

Waialae West Well

BOARD OF WATER SUPPLY

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



May 5, 1998

'98 JUN 25 P2:10

JEREMY HARRIS, Mayor

WALTER O. WATSON, JR., Chairman
EDDIE FLORES, JR.
KAZU HAYASHIDA
JAN M. L. Y. AMII
FORREST C. MURPHY
JONATHAN K. SHIMADA, PhD
BARBARA KIM STANTON

BROOKS H. M. YUEN, Acting
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

OFFICE OF ENVIRONMENTAL
QUALITY CONTROL

Dear Mr. Gill:

Subject: Finding of No Significant Impact for the Board of Water Supply's Proposed Waialae West Well Project, Honolulu, Oahu, TMK: 3-3-14: 16

The Board of Water Supply has reviewed the comments received during the public comment period which began on February 8, 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,

BROOKS H. M. YUEN
Acting Manager and Chief Engineer

Attachments

cc: Brian Takeda, R.M. Towill Corporation

1998-07-08-0A-*FEA-Waiialae West Well*

JUL 8 1998

FILE COPY

Prepared in accordance with Chapter 343, Hawaii Revised Statutes

Final Environmental Assessment
WAIALAE WEST WELL
Waiialae, Honolulu, Oahu, Hawaii

June 1998

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

RMTC

R. M. TOWILL CORPORATION
420 Waialakamilo Road, Suite 411
Honolulu, Hawaii • 96817-4941
Voice: (808) 842-1133
Facsimile: (808) 842-1937

Final Environmental Assessment
WAIALAE WEST WELL
Waialae, Honolulu, Oahu, Hawaii
TMK: 3-3-14:16

June 1998

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

PREPARED BY:
R. M. Towill Corporation
420 Waiakamilo Road, Suite 411
Honolulu, Hawaii 96817-4941

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HONOLULU WATER DISTRICT AND OAHU: 1990 - 2010

Chapter 1
EXECUTIVE SUMMARY

1.1 PROPOSING AGENCY AND ACTION

The Board of Water Supply (BWS), City and County of Honolulu, proposes to drill a well into the existing BWS water supply shaft at TMK: 3-3-14:16 (Figure 1-1 and Figure 1-2). The site is located north of Claudine Street, between 16th Avenue and Koko Drive. The site comprises 56,304 square feet that is owned by BWS and located adjacent to an existing County Park at the corner of Claudine Street and 16th Avenue. The reactivated well is intended to produce .16 million gallons per day (mgd), as authorized by Commission on Water Resource Management (CWRM).

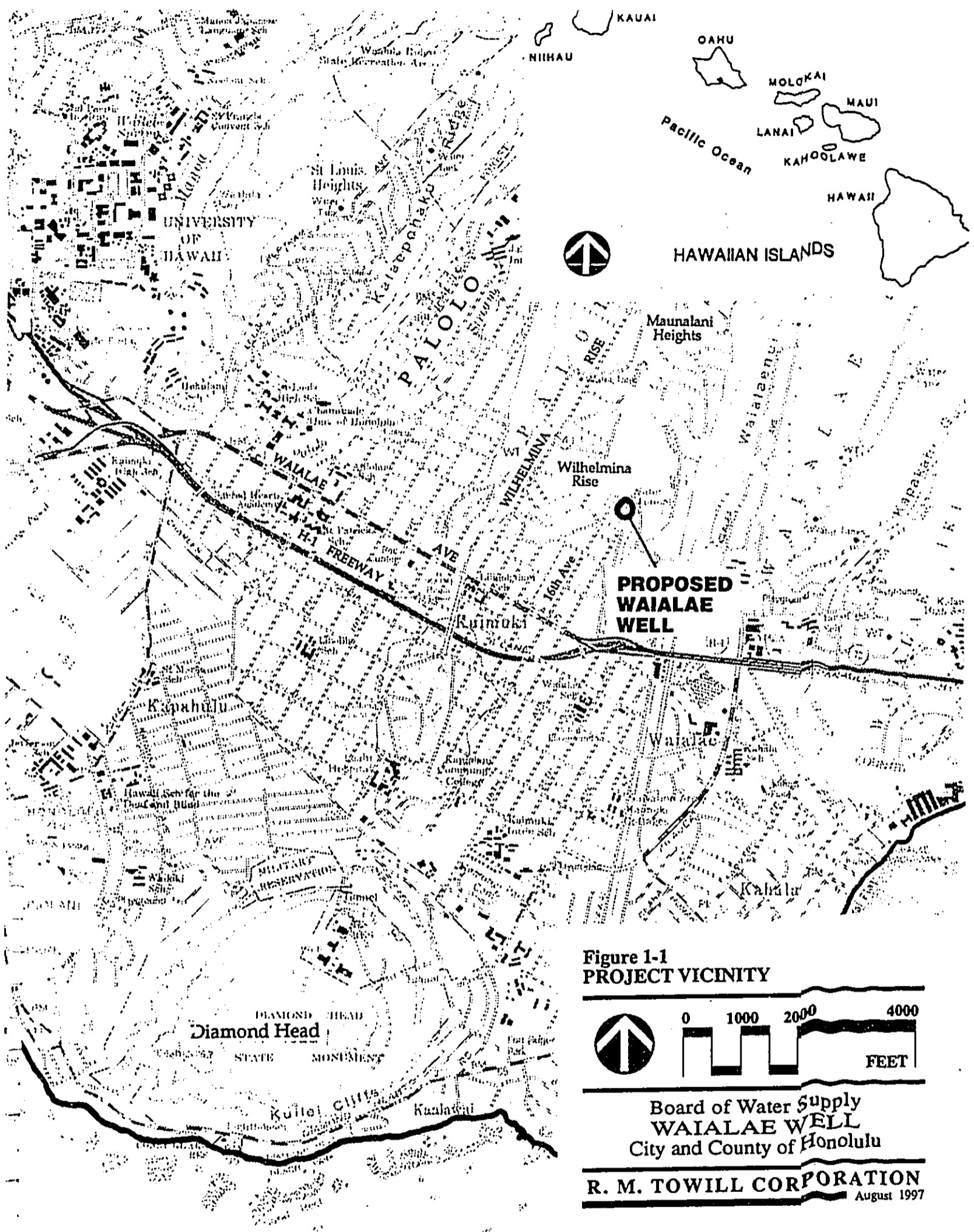
BWS will drill into the sump of the shaft to reactivate the source. The existing inclined shaft will be sealed off. Test pumping will be performed to determine the quantity and quality of water. If safe drinking water quality standards are met, a permanent pump will be installed. If test results indicate the quantity and quality of water is unsatisfactory for potable use, the well will be sealed.

This Environmental Assessment (EA) addresses the drilling and casing of the well, modifications within the existing control building, and installation of pumps, piping, and appurtenances.

1.2 PURPOSE OF ENVIRONMENTAL ASSESSMENT

City and County of Honolulu funds will be used for development. This project, therefore, is subject to preparation of environmental documentation per requirements of Chapter 200, Title 11, Hawaii Administrative Rules (HAR), and Chapter 343, Hawaii Revised Statutes. This EA will address the limited environmental impacts anticipated for development of the proposed project.

A Final Environmental Assessment and accompanying Finding of No Significant Impact (FONSI) will be filed by BWS as part of the requirement for processing an EA.



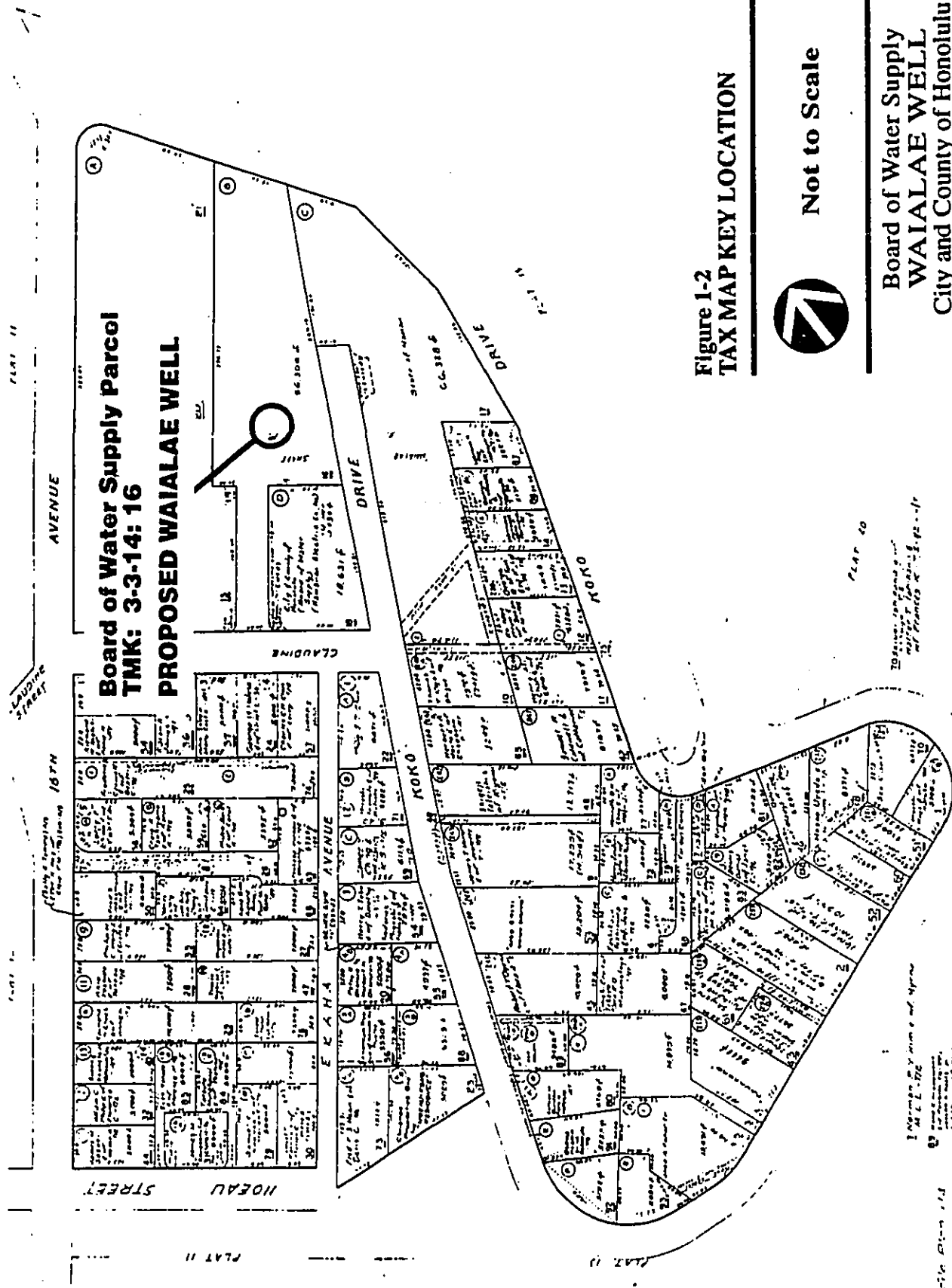


Figure 1-2
 TAX MAP KEY LOCATION



Not to Scale

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 WAIALAE WELL
 City and County of Honolulu

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 August 1997

See also Plans 1-1
 MAHALA HEIGHTS - MON

1. M.L.L. 1972
 2. M.L.L. 1972
 3. M.L.L. 1972

PLAT 40
 1. M.L.L. 1972
 2. M.L.L. 1972
 3. M.L.L. 1972

1.3 PERMITS REQUIRED

Exploratory wells are considered minor and are not required to be shown on the City and County of Honolulu's Development Plan Public Facilities Map. It is expected that successful completion of well tests will lead to conversion into a production well which requires an application for a Development Plan Public Facilities Map Amendment from the City and County of Honolulu, Department of Planning. Review and approval for the DP Amendment is from the Honolulu City Council. The DP Amendment is planned to be filed upon successful completion of well tests.

The Commission on Water Resource Management (CWRM) will require Well Construction and Pump Installation permits. Both permits will be for work including the pump test. Once the test phase is completed the production well will require a permanent Pump Installation Permit and Water Use Permit.

BWS has permission to use the City and County of Honolulu, storm drainage system for discharges of effluent related to potable pump operation, replacement, and repair at various locations (Section 14-12.22, Revised Ordinances of Honolulu 1990, as amended). However, a National Pollutant Discharge Elimination System (NPDES) permit from the State Department of Health, Clean Water Branch, will be required if there are any discharges of effluent into State waters through the county storm sewer system. The DOH, Noise and Radiation Branch, will also require filing of a Noise Permit.

1.4 PROJECT BENEFITS

If the testing shows that the source can be reactivated successfully, the Waialae West Well will be converted to a permanent production well. The successful conversion of Waialae Shaft with a production well will enable resumed use of this source and reintegration into the municipal water system. Redevelopment of this source will assist in helping to meet the growing demand for water on Oahu.

1.5 ALTERNATIVES CONSIDERED

This environmental assessment discusses the no action alternative, the delayed action alternative, site alternatives, and source alternatives.

The no action alternative was not considered a viable option because it does not fulfill the BWS mandate to provide potable water resources for the growing City and County of Honolulu. The no action alternative may also create restrictions to new development and may result in regional water shortages when former sources are not reactivated.

The delayed action alternative was considered but not pursued because this alternative would delay the provision of potable water. Delayed action would also result in substantially similar environmental outcomes with higher development costs due to inflation.

No alternative sites were reviewed. The project location has already been identified as a potable shaft well within proximity to known geologic and hydrologic resources capable of producing potable water. The proposed new well would be located above the existing shaft well. The proposed well site was also selected based on proximity to existing transmission systems and on suitability for accommodating well drilling operations with minimal negative impacts to the surrounding area.

Source alternatives to potable groundwater have been analyzed in the *Draft Oahu Water Plan* (BWS, 1995). These include desalination, development of surface water and brackish groundwater sources, and recycling of treated wastewater. Although BWS is exploring development of alternative potable water sources, it does not consider currently available technologies to be feasible or practical due to high development cost and technical difficulties.

1.6 POTENTIAL IMPACTS AND MITIGATION MEASURES

Construction activities will involve use of a bulldozer/backhoe (as needed to prepare the site for drilling), truck mounted or stationary drill rig, electrical or internal combustion powered water pump(s), and construction related equipment including use of pickup trucks and water trucks (for dust control as applicable). Nearby residential areas may be

impacted by airborne dust and vehicular pollution, however, the potential for impacts will be temporary and will cease when construction is completed.

Potential for noise will result from clearing, grading, and use of the drill rig and pump(s). Nearby residential areas may be affected by noise levels exceeding the allowable daytime standards of 55 dBA set by the State Department of Health (DOH) through HAR, Title 11, Chapter 43. Additionally, the nearby Ma'umae County Park may also be temporarily affected. However, there will be no noise impacts after construction and well testing activities are completed.

To mitigate impacts on air quality caused by project activities, dust control measures will be undertaken by the construction contractor. Such measures will include the use of dust screens and water sprinkling as necessary to minimize fugitive dust. To minimize exhaust emissions, project contractors will properly maintain their internal combustion engines and will comply with DOH, HAR, Title 11, Chapter 59 and 60 regarding Air Pollution Control.

A noise permit will be required from the DOH, Noise and Radiation Branch, due to potential for excessive noise levels generated by project activities. The noise permit will require that contractors muffle all construction vehicles and machinery and maintain all noise attenuation equipment in good operating condition. If necessary, faulty equipment will be repaired or replaced. Further, drilling operations will be restricted to the hours of 7:30 am to 3:30 pm on weekdays and will be suspended on weekends and State Holidays. If a surface pump is used, it will be installed with mutes to reduce noise to acceptable levels. Alternatively, a subsurface pump may be used.

The project will result in a temporary increase in heavy truck traffic. The greatest impact will be during initial mobilization of equipment to the site and following construction and testing activities when equipment is removed. Once construction equipment has been set-up, no significant impacts are expected to the adjoining streets, Claudine Street, Ekaha Avenue, 16th Avenue, and Koko Drive. Removal of equipment will be scheduled during non-peak traffic periods to minimize disturbance to residents.

To minimize traffic impacts the contractor will schedule heavy truck activity between the hours of 8:30 am and 2:30 pm on weekdays and will suspend activity on weekends and State holidays. The contractor will also schedule heavy truck traffic to avoid use of 16th Avenue, Koko Drive, and Waialae Avenue as much as possible during the morning or afternoon peak periods.

No adverse impacts to geological formations underlying the drilling site or to soils at the surface of the site are expected. No surface waters or wetland areas are located nearby.

A National Pollution Discharge Elimination Permit (NPDES Permit) is not expected to be required for discharging of well test-pumpings. These discharges are planned to be disposed of by use of the City and County of Honolulu storm drainage system. However, should there be any potential for discharges to State waters, an NPDES permit will be obtained.

If test results indicate the quality or quantity of water from the test well is unsatisfactory, the well will be capped and/or sealed to protect and preserve the underlying groundwater.

Project activities may temporarily alter the local distribution and abundance of birds presently using the land, but will not impact the overall long term abundance of these species on Oahu. No mitigation measures are required or recommended based on anticipated minimal impacts to the biological resources at the site.

1.7 FINDINGS AND REASONS SUPPORTING DETERMINATION

In accordance with Chapter 343, HRS, BWS has determined that an EIS is not required for the construction and test pumping of the Waialae West Well. This determination has been made based on short project duration and because any adverse impacts that would result can be minimized to insignificant levels by applying the recommended mitigation measures.

1.8 AGENCIES AND OTHERS CONSULTED

The following agencies were contacted during preparation of the Draft EA:

State of Hawaii

- Department of Health
- Department of Land and Natural Resources

City and County of Honolulu

- Board of Water Supply
- Land Utilization Department
- Department of Planning

The following additional organizations, agencies, and individuals were notified during the 30-day Draft EA comment period:

Federal Agencies

- U.S. Geological Survey
- U.S. Fish and Wildlife Service
- U.S. Army Corps of Engineers

State Agencies

- Department of Business, Economic Development & Tourism
Office of Planning
- Department of Education
- University of Hawaii
Environmental Center
- Department of Hawaiian Home Lands
- Office of Hawaiian Affairs
- Hawaii State Public Library System
Kaimuki Public Library

City and County of Honolulu

- Department of Transportation Services

- Building Department
- Private and Community Organizations, Elected Officials, and Individuals
- Honolulu City Council
- Kaimuki Neighborhood Board No. 4
- State Senator Matt Matsunaga
- State House Representative Barbara Marumoto
- Mr. Wayne Parsons
- Ms. Elizabeth Norcross
- Mr. Francis Iwamoto
- Ms. Linda M.L. Soma
- Mr. Charles Chun
- Mr. Shigeki Tateishi
- Mr. Samuel Caldwell
- Mr. John Souza
- Ms. Gailene S.G. Wong
- Ms. Anna B.A. Yannell
- Mr. Richard Nishiki
- Mr. Frederick Crowell
- Mr. George Holeso
- Mr. Phillip H.C. Chee
- Mr. Neil Fergusson
- Mr. Shang-Hsien Ho
- Mr. Moe Hiun Ko
- Mr. Thomas T. Kojo
- Ms. Edna Ah Chan

Chapter 2
PURPOSE AND NEED FOR PROPOSED ACTION

2.1 PROJECT PURPOSE AND NEED

The 1996 average municipal water demand on the Island of Oahu was approximately 148 million gallons per day (mgd). According to the *Draft Oahu Water Plan*, this demand for water is expected to increase to more than 193 mgd by the year 2010 (BWS, 1995). The demand for the Honolulu Water District during this same timeframe indicates a 1996 municipal demand of 79 mgd, with an expected increase to 98 mgd, by 2010. BWS has been mandated to meet the demand for potable water by investigating, planning and developing additional water supplies within the limits of available resources. BWS proposes to develop new sources of potable groundwater on Oahu within the Honolulu Water Management Area (WMA) to fulfill this mandate.

The proposed project involves drilling a test well above an existing water supply shaft. The purpose of the well is to reactivate the facility by drilling into and installing a pump into the sump of the shaft. The proposed Waialae West Well, will consist of a single bore within the Honolulu WMA. If tests for quantity and quality of groundwater meet regulated standards, BWS intends to convert the well to a production well and reintegrate it into its municipal source, storage, and transmission system.

2.2 STATE WATER CODE AND COMMISSION ON WATER RESOURCE MANAGEMENT

The State Water Code and CWRM was established in 1987 by the Hawaii State Legislature in Section 174-C of the HRS. The task of CWRM is to administer the new State Water Code.

The State Water Code established a Hawaii Water Plan consisting of four parts:

- A water resource protection plan prepared by CWRM;
- water use and development plans prepared by each county;
- a state water project plan prepared by state agencies; and,
- a water quality plan prepared by the Department of Health.

