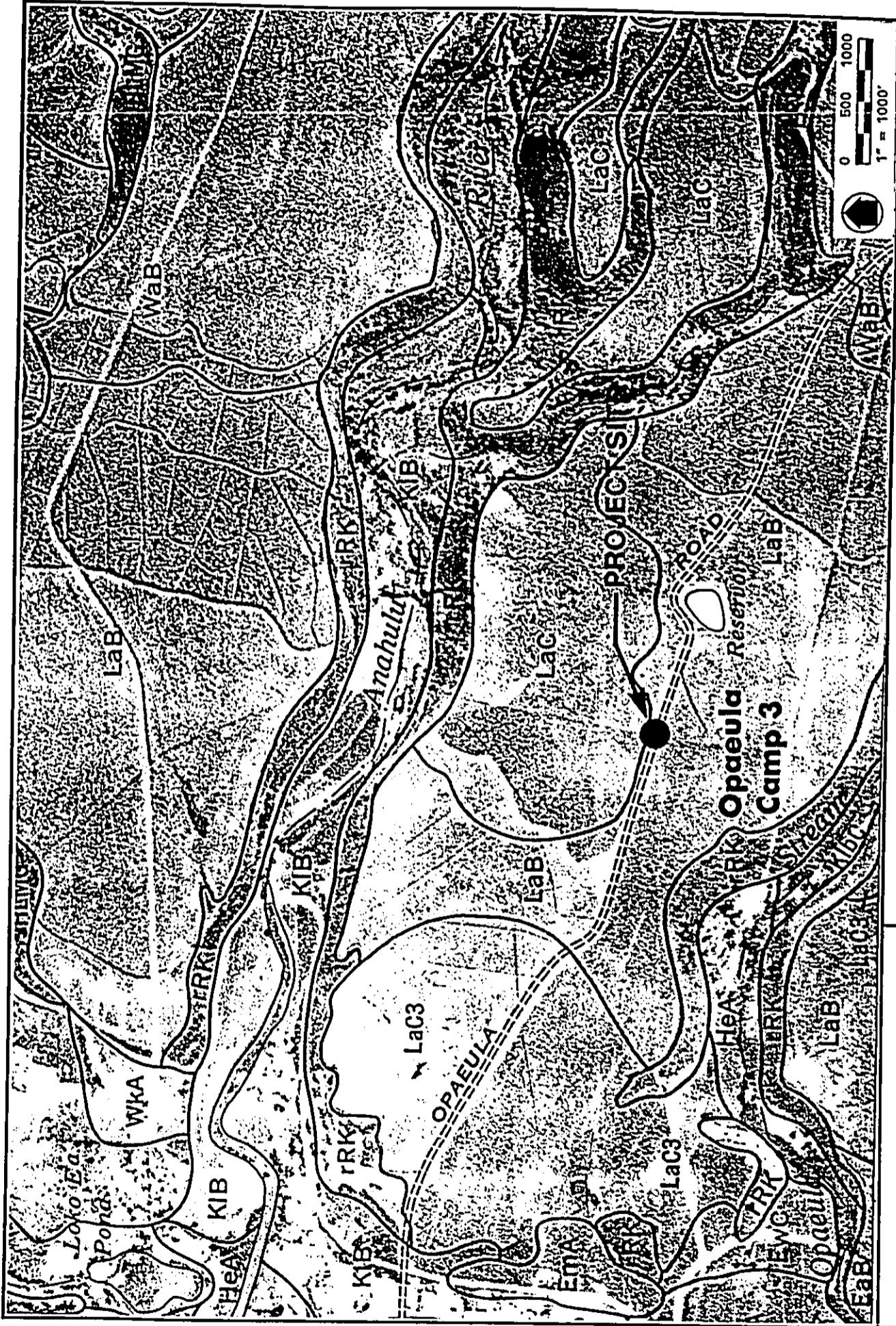


Fig. 4

SOILS MAP

HALEIWA WELL II
EXPLORATORY WELL SITE

Prepared for:
CITY AND COUNTY OF HONOLULU
BOARD OF WATER SUPPLY

Prepared by:
WILSON OKAMOTO &
ASSOCIATES, INC.

The CWRM's *Hawaii Stream Assessment* represents Hawaii's first step in an attempt to identify streams and rivers with significant natural and cultural qualities that may be appropriate for protection. One purpose of the study was to identify streams with high value stream-related "beneficial uses." These uses or "resources" were categorized into four units.

- Aquatic Resources
- Riparian Resources
- Cultural Resources
- Recreational Resources

Elements of these resource categories were identified and ranked as Outstanding, Substantial, Moderate, Limited and Unknown. The Paukauila system was ranked as one of the seven streams on the island of Oahu with outstanding aquatic resources due to the observance of oopu alamo, *Lentipes concolor* and oopu nakea *Awaous stamineus*, both native goby species. The Anahulu system was ranked as one of the seven Oahu streams with outstanding recreational resources primarily due to the camping, hiking, fishing, swimming, hunting and boating opportunities. Neither stream was ranked as having outstanding riparian or cultural resources.

Impacts and Mitigation Measures

There are no surface water sources on the project site. The closest streams, the Anahulu River and the Opaepa Stream tributary of the Paukauila system are both more than one-quarter mile from the project site. There is available sustainable yield, which is the safe yield that can be withdrawn without detrimental effects to the aquifer. Since pumpage will not exceed the sustainable yield or previous pumpage levels due to the demise of sugar cultivation, flow within Anahulu Stream should not decrease below historical levels. In addition, Anahulu Stream is perched upon alluvium and is significantly distant that no streamflow monitoring is planned.

2.4.2 Ground Water

Most of Oahu, including the North Shore area, is underlain with permeable volcanic rock which stores and transmits water readily. As a result, the portion of the island below sea level is

saturated with saline water from the ocean, except where significant infiltration of fresh water accumulates and forms a fresh water "lens" in a condition known as basal groundwater. This type of groundwater occurs below the project site.

The project area overlies the Waialua aquifer, one of three systems within the North aquifer sector (see Figure 5). In the Waialua aquifer, a thick wedge of sedimentary caprock causes a thick basal lens to exist, creating an extensive freshwater body located in dike-free Koolau lava flows. Recharge from rainfall in the Koolau Range maintains this lens. The movement of groundwater in the Waialua-Haleiwa area occurs in a seaward direction, and is confined by a thick caprock sequence of marine and terrestrial sediments. Anahulu thick alluvium separates the Waialua aquifer from the Kawailoa aquifer. The Koolau-Waianae unconformity separates the Waialua from the Mokuleia aquifer.

Water Management Areas

Under the State Water Code, Water Management Areas (WMA) may be designated by the CWRM when it can be reasonably determined that the water resources in an area may be threatened by existing or proposed withdrawals or diversions. Specifically, the designations are based on a determination that an aquifer, or contiguous groups of aquifers, is being exploited to and beyond the limits of sustainable yield. Sustainable yield refers to the maximum rate at which water may be withdrawn from a water source without impairing the utility or quality of the water source.

The basal aquifer underlying the Waialua WMA had been affected by heavy draft from improperly designed wells for sugar plantation irrigation, resulting in increasing salinity. Estimates of sustainable yields are based on water balances computed within system boundaries. In 1988, the Waialua aquifer showed a large deficit of withdrawals over sustainable yield. A CWRM earlier sustainable yield was determined at 5.0 mgd. It was subsequently determined that the sustainable yield estimate for the Waialua system was understated because spillage and leakage from the Wahiawa High Level System was not included. Presently, the sustainable yield for the Waialua aquifer is 40 mgd.

ISLAND OF OAHU

TOTAL = 465 MGD

HYDROLOGIC UNITS

Sustainable Yield / Aquifer Code

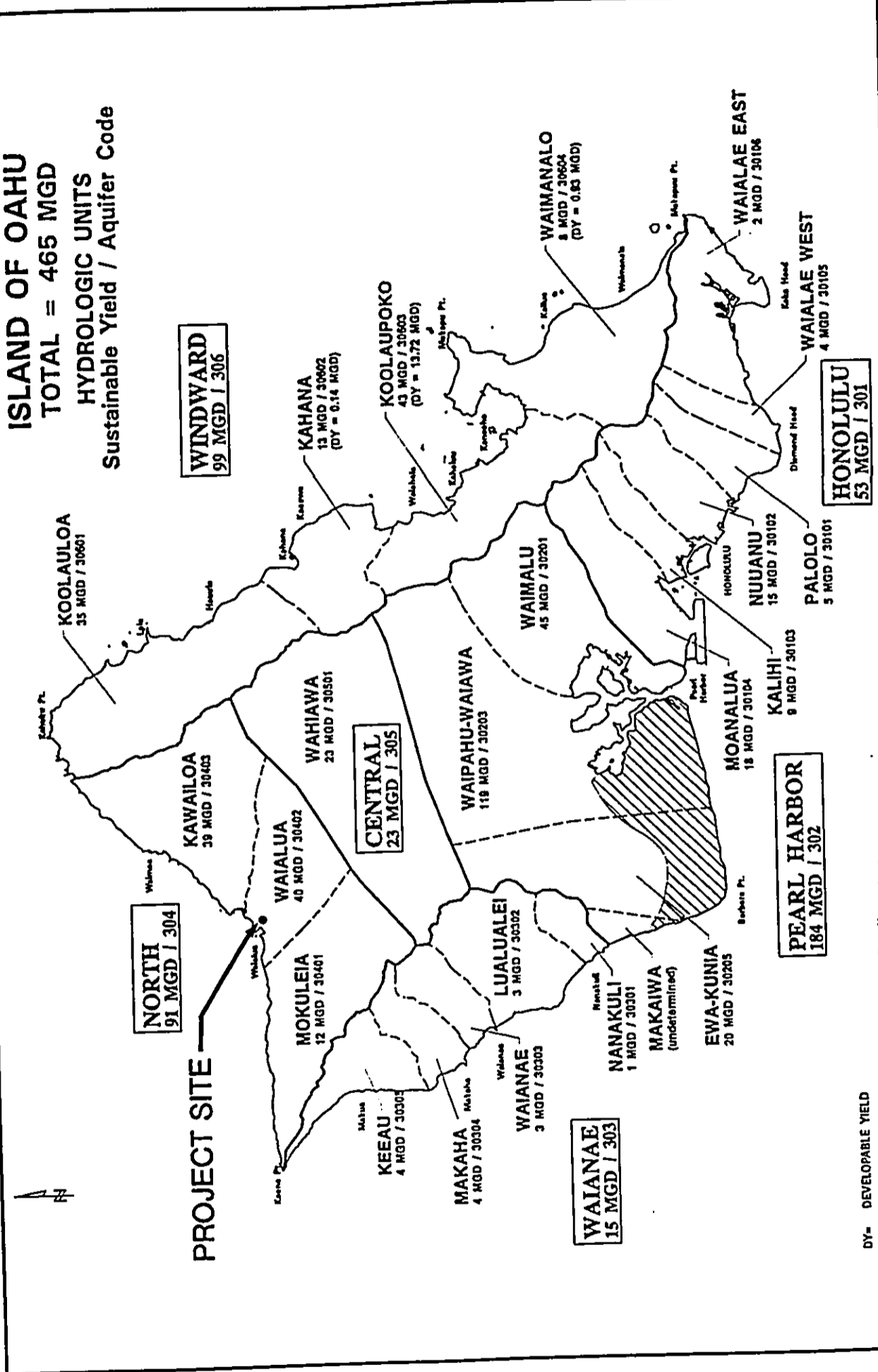


Fig. 5

OAHU GROUNDWATER MAP

HALEIWA WELL II EXPLORATORY WELL SITE

Prepared by:
WILSON OKAMOTO &
ASSOCIATES, INC.

Prepared for:
CITY AND COUNTY OF HONOLULU
BOARD OF WATER SUPPLY

DY = DEVELOPABLE YIELD
Ewa Caprock overlying 30205 & 30203 basal aquifer systems

Currently, there are Water Use Permits allocating up to 39.941 mgd of water from the Waialua aquifer; mostly for sugar cane irrigation. Since sugar is no longer being cultivated and water withdrawals have declined as a result, the CWRM is planning to revoke some of those allocations. Revocation of those allocations would be required before the CWRM could reallocate the water to the planned BWS wells through the Water Use Permit. As mentioned previously, the Water Use Permit would be required before a well could be put into production; not at the presently proposed exploratory stage. Of the 39.941 mgd allocated for use in 1997, actual basal use was 11.867 mgd. This substantially adds to the total developable resource in the Waialua aquifer (see Table 1). Growth of diversified agriculture would have priority on the released water. Present pumpage from former plantation wells is less than 2.0 mgd because replacement agriculture has access to approximately 30 mgd from Lake Wilson.

Aquifer System	Sustainable Yield	1997 Permitted Use	1997 Actual Use	Available Sustainable Yield
Waialua	40	39.941	11.867	28.133

Source: Department of Land and Natural Resources Water Resource Management Division

Existing Water Sources

Of the 19 active water sources in the Waialua aquifer, the BWS maintains two well sites; the Haleiwa Wells No. 3405-03, 04 and the Waialua Wells No. 3405-01,02 (see Figure 6). 1997 records for the Waialua aquifer indicate that of the 39.941 mgd permitted use, the BWS average actual use for the two well sites was 2.035 mgd of its 2.730 mgd allocation. Of the 35.892 mgd allocated for use by the Waialua Sugar Company, less than 2.0 mgd is actually used. The remaining 1.319 mgd is allocated for use by 7 private sources (see Table 2).



**HALEIWA WELL II
EXPLORATORY WELL SITE**

EXISTING WELL SITES

Fig. 6

Prepared for:
CITY AND COUNTY OF HONOLULU
BOARD OF WATER SUPPLY

Prepared by:
WILSON OKAMOTO &
ASSOCIATES, INC.

Table 2 Waialua Aquifer System Water Source Inventory		
User	1997 Permitted Use (mgd)	1997 Actual Use (mgd)
Board of Water Supply	2.730	2.035
Waialua Sugar Co.	35.892	9.764*
Other Private Sources	1.319	.068
TOTAL WAIALUA AQUIFER	39.941	11.867
Source: Dept. of Land and Natural Resources Water Resource Management Division		

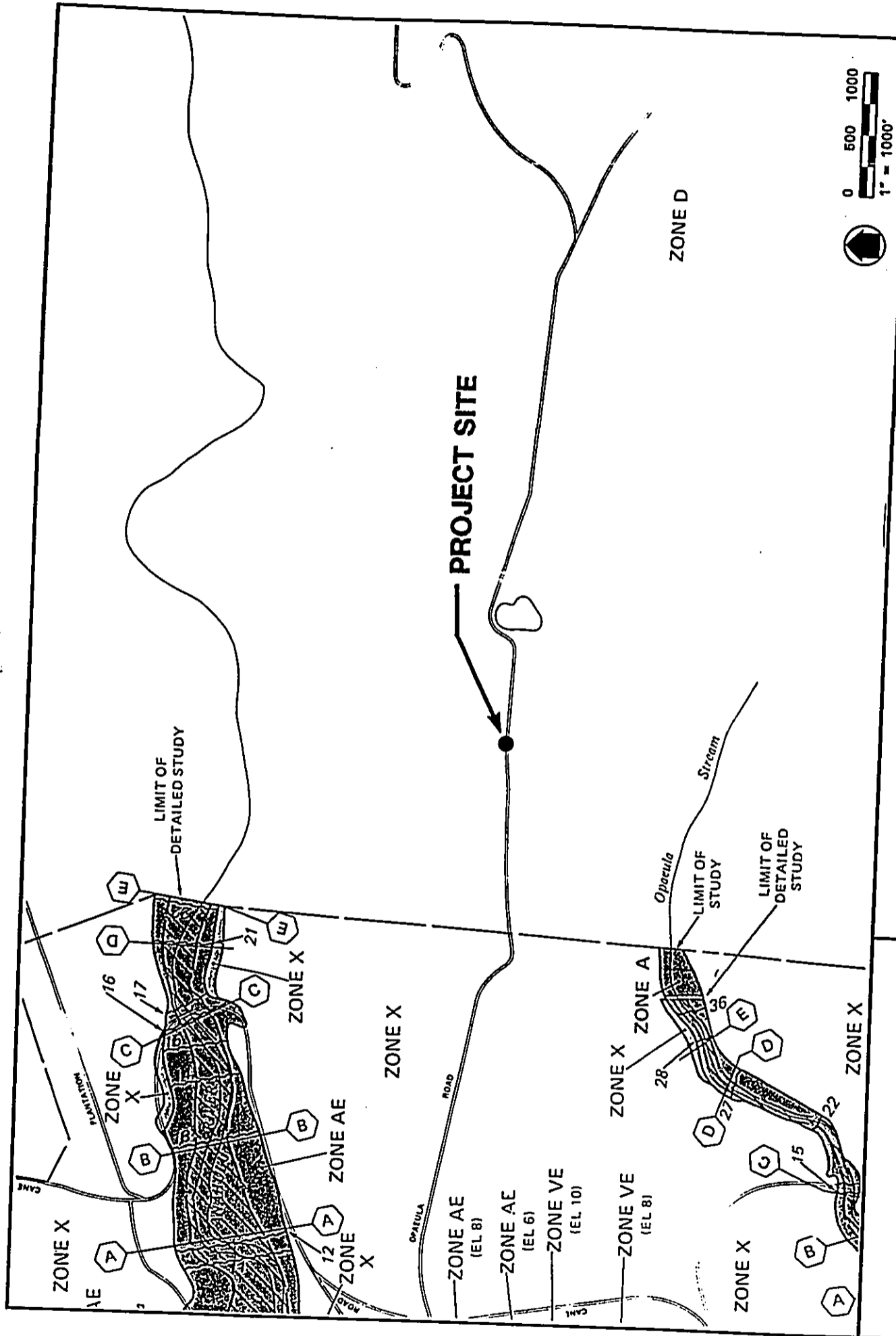
The 1997 data shown is based on a 12-month moving average provided by the Water Resource Management Division. According to the Board of Water Supply, usage at the Waialua Sugar Co. wells in 1998 is on the order of 2.0 mgd.

