



DEPARTMENT OF WATER SUPPLY • COUNTY OF HAWAII

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TELEPHONE (808) 961-8050 • FAX (808) 961-8657

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August 27, 2002

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OFFICE OF ENVIRONMENTAL
QUALITY CONTROL

Ms. Genevieve Salmonson, Director
Office of Environmental Quality Control
235 South Beretania Street, Suite 702
Honolulu, Hawaii 96813

**FINDING OF NO SIGNIFICANT IMPACT (FONSI) FOR THE HONOMŪ WELL
TAX MAP KEY 2-8-13:55 AND POR. 2-8-13:05
SOUTH HILO DISTRICT, ISLAND OF HAWAII**

Dear Ms. Salmonson:

The County of Hawai'i Department of Water Supply has reviewed the comments received during the 30-day public comment period which began on June 23, 2002. The agency has determined that this project will not have significant environmental effects and has issued a Finding of No Significant Impact (FONSI). Please publish this notice in the September 8, 2002 OEQC *Environmental Notice*.

We have enclosed a completed OEQC Publication Form, four copies of the Final Environmental Assessment, and the project summary on disk.

Please call the project consultant Mr. Perry White at (808) 593-1288 if you have any questions.

Sincerely yours,

Milton D. Pavao, P.E.
Manager

KKO:pt

- Enclosures: (1) OEQC Publication Form
(2) *Final Environmental Assessment, Honomū Well* (4 copies)
(3) Project Summary on 3.5" disk; file name: HonomuWell.wpd

... Water brings progress...

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Final Environmental Assessment

(HONOMŪ WELL)

**PREPARED FOR:
Department of Water Supply
County of Hawai'i**

PREPARED BY:
 **PLANNING
SOLUTIONS**

AUGUST 2002

PROJECT SUMMARY

Project:	HONOMŪ WELL
Applicant/Approving Agency:	Department of Water Supply County of Hawai'i Contact: Milton Pavao (808-961-8050) 345 Kekūanaō'a Street., Suite 20, Hilo, HI 96720
Location:	South Hilo District; Island of Hawai'i
Tax Map Keys:	2-8-13:55 and por. 2-8-13:05
Parcel Area:	49.5 acres
Project Site Area:	18,000 square feet
State Land Use District:	Agriculture
County Zoning:	Agricultural (A-20a)
Proposed Action:	The Department proposes to drill and test, and, if successful complete a new municipal water supply well adjacent to an existing 100,000-gallon tank site adjacent to State Hwy 220, approximately 0.5 mi. <i>mauka</i> of the community of Honomū. Electrical power for the permanent pump motor will be drawn from an existing overhead power line. A single-story, 324 square-foot, control building will be constructed on the site to house the motor control center and other electrical equipment needed to start and stop the well pump. An access driveway and parking stalls will also be constructed. Water from the well will replace water from the present water source ('Akaka Falls Spring).
Associated Actions Requiring Environmental Assessment:	Proposed use of County land and government funds
Consultation:	This Final Environmental Assessment was prepared using information obtained from published documents and consultation with resource agencies. Resource agencies were sent copies of the Draft Environmental Assessment and their comments were used in formulation of the Final Environmental Assessment
Required Permits:	<ul style="list-style-type: none"> • Construction noise variance, State Dept. of Health • Building Permit, Hawai'i County • Pump Installation Permit (granted administratively following receipt of pump test results) State Water Commission • Well construction permit • Certification of Well for Drinking Water Use, State Department of Health
Determination:	Finding of No Significant Impact
Consultant:	Planning Solutions, Inc. 1210 Auahi Street, Suite 221 Honolulu, HI 96814 Contact: Perry White (808-593-1288)

TABLE OF CONTENTS

1.0 PROJECT DESCRIPTION	1-1
1.1 PURPOSE AND NEED FOR THE PROJECT.....	1-1
1.2 LOCATION AND EXISTING USE OF THE PROPOSED SITE	1-1
1.3 DESCRIPTION OF THE PROPOSED ACTION	1-7
1.3.1 Design of the Proposed Facilities	1-7
1.3.2 Well Construction and Pump Testing.....	1-7
1.3.3 Project Cost	1-8
1.3.4 Implementation Schedule	1-8
2.0 EXISTING CONDITIONS	2-1
2.1 GEOLOGY	2-1
2.2 TOPOGRAPHY AND SOILS.....	2-1
2.3 HYDROLOGY	2-1
2.3.1 Surface Water	2-1
2.3.2 Groundwater.....	2-1
2.4 POTENTIAL FOR CONTAMINATION.....	2-4
2.4.1 Groundwater Contamination	2-4
2.4.2 Contamination From Solid Waste and Wastewater	2-5
2.4.3 Contamination From Hazardous Waste.....	2-5
2.5 CLIMATE AND AIR QUALITY	2-5
2.6 TERRESTRIAL FLORA AND FAUNA	2-6
2.7 NOISE	2-6
2.8 AQUATIC RESOURCES.....	2-6
2.9 ARCHAEOLOGICAL, HISTORIC AND CULTURAL FEATURES	2-6
2.10 VOLCANIC AND SEISMIC HAZARDS	2-6
2.11 FLOOD AND TSUNAMI HAZARDS	2-7
2.12 SCENIC AND AESTHETIC RESOURCES	2-7
2.13 ECONOMIC AND CULTURAL ENVIRONMENT	2-7
2.14 EXISTING LAND USE.....	2-7
2.15 LAND USE CONTROLS	2-7
2.16 LAND OWNERSHIP	2-7
3.0 PROBABLE IMPACTS AND MITIGATION	3-1
3.1 TOPOGRAPHY AND DRAINAGE.....	3-1
3.2 GEOLOGY AND SOILS	3-1
3.3 HYDROLOGY	3-1
3.3.1 Construction Phase	3-1
3.3.2 Operational Phase.....	3-1
3.4 WATER QUALITY.....	3-2
3.5 CLIMATE AND AIR QUALITY	3-2
3.5.1 Construction Phase	3-2
3.5.2 Operational Phase.....	3-3
3.6 TERRESTRIAL FLORA AND FAUNA	3-3
3.7 AQUATIC RESOURCES.....	3-3
3.8 NOISE	3-3
3.8.1 Construction Phase	3-3
3.8.2 Operational Phase.....	3-5
3.9 TRAFFIC.....	3-5
3.10 ARCHAEOLOGICAL AND HISTORIC FEATURES OR CULTURAL PRACTICES	3-5
3.11 NATURAL HAZARDS	3-5
3.12 SCENIC AND AESTHETIC RESOURCES	3-5
3.13 IMPACTS ON LAND USE, RECREATION AND OPEN-SPACE OPPORTUNITIES	3-7
3.14 IMPACTS ON POPULATION AND ECONOMIC ACTIVITY	3-7

TABLE OF CONTENTS

4.0 ALTERNATIVES CONSIDERED4-1

4.1 NO ACTION ALTERNATIVE 4-1

4.2 ENHANCED TREATMENT 4-1

4.3 ENHANCED WATER CONSERVATION ALTERNATIVE 4-1

4.4 OTHER SOURCE DEVELOPMENT ALTERNATIVES 4-2

4.5 DELAYED ACTION 4-2

5.0 RELATIONSHIPS TO RELEVANT PLANS, POLICIES & CONTROLS.....5-1

5.1 COMPLIANCE WITH COUNTY OF HAWAI'I GENERAL PLAN 5-1

5.2 COMPLIANCE WITH THE STATE OF HAWAI'I'S DRINKING WATER STATE REVOLVING FUND (DWSRF) PROGRAM REQUIREMENTS..... 5-1

5.3 CROSS-CUTTING FEDERAL AUTHORITIES 5-1

5.3.1 Archeological and Historic Preservation Act (16 U.S.C. § 469a-1) and National Historic Preservation Act (16 U.S.C. § 470(f))..... 5-1

5.3.2 Clean Air Act (42 U.S.C. § 7506(c))..... 5-2

5.3.3 Coastal Zone Management Act (16 U.S.C. § 1456(c) (1)) 5-2

5.3.4 Endangered Species Act (16 U.S.C. 1536(a)(2) and (4))..... 5-3

5.3.5 Farmland Protection Policy Act (7 U.S.C. § 4202(8))..... 5-3

5.3.6 Fish and Wildlife Coordination Act (16 U.S.C. § 662(a))..... 5-4

5.3.7 Floodplain Management (42 U.S.C. § 4321)..... 5-4

5.3.8 Safe Drinking Water Act (42 U.S.C. § 300h-3(e)) 5-4

5.3.9 Protection of Wetlands (42 U.S.C. § 4321) 5-5

5.3.10 Wild and Scenic Rivers Act (16 U.S.C. 1271-1287) 5-5

5.3.11 Wilderness Act (16 U.S.C. 1131) 5-5

6.0 DETERMINATION6-1

6.1 SIGNIFICANCE CRITERIA 6-1

6.2 FINDINGS 6-1

6.2.1 Irrevocable Loss or Destruction of Valuable Resource 6-1

6.2.2 Curtails Beneficial Uses 6-2

6.2.3 Conflicts with Long-Term Environmental Policies or Goals 6-2

6.2.4 Substantially Affects Economic or Social Welfare 6-2

6.2.5 Public Health Effects 6-2

6.2.6 Produce Substantial Secondary Impacts 6-2

6.2.7 Substantially Degrade Environmental Quality 6-2

6.2.8 Cumulative Effects or Commitment to a Larger Action..... 6-2

6.2.9 Affects a Rare, Threatened, or Endangered Species 6-2

6.2.10 Affects Air or Water Quality or Ambient Noise Levels 6-3

6.2.11 Environmentally Sensitive Areas..... 6-3

6.2.12 affects scenic vistas and viewplanes..... 6-3

6.2.13 Requires Substantial Energy Consumption 6-3

6.3 DETERMINATION 6-3

7.0 BIBLIOGRAPHY7-1

8.0 PARTIES CONSULTED8-1

8.1 EARLY CONSULTATION 8-1

8.2 DISTRIBUTION OF DRAFT EA..... 8-1

8.3 DRAFT EA COMMENT LETTERS RECEIVED AND RESPONSES 8-3

LIST OF FIGURES

FIGURE 1-1 EXISTING HONOMO WATER SYSTEM..... 1-2

FIGURE 1-2 PROJECT LOCATION..... 1-3

FIGURE 1-3 EXISTING FACILITIES..... 1-4

FIGURE 1-4 PROJECT SITE 1-5

FIGURE 1-5	PROPOSED WELL SITE.....	1-6
FIGURE 1-6	CROSS SECTION OF PROPOSED WELL.....	1-9
FIGURE 1-7	SEEPAGE PIT DETAIL.....	1-10
FIGURE 2-1	HAKALAU AQUIFER	2-2
FIGURE 3-1	EXISTING VIEWS	3-6

LIST OF TABLES

TABLE 1-1	PRELIMINARY PROJECT COST ESTIMATE.....	1-8
TABLE 2-1	DRILLED WELLS IN THE HAKALAU AQUIFER SYSTEM	2-3
TABLE 2-2	MEASURED CONTAMINATION IN WELLS OF THE HAKALAU AQUIFER SYSTEM	2-4
TABLE 3-1.	MAXIMUM PERMISSIBLE SOUNDS LEVELS IN DBA (HAR §11-46).	3-4
TABLE 8-1	ORGANIZATIONS CONTACTED IN PREPARATION OF THE EA	8-1
TABLE 8-2	DRAFT EA DISTRIBUTION LIST	8-1
TABLE 8-3	COMMENTS RECEIVED ON THE DRAFT EA	8-2

1.0 PROJECT DESCRIPTION

1.1 PURPOSE AND NEED FOR THE PROJECT

The Hawai'i County Department of Water Supply (DWS) is responsible for the development, operation, and maintenance of the municipal water systems throughout the Island of Hawai'i. Currently, the DWS supplies the needs of its customers in the Honomū area using water from 'Akaka Falls Spring (see Figure 1-1). The DWS' Honomū system serves approximately 250 households in the Honomū area. Average and maximum daily use for the system are, respectively, 63,800 and 95,700 gallons per day.¹ According to the 2000 U.S. Census, the total population in the area served by the water system² is about 600 people.

The Federal Safe Drinking Water Act requires that all public water systems meet stringent water quality standards. These standards cover a long list of potential chemical, radiological and biological contaminants. The standards distinguish between surface water and groundwater sources, with the testing and monitoring requirements for surface water sources and for groundwater sources under the direct influence of surface water (GWUDI) being far greater than those for groundwater sources.

Recently implemented regulations (*Federal Register*, Volume 67, page 1812; January 14, 2002) require enhanced treatment of surface water for use as potable water, including new disinfection, filtration and testing operations. These enhanced treatment measures can be expensive and labor intensive, particularly for small systems such as the Honomū water supply system.

Although the State Department of Health (DOH) has not yet declared the spring to be groundwater under the direct influence of surface water, DWS is anticipating such a designation. That would require water from the spring to meet the requirements of the Surface Water Treatment Rule (SWTR), including enhanced treatment procedures. In order to avoid the excessive costs associated with constructing and operating such facilities, DWS proposes to replace the spring source with a new drilled well. The proposed well would provide a cost-effective means of meeting current and anticipated Federal requirements.

1.2 LOCATION AND EXISTING USE OF THE PROPOSED SITE

The proposed Honomū well would be constructed adjacent to the DWS's existing 0.1 million gallon (MG) Honomū Reservoir. It would be located on a portion of TMK 2-8-13:05, a 50-acre parcel, which surrounds the 6,300 square foot existing tank site (TMK 2-8-13:55) on three sides. The large parcel from which the well site would be subdivided extends between the 'Akaka Falls Road (State Highway 22) to the southeast and the Pāhe'ehe'e Stream to the northwest (see Figure 1-2).

The existing 0.1 MG Honomū Reservoir would continue to provide the primary storage for the Honomū system. The existing facilities there include a concrete tank, a chlorination system, valves and piping (Figure 1-3). An existing overhead connection to an electrical distribution line across 'Akaka Falls Road from the site provides electricity to the facility. Overflow from the water tank is piped to a concrete splash block adjacent to the public roadway. The proposed well would be constructed adjacent to this existing facility as shown in Figure 1-4. Currently this area consists of fallow agricultural lands, which were formerly used for cultivation of sugarcane (Figure 1-5).

¹ County of Hawai'i Department of Water Supply data. Readings collected over an eight-month period ending on November 11, 2000.

² Defined here as the population in the Year 2000 U.S. Census blocks that have some portion within 500 feet of the water system.