The State Water Code requires that CWRM establish management boundaries for each WMA. CWRM designated WMAs are located in areas where research suggests that ground and/or surface water resources are threatened by current or future proposed withdrawals or diversions of water (BWS, 1995).

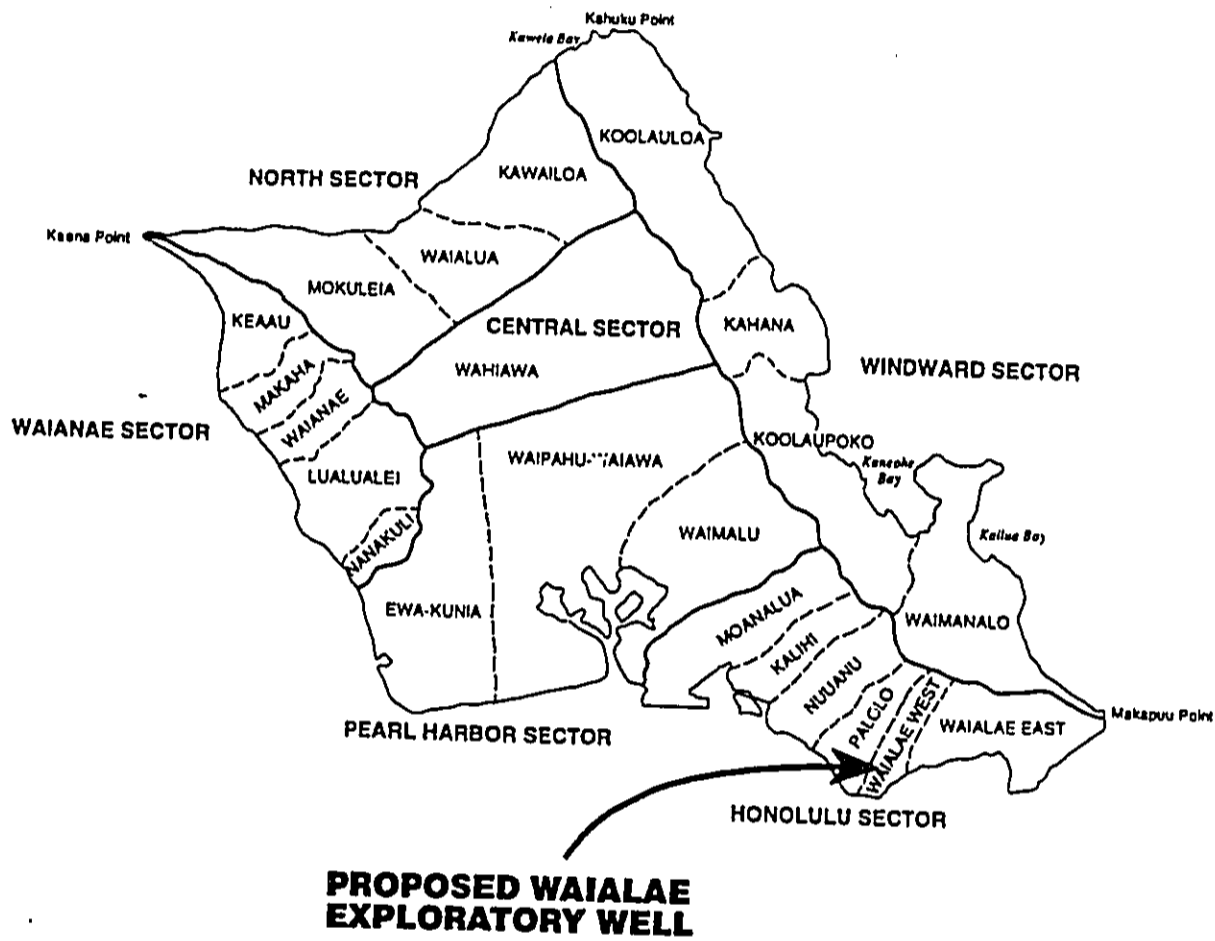
2.3 GROUND WATER SECTORS AND AQUIFERS

CWRM has established six groundwater sectors that encompass the island of Oahu to assist in planning and administration of water resources and WMAs. These six groundwater sectors include: Honolulu, Pearl Harbor, Waianae, Central, North, and Windward. These six groundwater sectors are further divided according to the boundaries of the underlying aquifers. In all sectors except Waianae, the aquifer divisions have been designated WMAs. In some cases, several individual aquifers are combined into a single WMA.

The Honolulu Groundwater Sector follows the same boundary as the Honolulu WMA and is comprised of six aquifer areas. These aquifers include: Moanalua, Kalihi, Nuuanu, Palolo, Waialae West, and Waialae East (Figure 2-1). The proposed Waialae West Well is sited in the Waialae West aquifer, mauka of Diamond Head, adjacent to the Palolo aquifer.

2.4 SUSTAINABLE YIELD AND THE HONOLULU WATER MANAGEMENT AREA

A sustainable yield has been established by CWRM. Sustainable yield is the amount of groundwater that can be routinely extracted from an aquifer without adverse impacts to the quality or quantity of the water source. Based on the geologic and hydrologic



**Figure 2-1
OAHU GROUNDWATER SECTORS**



Not to Scale

**Board of Water Supply
WAI'ALAE WELL
City and County of Honolulu**

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August 1997

characteristics of various regions, CWRM estimates sustainable yield for each aquifer, WMA, and groundwater sector. These estimates are used to guide the development of new water resources.

The sustainable yield of basal aquifers for each of the Hawaiian islands is always less than the average annual rate of recharge to the groundwater aquifer because of the amount of fresh groundwater that is lost by mixing with the underlying salt water. Estimating sustainable yield for the island of Oahu and for its individual aquifers is complex because the amount of groundwater that is mixed with fresh water is dependent upon the degree of aquifer confinement, lens thickness, the degree of agricultural and urban development, and numerous other factors. (BWS, 1995).

The Honolulu WMA has an estimated sustainable yield of 53 mgd and is the third largest system. The 53 mgd yield from the Honolulu WMA represents 11.4% of the 465 mgd total sustainable yield on Oahu. The Waialae West aquifer has a sustainable yield of 4 mgd. According to Table 2-1, there are six existing wells with a combined permitted use of 2.987 mgd (Figure 2-2). Waialae Shaft, for which the well will substitute, has an existing permitted use of 0.160 mgd.

Although existing withdrawals from Waialae West do not yet exceed the sustainable yield, future permitted withdrawal will be subject to permitting requirements and review by CWRM. These requirements would include an analysis of drawdown for the Honolulu WMA from each aquifer and individual well and, providing sufficient justification for additional withdrawal based on existing and future projected population for the area.

2.5 POTENTIAL AREAS FOR WATER SOURCE DEVELOPMENT

The purpose of the Waialae West Well is to determine if development of additional potable water sources in the Honolulu WMA is feasible. Further development of this site or other sites as a water source will follow testing of water quality and quantity and may require reallocation of existing potable supplies by CWRM. Because of prior use of this resource

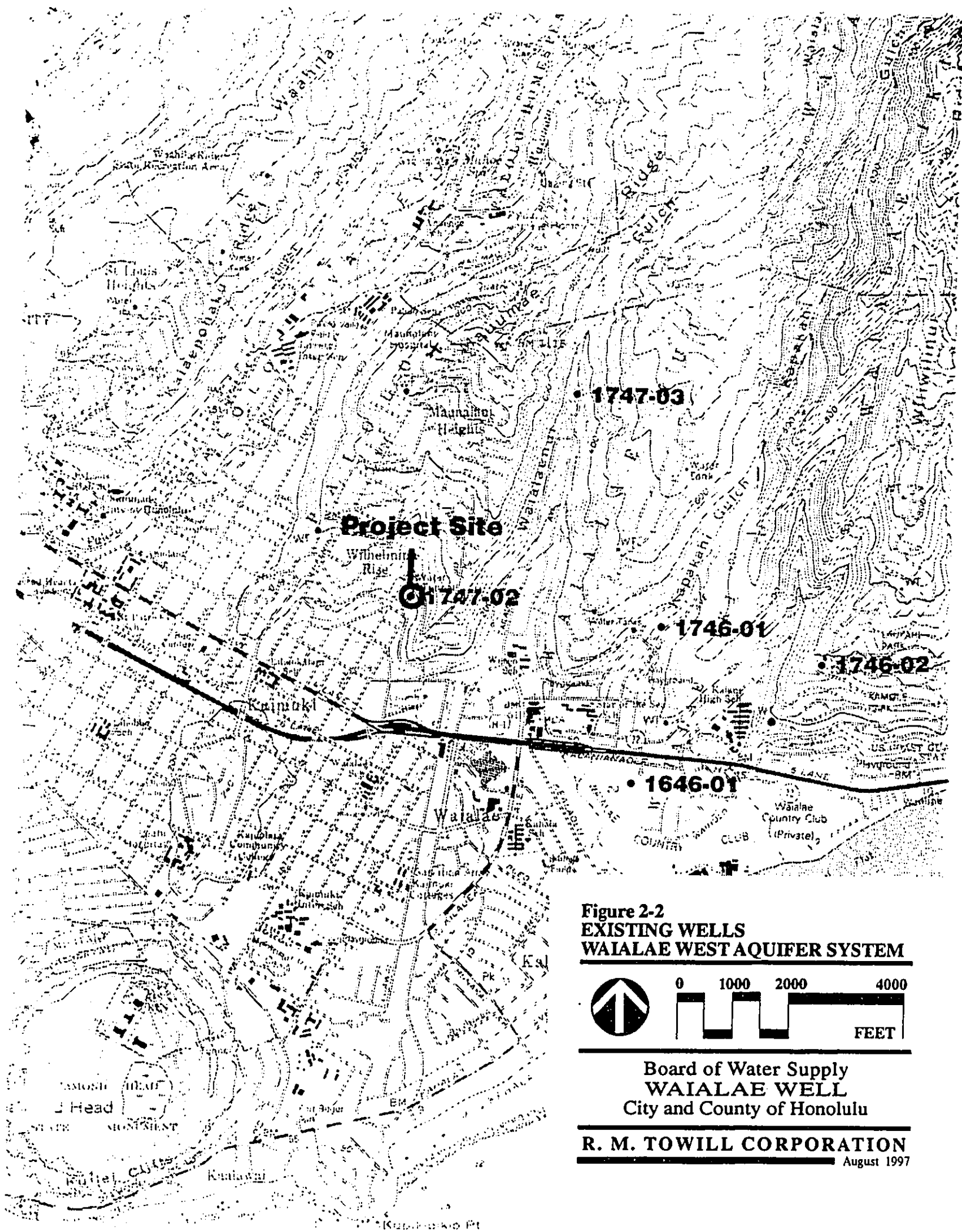
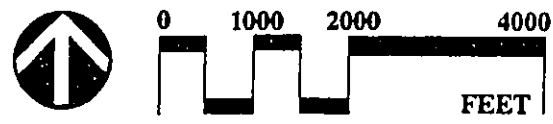


Figure 2-2
EXISTING WELLS
WAIALAE WEST AQUIFER SYSTEM



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 August 1997

for production of potable water, impacts to existing ground water resources are not anticipated.

Table 2-1
WAIALAE WEST AQUIFER SYSTEM

AQUIFER UNIT STATUS DATA
Sustainable Yield = 4 mgd
Equilibrium Head = N/A-no CWRM data available
Initial Head = N/A-no CWRM data available
CWRM Permitted Use = 2.987 mgd

	Well Number/ Well Name	CWRM Permitted Use (mgd)	Existing (E)		Planned (P)		Potential Future (E) + (P)	
			Pump Capacity (gpm)	Average Use (mgd)	Pump Capacity (gpm)	Average Use (mgd)	Pump Capacity (gpm)	Average Use (mgd)
Bishop Estate	1646-01 Waialae CC	0.460	600	0.319	N/A	N/A	600	0.319
BWS	1746-04 Waialae Nui Ridge	0.997	1,000	0.000	N/A	N/A	1,000	N/A
BWS	1746-01 Aina Koa	0.480	350	0.413	N/A	N/A	350	0.413
BWS	1746-02 Waialae Iki	0.190	350	0.161	N/A	N/A	350	0.161
BWS	1747-02 Waialae Shaft	0.160	0	0.000	400	0.160	400	0.160
DLNR	1747-03 Waialae Nui	0.700	N/A	N/A	N/A	N/A	N/A	N/A
TOTALS		2.987	2,300	0.893	N/A	N/A	2,700	1.053

Notes: gpm-gallons per minute; mgd-million gallons per day
Source: CWRM supplied data, current as of June, 1998.

2.6 EXISTING WATER SOURCES

According to Table 2-1 - Waialae West Aquifer System, there are six wells in the Waialae West System, including Waialae Shaft. One well is privately operated by Bishop Estate, one well owned by Department of Land and Natural Resources (DLNR) is undeveloped, and four wells are owned by BWS. Total permitted use is 2.987 mgd.

2.7 POTENTIAL FOR REALLOCATION OF CWRM PERMITTED USES

Conversion of the Waialae West Well to a production well will not require that CWRM allocate water use from the Waialae West Aquifer system unless additional water is requested. Currently, permitted uses for the Waialae West Aquifer do not exceed the CWRM estimate of sustainable yield.

Chapter 3
PROJECT DESCRIPTION

3.1 PROJECT LOCATION AND SITE CHARACTERISTICS

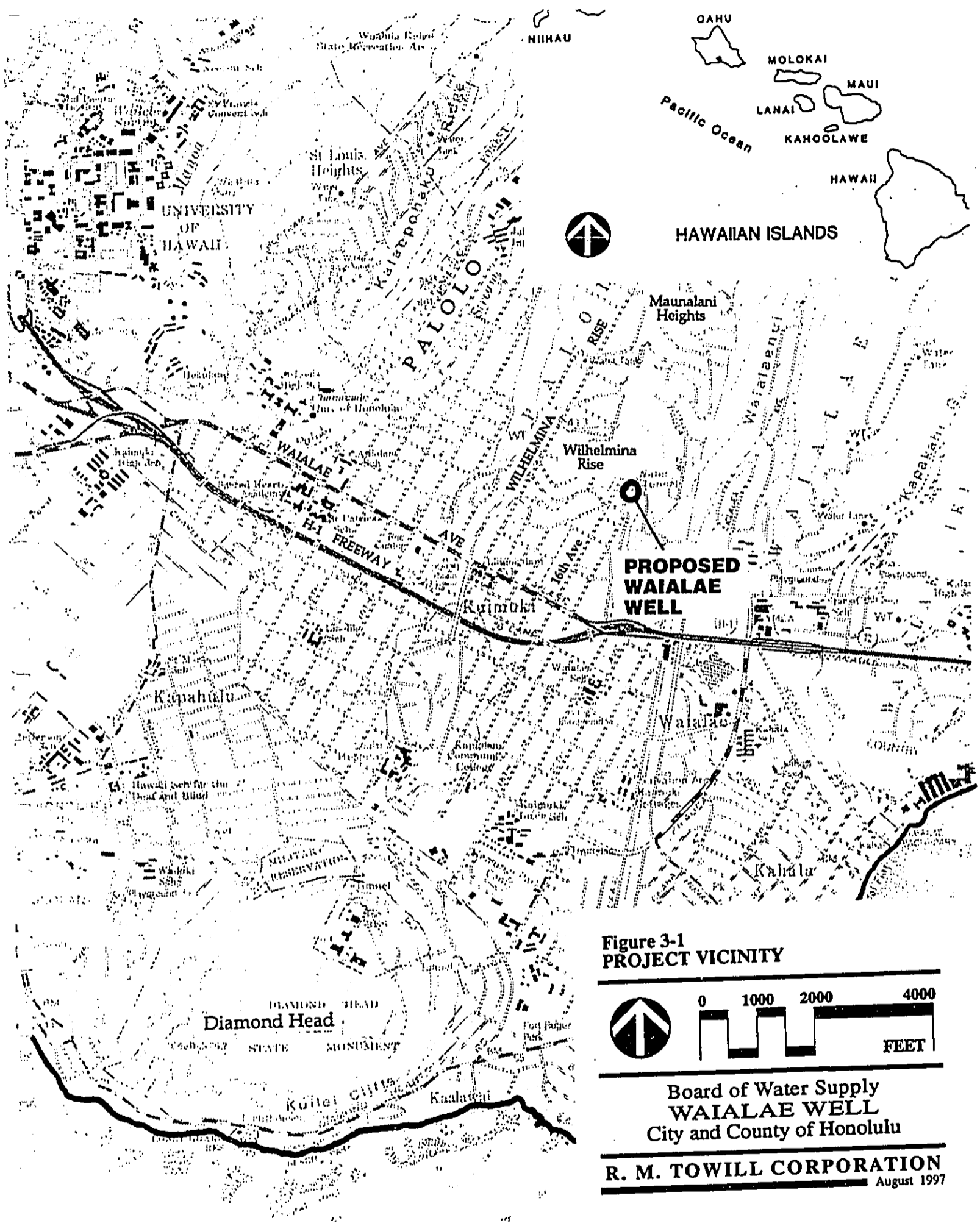
The proposed project site is located at TMK: 3-3-14:16, the site of existing BWS Waialae Shaft No. 1747-03, with a permitted use of .160 mgd. The site is located off Claudine Street, between 16th Avenue and Koko Drive, in Kaimuki, Honolulu (Figure 3-1 and Figure 3-2). The site comprises 56,304 square feet and adjoins the Ma'umae County Park at the corner of Claudine Street and 16th Avenue. The north end of the site contains a concrete and rock facade with locked doorway, that is the entry to the BWS shaft. The exploratory well is proposed to be drilled atop the existing sump of the shaft. Elevation of the site is approximately ± 200 feet above mean sea level (msl).

Access to the site is through Claudine Street via 16th Avenue which connects directly to Waialae Avenue approximately 0.5 miles south. Single family homes are located adjacent to the BWS site across Claudine Street on the makai side, and to the east, toward Koko Drive. Homes closest to the site are on Claudine Street, approximately +150 feet south from the proposed well site. The BWS site is paved with concrete and asphalt.

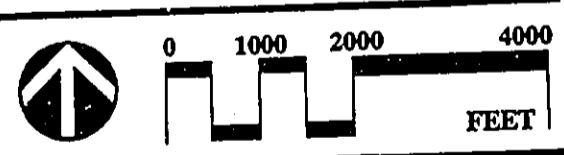
3.2 TECHNICAL CHARACTERISTICS

The proposed well will be a single bore located atop the existing Waialae Shaft No. 1747-04. Yield of the existing shaft is .160 mgd. The new well is proposed to increase this yield subject to results of the test pumping. Depth to the water table in the sump is anticipated to be 175 feet below msl (Figure 3-3).

Existing BWS wells surrounding the site include BWS 1746-01, Aina Koa; BWS 1746-02, Waialae Iki; and BWS 1747-04, Waialae Nui (Figure 2-2).