Impacts and Mitigation Measures

Future development of the proposed project is not anticipated to adversely impact the quality of the basal aquifer. The increased yield in the Waialua aquifer would be within the DLNR sustainable yield for basal water sources in the water management area and aquifer system. Development of the proposed well site is not expected to affect groundwater recharge. Due to the project's location in a designated water management area, a CWRM Water Use Permit will be required prior to use of this source.

2.5 Flood Hazard

According to the Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map (FIRM) Number 150001 0020 B (revised September 4, 1987), the project site is designated Zone D, areas in which flood hazards are undetermined (see Figure 7).



**HALEIWA WELL II
EXPLORATORY WELL SITE**

FLOOD MAP

Fig. 7

Prepared for:
CITY AND COUNTY OF HONOLULU
BOARD OF WATER SUPPLY

Prepared by:
WILSON OKAMOTO &
ASSOCIATES, INC.

Impacts and Mitigation Measures

Due to its location on a gently sloping site, it is unlikely that construction and operation of the proposed project would result in flooding of the project site or lower elevation properties.

2.6 Drainage

Runoff from the project area sheetflows through former sugar cane fields into existing drainage ditches.

Impacts and Mitigation Measures

Water generated during test pumping will be discharged onto open fields and irrigation ditches. Water will not be discharged into streams. Since streams will not be used for water disposal, the discharge of water generated during test pumping is anticipated to have no affect on water quality. The development of the well site will not significantly reduce the area of open land available for rainfall infiltration.

2.7 Flora and Fauna

A botanical survey for the project site was conducted by Evangeline Funk, Ph.D. on September 18, 1997. The purpose of the survey was to characterize the vegetation, and to note the presence of any rare or endangered flora species. Portions of the survey report are discussed below, while the report in its entirety is included as Appendix A.

Dense patches of Guinea grass (*Panicum maximum* Jacq.) were noted on the project site and along the cane haul road that runs through/along the site. It is along this road that the greatest variety of herbaceous ruderals were found. No candidate, proposed, or listed threatened or endangered species as set forth in the Endangered Species Act of 1973 as amended (16 U.S.C 1531-1543), are known from this site.

In response to the pre-assessment consultation for this EA, the U.S. Fish and Wildlife Service indicated that there were no federally endangered, threatened, or candidate species directly within the project site. Excerpts from the October 16, 1997 consultation letter are discussed below, while their letter in its entirety is included in Appendix B. Because the proposed project will be located within a previously disturbed site, the Service does not anticipate adverse impacts to fish and wildlife resources.

Impacts and Mitigation Measures

There are no known endangered or threatened species inhabiting the project site. While some loss of habitat will occur as a result of construction activities, none of the species affected are known to be threatened or endangered. The proposed project will be located within a previously disturbed site that was in sugarcane cultivation, therefore no significant impacts on flora and fauna species are anticipated.

2.8 Noise

Noise in the vicinity of the project site is predominantly attributable to vehicular traffic along Opauala Road, the Joseph P. Leong Highway (former Haleiwa By-Pass Road) and Kamehameha Highway. The well site is located slightly less than one mile from Kamehameha Highway, distant enough to be unaffected by noise generated from automobile and truck traffic along the road. Opauala Road, along the well site, is used occasionally by trucks associated with agricultural activities. The nearest residential community is located near Haleiwa Town approximately 1 mile west of the project site.

Impacts and Mitigation Measures

Noise from drilling and construction activities will likely be unavoidable during the entire drilling and construction phase however, there are no noise sensitive land uses in the vicinity that could be adversely affected. Unavoidable construction noise impacts will be mitigated to some degree by the contractor's compliance with provisions of the State DOH Administrative Rules, Chapter 11-46, "Community Noise Control." These rules require a permit if the noise levels from construction activities are expected to exceed the

allowable levels stated in the Chapter 46 rules. Construction equipment and on-site vehicles requiring an exhaust for gas and air must be equipped with mufflers. Also, the guidelines for the hours of heavy equipment operation and noise curfew times as set forth by the DOH noise control regulation must be adhered to.

No significant noise impacts from the test pumping are anticipated. Ambient noise levels in the vicinity of the project site may increase slightly as a result of the pumping and associated increase in vehicular activity. No noise impacts upon the nearest residential community are anticipated due to the distance from the project site.

2.9 Traffic

Vehicular access to the project site is gained from north and south-bound Kamehameha Highway via Opaepa Road. Opaepa Road leads approximately three-quarters of a mile to the project site. Due to the absence of any significant traffic generating land uses in the vicinity, traffic along Opaepa Road is generally very light at all times of the day.

Impacts and Mitigation Measures

During the construction and drilling phase, any temporary increase in traffic congestion that could result from the movement of construction related vehicles is unlikely to inconvenience motorists in the immediate vicinity of the project site. Opaepa Road provides vehicular access to Opaepa and Opaepa 2 Reservoirs, and surrounding agricultural lands. If necessary to mitigate potential traffic congestion and delays on Kamehameha Highway, the movement of construction vehicles can be restricted during the morning and afternoon peak traffic hours. Such restrictions will probably be unnecessary, however, since peak-hour traffic is in the opposite direction of traffic going from Kamehameha Highway to the project site. It is anticipated that all construction-related vehicles will park within the project site and, thus, will not affect street parking or traffic flow in the vicinity.

2.10 Air Quality

Within the immediate vicinity, air quality is primarily affected by vehicular-related emissions generated from traffic traveling along Opaeha Road, the Joseph P. Leong Highway (former Haleiwa By-Pass Road) and Kamehameha Highway. However, as traffic operates generally well along these roadways throughout the day, and due to the distance of the project site from major roads, the associated vehicular emissions do not significantly affect ambient air quality in the area. Occasionally, dust from agricultural activities could be generated within the immediate vicinity of the project site.

Impacts and Mitigation Measures

Potential air quality impacts during the construction and drilling phase of the proposed project will be mitigated by complying with the State of Hawaii DOH Administrative Rules, Title 11, Chapter 60, Air Pollution Control. During the construction phase, two potential types of air pollution emissions will likely occur: 1) fugitive dust from vehicle movement and soil excavation; and 2) carbon monoxide and nitrogen oxide emissions from on-site construction equipment and from construction workers' vehicles and equipment traveling to and from the project site. Compliance with State regulations will require adequate measures to control fugitive dust by methods such as water spraying and sprinkling of loose or exposed soil and dust-generating equipment during construction. As may be deemed appropriate, paving and/or re-establishment of vegetated areas early in the construction schedule will also help control dust. Exhaust emissions from construction vehicles are anticipated to have negligible impacts on air quality in the project vicinity as emissions would be relatively small and readily dissipated.

Once construction is completed, there will be no long-term air quality impacts. The test pumping phase of the project is not anticipated to significantly increase vehicular traffic to the project site and will have no significant impact on air quality in the vicinity.

2.11 Archaeological/Historic Resources

In response to the pre-assessment consultation for this EA the State Historic Preservation Division indicated that a review of their records shows there are no known historic sites at the project location. Excerpts from their October 24, 1997 consultation letter are discussed below, while the letter in its entirety is included in Appendix B. These lands were commercially cultivated with sugar cane which altered the land for many years. The depth of cane cultivation exceeded the expected depth of historic sites in the area, based on site patterns in similar environmental contexts. Thus, it is unlikely that significant historic sites will be found in the project area.

Impacts and Mitigation Measures

Due to previous sugar cane cultivation operations on the project site, it is unlikely that the construction and drilling phase of the project will have any impact on archaeological, cultural or historic sites. Should any archaeological, cultural or historic sites be uncovered during construction or drilling activities, all work in the vicinity will cease and the State of Hawaii Department of Land and Natural Resources Historic Preservation Officer will be notified immediately.

2.12 Aesthetics

Due to its relative isolation, the project site is not visible from Kamehameha Highway and is not within a significant view plane.

Impacts and Mitigation Measures

The project site is approximately three-quarters of a mile from Kamehameha Highway and is generally not visible to residential communities or passing commuters. Although the well rig, necessary in the drilling phase, may be visible from Kamehameha Highway, it will not be a permanent structure and will not block any views. The exploratory well will not have a significant vertical profile and will have no significant visual impact to the North Shore area.

2.13 Socio-Economic

Population

According to staff communication with the City and County of Honolulu Planning Department, the North Shore DP area had a resident population of 15,749. Using market conditions, historical development trends, and current land use policies, the City and County of Honolulu Planning Department projected a 1995 population of 15,913 for the North Shore DP area out of an islandwide projection of 882,509, and it is likely to have a population of 19,560 out of an islandwide 1,071,200 by the year 2020. For both 1995 and 2020, the North Shore population projections represent 1.8 percent of Oahu's population.

Impacts and Mitigation Measures

During well construction and testing construction workers and others, including BWS staff, will commute to the site. Following construction and testing, there will be no need for persons to be at the site until a decision is made to put the well into production. Thus, there will be no significant impacts to the population of the North Shore from the project.

Public Services

Police Protection: The exploratory well site is within the area served by the Honolulu Police Department, District 2, Wahiawa Station located approximately 7 miles from the project site at 330 N. Cane Street.

Fire Protection: Fire protection service for the project site is provided by the Honolulu Fire Department, Station 14, the Waiialua/Haleiwa Station located approximately 1.5 miles from the project site at 66-420 Haleiwa Road.

Health Care Facilities: The health care facility nearest to the project site is the Wahiawa General Hospital located at 128 Lehua Street. Located approximately 7 miles away, Wahiawa General is a full service hospital providing emergency care and medivac transport capabilities.

Impacts and Mitigation Measures

There will not be any significant impacts on the provision of public services during the construction and testing phases of the proposed project.

Chapter 3

RELATIONSHIP TO PLANS, POLICIES AND CONTROLS

3. RELATIONSHIP TO PLANS, POLICIES AND CONTROLS

3.1 State Land Use District

The Hawaii Land Use Law of Chapter 205, Hawaii Revised Statutes (HRS), classifies all lands in the State into four land use districts: Urban, Agricultural, Conservation and Rural. The project site is designated within the Agricultural District. Exploratory wells are not expressly permitted in §205-4.5, HRS. A Special Permit in the State Land Use Agricultural District will be required from the City and County of Honolulu Department of Planning and Permitting and the Planning Commission.

3.2 City and County of Honolulu General Plan

The General Plan for the City and County of Honolulu (adopted 1977) was amended by the City Council in 1992. The plan is a statement of long-range social, economic, environmental and design objectives for the general welfare and prosperity of the people of Oahu. The plan is also a statement of broad policies which facilitate the attainment of the objectives of the plan. Eleven subject areas provide the framework for the City's expression of public policy concerning the needs of the people and functions of government. These areas include population; economic activity; the natural environment; housing; transportation and utilities; energy; physical development and urban design; public safety; health and education; culture and recreation; and government operation and fiscal management. The relationship of the proposed project to the relevant objectives and policies of the General Plan are as follows:

V. Transportation and Utilities

Objective B: To meet the needs of the people of Oahu for an adequate supply of water and for environmentally sound systems of waste disposal.

Policy 1: Develop and maintain an adequate supply of water for both residents and visitors.

Policy 2: Develop and maintain an adequate supply of water for agricultural and industrial needs.

Objective C: To maintain a high level of service for all utilities.

Policy 3: Plan for the timely and orderly expansion of utility systems.

3.3 City and County of Honolulu Development Plan

The City and County of Honolulu's DP program provides a relatively detailed framework for implementing the objectives and policies of the General Plan on an areawide basis. Eight DPs have been adopted covering the entire island. Each DP Ordinance consists of Common Provisions applicable to all DP areas, Special Provisions for each area, a Land Use Map, and a Public Facilities Map. The DP Land Use Maps depict land use patterns which are consistent with objectives and policies of the General Plan.

The project site is located within the North Shore DP area which encompasses the area extending from Waialeale Gulch near Kawela Bay west to Kaena Point. The North Shore DP Land Use Map designates the project site as "Agricultural." The DP Common Provisions identifies Agricultural lands as areas "suitable for crop growing, grazing and the raising of livestock, flower gardening, nurseries or orchards, aquaculture, or similar activities." Exploratory wells are allowed in any land use district, the Haleiwa Well II exploratory well site is permissible within the DP Agricultural land use category.

DP Special Provisions for North Shore

Section 24-8.3 of the DP Special Provisions for North Shore states various development priorities and projects to be supported by public plans and programs. The relationship of the proposed project to the relevant development priorities of the Special Provision for the North Shore DP area is as follows:

- (d) *The improvement of water resources to agricultural, aquacultural, and needed urban uses.*

The proposed project is not located within the Haleiwa Town Special Area, and is consistent with the North Shore DP Special Provisions Section 24-8.2.

North Shore DP Public Facilities Map

The DP Public Facilities Map identifies public and private proposals for parks, streets and highways, major public buildings, utilities, terminals, and drainage. The North Shore DP Public Facilities Map does not show any symbols in the project vicinity. Section 24-1.8 of the DP Common Provisions clarifies that identification of public buildings, public or private utilities, terminal and drainage on DP Land Use and Public Facilities Maps. §23-1.8(2)(C) further states "exploratory wells are not depicted and may be allowed in any land use district." Should the exploratory well site be converted into a production well, an amendment to the North Shore DP Public Facilities Map would be required identifying the well site.

3.4 City and County of Honolulu Land Use Ordinance and Zoning

The project is zoned AG-1 Restricted Agricultural District. The intent of the AG-1 restricted agricultural district is to conserve and protect important agricultural lands for the performance of agricultural functions by permitting only those uses which perpetuate the retention of those lands in the production of food, feed, forage, fiber crops and horticultural plants. Within the AG-1 district, public uses and structures are permitted. Public uses and structures are defined as uses conducted by or structures owned or managed by the federal government, the State of Hawaii or city to fulfill a governmental function, activity or service for public benefit and in accordance with public policy. As a public use and structure the exploratory well is permissible within the AG-1 district.

3.5 City and County of Honolulu Special Management Area

The Coastal Zone Management Act contains the general objectives and policies upon which all counties within the State have structured specific legislation which created Special Management Areas (SMA). Any development within the SMA requires an SMA Use Permit, which is administered by the City and County of Honolulu, Department of Planning and Permitting pursuant to Ordinance No. 84-4.

While a portion of the parcel in which the project site is located may be within the SMA, the project site itself is located outside the boundaries of the City and County's SMA. Therefore, development of the proposed project is not subject to the provisions of the SMA Use Permit.

Chapter 4

ALTERNATIVES TO THE PROPOSED ACTION

4. ALTERNATIVES TO THE PROPOSED ACTION

4.1 No Action

The proposed project is part of the overall groundwater development program intended to meet anticipated consumer demands for potable water and fulfill the BWS's legal mandate to provide for the water needs of a growing population. The objective of the exploratory well is to determine the potential of the Haleiwa Well II as a future source of potable water. Under the no action alternative, the BWS would not be able to provide adequately for increasing water needs which may result in regional water shortages, excessive withdrawal beyond the sustainable yields for other aquifers, and restrictions in new developments. In consideration of the high development costs and technological challenges associated with the potential alternative sources discussed in Section 4.4, the no action alternative is not considered a feasible option to the proposed project.