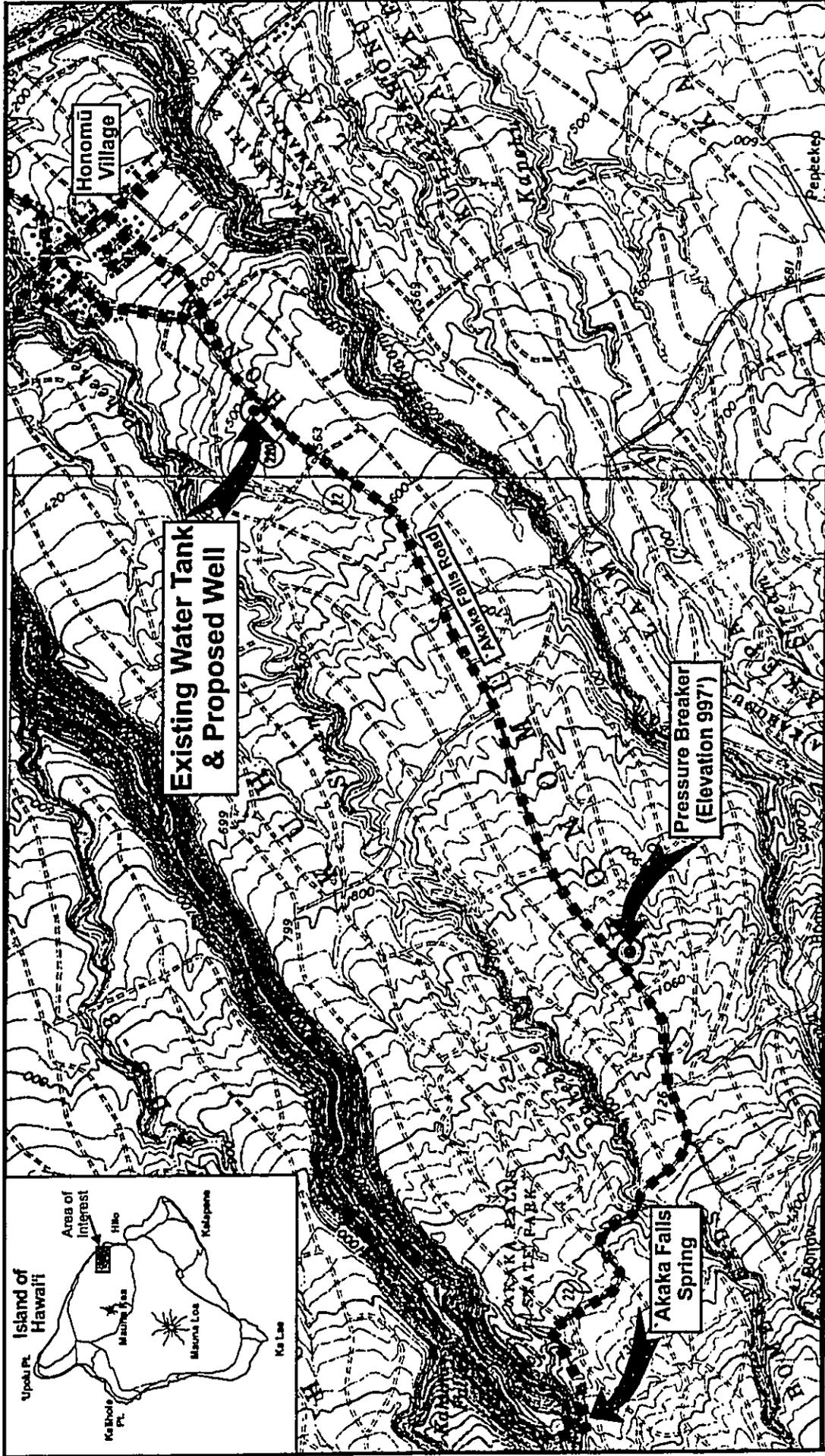


Figure 1-1:

Existing Honomū Water System

Honomū Well Project

Existing Water Pipeline

Legend:



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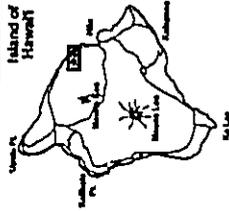
Department of Water Supply,
County of Hawai'i

Prepared By:



Source:

Tom Nance Water Resource Engineering
USGS 7.5' Quadrangle Maps; Akaka Falls & Pāpa'ikou



- Legend:**
- Water Distribution Line
 - Existing Parcel Boundary
 - Perennial Streams

Prepared For:
 Dept. Of Water Supply,
 County of Hawaii

Prepared By:
 T.M. SOLUTIONS

Source:
 Tom Nance Water Resource
 Engineering

Project Location

Honomū Well Project

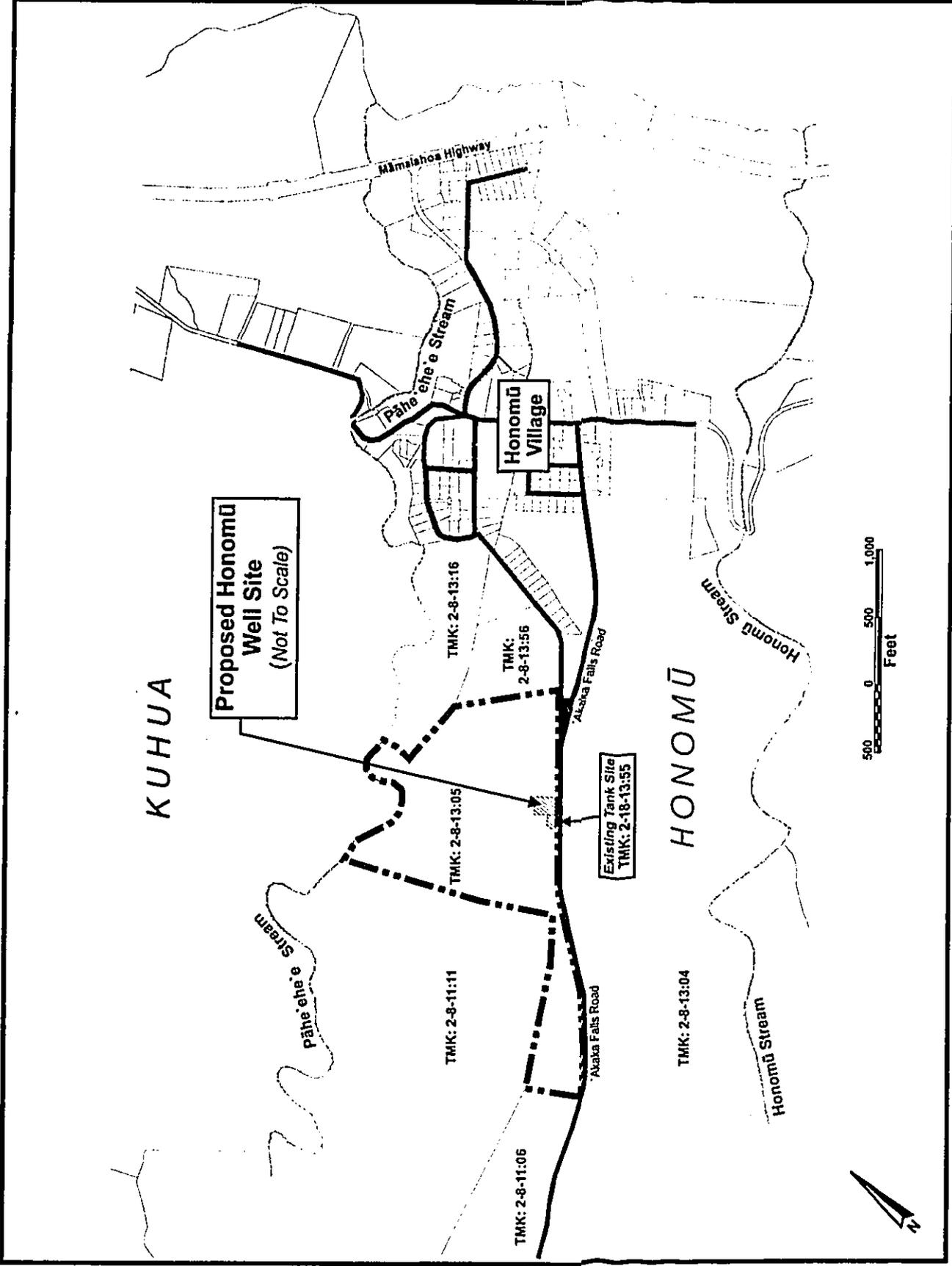
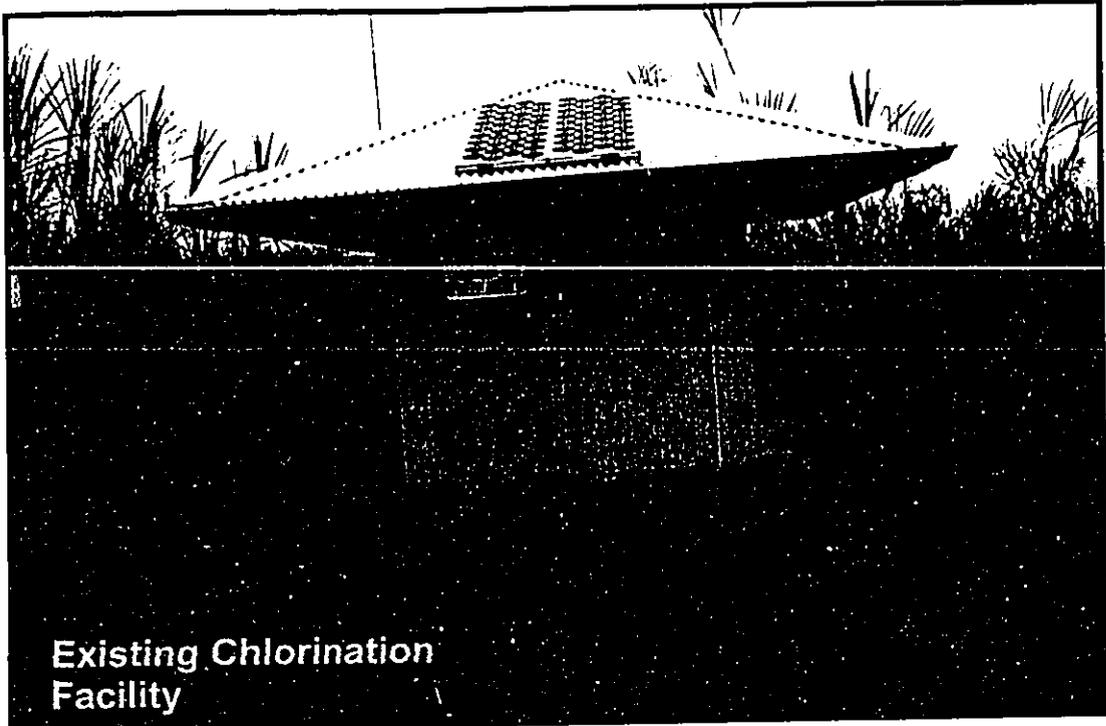
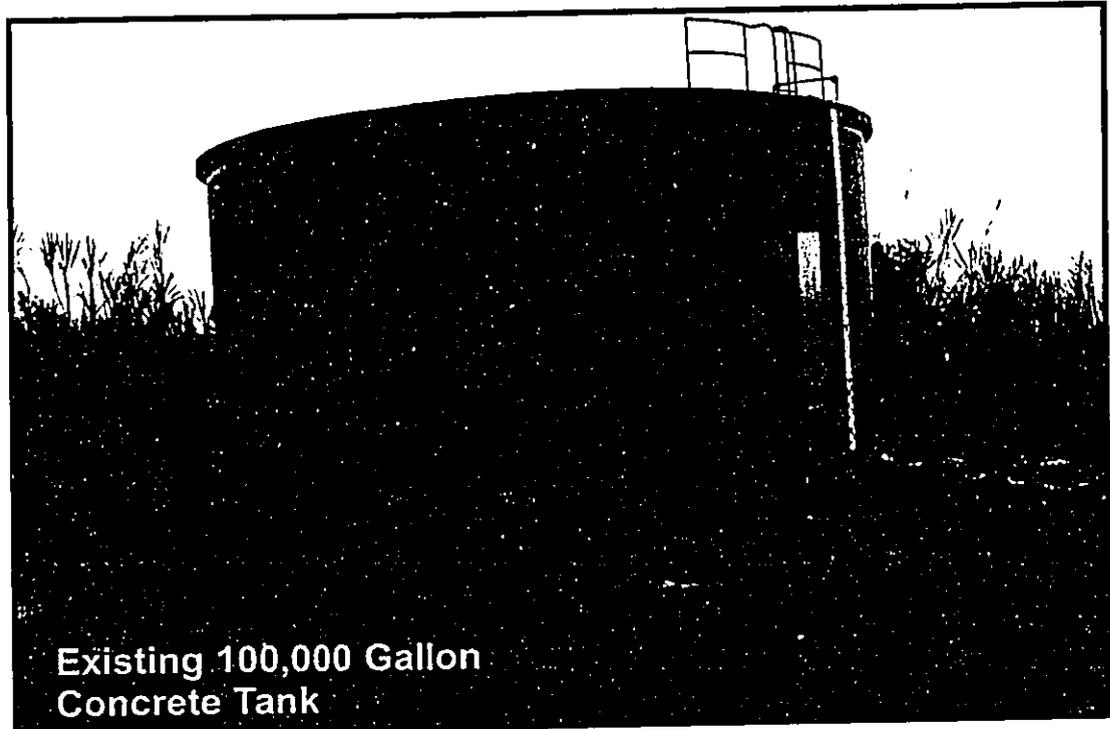


Figure 1-2:



**Existing Chlorination
Facility**



**Existing 100,000 Gallon
Concrete Tank**

Prepared For:
County of Hawai'i, Department
of Water Supply
Tom Nance Water Resource
Engineering

Prepared By:



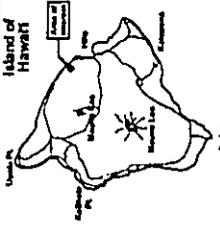
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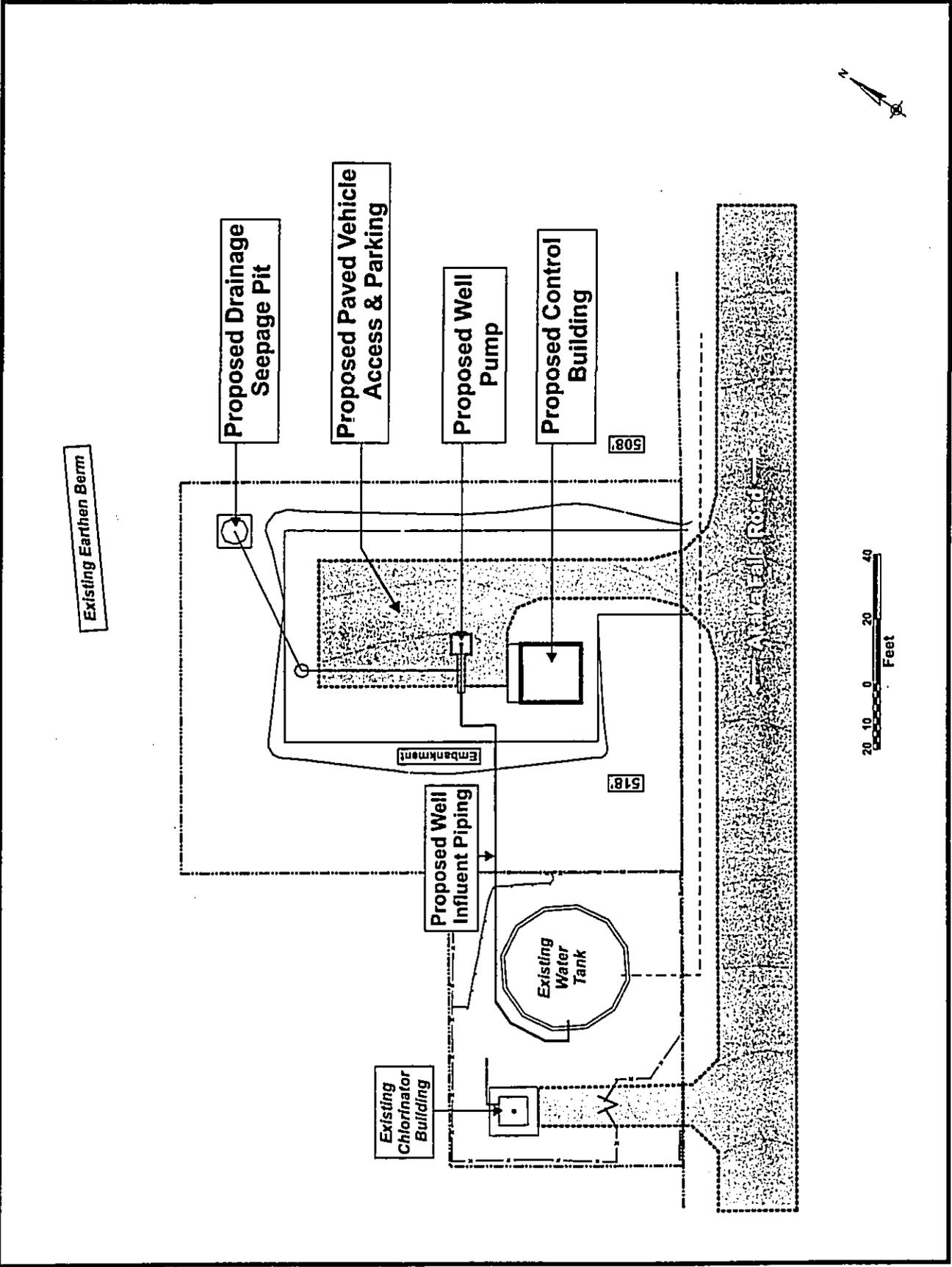
Note:
Site photos were taken on April 23, 2002