**Figure 3-1
PROJECT VICINITY**



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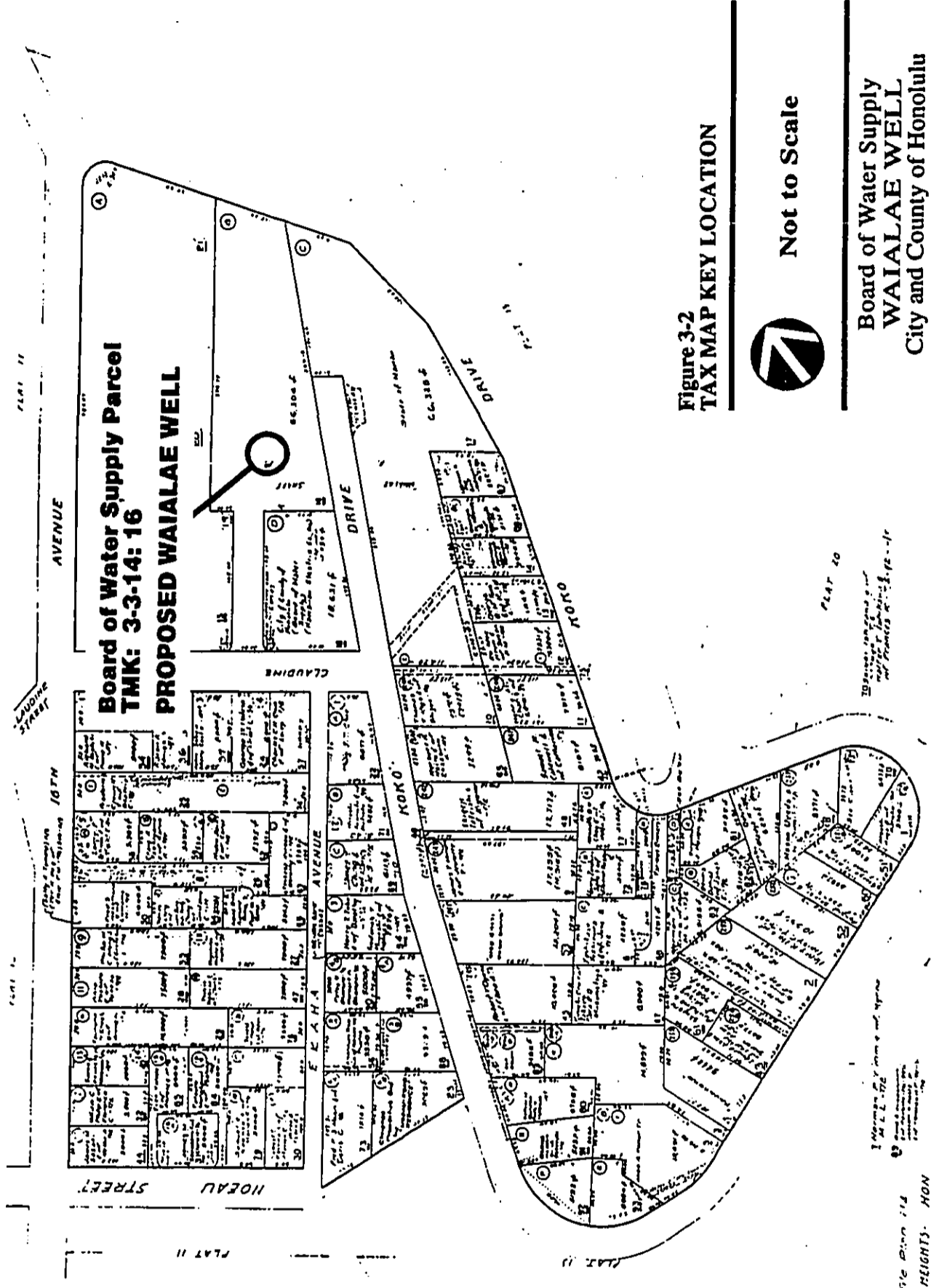


Figure 3-2
TAX MAP KEY LOCATION



Not to Scale

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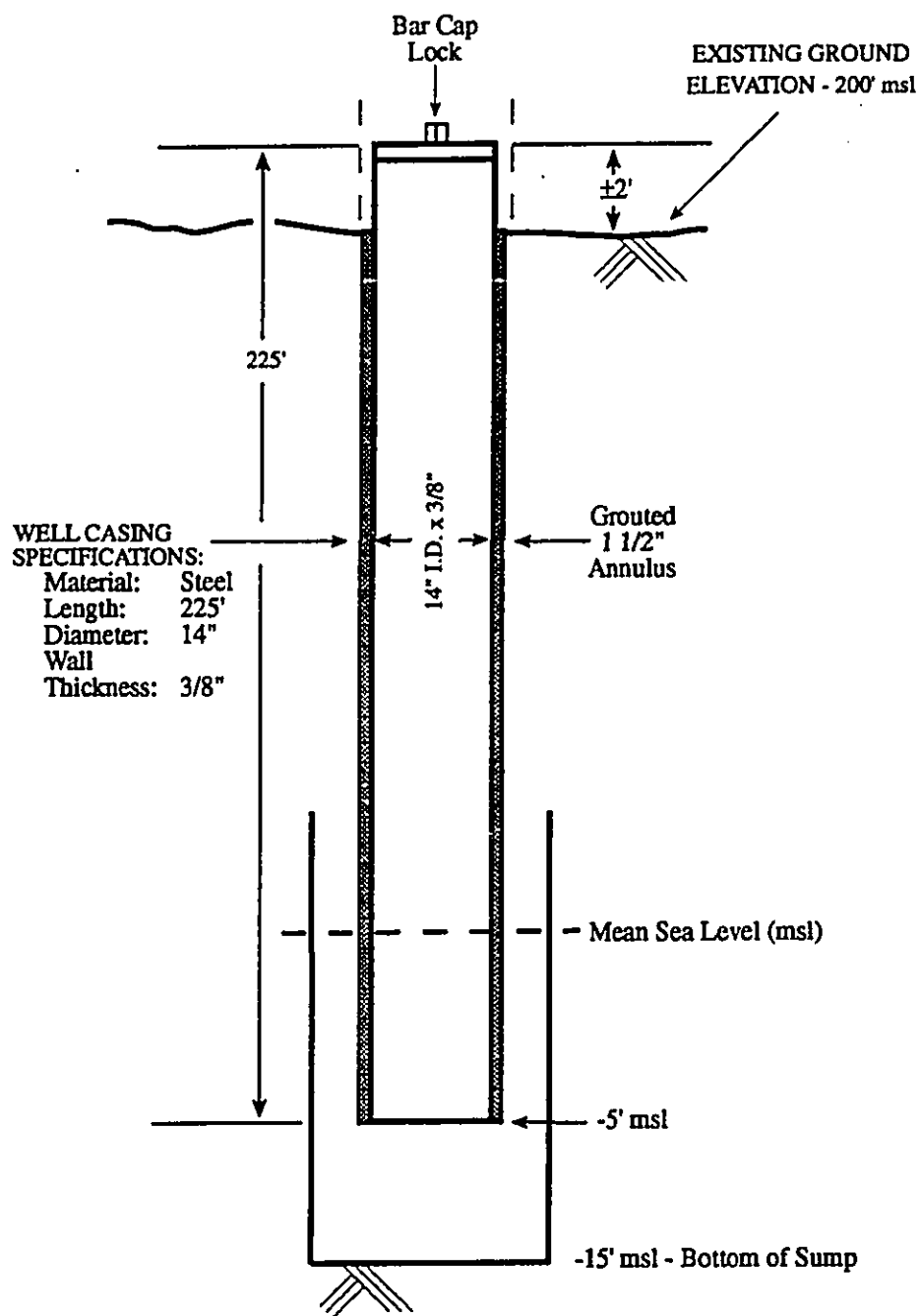
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See file 3-3-14
KAWAIA HEIGHTS. MON

PLAT 10

PLAT 11

PLAT 12



**Figure 3-3
TYPICAL WELL CROSS-SECTION**

Not to Scale

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Existing mineral analysis and water quality data have been collected for Waialae Shaft by BWS. The following is a summary of this data:

Table 3-1
MINERAL ANALYSIS FOR WAIALAE SHAFT

Date of Collection: October 24, 1975, 09:15 hours
Laboratory Analysis Number: 129,449

<u>PARAMETERS</u>	<u>Units as Stated</u>
Regional head, feet	8.670
Specific conductance microhos @ 25°C	668.000
pH value	7.750
Turbidity	0.000
Color	0.200
<i>CONSTITUENTS IN PARTS PER MILLION</i>	
Dissolved oxygen	8.400
Free carbon dioxide	0.750
Silica	46
Calcium	26
Magnesium	25
Sodium	68
Potassium	2.900
Bicarbonate	102
Sulfate	24
Chloride	146
Fluoride	0.050
Nitrate	6.200
Phosphate	0.200
Iron	<0.020
Magnesium	<0.020
Copper	<0.020
Lead	<0.020
Arsenic	<0.010
Selenium	<0.010
Chromium (Hexavalent only)	<0.010
Total dissolved solids	446
Alkalinity	84
Total hardness	168
<i>CONSTITUENTS IN EQUIVALENTS PER MILLION</i>	
Calcium (Ca)	1.297
Magnesium (Mg)	2.056
Sodium (Na)	2.971
Potassium (K)	0.074
Bicarbonate (HCO ₃)	1.672
Sulfate (SO ₄)	0.500
Chloride (Cl) (Includes fluoride & phosphate as PO ₄)	4.126
Nitrate (NO ₃)	0.100

More recent readings of water quality were taken by BWS on December 12, 1993:

<u>PARAMETERS</u>	<u>Units as Stated</u>
Alkalinity	86
Total Hardness	144
Chloride	132
pH value	7.700

3.3 CONSTRUCTION AND WELL TESTING

The proposed site work will involve set up and installation of the test drill, well pump, valves and fittings, and discharge pipes necessary for testing of the well. Modifications within the existing control building will be made to accommodate new equipment as needed.

A yield draw down test will be conducted after the test well is drilled, and a temporary electric or internal combustion pump and pipelines will be connected. Power for the pump will be through existing on-site electrical feeds. The yield draw down test will be performed at a rate of 150 to 350 gallons per minute. Following the yield draw down test, a long-term constant rate pumping test will be conducted for a period of three to five days at the rate determined from the yield draw down test. Water table draw down will be measured and the quality of the water will be tested for potable standards.

Discharges of well test water will be conveyed to the existing City and County of Honolulu, Storm Drainage System. A temporary 8-inch discharge pipe will be directed to the storm drainage system located at the entry of the BWS Waialae Shaft. The storm drain system feeds to Claudine Street and on to Waialae Avenue. From there various municipal feeds will direct the discharge to its terminus at the Pacific Ocean. BWS is permitted by the City and County of Honolulu, Department of Public Works, to dispose of potable discharges from well pumps into the City and County of Honolulu, storm drainage system. The permit is issued pursuant to Section 14-12.22, Revised Ordinances of Honolulu, 1990,

as amended. As required, an NPDES permit will also be sought should there be effluent discharges to waters of the State of Hawaii.

If the quantity, drawdown, and quality of the water is satisfactory, the well will be temporarily capped to prevent contamination of the water supply. A reallocation of CWRM permitted use will be obtained for the well and an amendment to the Development Plan Public Facilities Map will be completed showing the facility to be a "site determined, water well programmed for construction within 6 years." The well will then be converted to a production well and the water will be fed from on-site facilities to the BWS municipal system. Construction of on-site facilities will include installation of a permanent pump and appurtenances. As required, the existing control building will be modified to accept new equipment. Upon completion of work, the entrance to the inclined shaft will be sealed.

If the test pumping proves to be unsatisfactory, the well will be permanently sealed and capped. Regardless of test results, when the yield draw down and long-term constant rate pumping tests are completed, the temporary pumps, pipelines, and well test appurtenances will be removed from the site and all surplus excavation material and construction debris disposed of off-site in compliance with applicable State, and City and County regulations.

3.4 PROJECT SCHEDULE, COST, AND WORK FORCE

The construction and testing phase is expected to begin in the year 2000. Set-up, drilling, testing, and demobilization is expected to take a maximum of 6 months to complete. The capital cost for the entire project is estimated at ±\$200,000 and will be financed by BWS.

Drilling will be completed in about four months. Installation of the casings will require approximately one week and another two to three weeks will be needed to install the pumps and conduct the testing. An additional two weeks should be reserved for demobilization.

Chapter 4

ENVIRONMENTAL SETTING, POTENTIAL IMPACTS, AND MITIGATION

4.1 LAND USE AND OWNERSHIP

4.1.1 Existing Environment

The proposed project site is located at TMK: 3-3-14:16, on the existing BWS Waialae Shaft, No. 1747-03. The site occupies 56,304 square feet off of Claudine Street, between 16th Avenue and Koko Drive, in Kaimuki, Honolulu. The site is owned by BWS and adjoins the Ma'umae County Park at the corner of Claudine Street and 16th Avenue. The north end of the site contains a concrete and rock facade with locked doorway, that is the entry to the BWS shaft. The surrounding project area is primarily comprised of single family homes and the nearby Ma'umae County Park.

4.1.2 Project Impacts

Installation of the Waialae West Well will not change surrounding land uses or ownership patterns. The proposed project involves use of the site for an existing identified purpose - provision of potable water.

4.1.3 Mitigation Measures

No mitigation measures are proposed or required.

4.2 TOPOGRAPHY, CLIMATE, AND RAINFALL

4.2.1 Existing Environment

The well site is located inland and northeast of Diamond Head crater at an elevation of approximately ± 200 feet msl. The topography is characterized by slopes of 7 - 14 percent surrounding the site. Land surrounding the site has been extensively modified by residential development of single family homes.

The climate throughout Honolulu is characterized as warm and dry. Temperatures range from 74° F in March to 80° F in September with highs in the mid 90s. Tradewinds are prevalent throughout most of the year with higher frequency during the summer months. Annual rainfall at the project site ranges between 40 to 50 inches at 200 feet above msl. Rainfall above the project site in the upper reaches of the Koolau Mountain Range, however, can range up to 150 inches annually.

4.2.2 Project Impacts

Construction of the Waialae West Well will not have any impact on the topography, climate, rainfall, or existing water resources of the area.

4.2.3 Mitigation Measures

No mitigation measures are proposed or required.

4.3 GEOLOGY AND HYDROLOGY

4.3.1 Geology

The island of Oahu is the result of the growth of two elongated shield volcanoes that form the current Waianae and Koolau mountain ranges. The Koolau Range was formed after the Waianae Range and continued volcanic activity long after dormancy of the Waianae system.

The project site is located along the easternmost portion of the Koolau Range, above the volcanic cone, Diamond Head. The site and the adjoining coastline was formed from volcanic deposition, coral reefs, and alluvial sediments. The soil association at the project site is classified by the U.S. Soil Conservation Service as Lualualei-Fill and-Ewa Association which generally consists of well drained, fine textured and moderately fine textured soils on fans and in drainageways on the southern and western coastal plains of Oahu. The project soil type involves *Kawaihapai very stony clay loam* (K1bC), 0 to 15 percent slopes (Figure 4-1). This soil type is similar to *Kawaihapai clay loam*, 0 to 2 percent slopes,

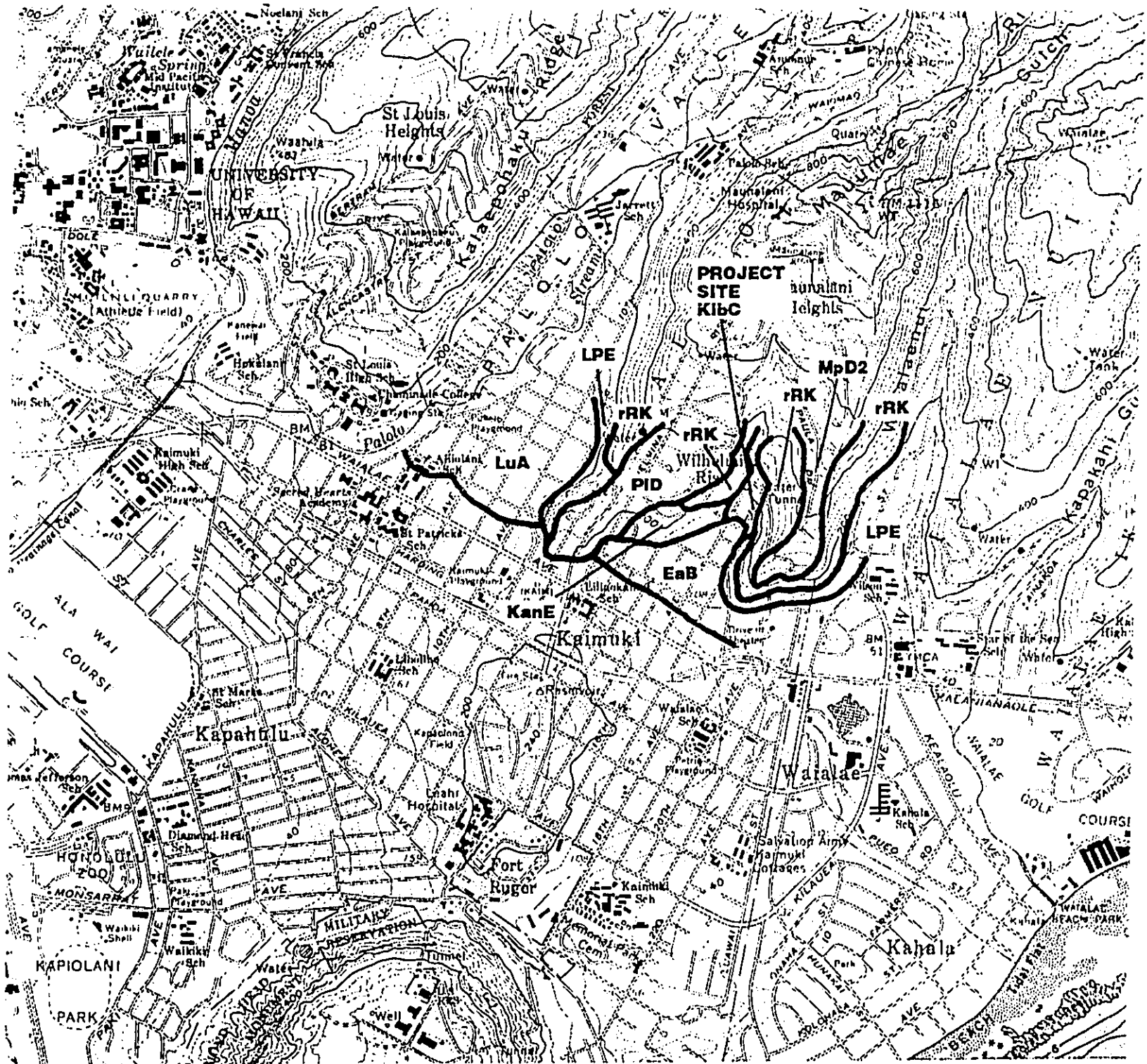
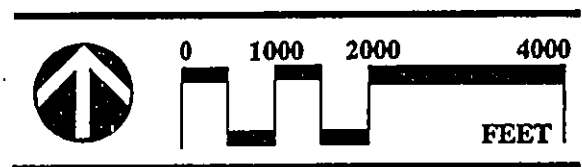


Figure 4-1
SOILS MAP



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except that it has enough stones to prevent cultivation. Runoff is medium and the erosion hazard is moderate. Workability is impractical unless the stones are removed. This soil is used for pasture. (U.S. Department of Agriculture, 1972).

4.3.2 Groundwater Hydrology

Oahu is divided by BWS into seven water use districts for administrative and planning purposes: Honolulu, Windward, Waialua-Kahuku, Wahiawa, Pearl Harbor, Ewa, and Waianae. The Honolulu water use district includes the coastal plain of southeastern Oahu upon which the City of Honolulu is located and stretches from Makapuu Point at its eastern extremity to the western boundary of the Moanalua drainage divide. Bounded on the north by the crest of the Koolau Range, the area comprises a total of 88 square miles. This area is coextensive with census tracts 1 through 72, the Honolulu Judicial District, and the Honolulu WMA (BWS, 1995).

The proposed Waialae West Well will be located within the Waialae West Aquifer system. The Waialae West Aquifer system provides the most common type of groundwater available on Oahu, consisting of a layer of infiltrated rainfall floating as a lens-shaped body over salt water. Fresh water floats on the heavier salt water, both of which permeate the subsurface rock. The density ratio between fresh water and salt water is such that theoretically, for each foot that the fresh water lens stands above sea level, the lens extends 40 feet below sea level to a midpoint where salinity is half sea water. A transition zone of mixture grades upward to fresh water and downward to sea water. The presence of the fresh water head is due to relatively impermeable caprock, located along the coastline, which retards outward flow to the ocean (BWS, 1995).

The CWRM estimated sustainable yield of the Waialae West aquifer is 4 mgd. Use permits issued by CWRM currently allow withdrawals of up to 2.987 mgd. As noted in Section 2.4 - Sustainable Yield and The Honolulu Water Management Area, although existing withdrawals from Waialae West do not yet exceed the sustainable yield, future withdrawal will be subject to review and permitting requirements of CWRM.

4.3.3 Surface Water Hydrology

No sources of surface water exist near the proposed project site. The closest intermittent surface sources include two concrete channelized conveyances: the Waialae Nui Flood Control Channel, approximately 0.5 miles east, located within Waialae Nui Gulch; and, the Palolo Stream Flood Control Channel, approximately 0.75 miles northwest. The Waialae Nui channel conveys storm flows from Waialae Nui Stream and the Palolo channel conveys storm flows from the upper reaches of Palolo Valley, from the confluence of Pukele Stream and Waio Mao Stream (Figure 4-2).

4.3.4 Project Impacts

No adverse impacts to geological formations underlying the drilling site or to the soils at the surface of the site are expected. Impacts to downstream ground water flows are expected to be insignificant due to existing use of the site for potable source water and development of the immediate surrounding area with impermeable surfaces including paved streets, building foundations, and concrete channelized drainageways located approximately 0.5 to 0.75 miles away. Surface waters will not be adversely affected by the proposed project due to their concrete channelization, intermittent status, and distance from the well site.

4.3.5 Mitigation Measures

Pursuant to Section 14-12.22 Revised Ordinances of Honolulu 1990, as amended, BWS is permitted to discharge effluent from pumping operations into the City and County storm sewer system. If needed, an NPDES Permit will also be sought should there be discharges to State waters. Safe practices will be employed in the disposal of all effluent. Discharged water will be tested, flow rates will be regulated, and the flow path, including all necessary piping, will be routed and monitored to prevent contamination of the discharge. Additionally, the use of a flexible hose to transmit discharged water will eliminate impacts caused by flushing debris.