4.2 Delayed Action

Although the proposed project is not currently scheduled, delay of the project once budgeted could increase the cost when construction ultimately begins. The delay would increase the risk that consumer water demands may exceed available water supplies resulting in regional water shortages, excessive withdrawal beyond sustainable yields for other aquifers, and disruptions to domestic water services. Delaying the project would not rule out its necessity in the near future. The delayed action alternative is not considered a feasible option to the proposed project.

4.3 Alternative Location

The BWS is responsible for management, control and operation of the municipal water system for certain areas of Oahu. As part of this responsibility, the BWS must identify well sites for exploratory drilling and eventual production of water. A number of factors are considered by the BWS in the selection of potential alternative exploratory well sites, including subsurface geologic and groundwater characteristics, depth of drilling to the water resource, nearby surface water system, ease of access, surrounding terrain, natural and cultural resources, and environmental impacts. No other sites in the general vicinity would result in significantly less

environmental or social impacts, therefore the Haleiwa Well II exploratory well site was selected after consideration of all these factors.

4.4 Alternative Sources

Alternatives to potable groundwater analyzed and investigated in the *BWS 1995, Final Draft, Oahu Water Plan* included; desalination, surface and brackish groundwater development, reclaimed water use and conservation of existing resources. With the exception of conservation, these alternatives share high development costs and technological challenges.

Treatment plants for desalination, treatment of brackish and surface water, and reuse of effluent wastewater share high capital and operation and maintenance costs. In addition to high costs, the use of these alternative sources is not without potential environmental concerns. Wastewater reuse, is additionally plagued with concerns of potential health implications and possible soil contamination. The use of surface water sources could affect stream flows resulting in potential impacts to aquatic, riparian, cultural and recreational resources.

Desalination

The desalination of brackish water and sea water could satisfy a portion of future demand and also provide for the maintenance and recovery of water quality in basal aquifers. Desalination plants could produce a local supply within areas of demand, thereby minimizing the need to transport water over long distances. The main disadvantage is the cost of production, which will increase water rates. Desalination will become increasingly feasible as the capital costs of developing marginal potable ground water sources from remote service areas approach the cost of constructing a desalination plant. However, the operation and maintenance costs of producing and distributing desalinated water are at least 10 times more than the cost of pumping groundwater. It would be preferred if desalination could be deferred until new technology reduces operating and maintenance costs or existing operating costs rise closer to desalination.

Surface Water

A surface water study of Kahana, Punaluu and Waikele streams was funded by the BWS to explore the feasibility of potable development and infrastructure requirements. Findings indicate that the potable development of streams is not feasible due to environmental constraints and safe drinking water treatment and monitoring requirements.

Reclaimed Water Use

Reclaimed water is produced through the treatment of raw wastewater to a quality that is suitable for nonpotable water use. Public health concerns and high costs for dual water system infrastructure limit the extent of reuse. Ongoing studies and discussions are required to review the costs, appropriate treatment level, quality of reclaimed water produced, and potential health implications of reclaimed water on various agricultural crops and potable aquifer sources.

Conservation

Water conservation has significant potential to reduce demand and defer the need to develop potable supplies. The BWS has initiated an ambitious conservation program, including public education, inverted residential water rates, leak detection, low-flow plumbing fixtures, audits, drought tolerant plants, dual water systems, and water use restriction plans. In 1990, the conservation objectives of the BWS was to reduce per capita water use by 10 percent over five years. A separate water conservation unit in the BWS was established in April 1991 to monitor and help implement water conservation efforts. A reduction of approximately 7 percent was achieved by 1995. However, water conservation should not be construed as a substitute solution for the timely development of high quality ground water resources or other alternatives.

As existing aquifer resources approach the sustainable yield limits for the island of Oahu, a combination of strategies are needed in order to provide the required water supply to support future growth. Until such time that alternative source development can reliably and economically supplement existing resources, conservation in conjunction with the development of potable groundwater will remain the preferred BWS management strategy.

Chapter 5

PERMITS REQUIRED

5. PERMITS REQUIRED

The following is a list of permits and approvals which may be required prior to construction of the proposed project:

State of Hawaii

- Department of Land and Natural Resources
Commission on Water Resource Management
- Well Construction Permit

City and County of Honolulu

- Department of Planning and Permitting and
Planning Commission
- Special Permit in the State Land Use Agricultural District

Should the exploratory well be converted to full production, a permanent Pump Installation Permit and Water Use Permit will be required from the State Commission on Water Resource Management.

Exploratory wells are considered a minor action and are not required to be shown on the Development Plan Public Facilities Map. If the well is developed for full production, the Development Plan Public Facilities Map will be amended to include the potable well facility.

Water withdrawn from these tests will be disposed of on-site in the surrounding agricultural fields and/or irrigation ditches; no water will be disposed of into streams or other natural drainage courses. A National Pollutant Discharge Elimination System (NPDES) Permit will not be required, as water withdrawn during test pumping will not be discharged into any surface streams or coastal waters.

Chapter 6

CONSULTATION

6. CONSULTATION

6.1 Pre-Assessment Consultation

The following agencies were consulted during the pre-assessment phase of the Draft Environmental Assessment. Each agency was sent a copy of a project summary and a request for their written comments on the project. The agencies which transmitted comment letters are indicated with a ☐. All written comments and responses are reproduced in Appendix B.

Federal

- U.S. Department of Agriculture
 - Natural Resources Conservation Service
- U.S. Department of the Interior
 - Geological Survey, Water Resources Division
 - ☐ Fish and Wildlife Service, Ecological Services

State of Hawaii

- Department of Agriculture
- Department of Business Economic Development and Tourism
 - ☐ Office of Planning
- Department of Health
 - ☐ Safe Drinking Water Branch
 - ☐ Office of Environmental Quality Control
- Department of Land and Natural Resources
 - ☐ Water Resource Management Division
 - ☐ State Historic Preservation Division
 - Aquatic Resources Division
- ☐ Office of Hawaiian Affairs

City and County of Honolulu

- Board of Water Supply
- ☒ Department of Planning and Permitting (former Department of Land Utilization)
- ☒ Planning Department

Other

- ☒ Kamehameha Schools Bernice Pauahi Bishop Estate
- North Shore Neighborhood Board No. 27
- University of Hawaii, Environmental Center

6.2 Agencies and Organizations Consulted on the Draft EA

The following agencies were consulted during the Draft EA 30-day review period. The agencies which transmitted comment letters are indicated with a ☒. All written comments and responses are reproduced in Appendix C.

Federal

- U.S. Army Corps of Engineers
- U.S. Department of Agriculture
- ☒ Natural Resources Conservation Service
- U.S. Department of the Interior
- Geological Survey, Water Resources Division
- ☒ Fish and Wildlife Service, Ecological Services

State of Hawaii

- Department of Agriculture
- Department of Business Economic Development and Tourism
- ☒ Office of Planning
- Department of Health

- ☐ Safe Drinking Water Branch
- ☐ Office of Environmental Quality Control
- ☐ Department of Land and Natural Resources
- ☐ Aquatic Resources Division
- ☐ Water Resource Management Division
- ☐ State Historic Preservation Division
- ☐ Office of Hawaiian Affairs

City and County of Honolulu

- ☐ Board of Water Supply
- ☐ Department of Planning and Permitting (former Department of Land Utilization)
- ☐ Planning Department
- ☐ Department of Transportation Services

Other

District I City Councilmember Rene Mansho
Kamehameha Schools Bernice Pauahi Bishop Estate
North Shore Neighborhood Board No. 27
University of Hawaii, Environmental Center

Chapter 7

REFERENCES

7. REFERENCES

Central Oahu/North Shore Regional Plan Task Force. *Central Oahu/North Shore Regional Plan*. Established by the Honolulu City Council. July 1993.

City and County of Honolulu. *General Plan*. 1992.

City and County of Honolulu. *Interim Report No. 1: Regional Profile North Shore Development Plan Revision*. February 1997.

City and County of Honolulu. *Oahu Water Plan*. July 1982.

Hawaii Cooperative Park Service Unit. *Hawaii Stream Assessment: A Preliminary Appraisal of Hawaii's Stream Resources, Report R84*. Prepared for the State of Hawaii Department of Land and Natural Resources Commission on Water Resource Management. December 1990.

University of Hawaii at Manoa Water Resources Research Center and Department of Meteorology. *Rainfall Atlas of Hawaii, Report R76*. Prepared for the State of Hawaii Department of Land and Natural Resources Division of Water and Land Development. June 1986.

University of Hawaii, Department of Geography. *Atlas of Hawaii*. The University Press of Hawaii. Honolulu. 1973.

United States Department of Agriculture Soil Conservation Service. *Soil Survey of Islands of Kauai, Oahu, Maui, Molokai and Lanai, State of Hawaii*. U.S. Government Printing Office. 1972.

Wilson Okamoto & Associates, Inc. *Oahu Water Management Plan*. Prepared for the City and County of Honolulu Department of General Planning. March 1990.

Wilson Okamoto & Associates, Inc. *Draft Oahu Water Management Plan: Initial Revision to the Technical Reference Document* (Unpublished). Prepared for the City and County of Honolulu Board of Water Supply. January 1998.

Wilson Okamoto & Associates, Inc. *Waialua-Kahuku Regional Water System Improvements Final Environmental Impact Statement*. Prepared for the City and County of Honolulu Board of Water Supply. September 1988.

APPENDIX A

BOTANICAL SURVEY

BOTANICAL SURVEY REPORT FOR THE HALEIWA WELL II EXPLORATORY WELL SITE

INTRODUCTION

The Haleiwa Well II Exploratory Site is located at approximately 225 feet elevation on the mauka slope above Haleiwa Town, Oahu, Hawaii. The proposed well site is located in an area where active agricultural activity is taking place. The site was formerly sugar cane land that is now being used for diversified agriculture. A botanical survey of the approximately one acre site was conducted on September 18, 1997. The entire site was covered.

RESULTS

In the near vicinity of the Haleiwa Well II site is a broad area devoted to the growing of tuberose (*Polianthes tuberosa* L.) and another near portion of the land is still in sugar cane (*Saccharium officinarum* L.). In 1841, William Brackenridge, a botanist with the Wilkes Expedition described the country around Waialua as "rocky and unprofitable" (Funk 1988). In 1942 Ripperton and Hosaka classified this area as "low elevation scrub".

There are dense patches of Guinea grass (*Panicum maximum* Jacq.) on the well site and along the cane haul road that runs through the site. Along this road is where the greatest variety of herbaceous ruderals were found. All are listed below.

Plants marked with a star have been introduced to Hawaii.

SPECIES LIST

<u>SCIENTIFIC NAME</u>	<u>COMMON NAME</u>	<u>ABUNDANCE</u>
CYPERACEAE - Sedge Family		
* <i>Cyperus rotundus</i> L.	nut grass	Locally abundant

<u>SCIENTIFIC NAME</u>	<u>COMMON NAME</u>	<u>ABUNDANCE</u>
POACEAE - Grass Family		
* <i>Chloris divaricata</i> R. Br.	Stargrass	Occasional
* <i>Cynodon dactylon</i> (L.) Pers.	Bermuda grass	Locally abundant
* <i>Echinochloa colona</i> (L.) Link	Jungle rice	Locally abundant
* <i>Panicum maximum</i> Jacq.	Guinea grass	Common
* <i>Saccharum officinarum</i> L.	Sugar	Common
* <i>Sorghum halpense</i> (L.) Pers.	Johnson grass	Locally abundant
AMARANTHACEAE - Amaranth Family		
* <i>Amaranthus spinosus</i> L.	Spiny amaranth	Occasional
* <i>Amaranthus viridis</i> L.	Slender amaranth	Occasional
ASTERACEAE - Sunflower Family		
* <i>Conyza bonariensis</i> (L.) Cronq.	Hairy horseweed	Occasional
* <i>Emilia coccinea</i> (Sims) G. Don	Flora's paint brush	Locally abundant
BIGNONIACEAE - Bignonia Family		
* <i>Spathodea campanulata</i> P. Beauv.	African tulip	Uncommon
CONVOLVULACEAE - Morning-glory Family		
* <i>Ipomoea triloba</i> L.	Little bell	Uncommon
CUCURBITACEAE - Gourd Family		
* <i>Coccinia grandis</i> (L.) Voigt	Ivy gourd	Occasional
* <i>Mormordica charantia</i> L.	Balsam pear	Occasional
EUPHORBIACEAE - Spurge Family		
* <i>Chamaesyce hirta</i> (L.) Millsp.	Hairy spurge	Occasional
* <i>Chamaesyce hypericifolia</i> (L.) Millsp.	Graceful spurge	Occasional
FABACEAE - Bean Family		
* <i>Chamaecrista nictitans</i> (L.) Moench	Partridge pea	Occasional
* <i>Desmanthus virgatus</i> (L.) Willd.	Slender mimosa	Occasional
* <i>Desmodium incanum</i> DC	Spanish clover	Occasional
* <i>Leucanea leucocephala</i> (Lam.) deWit	Koa haole	Uncommon
MALVACEAE - Hibiscus Family		
* <i>Malva paravifolia</i> L.	Cheese weed	Locally abundant

<u>SCIENTIFIC NAME</u>	<u>COMMON NAME</u>	<u>ABUNDANCE</u>
NYCTAGINACEAE - Four-o'clock Family		
* <i>Boerhavia coccinia</i> Mill.		Occasional
STERCULIACEAE - Cacao Family		
* <i>Waltheria indica</i> L.	'Uhaloa	Occasional
VERBENACEAE - Verbena Family		
* <i>Verbena litoralis</i> Kunth	Owi	Occasional

ENDANGERED SPECIES

No candidate, proposed, or listed threatened or endangered species as set forth in the Endangered Species Act of 1973, as amended (16 U.S.C. 1531-1543), are known from this site.

BIBLIOGRAPHY

- Funk, E. J. 1988. The notes of William Brackenridge made during his Sandwich Island sojourn 1840-1841. Hawaiian Botanical Society Newsletter. Vol.27 (1).
- Neal, M. C. 1965. In Gardens of Hawaii. 2nd. ed. Special Pub. Bis. Mus. 50.
- Ripperton, J. C. & E. Y. Hosaka. 1942. Vegetation Zones of Hawaii. Bull. 89 University of Hawaii.
- St. John, H. 1973. List and Summary of the Flowering Plants of the Hawaiian Islands. PTBG. Lawai, Kauai, Hawaii.
- USFWS. 1993. Endangered and Threatened Wildlife and Plants. 50 CFR 17.11 & 17.12
- Wagner, W. L., D. R. Herbst and S. H. Sohmer. 1990. Manual of the Flowering Plants of Hawaii. Bishop Museum Special Publication #83. Univer. Hawaii Press. Vols. 1 & 2.

APPENDIX B

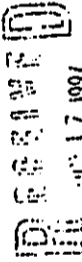
PRE-ASSESSMENT CONSULTATION LETTERS



United States Department of the Interior

FISH AND WILDLIFE SERVICE
PACIFIC ISLANDS ECOREGION
300 ALA MOANA BOULEVARD, ROOM 3108
BOX 50088
HONOLULU, HAWAII 96850
PHONE: (808) 541-3441 FAX: (808) 541-3470

OCT 16 1997



In Reply Refer To: JJS

Earl Matsukawa, AICP
Project Manager
Wilson Okamoto & Associates, Inc.
1907 S. Beretania Street, Suite 400
Honolulu, HI 96826

WILSON OKAMOTO & ASSOCIATES, INC.

Re: Draft Environmental Assessment; Pre-Assessment Consultation for Haleiwa II, Waialua II, and Thomson Corner Exploratory Well Sites, Waialua, Hawaii

Dear Mr. Matsukawa:

The U.S. Fish and Wildlife Service (Service) has reviewed the information provided in your three letters of October 3, 1997. The proposed project by Wilson Okamoto and Associates, Inc. involves the preparation of draft environmental assessments for the proposed drilling, casing and testing of three wells in Waialua, HI; Haleiwa Well II, Waialua Well II, and Thomson Corner Well. The exploratory wells will provide data on the potential for new groundwater resources. The project sponsor is the City and County of Honolulu Board of Water Supply.