Figure 1-3:

Existing Facilities

Honomū Well Project

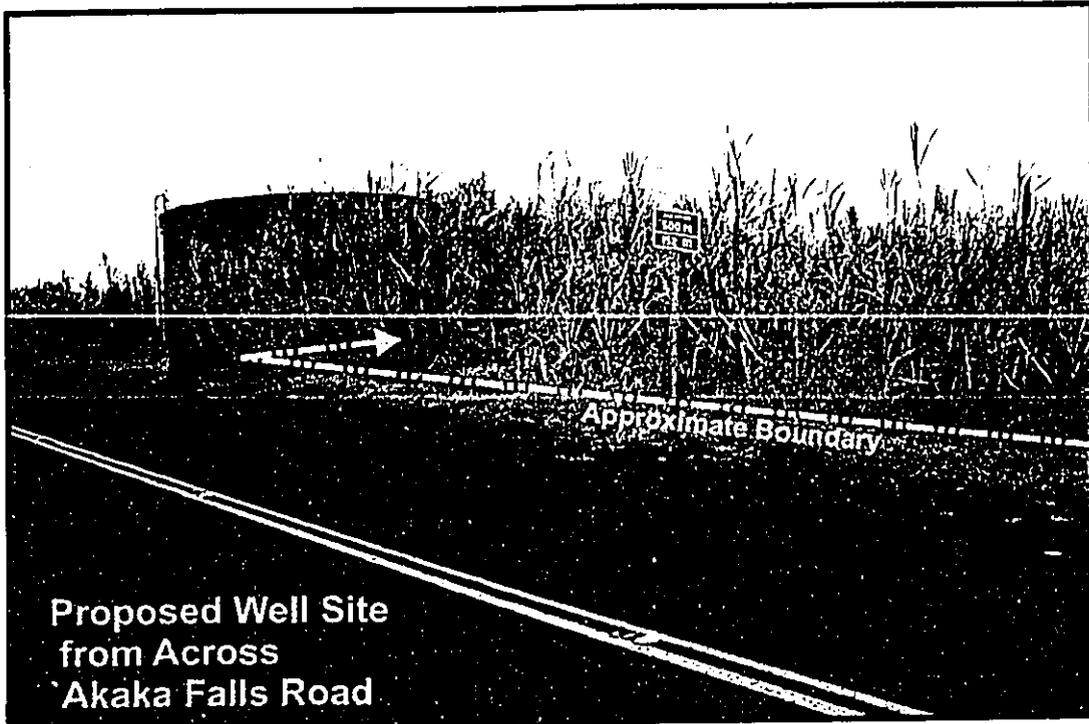
	Legend:  Property Boundaries	 2 ft. Contour Elevation  Paved Areas	Prepared For: Tom Nance Water Resource Engineering	Prepared By:  PLANNING SOLUTIONS	Source: Tom Nance Water Resource Engineering	Figure 1-4: <h2>Project Site</h2>
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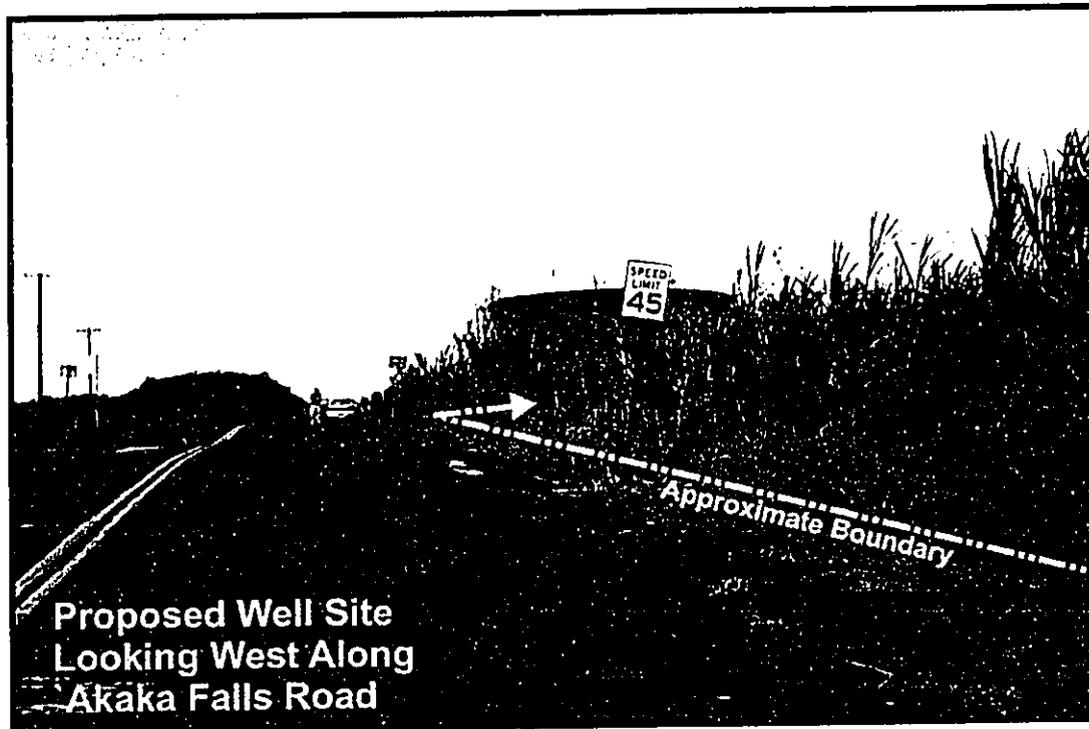
20 10 0 20 40
Feet



Honomū Well Project



**Proposed Well Site
from Across
Akaka Falls Road**



**Proposed Well Site
Looking West Along
Akaka Falls Road**

Prepared For:
Tom Nance Water Resource
Engineering
County of Hawai'i, Department
of Water Supply

Prepared By:

**PLANNING
SOLUTIONS**

Source:
Planning Solutions, Inc.

Note:
Site photos were taken on April 23, 2002

Figure 1-5:

**Proposed Well
Site**

Honomū Well Project

1.3 DESCRIPTION OF THE PROPOSED ACTION

The DWS proposes to construct a new exploratory well on an 18,000 square-foot site it would purchase next to the existing water tank. If pump tests confirm that the well's yield is adequate, the DWS will install a permanent pump and connect it to the existing 0.1 MG Honomū Reservoir. Once the new well is operational, DWS would discontinue use of the 'Akaka Falls Spring. Details concerning the well drilling, pump installation, testing, outfitting, and operation are provided below.

1.3.1 DESIGN OF THE PROPOSED FACILITIES

Preliminary plans call for the well to be drilled to a depth of 550 feet below the ground surface elevation of approximately 515 feet. The borehole will have a diameter of 19 inches. As shown in Figure 1-6, solid steel casing 12 inches in diameter will be installed in the upper 510 feet of the hole. Below that will lie 40 feet of perforated casing. The upper 500 feet of the annulus space between the outside of the boring and the solid casing will be filled with cement grout. The design provides for an open hole a minimum of 11 inches in diameter, to be drilled below the bottom of the casing if it is necessary to achieve the desired yield. The exploratory well will be drilled and tested using diesel-powered equipment. Hence, it will not require electrical power during the exploratory phase of development.

The permanent facilities will require electrical power for lighting, equipment in the control building, and for a 40 horsepower motor that will run the 200 gallon-per-minute submersible well pump. A new water-level control switch installed in the existing concrete reservoir will provide automatic start/stop operation of the deep-well pump. The existing Hawaii Electric Light Company (HELCO) power line along 'Akaka Falls Road has sufficient capacity to accommodate the additional electrical load. However, the existing single-phase electrical service connection to the property will be upgraded to three-phase power through the addition of a three-phase, pole-top transformer bank on the pole opposite the well site. Utility metering will conform to HELCO's requirements.

The DWS will provide telephone service from an existing telecommunications line located on the same poles as the electrical supply. It will install an automatic dialer system and perhaps other equipment to monitor any alarm conditions such as a pump failure or a low reservoir level.

The well site will be graded to accommodate the production well facilities, the access road, parking, and a single-story control building. The concrete-block control building will house the motor control center and other electrical equipment to start and stop the well pump. The outside dimensions of the structure will be approximately 18 feet by 18 feet, for a total enclosed area of approximately 325 square feet. A seepage pit will also be constructed at the northern corner of the site; it will be approximately 8 feet in diameter and 8 feet deep (see Figure 1-7). The seepage pit will be used initially to dispose of water from the pump test; once the well is operational, it will accommodate water from the pump startup. Before the well is placed into service, DWS will install at the well site a physical break/disconnect in the distribution line from the current 'Akaka Falls Spring water source to ensure that no contamination from this source can occur.

1.3.2 WELL CONSTRUCTION AND PUMP TESTING

Including the casing installation and pump testing, a construction period of up to 6 months is expected. Pump testing will be at rates up to 500 gallons per minute and may extend up to seven consecutive days. The contractor may seek additional disposal of pumped water off site, subject to being in compliance with all NPDES requirements of the State Department of Health (e.g. Hawaii Administrative Rules 11-55, Appendix I).

DWS will submit an engineering report to the State Department of Health Safe Drinking Water Branch (SWDB) that identifies all potential sources of contamination and alternative control measures. The report shall be prepared by a licensed professional engineer, experienced in such

PROJECT DESCRIPTION

fields as water resources, hydrogeology, water supply, or environmental engineering, and shall address all the requirements set forth in Hawai'i Administrative Rules Section 11-20-29. Before the well is placed into service as part of the Honomū System, DWS will obtain approval from the SWDB, as required by these regulations.

1.3.3 PROJECT COST

The project will be funded by the Department of Water Supply, County of Hawai'i. The first, exploratory phase of the work is identified as DWS Job No. 98-705, Honomū Exploratory Well. Table 1-1 presents preliminary estimates of the complete project costs. This project may also be funded by Federal funds through the State of Hawai'i's Drinking Water State Revolving Fund (DWSRF) program, which would constitute a Federal action and will require the project to meet all of the Hawai'i DWSRF program requirements.

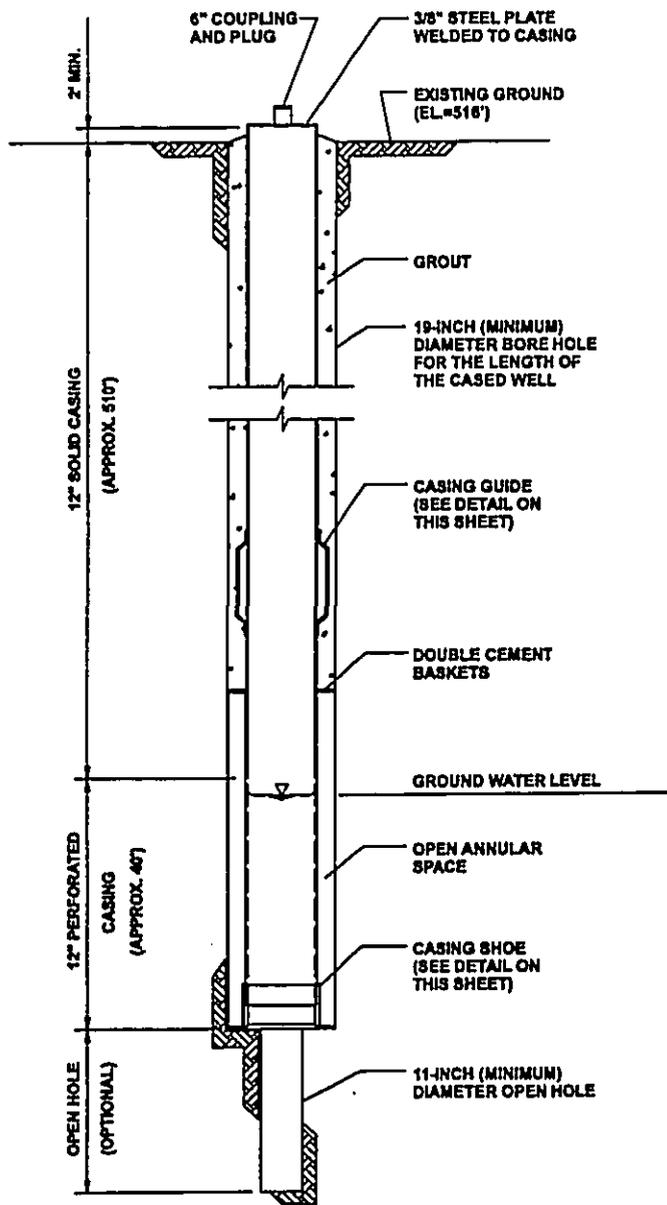
Table 1-1 Preliminary Project Cost Estimate

<i>Item</i>	<i>Estimated Cost</i>
Well Drilling, Casing, and Pump Testing (Exploratory Phase)	\$315,000
Well Outfitting & Facility Construction (Development Phase)	\$570,000
Telephone Installation Charge (Development Phase)	\$50,000
HELCO Installation Charge (Development Phase)	\$50,000
Total Cost	\$985,000
Source: Tom Nance Water Resource Engineering	

1.3.4 IMPLEMENTATION SCHEDULE

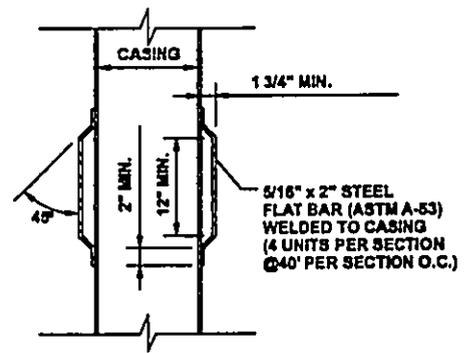
The County anticipates the following schedule for the proposed project:

- Award Construction Contract: Third Quarter 2002
- Drill and Test Wells: Fourth Quarter 2002 to Third Quarter 2003
- Outfit Wells & Construct Control Facilities: Third Quarter 2003 to Second Quarter 2005
- Begin Full-Scale Operation: Second Quarter 2005



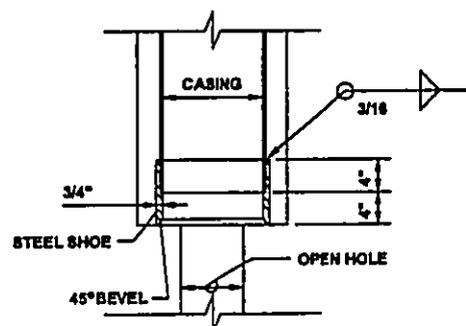
SECTION THRU WELL

NOT TO SCALE



CASING GUIDE DETAIL

NOT TO SCALE



CASING SHOE DETAIL

NOT TO SCALE

Prepared For:
Department of Water Supply,
County of Hawai'i

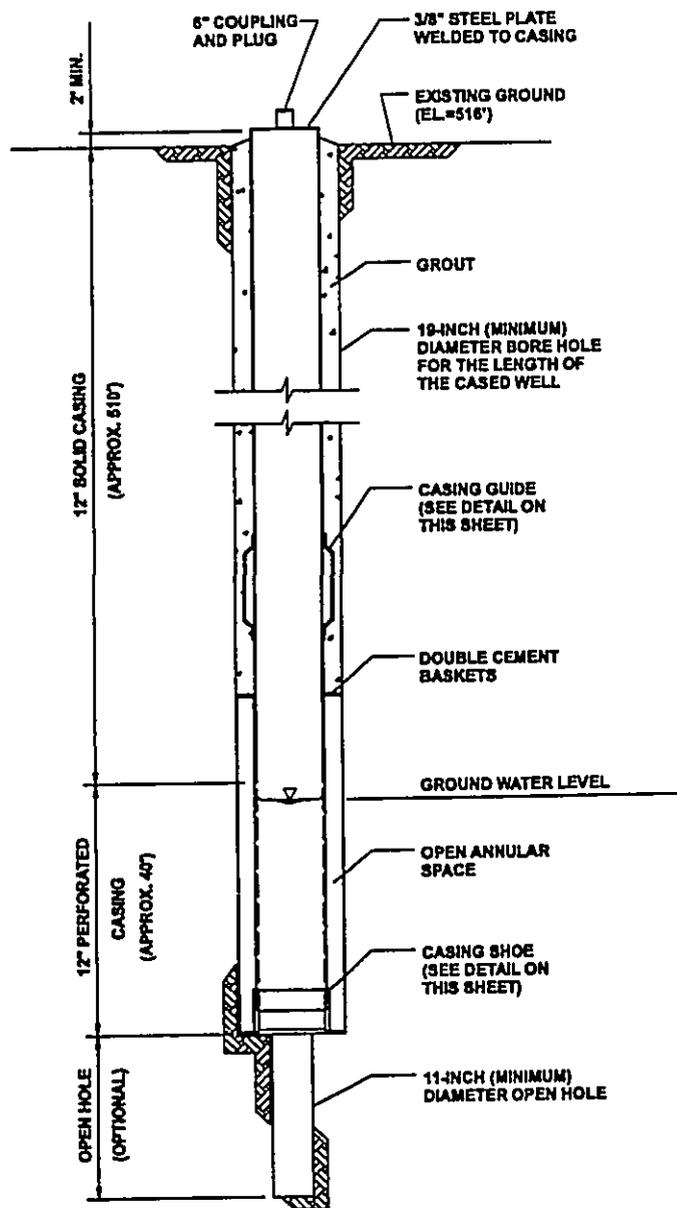
Prepared By:
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Source:
Tom Nance Water Resource
Engineering

Figure 1-6:

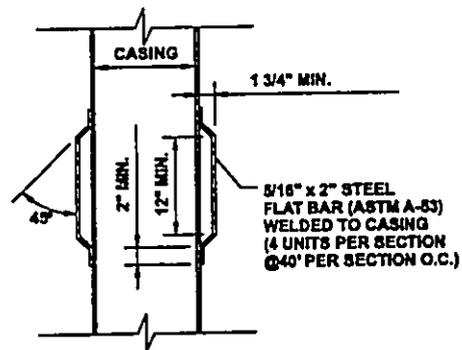
Cross Section of Proposed Well

Honomū Well Project



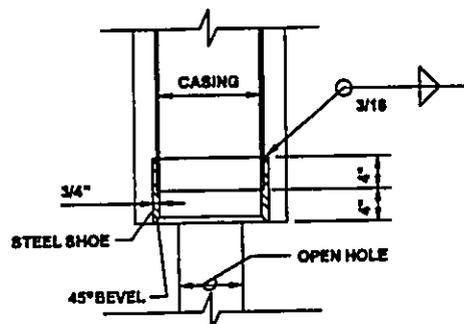
SECTION THRU WELL

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CASING GUIDE DETAIL

NOT TO SCALE



CASING SHOE DETAIL

NOT TO SCALE

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County of Hawai'i

Prepared By:



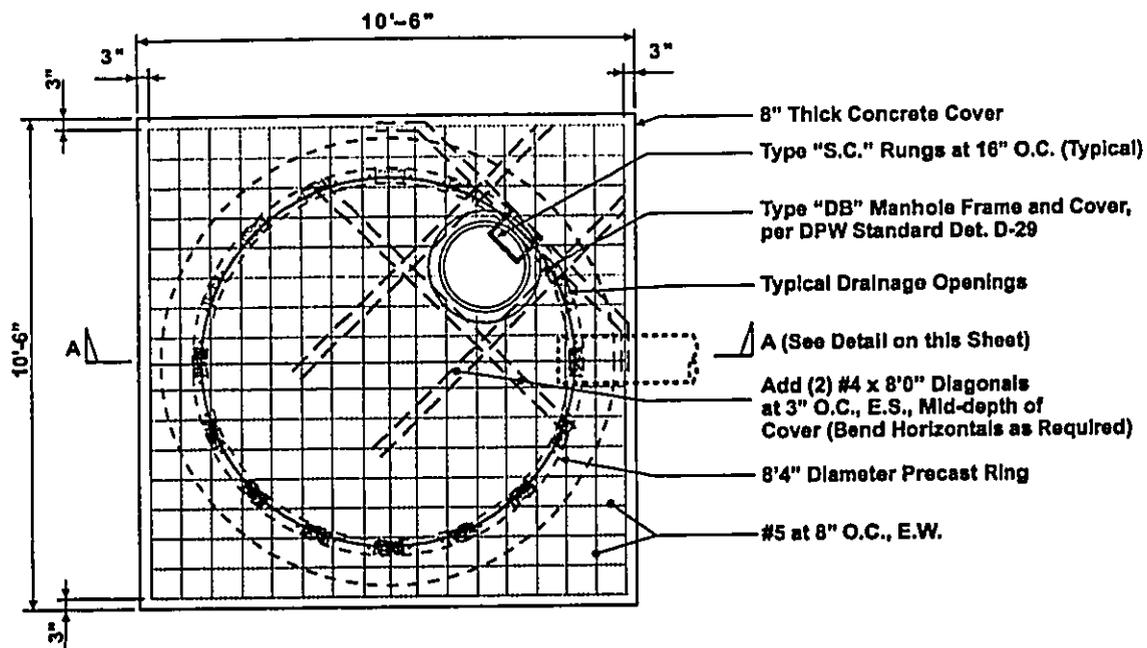
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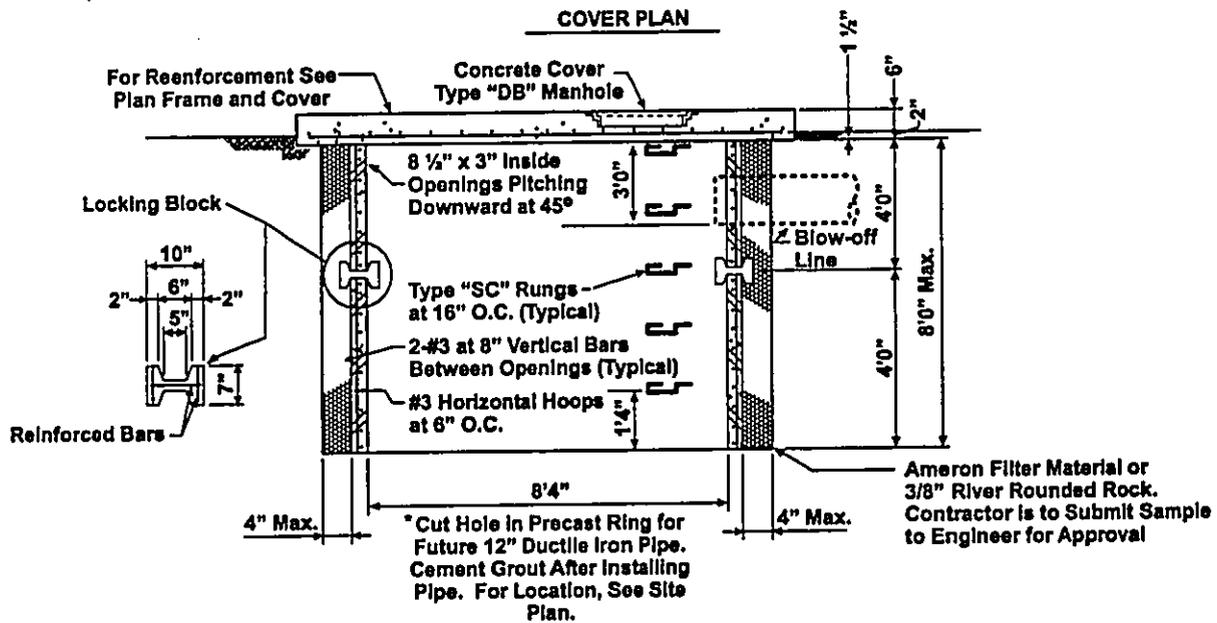
Figure 1-6:

Cross Section of Proposed Well

Honomū Well Project



COVER PLAN



Section "A-A" Cylinder Reinforcing & Drainage Details

Seepage Pit Detail

Not To Scale

Prepared For:
Department of Water Supply,
County of Hawai'i

Prepared By:
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SOLUTIONS

Source:
Tom Nance Water Resource
Engineering

Figure 1-7:

Seepage Pit Detail

Honolulu Well Project

2.0 EXISTING CONDITIONS

2.1 GEOLOGY

The Honomū area is on the lower slope of the eastern flank of Mauna Kea. Most of the surface area is composed of Pāhala ash, which is a commonly occurring geological formation in many parts of the island. The Pāhala ash consists of finely divided vitric (glassy) lava believed to have been formed as a byproduct of wind blowing on aerial lava fountains from volcanic eruptions of Mauna Kea. The 400-foot high 'Akaka Falls, which is located at an elevation of about 1,200 feet some 2.5 miles above the project site, formed where the Kolekole Stream has cut through a blanket-like mantle of Pāhala Ash into a resistant Mauna Kea flow which forms the lip of the falls (McDonald, Abbott, and Peterson 1983).

2.2 TOPOGRAPHY AND SOILS

As shown in Figure 1-4, the area that contains the existing Honomū Reservoir and the proposed well site slopes downward from west to east from an elevation of 522 feet at its boundary with the existing tank site to about 510 feet on the Honomū Village side. Its average slope across the 120-foot-long length is about 10 percent).

The soil at the site is the erosional byproduct of the original Pāhala ash. The U.S. Soil Conservation Service classifies it as Kaiwiki silty clay loam (Sato et al. 1973). Kaiwiki soils are well drained and acidic. The surface layer is dark brown and in most areas approximately 15 inches thick. The subsoil is generally about 48 inches thick. Kaiwiki silty clay loam is well suited to agricultural use and the State has classified it as prime agricultural land.

2.3 HYDROLOGY

2.3.1 SURFACE WATER

The Honomū area lies between two perennial streams, the Pāhe'ehe'e Stream to the north and the Honomū Stream to the south. Stormwater runoff from the half of the site closest to 'Akaka Falls Road moves gradually toward the road, collecting in the shallow swale that parallels the southern side of the roadway. Runoff from the remainder of the site moves gradually away from the roadway. In both cases, the water eventually finds its way into Pāhe'ehe'e Stream, which is about 1,400 feet away. No wetlands are located near the project site.

2.3.2 GROUNDWATER

Although there are no existing wells near the proposed Honomū well, hydrologic analysis of data from similarly situated wells elsewhere in the region indicate that cool (~68° F), fresh (20 – 50 mg/l chlorides) basal groundwater is probably present between five to ten feet above sea level (Tom Nance Water Resource Engineering). The proposed Honomū Well would tap water in the Hakalau Aquifer System (State Commission on Water Resource Management). Along the shoreline, the System extends from Pepe'ekeo Point on the south to Nahiwa Point on the north, a distance of about 15 miles (see Figure 2-1). CWRM estimates that the sustainable yield of the Hakalau Aquifer System is 150 million gallons per day (MGD).

Table 2-1 provides information on the nine wells in the System. As shown in the table, the total pump capacity of the wells for which there are available data is about 2 MGD. Although accurate estimates of the current total actual water withdrawal rates from the wells in the System are not available, it is likely to be less than 1 MGD.



- Location Key:**
1. Honomū Well Site
 2. Akaka Falls Spring
 3. Pepe'ekeo Point
 4. Pepe'ekeo Mill
 5. Nāhiwa Point
 6. Honomū Town
 7. Well 5005-01
 8. Well 5005-02
 9. Inactive Wells 5005-03 to -05
 10. Well 5006-01
 11. Well 5206-02
 12. Well 5307-01
 13. Well 5307-02
 14. Well 5307-03
 15. Wells 5814-01 to -02

Figure 2-1:

Hakalau Aquifer

Honomū Well Project

Legend:

- Māmatahoa Highway
- Akaka Falls Road
- State Commission on Water Resource Management Aquifer Boundaries
- Drilled Wells in the Hakalau Aquifer System
- Other Features of Interest

0 1 2 3 Miles

N

Prepared For:
Tom Nance Water Resource Engineering

Prepared By:
 PLANNING SOLUTIONS

Source:
USGS 7.5' Quad Maps, 'Ākaka Falls, Keanakolu, Kōka'ū, Mauna Kea, Pepe'ekeo, Pepe'ekeo, Pu'u 'Ākaka & 'Uluhaka
State Commission on Water Resource Management Planning Solutions, Inc.