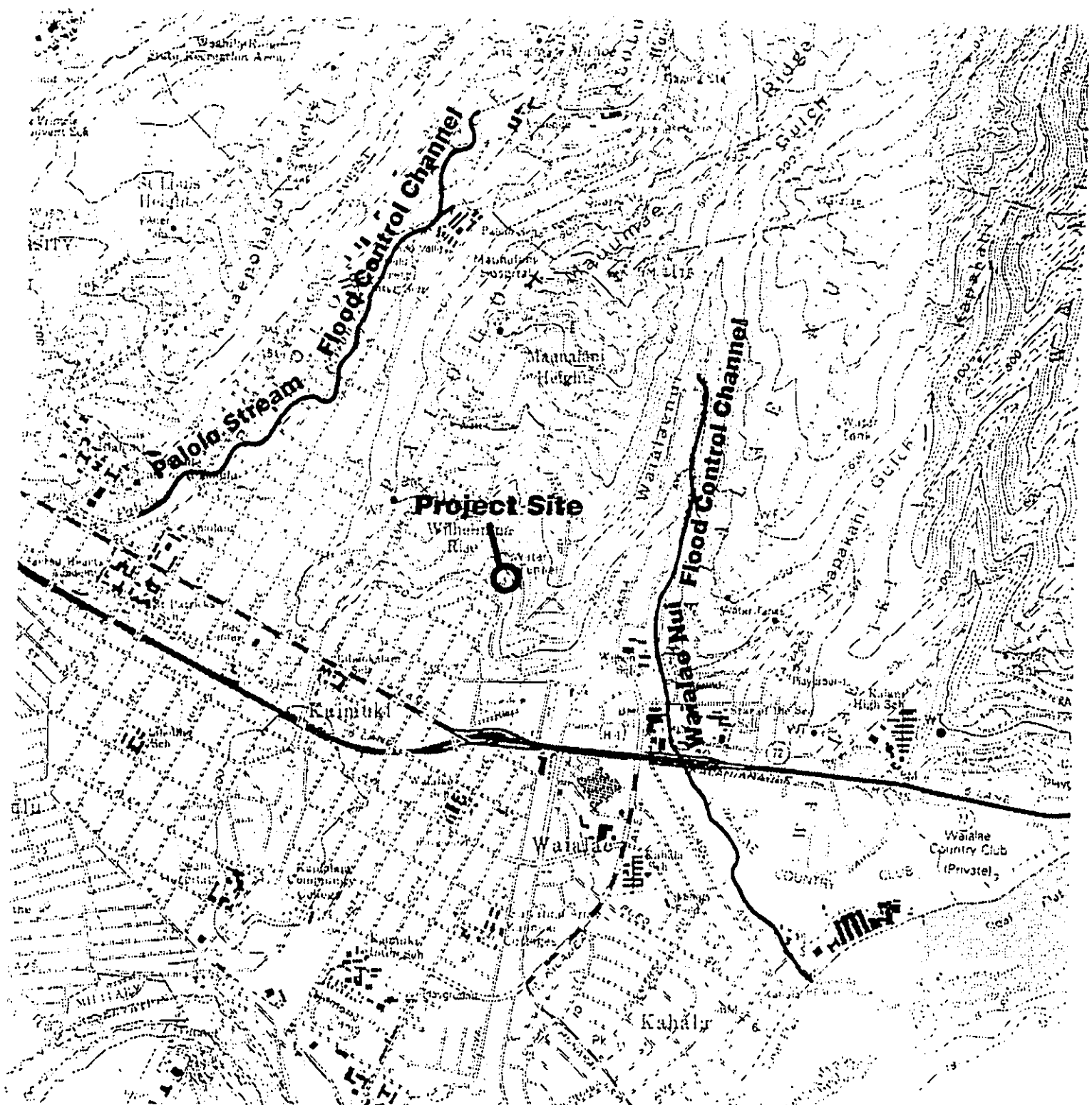
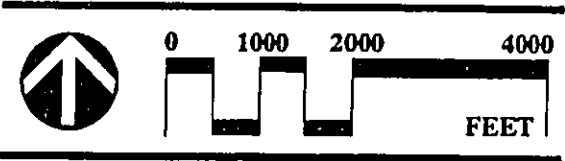


Figure 4-2
SURFACE HYDROLOGY



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If the test pumping results indicate that the quality or quantity of the water pumpage from the well is unsatisfactory, the well will be capped and sealed to prevent contamination of the underlying groundwater aquifers.

No monitoring of the nearby concrete channelized drainageways is required because the well operation will not affect flows. The streams are channelized, intermittent, and located +0.5 miles from the well. It is anticipated these conditions will prevent the streams from being affected by groundwater draw down or from being impacted by flushing debris or sedimentation associated with testing discharge.

4.4 NATURAL HAZARDS

4.4.1 Flood Zones

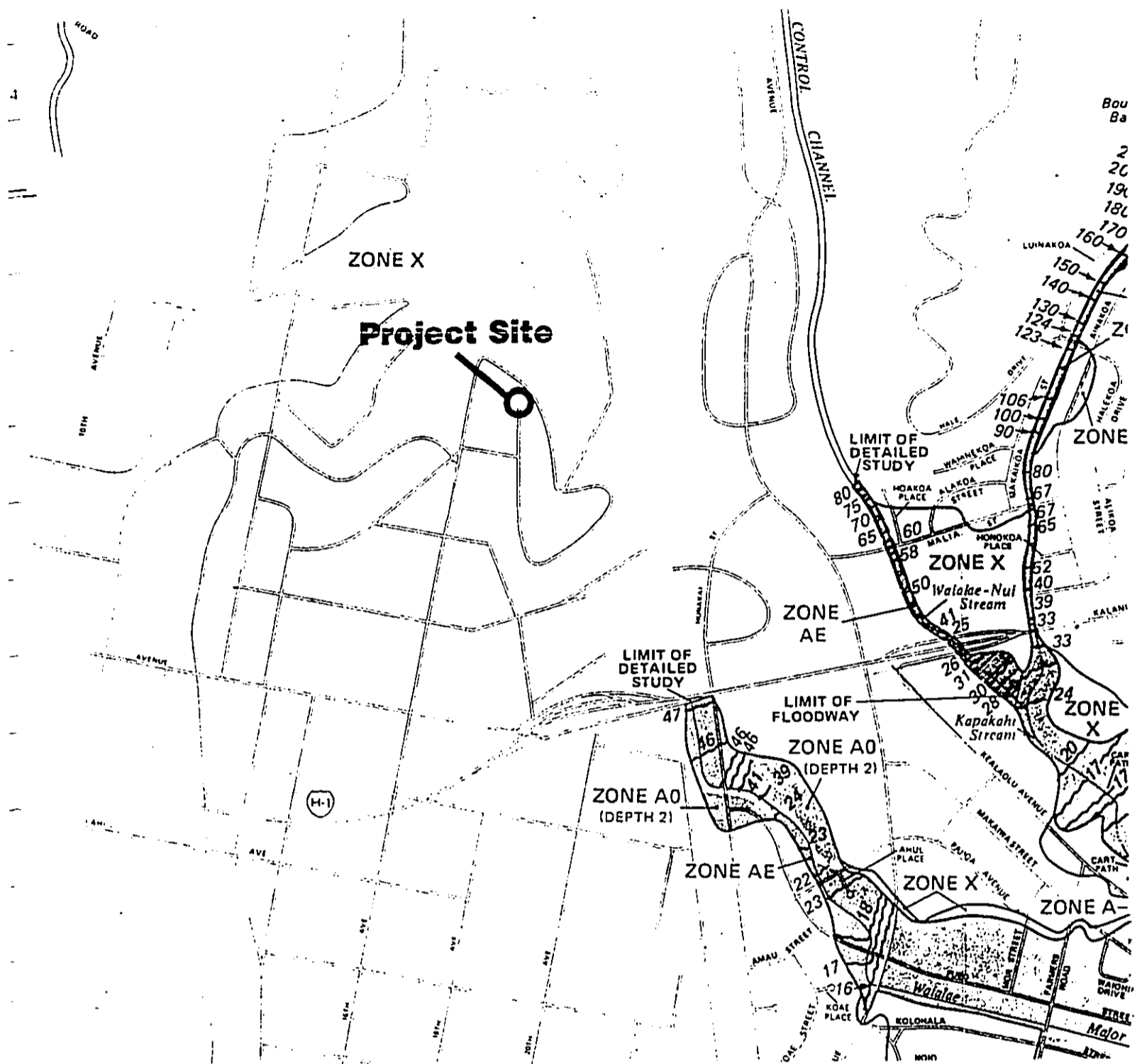
The Federal Emergency Management Agency Flood Insurance Rate Map (FIRM) of March 4, 1987, identifies the project site as lying within "Zone X", an area determined to be outside of the 500-year flood plain. This designation indicates the site is not subject to floods which would impact the design or location of the project. (National Flood Insurance Program, 1987) (Figure 4-3).

4.4.2 Seismic Activity

The Uniform Building Code (UBC) provides minimum design criteria to address potential for damages due to seismic disturbances. The UBC scale is rated from Seismic Zone 1 through Zone 4, with 1 the lowest level for potential seismic induced ground movement. Oahu has been designated within Seismic Zone 1. BWS, in the interest of public health and safety has adopted UBC Seismic Zone 3 standards for all its structures. All structures proposed for this project, therefore, will be built according to standards for UBC Seismic Zone 3.

4.4.3 Project Impacts

Flooding will not affect the proposed project. Additionally, because seismic risk at the project site is minimal the proposed project is not likely be affected by seismic activity.



**Figure 4-3
FEMA FIRM MAP**



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4.4.4 Mitigation Measures

All construction for this project will be in accordance with standards for Seismic Zone 3 to meet health and public safety requirements. No other mitigation measures are required or recommended.

4.5 DEMOGRAPHICS

4.5.1 Population and Housing

The Waialae exploratory well site is within City and County of Honolulu, Neighborhood Board Area No. 4 - Kaimuki (Figure 4-4). According to the 1990 U.S. Census, the population of this area is 18,425 persons comprising 6,216 households with an average household size of 2.9 persons. This represents approximately 2.2% of the total 1990 Oahu resident population of 836,231 persons (State of Hawaii Data Book, 1995).

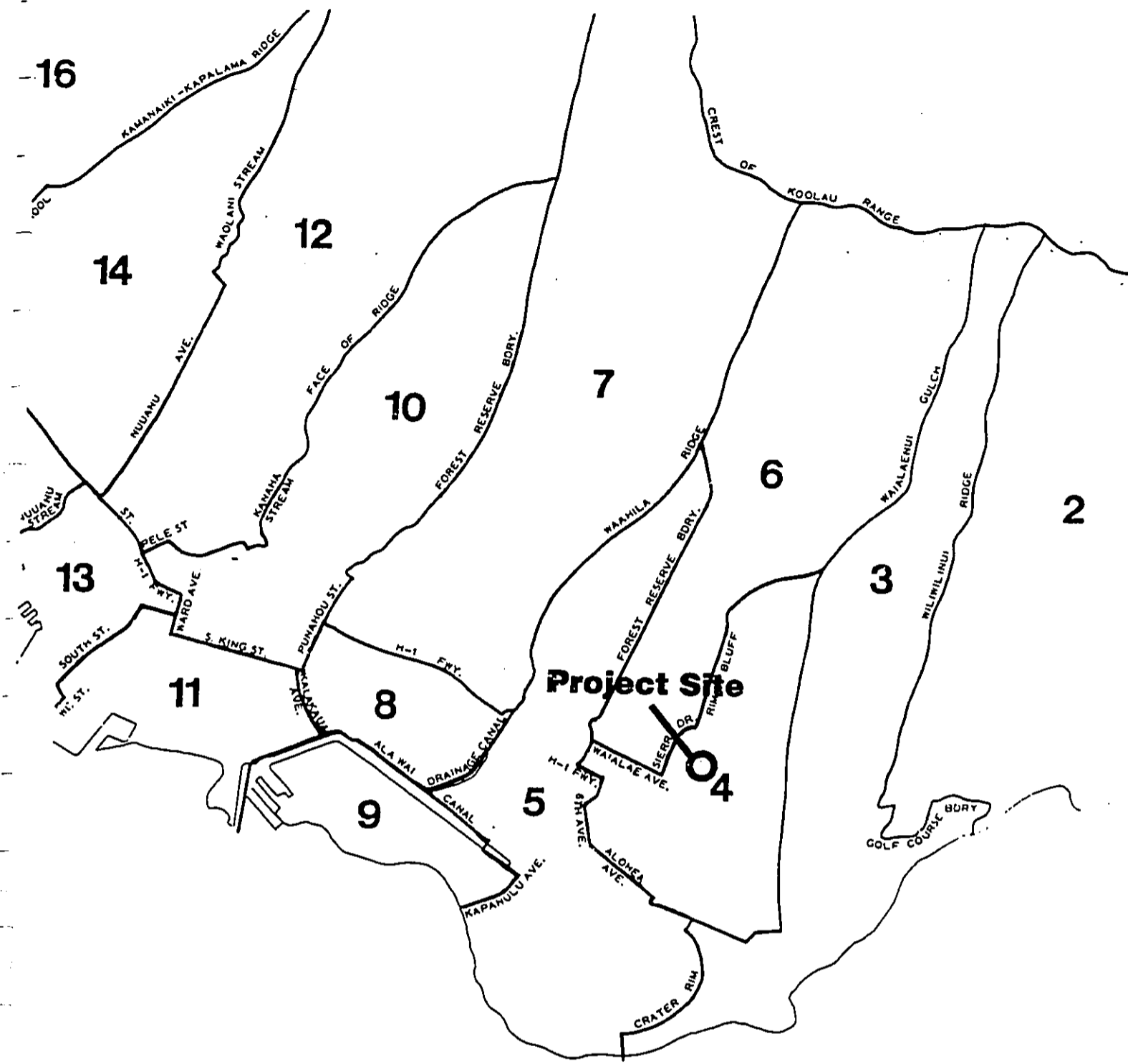
According to BWS projections for future population and water demand, the increase in islandwide population will result in a commensurate increase in demand for water. According to Table 4-1, the 1990 islandwide service population of 829,738 is projected to increase by the year 2010 to 1,019,838. The Honolulu Water District, which includes the areas served by the aquifer systems, Moanalua, Kalihi, Nuuanu, Palolo, Waialae West, and Waialae East, will also experience an increase in the 1990 service population of 439,705 to a 2010 service population of 494,843. The increase in Honolulu water use will be from the 1990 demand of 86.75 mgd, to a 2010 demand of 97.63 mgd.

4.5.2 Project Impacts

The proposed project is not anticipated to affect the existing population or housing of the area. However, additional water resources developed from this site would be utilized to support anticipated future population of the area.

4.5.3 Mitigation Measures

No mitigation measures are required or recommended.



**Figure 4-4
NEIGHBORHOOD BOARD
AREA NUMBER 4 - KAIMUKI**



Not to Scale

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City and County of Honolulu**

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Table 4-1
FUTURE POPULATION AND WATER DEMAND
HONOLULU WATER DISTRICT AND OAHU: 1990 - 2010

Year	BWS Service Population		Water Use (mgd)	
	Honolulu	Oahu	Honolulu	Oahu
1990	439,705	829,738	86.75	155.57
2010	494,843	1,019,838	97.63	193.43

Source: Oahu Water Plan, BWS, 1995, and BWS, 1997.

4.6 ROADWAYS AND TRAFFIC

4.6.1 Site Access

Primary access to the project site is from Claudine Street, under jurisdiction of the City and County of Honolulu. Claudine Street lies in a perpendicular or east-west orientation to the project site and can be access from the south by Ekaha Avenue, to the east from Koko Avenue, and to the west by 16th Avenue. Waialae Avenue, the main thoroughfare to the project site is approximately 0.5 miles to the south.

4.6.2 Project Impacts

The project will create a slight and temporary rise in heavy truck traffic. No significant or long-term impacts to Waialae Avenue, Claudine Street, Koko Avenue, 16th Avenue, or Ekaha Avenue are expected from this project.

4.6.3 Mitigation Measures

BWS will notify nearby residents and the Kaimuki Neighborhood Board before start of construction work. To minimize traffic impacts to residents, the contractor will schedule heavy truck activity between the hours of 8:30 am and 2:30 pm on weekdays and will suspend activity on weekends and State holidays. The contractor will also schedule heavy truck traffic to avoid using Ekaha Avenue and Koko Avenue as much as possible during the morning or afternoon peak periods.

4.7 VISUAL AND RECREATIONAL RESOURCES

4.7.1 Scenic Resources

The proposed project, when completed, will be of a pump housing installed at the existing Waialae Shaft. This location is expected to result in little to no visual impacts:

- The surrounding area is of residential housing and the nearby Ma'umae County Park which provides limited views toward Diamond Head, Waikiki, and the surrounding region. Existing views for neighboring residences and park users are not expected to be affected; and,
- Views toward the project site from Waialae Avenue, approximately 0.5 miles away are of the Maunalani Heights and Wilhelmina Rise hillside. When completed, the only modification to the site will involve installation of a well pump to augment the existing shaft located behind an existing concrete and rock facade.

4.7.2 Project Impacts

No impacts to visual or recreational resources will result from the work or operation of the Waialae West Well. The project site is separated from Waialae Avenue by a distance of 0.5 miles and no visual impacts are expected from that location.

The project site is easily observed from its location immediately next to the Ma'umae County Park and any work activities will be readily apparent to park users. The work involved will include excavation to clear a small area to accommodate work crews manning a drill rig and conducting well drawdown tests. These temporary activities, however, should not markedly detract from recreational uses:

- The site is already in use as the BWS Waialae Shaft. The temporary appearance of construction equipment and work crews should therefore not interrupt recreational activities;

- Work crews and vehicles required to transit the area and access the site would be parked at the BWS facility; and,
- Noise and air quality impacts on park users would be addressed by ensuring use of appropriate construction practices and mitigation measures discussed elsewhere in this Chapter.

4.7.3 Mitigation Measures

No further mitigation measures are required or recommended for the project. If the well becomes a permanent production well, the exterior design of the well site may be guided by the City to ensure appropriate theme, materials, color, and landscaping.

4.8 CULTURAL RESOURCES

4.8.1 Cultural Resources

The proposed well drilling site is within the BWS Waialae Shaft, an existing site that is owned by the Honolulu BWS. The 56,304 square foot site has been paved and fenced for several years. If any potential remains exist at the site, such remains would have been recovered or destroyed during development activities.

4.8.2 Project Impacts

No impacts are anticipated due to previous construction work necessary to develop the project site.

4.8.3 Mitigation Measures

There is always the possibility that previously unknown or unexpected subsurface cultural features, deposits, or burials may be encountered. To ensure that no subsurface cultural features will be destroyed during project construction, any site work within the project area will be monitored. In the unlikely event that archaeologically significant remains are encountered, work should cease in the immediate area and the DLNR, State Historic Preservation Division should be notified at (808) 587-0047 to determine significance and treatment of any findings.

4.9 BIOLOGICAL RESOURCES

4.9.1 Flora

BWS has utilized the proposed site for the Waialae Shaft since 1939. Native vegetation at the site has long since been replaced by paved asphalt, concrete, and chain link fencing. Within the fenced enclosure, the entry to the shaft contains a concrete and rock facade with locked doorway. There is little existing vegetation on-site, and most of the vegetation is found surrounding and above the project site. This includes introduced or alien species such as koa haole, Guinea grass, and kiawe.

4.9.2 Fauna

No threatened or endangered fauna have been known to inhabit the site. Introduced species such as House Sparrow (*Passer domesticus*), Spotted Dove (*Streptopelia chinensis*), Zebra or Barred Dove (*Geopelia striata*), and the Red-vented Bulbul (*Pycnonotus cafer*) have been observed at or immediately surrounding the project site. Mammals such as the Small Indian Mongoose (*Herpestes auropunctatus*), stray cats (*Felis catus*), and rodents including the Roof Rat (*Rattus rattus*) and Norway Rat (*Rattus norvegicus*) may also inhabit the surrounding area, although none were observed.

4.9.3 Project Impacts

The proposed project is not expected to significantly impact the flora and faunal resources of the site. Project activities may temporarily alter the local distribution and abundance of birds presently using the site, but will not impact the overall abundance of these species on Oahu. There are no reasons to impose restrictions, conditions, or impediments to the proposed project based on conditions of natural biological resources at the site.

4.9.4 Mitigation Measures

No mitigation measures are proposed or required for flora or faunal resources.