The Service has reviewed the provided information as well as other information contained in our files, including maps prepared by The Nature Conservancy's Hawaii Natural Heritage Program. To the best of our knowledge, there are no federally endangered, threatened, or candidate species directly within the project site. Because the project will be located within a previously disturbed site, the Service does not anticipate significant adverse impacts to fish and wildlife resources. However, the Service should be informed if any endangered, threatened or candidate species are identified during the botanical surveys.

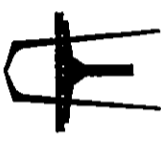
If you have any questions or comments please contact Fish and Wildlife Biologist John Schurmerfeld at (808) 541-3441.

Sincerely,

Brooks Harper
Field Supervisor
Ecological Services

6126-01
May 19, 1998

WILSON
OKAMOTO
& ASSOCIATES, INC.



ENGINEERS
PLANNERS
1907 S. BERETANIA STREET
HONOLULU HAWAII 96826
PH: (808) 541-3441
FAX: (808) 541-3470

Mr. Brooks Harper, Field Supervisor
Ecological Services
Fish and Wildlife Service
U.S. Department of the Interior
300 Ala Moana Boulevard, Room 3108
Box 50088
Honolulu, Hawaii 96850

Dear Mr. Harper:

Subject: Draft Environmental Assessment
Pre-Assessment Consultation
Haleiwa Well II
Proposed Exploratory Well Site
Waialua, Oahu, Hawaii

Thank you for your letter dated October 16, 1997 (Ref: JJS) expressing your belief that "there are no federally endangered, threatened, or candidate species directly within the project site," and that "because the project will be located within a previously disturbed site, the Service does not anticipate significant adverse impacts to fish and wildlife resources."

Your letter, along with this response will be reproduced in the forthcoming draft environmental assessment. We appreciate your interest and participation in the pre-assessment consultation phase of the environmental review process.

Sincerely,

Earl Matsukawa, AICP
Project Manager

cc: Mr. Barry Usagawa, Board of Water Supply



**DEPARTMENT OF BUSINESS,
ECONOMIC DEVELOPMENT & TOURISM**

OFFICE OF PLANNING
235 South Beretania Street, 6th Flr., Honolulu, Hawaii 96813
Mailing Address: P.O. Box 2359, Honolulu, Hawaii 96804

Ref. No. P-6996

October 14, 1997

Mr. Earl Matsukawa
Project Manager
Wilson Okamoto and Associates, Inc.
P.O. Box 3530
Honolulu, Hawaii 96811

Dear Mr. Matsukawa:

Subject: Pre-Assessment Consultation for Proposed Exploratory Well Sites:
Waialua Well II, Haleiwa Well II, and Thomson Corner Well,
Waialua, Oahu

This is in response to your letters of October 3, 1997, requesting review and comment on the proposed well sites. We do not have any comments or concerns to offer at this time relative to the plans and programs of the Office of Planning and Department of Business, Economic Development and Tourism.

If there are any questions, please contact Charles Carole of our Coastal Zone Management Program at 587-2804.

Sincerely,

Rick Egged
Rick Egged
Director
Office of Planning

BENJAMIN J. CAVEYAMA
GOVERNOR
SELUF F. NAYLOR
DIRECTOR
BRADLEY J. MOSEMAN
DEPUTY DIRECTOR
RICK EGGED
DIRECTOR, OFFICE OF PLANNING

Tel: (808) 587-2841
Fax: (808) 587-2824

RECEIVED
OCT 15 1997

WILSON OKAMOTO & ASSOCIATES, INC.

6126-01
May 19, 1998

Mr. Rick Egged, Director
Office of Planning
Department of Business, Economic
Development & Tourism
State of Hawaii
P.O. Box 2359
Honolulu, Hawaii 96804

Dear Mr. Egged:

Subject: Draft Environmental Assessment
Pre-Assessment Consultation
Haleiwa Well II
Proposed Exploratory Well Site
Waialua, Oahu, Hawaii

Thank you for your letter dated October 14, 1997 expressing that you have no comments to offer at this time on the subject project.

Your letter, along with this response will be reproduced in the forthcoming draft environmental assessment. We appreciate your interest and participation in the pre-assessment consultation phase of the environmental review process.

Sincerely,

Earl Matsukawa

Earl Matsukawa, AICP
Project Manager

cc: Mr. Barry Usagawa, Board of Water Supply

**WILSON
OKAMOTO**
A ASSOCIATES, INC.



**ENGINEERS
PLANNERS**
1875 BURENAMA STREET
HONOLULU, HAWAII 96822
PH: (808) 846-2277
FAX: (808) 846-2253

EDUARD J. CAUTERANO
DIRECTOR OF HEALTH



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

LAWRENCE MARR
DIRECTOR OF WATER

In reply, please refer to
EHC/750/86

EM

October 9, 1997

Mr. Earl Matsukawa, AICP
Project Manager
Wilson Okamoto and Associates, Inc.
1907 South Beretania Street, Suite 400
Honolulu, Hawaii 96826

Dear Mr. Matsukawa:

SUBJECT: DRAFT ENVIRONMENTAL ASSESSMENT
PRE-ASSESSMENT CONSULTATION
HALEIWA WELL II, THOMSON CORNER WELL, AND WAIALUA
WELL II PROJECTS

Thank you for the opportunity to review and comment on the project summaries and location maps of the three project sites. We have the following comments to offer:

1. Federal and state regulations define a public water system as a system that serves 25 or more individuals at least 60 days per year or has at least 15 service connections. All public water system owners and operators are required to comply with Hawaii Administrative Rules, Title 11, Chapter 20, "Rules Relating to Potable Water Systems."
2. The three projects will include the development of new potable water sources. 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.

Mr. Earl Matsukawa
October 9, 1997
Page 2

3. Please note that the proposed Haleiwa Well II, Thomson Corner Well and Waialua Well II are situated in areas that formerly were used for sugar cane cultivation. The engineering reports 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 sources.
4. In addition, water quality analyses for each well, 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 of Health upon his review of the information submitted.
5. Section 11-20-30 requires that new or substantially modified distribution systems for public water systems be approved by the Director. However, if the water system is under the jurisdiction of the City and County of Honolulu, the Honolulu Board of Water Supply will be responsible for the review and approval of the plans.

If you should have any questions, please contact Ms. Queenie Komori of the Safe Drinking Water Branch at 586-4258.

Sincerely,

William Wong

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

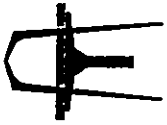
QK:la

**WILSON
OKAMOTO
& ASSOCIATES, INC.**

6126-01
May 19, 1998

Mr. William Wong, P.E., Chief
Safe Drinking Water Branch
Environmental Management Division
Department of Health
State of Hawaii
P.O. Box 3378
Honolulu, Hawaii 96801

**WILSON
OKAMOTO
& ASSOCIATES, INC.**



**ENGINEERS
PLANNERS**
1807 S. BERETANIA STREET
HONOLULU, HAWAII 96828
PH: (808) 948-2277
FAX: (808) 948-2253

Dear Mr. Wong:

Subject: Draft Environmental Assessment
Pre-Assessment Consultation
Haleiwa Well II
Proposed Exploratory Well Site
Waialua, Oahu, Hawaii

Thank you for your letter dated October 9, 1997 commenting on the subject project. We offer the following responses in the respective order of the comments:

1. The draft EA will indicate that future development of these exploratory wells will comply with Hawaii Administrative Rules, Title 11, Chapter 20, "Rules Relating to Potable Water Systems."
2. Should any of the three projects be developed as new potable water sources serving a public water system, an engineering report addressing the requirements of Section 11-20-29 of Chapter 20 will be submitted to the Director of Health for approval.
3. The engineering report will 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 sources. The draft EA will indicate that a Granular Activated Charcoal water treatment facility may be required at the well site.
4. Water quality analyses for each well, performed by a laboratory certified in the State of Hawaii, will be submitted to demonstrate compliance with all drinking water standards.

5. Since the water system will be under the jurisdiction of the City and County of Honolulu Board of Water Supply, they will be responsible for the review and approval of the new or substantially modified distribution systems plans.

Your letter, along with this response will be reproduced in the forthcoming draft environmental assessment. We appreciate your interest and participation in the EA pre-assessment consultation process.

Sincerely,

Earl Matsukawa, AICP
Project Manager

cc: Mr. Barry Usagawa, Board of Water Supply

OEQC FAX



OFFICE OF ENVIRONMENTAL QUALITY CONTROL
235 So. Bepetania St., Ste. 702
Honolulu, Hawaii 96813

Date: 10-23-97
To: Earl Matsukawa
Agency or Organization Name: WDA
Acct/Mta Number: 946-2253 Phone Number: lets 10
Telephone (808) 586-4185
FAX (808) 586-4185

IF YOU DO NOT RECEIVE ALL OF THE PAGES OR THE TRANSMISSION IS UNCLEAR,
PLEASE CALL OEQC AT 586-4185

From: Joyan Thirugnanam
Re: Pre-Assessment Consultation for well project
Remarks: Please refer to the attached guidelines
in preparing EA for the project.

Date FAX received: _____ Time: _____

DRAFT GUIDELINES FOR ASSESSING WATER WELL DEVELOPMENT PROJECTS.

In addition to the content requirements for environmental assessments and impact statements, which are set out in the EIS rules, any well development project should include, where applicable, the following information.

The purpose of these guidelines is to provide preparers and reviewers a general standard of completeness to apply for any EA or EIS relating to well development.

NOTE: Pursuant to HAR 511-200-8(a)(5), basic data collection, research, experimental management, and resource evaluation activities which do not result in a serious or minor disturbance to an environmental resource may be exempt from preparing an environmental assessment. Accordingly, drilling of monitor wells as defined by the CRM (provided the well shall not be capable of being used or intended to be used to withdraw groundwater for the purpose of exploring or developing ground water) may be exempt. Environmental assessments for exploratory wells should not need to comply with all the information requirements below because some of the information will not be available until the well is tested. Should the exploratory well yield positive results and demonstrate production capability, a second environmental assessment for the production well should be prepared to comply with all the information requirements.

1. Orientation Maps
Maps with the appropriate scale and coverage (to analyze the aquifer or hydrologic unit) that show the following:
 - a) General information: location of proposed well, TMK or land ownership maps, location of existing and future wells in the affected aquifer or hydrologic unit, and general references such as roads, schools, etc.
 - b) Hydrologic information: aquifer or hydrologic unit boundary, nearby streams and wetlands, known or assumed groundwater flowpaths, known or assumed water level contours.
 - c) Contamination information: Points or regions of known contamination, points of potential contamination (landfills, individual wastewater disposal systems (cesspools, septic tanks, aeration units), hazardous waste sites, dry wells and injection wells), known or assumed chloride levels at specified depths in relation to nearest or adjacent wells, likely wellhead protection area for the proposed well.

NOTE: New injection wells and dry wells are prohibited from within 1/4 mile of a drinking water well. New water wells should not be situated in areas that have a significant need for

Injection wells, drywells or on-site individual wastewater disposal systems.

2. Aquifer or Hydrologic Unit Status

A description of the aquifer or hydrologic unit status including the following:

- * Sustainable yields or other measures of water availability
- * Authorized water use by the Commission on Water Resource Management (for Water Management Areas only)
- * Data table presenting the following information as appropriate

- Current water use totals, including subtotals for individual users
- Current installed capacity including subtotals for individual wells and/or groups of wells.
- Pending installed capacity and/or use for the proposed well and subtotals for individual wells and/or groups of wells within the aquifer

NOTE: Format suggestions and sample data tables for aquifer status data are contained in appendix 11.

3. Contamination Analysis

A record of contamination problems in the aquifer or hydrologic unit including but not limited to saltwater intrusion, turbidity, heavy metals, inorganic and organic chemicals, microbiological agents, water quality parameters (such as pH, alkalinity, calcium, conductivity and temperature), and radioactivity. If contamination exists, the sources and duration of the contamination should be listed. Water quality data from nearby wells should be presented as well as any anticipated need for treatment or filtering systems. Discuss past and existing land uses within the likely wellhead protection area and the potential for future contamination from those uses.

Any hazardous materials used and/or produced during drilling and treatment should be described. The method of handling these hazardous materials should also be disclosed.

4. Hydrologic Impact Analysis

A discussion of the potential effects the well development may have on affiliated groundwater and surface water (e.g., streams and wetlands). Relevant hydrologic, physical, chemical, and biological data for potentially affected waters should be included. If potential impacts exist, a monitoring program for the surface waters should be included. A description of the affected sector within the watershed and groundwater recharge area should also be provided.

NOTE: See appendix 12 for sample description.

The EA should include pump test data on water level, extraction rates, and water quality. Similar data from nearby wells should also be included. The precise criteria used to determine if the well should be converted to production should be described. Any provisions for future use and monitoring of wells not placed into production should also be described.

5. Biological Assessment

A floral and faunal survey for sites in biologically sensitive areas.

6. Archaeological and Cultural Impact Assessment

A description of the archaeological and cultural significance of the region, including an on-site survey as well as consultations with Native Hawaiian groups such as DHHL, OHA and local community associations. (The Environmental Council is developing a Cultural Impact Assessment Protocol that when completed, could be used for this purpose.)

7. Financial and Institutional Arrangements

In some instances, a well is developed by private financing, the transfer of public lands to government or private developers, or in return for a water allocation credit to supply an urban development. The EA should include a full discussion of any institutional, financial or land use arrangements or commitments related to developing the well and delivering water to end users.

These arrangements may include the formation of public utility companies and subsequent rate-setting, the establishment of county water commitments, the co-funding of state or county water system development, an executive order or other set-aside of state lands, and purchase of land or easements by public entities.

Appendix #1

FORMAT SUGGESTIONS AND SAMPLE TABLES AND CHARTS TO DISPLAY SUSTAINABLE YIELD DATA.

Sustainable Yield

Sustainable yield policies for basal aquifers involve trade-offs between groundwater extraction rates and aquifer water levels. The selected extraction rate implies acceptance of the affiliated equilibrium head (h), the water level at which the aquifer stabilizes under pumping at sustainable yield levels.

Equilibrium head is usually less than pre-development water levels or initial head (h_i). For comparative purposes, it is helpful to attach values of h_i and h_s to sustainable yield figures. Groundwater extraction can then be discussed in terms of its relationships with sustainable yields and water levels.

Data Subtotals and Grouping

To assure the clarity of information presented in the EA, tables for the following categories of data should be grouped by user/operator and landowner.

Categories for Data Tables in the EA

- * Current water use totals
- * Current installed capacity
- * Pending installed capacity
- * Authorized water use

To assist in spatial analysis, subtotals should also be grouped for aquifer sub areas and/or water quality regimes (such as zones of varying recharge of extraction intensity or chloride concentration).

A sample table for the display of this data is presented in the next page.

All permits or governmental approvals required to fulfill these commitments should be listed.

8. Watershed and Land Use Analysis

A discussion of how waters from the well will be used, and an analysis of how the proposed well development may affect land and water uses on the island and in the region. The analysis should include a discussion of the following (published materials may be referenced):

- * Hawaii State Water Plan and its component parts
- * County General, Development, and/or Community Plans
- * Plans for future water development within the aquifer
- * Any related water, wastewater, drainage or erosion control plans
- * Soil and Water Conservation Plans for related agricultural lands
- * Historical water supply and demand figures for the region
- * How the well may affect existing water sources
- * Any secondary or cumulative impacts caused by promoting land uses that alter the hydrology of the source and/or end-use area
- * An assessment of the well's impact on the major land owners in the region and a declaration if ceded lands are involved.
- * An assessment of any impact the well development may have on small landowners or water users including farmers and kuleana residents.

9. Alternative Analysis

A list of alternatives to new groundwater development and discussion of their related costs and benefits. The list should include but not be limited to wastewater reuse, rainfall catchment, conservation, and existing potable and nonpotable water supplies.

10. Impacts of Accessory Facilities

A description of impacts associated with the well's permanent production facilities including pumps, distribution pipelines, control devices, storage facilities, access roads and accessory structures

Aquifer or Hydrologic Unit Status Data

Sustainable Yield = 40 mgd
 Initial head = 20 feet
 Equilibrium head = 18 feet

Authorized Water Use (for water management areas only) = 36 mgd

Table 1: Overall Aquifer or Hydrologic Unit Status Data in million gallons per day

Land Owner	Authorized Water Use (Permitted by CWRM)	Existing (E)		Planned/Pending (P)	Potential Future (E + P)
		Pump Capacity	Average Use A*		
A	4	5	4	+4	10
B	7	10	7	+2	13
C	25	25	15	-5	15
Total	36	40	26	+1	37

number should be the same as the 'rated pump capacity or installed pump capacity' as reported by the well owner to the CWRM.