EXISTING CONDITIONS

Table 2-1 Drilled Wells in the Hakalau Aquifer System¹

State Well No.	Year Developed	Approx. Distance From Site (miles) ²	Current Use	Pump Capacity (MGD) ²	Ground Elevation (ft MSL) ³	Well Depth (ft MSL)	Water Level (ft MSL)	Chlorides (mg/l) ²
5005-01	1946	2.4	Domestic	0.71	304	333	11.4	16
5005-02	1947	2.4	Domestic	0.36	247	309	11.0	18
5006-01	1976	2.4	Municipal	0.43	378	492	12.3	7
5206-02	1997	1.2	Unused	Not listed	89	105	--	--
5307-01	1976	1.8	Municipal	0.07	235	317	11.9	10
5307-02	1981	1.4	Not Known	Not listed	101	130	80	--
5307-03	1984	1.7	Irrigation	0.036	163	182	72	14
5814-01	1968	11.0	Municipal	0.14	659	700	5.9	115
5814-02	1979	11.0	Municipal	0.432	662	711	--	--

Notes:¹Three other wells (#5005-3, 5005-4, and 5005-5) in the aquifer system are not being used and are not included in the table listings.²Data from State GIS (State of Hawaii 2002)³Elevations in feet above mean sea level

Source: CWRM Groundwater Index, compiled by Tom Nance Water Resource Engineering and Planning Solutions

EXISTING CONDITIONS

2.4 POTENTIAL FOR CONTAMINATION

Because there are no existing wells near the proposed Honomū Well, it is not possible to confirm the quality of the water it will produce at this time. However, in the absence of known point sources of pollution and the generally good quality of water from similarly situated wells, it is believed to be good.

To confirm this, the DWS will, at the end of the pump test, collect water samples and test these to confirm the absence of contaminants that could make it unsuitable as a potable source. No hazardous materials will be used or generated during the drilling itself. The following sections discuss the potential sources of contamination the DWS considered in the selection of the well site.

2.4.1 GROUNDWATER CONTAMINATION

The proposed well site and surrounding area were historically used for sugarcane cultivation. Maps prepared by the State Department of Health (DOH 1998) show that three chemical contaminants have been detected in several of the wells listed in Table 2-1 (see Table 2-2). All contaminant concentrations in these wells are well below the allowable levels for potable water supplies.

Table 2-2 Measured Contamination in Wells of the Hakalau Aquifer System

<i>State Well No.</i>	<i>Contaminant</i>	<i>Detected Level (ppb)</i>	<i>Maximum Contaminant Level (MCL) (ppb)⁵</i>	<i>Detected Level as % of MCL</i>	<i>Date Sampled</i>
5005-01	Atrazine ¹	<0.500	3	<17%	1/22/96
5005-02	Atrazine	<0.500	3	<17%	1/22/96
5006-01	Atrazine	0.37	3	<13%	10/8/98
5307-01	PCE ²	0.130	5	<3%	5/6/85
5814-01 & 5814-02	Atrazine ³	1.22	3	<41%	1/12/93
5814-01 & 5814-02	Hexazinone ⁴	1.3	2,000 ⁶	<0.01%	9/25/90

Notes:

¹Atrazine is an herbicide commonly used for sugarcane.

²PCE is tetrachloroethylene, an industrial chemical commonly used by drycleaners.

³The value given here is the sum of separate determinations for desethyl atrazine, despropyl atrazine, and diamino atrazine, which all have similar toxic effects (EPA 2002).

⁴Hexazinone is an herbicide commonly used for sugarcane.

⁵There are no State of Hawai'i Standards in place; the levels shown are from the U.S. EPA Drinking Water Standards (EPA 2000).

⁶No Maximum Contaminant Level has been established. The level listed is the EPA Health Advisory Drinking Water Equivalent Level.

Source: State Department of Health (DOH 1998)

2.4.2 CONTAMINATION FROM SOLID WASTE AND WASTEWATER

According to the County of Hawai'i Department of Environmental Management, Solid Waste Division, the nearest landfill to the project site is in Hilo, more than 10 miles away. The nearest transfer station is in Honomū Village, down gradient from the site.

The area to the west and up gradient from the well site is entirely agricultural land with no residences and no other sources of sanitary wastewater, except for the 'Akaka Falls State Park, which is more than two miles from the site at an elevation of about 1,200 feet. Information provided by the State Department of Health Wastewater Branch indicates that the nearest down-gradient wastewater source is a cesspool at a single-family home just over a quarter-mile below the well site. That cesspool is located at an elevation of about 410 feet above sea level.

As described above in Section 1.3.1, the upper 500 feet of the well will be cased with grout, isolating it from surface water inputs. This, together with the absence of up-gradient sources of pollution and the distance to the nearest down-gradient source (a single cesspool) make it very unlikely that the well could be contaminated by existing sources.

2.4.3 CONTAMINATION FROM HAZARDOUS WASTE

Based on the State Department of Health Office of Hazard Evaluation and Emergency Response (DOH 2000a), no identified site of concern to the State Department of Health is located within the Honomū area. The nearest listed site is the Hilo Coast Processing facility in Pepe'ekeo, approximately 2.25 miles down-gradient. This site has been archived by the EPA (Reference No. HID066259938) as one that does not present any health risks to the surrounding environment. Thus, given its distance from the well site and its designation by the EPA, it poses no potential for contamination of the well.

2.5 CLIMATE AND AIR QUALITY

The rain gauging station at Hakalau, located an elevation of 190 feet above sea level about 3 miles northeast of the project site, provides the best indication of conditions at the project site. The median annual precipitation between 1971 and 2000 was 136.2 inches (NOAA 2002). March was the wettest month of the year during this period, with an average rainfall of 16.2 inches. Even in June, the driest month, the averaged rainfall was 8.0 inches. Rainfall varies significantly according to time of day as well as time of year, with the mid-day being generally much drier than the nighttime.

Temperatures at the project site are moderate. Between 1971 and 2000, the median annual temperature, measured at O'ōkala (the most comparable location from which temperature data are available) was 72.9° F. February had the lowest monthly average low temperature at that location (64°), while September had the highest monthly average high temperature (81.6°).

No wind data were collected at the site during the preparation of this report. However, information from other investigations strongly suggest that the wind pattern at the site reflects the influence that the island's large land mass has on the prevailing trade winds. Long-term wind records from Hilo International Airport (the closest regular wind monitoring station) and spot measurements made at selected locations along the Hāmākua Coast indicate a strong diurnal pattern to the winds at Honomū. During the daytime, the winds normally blow out of the east with speeds averaging between 10 to 12 miles per hour. During the nighttime, the down-slope movement of cool air opposes the trade winds and the wind direction is from the southwest.

There are no substantial sources of anthropogenic air emissions and very little chance for the development of air inversions on the mountain slope. Emissions from the currently active volcanic eruptions are usually carried to the southwest around the island and are not likely to affect the project site. Consequently, air quality is generally excellent.

EXISTING CONDITIONS

2.6 TERRESTRIAL FLORA AND FAUNA

Sugarcane was cultivated on the project site for decades and it, together with emergent weeds are currently the dominant plant species (see Figure 1-5). Naturally occurring flora to be expected in the area include Hilo grass (*Paspalum conjugatum Bergius*), 'ohia lehua (*Metrosideros polymorpha/collina*), california grass (*Brachiaria mutica*), and wainaku grass (*Panicum repens*) (Sato et al. 1973). No faunal survey was conducted, but the nature of the habitat strongly suggests that birds and small rodents are the only animals present. Given nature of the habitat, there is no reason to believe that any rare or endangered species might be present.

2.7 NOISE

No noise measurements were made at the site. However, the relatively low wind speed, the absence of significant human noise sources on or around the site, and qualitative observations made during site visits indicate that average noise levels there are low. Passing trucks, motorcycles, and cars on the 'Akaka Falls Road appear to produce the highest noise levels at the present time. Considering the site's proximity to the highway and typical noise emissions from trucks and automobiles, it is estimated that peak noise levels in the area at the present time approach 80 dBA. Average noise levels during periods of calm winds and no traffic are probably less than 40 dBA.

2.8 AQUATIC RESOURCES

As shown on Figure 1-2, the site is between two perennial streams. Pāhe'ehe'e Stream to the north is the closer of the two, but Honomū Stream to the south is only slightly further away. Both of these streams are listed by the U.S. National Park Service (NPS) in the Nationwide Rivers Inventory as candidates for designation as Scenic Rivers.

Both of these streams were listed because they are habitat for a "Diverse population of sensitive native aquatic species" (NPS 1995). For the Honomū Stream, the listing also specifies the endemic goby (*Lentipes concolor*), known locally by its Hawaiian name, 'o'opu 'alamo'o as a specific basis for the listing. This 'o'opu is omnivorous and lives on algae and small aquatic animals. It breeds in upstream areas during the fall and early spring. Newly hatched larvae are carried down to the ocean, where they drift as plankton in coastal waters. The fully developed young 'o'opu return to their native stream from February to May. The fish is an excellent climber and has been found in the waters of the Kolekole Stream above 'Akaka Falls (Yamamoto and Tagawa 2000).

2.9 ARCHAEOLOGICAL, HISTORIC AND CULTURAL FEATURES

The entire surface of the site has been disturbed during many years of large-scale mechanized sugarcane cultivation, and a walk-through of the property revealed no remains. Even if archaeological, historic, or cultural features were present at one time, it is extremely unlikely that such features would have survived the long period of intensive cultivation.

2.10 VOLCANIC AND SEISMIC HAZARDS

The proposed well site is in the region of the Big Island that the U.S. Geological Survey (1987) has designated as Volcanic Lava Flow Hazard level 8 (as measured on a scale of 1 to 9, with 9 being the least hazardous). This rating means that none of the area has been covered by lava within the last 750 years and that only a few percent of the area has been covered by lava within the last 10,000 years.

Defining hazard zones for the effects of earthquakes is more difficult than for eruptions and has not been attempted in any great detail for the Island of Hawai'i. For the most part, earthquakes on Hawai'i are concentrated beneath Kīlauea and Mauna Loa, and particularly beneath the south flanks of both volcanoes and in the Ka'ōiki region between them. The likelihood of a damaging earthquake on Kīlauea or Mauna Loa probably increases with long-lived activity of the rift zones, but its precise

time and magnitude are impossible to predict. Large earthquakes unrelated to volcanic activity also occur at irregular intervals on the Island. In 1973, a magnitude 6.2 earthquake located 25 miles beneath Honomū Village injured 11 people and caused \$5.6 million worth of damage. Such earthquakes have no known recurrence interval and are difficult to predict (USGS 1997).

For the purposes of structural design, the most of the Island of Hawai'i, including the Honomū area, is classified as Zone 3 by the Uniform Building Code adopted by the County of Hawai'i in 1993 (USGS 1994).

2.11 FLOOD AND TSUNAMI HAZARDS

The proposed well site is not located within a designated Flood Hazard Safety Area nor within a Tsunami Evacuation area (State of Hawai'i 2002).

2.12 SCENIC AND AESTHETIC RESOURCES

'Akaka Falls Road, which fronts the proposed well site, is a popular route for tourists, and the ocean and rural views along the route contribute to the sight-seeing experience. Visually, the existing water tank already establishes the public-facility nature of the location, and the tank will remain by far the most prominent of the facilities at this location.

2.13 ECONOMIC AND CULTURAL ENVIRONMENT

The proposed well site is situated on fallow agricultural lands. There are no existing commercial, industrial, agricultural, or other economic activities in the vicinity. The nearest homes are located on the fringe of Honomū, more than 1,200 feet from the *makai* boundary of the proposed well site. The site has been used extensively for sugarcane production for many years.

2.14 EXISTING LAND USE

The land on which the proposed facilities would be constructed is part of a large agricultural parcel that is currently fallow. The DWS already uses the adjoining parcel for storage and treatment of the existing water supply. The nearest dwelling is a quarter-mile away.

2.15 LAND USE CONTROLS

The site is in the State Agriculture District. The County zoning is also Agriculture (A-20a). The proposed facilities are allowable uses in both these land use districts. The nearest residential community is the Village of Honomū, and the nearest home is about a quarter-mile *makai* of the proposed well site. The State Land Use District classification in the village is Urban, and the County zoning is R-7.5.

2.16 LAND OWNERSHIP

The large parcel from which the proposed well site would be subdivided (TMK 2-8-13:05) is owned by the Mauna Kea Agribusiness Company, Inc. (P.O. Box 15, Papaikou, HI 96781). The existing DWS facility is owned by the Water Commission of the County of Hawai'i (25 Aupuni Street, Room 103, Hilo, HI 96720). The DWS is currently in the process of acquiring the 18,000 square-foot well site from Mauna Kea Agribusiness Company; once the acquisition is complete, DWS will consolidate it with the existing DWS parcel (TMK: 2-8-13:55).

3.0 PROBABLE IMPACTS AND MITIGATION

3.1 TOPOGRAPHY AND DRAINAGE

As shown in Figure 1-4, the grading for the parking lot and control building will directly affect approximately 7,000 square feet. The contractor will also undertake minor finished grading and excavation for the control building and the well pump pad, and the seepage pit will require the removal of approximately 25 cubic yards of material. In addition, the contractor will remove the existing sugarcane and will landscape the portion of the parcel not used for structures or pavement. These modifications will not substantially change the overall topography or drainage pattern of the surrounding area.

3.2 GEOLOGY AND SOILS

As noted in Chapter 2, Kaiwiki silty clay loam is classified as prime agricultural land. However, thousands of acres of similar soil lie fallow in the region. Hence, while construction of the proposed well and related facilities will permanently eliminate the potential for cultivation on approximately 0.4 acres, this change will not substantially affect the potential for agricultural production.

The proposed project would not substantially change exposure to geological hazards or bar the use of significant geological resources (such as minerals). No commercially useful minerals are present. The proposed facilities would be designed to withstand seismic forces anticipated in Zone 3 areas, and the risk of lava flow or other eruption-related hazards is very low. The nature of the facilities, which will be unmanned, is such that their construction will not increase the number of people exposed to geologic hazards.

3.3 HYDROLOGY

3.3.1 CONSTRUCTION PHASE

Construction of the proposed project will add approximately 2,000 square feet of impermeable surface to the site. Because of the permeable nature of the area that will remain, this will only change the volume of surface runoff under extremely heavy rainfall conditions. The effect of this on total runoff will be negligible. The existing swales that carry runoff away from the area and toward Pāhe'ehe'e Stream can accommodate the minor change.

During the well construction and testing phase of the project, a temporary diesel engine-powered pump will be used to develop the well (i.e., to remove sediment and well cuttings that are a by-product of the drilling) and to determine its hydraulic capacity. If the on-site seepage pit that is part of the design cannot handle the 500 gallons per minute produced on a continuous basis during well pumping tests, excess water would be discharged into the existing swale along the roadside or at another appropriate discharge point.

3.3.2 OPERATIONAL PHASE

After the well begins production, it will discharge approximately 500 to 1,000 gallons of water into the seepage pit each time it is started. This is done so that particulate matter entrained during start up does not enter into the water supply system. This arrangement helps assure that only high quality water reaches the Department of Water Supply's customers.

DWS intends to use the new well as a replacement for the existing 'Akaka Falls Spring source. Consequently, initial pumpage of the well will be at approximately the existing rates of this source (0.064 MGD). As discussed in Chapter 2, this water would come from the Hakalau Aquifer. Since the sustainable yield of the Hakalau aquifer is estimated at 150 MGD and existing use is no more than 2 MGD, the anticipated pumpage of the well will have no substantial effect on groundwater

PROBABLE IMPACTS AND MITIGATION

levels. This would be true even if the proposed Honomū well were to be operated continuously at the rated capacity of the pump (200 gpm or 0.288 MGD).

As described above, the well is designed to tap water in the basal aquifer. The water level in that aquifer at the proposed location of the well is expected to be about 5 to 10 feet above sea level, far below the streambed elevations of the Honomū and Pāhe'ehe'e Streams. The beds of these streams do not reach the elevation of the basal aquifer until they are within a few hundred feet of the shoreline more than a mile below the project site. When all of these factors are considered, it is clear that the proposed well does not have the potential to affect water flow in these streams. Also, when the DWS stops withdrawing water from the existing 'Akaka Falls Spring source, average flow in Kolekole Stream will be increased by an equivalent rate.