4.10 AIR QUALITY

4.10.1 Air Quality

Air quality on Oahu is generally good due to regular presence of tradewinds. The proposed project location is exposed to northeast trades and located approximately 0.5 miles from the regularly travelled Waialae Avenue corridor. The project site, adjacent to Claudine Street and Ma'umae County Park, may be exposed to vehicular exhausts during the peak morning and afternoon traffic periods. However, the regular influence of tradewinds should minimize any potential for concentrated vehicular exhaust levels.

4.10.2 Project Impacts

Air quality is not expected to be adversely affected by the proposed project. Clearing and grading will involve use of heavy construction equipment which may also generate fugitive dust.

4.10.3 Mitigation Measures

During development of the well the construction contractor will be required to comply with State Department of Health regulations governing air quality (HAR, Title 11, Chapter 59 and 60, Air Pollution Control). This will include proper maintenance of internal combustion equipment and related use and storage of all petroleum, oils, and lubricants.

Clearing and grading will involve use of heavy construction equipment which may also generate fugitive dust. The contractor will control dust by use of screens, regular watering for dust control, or by other means as required. It is anticipated that given the small scope of the proposed project that impacts due to dust and vehicular exhausts will be minor and of short duration.

4.11 NOISE

4.11.1 Noise

Regulation of noise in residential areas of Oahu are governed by the State Department of Health, HAR, Title 11, Chapter 53, Noise. Allowable day and nighttime noise standards for sensitive receptors have been established for residential, preservation, hotel, apartment, and business districts. Existing noise levels at the site are relatively low due to the existing residential zoning of the site. The maximum allowable day and night noise levels in the R-5 zoning district are as follows:

<u>Time</u>	<u>Allowable Levels</u>
7:00 am to 10:00 pm	55 dBA
10:00 pm to 7:00 am	45 dBA

4.11.2 Project Impacts

Noise will be generated by construction during clearing, grading, bulldozing, and installation of well equipment. Additional noise levels may be generated by vehicular travel along the adjoining streets Claudine Street, Koko Avenue, and 16th Avenue during the early morning and afternoon rush hours. These impacts, however, are expected to be relatively minor and only of short duration.

4.11.3 Mitigation Measures

Mitigation measures to address noise impacts include use of construction equipment appropriate to the residential surroundings of the area, e.g., no heavy field equipment larger than necessary; use of mufflers on construction vehicles; maintaining all equipment in good working order; and, limiting construction to weekdays during daylight hours between 7:30 am and 3:30 pm as required by BWS. No work shall be scheduled on weekends or on federal or state holidays.

Pump and drilling equipment will be regulated for noise by DOH. Drills and surface pumps will be fitted with sound attenuation devices including, but not limited to, mutes or structural enclosures. Subsurface pumps will be similarly treated to reduce noise levels to below the regulatory limit.

4.12 CONTAMINATION SOURCES

4.12.1 Known Contamination

According to CWRM's *Water Quality Plan* (1990), minute traces of Trichloroethylene (PCE), a substance used in solvents and dry cleaning agents, were detected in drinking water sources in the Honolulu WMA (Figure 4-5). However, the amount detected, 0.03 parts per billion (ppb), is considerably lower than safe drinking water standards for this substance, 5.00 ppb, and is not considered significant. No other substances were reported in the Honolulu WMA.

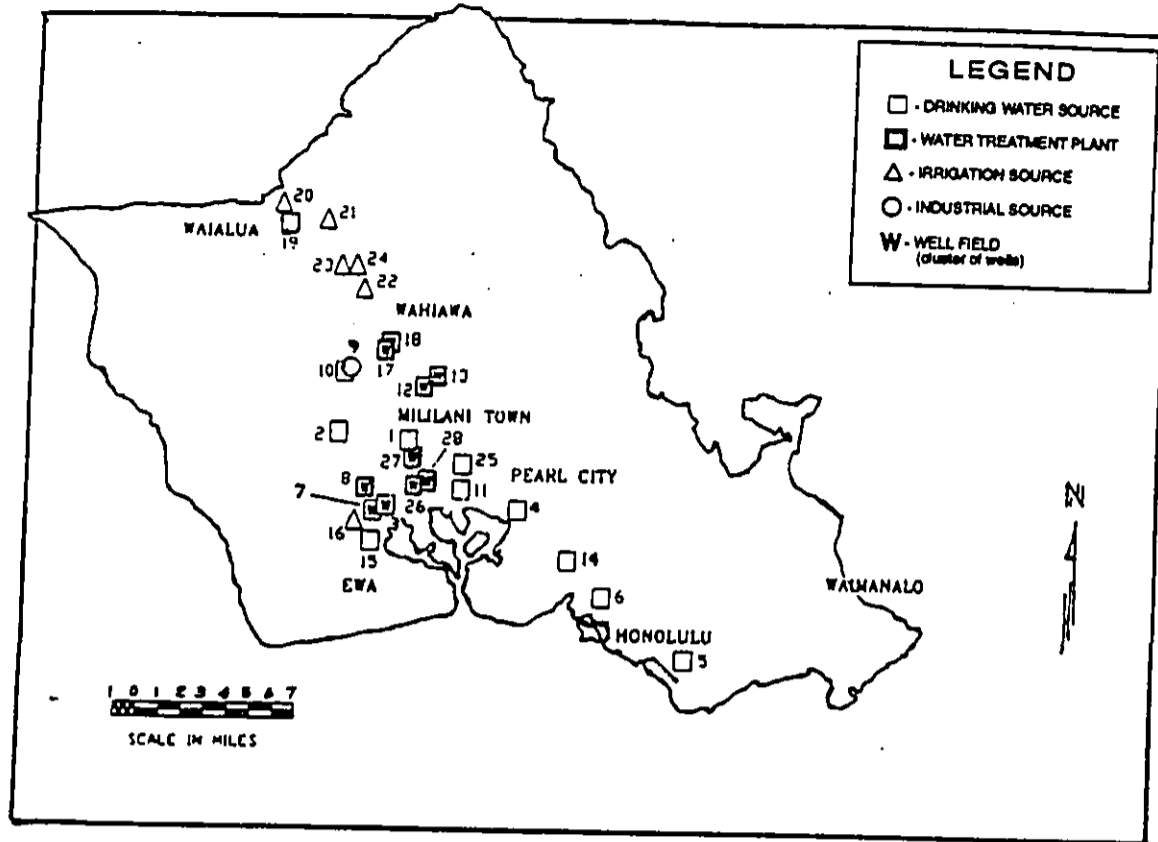
A search of the Department of Health, Underground Storage Tank Leak Log found no reported leakage incidents near the project that would negatively impact groundwater quality.

4.12.2 Potential Sources of Contamination

The proposed project site is located on the existing BWS Waialae Shaft site. Although no sources of contamination are known to be present, the project site is located downslope of residences along Wilhelmina Rise and Maunalani Heights. It is therefore possible that small amounts of contaminants from fuel, oil, solvents, cleaning agents, or other substances may be present in the soil in localized areas. Testing for potential contaminants will be a normal part of the proposed well testing.

The Waialae West Aquifer has had no known contamination problems, however, infiltrating sea water represents an ever-present threat to Oahu's fresh-water basal aquifers. The aquifer becomes particularly vulnerable to salt-water intrusion when the well is pumped excessively, producing the upconing of salt-water. Should the height of the basal head be permanently reduced, based on the relative densities of fresh and salt water, for every foot of fresh water lost, the midpoint of the basal lens should rise forty feet. (BWS, 1997).

GROUNDWATER CONTAMINATION ON THE ISLAND OF OAHU



THIS MAP CONTAINS THE LAST CONFIRMED RESULTS FROM CONTAMINATED GROUNDWATER WELLS

NO.	CONTAMINANT	DETECTED LEVEL (in ppb)	APPLICABLE DRINKING WATER STANDARDS (in ppb)	
			Level	Standard
1	TCE:	0.70	5.0	MCL
2	DBCP:	0.01	0.040	LTG
	PCE:	0.22	5.0	PMCL
3	Atrazine:	0.114	3.0	LHA
	TCP:	0.20	0.800	LTG
4	PCE:	0.03	5.0	PMCL
5	PCE:	0.03	5.0	PMCL
6	Dieldrin:	0.008	0.002	10(-6)
7	Atrazine:	0.083	3.0	LHA
	TCP:	0.65	0.500	LTG
8	DBCP: influent	0.02	0.04	LTG
	TCP: influent	<0.02		
9	PCE: influent	0.65	5.0	PMCL
	TCE: influent	<0.20		
10	Carbon Tetrachloride:	0.69	5.0	MCL
	DCE:	0.20	70.0	LHA
	TCE:	0.81	5.0	MCL
	PCE:	2.60	5.0	PMCL
11	PCE:	0.03	5.0	PMCL
12	DBCP: influent	0.07	0.040	LTG
	DCP: influent	<0.02		
	TCP: influent	2.64		
	TCP: effluent	---		
13	DBCP: influent	1.50	0.6	10(-6)
	DCP: influent	<0.20		
13	DBCP: influent	0.07	0.040	LTG
	DCP: influent	<0.02		
	TCP: influent	0.74		
	TCP: effluent	---		
13	DBCP: influent	1.50	0.6	10(-6)
	TCP: influent	<0.20		
13	DBCP: effluent	0.07	0.800	LTG
	TCP: effluent	<0.20		

**Figure 4-5
GROUND WATER CONTAMINATION**

SOURCE: Water Quality Plan, Hawaii Water Plan. Commission on Water Resource Management, State of Hawaii, June 1990

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

R. M. TOWILL CORPORATION

August 1997

4.12.3 Project Impacts

The proposed project is not expected to result in contamination of the BWS municipal water system. Likewise, project operations, including drilling, heavy equipment use and vehicle use, is not expected to contaminate the site grounds.

4.12.4 Mitigation Measures

All water pumped from the Waialae West Well will be tested for potable quality. If the water does not meet standards for potable quality according to HAR, Section 11-20-29, the well shaft will be sealed and capped. If the well is converted to permanent production, water quality standards will be maintained through regular monitoring. If, contaminants are detected at levels exceeding safe drinking water standards, a treatment or filtration system may be employed, as necessary, to purify the water to potable quality.

Chapter 5
RELATIONSHIP TO LAND USE DESIGNATIONS AND CONTROLS

5.1 HAWAII STATE PLAN

The Hawaii State Plan, Chapter 226, Hawaii Revised Statutes (HRS), serves as a written guide for the future long range development of the State. The Plan identifies goals, objectives, policies, and priorities for the State.

The proposed project would be in conformance to the State Plan objectives and policies for facility systems - in general,

“(a) Planning for the State’s facility systems in general shall be directed towards achievement of the objective of water, transportation, waste disposal, and energy and telecommunication systems that support statewide social, economic, and physical objectives.”

“(b) To achieve the general facility systems objective, it shall be the policy of this State to: (1) Accommodate the needs of Hawaii’s people through coordination of facility systems and capital improvement priorities in consonance with state and county plans.” and “(3) Ensure that required facility systems can be supported within resource capacities and at reasonable cost to the user” (HRS, Section 226-14).

The project would also conform to HRS, Section 226-16, water,

“(a) Planning for the State’s facility systems with regard to water shall be directed towards achievement of the objective of the provision of water to adequately accommodate domestic, agricultural, commercial, industrial, recreational, and other needs within resource capacities” (HRS, Section 226-16).

5.2 STATE LAND USE LAW

The property is designated within the State Urban District. Uses proposed under the development would be consistent with objectives and policies of the State Land Use Law, Chapter 205, Hawaii Revised Statutes.

The State Urban District permits the development of infrastructure necessary to the maintenance of health and basic human welfare.

5.3 CITY AND COUNTY OF HONOLULU LAND USE DESIGNATIONS AND CONTROLS

According to the City and County of Honolulu, Development Plan Public Facilities Map, the subject parcel is designated P-2, General Preservation District on the City's Zoning Map (Figure 5-1). Surrounding land use is R-5, Residential. The public facility use of the site is consistent with the City Land Use Ordinance (LUO) which identifies the project as a Utility Installation, Type A, which is a permitted use in the P-2 zoning district. According to the LUO:

"Type A utility installations are those with minor impact on adjacent land uses and typically include: 46 kilovolt transmission substations, vaults, water wells and tanks and distribution equipment, sewage pump stations, and other similar uses" (Land Use Ordinance, City and County of Honolulu, April 1995).

According to the Planning Department, City and County of Honolulu, the construction of the well is considered minor and is not required to be shown on the Development Plan Public Facilities Map.

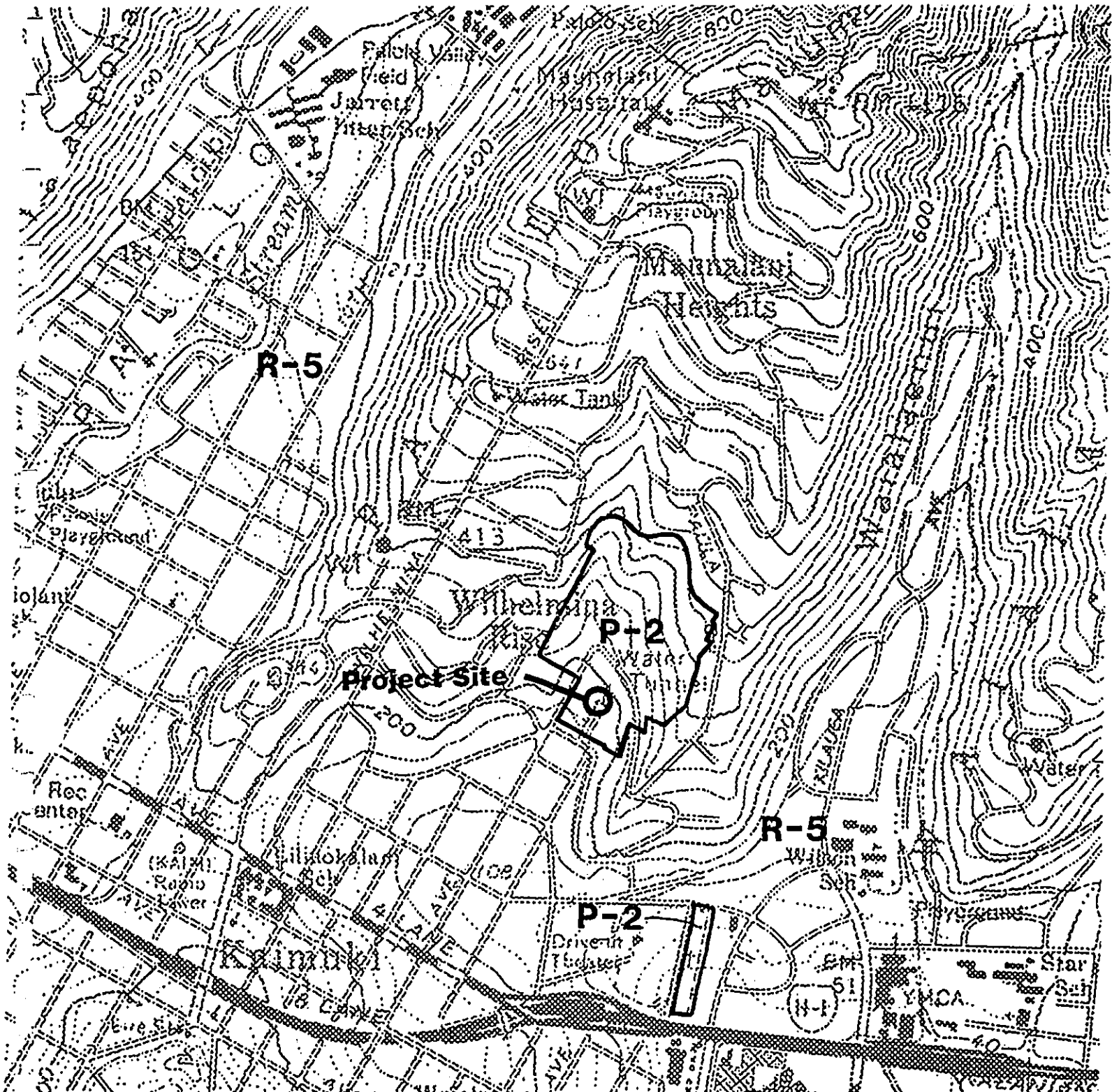


Figure 5-1
PROJECT ZONING



Not to Scale

Board of Water Supply
WAIALAE WELL
City and County of Honolulu

R. M. TOWILL CORPORATION

August 1997

A Development Plan Public Facilities Map Amendment, however, will need to be filed upon BWS conversion of the well to production status. This amendment will require an application to the City and County of Honolulu, Department of Planning with approval by the Honolulu City Council.

Chapter 6
ALTERNATIVES TO THE PROPOSED ACTION

6.1 NO ACTION ALTERNATIVE

BWS has a legal requirement to provide potable water to the residents of the City and County of Honolulu. The proposed project would help to meet this requirement while the no action alternative would prevent BWS from doing so. The no action alternative:

- does not address the mandate of BWS to develop safe potable water resources for the residents of the City and County of Honolulu; and,
- would result in the lost opportunity to increase Oahu's existing potable resources. The further development of water resources below the Waialae Shaft would maximize available potable resources for all Oahu residents.

6.2 DELAYED ACTION

Development of the proposed site at a later date was not considered to be viable. BWS has programmed development of the Waialae West Well as part of its overall strategy for ensuring availability of potable resources. The delayed action alternative:

- would delay the BWS implementation schedule and result in little to no change in the potential environmental impact of the project;
- would result in higher future costs due to inflation; and,
- increase the risk that population growth will generate water demands in excess of available, developed supplies.

6.3 ALTERNATIVE SITES

BWS reviewed a minimum of 8 potential sites, not including the proposed site, for development of new potable wells in the Waialae Subarea (BWS, 1984). These sites include:

<u>Site Number</u>	<u>Project Title</u>
1	Kuliouou Well
2	Kupaua Well
3	Pia Well
4	Wailupe Well I
5	Wailupe Well II
6	Kalani Iki Well
7	Kapakahi Well
8	Waialae Nui Well

The above sites, with the exception of Waialae Nui which has not yet been developed, are intended as opportunities for new groundwater resources and are not considered alternatives to the BWS development program.

The Waialae West Well is one of several future proposed wells which are part of the BWS program for supply development. Although BWS has identified additional locations for possible new wells, the Waialae Well site was determined to be the most viable location for development at this time. As required, other future proposed wells will be developed for the Honolulu Sector as needed.

6.4 ALTERNATIVE SOURCES

Alternatives to potable groundwater were analyzed in the *Oahu Water Plan* (BWS, 1995). The alternatives investigated include desalination, surface and brackish groundwater development, recycling of treated wastewater and conservation of existing resources.

All alternatives, with the exception of conservation, shared high development costs, major technological challenges, and in the case of wastewater reuse, problems associated with social acceptance. Desalination and treatment of brackish, surface water, and reuse of

effluent wastewater requires high cost water treatment plants. Use of alternative sources are also not without potential for environmental problems. Unrestrained removal of water from an underlying aquifer can compromise potable water by expansion of the transition zone and shrinkage of the basal lens. Development of surface water is also constrained due to need to construct major new infrastructure to collect, treat, and transmit surface sources. Use of surface sources could also reduce habitat for native and indigenous species. Wastewater reuse, while costly, has the added difficulty of gaining public acceptance. Desalination plants show some promise as new technology becomes available. Major benefits include a virtually limitless resource base, the Pacific Ocean, while a significant impediment continues to be high development costs. According to BWS,

Desalination: Desalination will be implemented as groundwater withdrawals approach sustainable yields. A site and technology study is currently under way. While the capital cost of a large scale desalination plant per gallon is equivalent to groundwater development in rural areas, the O&M costs at \$3.00 per thousand gallons is 10 times the cost of pumping groundwater. O&M cost directly affects water rates, which we are trying to keep as low as possible.

Surface Water: A 1996 Surface Water Study indicated that surface water development for potable use was not feasible, given the small, variable flows, environmental impact and the intense regulatory process involved with the instream flow standards and the monitoring requirements of the Safe Drinking Water Act.

Reclamation: The reuse of sewage effluent is a promising alternative resource that is being actively pursued by the City to replace potable use for irrigation and industrial process water and to relieve the development pressure for high quality groundwater supplies. Public health concerns and high costs for dual water system infrastructure limit the extent of reuse. The city is focussing on the Ewa Plains where dual water systems can be master planned in new developments rather than the more costly alternative to redevelop existing urban areas with dual systems.

Additionally, the Honouliuli Wastewater Treatment plant effluent has chloride content very suitable for irrigation. Whereas the Sand Island plant chloride content is much too high for irrigation use." (BWS, 1997).