* Average water use based upon water meter readings as reported by the well owner to the CWRM. The average should be based on the appropriate number of years of data.

Table 2: Aquifer or Hydrologic Unit Status Data for Landowner C in million gallons per day

Well Site	Authorized Water Use (Permitted by CWRM)	Existing (E)		Planned/Pending (P)	Potential Future (E + P)
		Pump Capacity	Average Use		
Nauka	10	10	8	0	10
Hakai	5	5	0	0	5
Centra 1	10	10	7	-5	10
Total	25	25	15	-5	25

Note: * Total amount of water a well pump is capable of removing from the ground under ideal conditions in a 24-hour period. This

Appendix #2

SAMPLE DESCRIPTION LIST FOR THE AFFECTED SECTOR WITHIN A WATERSHED AND GROUNDWATER RECHARGE AREA

Below you will find a list of characteristics that should be discussed in the description of affected sector within a watershed and groundwater recharge area.

- Watershed:
1. Drainage area boundaries
 2. Drainage networks and patterns
 3. Groundwater discharges as sources of surface water flow
 4. Surface water flow and habitat characteristics
 - a. timing, magnitude, duration, frequency of groundwater-source baseflows
 - b. relationships between baseflows and aquatic and riparian habitats and communities,
 - c. water quality
 - d. water uses (e.g., ditch or 'auwai systems)

Recharge Area:

1. Boundaries
2. Geologic structure
3. Groundwater flow patterns
4. Overlying land and water uses, and runoff patterns, and Relationships between recharge rates and patterns, and climatic variations
5. Relationships between proposed groundwater extraction and associated activities, and aquifer water levels
6. Storage volumes, other wells, discharges to surface and coastal waters, and water quality parameters
- 7.

APPENDIX #3

SOURCES OF INFORMATION

1) Hydrologic information may be obtained from the Commission on Water Resources Management. These include:

- a) location of existing wells;
- b) CWRM aquifer boundary;
- c) information on nearby streams;
- d) sustainable yield for aquifer;
- e) authorized water use by CWRM (for water management areas only);
- f) current water use within aquifer;
- g) current installed capacity within aquifer;
- h) pending installed capacity and water use within aquifer;
- i) Hawaii State Water Plan and its component parts;
- j) water levels of nearby wells; and
- k) salinity levels of nearby wells.

2) Contamination information may be obtained from the Department of Health. These include:

- Safe Drinking Water Branch
- a) results of water quality tests of nearby wells;
 - b) records of contamination problems in the aquifer; and
 - c) locations of drywell and injection wells.
- Wastewater Branch
- a) locations of individual wastewater systems.
- Solid and Hazardous Waste Branch
- a) location of hazardous waste sites; and
 - b) location of landfills.

3) Information about the well head protection area may be obtained from the Groundwater Protection Program, Environmental Planning Office, Department of Health.

4) Information about wetlands may be obtained from the U.S. Army Corps of Engineers.

5) County general, development and community plans may be obtained from the respective planning departments.

6126-01
May 19, 1998

WILSON
OKAMOTO
A ASSOCIATES, INC.



ENGINEERS
PLANNERS
1925 BERKELEY STREET
HONOLULU - HAWAII 96813
PH (808) 946-2277
FAX (808) 946-2253

Mr. Gary Gill, Director
Office of Environmental Quality Control
Department of Health
State of Hawaii
235 South Beretania Street, Room 702
Honolulu, Hawaii 96813

Dear Mr. Gill:

Subject: Draft Environmental Assessment
Pre-Assessment Consultation
Haleiwa Well II
Proposed Exploratory Well Site
Waiatua, Oahu, Hawaii

Thank you for your facsimile dated October 23, 1997 transmitting the "Draft Guidelines for Assessing Water Well Development Projects." We will refer to these draft guidelines in preparing the draft EA.

Your facsimile, along with this response will be reproduced in the forthcoming draft environmental assessment. We appreciate your interest and participation in the pre-assessment consultation phase of the environmental review process.

Sincerely,

Earl Matsukawa, AICP
Project Manager

cc: Mr. Barry Usagawa, Board of Water Supply

BERNARD L. CATELINO
GOVERNOR OF HAWAII



STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT
HONOLULU, HAWAII 96826

MICHAEL D. WILSON
CHAIRPERSON
ROBERT O. DONALD
DAVID A. HOSIENO
LAWRENCE H. LAMM
RICHARD H. COLE
HERBERT M. RICHARDS, JR.
PAUL AL LOKA, P.E.
COMPTROLLER

EM

October 8, 1997

Mr. Earl Matsukawa
Wilson Okamoto and Associates, Inc.
1907 South Beretania Street, Suite 400
Honolulu, Hawaii 96826

Dear Mr. Matsukawa:

SUBJECT: Draft Environmental Assessment, Pre-Assessment Consultation
Haleiwa Well II, Waitua Well II, and Thomson Corner Well
Proposed Exploratory Well Sites
Waialua, Oahu, Hawaii

Thank you for the opportunity to review the subject document. Our comments related to water resources are marked below.

In general, the CWRM strongly promotes the efficient use of our water resources through conservation measures and use of alternative non-potable water resources whenever available, feasible, and there are no harmful effects to the ecosystem. Also, the CWRM encourages the protection of water recharge areas which are important for the maintenance of streams and the replenishment of aquifers.

- We recommend coordination with the county government to incorporate this project into the county's Water Use and Development Plan.
- We are concerned about the potential for ground or surface water degradation/contamination and recommend that approvals for this project be conditioned upon a review by the State Department of Health and the developer's acceptance of any resulting requirements related to water quality.
- A Well Construction Permit and a Pump Installation Permit from the CWRM would be required before ground water is developed as a source of supply for the project.
- The proposed water supply source for the project is located in a designated water management area, and a Water Use Permit from the CWRM would be required prior to use of this source.
- Groundwater withdrawals from this project may affect streamflows. This may require an instream flow standard amendment.
- We recommend that no development take place affecting highly erodible slopes which drain into streams within or adjacent to the project.

Mr. Earl Matsukawa
Page 2
October 8, 1997

- If the proposed project diverts additional water from streams or if new or modified stream diversions are planned, the project may need to obtain a stream diversion works permit and petition to amend the interim instream flow standard for the affected stream(s).
- Based on the information provided, it appears that a Stream Channel Alteration Permit pursuant to Section 13-169-50, HAR will be required before the project can be implemented.
- Based on the information provided, it does not appear that a Stream Channel Alteration Permit pursuant to Section 13-169-50, HAR will be required before the project can be implemented.
- An amendment to the instream flow standard from the CWRM would be required before any streamwater is diverted.
- OTHER:

If there are any questions, please contact Lenore Nakama at 587-0218.

Sincerely,

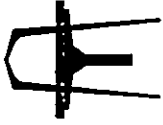
RAE M. LOUI
Deputy Director

LN:iss

6126-01
May 19, 1998

Ms. Rae M. Loui, Deputy Director
Commission on Water Resource Management
Department of Land and Natural Resources
State of Hawaii
P.O. Box 621
Honolulu, Hawaii 96809

**WILSON
OKAMOTO**
A ASSOCIATES, INC.



**ENGINEERS
PLANNERS**
107 S. BEREJANDA STREET
HONOLULU, HAWAII 96826
PH: (808) 948-2377
FAX: (808) 948-2353

Dear Ms. Loui:

Subject: Draft Environmental Assessment
Pre-Assessment Consultation
Haleiwa Well II
Proposed Exploratory Well Site
Waialua, Oahu, Hawaii

Thank you for your letter dated October 7, 1997 commenting on the environmental assessment (EA) pre-consultation for the subject project. We offer the following responses in respective order of your comments:

1. Should any of the exploratory wells prove suitable for production, they will be incorporated into the county Water Use and Development Plan.
2. A Well Construction Permit and Pump Installation Permit will be obtained before any well is developed as a source of supply.
3. We acknowledge that the proposed exploratory well site is within a Water Management Area and that a Water Use Permit from the Commission on Water Resource Management will be required prior to the use of this source.
4. The draft EA will indicate that this project is not anticipated to affect streamflows. An instream flow standard amendment will be obtained if streamflows are affected by groundwater withdrawals.

Your letter, along with this response will be reproduced in the forthcoming draft environmental assessment. We appreciate your interest and participation in the EA pre-assessment consultation process.

Sincerely,



Earl Matsukawa, AICP
Project Manager

cc: Mr. Barry Usagawa, Board of Water Supply

EDGAR M. CAYetano
GOVERNOR OF HAWAII



STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES

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

October 24, 1997

Earl Matsukawa, Project Manager
Wilson Okamoto & Associates, Inc.
1907 S. Beretania Street, Suite 400
Honolulu, Hawaii 96826

Dear Mr. Matsukawa:

SUBJECT: Preservation Review -- Draft Environmental Assessment, Pre-Assessment
Consultation Haleiwa Well II Proposed Exploratory Well Site
Paalaa Uka, Waialua, O'ahu
IMK: 6-2-10:01

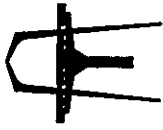
LOG NO: 20362 ✓
DWS-NO: S7-YOE-520

MICHAEL B. WILSON, CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES

DEPUTY
OLBERT COLEMAN-AGARAW

AGRICULTURE DEVELOPMENT PROGRAM
AQUATIC RESOURCES CONSERVATION AND RESOURCES DEVELOPMENT
COMMUNITIES FORESTRY AND WILDLIFE HISTORIC PRESERVATION DIVISION
LAND USE STATE PARKS
WATER AND LAND DEVELOPMENT

WILSON
OKAMOTO
A ASSOCIATES, INC.



ENGINEERS
PLANNERS
1907 S. BERETANIA STREET
HONOLULU, HAWAII 96826
PH: (808) 948-2277
FAX: (808) 946-2253

6126-01
May 19, 1998

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

Dear Mr. Hibbard:

Subject: Draft Environmental Assessment
Pre-Assessment Consultation
Haleiwa Well II
Proposed Exploratory Well Site
Waialua, Oahu, Hawaii

Thank you for your letter dated October 24, 1997 expressing your belief that based on a review of your records, and the known effects of prolonged sugar cane cultivation, "it is unlikely that significant historic sites will be found in the project area," and that "this project will have 'no effect' on such sites."

Your letter, along with this response will be reproduced in the forthcoming draft environmental assessment. We appreciate your interest and participation in the pre-assessment consultation phase of the environmental review process.

Sincerely,

Earl Matsukawa, AICP
Project Manager

cc: Mr. Barry Usagawa, Board of Water Supply

Thank you for the opportunity to comment during the pre-assessment consultation phase of the Haleiwa Well II proposed Exploratory Well Site. A review of our records shows that there are no known historic sites at the project location. These lands were commercially cultivated with sugar cane which altered the land for many years. The depth of cane cultivation exceeded the expected depth of historic sites in the area, based on site patterns in similar environmental contexts. Thus, it is unlikely that significant historic sites will be found in the project area. Therefore, we believe that this project will have "no effect" on such sites.

Aloha,

Don Hibbard, Administrator
State Historic Preservation Division

EJ:jk

ENT



RECEIVED
OCT 10 1997

STATE OF HAWAII
OFFICE OF HAWAIIAN AFFAIRS
711 KAPPOULANI BOULEVARD, SUITE 500
HONOLULU, HAWAII 96813-5249
PHONE (808) 594-1888
FAX (808) 594-1885

Wilson OKAMOTO & ASSOCIATES

October 07, 1997

Mr. Earl Matsukawa
Wilson Okamoto & Associates, Inc.
1907 S. Beretania Street
Honolulu, HI 96826

Subject: Pre-consultation, Draft Environmental Assessment (DEA) for three exploratory (Waialua Well II, Haleiwa Well II, and Thomson Corner Well) wells in the Waialua-Haleiwa area, Island of Oahu.

Dear Mr. Matsukawa:

Thank you for the opportunity to include the Office of Hawaiian Affairs (OHA) in the pre-assessment consultation process for three wells (Waialua II, Haleiwa II, and Thomson Corner Well) in the Waialua-Haleiwa area, Island of Oahu. The Board of Water Supply proposes to drill, case, and test these exploratory wells as part of its overall effort of developing new underground sources of drinking water.

The Office of Hawaiian Affairs (OHA) has no objections at this time to the proposed exploratory wells. But OHA intends to fully review the DEAs once they are available for public scrutiny.

Overall, OHA's major areas of concern for developments triggering an DEA include, but are not limited to, potential adverse impacts to ecosystems and associated wildlife habitats, archaeological resources, air and water quality, and public health and safety.

Letter to Mr. Matsukawa
Page two

Sincerely yours,

Randall Ogata
Administrator

Lynn Lee
Acting Officer,
Land and Natural
Resources Division

LM:lm

CC Trustee Clayton Hee, Board Chair
Trustee Abraham Aiona, Board Vice-Chair
Trustee Rowena Akana, Land & Sovereignty Chair
Trustee Haunani Apoliona
Trustee Frenchy DeSoto
Trustee Moses Keale
Trustee Colette Machado
Trustee Hannah Springer

6126-01
May 19, 1998

Mr. Randall Ogata, Administrator
Ms. Lynn Lee, Acting Officer
Office of Hawaiian Affairs
State of Hawaii
711 Kapiolani Boulevard, Suite 500
Honolulu, Hawaii 96813-5249

Dear Mr. Ogata and Ms. Lee:

Subject: Draft Environmental Assessment
Pre-Assessment Consultation
Haleiwa Well II
Proposed Exploratory Well Site
Waialua, Oahu, Hawaii

Thank you for your letter dated October 7, 1997 expressing that you have no objections at this time to the proposed project. Your agency will be included in the list of parties to be consulted for the draft EA.

Your letter, along with this response will be reproduced in the forthcoming draft environmental assessment. We appreciate your interest and participation in the pre-assessment consultation phase of the environmental review process.

Sincerely,



Earl Maisukawa, AICP
Project Manager

cc: Mr. Barry Usagawa, Board of Water Supply

WILSON
OKAMOTO
ASSOCIATES, INC.



ENGINEERS
PLANNERS
1875 KAPUNIA STREET
HONOLULU, HAWAII 96826
PH: (808) 248-2277
FAX: (808) 248-2253

EM

DEPARTMENT OF LAND UTILIZATION
CITY AND COUNTY OF HONOLULU
830 SOUTH KING STREET, 7TH FLOOR • HONOLULU, HAWAII 96813
PHONE: (808) 523-4416 • FAX: (808) 527-4743



JERRY HARRIS
Mayor

JAN NAOE SULLIVAN
DIRECTOR
LORETTA K.C. CHEE
DEPUTY DIRECTOR
97-07365(DT)
197 EA Comments Zone 6

October 16, 1997

RECEIVED
OCT 17 1997

Mr. Earl Matsukawa, AICP
Project Manager
Wilson Okamoto & Associates, Inc.
1907 South Beretania Street
Honolulu, Hawaii 96826

WILSON OKAMOTO & ASSOCIATES, INC.

Dear Mr. Matsukawa:

Preliminary Review For Three Exploratory Well Sites
Tax Map Keys: 5-5-01; 6-2-10; 6-2-01

Thank you for the opportunity to review the proposals for three exploratory well sites at the Thomson Corner Well, Waialua Well II, and Haleiwa Well II. The proposals are within the Special Management Area. We will review the Draft Environmental Assessment when it becomes available.

Should you have any questions, please contact Dana Teramoto of our Environmental Review Branch at 523-4648.

Very truly yours,

JAN NAOE SULLIVAN
Director of Land Utilization

JNS:am

91990A9707166.djt

6126-01
May 19, 1998

**WILSON
OKAMOTO
& ASSOCIATES, INC.**



**ENGINEERS
PLANNERS**
1907 S. BERETANIA STREET
HONOLULU, HAWAII 96826
PH: (808) 844-2277
FAX: (808) 844-2253

Ms. Jan Naoe Sullivan, Director
Department of Land Utilization
City and County of Honolulu
650 South King Street, 7th Floor
Honolulu, Hawaii 96813

Dear Ms. Sullivan:

Subject: Draft Environmental Assessment
Pre-Assessment Consultation
Haleiwa Well II
Proposed Exploratory Well Site
Waialua, Oahu, Hawaii

Thank you for your letter dated October 16, 1997 expressing your initial finding that the subject proposal is within the Special Management Area (SMA).