3.4 WATER QUALITY

As discussed above, storm water runoff from the site will flow overland and through existing drainage swales, eventually reaching Pāhe'ehe'e Stream. The State Department of Health classifies this stream as Class 2 Inland Waters (DOH 2000b). The removal of the existing vegetative cover during the site-clearing and grading phase of construction would temporarily increase the potential for erosion. The contractor would use best management practices to minimize this potential increase and to confine soil particles on the project site. Mitigative measures would be implemented as necessary during construction of the well site to prevent contaminants such as drill cuttings, cutting extraction medium, sediment, pollutants, petroleum products, and debris from possibly entering the aquatic environment. The work would be scheduled as practically possible for periods of minimal rainfall, and lands denuded of vegetation would be replanted or covered as quickly as possible to control erosion.

Moreover, the long flow path between the site and the stream would further mitigate the potential for adverse impact on water quality. In any event, the potential effect would be a small fraction of the effect that the receiving water experienced repeatedly for the many decades that sugarcane was cultivated on and around the site.

During the construction phase of the project, the drilling contractor will direct the pump water discharge into the on-site seepage pit and, if needed, into an additional bermed area in accordance with DOH regulations (Hawaii Administrative Rules 11-55, Appendix D). The discharges that would occur each time the production well is started will also be discharged into the seepage pit. Thus, the discharge from pump testing and subsequent well operations does not have the potential to affect water quality.

3.5 CLIMATE AND AIR QUALITY

3.5.1 CONSTRUCTION PHASE

Only minor amounts of grading and excavation are contemplated as part of the project. Combined with the site's relatively high rainfall and distance from sensitive receptors (i.e., nearby homes) mean that fugitive dust is unlikely to be a problem during construction.

It is anticipated that a diesel-driven drill rig will be used to construct the well and that a diesel-driven pump will be used for well development and testing. Emissions from the diesel engines will slightly degrade air quality for the short period of time they are in operation. The prevalence of onshore winds (which would carry emissions away from Honomū during the daytime when drilling operations will occur) suggests that nearby homes are unlikely to be adversely affected by these emissions. Some effect is more likely to be felt during the brief (5-day) period during which operations must continue round-the-clock. The emissions will comply with all applicable emission and ambient air quality standards. Consequently, project-related emissions would not cause adverse health effects.

Because of the distance between the project site and the nearest dwellings, it is unlikely that odor from the diesel exhaust will be noticeable.

3.5.2 OPERATIONAL PHASE

Normal operation of the proposed facilities will not produce on-site air emissions, will not alter airflow in the vicinity, and will have no other measurable effect on the area's microclimate. The electrical power consumed in the operation of the wells will require additional power generation (and, therefore, fuel consumption and gaseous emissions) by the Hawaii Electric Light Company. The increase represents such a small portion of total power use that its effect not be substantial.

3.6 TERRESTRIAL FLORA AND FAUNA

Construction of the proposed facilities will affect less than 18,000 square feet of fallow sugarcane land. The land currently supports primarily introduced and invasive species. It does not constitute substantial habitat for any rare or endangered species. Consequently, the proposed action will not have any substantial direct impacts on terrestrial flora or fauna.

3.7 AQUATIC RESOURCES

As discussed above, the withdrawals of water from the well operation will not substantially alter the stream flow in the adjacent Pāhe'ehe'e and Honomū Streams. Neither do they have the potential to introduce pollutants into the stream. Consequently, the proposed action will not have substantial direct or indirect effects on the aquatic communities in streams or nearshore waters.

3.8 NOISE

3.8.1 CONSTRUCTION PHASE

Noise from construction activities is likely to be audible above the 35-to-50 dB background levels at the homes closest to the project site. Well drilling will involve the operation of diesel-powered drilling equipment for a period of up to four months. Noise source levels from un-muffled equipment of this sort could be as high as 80 to 85 dBA measured at a distance of 50 feet. This could result in sound levels of about 53 - 58 dBA at the property line of the nearest residence (which is about 1,200 feet *makai* of the project site). Noise levels on other, more distant properties would be even lower.

Well development requires repeatedly surging the pump to help remove drilling residue from the hole. Electric pumps are poorly suited to this kind of operation; consequently, diesel-powered pumps are generally used. The diesel engines are about as noisy as the drilling equipment and would produce noise levels on surrounding properties equivalent to those during drilling. Like drilling, this work can be accomplished during the daytime.

Well testing involves the same equipment as well development and requires continuous (i.e., 24-hour-per-day) pumping for a period of at least five days. Consequently, noise from this activity necessarily extends through the night. Due to cost constraints, it is not likely to be practical to switch from the diesel engine required for well development to an electric pump for extended pump testing.

Hawaii Administrative Rules §11-46 (Community Noise Control) establishes noise limits for construction, agricultural, and industrial activities (see Table 3-1). The noise limit for "Class C Districts" [which §11-46-3(3) defines as "...all areas equivalent to lands zoned agriculture, country, industrial, or similar type."] is 70 dBA at any time. The noise limit for "Class A Districts" [which §11-46-3(3) defines as "...all areas equivalent to lands zoned residential, conservation, preservation, public space, open space, or similar type.] is 55 dBA during the day and 45 dBA at night. The limits are applicable at the property line. Based on the quarter-mile distance to the dwelling closest to the well site, any of these activities that are conducted at night (which would occur during pump testing)

PROBABLE IMPACTS AND MITIGATION

Table 3-1. Maximum Permissible Sounds Levels in dBA (HAR §11-46).

<i>Zoning Districts</i>	<i>Daytime (7 a.m. to 10 p.m.)</i>	<i>Nighttime (10 p.m. to 7a.m.)</i>
Class A	55	45
Class B	60	50
Class C	70	70

Notes:

(a) The maximum permissible sound levels apply to any excessive noise source emanating within the specified zoning district, and at any point at or beyond (past) the property line.

(b) Noise levels may not exceed the maximum permissible sound levels for more than ten per cent of the time within any twenty minute period, except by permit or variance issued under sections 11-46-7 and 11-46-8.

(c) For mixed zoning districts, the primary land use designation shall be used to determine the applicable zoning district class and the maximum permissible sound level.

(d) Measurements values are for "A" weighting network and "slow" meter response unless otherwise stated. Sound level meters and calibrators must conform to American National Standard, ANSI S1.4-1983, specifications. The maximum permissible sound level for impulsive noise is ten dBA above the maximum permissible sound levels shown and is measured using the "Fast" meter response.

(e) The limits do not apply to the operation of emergency generators, provided the best available control technology is implemented.

(f) For the purpose of the regulations, the following definitions apply:
 "Construction activities" means any or all activities, including but not limited to those activities necessary or incidental to the erection, demolition, assembling, renovating, installing, or equipping of buildings, public or private highways, roadways, premises, and parks.
 "Construction equipment" means any device designed and intended for use in construction, including but not limited to any air compressor, pile driver, bulldozer, pneumatic hammer, steam shovel, derrick, crane, tractor, grader, loader, power saw, pump, pneumatic drill, compactor, on-site vehicle, and power hand tool.
 "Construction site" means any or all areas, necessary or incidental for the purpose of conducting construction activities.

(g) Class A zoning districts include all areas equivalent to lands zoned residential, conservation, preservation, public space, open space, or similar type.
Class B zoning districts include all areas equivalent to lands zoned for multi-family dwellings, apartment, business, commercial, hotel, resort, or similar type.
Class C zoning districts include all areas equivalent to lands zoned agriculture, country, industrial, or similar type.

Source: Hawaii Administrative Rules, Title 11, Department Of Health, Chapter 46, Community Noise Control

would exceed the 45 dBA limit. Because of this, a construction noise permit will be needed from the State Department of Health.

3.8.2 OPERATIONAL PHASE

The permanent pump and motor will operate quietly. A submersible pump and motor will be used, limiting aboveground noise to the hum of the transformer. Consequently, pump operation will produce noise levels of 35 to 42 dBA at the property boundaries. This noise would not be detectable from the nearest dwelling.

3.9 TRAFFIC

Access to the proposed well site will be via the 'Akaka Falls Road. Adequate space exists alongside the roadway and on the existing access driveway such that construction activities will not interfere with the active traffic lanes. The well will not require manned operation, but only occasional monitoring and maintenance. Service vehicles will park off the road in designated on-site stalls and will not interfere with traffic. For these reasons, the construction and operation of the facility will not lead to substantial impacts to traffic in the area.

3.10 ARCHAEOLOGICAL AND HISTORIC FEATURES OR CULTURAL PRACTICES

No archaeological or historical sites are known to exist at the proposed well site, and no short-term impacts to such features are expected. Based on the history of prior land use, The State Historic Preservation Division (SHPD) has concluded that the potential for significant historic sites is extremely low.

Should any artifact or burial site be encountered during construction, all activities will halt and SHPD will be notified. After consultation with this office and implementation of a monitoring program, construction activities will be completed.

As discussed above, the site has been used for decades for the cultivation of sugarcane. No traditional native Hawaiian cultural practices, beliefs, and/or properties of any kind are known to exist in the project area. No substantial impacts to these resources will be caused by the project.

3.11 NATURAL HAZARDS

As discussed above in Sections 2.9 and 2.10, the proposed facilities are not subject to significant hazards from volcanic flows, flooding, or tsunami. To accommodate the relatively high susceptibility to earthquake hazards present on the Island of Hawai'i, all structures will be built to comply with the Uniform Building Codes for Earthquake Zone 3.

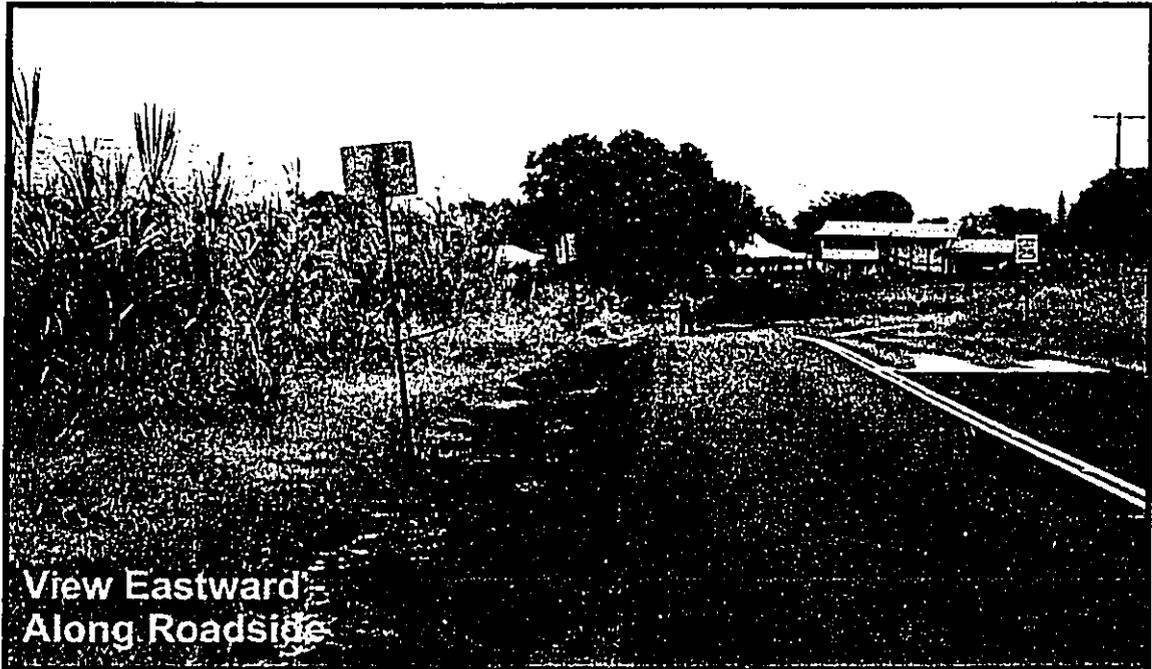
3.12 SCENIC AND AESTHETIC RESOURCES

As noted above, the project site is alongside the 'Akaka Falls Road, which is used by visitors to 'Akaka Falls State Park. On the road between Honomū Village and 'Akaka Falls, the existing scenic views consist generally of roadside views of the fallow sugarcane fields and distant views of the ocean. As shown in Figure 3-1, both types of views are present at the project site.

The proposed Honomū Well represents an extension of the public facility use already established by the existing 0.1 MG Honomū Reservoir. The addition of the proposed well, small control building, and parking area and removal of mixed sugarcane/scrub vegetation would not substantially change the visual character of the area or interfere with significant views across the site (see Figure 1-3).



**View Northeastward
Through Project Site**



**View Eastward
Along Roadside**

Prepared For:
Tom Nance Water Resource
Engineering
County of Hawai'i, Department
of Water Supply

Prepared By:



Source:
Planning Solutions, Inc.

Note:
Site photos were taken on April 23, 2002

Figure 3-1:

Existing Views

Honomū Well Project

3.13 IMPACTS ON LAND USE, RECREATION AND OPEN-SPACE OPPORTUNITIES

The proposed use is compatible with the existing use of this agricultural parcel and complements the use of the existing water tank. The addition of the well and control facilities to the site will not affect the value of adjacent land uses. The project will not impact recreational activities in the area. As discussed above, the project will have no substantial impacts to the open-space views since only one small, single-story structure will be constructed.

Noise produced by the drilling, well development, and well testing operations has some potential to disturb nearby residents. However, the principal effect of this noise will be limited to the five-day testing period when a diesel-powered pump must be operated 24-hours per day. Except during that period, the quarter-mile distance between the project site and the nearest dwellings will keep noise levels below regulatory limits.

3.14 IMPACTS ON POPULATION AND ECONOMIC ACTIVITY

The proposed well provides an alternative to an existing surface water source that regulatory changes may make uneconomic. Water from the well will be more costly than that from the existing untreated source. However, it will be less costly than the alternative of installing and operating the water treatment facilities needed to allow water from the present surface water source to meet likely Federal and State Department of Health standards. The increased cost is not sufficient to affect the economic viability of the Department of Water Supply's customers. It will not have a significant direct or indirect effect on population.

4.0 ALTERNATIVES CONSIDERED

4.1 NO ACTION ALTERNATIVE

The "No Action" Alternative consists of the continued reliance on the 'Akaka Falls Spring as the water source for the Honomū system. As discussed above, the DWS believes it very likely that the State Department of Health will determine in the near future that the 'Akaka Falls Spring is under the direct influence of surface water and therefore subject to the enhanced treatment requirements for potable surface water supplies. Hence, "No Action" is not a viable alternative.

4.2 ENHANCED TREATMENT

In 1990, the Federal Science Advisory Board (SAB) cited drinking water contamination as one of the most important environmental risks and indicated that disease-causing microbiological contaminants (i.e., pathogens such as, bacteria, protozoa, and viruses) are probably the greatest remaining health-risk management challenge for drinking water suppliers. In response to this finding, the U.S. EPA has now finalized the Long Term 1 Enhanced Surface Water Treatment Rule (LT1ESWTR). The purposes of the LT1ESWTR are to improve control of microbial pathogens, specifically the protozoan *Cryptosporidium*, in drinking water, and address risk trade-offs with disinfection byproducts. The rule requires certain public water systems to meet strengthened filtration requirements and to calculate levels of microbial inactivation to ensure adequate microbial protection. This rule, which addresses systems serving fewer than 10,000 persons, builds upon the framework established for larger systems in the Interim Enhanced Surface Water Treatment Rule (IESWTR).