Conservation is also emphasized by BWS, with a stated goal of 10 percent reduction in per capita consumption by the year 2000. Conservation efforts include use of public information programs on the limitation of Oahu's resources and benefits of conservation, use of low flow home and commercial water fixtures, use of xeriscaping, maintenance of home plumbing fixtures (e.g., repair of leaking faucets and hoses), and periodic adjustment of water rate structures.

Although not now feasible, alternatives to potable groundwater will grow in importance as existing aquifer resources approach the limits of their sustainable yield. It is possible that one day, technology improvements will permit development of these alternatives to supplement Oahu's potable groundwater resources. In so doing, alternative source development will help to protect and preserve the future of Oahu's potable aquifer resources.

Conservation efforts will continue to play a key role in helping to reduce demand on existing groundwater supplies. Conservation alone, however, cannot be relied upon to meet all of Oahu's future water demands. 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.

6.5 RECOMMENDED ACTION

The recommended action is to proceed with development of the proposed project at Waialae, Honolulu, Oahu. The proposed project is part of the BWS program for source development and has been carefully considered to meet the future water needs of the City and County of Honolulu.

Chapter 7

**RELATIONSHIP BETWEEN LOCAL SHORT-TERM USES OF
THE ENVIRONMENT AND THE MAINTENANCE AND ENHANCEMENT OF LONG-
TERM PRODUCTIVITY**

Development of the proposed project will commit the necessary construction and human effort, and fiscal resources. Use of these resources will benefit residents and visitors to the City and County of Honolulu by ensuring safe and clean potable water.

Long-term gains resulting from the proposed project include the long term use and benefits accruing from of this resource. The proposed project, therefore, will enhance economic productivity by making possible future development.

Chapter 8
**IRREVERSIBLE AND IRRETRIEVABLE COMMITMENT OF RESOURCES BY
THE PROPOSED ACTION**

Development of the proposed project will involve the irretrievable loss of certain environmental and fiscal resources. However, the costs associated with the use of these resources should be evaluated in light of recurring benefits to the residents of Honolulu.

It is anticipated that the construction of the proposed project will commit the necessary construction materials and human resources (in the form of planning, engineering, construction and labor). Reuse for much of these resources is not practicable. Although labor is compensated during the various stages of development, labor expended for project development is non-retrievable.

Chapter 9
NECESSARY PERMITS AND APPROVALS

9.1 DEPARTMENT OF HEALTH

A National Pollutant Discharge Elimination System (NPDES) permit from the State Department of Health, Clean Water Branch, will be required if there are any discharges of effluent into State waters through use of the county storm sewer system.

Development of the well will also require filing of a Noise Permit from the State Department of Health, Noise and Radiation Branch. No other DOH permits for this initial phase are expected. However, development of the well to production status will require authorization for connection to a public water system (Public Health Regulations, Chapter 20, Title II, Potable Water Systems).

**9.2 DEPARTMENT OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCES MANAGEMENT (CWRM)**

The Commission on Water Resource Management (CWRM) will require Well Construction and Pump Installation permits. Both permits will be for work including the pump test. Once the test phase is completed the production well will require a permanent Pump Installation Permit and Water Use Permit.

- The permanent Pump Installation Permit would be required if a change in pumps is needed (e.g., change in drawdown capacity or type, surface or submersible) during conversion to production status. If a change in pumps is not needed, this permit would not apply.
- The Water Use Permit would need to be reviewed to demonstrate there is sufficient available capacity within the Waialae West Aquifer to support the well. Both permits will need to be filed and approved by CWRM.

9.3 CITY AND COUNTY OF HONOLULU

Work during the well testing phase is considered minor and is not required to be shown on the City and County of Honolulu's Development Plan Public Facilities Map. In this case, the well is a replacement of the pumping system in the Waialae Shaft. However, successful completion of the test phase will lead to conversion into a production well which will require that an application be filed for a Development Plan Public Facilities Map amendment from the City and County of Honolulu, Department of Planning. Review and approval for this permit is from the Honolulu City Council. It is expected that this permit will be filed by BWS upon successful completion of well tests.

BWS already has permission to use the City and County of Honolulu, storm drainage system for discharges of effluent related to potable pump operation, replacement, and repair at various locations (Section 14-12.22, Revised Ordinances of Honolulu 1990, as amended).

Chapter 10
FINDINGS AND REASONS SUPPORTING DETERMINATION

In accordance with the provisions set forth in Chapter 343, Hawaii Revised Statutes, and the significance criteria in Section 11-200-12 of Title 11, Chapter 200, this assessment has determined that the project will have no significant adverse impact to water quality, air quality, existing utilities, noise, archaeological sites, or wildlife habitat. All anticipated impacts will be temporary and will not adversely impact the environmental quality of the area. According to the significance criteria:

1. *Irrevocable commitment to loss or destruction of any natural or cultural resources*

The proposed project is not anticipated to adversely impact any natural or cultural resources. The proposed well site is located on an existing BWS well site. The site has been previously disturbed to accommodate grading, paving, and building (pumphouse) construction. If any potential remains exist at the site, such remains would have been recovered or destroyed during prior development activities. For this reason, no significant archaeological or cultural sites are anticipated to be discovered. However, in the unlikely event that any remains or artifacts are encountered, work is immediately cease and the DLNR, Historic Preservation Division notified at (808) 587-0047, to determine significance and treatment.

2. *Curtailement of range of beneficial uses of the environment*

The location of the well is on an land owned by BWS for the provision of water supply. The existing use of the site will facilitate well development activities and is not expected to curtail existing surrounding land uses including the Ma'umae County Park and residential neighborhood.

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

The proposed project is consistent with the environmental policies, goals and guidelines as delineated in Chapter 344, HRS, and the National Environmental Policy Act.

4. *Substantially affects the economic or social welfare of the community or state*

The proposed project is intended to ensure the long-term provision of clean, potable water necessary for the future health, welfare, and growth of the community.

5. *Substantially affects public health*

The proposed project will be developed in accordance with federal, state, and City and County of Honolulu, rules and regulations governing public safety and health. Potential sources of adverse impacts have been identified and appropriate mitigative measures developed. The primary public health concerns will involve air, water, noise, and traffic impacts. However, it is expected that these impacts will be minimized or brought to negligible levels by appropriate use of the mitigation measures described in this document.

6. *Involves substantial secondary impacts, such as population changes or effects on public facilities*

The proposed project is part of the BWS program for development of water sources to serve the present and future population of the surrounding Kaimuki neighborhood and region. The project itself, however, will not generate new population growth.

7. *Involves a substantial degradation of environmental quality*

The proposed project will be developed in accordance with the environmental policies of Chapter 343, HRS, and the National Environmental Policy Act. The analysis provided in this Environmental Assessment indicates that no environmental degradation is anticipated.

8. *Is individually limited but cumulatively has considerable effect on the environment, or involves a commitment for larger actions*

The proposed project addresses the needs of existing and future area residents, businesses, and institutional users. CWRM, which regulates Hawaii's water resources, will ensure that permitted withdrawals from resources such as the Waialae West Aquifer System are within and do not exceed the available sustainable yield.

9. *Substantially affects a rare, threatened or endangered species or its habitat*

There are no endangered flora or fauna species within or surrounding the project site.

10. *Detrimentially affects air or water quality or ambient noise levels*

An potential impacts to air, water quality, or noise levels will be addressed by use of appropriate measures described in the document.

11. *Affects or is likely to suffer damage by being located in an environmentally sensitive area, such as a flood plain, tsunami zone, beach, erosion-prone area, geologically hazardous land, estuary, freshwater, or coastal waters;*

The proposed project is located in an area that is already used as a BWS well site. The project itself does not possess any sensitive characteristics that would detract from or adversely impact the surrounding environment.

12. *Substantially affects scenic vistas and view planes identified in county or state plans or studies*

No adverse impacts to scenic vistas or view planes are expected. Although the area surrounding the existing BWS property provides views toward Diamond Head, Waikiki, and the surrounding region, construction activity will be limited and of short duration. Upon completion of work all equipment, machinery, and personnel mobilized to the site will be removed.

13. *Requires substantial energy consumption*

Sufficient energy will be used to construct and connect the well to the existing BWS transmission system. Energy will also be used to transport construction equipment, materials, and personnel to the project site. None of these activities are expected to result in use of energy significantly greater than similar production well projects. The location of the well, however, will facilitate access because it is within the East Honolulu region.

Based on analysis and review of the above factors, it has been determined that an Environmental Impact Statement (EIS) will not be required, and that an anticipated Finding of No Significant Impact (FONSI) be issued for this project.

Chapter 11
**ORGANIZATIONS AND AGENCIES CONSULTED IN THE PREPARATION OF THE
DRAFT ENVIRONMENTAL ASSESSMENT**

The following organizations and agencies were contacted during preparation of the Waialae Exploratory Well Environmental Assessments, August 1997:

11.1 STATE AGENCIES

Department of Land and Natural Resources

 Aquatic Resources Division

 Historic Preservation Division

 Commission on Water Resources Management

Department of Health

 Environmental Management Division

 Office of Environmental Quality Control (OEQC)

11.2 CITY AND COUNTY OF HONOLULU

Planning Department

Department of Land Utilization

Board of Water Supply

Chapter 12

ADDITIONAL ORGANIZATIONS AND AGENCIES CONSULTED DURING THE 30-DAY DRAFT ENVIRONMENTAL ASSESSMENT COMMENT PERIOD

The following additional organizations, agencies, and individuals will be notified during the 30-day Draft Environmental Assessment comment period:

12.1 FEDERAL AGENCIES

U.S. Geological Survey
U.S. Fish and Wildlife Service
U.S. Army Corps of Engineers

12.2 STATE AGENCIES

Department of Business, Economic Development & Tourism
Office of Planning
Department of Education
University of Hawaii
Environmental Center
Department of Hawaiian Home Lands
Office of Hawaiian Affairs
Hawaii State Public Library System
Kaimuki Public Library

12.3 CITY AND COUNTY OF HONOLULU

Department of Transportation Services
Building Department

12.4 PRIVATE AND COMMUNITY ORGANIZATIONS, ELECTED OFFICIALS,
AND INDIVIDUALS

Honolulu City Council

Kaimuki Neighborhood Board No. 4

State Senator Matt Matsunaga

State House Representative Barbara Marumoto

Mr. Wayne Parsons

Ms. Elizabeth Norcross

Mr. Francis Iwamoto

Ms. Linda M.L. Soma

Mr. Charles Chun

Mr. Shigeki Tateishi

Mr. Samuel Caldwell

Mr. John Souza

Ms. Gailene S.G. Wong

Ms. Anna B.A. Yannell

Mr. Richard Nishiki

Mr. Frederick Crowell

Mr. George Holeso

Mr. Phillip H.C. Chee

Mr. Neil Fergusson

Mr. Shang-Hsien Ho

Mr. Moe Hiun Ko

Mr. Thomas T. Kojo

Ms. Edna Ah Chan


Chapter 13
COMMENTS AND RESPONSES TO THE DRAFT
ENVIRONMENTAL ASSESSMENT 30-DAY COMMENT PERIOD


The following letters were received and appropriate responses prepared during the Draft EA 30-day comment period. Copies are attached:

Letter to Mr. Brian Takeda
February 19, 1998
Page 2

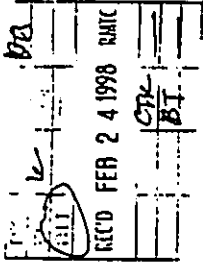
Please contact Colin Kippen (594-1938), LNR Officer, or Luis Manrique (594-1758), should you have any questions on this matter.

Sincerely yours,


Randall Ogata
Administrator


Colin Kippen
Officer,
Land and Natural
Resources Division

cc: Board of Trustees



STATE OF HAWAII
OFFICE OF HAWAIIAN AFFAIRS
711 KAPOLANI BOULEVARD, SUITE 500
HONOLULU, HAWAII 96812-5248
PHONE (808) 594-1889
FAX (808) 594-1885

February 19, 1998

Mr. Brian Takeda
R.M. Towill Corporation
480 Waiakamilo Rd, # 411
Honolulu, HI 96817-4941

Doc. No. EIS-145

Subject: Draft Environmental Assessment (DEA) for Waiālae West Well,
Waiālae, Island of Oahu

Dear Mr. Takeda:

Thank you for the opportunity to review the Draft Environmental Assessment (DEA) for Waiālae West Well, Waiālae, Island of Oahu. The Board of Water Supply (BWS) of the City & County of Honolulu is proposing to drill a well into existing BWS shaft located north of Claudine Street between 16th Avenue and Koko Drive. Upon testing and deemed satisfactory in both quantity and quality, the well will produce approximately 0.5 MGD. The proposed well will upgrade BWS' capacity to meet local water needs.

The Office of Hawaiian Affairs (OHA) has no objections at this time to the proposed well development. The well apparently bears no adverse impacts on adjacent lands nor upon existing flora or fauna and no known archaeological remains exist in the area. Furthermore, the proposed volume rate of pumping of about 0.5 MGD will not significantly impact at this time the sustainable yield of the Waiālae West aquifer. But this additional withdrawal will increase current withdrawals from the Waiālae West aquifer to 2.49 MGD or 62% of the sustainable yield.

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 9, 1998

COPY

J. EMY HARRIS, Mayor
WALTER D. WATSON, JR., Chairman
MAURICE H. YAMASATO, Vice Chairman
KAZU HAYASHIDA
MELISSA J. LUM
FORREST C. MURPHY
JONATHAN K. SHIMADA, PhD
BARBARA KIM STANTON
RAYMOND H. SATO
Manager and Chief Engineer

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

Dear Mr. Ogata:

Subject: Your Letter of February 19, 1998 to R.M. Towill Corporation Regarding the Draft Environmental Assessment for the Board of Water Supply's Proposed Waialae West Well. Honolulu, Oahu. TMK: 3-3-014: 016

Thank you for your letter regarding the Draft Environmental Assessment for the proposed Waialae West Well project.

We acknowledge that the Office of Hawaiian Affairs has no objections to the proposed well project.

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

Very truly yours,

FOR RAYMOND H. SATO
Manager and Chief Engineer

cc: Brian Takeda, R.M. Towill Corporation

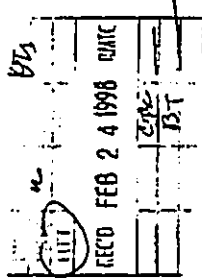
BENJAMIN J. CAYTELANO
CONFIDENTIAL



STATE OF HAWAII
DEPARTMENT OF EDUCATION
P.O. BOX 2360
HONOLULU, HAWAII 96804

OFFICE OF THE SUPERINTENDENT

February 19, 1998



Mr. Brian Takeda
Senior Planner
R.M. Towill Corporation
420 Waiakamilo Road, Suite 411
Honolulu, Hawaii 96817-4941

Dear Mr. Takeda:

Subject: Waiālae West Well Draft EA

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

Thank you for the opportunity to respond.

Sincerely,

Herman M. Aizawa, Ph.D.
Superintendent

HMA:hy

cc: A. Suga, OBS
M. Shishido, HDO

AN AFFIRMATIVE ACTION AND EQUAL OPPORTUNITY EMPLOYER

BOARD OF WATER SUPPLY

CITY AND COUNTY OF HONOLULU
600 SOUTH BERETANIA STREET
HONOLULU, HAWAII 96803
PHONE (808) 527-6180
FAX (808) 533-2714

HERMAN M. AIZAWA, Ph.D.
SUPERINTENDENT



March 9, 1998

Herman Aizawa, Ph.D., Superintendent
Department of Education
State of Hawaii
P. O. Box 2360
Honolulu, Hawaii 96804

Dear Dr. Aizawa:

Subject: Your Letter of February 19, 1998 to R.M. Towill Corporation Regarding the Draft Environmental Assessment for the Board of Water Supply's Proposed Waiālae West Well, Honolulu, Oahu, TMK: 3-3-014: 016

We acknowledge that you have no comments on the Draft Environmental Assessment.

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

Very truly yours,

FOR RAYMOND H. SATO
Manager and Chief Engineer

cc: Brian Takeda, R.M. Towill Corporation

Pure Water... our greatest need - use it wisely

COPY

JEREMY HARRIS, Mayor
WALTERO WATSON, JR., Chairman
MAURICE H. YAMASATO, Vice Chairman
KAZUHIYASHIDA
MELISSA Y. LUM
FOREST C. MURPHY
JONATHAN K. SHIMADA, PRO
BARBARA KAM STANTON
RAYMOND H. SATO
Manager and Chief Engineer



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

OFFICE OF PLANNING

235 South Beretania Street, 6th Fl., Honolulu, Hawaii 96813
Mailing Address: P.O. Box 2359, Honolulu, Hawaii 96804

Ref. No. P-7229

February 25, 1998

Mr. Brian Takeda
Senior Planner
R.M. Towill Corporation
420 Waikamilo Road, #411
Honolulu, Hawaii 96817

Dear Mr. Takeda:

Subject: Draft Environmental Assessment for Waialae West Well, Waialae,
Honolulu, Oahu, Hawaii

We have reviewed the draft environmental assessment and do not have any
comments to offer relative to our plans and programs.

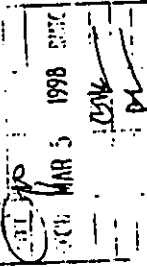
If you have any questions, please contact Christina Moller of our CZM Program
at 587-2845.

Sincerely,


Rick Egged
Director
Office of Planning

BENJAMIN J. CAVETANO
GOVERNOR
SELIF NAYA
DIRECTOR
BRADLEY J. MOSSMAN
DEPUTY DIRECTOR
RICK EGGED
DIRECTOR, OFFICE OF PLANNING

Tel: (808) 587-2846
Fax: (808) 587-2824

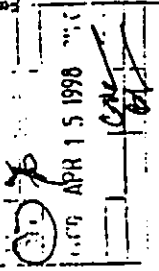


BOARD OF WATER SUPPLY

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



April 7, 1998



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

Dear Mr. Egged:

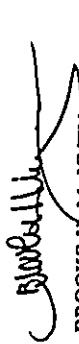
Subject: Your Letter of February 25, 1998 to R.M. Towill Corporation Regarding the Draft
Environmental Assessment for the Board of Water Supply's Proposed Waialae
West Well Project, Waialae, Honolulu, Oahu

Thank you for reviewing the Draft Environmental Assessment for the proposed Waialae West
Well project.

We acknowledge that you have no comments to offer relative to your plans and programs.

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

Very truly yours,


BROOKS H.M. YUEN
Acting Manager and Chief Engineer

cc: Brian Takeda, R.M. Towill Corporation

COPY

JEREMY HARRIS, Mayor
WALTER D. WATSON, Jr., Chairman
EDDIE FLORES, Jr.
KAZUHIYASHIKI
JAN MULLY, AKA
FORREST C. MURPHY
JONATHAN K. SHIMADA, PRO
BARBARA NAL STANTON

BROOKS H. M. YUEN, A
Manager and Chief Engineer

BUILDING DEPARTMENT
CITY AND COUNTY OF HONOLULU

HONOLULU MUNICIPAL BUILDING
850 SOUTH KING STREET
HONOLULU HAWAII 96813



RECEIVED
MAR 1998
SHTC
JTB

RANDALL K. FUJIKI
DIRECTOR AND BUILDING SUPERINTENDENT
ISIDORA BAQUILAN
DEPUTY DIRECTOR AND BUILDING SUPERINTENDENT

PB 98-130

March 3, 1998

Mr. Brian Takeda, Senior Planner
R. M. Towill Corporation
420 Waikamilo Road, #411
Honolulu, Hawaii 96817-4941

Dear Mr. Takeda:

Subject: Notice of Availability of Draft Environmental Assessment for Waialae West Well, Waialae, Honolulu, Oahu, Hawaii

This is in response to your request of February 6, 1998 to review and comment on the subject material.

We have no comments to make but appreciate the opportunity to review the document.

Should there be any questions, please contact Douglas Collinson at 527-6375.

Very truly yours,

FOR RANDALL K. FUJIKI
Director and Building Superintendent

BOARD OF WATER SUPPLY
CITY AND COUNTY OF HONOLULU
630 SOUTH BERETANIA STREET
HONOLULU, HAWAII 96813
PHONE (808) 527-6180
FAX (808) 535-2714



May 27, 1998

TO: RANDALL K. FUJIKI
DIRECTOR AND BUILDING SUPERINTENDENT
BUILDING DEPARTMENT

FROM: ~~BROOKS H. M. YUEN~~
BROOKS H. M. YUEN, ACTING MANAGER AND CHIEF ENGINEER
BOARD OF WATER SUPPLY

SUBJECT: YOUR LETTER OF MARCH 3, 1998 TO R.M. TOWILL CORPORATION
REGARDING THE DRAFT ENVIRONMENTAL ASSESSMENT FOR THE
BOARD OF WATER SUPPLY'S PROPOSED WAIALAE WEST WELL,
HONOLULU, OAHU, T.M.K. 3-3-14-16

Thank you for reviewing the Draft Environmental Assessment for the proposed Waialae West Well project.