Based on our telephone conversation with Dana Teramoto of your staff we understand however, while a portion of the parcel in which the project site is located may be within the SMA, the project site itself is located outside the SMA. We further understand that the Department of Land Utilization will make a determination as to whether the project site is within the SMA upon review of the draft EA.

Your letter, along with this response will be reproduced in the forthcoming draft environmental assessment. We appreciate your interest and participation in the pre-assessment consultation phase of the environmental review process.

Sincerely,

Earl Matsukawa, AICP
Project Manager

cc: Mr. Barry Utsugawa, Board of Water Supply

PLANNING DEPARTMENT
CITY AND COUNTY OF HONOLULU

650 SOUTH KING STREET, 8TH FLOOR • HONOLULU, HAWAII 96813-3017
PHONE: (808) 933-2711 • FAX: (808) 933-4720



JEREMY HARRIS
MAYOR

PATRICK T. ONISHI
CHIEF PLANNING OFFICER
ORRIN L. WENIGER
COMMUNITY DEVELOPMENT OFFICER
RR 10/97-1978

October 28, 1997

Mr. Earl Matsukawa, AICP
Project Manager
Wilson Okamoto and Associates, Inc.
1907 South Beretania Street, Suite 400
Honolulu, Hawaii 96826

Dear Mr. Matsukawa:

Draft Environmental Assessment (EA)
for Proposed Drilling-Haleiwa Well II,
Tax_Map_Key (TMK) 6-2-10-01

In response to your company's request of October 3, 1997 on behalf of the City and County of Honolulu Board of Water Supply (BWS), an amendment to the North Shore Development Plan Public Facilities Map would be required when the proposed exploratory well is converted into production well.

Should you have any questions please contact Rob Reed of our staff at 523-4402.

Yours very truly,

Patrick T. Onishi
PATRICK T. ONISHI
Chief Planning Officer

6126-01
May 19, 1998

WILSON
OKAMOTO
& ASSOCIATES, INC.



ENGINEERS
PLANNERS
1303 S. BERTANIA STREET
HONOLULU, HAWAII 96826
PH: (808) 948-2277
FAX: (808) 948-2253

Mr. Patrick T. Onishi, Chief Planning Officer
Planning Department
City and County of Honolulu
650 South King Street, 8th Floor
Honolulu, Hawaii 96813-3017

Dear Mr. Onishi:

Subject: Draft Environmental Assessment
Pre-Assessment Consultation
Haleiwa Well II
Proposed Exploratory Well Site
Waialua, Oahu, Hawaii

Thank you for your letter dated October 28, 1997 indicating that an amendment to the North Shore Development Plan Public Facilities Map would be required when the proposed exploratory well is converted into a production well. This requirement will be included in the draft EA.

Your letter, along with this response will be reproduced in the forthcoming draft environmental assessment. We appreciate your interest and participation in the pre-assessment consultation phase of the environmental review process.

Sincerely,

Earl Matsukawa
Earl Matsukawa, AICP
Project Manager

cc: Mr. Barry Usagawa, Board of Water Supply

PTO:lh



KAMEHAMEHA SCHOOLS BERNICE PAUAI BISHOP ESTATE

WALDO TRUETT

CHARL S. H. BUNG
WILSON

K. STENOVA
J. WEDDOR

KELANI LINDSEY
ENGINEER

BARBARA JENKS
SECRETARY

DAVID H. PETERS
SECRETARY

October 24, 1994

Mr. Earl Matsukawa, AICP
Wilson Okamoto & Associates, Inc.
1907 S. Beretania Street
Honolulu, Hawaii 96826

Dear Mr. Matsukawa:

Comments to Draft Environmental Assessment for the Proposed Haleiwa Exploratory Well II, Waiialua, Oahu, Hawaii

Thank you for providing Kamehameha Schools Bishop Estate (KSBE) with the opportunity to comment to your letter dated October 3, 1997. KSBE will support the proposed exploratory well by the Honolulu Board of Water Supply (BWS) subject to the following:

- An agreement to provide KSBE with information obtained on the occurrence of groundwater resources underlying Opaeula.
- KSBE's ability to review and approve the development plans for the proposed site.
- Conditions which adequately address the ongoing agricultural use of Opaeula.

If you have any additional questions or would like to discuss these concerns in more detail, please call me at 523-6239.

Very truly yours,

Kapu C. Smith

Kapu C. Smith
Associate Director, Region II

RECEIVED
OCT 27 1997

MT. S. ASSOCIATES, INC.

EM

6126-01
May 19, 1998

Ms. Kapu C. Smith
Associate Director, Region II
Kamehameha Schools Bernice Pauahi Bishop Estate
567 South King Street
Honolulu, Hawaii 96813

Dear Ms. Smith:

Subject: Draft Environmental Assessment
Pre-Assessment Consultation
Haleiwa Well II
Proposed Exploratory Well Site
Waiialua, Oahu, Hawaii

Thank you for your letter dated October 24, 1997 expressing KSBE's conditional support for the project. We will forward the conditions you have listed to the City and County of Honolulu Board of Water Supply for their consideration.

Your letter, along with this response will be reproduced in the forthcoming draft environmental assessment. We appreciate your interest and participation in the pre-assessment consultation phase of the environmental review process.

Sincerely,

Earl Matsukawa, AICP
Project Manager

cc: Mr. Barry Usagawa, Board of Water Supply

WILSON
OKAMOTO
& ASSOCIATES, INC.



ENGINEERS
PLANNERS
1907 S. BERETANIA STREET
HONOLULU, HAWAII 96826
PH: (808) 946-2277
FAX: (808) 946-2253

APPENDIX C

**DRAFT ENVIRONMENTAL ASSESSMENT
CONSULTATION LETTERS**

COPY

JEREMY
EDDIE FLORES JR., Chairman
FORREST C. MURPHY, Vice Chairman
KAZU HAYASHIDA
JAN M. L. Y. AMOI
JONATHAN K. SHIMADA, PhD
BARBARA KIM STANTON
CHARLES A. STED
CLIFFORD S. JAMBLE
Manager and Chief Engineer



August 6, 1998

BOARD OF WATER SUPPLY
CITY AND COUNTY OF HONOLULU
400 SOUTH BERETANIA STREET
HONOLULU, HAWAII 96813
PHONE (808) 527-4180
FAX (808) 523-2714

Mr. Kenneth M. Kaneshiro, State Conservationist
Natural Resources Conservation Service
United States Department of Agriculture
P. O. Box 5004
Honolulu, Hawaii 96850

Dear Mr. Kaneshiro:

Subject: Your Letter of July 21, 1998 Regarding the Draft Environmental Assessment
for the Board of Water Supply's Proposed Haleiwa Well II Exploratory Well Project,
Waialua, Oahu

Thank you for reviewing the Draft Environmental Assessment for the proposed Haleiwa Well II
Exploratory Well project.

We acknowledge that you have no comments to offer at this time.

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

Very truly yours,

Clifford S. Jamble
CLIFFORD S. JAMBLE
Manager and Chief Engineer

cc: Earl Matsukawa, Wilson Okamoto and Associates, Inc.

2/11
1/11



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

July 21, 1998

RECEIVED
JUL 23 1998

WILSON OKAMOTO & ASSOC., INC.

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

Dear Mr. Sato:

Subject: Draft Environmental Assessment (DEA) - Haleiwa Well II Exploratory Well
Site, Waialua, Oahu, HI

We have reviewed the above mentioned document and offer no comments at this time.

Thank you for the opportunity to review this document.

Sincerely,

Raymond H. Sato
RAYMOND H. SATO
State Conservationist

cc: Mr. Earl Matsukawa, Wilson Okamoto and Associates, Inc., 1907 South Beretania
Street, Suite 400, Honolulu, Hawaii 96826

United States
Department of
Agriculture
Natural Resources
Conservation
Service
Box 50004
Honolulu, HI
96843

6126-01
August 18, 1998

**WILSON
OKAMOTO
& ASSOCIATES, INC.**

SUBJECT: Draft Environmental Assessment Comments
Board of Water Supply Haleiwa II and
Thomson Corner Well Exploratory Well Sites

CALLER: Mr. John Schmerfeld, Biologist
U.S. Fish and Wildlife Service

**PERSON
CALLED:** Mr. Earl Matsukawa, Project Manager
Wilson Okamoto & Associates, Inc.

DATE: August 18, 1998

Information Items:

Mr. Schmerfeld expressed that the U.S. Fish and Wildlife Service had no additional comments to the environmental assessment (EA) beyond those previously submitted during the pre-assessment consultation process.

Mr. Matsukawa indicated that a telephone memo to that effect will be included in the Final EA.

6126-01
August 6, 1998

**WILSON
OKAMOTO
& ASSOCIATES, INC.**

SUBJECT: Draft Environmental Assessment Comments
Board of Water Supply Haleiwa II and
Thomson Corner Well Exploratory Well Sites

CALLER: Ms. Kathryn Kami
Board of Water Supply

**PERSON
CALLED:** Ms. Uialia Woodside
Wilson Okamoto & Associates, Inc.

DATE: August 6, 1998

Information Items:

Ms. Kami stated that on July 29, 1998 the Board of Water Supply received a telephone call from Mr. Howard Fujimoto of the State Department of Business, Economic Development and Tourism Office of Planning indicating that the Office of Planning had no comments to offer at this time on the subject Draft EA.

**WILSON
OKAMOTO
& ASSOCIATES, INC.**



**ENGINEERS
PLANNERS**
1707 S. BEREDIANA STREET
HONOLULU, HAWAII 96828
PH: (808) 948-2277
FAX: (808) 948-2253

BERNARD J. CURTIS
GOVERNOR OF HAWAII



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

LAWRENCE M. BIRNBAUM
DIRECTOR OF HEALTH

In reply, please refer to
EMO/SDWS

EM

RECEIVED
JUL 30 1998

WILSON OKAMOTO & ASSOCIATES, INC.

Mr. Brooks H. M. Yuen
Acting Manager and Chief Engineer
Board of Water Supply
City and County of Honolulu
630 South Beretania Street
Honolulu, Hawaii 96843

July 28, 1998

Dear Mr. Yuen:

SUBJECT: DRAFT ENVIRONMENTAL ASSESSMENT
HALEIWA WELL II EXPLORATORY WELL SITE
WAIALUA, OAHU, HAWAII

Thank you for the opportunity to review and comment on the draft environmental assessment. We have the following comments to offer:

1. The Honolulu Board of Water Supply proposes to drill, case and test the Haleiwa Well II as an exploratory well and potential groundwater source. 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 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.
2. 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.

Mr. Brooks H. M. Yuen
July 28, 1998
Page 2

If you should have any questions, please contact Ms. Queenie Komori of the Safe Drinking Water Branch, Engineering Section, at 586-4258.

Sincerely,

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

OK:la

c: Wilson Okamoto and Associates, Inc.
1907 South Beretania Street, Suite 400
Honolulu, Hawaii 96826
Attn: Mr. Earl Mateukawa

02/25/99 10:48 FAX 5276195

BWS ENGINEERING

Q03

August 14, 1998

Mr. William Wong, P.E., Chief
Safe Drinking Water Branch
Environmental Management Division
Department of Health
State of Hawaii
P. O. Box 3378
Honolulu, Hawaii 96801

Dear Mr. Wong:

Subject: Your Letter of July 28, 1998 Regarding the Draft Environmental Assessment for the
Board of Water Supply's Proposed Haleiwa Exploratory Well Project, Waihala, Oahu.

Thank you for reviewing the Draft Environmental Assessment (EA) for the proposed Haleiwa
Exploratory Well project.

We provide the following response to your concerns:

1. We acknowledge that an engineering report must be approved by the Director of Health prior to activation of the exploratory well for potable water use.
2. The engineering report will 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.

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

Very truly yours,

CJ

CLIFFORD S. JAMBLE
Manager and Chief Engineer

BENJAMIN J. CAVETANO
COMMISSIONER



STATE OF HAWAII
OFFICE OF ENVIRONMENTAL QUALITY CONTROL

235 SOUTH BERETANIA STREET
SUITE 702
HONOLULU, HAWAII 96813
TELEPHONE (808) 588-4188
FACSIMILE (808) 588-4188

August 18, 1998

Mr. Clifford Jamille, Manager and Chief Engineer
Board of Water Supply, City and County of Honolulu
630 South Beretania Street
Honolulu, Hawaii 96813

Dear Mr. Jamille:

Having reviewed the draft environmental assessment (DEA) for the Proposed Haleiwa Well II, Exploratory Well, Waiialua, Oahu, Hawaii, TMK 6-2-10-01, we submit the following comments for your response.

- PAST CONTAMINATION POTENTIAL:** Please discuss points or regions of known contamination, points of potential contamination (landfills, individual wastewater disposal systems (cesspools, septic tanks, aeration units), hazardous waste sites, dry wells and injection wells).
The site was formerly in sugar cultivation. Please assess the nature and extent of contamination for the nematocide 1,2-dibromochloropropane (DBCP) and other soil fumigants.
Also, please check with the Office of Hazard Evaluation and Emergency Response of the State Department of Health on contamination (i.e., spill or release) incidents within the limits of the Waiialua Aquifer.
- PHYSICO-CHEMICAL DATA:** Please include pump test data on water level, extraction rates, and water quality from nearby wells.
- CONVERSION FROM EXPLORATORY TO PRODUCTION:** Please list the precise criteria to determine if the well should be converted to a production well. Provisions for future use and monitoring of the well, if not placed into production, should be discussed.

If there are any questions, please call Mr. Leslie Segundo, Environmental Health Specialist at 586-4185.

Sincerely,

GARY GILL
Director

cc Mr. Earl Matsukawa, Wilson Okamoto and Associates, Inc.
Mr. Barry Usagawa, Board of Water Supply

02/25/99 10:48 FAX 5276195

BOARD OF WATER SUPPLY

CITY AND COUNTY OF HONOLULU
800 SOUTH BERETANIA STREET
HONOLULU, HAWAII 96813
PHONE (808) 527-4180
FAX (808) 523-2714

GARY GILL
DIRECTOR

BBS ENGINEERING



January 8, 1999

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

Dear Mr. Gill:

Subject: Draft Environmental Assessment for the Proposed Haleiwa Well II,
Exploratory Well, Honolulu, Oahu, Hawaii, TMK: 6-2-10-001

Thank you for reviewing the Draft Environmental Assessment for the proposed Haleiwa Well II, Exploratory Well project.

We have the following responses to your comments:

- The proposed Haleiwa Well II is located on land formerly used for sugar cultivation. It lies downgradient from wells known to have pesticide presence. Experiences with other wells in present or former agricultural areas have demonstrated pesticide presence. The Waiialua Wells and Haleiwa Wells have been found to contain measurable levels of DBCP and TCP.
- We enclose a listing of contamination incidents within the Waiialua Aquifer from the Office of Hazard Evaluation and Emergency Response of the State Department of Health.
- Pump test results and water quality data for nearby wells are also enclosed for your use.
- The conversion of the exploratory well to a production well status is based on the following:
 - The well will be test pumped to obtain hydro-geological data to determine if the quantity and quality of water is suitable for potable use. Production feasibility is then based on actual yield, construction cost and cost recovery options.

STEVIE WAINES, Mayor
EDDIE BLOES, Jr., Chairman
ROBERT CLARKE, Vice Chairman
JULIA M. BROWN
JAN HALL, M.D.
SANDRA HARRINGTON
BARBARA HARRINGTON
CHARLES A. STEB
CLIFFORD S. WALKER
Manager and Chief Engineer



Mr. Gary Gill
January 8, 1999
Page 2

- b. Permission to withdraw water is based on the Commission on Water Resource Management's evaluation of the Well Construction Permit, Pump Installation and Water Use Permit.
- c. Approval of a Development Plan Public Facilities Map amendment from the Planning Department, City and County of Honolulu.
- 5. If the well is not deemed feasible for production, it will be capped and sealed.

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

Very truly yours,


CLIFFORD S. JAXILLE
Manager and Chief Engineer

Enclosure

cc: Earl Matukawa, Wilson Okamoto and Associates, Inc.