The LT1ESWTR provisions contain the following requirements:

- All systems must achieve a 2-log removal (99 percent) of *Cryptosporidium*.
- Filtered systems must comply with strengthened combined filter effluent (CFE) turbidity performance requirements to assure 2-log removal of *Cryptosporidium*.
- Conventional and direct filtration systems must continuously monitor the turbidity of individual filters and comply with follow-up activities based on this monitoring.
- Systems will be required to develop a profile of microbial inactivation levels unless they perform monitoring which demonstrates their disinfection byproduct levels are less than 80 percent of the maximum contaminant levels (MCLs) established in the Stage 1 DBPR.
- Systems considering making a significant change to their disinfection practice must determine their current lowest level of microbial inactivation and consult with the state for approval prior to implementing the change.
- Unfiltered systems must comply with updated watershed control requirements that add *Cryptosporidium* as a pathogen of concern.

In order to comply with the provisions of these new regulations that apply to the existing 'Akaka Falls Spring Source, the DWS would have to construct extensive new treatment facilities and to maintain an expensive ongoing treatment and testing program. The capital and operating costs of these are prohibitively high for a small system such as that serving Honomū. Consequently, upgrading the facilities and operational procedures to allow continued use of the existing water source is not a viable alternative.

4.3 ENHANCED WATER CONSERVATION ALTERNATIVE

The proposed new well is not intended to offset an increase in demand. Rather, it will serve as a substitute for water that is presently being provided by a spring source that is likely to require increased treatment requirements resulting from its designation as a groundwater source under the direct influence of surface water. Consequently, decreasing water use in the proposed well's service

ALTERNATIVES CONSIDERED

area would not eliminate the need to find a substitute source, since the spring is the only source of water for the Honomū system.

4.4 OTHER SOURCE DEVELOPMENT ALTERNATIVES

Because of the high groundwater flux through the area, it is likely that wells drilled in other locations would also be productive. However, the proposed project has two characteristics that make it unlikely that these alternatives would be superior from an operational viewpoint. These are:

- The proposed location is adjacent to an existing 0.1 MG reservoir that can serve as a head tank for the well. Other possible well locations would require the construction of a new reservoir as well as the well facilities that are part of the proposed action. Duplication of these facilities would unnecessarily increase the project cost.
- The proposed well's proximity to the existing water transmission and distribution system avoids the need for new water line construction.

4.5 DELAYED ACTION

Because of the long lead time necessary to drill, test and develop a production well (see Section 1.3.4), it would be impractical to delay development of the well until after a formal determination by the State Department of Health that the existing Honomū system must be modified to comply with the new rules. In addition, replacement of the currently used spring with a groundwater source will eliminate any potential that may currently exist for the introduction of surface-water contaminants into the system. The DWS wants to act expeditiously to ensure the delivery of safe drinking water to its customers in Honomū.

5.0 RELATIONSHIPS TO RELEVANT PLANS, POLICIES & CONTROLS

5.1 COMPLIANCE WITH COUNTY OF HAWAI'I GENERAL PLAN

The Department of Water Supply operates and maintains over twenty separate systems in the County of Hawai'i, including the Honomū System. The County of Hawai'i General Plan of 1989 states, "*All public water systems are required to be in compliance with the State and Federal drinking water regulations.*" The proposed project will allow the DWS to continue to meet the needs of the people of Honomū in a cost-effective manner while complying with the State Department of Health requirements after the anticipated determination that the 'Akaka Falls Spring source is under the direct influence of surface water and must comply with new regulations applicable to such sources. While the new well will be capable of producing more water than is immediately needed, water supply is not presently a limiting factor on development plans in Honomū. Consequently, the availability of the additional water that could be produced will not stimulate additional development. Neither will it direct development in geographic areas where it would not otherwise take place.

The proposed well and ancillary facilities are located adjacent to a site that is already part of DWS' system. The facility is allowable under existing State and County zoning and development regulations. Operation of the well is compatible with the existing uses in adjacent properties. The County of Hawai'i Planning Department has confirmed that this project is a permitted public use or structure according to the Hawai'i County Zoning Code, and is consistent with Sections 25-4-11(c) and 25-5-72(a)(22). Accessory uses or buildings to the project are also permitted uses, pursuant to Section 25-5-72(e).

5.2 COMPLIANCE WITH THE STATE OF HAWAI'I'S DRINKING WATER STATE REVOLVING FUND (DWSRF) PROGRAM REQUIREMENTS

This project may be funded by Federal funds through the State of Hawai'i's Drinking Water State Revolving Fund (DWSRF) program. The U.S. Congress established the DWSRF program as a new section 1452 of the Safe Drinking Water Act (SDWA), 33 U.S.C. 300j-12, by the SDWA Amendments of 1996, Public Law 104-182. The DWSRF was established to help prevent contamination through source water protection and enhanced water system management. It also emphasizes the needs of small water systems, such as Honomū. The proposed project is consistent with the overall program intent to prevent potential contamination and with the program's emphasis on small water systems. This document includes all of the environmental information required for compliance with the DWSRF program.

5.3 CROSS-CUTTING FEDERAL AUTHORITIES

This following sub-sections address the proposed project's relationship to other Federal "cross-cutting" authorities.

5.3.1 ARCHEOLOGICAL AND HISTORIC PRESERVATION ACT (16 U.S.C. § 469A-1) AND NATIONAL HISTORIC PRESERVATION ACT (16 U.S.C. § 470(F))

As discussed in Section 3.10, the project site is located in an area that has been used extensively for agriculture for many years and no known archaeological or historic features exist at the site. The County of Hawai'i has consulted with the State of Hawai'i Historic Preservation Division (SHPD) of the Department of Land and Natural Resources. SHPD concurred with the project staff assessment that no historic properties will be affected by the proposed well. SHPD and the Office of Hawaiian Affairs were provided copies of the draft EA to ensure compliance with these statutes.

PLANS, POLICIES, AND CONTROLS

5.3.2 CLEAN AIR ACT (42 U.S.C. § 7506(c))

As discussed in Sections 2.5 and 3.5, air quality at the site of the proposed project is good. The site is in an air quality attainment area as defined by the State of Hawai'i Department of Health in its EPA-approved Air Quality program.

Only minor amounts of grading and excavation will be required for the project. This, and the wet climate, mean that fugitive dust will not be a problem during construction.

It is anticipated that a diesel-driven drill rig will be used to construct the well and that a diesel-driven pump will be used for well development and testing. Emissions from the diesels will slightly degrade air quality for the short period of time they are in operation. However, all applicable emission and ambient air quality standards will continue to be met. Consequently, no adverse health effects from this source are anticipated. Depending upon meteorological conditions during the testing period, it is possible that odor from the diesel exhaust may be noticeable in nearby homes.

Normal operation of the proposed facilities will not produce on-site air emissions, will not alter air flow in the vicinity, and will have no other measurable effect on the area's micro-climate. The electrical power consumed in the operation of the wells will require additional power generation (and, therefore, fuel consumption and gaseous emissions) by the Hawaii Electric Light Company. The increase represents such a small portion of total power use that its effect not be significant in and of itself.

5.3.3 COASTAL ZONE MANAGEMENT ACT (16 U.S.C. § 1456(c) (1))

Enacted as Chapter 205A, HRS, the Hawaii Coastal Zone Management (CZM) Program was promulgated in 1977 in response to the Federal Coastal Zone Management Act of 1972. The CZM area encompasses the entire state, including all marine waters seaward to the extent of the state's police power and management authority, including the 12-mile U.S. territorial sea and all archipelagic waters.

The Hawai'i Coastal Zone Management Program focuses on ten policy objectives:

- **Recreational Resources.** To provide coastal recreational opportunities accessible to the public and protect coastal resources uniquely suited for recreational activities that cannot be provided elsewhere.
- **Historic Resources.** To protect, preserve, and where desirable, restore those natural and manmade historic and prehistoric resources in the coastal zone management area that are significant in Hawaiian and American history and culture.
- **Scenic and Open Space Resources.** To protect, preserve, and where desirable, restore or improve the quality of coastal scenic and open space resources.
- **Coastal Ecosystems.** To protect valuable coastal ecosystems, including reefs, from disruption and to minimize adverse impacts on all coastal ecosystems.
- **Economic Uses.** To provide public or private facilities and improvements important to the state's economy in suitable locations; and ensure that coastal dependent development such as harbors and ports, energy facilities, and visitor facilities, are located, designed, and constructed to minimize adverse impacts in the coastal zone area.
- **Coastal Hazards.** To reduce hazard to life and property from tsunamis, storm waves, stream flooding, erosion, subsidence, and pollution.
- **Managing Development.** To improve the development review process, communication, and public participation in the management of coastal resources and hazards.
- **Public Participation.** To stimulate public awareness, education, and participation in coastal management; and maintain a public advisory body to identify coastal management problems and provide policy advice and assistance to the CZM program.

- **Beach Protection.** To protect beaches for public use and recreation; locate new structures inland from the shoreline setback to conserve open space and to minimize loss of improvements due to erosion.
- **Marine Resources.** To implement the state's ocean resources management plan.

Other key areas of the CZM program include: a permit system to control development within a Special Management Area (SMA) managed by the Counties and the Office of Planning; a Shoreline Setback Area which serves as a buffer against coastal hazards and erosion, and protects view-planes; and the Marine and Coastal Affairs. Finally, a Federal Consistency provision requires that federal activities, permits and financial assistance be consistent with the Hawaii CZM program.

The proposed Honomū Well project is located several miles from the coastline and is not within the County's SMA. It does not involve the placement, erection, or removal of materials near the coastline. The type and scale of the activities that it involves typically do not have the potential to significantly affect coastal resources. Finally, it is consistent with the CZM objectives that are relevant to a project of this sort.

A copy of this Final EA is being sent to the Office of Coastal Zone Management at the State of Hawai'i Department of Business, Economic Development, and Tourism. The Department's response is expected to confirm the consistency of the project with the CZM Act.

5.3.4 ENDANGERED SPECIES ACT (16 U.S.C. 1536(A)(2) AND (4))

The Endangered Species Act (16 U.S.C. §§ 1531-1544, December 28, 1973, as amended 1976-1982, 1984 and 1988) provides broad protection for species of fish, wildlife, and plants that are listed as threatened or endangered in the U.S. or elsewhere. The Act mandates that federal agencies seek to conserve endangered and threatened species and use their authorities in furtherance of the Act's purposes. Provisions are made for listing species, as well as for recovery plans and the designation of critical habitat for listed species. The Act outlines procedures for federal agencies to follow when taking actions that may jeopardize listed species, and contains exceptions and exemptions.

Existing biota on and near the project site are discussed in Sections 2.6, 2.8, 3.6, and 3.7 of this EA. The discussion documents the fact that there are no known rare or endangered species on or immediately around the site of the Honomū Well project. Copies of the Draft EA were provided to the U.S. Fish and Wildlife Service and to the State Department of Land and Natural Resources (DLNR) for review and comment. The DLNR Department of Aquatic Resources provided comments to the Draft EA, which are presented with the responses to them in Chapter 8.

5.3.5 FARMLAND PROTECTION POLICY ACT (7 U.S.C. § 4202(8))

The U.S. Congress adopted the Farmland Protection Policy Act (FPPA) (Public Law 97-98) on December 22, 1981). The U.S. Department of Agriculture (USDA), Natural Resources Conservation Service (NRCS) has national leadership for administering the FPPA. The effective date of the FPPA rule (part 658 of Title 7 of the Code of Federal Regulations) is August 6, 1984.

The stated purposes of the FPPA are to:

- Minimize the extent to which Federal programs contribute to the unnecessary and irreversible conversion of farmland to nonagricultural uses.
- Assure that Federal programs are administered in a manner that, to the extent practicable, will be compatible with State, unit of local government, and private programs and policies to protect farmland.

"Farmland", as used in the FPPA, includes prime farmland, unique farmland, and land of statewide or local importance. "Farmland" subject to FPPA requirements does not have to be currently used for cropland. Because the Honomū Well project will result in the use of 18,000 square feet of prime

PLANS, POLICIES, AND CONTROLS

agricultural land for the proposed well and related support facilities and might use Federal with funding assistance from a Federal agency, the proposed action is subject to the FPPA.

The area that would be affected is a very small fraction of the agricultural land in the area. In addition, its location, adjacent to the existing water storage reservoir on the perimeter of the formerly cultivated area means that it will not interfere with any future agricultural use of the remainder of the parcel or other nearby areas. Instead, it is intended to serve residents of a small community whose existing water supply is threatened by changes in regulatory requirements. Consequently, the project is in substantial compliance with the FPPA.

5.3.6 FISH AND WILDLIFE COORDINATION ACT (16 U.S.C. § 662(A))

The Fish and Wildlife Coordination Act, as amended, authorizes the Secretaries of Agriculture and Commerce to require consultation with the Fish and Wildlife Service and the fish and wildlife agencies of States where the *"waters of any stream or other body of water are proposed or authorized, permitted or licensed to be impounded, diverted . . . or otherwise controlled or modified"* by any agency under a Federal permit or license. Consultation is to be undertaken for the purpose of *"preventing loss of and damage to wildlife resources."*

As documented in this report, the proposed Honomū Well project will not result in the diversion of any water body and will not result in impacts on fish or wildlife resources. The U.S. Fish and Wildlife Service and the State Department of Land and Natural Resources were asked to comment on the Draft EA. The DLNR Department of Aquatic Resources provided comments to the Draft EA, which are presented with the responses to them in Chapter 8.

5.3.7 FLOODPLAIN MANAGEMENT (42 U.S.C. § 4321)

Based on the latest available (December, 2001) Flood Insurance Rate Map for the area, the site proposed for the Honomū Well lies outside a defined floodplain. The project does not involve property acquisition, management, or construction within a 100-year flood plain (Zones A or V), and it does not involve a "critical action" within a 500-year flood plain. Consequently, it is consistent with applicable regulations and guidance relating to floodplain management.

5.3.8 SAFE DRINKING WATER ACT (42 U.S.C. § 300H-3(E))

The Safe Drinking Water Act (SDWA) is the principal federal law that ensures the quality of Americans' drinking water. Under SDWA, EPA sets standards for drinking water quality and oversees the states, localities, and water suppliers who implement those standards. The Safe Drinking Water Act requires that all public water systems meet stringent water quality standards. These standards cover a long list of potential chemical, radiological and biological contaminants. The standards distinguish between surface water and groundwater sources, with the testing and monitoring requirements for surface water and GWUDI sources being far greater than those for groundwater sources.

As discussed in Section 1.1, the primary purpose of the proposed Honomū Well project is to permit continued compliance of the Honomū Water System with the standards mandated pursuant to the Act. Extensive testing of the water withdrawn from the well will be carried out by the County of Hawai'i before it is developed into a production well to ensure that the water is consistent with all State and Federal standards for potable water.