We acknowledge that you have no comments to offer.

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

Brian Takeda, R.M. Towill Corporation

COPY

JEREMY H. WATSON, JR., Chairman
WALTER O. WATSON, JR., Chairman
EDDIE FLORES, JR.
KAZU HAYASHIDA
JAN M. L. Y. AMHI
FORREST C. MURPHY
JONATHAN K. SHIMADA, PhD
BARBARA KIM STANTON
BROOKS H. M. YUEN, Acting
Manager and Chief Engineer

BENJAMIN J. CAYETANO
GOVERNOR



STATE OF HAWAII
OFFICE OF ENVIRONMENTAL QUALITY CONTROL

216 SOUTH BERETANIA STREET
HONOLULU, HAWAII 96813
TELEPHONE (808) 586-4119
FACSIMILE (808) 586-4199

March 10, 1998

GARY GILL
DIRECTOR

P-151/98
(98-0918)

DK	WES	PK
RTT	MM	PK
RTT	RTT	PK
RECD MAR 11 1998 RMT/C		

The Honorable Raymond Sato, Manager and Chief Engineer
Board of Water Supply
City and County of Honolulu
630 Beretania Street
Honolulu, Hawaii 96843

Dear Mr. Sato:

Having reviewed the Draft Environmental Assessment (DEA) for the Waialea West Well, Honolulu, Oahu, Tax Map Key 3-3-14-16, we submit the following comments for your response.

- 1) We understand that the well will be tested to determine the quantity, drawdown and water quality. A reallocation of the CWRM permitted use will be obtained for the well and an amendment to the Development Plan Public Facilities Map will be completed, after which the well will be converted to a production well. Because data on well test data will not be available prior to production, a second environmental assessment for the production well should be prepared.
- 2) In certain instances, wells are 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. Please include a full discussion in Section 2.1 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/or the purchase of land or easements by public entities.
- 3) For clarity, please present data in tabular form as indicated in Appendix I to the attached Draft Guidelines for Assessing Water Well Development Projects.
- 4) Page 28 of the draft environmental assessment reproduced improperly and page 29 is missing. A part of another page (297) is partially reproduced on the right half of page 28. Please include both pages 28 and 29 in the final environmental assessment and send copies of the missing pages to those persons that have requested/received the document.
- 5) In Chapter 10, please discuss the thirteen significance criteria contained in Section 11-200-12 of the Hawaii Administrative Rules (approved on August 31, 1996). A sample discussion from another environmental assessment is attached for your information.

Mr. Paul Jordan
Haseko Homes, Inc.
February 23, 1998
Page 2 of 2

Please include a copy of this letter, any other comment letters and your responses in the final environmental assessment for this project. If there are any questions, please call Leslie Segundo of my staff at 586-4185. Thank you for the opportunity to comment.

Sincerely,

GARY GILL

Attachments

cc → Barry Usagawa, Board of Water Supply
Bryan Takoda, R. M. Towill Corporation

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



May 29, 1998

CM COPY

JEREMY HARRIS, Chairman
WALTER O. WATSON, JR., Chairman
EDJIE FLORES, JR.
KAZU HAYASHIDA
JAN M. L. Y. AMII
FORREST C. MURPHY
JONATHAN K. SHIMADA, PhD
BARBARA KIM STANTON
BROOKS H. M. YUEN, Acting
Manager and Chief Engineer

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

Dear Mr. Gill:

Subject: Draft Environmental Assessment for the Board of Water Supply's Proposed
Maialae West Well, Honolulu, Oahu. IMK: J-2-DK: 018

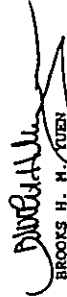
Thank you for reviewing the Draft Environmental Assessment (EA) for the proposed
Maialae West Well project.

We provide the following comments to your concerns:

1. The well will be drilled into the sump of the existing Maialae Shaft which has been closed due to deterioration of the existing pumps and elevator systems. The source already has an existing permitted use of 0.24 mgd and we have historical data on pump drawdown flow rates, and water quality. A Section 29-11-20 Engineering report will be developed to update water quality parameters, as required by the Department of Health. The final EA will include the existing pump and water quality data. A second EA is not necessary because the renovation of the existing pump station is an exempt action covered under Chapter 11-200-8 HAR, Environmental Impact Statement rules.
2. Financing
The project will be financed solely by the Board of Water Supply funds.
3. Sustainable Yield Data
Chapter 2 of the Final EA will be revised to include the applicable tabular information of your attached Appendix I.
4. Additional Pages
The Final EA will be revised to include pages 28 and 29, which primarily indicates that the project site is not subject to floods which would impact the design or location of the project.
5. The significance criteria and response letters are standard EA requirements and will be provided in the Final EA.

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

Very truly yours,


BROOKS H. M. YUEN
Acting Manager and Chief Engineer

cc: Brian Takeda, R.M. Towill Corporation

DEPARTMENT OF TRANSPORTATION SERVICES
CITY AND COUNTY OF HONOLULU
 PACIFIC PARK PLAZA • 711 KAPOLANI BOULEVARD, SUITE 1200 • HONOLULU, HAWAII 96813
 PHONE (808) 523-4329 • FAX (808) 933-2420



DK	WES	RT	REC'D MAR 12 1998	RMIC

CHERYL D. SOON
 DIRECTOR
 BRYAN M. MAGALDI, JR.
 DEPUTY DIRECTOR

March 10, 1998
 TSP2/98-00747R
 TSP98-00121/132

Mr. Brian Takeda, Senior Planner
 R. M. Towill Corporation
 420 Waiakamilo Road, #411
 Honolulu, Hawaii 96817-4941

Dear Mr. Takeda:

Subject: Waiialae West Well

In response to your February 6, 1998 letter, the draft environmental assessment for the subject project was reviewed. We have no objections to or comments regarding the transportation impacts of the subject project.

Should you have any questions regarding this matter, please contact Faith Miyamoto of the Transportation System Planning Division at 527-6976.

Sincerely,

CHERYL D. SOON
 Director

BOARD OF WATER SUPPLY

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



May 28, 1998

DK	WES	RT	REC'D JUL 1 1998	RMIC

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

FROM: *Bryon M. Magaldi, Jr.*
 BROOKS H. M. YUEN, ASST. MANAGER AND CHIEF ENGINEER
 BOARD OF WATER SUPPLY

SUBJECT: YOUR MEMORANDUM OF MARCH 10, 1998 REGARDING THE DRAFT ENVIRONMENTAL ASSESSMENT FOR THE PROPOSED WAIALAE WEST WELL, WAIALAE, HONOLULU, OAHU, TMK: 3-3-14: 16

Thank you for reviewing the Draft Environmental Assessment for the proposed Waiialae West Well project.

We acknowledge that you have no objections or comments to the proposed well project.

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

-cc: Brian Takeda, R.M. Towill Corporation

ADDITIONAL NOTICES OF AVAILABILITY OF
DRAFT ENVIRONMENTAL ASSESSMENT

R. M. TOWILL CORPORATION

480 Waiakamilo Rd #411 Honolulu, HI 96817-4041 (808) 842-1133 Fax (808) 842-1937

February 10, 1998

Librarian
Kaimuki Public Library
1041 Koko Head Avenue
Honolulu, Hawaii 96816

Dear Librarian:

SUBJECT: Transmittal of Draft Environmental Assessment for Waialae West Well, Kaimuki, Honolulu, Oahu, Hawaii

Please find attached a copy of the subject Draft Environmental Assessment. This document is forwarded for the Office of Environmental Quality Control (OEQC) public comment period commencing February 23, 1998, and ending March 25, 1998. We ask that this copy be placed on reserve. Comments received during this 30-day review period may be directed to:

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

Sincerely,



Brian Takeda
Senior Planner

Attachment

Engineers • Planners • Photogrammetrists • Surveyors
Construction Managers • Environmental Services

R. M. TOWILL CORPORATION

480 Waiakamilo Rd #411 Honolulu, HI 96817-4041 (808) 842-1133 Fax (808) 842-1937

February 6, 1998

District Chief
Department of the Interior
U.S. Geological Survey
677 Ala Moana Blvd., Room 415
Honolulu, Hawaii 96813

Dear Sir:

SUBJECT: Notice of Availability of Draft Environmental Assessment for Waialae West Well, Waialae, Honolulu, Oahu, Hawaii

Please find attached a copy of the subject Draft Environmental Assessment (DEA). This document will be available for public review commencing February 8, 1998, at the following address:

Office of Environmental Quality Control (OEQC)
236 South Beretania Street, Suite 702
Honolulu, Hawaii 96813

Notice of availability will also be published in the February 8, 1998 edition of the OEQC Environmental Notice. The public has 30-days or until March 10, 1998 to comment on this project. Comments received by this date will be used to prepare the Final Environmental Assessment. Notice of availability for both the Draft and Final Environmental Assessments will be published in the OEQC Environmental Notice.

Should you have any questions please contact us at (808) 842-1133.

Sincerely,



Brian Takeda
Senior Planner

Attachment

Engineers • Planners • Photogrammetrists • Surveyors
Construction Managers • Environmental Services

R. M. TOWILL CORPORATION

120 Waiakamilo Rd #411 Honolulu, HI 96817-4941 (808) 842-1133 Fax (808) 842-1037

February 6, 1998

Mr. Brooks Harper, Field Supervisor
Ecological Services
U.S. Fish and Wildlife Service
Department of the Interior
P.O. Box 50156
Honolulu, Hawaii 96850

Dear Mr. Harper:

SUBJECT: Notice of Availability of Draft Environmental Assessment for
Waialae West Weir, Waialae, Honolulu, Oahu, Hawaii

Please find attached a copy of the subject Draft Environmental Assessment (DEA). This document will be available for public review commencing February 8, 1998, at the following address:

Office of Environmental Quality Control (OEQC)
236 South Beretania Street, Suite 702
Honolulu, Hawaii 96813

Notice of availability will also be published in the February 8, 1998 edition of the OEQC Environmental Notice. The public has 30-days or until March 10, 1998 to comment on this project. Comments received by this date will be used to prepare the Final Environmental Assessment. Notice of availability for both the Draft and Final Environmental Assessments will be published in the OEQC Environmental Notice.

Should you have any questions please contact us at (808) 842-1133.

Sincerely,



Brian Takeda
Senior Planner

Attachment

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Construction Managers • Environmental Services

R. M. TOWILL CORPORATION

120 Waiakamilo Rd #411 Honolulu, HI 96817-4941 (808) 842-1133 Fax (808) 842-1037

February 6, 1998

Ms. Linda Hihara-Endo
Acting Chief, Operations Branch
U.S. Army Corps of Engineers
HED, DEPOD-ET-PO
Building T-1
Fort Shafter, Hawaii 96858-5440

Dear Ms. Hihara-Endo:

SUBJECT: Notice of Availability of Draft Environmental Assessment for
Waialae West Weir, Waialae, Honolulu, Oahu, Hawaii

Please find attached a copy of the subject Draft Environmental Assessment (DEA). This document will be available for public review commencing February 8, 1998, at the following address:

Office of Environmental Quality Control (OEQC)
236 South Beretania Street, Suite 702
Honolulu, Hawaii 96813

Notice of availability will also be published in the February 8, 1998 edition of the OEQC Environmental Notice. The public has 30-days or until March 10, 1998 to comment on this project. Comments received by this date will be used to prepare the Final Environmental Assessment. Notice of availability for both the Draft and Final Environmental Assessments will be published in the OEQC Environmental Notice.

Should you have any questions please contact us at (808) 842-1133.

Sincerely,



Brian Takeda
Senior Planner

Attachment

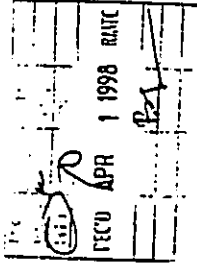
Engineers • Planners • Photogrammetrists • Surveyors
Construction Managers • Environmental Services



DEPARTMENT OF THE ARMY
U.S. ARMY ENGINEER DISTRICT, HONOLULU
FT. SHAFTER, HAWAII 96859-5440

ATTENTION OF

March 25, 1998



Operations Branch

Mr. Brian Takeda
R. M. Towill Corporation
420 Waiakamilo Road #411
Honolulu, Hawaii 96813

Dear Mr. Takeda:

This is in regard to your letter of February 6, 1998 requesting comments on the draft environmental assessment for the proposed Waiālae West Well, Waiālae, Honolulu, Oahu, Hawaii. Based on the information you provided I have determined that the project will not impact waters of the U.S., including wetlands, and will not require a Department of the Army permit.

If you have any questions concerning this determination, please contact Mr. Peter Galloway of my staff at 438-9258, extension 15. Please refer to File No. 980000113.

Sincerely,

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

R. M. TOWILL CORPORATION

420 Waiakamilo Rd #411 Honolulu, HI 96813-4941 (808) 842-1133 Fax: (808) 842-1037

February 6, 1998

Mr. Rick Egged, Director
Office of Planning
Dept. of Business, Economic
Development and Tourism
State of Hawaii
235 S. Beretania St., 6th Floor
Honolulu, Hawaii 96813

Dear Mr. Egged:

SUBJECT: Notice of Availability of Draft Environmental Assessment for
Waiālae West Well, Waiālae, Honolulu, Oahu, Hawaii

Please find attached a copy of the subject Draft Environmental Assessment (DEA). This document will be available for public review commencing February 8, 1998, at the following address:

Office of Environmental Quality Control (OEQC)
236 South Beretania Street, Suite 702
Honolulu, Hawaii 96813

Notice of availability will also be published in the February 8, 1998 edition of the OEQC Environmental Notice. The public has 30-days or until March 10, 1998 to comment on this project. Comments received by this date will be used to prepare the Final Environmental Assessment. Notice of availability for both the Draft and Final Environmental Assessments will be published in the OEQC Environmental Notice.

Should you have any questions please contact us at (808) 842-1133.

Sincerely,

Brian Takeda
Senior Planner

Attachment

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R. M. TOWILL CORPORATION

420 WAIKAKAMUI RD. #411 HONOLULU, HI 96817-4941 (808) 842-1133 FAX (808) 842-1037

February 6, 1998

Herman M. Aizawa, Ph.D.
Superintendent of Education
Department of Education
State of Hawaii
Queen Liliuokalani Building
1390 Miller Street
Honolulu, Hawaii 96813

Dear Dr. Aizawa:

SUBJECT: Notice of Availability of Draft Environmental Assessment for
Waialae West Well, Waialae, Honolulu, Oahu, Hawaii

Please find attached a copy of the subject Draft Environmental Assessment (DEA). This document will be available for public review commencing February 8, 1998, at the following address:

Office of Environmental Quality Control (OEQC)
236 South Beretania Street, Suite 702
Honolulu, Hawaii 96813

Notice of availability will also be published in the February 8, 1998 edition of the OEQC Environmental Notice. The public has 30-days or until March 10, 1998 to comment on this project. Comments received by this date will be used to prepare the Final Environmental Assessment. Notice of availability for both the Draft and Final Environmental Assessments will be published in the OEQC Environmental Notice.

Should you have any questions please contact us at (808) 842-1133.

Sincerely,



Brian Takeda
Senior Planner

Attachment

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R. M. TOWILL CORPORATION

420 WAIKAKAMUI RD. #411 HONOLULU, HI 96817-4941 (808) 842-1133 FAX (808) 842-1037

February 6, 1998

Dr. John Harrison
Environmental Coordinator
University of Hawaii
Crawford 317
2550 Campus Road
Honolulu, Hawaii 96822

Dear Dr. Harrison:

SUBJECT: Notice of Availability of Draft Environmental Assessment for
Waialae West Well, Waialae, Honolulu, Oahu, Hawaii

Please find attached a copy of the subject Draft Environmental Assessment (DEA). This document will be available for public review commencing February 8, 1998, at the following address:

Office of Environmental Quality Control (OEQC)
236 South Beretania Street, Suite 702
Honolulu, Hawaii 96813

Notice of availability will also be published in the February 8, 1998 edition of the OEQC Environmental Notice. The public has 30-days or until March 10, 1998 to comment on this project. Comments received by this date will be used to prepare the Final Environmental Assessment. Notice of availability for both the Draft and Final Environmental Assessments will be published in the OEQC Environmental Notice.

Should you have any questions please contact us at (808) 842-1133.

Sincerely,



Brian Takeda
Senior Planner

Attachment

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Construction Managers • Environmental Services

R. M. TOWILL CORPORATION

420 WAIKAMUI RD #411 HONOLULU, HI 96817-4041 (808) 842-1133 FAX (808) 842-1037

February 6, 1998

Mr. Randall Ogata, Administrator
Office of Hawaiian Affairs
State of Hawaii
711 Kapiolani Blvd., 5th Floor
Honolulu, Hawaii 96813

Dear Mr. Ogata:

SUBJECT: Notice of Availability of Draft Environmental Assessment for
Waialae West Well, Waialae, Honolulu, Oahu, Hawaii

Please find attached a copy of the subject Draft Environmental Assessment (DEA). This document will be available for public review commencing February 8, 1998, at the following address:

Office of Environmental Quality Control (OEQC)
236 South Beretania Street, Suite 702
Honolulu, Hawaii 96813

Notice of availability will also be published in the February 8, 1998 edition of the OEQC Environmental Notice. The public has 30-days or until March 10, 1998 to comment on this project. Comments received by this date will be used to prepare the Final Environmental Assessment. Notice of availability for both the Draft and Final Environmental Assessments will be published in the OEQC Environmental Notice.

Should you have any questions please contact us at (808) 842-1133.

Sincerely,



Brian Takeda
Senior Planner

Attachment

Engineers • Planners • Photogrammetrists • Surveyors
Construction Managers • Environmental Services

R. M. TOWILL CORPORATION

420 WAIKAMUI RD #411 HONOLULU, HI 96817-4041 (808) 842-1133 FAX (808) 842-1037

February 6, 1998

Ms. Cheryl Soon, Director
Department of Transportation Services
City and County of Honolulu
711 Kapiolani Blvd., Suite 1200
Honolulu, Hawaii 96813

Dear Ms. Soon:

SUBJECT: Notice of Availability of Draft Environmental Assessment for
Waialae West Well, Waialae, Honolulu, Oahu, Hawaii

Please find attached a copy of the subject Draft Environmental Assessment (DEA). This document will be available for public review commencing February 8, 1998, at the following address:

Office of Environmental Quality Control (OEQC)
236 South Beretania Street, Suite 702
Honolulu, Hawaii 96813

Notice of availability will also be published in the February 8, 1998 edition of the OEQC Environmental Notice. The public has 30-days or until March 10, 1998 to comment on this project. Comments received by this date will be used to prepare the Final Environmental Assessment. Notice of availability for both the Draft and Final Environmental Assessments will be published in the OEQC Environmental Notice.

Should you have any questions please contact us at (808) 842-1133.

Sincerely,



Brian Takeda
Senior Planner

Attachment

Engineers • Planners • Photogrammetrists • Surveyors
Construction Managers • Environmental Services

R. M. TOWILL CORPORATION

420 Waiakemilo Rd #411 Honolulu, HI 96817-2041 (808) 842-1133 FAX (808) 842-1037

February 6, 1998

Mr. Randall K. Fujiki
Director and Building Superintendent
Building Department
City and County of Honolulu
650 S. King Street
Honolulu, Hawaii 96813

Dear Mr. Fujiki:

SUBJECT: Notice of Availability of Draft Environmental Assessment for
Waialae West Well, Waialae, Honolulu, Oahu, Hawaii

Please find attached a copy of the subject Draft Environmental Assessment (DEA). This document will be available for public review commencing February 8, 1998, at the following address:

Office of Environmental Quality Control (OEQC)
236 South Beretania Street, Suite 702
Honolulu, Hawaii 96813

Notice of availability will also be published in the February 8, 1998 edition of the OEQC Environmental Notice. The public has 30-days or until March 10, 1998 to comment on this project. Comments received by this date will be used to prepare the Final Environmental Assessment. Notice of availability for both the Draft and Final Environmental Assessments will be published in the OEQC Environmental Notice.

Should you have any questions please contact us at (808) 842-1133.