BENJAMIN J. CAVETANO
GOVERNOR OF HAWAII



STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
DIVISION OF AQUATIC RESOURCES
1115 PUNCHBOWL STREET
HONOLULU, HAWAII 96813

MICHAEL D. WILSON
CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES

DEPUTY DIRECTOR
GILBERT S. COLONLAGARAN
AQUACULTURE DEVELOPMENT PROGRAM
BOATING AND WATER RECREATION
BOATING AND OCEAN RECREATION
CONSERVATION AND
RESTORATION AND AFFAIRS
RESOURCES ENFORCEMENT
FORESTRY AND WILDLIFE
HISTORICAL PRESERVATION PROGRAM
NATURAL RESOURCES
STATE PARKS
WATER AND LAND DEVELOPMENT

August 18, 1998

EM

Mr. Raymond H. Sato
Manager and Chief Engineer
Board of Water Supply
City and County of Honolulu
630 South Beretania Street
Honolulu, HI 96843

Dear Mr. Sato:

We have reviewed your Draft Environmental Assessment in which you are proposing a project to drill, case, and test the Haleiwa Well II exploratory well in the Haleiwa area of the Waialua District on the north shore of Oahu.

We have no major objections to this request since the project is not expected to have long-term adverse impacts on aquatic resource values in this area. However, the Anahulu River and the Opaepa Stream of the Paukaiua Stream system, provides habitat for native freshwater animals that are of high biological value, in particular, the 'o'opu alamo'o (*Leiopis concolor*). The Paukaiua Stream system is one of the few streams that is of extremely high quality due to the presence of almost all of the native stream animals. For this reason, streams like these in the north shore area of Oahu are considered excellent candidates for stream restoration activities. Streams of this caliber are always a priority of concern to the Division, especially on Oahu where there are extremely few.

Even though the project site is over 1/4 of a mile away from the nearest stream, we request that mitigative measures be taken to prevent contaminants such as drill cuttings, cutting extraction medium, sediment, pollutants, petroleum products, and debris from possibly entering the aquatic environment. In addition, site work should be scheduled for periods of minimal rainfall and lands denuded of vegetation be covered as quickly as possible to control erosion.

We strongly recommend that the Environmental Assessment include methods describing how the stream flow will be monitored to determine whether test pumping is affecting the flow or not.

Mr. Raymond Sato
Page 2
August 18, 1998

We also request to review the final Environmental Impact Statement. It is important for the Division that the stream flow be maintained and not result in any loss of stream habitat for native stream animals.

Yours truly,

David Eckert

William Devick, Acting Administrator
Division of Aquatic Resources

cc: Wilson Okamoto and Associates, Inc.
Commission on Water Resource Management

BOARD OF WATER SUPPLY

CITY AND COUNTY OF HONOLULU
630 SOUTH BERETANIA STREET
HONOLULU, HAWAII 96813
PHONE (808) 527-6180
FAX (808) 533-2714



December 10, 1998

Mr. William S. Devick, Acting Administrator
Division of Aquatic Resources
Department of Land and Natural Resources
State of Hawaii
1151 Punchbowl Street
Honolulu, Hawaii 96813

Dear Mr. Devick:

Subject: Your Letter of August 18, 1998 on the Draft Environmental Assessment for the Board of Water Supply's Proposed Haleiwa Well II Exploratory Well Project, Maialua, Oahu

Thank you for reviewing the Draft Environmental Assessment (EA) for the Proposed Haleiwa Well II Exploratory Well project.

We provide the following responses to your concerns:

1. We acknowledge that you have no objections to the proposed project since it is not expected to have any long-term adverse impacts on aquatic resource values in the area. We understand that Anahulu River and Opaulea Stream provide habitat for several native aquatic species.
2. There is available sustainable yield, which is the safe yield that can be withdrawn without detrimental effects to the aquifer. Since pumpage will not exceed the sustainable yield or previous pumpage levels due to the demise of sugar cultivation, flow within Anahulu River and Opaulea Stream should not decrease below historical levels. In addition, Anahulu River and Opaulea Stream are perched upon alluvium and are significantly distant that no stream flow monitoring is planned.
3. Exploratory well drilling and test pumping discharges will be contained on-site within the surrounding agricultural fields. The proposed exploratory well is located over 1,000 feet away from the nearest stream.
4. Construction work is anticipated to occur during periods of minimal rainfall. Land denuded of vegetation will be covered as quickly as possible to erosion.
5. A copy of the Final EA will be forwarded to your office.

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

Very truly yours,

Handwritten signature of Clifford S. Jankle in cursive script.

CLIFFORD S. JANKLE
Manager and Chief Engineer

cc: Earl Matsukawa, Wilson Okamoto and Associates

COPY

JEREMY HARRIS, Mayor
EDDIE FLORES, Jr., Chairman
FOREST G. LARSEN, Vice Chairman
KAZUHIYASAKA
JIMMILY ALE
JONATHAN K. SUGIYAMA, PhD
BARBARA KIM STANTON
CHARLES A. SIED

CLIFFORD S. JANKLE
Manager and Chief Engineer

98279A



STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT
HONOLULU, HAWAII 96843

July 24, 1998

Mr. Brooks Yuen
Acting Manager and Chief Engineer
Board of Water Supply
City and County of Honolulu
630 S. Beretania Street
Honolulu, HI 96843

Dear Mr. Yuen:

SUBJECT: Draft Environmental Assessment, Haleiwa Well II Exploratory Well Site,
Waialua, Oahu, Hawaii

FILE NO.: 6126-01

Thank you for the opportunity to review the subject document. Our comments related to water resources are marked below.

In general, the CWRM strongly promotes the efficient use of our water resources through conservation measures and use of alternative non-potable water resources whenever available, feasible, and there are no harmful effects to the ecosystem. Also, the CWRM encourages the protection of water recharge areas which are important for the maintenance of streams and the replenishment of aquifers.

- [X] We recommend coordination with the county government to incorporate this project into the county's 20-year Water Use and Development Plan, which is subject to regular updates.
- [] We recommend coordination with the Land Division of the State Department of Land and Natural Resources to incorporate this project into the 20-year State Water Projects Plan, which is subject to regular updates.
- [] We are concerned about the potential for ground or surface water degradation/contamination and recommend that approvals for this project be conditioned upon a review by the State Department of Health and the developer's acceptance of any resulting requirements related to water quality.
- [X] A Well Construction Permit and/or a Pump Installation Permit from the CWRM would be required before ground water is developed as a source of supply for the project.

Mr. Brooks Yuen
Page 2
July 24, 1998

- [X] The proposed water supply source for the project is located in a designated water management area, and a Water Use Permit from the CWRM would be required prior to use of this source.
- [] Groundwater withdrawals from this project may affect streamflows. This may require an instream flow standard amendment.
- [] If the proposed project diverts additional water from streams or if new or modified stream diversions are planned, the project may need to obtain a stream diversion works permit and petition to amend the interim instream flow standard for the affected stream(s).
- [] If the proposed project performs any work within the bed and banks of a stream channel, the project may need to obtain a stream channel alteration permit and a petition to amend the interim instream flow standard for the affected stream(s).
- [] We recommend that no development take place affecting highly erodible slopes which drain into streams within or adjacent to the project.

[X] OTHER:

Permitted water use of this well may depend upon implementation of a coordinated island-wide strategy to maximize reasonable beneficial use through conservation and reuse and reflecting an island-wide accounting for resources and uses.

If there are any questions, please contact Lenore Nakama at 587-0218.

Sincerely,

Timothy E. Johns
TIMOTHY E. JOHNS
Deputy Director

LN:ss

BOARD OF WATER SUPPLY

CITY AND COUNTY OF HONOLULU
630 SOUTH BERETANIA STREET
HONOLULU, HAWAII 96843
PHONE (808) 527-6180
FAX (808) 533-2714



August 25, 1998

Mr. Timothy E. Johns, Deputy Director
Commission on Water Resource Management
Department of Land and Natural Resources
State of Hawaii
P. O. Box 621
Honolulu, Hawaii 96809

Dear Mr. Johns:

Subject: Your Letter of July 24, 1998 Regarding the Draft Environmental Assessment for the
Board of Water Supply's Proposed Haleiwa Well II Exploratory Well Project, Waialua,
Oahu

RECEIVED

AUG 28 1998

WILSON OKAMOTO & ASSOC., INC.

COPY

EDDIE HARRIS, Mayor
EDEE FLORES, JR., Chairman
FORREST C. MURPHY, Vice Chairman
KAZU HAYASHIDA
JAN HULLY, AMB
JOHATHAN K. SHIMADA, PRO
BARBARA DONSTANTON
CHARLES A. STED
CLIFFORD S. JAMILE
Manager and Chief Engineer

Thank you for reviewing the Draft Environmental Assessment for the proposed Haleiwa Well II Exploratory Well project.

We provide the following responses to your concerns:

1. The proposed exploratory well project will be coordinated with the County's Water Use and Development Plan if it is determined to be suitable for production.
2. A Well Construction and Pump Installation Permit will be submitted prior to drilling the well. If the well is converted into a production well, a Water Use Permit will be submitted.
3. We note that permitted water use of this well may depend upon implementation of a coordinated islandwide strategy to maximize reasonable beneficial use through conservation and reuse and reflecting an islandwide accounting for resources and uses. The County's integrated water resources plan, which has been funded by Board of Water Supply, will address these issues.

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

Very truly yours,


CLIFFORD S. JAMILE
Manager and Chief Engineer

cc: Mr. Earl Matsukawa, Wilson Okamoto and Associates

COPY

JEREMY...
EDDIE FLORES, JR. Chairman
FORREST C. MURPHY, Vice Chairman
KAZU HAYASHIDA
IAN M. L. Y. AMI
IONATHAN K. SHIMADA, PhD
BARBARA KIM STANTON
CHARLES A. STED

CLIFFORD S. JAMILE
Manager and Chief Engineer



August 6, 1998

BOARD OF WATER SUPPLY
CITY AND COUNTY OF HONOLULU
630 SOUTH BERETANIA STREET
HONOLULU, HAWAII 96843
PHONE (808) 527-6180
FAX (808) 533-2714

Mr. Don Hibbard, Administrator
State Historic Preservation Division
Department of Land and Natural Resources
State of Hawaii
33 South King Street, Sixth Floor
Honolulu, Hawaii 96813

Dear Mr. Hibbard:

Subject: Your Letter of July 21, 1998 Regarding the Draft Environmental Assessment for the Board of Water Supply's Proposed Haleiwa Well II Exploratory Well Project, Waiialua, Oahu. TMK: 6-2-10-01

Thank you for reviewing the Draft Environmental Assessment for the proposed Haleiwa Well II Exploratory Well project.

We acknowledge that the proposed project will have "no effect" on any historic sites in the area.

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

Very truly yours,

Clifford S. Jamile
CLIFFORD S. JAMILE
Manager and Chief Engineer

cc: Earl Matsukawa, Wilson Okamoto and Associates, Inc.

MICHAEL D. WILSON, CHAIRMAN
BOARD OF LAND AND NATURAL RESOURCES
DEPT. OF LAND AND NATURAL RESOURCES
STATE OF HAWAII



STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
STATE HISTORIC PRESERVATION DIVISION
33 SOUTH KING STREET, 6TH FLOOR
HONOLULU, HAWAII 96813

July 21, 1998

Earl Matsukawa, Project Manager
Wilson Okamoto & Associates, Inc.
1907 S. Beretania Street, Suite 400
Honolulu, Hawaii 96826

Dear Mr. Matsukawa:

SUBJECT: Chapter 6E-8 Historic Preservation Review - Draft Environmental Assessment (DEA), Haleiwa Well II Proposed Exploratory Well Site
Paalaa Uka, Waiialua, O'ahu
TMK: 6-2-10-01

The DEA correctly incorporates in section 2.11 and in Appendix B our earlier comments that this project will have "no effect" on historic sites.

Should you have any questions, please feel free to call Elaine Jourdane at 587-0014.

Aloha,

Don Hibbard
Don Hibbard, Administrator
State Historic Preservation Division

EJ:jc

cc: Mr. Raymond H. Sato, Manager and Chief Engineer Board of Water Supply, City and County of Honolulu 630 S. Beretania St. Honolulu, HI 96843

RECEIVED
JUL 28 1998

LOG NO: 21855
DOC NO: 9807EJ31

EM
LW
6/26/98

PHONE (808) 594-1888



STATE OF HAWAII
OFFICE OF HAWAIIAN AFFAIRS
711 KAPULANI BOULEVARD, SUITE 500
HONOLULU, HAWAII 96813

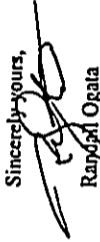
FAX (808) 594-1865

Letter to Mr. Earl Matsukawa
August 04, 1998
Page 2

The Office of Hawaiian Affairs is concerned that the Haleiwa Well II suffers from the same constraints associated to the Thompson Corner Well (See our review of the Thompson Corner Well dated August 04, 1998). Again OHA urges the applicant to critically review the location of the well. In OHA's view, perhaps the best choice is not to place the well within the Waialua aquifer.

Please contact Colin Kippen (594-1938), LNR Officer, or Luis Manrique (594-1758), should you have any questions on this matter.

Sincerely yours,


Raymond Ogata
Administrator

EIS No. 197

Mr. Earl Matsukawa
Wilson Okamoto and Associates
1907 South Beretania St., Suite 400
Honolulu, HI 96826

August 04, 1998

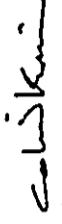
Subject: Draft Environmental Assessment (DEA) for Haleiwa Well II
Exploratory Well Site, Waialua, Island of Oahu

Dear Mr Matsukawa:

Thank you for the opportunity to review the Draft Environmental Assessment (DEA) for Haleiwa Well II Exploratory Well Site, Waialua, Island of Oahu. The Board of Water Supply (BWS) of the City & County of Honolulu is seeking to drill, case, and test a single exploratory well in the Haleiwa area of the district of Waialua. The project site, owned by the Bishop Estate and currently under lease to Dole Food Company, is located at an elevation of approximately 200 feet above the sea level, about 4,600 feet of Kamehameha Highway.

The Office of Hawaiian Affairs (OHA) has reviewed the DEA and based on information contained in the document, the well will not significantly impact nearby areas nor flora or fauna resources. Furthermore, the project area has been used for years for sugarcane production and it is unlikely that it contains significant archaeological resources.

However, OHA is concerned with the location of the proposed well. The Haleiwa Well II is located within the Waialua aquifer, a "water management area" with (i) a history of water withdrawals exceeding the aquifer's sustainable yield and concomitant low water quality, (ii) uncertain sustainable yield (i.e., the BWS indicates a sustainable yield of 40 MGD while the CWRM indicates a sustainable yield of 5 MGD), and (iii) current water use allocations totalling almost 40 MGD.


Colin Kippen
Officer,
Land and Natural
Resources Division

cc: Board of Trustees
OEQC

BOARD OF WATER SUPPLY

CITY AND COUNTY OF HONOLULU
630 SOUTH BERTANHA STREET
HONOLULU, HAWAII 96843
PHONE (808) 527-6180
FAX (808) 533-2714



February 8, 1999

Mr. Randall Ogata, Administrator
Mr. Colin Kippen, Officer
Land and Natural Resources Division
Office of Hawaiian Affairs
State of Hawaii
711 Kapiolani Boulevard, Suite 500
Honolulu, Hawaii 96813

Dear Messrs. Ogata and Kippen:

Subject: Draft Environmental Assessment for the Proposed Haleiwa Well II,
Exploratory Well Project, Waialua, Oahu, Hawaii. TMK: 6-2-10-001

Thank you for reviewing the Draft Environmental Assessment (EA) for the proposed Haleiwa Well II, Exploratory Well project.

We have the following responses to your comments:

1. As discussed in Section 2.4.2 of the Draft EA, the Commission on Water Resource Management's (CWRM) sustainable yield rating for the aquifer was 5.0 million gallon per day (mgd) in 1988. That figure was subsequently revised to CWRM's current rating of 40 mgd. The Board of Water Supply does not have a separate rating of sustainable yield for the aquifer.
2. Past withdrawals exceeding sustainable yield occurred when sugar cane was in cultivation. Since the demise of the sugar industry, withdrawals have declined dramatically. In 1997, actual basal use was 11,867 mgd. Thus, based on 1997 withdrawal rates, the available sustainable yield is 28,133 mgd, as shown on Table 1 of the Draft EA. The actual available sustainable yield is likely to be higher today since plantation use has declined even further from 9,764 mgd in 1997 to a current estimate of less than 2.0 mgd.
3. The 1997 allocation of 39,941 mgd includes the amount allocated for sugar production. Since sugar is no longer being cultivated and water withdrawals have declined as a result, the CWRM is planning to revoke some of these allocations.

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

Very truly yours,


CLIFFORD S. JAMBLE
Manager and Chief Engineer

cc: Earl Matsubawa, Wilson Okamoto & Associates, Inc.

COPY

JEREMY HARRIS, Mayor
EDDIE FLORES, JR., Chairman
FORREST C. MALPHEE, Vice Chairman
KAOU HAYASHIDA
JAN H.L.Y. AM
JOSHUA K. OHAMA, P.E.
BARBARA KIM STANTON
CHARLES A. STED

CLIFFORD S. JAMBLE
Manager and Chief Engineer

RECEIVED
FEB 16 1999
WATER SUPPLY DIVISION

DEPARTMENT OF PLANNING AND PERMITTING
CITY AND COUNTY OF HONOLULU
650 SOUTH KING STREET, 7TH FLOOR • HONOLULU, HAWAII 96813
Phone: (808) 527-4416 • Fax: (808) 527-4743



JEREMY HARRIS
MANAGER

RECEIVED
JUL 27 1998
WILSON OKAMOTO & ASSOC., INC.

JAN HAOE SULLIVAN
DIRECTOR

LORETTA K.C. CHEE
COUNTY DIRECTOR

'98 EA Comments Zone 6
98-05330(AC)

July 24, 1998

MEMORANDUM

TO: BROOKS H.H. YUEN, ACTING MANAGER AND CHIEF ENGINEER
BOARD OF WATER SUPPLY

FROM: JAN HAOE SULLIVAN, DIRECTOR
DEPARTMENT OF PLANNING AND PERMITTING

SUBJECT: DRAFT ENVIRONMENTAL ASSESSMENT (EA) FOR
HALEIWA WELL II EXPLORATORY WELL SITE
TAX MAP KEY: 6-2-10: DOG. 01

We have reviewed the above-referenced Draft EA and do not have any comments to offer at this time.

Thank you for the opportunity to comment. Should you have any questions, please contact Art Challacombe of our Coastal Lands Branch at 523-4077.

Carol E. Shugart
For JAN HAOE SULLIVAN
Director of Planning
and Permitting

JNS:am

/cc: Wilson Okamoto and Associates, Inc.

9/14/9805330.doc

BOARD OF WATER SUPPLY
CITY AND COUNTY OF HONOLULU
650 SOUTH BERETANIA STREET
HONOLULU, HAWAII 96813
PHONE (808) 527-4180
FAX (808) 523-2714



August 7, 1998

JEREMY HARRIS
COPY
EDDIE FLORES, JR. Chairman
FOREST C. MURPHY, Vice Chairman
KAZUHIYA ASHIDA
JAN M.L. Y. AMI
JONATHAN K. S. SHIMADA, PhD
BARBARA KIM STANTON
CHARLES A. STEED
CLIFFORD S. JAKBLE
Manager and Chief Engineer

TO: JAN SULLIVAN, DIRECTOR
DEPARTMENT OF PLANNING AND PERMITTING

FROM: CLIFFORD S. JAKBLE, MANAGER AND CHIEF ENGINEER
BOARD OF WATER SUPPLY

SUBJECT: YOUR LETTER OF JULY 24, 1998 REGARDING THE DRAFT
ENVIRONMENTAL ASSESSMENT FOR THE BOARD OF WATER
SUPPLY'S PROPOSED HALEIWA WELL II EXPLORATORY WELL
PROJECT. WAIALUA_OAHU_TMK: 6-2-10_01

Thank you for reviewing the Draft Environmental Assessment for the proposed Haleiwa Well II Exploratory Well project.

We acknowledge that you have no comments to offer at this time.

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

/cc: Earl Matsukawa, Wilson Okamoto and Associates, Inc.

PLANNING DEPARTMENT
CITY AND COUNTY OF HONOLULU

650 SOUTH KING STREET, 8TH FLOOR • HONOLULU, HAWAII 96813-3017
PHONE: (808) 522-4332 • FAX: (808) 523-4350



JEREMY HARRIS
MAYOR

8/17/1998

PATRICK OHSWA
CHIEF PLANNING OFFICER
DONAL HANAUKE
SENIOR CHIEF PLANNING OFFICER

GW 7/98-1415

August 17, 1998

TO: CLIFFORD S. JAMILE, MANAGER AND CHIEF ENGINEER
BOARD OF WATER SUPPLY

FROM: PATRICK T. ONISHI *[Signature]*
CHIEF PLANNING OFFICER

SUBJECT: DRAFT ENVIRONMENTAL ASSESSMENT, HALEIWA WELL II
EXPLORATORY SITE, WAIALUA, OAHU, HAWAII

We have reviewed the above-cited Draft Environmental Assessment (DEA). This project proposes to establish and test an exploratory well on a site adjacent to Opauala Road about 4,600 feet east of Kamehameha Highway. We have no objection to this proposed project.

We offer the comments provided below to assist you in preparation of the Final Environmental Assessment (FEA) for this project.

1. Pages vi and vii:
The references to "Department of Land Utilization" should be changed to the current designation of "Department of Planning and Permitting."
2. Figure 1, Location Map (and all similar figures throughout the document):
The maps should be revised as necessary to depict the Joseph P. Leong Highway (aka the Haleiwa By-Pass). Per OEQC guidelines, all maps should include graphic and/or text scale indications.
3. Sec. 1.4, 3rd paragraph (pg. 1-4) and 5th paragraph (pg. 1-5):
The second sentence of this paragraph notes that BWS's water demand projections are based on the Planning Department's population distribution projections. In the FEA, this discussion should be expanded to address the assumptions that BWS employs in interpreting the water demands implied by the population projections, e.g., excess capacity, contribution to the island-wide water system, fire flow capacity, agricultural and economic considerations, and the like.

Clifford S. Jamile, Manager and Chief Engineer
Board of Water Supply
August 17, 1998
Page 2

4. Sec. 1.4, 6th paragraph, last sentence (pg. 1-5):
The FEA should briefly discuss what elements of the North Shore water system infrastructure will take approximately 15-20 years to complete.
5. Sec. 1.5, 6th sentence (pg. 1-6):
The FEA should note what, if any, BMP's will be used in disposing of drilling spoils on site.
6. Sec. 1.6, 1st paragraph, last sentence (pg. 1-6):
The FEA should note whether or not an NPDES permit will be required to dispose of water withdrawn during test pumping.
7. Sec. 1.6, 2nd paragraph, 3rd & 4th sentences (pg. 1-6):
The FEA should note whether or not additional site area will be required if there is a need to construct a GAC treatment facility for this well if/when the well is converted to production use.
8. Sec. 1.7, 1st sentence (pg. 1-8):
The FEA should note what permits will be required for this project.
9. Sec. 2.2, 2nd paragraph, 1st sentence (pg. 2-1):
The FEA should define what is meant by the phrase "at depth."
10. Sec. 2.4.1, "Impacts and Mitigation Measures" (pg. 2-4):
The FEA should discuss how stream flows will be monitored during test pumping.
11. Sec. 2.4.2, "Impacts and Mitigation Measures" (pg. 2-7):
The FEA should present the math of this section in a clearer fashion.
12. Sec. 2.8 (pg. 2-11), Sec. 2.10 (pg. 2-13), and elsewhere as appropriate:
The FEA should use the official designation for the Haleiwa by-pass (i.e., the Joseph P. Leong Highway).
13. Sec. 2.13, 1st paragraph (pg. 2-15):
In the FEA, this paragraph should be revised as indicated below:

"The Interim Report No. 1: Regional Profile North Shore Development Plan Revision states that according to the 1990 census data, the North Shore DP area had a resident population of 15,749. Using market conditions, historical development trends, and current land use policies, the City and County of Honolulu Planning Department [estimated that the North Shore DP area had a resident] projected a 1995 population of [15,714] 15.913 for the North Shore DP area out of an

Clifford S. Jamile, Manager and Chief Engineer
Board of Water Supply
August 17, 1998
Page 3

islandwide projection of 882,509[in 1995], and it is likely to have a population of 1,560 out of an islandwide 1,071,200 by the year 2020. For both 1995 and 2020, the North Shore population [estimates] projections represent 1.8[%] percent of Oahu's population."

14. Sec. 3.1 (pg. 3-1):
This section cites a number of types of water-related facilities that are permissible uses within the State Land Use Agricultural District, but does not include exploratory or production wells among those uses. The FEA should indicate if exploratory and/or production wells are explicitly permissible in the agricultural district.

15. Sec. 3.2, 2nd sentence (pg. 3-1):
In the FEA, this sentence should be revised as follows:

"The plan is a statement of long-range social, economic, environmental and design objectives for the general welfare and [property] prosperity of the people of Oahu."

16. Sec. 4 (pg. 4-1):
This section is intended to discuss "Alternatives to the Proposed Action." Section 4.4 provides a well-reasoned and informative discussion of alternative methods of providing and conserving potable water and reducing our dependence on groundwater sources. The preceding sections, which are intended to discuss your analyses of the "No Action," "Delayed Action," and "Alternative Location" options should provide evidence of serious examination of those alternatives. For example, Section 4.2, Delayed Action, argues that this project (which BWS has not yet scheduled for implementation) should not be delayed, and therefore, should establish the urgency for development of this particular exploratory well; and Section 4.3, Alternative Location, should provide more detailed discussion of the selection process and other sites considered, if any, and reword the last sentence of the section to clarify its meaning.

If you should have any questions or concerns regarding these comments, please do not hesitate to contact Gordon Wood of the Planning Department staff at 527-6073.

PTO:lh
c: Wilson Okamoto and Associates, Inc.
Attn: Mr. Earl Matsukawa

BOARD OF WATER SUPPLY
CITY AND COUNTY OF HONOLULU
630 SOUTH BERETANIA STREET
HONOLULU, HAWAII 96843
PHONE (808) 525-8180
FAX (808) 525-2714



February 12, 1999

COPY
JEREMY HARRIS

EDDIE FLORES, Jr., Chairman
FOREST C. MURPHY, Vice Chairman
LAZU HAYASHIDA
JAN M.L.Y. AME
BARBARA KIM STANTON
CHARLES A. STED

CLIFFORD S. JAMILE
Manager and Chief Engineer

TO: MS. JAN NAOE SULLIVAN, DIRECTOR
DEPARTMENT OF PLANNING AND PERMITTING
FROM: *Clifford S. Jamile*
CLIFFORD S. JAMILE

SUBJECT: DRAFT ENVIRONMENTAL ASSESSMENT FOR THE PROPOSED
HALEIWA WELL II EXPLORATORY WELL, WAIALUA, OAHU, HAWAII

Thank you for reviewing the Draft Environmental Assessment (EA) for the proposed Haleiwa Well II project.

We acknowledge that you have no objections to the proposed project. We provide the following responses to your concerns:

1. The Final EA will be amended to refer to the "Department of Planning and Permitting" instead of the "Department of Land Utilization."
2. Location Maps in the Final EA will be revised to also label the Haleiwa By-Pass Road, the Joseph P. Leong Highway. All maps will be revised to include a graphic or text scale.
3. The Final EA will be revised to include factors contributing to water demands including, available excess capacity, connection for an islandwide system and agricultural water demand of the North Shore area, which are currently being evaluated in our Waialua-Kawailoa-Mokuleia Study.
4. The North Shore infrastructure is currently being evaluated in our ongoing feasibility study. Elements of the North Shore water system infrastructure that would take approximately 15-20 years to complete include source, transmission, and storage.
5. The Final EA will be revised to include a brief discussion on BMPs used in disposal of the drilling spoils.
6. The Final EA will be revised to indicate an NPDES permit will not be required, as water withdrawn during test pumping will not be discharged into any surface streams or coastal waters.
7. The Final EA will be revised to note that an additional site area will be required if there is a need to construct a GAC treatment facility.

Ms. Jan Naoe Sullivan
February 12, 1999
Page 2



8. The Final EA will be revised to include a list of permits required for this project.
9. The Final EA will be revised to clarify the term "at depth" by stating:

"Basaltic lava of the Koolau and the Waianae Volcanic Series, which ranges in depth from 2,000 feet to more than 3,100 feet thick, underlies the project area."
10. There is available sustainable yield, which is the safe yield that can be withdrawn without detrimental effects to the aquifer. Since pumpage will not exceed the sustainable yield or previous pumpage levels due to the demise of sugar cultivation, flow within Anahulu Stream should not decrease below historical levels. In addition, Anahulu Stream is perched upon alluvium and is significantly distant that no streamflow monitoring is planned.
11. The Final EA will include a table on the available sustainable yield based on Commission on Water Resource Management permitted use and average actual use.
12. Please refer to response Number 2, above.
13. Section 2.13 of the Final EA will incorporate the revisions indicated.
14. We are presently in contact with the State Land Use Agricultural District regarding exploratory/production wells in agricultural districts.
15. Section 3.2 of the Final EA will be revised to incorporate the revisions indicated.
16. The Final EA will be revised to clarify that the "No Action" alternative is unfeasible in consideration of potential alternative sources discussed subsequently in this chapter. Similarly, delaying the project is also unfeasible since development of other sources would not be practicable in meeting this demand. As discussed in Section 4.3, a number of factors were considered in selecting the site. For the purposes of the EA, there are no other sites in the general vicinity or elsewhere that would result in significantly less environmental or social impact than the selected site. We will omit the last sentence since we do not wish to indicate that the selected site is the only site which meets the factors considered.

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

cc: Earl Matsukawa, Wilson Okamoto & Associates, Inc.

DEPARTMENT OF TRANSPORTATION SERVICES
CITY AND COUNTY OF HONOLULU

PACIFIC PAPER PLANT • 711 KAPOLANI BOULEVARD, SUITE 1200 • HONOLULU, HAWAII 96813
PHONE (808) 523-4229 • FAX (808) 523-4730



JEREMY HARRIS
-1108

CHERYL D. SOON
DIRECTOR
JOSEPHINE MAGALON, JR.
DEPUTY DIRECTOR

AUGUST 20, 1998

TPD98-00563
TSP7/98-04259R

MEMORANDUM

TO: CLIFFORD S. JAHILE, MANAGER AND CHIEF ENGINEER
BOARD OF WATER SUPPLY

FROM: CHERYL D. SOON, DIRECTOR

SUBJECT: HALEIWA WELL II EXPLORATORY WELL SITE

In response to the July 13, 1998 Wilson Okamoto and Associates, Inc. letter, the draft environmental assessment for the subject project was reviewed. We agree that based on the location of the proposed project on Opauala Road, it appears that traffic congestion will not result. However, to ensure the safe and expeditious movement of traffic along Kamehameha Highway, there should be an agreement stipulated whereby construction vehicles would be restricted during the morning/afternoon peak periods on Kamehameha Highway if traffic concerns or complaints are generated.

Should you have any questions regarding this matter, please contact Faith Miyamoto of the Transportation Planning Division at Local 6976.

✓cc: Mr. Earl Matsukawa
Wilson Okamoto and Associates, Inc.

Cheerly D. Soon
CHERYL D. SOON

BOARD OF WATER SUPPLY

CITY AND COUNTY OF HONOLULU
630 SOUTH BERETANIA STREET
HONOLULU, HAWAII 96813
PHONE (808) 527-8180
FAX (808) 523-2714



October 21, 1998

COPY

JERRY HARRIS, Chairman
EDDIE FLORES, Jr., Chairman
ROBERT C. MURPHY, Vice Chairman
KAZUHIYASHI
JANILLY ANN
JONATHAN K. SHIMADA, PhD
BARBARA ILM STANTON
CHARLES A. STED
CLIFFORD S. JAHILE
Manager and Chief Engineer

10/21/98

TO: MS. CHERYL D. SOON, DIRECTOR
DEPARTMENT OF TRANSPORTATION SERVICES

FROM: *Cheerly D. Soon*
CHERYL D. SOON

SUBJECT: YOUR LETTER OF AUGUST 20, 1998,
REGARDING THE DRAFT ENVIRONMENTAL
ASSESSMENT FOR THE PROPOSED HALEIWA WELL II
EXPLORATORY WELL PROJECT, WAIALUA, OAHU

Thank you for reviewing the Draft Environmental Assessment for the proposed Haleiwa Well II Exploratory Well project.

Traffic congestion should not result from the proposed project because it is well within the agricultural lands along Opauala Road. However, if traffic concerns or complaints are generated, we may restrict construction vehicles during morning and afternoon peak periods along Kamehameha Highway.

cc: Earl Matsukawa, Wilson Okamoto and Associates, Inc.