Sincerely,



Brian Takeda
Senior Planner

Attachment

Engineers • Planners • Photogrammetrists • Surveyors
Construction Managers • Environmental Services

R. M. TOWILL CORPORATION

420 Waiakemilo Rd #411 Honolulu, HI 96817-2041 (808) 842-1133 FAX (808) 842-1037

February 6, 1998

Honolulu City Council
530 S. King Street
Honolulu, Hawaii 96813

Dear Council Members:

SUBJECT: Notice of Availability of Draft Environmental Assessment for
Waialae West Well, Waialae, Honolulu, Oahu, Hawaii

Please find attached a copy of the subject Draft Environmental Assessment (DEA). This document will be available for public review commencing February 8, 1998, at the following address:

Office of Environmental Quality Control (OEQC)
236 South Beretania Street, Suite 702
Honolulu, Hawaii 96813

Notice of availability will also be published in the February 8, 1998 edition of the OEQC Environmental Notice. The public has 30-days or until March 10, 1998 to comment on this project. Comments received by this date will be used to prepare the Final Environmental Assessment. Notice of availability for both the Draft and Final Environmental Assessments will be published in the OEQC Environmental Notice.

Should you have any questions please contact us at (808) 842-1133.

Sincerely,



Brian Takeda
Senior Planner

Attachment

Engineers • Planners • Photogrammetrists • Surveyors
Construction Managers • Environmental Services

R. M. TOWILL CORPORATION

420 Waiakemilo Rd #411 Honolulu, HI 96817-1941 (808) 842-1133 Fax (808) 842-1037

February 6, 1998

Mr. Vernon H.Q. Tam
Kaumuki Neighborhood Board No. 4
c/o Neighborhood Commission
City Hall, Room 400
Honolulu, Hawaii 96813

Dear Mr. Tam:

SUBJECT: Notice of Availability of Draft Environmental Assessment for
Waialae West Well, Waialae, Honolulu, Oahu, Hawaii

Please find attached a copy of the subject Draft Environmental Assessment (DEA). This document will be available for public review commencing February 8, 1998, at the following address:

Office of Environmental Quality Control (OEQC)
236 South Beretania Street, Suite 702
Honolulu, Hawaii 96813

Notice of availability will also be published in the February 8, 1998 edition of the OEQC Environmental Notice. The public has 30-days or until March 10, 1998 to comment on this project. Comments received by this date will be used to prepare the Final Environmental Assessment. Notice of availability for both the Draft and Final Environmental Assessments will be published in the OEQC Environmental Notice.

Should you have any questions please contact us at (808) 842-1133.

Sincerely,



Brian Takeda
Senior Planner

Attachment

Engineers • Planners • Photogrammetrists • Surveyors
Construction Managers • Environmental Services

R. M. TOWILL CORPORATION

420 Waiakemilo Rd #411 Honolulu, HI 96817-1941 (808) 842-1133 Fax (808) 842-1037

February 6, 1998

The Honorable Matt Matsunaga
State Senate
State Capitol, Room 226
Honolulu, Hawaii 96813

Dear Senator Matsunaga:

SUBJECT: Notice of Availability of Draft Environmental Assessment for
Waialae West Well, Waialae, Honolulu, Oahu, Hawaii

Please find attached a copy of the subject Draft Environmental Assessment (DEA). This document will be available for public review commencing February 8, 1998, at the following address:

Office of Environmental Quality Control (OEQC)
236 South Beretania Street, Suite 702
Honolulu, Hawaii 96813

Notice of availability will also be published in the February 8, 1998 edition of the OEQC Environmental Notice. The public has 30-days or until March 10, 1998 to comment on this project. Comments received by this date will be used to prepare the Final Environmental Assessment. Notice of availability for both the Draft and Final Environmental Assessments will be published in the OEQC Environmental Notice.

Should you have any questions please contact us at (808) 842-1133.

Sincerely,



Brian Takeda
Senior Planner

Attachment

Engineers • Planners • Photogrammetrists • Surveyors
Construction Managers • Environmental Services

R. M. TOWILL CORPORATION

420 WAIKAMUI RD #411 HONOLULU, HI 96817-4041 (808) 842-1133 FAX (808) 842-1037

February 6, 1998

The Honorable Barbara Marumoto
House of Representatives
State Capitol, Room 313
Honolulu, Hawaii 96813

Dear Representative Marumoto:

SUBJECT: Notice of Availability of Draft Environmental Assessment for
Waialae West Well, Waialae, Honolulu, Oahu, Hawaii

Please find attached a copy of the subject Draft Environmental Assessment (DEA). This document will be available for public review commencing February 8, 1998, at the following address:

Office of Environmental Quality Control (OEQC)
236 South Beretania Street, Suite 702
Honolulu, Hawaii 96813

Notice of availability will also be published in the February 8, 1998 edition of the OEQC Environmental Notice. The public has 30-days or until March 10, 1998 to comment on this project. Comments received by this date will be used to prepare the Final Environmental Assessment. Notice of availability for both the Draft and Final Environmental Assessments will be published in the OEQC Environmental Notice.

Should you have any questions please contact us at (808) 842-1133.

Sincerely,



Brian Takeda
Senior Planner

Attachment

Engineers • Planners • Photogrammetrists • Surveyors
Construction Managers • Environmental Services

R. M. TOWILL CORPORATION

420 WAIKAMUI RD #411 HONOLULU, HI 96817-4041 (808) 842-1133 FAX (808) 842-1037

February 6, 1998

Mr. Kali Watson, Chairman
Dept. of Hawaiian Home Lands
State of Hawaii
335 Merchant Street
Honolulu, Hawaii 96813

Dear Mr. Watson:

SUBJECT: Notice of Availability of Draft Environmental Assessment for
Waialae West Well, Waialae, Honolulu, Oahu, Hawaii


Please find attached a copy of the subject Draft Environmental Assessment (DEA). This document will be available for public review commencing February 8, 1998, at the following address:

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R. M. TOWILL CORPORATION

420 WAIKAMULO RD #411 HONOLULU HI 96817-4041 (808) 842-1133 FAX (808) 842-1037

February 21, 1998

Mr. Wayne Parsons or Occupant
3907 Koko Drive
Honolulu, Hawaii 96816

Dear Mr. Parsons/Occupant:

SUBJECT: Notice of Availability of Draft Environmental Assessment (EA) for
Honolulu Board of Water Supply, Waialae West Well, Kaimuki, Oahu

This is to inform you that the Honolulu Board of Water Supply is providing the above
Draft Environmental Assessment (DEA) for public review at the following addresses:

Office of Environmental
Quality Control (OEQC)
236 South Beretania Street, Suite 702
Honolulu, Hawaii 96813, or
Kaimuki Public Library
1041 Koko Head Avenue
Honolulu, Hawaii 96816

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this date will be used to prepare the Final Environmental Assessment. Notice of
availability for both the Draft and Final Environmental Assessments are published in the
OEQC Environmental Notice.

Public comments may be forwarded to:

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

Mr. Brian Takeda, Senior Planner
R. M. Towill Corporation
420 Waiakamilo Road, Suite 411
Honolulu, Hawaii 96817-4941

Thank you for your assistance. If you have any questions please contact us at 842-1133.

Sincerely,



Brian Takeda
Senior Planner

cc Mr. Scot K. Muraoka, Honolulu Board of Water Supply
Mr. Gary Gill, OEQC

Engineers • Planners • Photogrammetrists • Surveyors
Construction Managers • Hazardous Waste Management

R. M. TOWILL CORPORATION

420 WAIKAMULO RD #411 HONOLULU HI 96817-4041 (808) 842-1133 FAX (808) 842-1037

February 21, 1998

Ms. Elizabeth Norcross or Occupant
3911 Koko Drive
Honolulu, Hawaii 96816

Dear Ms. Norcross/Occupant:

SUBJECT: Notice of Availability of Draft Environmental Assessment (EA) for
Honolulu Board of Water Supply, Waialae West Well, Kaimuki, Oahu

This is to inform you that the Honolulu Board of Water Supply is providing the above
Draft Environmental Assessment (DEA) for public review at the following addresses:

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R. M. Towill Corporation
420 Waiakamilo Road, Suite 411
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Thank you for your assistance. If you have any questions please contact us at 842-1133.

Sincerely,



Brian Takeda
Senior Planner

cc Mr. Scot K. Muraoka, Honolulu Board of Water Supply
Mr. Gary Gill, OEQC

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Construction Managers • Hazardous Waste Management

R. M. TOWILL CORPORATION

420 WAIKAMULO RD #411 HONOLULU, HI 96817-4941 (808) 848-1133 FAX (808) 848-1037

February 21, 1998

Mr. Francis Iwamoto or Occupant
4188 Koko Drive
Honolulu, Hawaii 96816

Dear Mr. Iwamoto/Occupant:

SUBJECT: Notice of Availability of Draft Environmental Assessment (EA) for Honolulu Board of Water Supply, Waialae West Well, Kaimuki, Oahu

This is to inform you that the Honolulu Board of Water Supply is providing the above Draft Environmental Assessment (DEA) for public review at the following addresses:

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R. M. Towill Corporation
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Honolulu, Hawaii 96817-4941

Thank you for your assistance. If you have any questions please contact us at 842-1133.

Sincerely,



Brian Takeda
Senior Planner

cc Mr. Scot K. Muraoka, Honolulu Board of Water Supply
Mr. Cary Gill, OEQC

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420 WAIKAMULO RD #411 HONOLULU, HI 96817-4941 (808) 848-1133 FAX (808) 848-1037

February 21, 1998

Ms. Linda M.L. Soma or Occupant
4193 Koko Drive
Honolulu, Hawaii 96816

Dear Ms. Soma/Occupant:

SUBJECT: Notice of Availability of Draft Environmental Assessment (EA) for Honolulu Board of Water Supply, Waialae West Well, Kaimuki, Oahu

This is to inform you that the Honolulu Board of Water Supply is providing the above Draft Environmental Assessment (DEA) for public review at the following addresses:

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Manager & Chief Engineer
Board of Water Supply
City and County of Honolulu
630 South Beretania Street
Honolulu, Hawaii 96813, or
Mr. Brian Takeda, Senior Planner
R. M. Towill Corporation
420 Waiakamilo Road, Suite 411
Honolulu, Hawaii 96817-4941

Thank you for your assistance. If you have any questions please contact us at 842-1133.

Sincerely,



Brian Takeda
Senior Planner

cc Mr. Scot K. Muraoka, Honolulu Board of Water Supply
Mr. Cary Gill, OEQC

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R. M. TOWILL CORPORATION

480 WAIKAMULO RD #411 HONOLULU, HI 96817-4041 (808) 842-1133 FAX (808) 842-1037

February 21, 1998

Mr. Charles Chun or Occupant
3891 Claudine Street
Honolulu, Hawaii 96816

Dear Mr. Chun/Occupant:

SUBJECT: Notice of Availability of Draft Environmental Assessment (EA) for
Honolulu Board of Water Supply, Waialae West Well, Kaimuki, Oahu

This is to inform you that the Honolulu Board of Water Supply is providing the above
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Honolulu, Hawaii 96843, or
Mr. Brian Takeda, Senior Planner
R. M. Towill Corporation
420 Waiakamilo Road, Suite 411
Honolulu, Hawaii 96817-4941

Thank you for your assistance. If you have any questions please contact us at 842-1133.

Sincerely,



Brian Takeda
Senior Planner

cc Mr. Scot K. Muirzeala, Honolulu Board of Water Supply
Mr. Cary Gill, OEQC

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480 WAIKAMULO RD #411 HONOLULU, HI 96817-4041 (808) 842-1133 FAX (808) 842-1037

February 21, 1998

Mr. Shigeaki Tateishi or Occupant
1020 D Awawamalu Street
Honolulu, Hawaii 96825

Dear Mr. Tateishi/Occupant:

SUBJECT: Notice of Availability of Draft Environmental Assessment (EA) for
Honolulu Board of Water Supply, Waialae West Well, Kaimuki, Oahu

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R. M. Towill Corporation
420 Waiakamilo Road, Suite 411
Honolulu, Hawaii 96817-4941

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Sincerely,



Brian Takeda
Senior Planner

cc Mr. Scot K. Muirzeala, Honolulu Board of Water Supply
Mr. Cary Gill, OEQC

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R. M. TOWILL CORPORATION

420 WAIKAMULO RD #411 HONOLULU HI 000817-4041 (808) 842-1133 FAX (808) 842-1037

February 21, 1998

Mr. Samuel Caldwell or Occupant
3945 Koko Drive
Honolulu, Hawaii 96816

Dear Mr. Caldwell/Occupant:

SUBJECT: Notice of Availability of Draft Environmental Assessment (EA) for
Honolulu Board of Water Supply, Waialae West Well, Kaimuki, Oahu

This is to inform you that the Honolulu Board of Water Supply is providing the above
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R. M. Towill Corporation
420 Waiakamilo Road, Suite 411
Honolulu, Hawaii 96817-4941

Thank you for your assistance. If you have any questions please contact us at 842-1133.

Sincerely,



Brian Takeda
Senior Planner

cc Mr. Scot K. Muraoka, Honolulu Board of Water Supply
Mr. Cary Gill, OEQC

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420 WAIKAMULO RD #411 HONOLULU HI 000817-4041 (808) 842-1133 FAX (808) 842-1037

February 21, 1998

Mr. John Souza or Occupant
3881 Claudine Street
Honolulu, Hawaii 96816

Dear Mr. Souza/Occupant:

SUBJECT: Notice of Availability of Draft Environmental Assessment (EA) for
Honolulu Board of Water Supply, Waialae West Well, Kaimuki, Oahu

This is to inform you that the Honolulu Board of Water Supply is providing the above
Draft Environmental Assessment (DEA) for public review at the following addresses:

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420 WAIKAMULO RD #411 HONOLULU, HI 96817-4941 (808) 842-1133 FAX (808) 842-1037

February 21, 1998

Ms. Gailene S.G. Wong or Occupant
3665 Kawelolani Place
Honolulu, Hawaii 96816

Dear Ms. Wong/Occupant:

SUBJECT: Notice of Availability of Draft Environmental Assessment (EA) for
Honolulu Board of Water Supply, Waialae West Well, Kaimuki, Oahu

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City and County of Honolulu
630 South Beretania Street
Honolulu, Hawaii 96843, or

Mr. Brian Takeda, Senior Planner
R. M. Towill Corporation
420 Waiakamilo Road, Suite 411
Honolulu, Hawaii 96817-4941

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Sincerely,



Brian Takeda
Senior Planner

cc Mr. Scot K. Muraoka, Honolulu Board of Water Supply
Mr. Cary Gill, OEQC

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R. M. TOWILL CORPORATION

420 WAIKAMULO RD #411 HONOLULU, HI 96817-4941 (808) 842-1133 FAX (808) 842-1037

February 21, 1998

Ms. Anna B.A. Yannell or Occupant
1457 16th Avenue
Honolulu, Hawaii 96816

Dear Ms. Yannell/Occupant:

SUBJECT: Notice of Availability of Draft Environmental Assessment (EA) for
Honolulu Board of Water Supply, Waialae West Well, Kaimuki, Oahu

This is to inform you that the Honolulu Board of Water Supply is providing the above
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City and County of Honolulu
630 South Beretania Street
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420 Waiakamilo Road, Suite 411
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Brian Takeda
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cc Mr. Scot K. Muraoka, Honolulu Board of Water Supply
Mr. Cary Gill, OEQC

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R. M. TOWILL CORPORATION

420 WAIKAMULO RD #411 HONOLULU, HI 96817-4941 (808) 842-1133 FAX (808) 842-1037

February 21, 1998

Mr. Richard Nishiki or Occupant
1453 16th Avenue
Honolulu, Hawaii 96816

Dear Mr. Nishiki/Occupant:

SUBJECT: Notice of Availability of Draft Environmental Assessment (EA) for
Honolulu Board of Water Supply, Waialae West Well, Kaimuki, Oahu

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Mr. Cary Gill, OEQC

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420 WAIKAMULO RD #411 HONOLULU, HI 96817-4941 (808) 842-1133 FAX (808) 842-1037

February 21, 1998

Mr. Frederick Crowell or Occupant
1448 Ekaha Avenue
Honolulu, Hawaii 96816

Dear Mr. Crowell/Occupant:

SUBJECT: Notice of Availability of Draft Environmental Assessment (EA) for
Honolulu Board of Water Supply, Waialae West Well, Kaimuki, Oahu

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R. M. TOWILL CORPORATION

420 WAIKAMILLO RD #411 HONOLULU, HI 96817-1041 (808) 848-1133 FAX (808) 848-1037

February 21, 1998

Mr. George Holeso or Occupant
3897 Claudine Street
Honolulu, Hawaii 96816

Dear Mr. Holeso/Occupant:

SUBJECT: Notice of Availability of Draft Environmental Assessment (EA) for
Honolulu Board of Water Supply, Waialae West Well, Kaimuki, Oahu

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420 WAIKAMILLO RD #411 HONOLULU, HI 96817-1041 (808) 848-1133 FAX (808) 848-1037

February 21, 1998

Mr. Phillip H.C. Chee or Occupant
3897 Claudine Street
Honolulu, Hawaii 96816

Dear Mr. Chee/Occupant:

SUBJECT: Notice of Availability of Draft Environmental Assessment (EA) for
Honolulu Board of Water Supply, Waialae West Well, Kaimuki, Oahu

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420 WAIKAMULO RD #411 HONOLULU HI 96817-4041 (808) 848-1133 FAX (808) 842-1037

February 21, 1998

Mr. Neil Fergusson or Occupant
3915 Koko Drive
Honolulu, Hawaii 96816

Dear Mr. Fergusson/Occupant:

SUBJECT: Notice of Availability of Draft Environmental Assessment (EA) for
Honolulu Board of Water Supply, Waialae West Well, Kaimuki, Oahu

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420 WAIKAMULO RD #411 HONOLULU HI 96817-4041 (808) 848-1133 FAX (808) 842-1037

February 21, 1998

Mr. Shang-Hsien Ho or Occupant
3927 Koko Drive
Honolulu, Hawaii 96816

Dear Mr. Ho/Occupant:

SUBJECT: Notice of Availability of Draft Environmental Assessment (EA) for
Honolulu Board of Water Supply, Waialae West Well, Kaimuki, Oahu

This is to inform you that the Honolulu Board of Water Supply is providing the above
Draft Environmental Assessment (DEA) for public review at the following addresses:

Office of Environmental
Quality Control (OEQC)
236 South Beretania Street, Suite 702
Honolulu, Hawaii 96813, or
Kaimuki Public Library
1041 Koko Head Avenue
Honolulu, Hawaii 96816

The public has until March 10, 1998 to comment on this project. Comments received by
this date will be used to prepare the Final Environmental Assessment. Notice of
availability for both the Draft and Final Environmental Assessments are published in the
OEQC Environmental Notice.

Public comments may be forwarded to:

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

Mr. Brian Takeda, Senior Planner
R. M. Towill Corporation
420 Waiakamilo Road, Suite 411
Honolulu, Hawaii 96817-4941

Thank you for your assistance. If you have any questions please contact us at 842-1133.

Sincerely,



Brian Takeda
Senior Planner

cc Mr. Scott K. Murooka, Honolulu Board of Water Supply
Mr. Cary Gill, OEQC

Engineers • Planners • Photogrammetrists • Surveyors
Construction Managers • Hazardous Waste Management

R. M. TOWILL CORPORATION

420 Waiakamilo Rd #411 Honolulu, HI 00017-4041 (808) 842-1133 Fax (808) 842-1037

February 21, 1998

Mr. Moe Hiun Ko or Occupant
3933 Koko Drive
Honolulu, Hawaii 96816

Dear Mr. Ko/Occupant:

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Sincerely,



Brian Takeda
Senior Planner

cc Mr. Scot K. Muraoka, Honolulu Board of Water Supply
Mr. Gary Gill, OEQC

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420 Waiakamilo Rd #411 Honolulu, HI 00017-4041 (808) 842-1133 Fax (808) 842-1037

February 21, 1998

Mr. Thomas T. Kojo or Occupant
4197 Koko Drive
Honolulu, Hawaii 96816

Dear Mr. Kojo/Occupant:

SUBJECT: Notice of Availability of Draft Environmental Assessment (EA) for
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630 South Beretania Street
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R. M. Towill Corporation
420 Waiakamilo Road, Suite 411
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Sincerely,



Brian Takeda
Senior Planner

cc Mr. Scot K. Muraoka, Honolulu Board of Water Supply
Mr. Gary Gill, OEQC

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Construction Managers • Hazardous Waste Management

R. M. TOWILL CORPORATION

480 Waiakamilo Rd #411 Honolulu, HI 96817-4941 (808) 948-1133 Fax: (808) 942-1037

February 21, 1998

Ms. Edna Ah Chan or Occupant
3941 Koko Drive
Honolulu, Hawaii 96816

Dear Ms. Ah Chan/Occupant:

SUBJECT: Notice of Availability of Draft Environmental Assessment (EA) for
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Sincerely,



Brian Takeda
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cc Mr. Scot K. Muroga, Honolulu Board of Water Supply
Mr. Gary Gill, OEQC

Engineers • Planners • Photogrammetrists • Surveyors
Construction Managers • Hazardous Waste Management

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