The Safe Drinking Water Act also provides the impetus behind the development of regulatory protection of principal or sole source aquifers. Part C of this Law pertains specifically to the protection of underground sources of drinking water, including the establishment of regulations on the injection of materials into subsurface aquifers in those areas of the United States where only one aquifer (principal or sole source aquifer) exists. Section 1424(e) of PL 93-523 states:

(e) If the Administrator determines, on his own initiative or upon petition, that an area has an aquifer which is the sole or principal drinking water source for the area and which, if contaminated, would create a significant hazard to public health, he shall publish notice of the determination in the Federal Register. After the publication of any such notice, no commitment for Federal financial assistance (through a grant, contract, loan guarantee, or otherwise) may be entered into for any project which the Administrator determines may contaminate such aquifer through a recharge zone so as to create a significant hazard to public health, but a commitment for Federal financial assistance may, if authorized under another Provision of law, be entered into to plan or design the project to assure that it will not so contaminate the aquifer.

As identified by the U.S. Environmental Protection Agency, Region IX groundwater Office (<http://www.epa.gov/OGWDW/swp/ssa/reg9.html>), there are only two Sole Source Aquifers in Hawai'i. They are the Southern Oahu Basal Aquifer on the Island of O'ahu and the Moloka'i Aquifer on the island of Moloka'i. There are no sole source aquifers on the Island of Hawai'i where the proposed Honomū Well project is located.

5.3.9 PROTECTION OF WETLANDS (42 U.S.C. § 4321)

As noted in Section 2.3.1, there are no wetlands on or near the site. Neither are there food resources on the site that are important to wildlife that use wetlands elsewhere on the island. Copies of the *Draft EA* were sent to the administrator of the Pacific Island Eco-Region, U.S. Fish & Wildlife Service, and to the State Department of Land and Natural Resources Department of Aquatic Resources to ensure adequate consideration of this topic in the environmental review for this project.

5.3.10 WILD AND SCENIC RIVERS ACT (16 U.S.C. 1271-1287)

The purpose of this act, as stated in Section (b) of its preamble is as follows:

It is hereby declared to be the policy of the United States that certain selected rivers of the Nation which, with their immediate environments, possess outstandingly remarkable scenic, recreational, geologic, fish and wildlife, historic, cultural, or other similar values, shall be preserved in free-flowing condition, and that they and their immediate environments shall be protected for the benefit and enjoyment of present and future generations. The Congress declares that the established national policy of dam and other construction at appropriate sections of the rivers of the United States needs to be complemented by a policy that would preserve other selected rivers or sections thereof in their free-flowing condition to protect the water quality of such rivers and to fulfill other vital national conservation purposes.

As discussed in Section 2.8, both the Pāhe'ehe'e and Honomū Streams have been listed by the U.S. National Park Service as candidates for designation as Scenic Rivers and therefore potentially subject to the provisions of this Act. As discussed in Sections 3.3.2, 3.4, and 3.7, development of the Honomū well does not have the potential to affect the hydrology, water quality, or aquatic resources in these streams and therefore is consistent with the provisions of the Wild and Scenic Rivers Act.

5.3.11 WILDERNESS ACT (16 U.S.C. 1131)

The purpose of this legislation is stated in Section 2(a) of the Act as follows:

In order to assure that an increasing population, accompanied by expanding settlement and growing mechanization, does not occupy and modify all areas within the United States and its possessions, leaving no lands designated for preservation and protection in their natural condition, it is hereby declared to be the policy of the Congress to secure for the American people of present and future generations the benefits of an enduring resource of wilderness. For this purpose there is hereby established a National Wilderness Preservation System to be composed of federally owned areas designated by Congress as "wilderness areas", and these

PLANS, POLICIES, AND CONTROLS

shall be administered for the use and enjoyment of the American people in such manner as will leave them unimpaired for future use and enjoyment as wilderness, and so as to provide for the protection of these areas, the preservation of their wilderness character, and for the gathering and dissemination of information regarding their use and enjoyment as wilderness; and no Federal lands shall be designated as "wilderness areas" except as provided for in this chapter or by a subsequent Act.

The nearest designated Wilderness Area to the proposed Honomū well site is in the Hawai'i Volcanoes National Park on the flanks of the Kīlauea and Mauna Loa volcanoes, approximately 30 miles from the proposed well site. The Honomū region and the Hakalau aquifer are not linked hydrologically to these Wilderness Area lands and the development of the well would have no impact on them. Thus the project is consistent with the provisions of the Act.

6.0 DETERMINATION

6.1 SIGNIFICANCE CRITERIA

Hawaii Administrative Rules §11-200-11.2 establishes procedures for determining if an environmental impact statement (EIS) should be prepared or if a finding of no significant impact is warranted. §11-200-11.2 (1) provides that proposing agencies should issue an environmental impact statement preparation notice (EISPN) for actions that it determines may have a significant effect on the environment. Hawaii Administrative Rules §11-200-12 lists the following criteria to be used in making that determination:

In most instances, an action shall be determined to have a significant effect on the environment if it:

1. Involves an irrevocable commitment to loss or destruction of any natural or cultural resource;
2. Curtails the range of beneficial uses of the environment;
3. Conflicts with the State's long-term environmental policies or goals as expressed in Chapter 344, HRS, and any revisions thereof and amendments thereto, court decisions, or executive orders;
4. Substantially affects the economic or social welfare of the community or State;
5. Substantially affects public health;
6. Involves substantial secondary impacts, such as population changes or effects on public facilities;
7. Involves a substantial degradation of environmental quality;
8. Is individually limited but cumulatively has considerable effect on the environment or involves a commitment for larger actions;
9. Substantially affects a rare, threatened, or endangered species, or its habitat;
10. Detrimentally affects air or water quality or ambient noise levels;
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, fresh water, or coastal waters;
12. Substantially affects scenic vistas and viewplanes identified in county or state plans or studies; or,
13. Requires substantial energy consumption.

6.2 FINDINGS

The potential effects of drilling, testing, and operating the proposed Honomū Well described earlier in this document were evaluated using these significance criteria. The findings with respect to each criteria are summarized below:

6.2.1 IRREVOCABLE LOSS OR DESTRUCTION OF VALUABLE RESOURCE

The proposed project would be constructed on fallow agricultural land adjacent to an existing Department of Water Supply facility. It does not involve the loss of any significant cultural or natural resources.

6.2.2 CURTAILS BENEFICIAL USES

Construction, testing, and operation will not curtail beneficial uses of the site. The water that would be withdrawn is a small fraction of the developable yield of the aquifer, and its removal from the groundwater flow into the ocean will not have a measurable effect on ocean or groundwater quality. It would be offset by a corresponding increase in the flow in Kolekole Stream. Only a small percentage of the agricultural parcel will be used, and the development will not preclude future use of this agricultural land.

6.2.3 CONFLICTS WITH LONG-TERM ENVIRONMENTAL POLICIES OR GOALS

The proposed project is consistent with the County of Hawai'i's General Plan (see Section 5.1) and with the State's long-term environmental policies and goals as expressed in Chapter 344, Hawaii Revised Statutes and elsewhere in State law. In fact, the primary reason the County is seeking to develop it at this time is the desire to reduce withdrawals from a source that is considered to be at greater risk of pollution.

6.2.4 SUBSTANTIALLY AFFECTS ECONOMIC OR SOCIAL WELFARE

The proposed well is intended to provide a continuing supply of water to existing residents of Honolulū. It will not have a substantial adverse effect on economic or social welfare except insofar as it allows the DWS to assure its customers that they are receiving the best quality water at the lowest cost, consistent with the maintenance of environmental quality.

6.2.5 PUBLIC HEALTH EFFECTS

The proposed project will not adversely affect air or water quality. Neither will it generate solid waste or produce other emissions that will have a significant adverse effect on public health. Construction noise has the potential to exceed noise standards at the property line, but the potential adverse effects of this can be mitigated by the noise abatement and attenuation measures that the County will require of the construction contractor.

6.2.6 PRODUCE SUBSTANTIAL SECONDARY IMPACTS

The proposed project will not produce significant secondary impacts. It is not designed to foster population growth or to promote economic development.

6.2.7 SUBSTANTIALLY DEGRADE ENVIRONMENTAL QUALITY

The proposed project will not have substantial long-term environmental effects. Noise from construction and pump testing is the only impact of note, and it will be of limited duration. So long as adequate measures are taken to control the intensity of the drilling noise and the time of day during which it will occur, its effects on nearby residents can be managed.

6.2.8 CUMULATIVE EFFECTS OR COMMITMENT TO A LARGER ACTION

Construction and operation of the proposed well is not a commitment to a larger action and is not intended to facilitate substantial population growth. Instead, it is intended primarily to replace an existing water source that is expected to be subject to surface-water treatment requirements.

6.2.9 AFFECTS A RARE, THREATENED, OR ENDANGERED SPECIES

The proposed project will be constructed adjacent to an already developed site on fallow agricultural land. It will not utilize a resource needed for the protection of rare, threatened, or endangered species.

6.2.10 AFFECTS AIR OR WATER QUALITY OR AMBIENT NOISE LEVELS

Construction and operation of the proposed well will not have a measurable effect on air or water quality. Neither will it have a long-term effect on noise levels.

The project does have the potential to increase noise levels during the construction phase. Adequate mitigation measures will be taken to limit these to reasonable levels.

6.2.11 ENVIRONMENTALLY SENSITIVE AREAS

There are no environmentally sensitive areas or resources in the vicinity of the proposed project. While the Island of Hawai'i as a whole is subject to certain geologic hazards, such as earthquakes, tsunami, and lava flows, the project site is in an area that has a relatively low frequency of lava flows and is above the tsunami evacuation zone. The structures built as part of the well development will be constructed consistent with the Hawai'i Uniform Building Code for Earthquake Zone 3.

6.2.12 AFFECTS SCENIC VISTAS AND VIEWPLANES

The proposed well and equipment building are small and will comprise only a small incremental change to the already developed facility. They are not part of a designated scenic area. They will not significantly alter the visual character of the site or change views across it.

6.2.13 REQUIRES SUBSTANTIAL ENERGY CONSUMPTION

Operation of the wells will require more energy than is used for the existing 'Akaka Falls Springs source. The increase is relatively small, however and may be smaller than the overall energy that would be required for the enhanced water treatment that would be necessary when the Springs are designated to be under the direct influence of surface water.

6.3 DETERMINATION

In view of the foregoing, the DWS concludes that the proposed project will not have a significant adverse impact on the environment. Consequently, it is issuing a Finding of No Significant Impact for the proposed action.

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- Yamamoto, M.N. and A.W. Tagawa (2000) *Hawai'i's Native and Exotic Freshwater Animals*. Mutual Publishing, Honolulu, HI 200 p.

8.0 PARTIES CONSULTED

8.1 EARLY CONSULTATION

Table 8-1 lists the organizations contacted in the development of the draft EA.

Table 8-1 Organizations Contacted in Preparation of the EA

State Agencies
Office of Environmental Quality Control
Department of Health, Safe Drinking Water Office
Department of Health, Wastewater Branch
Department of Land & Natural Resources, Historic Preservation Division
Department of Land & Natural Resources, Commission on Water Resource Management
County of Hawai'i
Department of Environmental Management, Solid Waste Division
Department of Planning

8.2 DISTRIBUTION OF DRAFT EA

This EA was distributed to the individuals and organizations listed in Table 8-2. Table 8-3 lists the organizations that provided comment letters to the EA. These letters and responses to them are reproduced in the next section.

Table 8-2 Draft EA Distribution List

Federal Agencies	
Environmental Protection Agency, Region IX	District Engineer, U.S. Army Engineer District, Honolulu
Environmental Protection Agency, Pacific Islands Contact Office	U.S. Fish & Wildlife Service, Pacific Island Eco-Region
U.S. Department of Agriculture, Natural Resources Conservation Service	District Chief, Geological Survey, Department of the Interior
State Agencies	
Office of Environmental Quality Control	Department of Business and Economic Development & Tourism
State Department of Defense	Energy Resources & Technology Division, Department of Business, Economic Development, & Tourism
Department of Education	Department of Health, Environmental Planning Office
Department of Hawaiian Home Lands	Department of Health, Safe Drinking Water Branch
Office of Hawaiian Affairs	State Department of Land and Natural Resources (DLNR), Dept. of Aquatic Resources
State Department of Accounting and General Services	DLNR Historic Preservation Division
State Department of Agriculture	Environmental Center, University of Hawai'i
Commission on Water Resource Management	Water Resources Center, University of Hawai'i
Dept. of Health, Hawai'i District Health Office	

County of Hawai'i	
Planning Department	Fire Department
Department of Parks and Recreation	Department of Environmental Management, Solid Waste Division
Other Organizations	
Environmental Reporter, <i>Honolulu Star-Bulletin</i>	Environmental Reporter, <i>West Hawai'i Today</i>
Environmental Reporter, <i>Honolulu Advertiser</i>	Environmental Reporter, <i>Hawai'i Tribune Herald</i>
Libraries and Depositories	
Hawaii State Library Hawaii Documents Center	Hilo Public Library
University of Hawai'i, Hilo Campus Library	Laupāhoehoe Public and School Library

Table 8-3 Comments Received on the Draft EA

<i>Organizations Providing Comments on the Draft EA</i>	<i>Comment Letter Date</i>	<i>Internal Reference Number</i>	<i>Date Response Letter Sent</i>
County of Hawai'i			
Department of Parks and Recreation	06-27-02	1	08-22-02
Police Department	07-01-02	3	08-22-02
Planning Department	06-27-02	6	08-22-02
State Agencies			
Department of Health, Safe Drinking Water Branch	06-28-02	2	08-22-02
Department of Accounting and General Services	07-02-02	5	08-22-02
Dept. of Land and Natural Resources, Division of Aquatic Resources	07-08-02	8	08-22-02
Dept. of Land and Natural Resources, Historic Preservation Division	06-09-02	9	08-22-02
Department of Education	07-11-02	10	08-22-02
Office of Environmental Quality Control	07-22-02	11	08-22-02
Office of Hawaiian Affairs	07-23-02	12	08-22-02
Department of Health, Environmental Health Administration	07-31-02	13	08-22-02
Federal Agencies			
Department of the Army, Civil Works Technical Branch	07-01-02	4	08-22-02
U.S. Geological Survey, Water Resources Discipline	07-09-02	7	08-22-02

8.3 DRAFT EA COMMENT LETTERS RECEIVED AND RESPONSES

Harry Kim
Mayor



County of Hawaii
DEPARTMENT OF PARKS AND RECREATION
101 Puuhii Street, Suite 6 • Hilo, Hawaii 96720
(808) 941-4311 • Fax: (808) 941-4411

①
Patricia G. Engelhard
Director

Francis M. Mirano
Deputy Director

June 27, 2002

Perry J. White
Planning Solutions
1210 Auahi St., Suite 221
Honolulu, HI 96814

Re: Honoumua Well-Draft EA/Anticipated FONSI

Dear Mr. White:

We have reviewed the draft EA and have neither comments nor objections to offer.

Thank you for apprising us of the project and for the opportunity to review the EA.

Sincerely,

Patricia Engelhard
Patricia Engelhard
Director



PLANNING
SOLUTIONS

1215 AUAI STREET, SUITE 221
HONOLULU, HAWAII 96814
PHONE: 808 593-1288
FAX: 808 593-1958

August 22, 2002

Ms. Patricia Engelhard, Director
Department of Parks and Recreation
County of Hawaii
101 Puuhii Street, Suite 6
Hilo, HI 96720

Subject: Draft Environmental Assessment, Honoumua Well

Dear Ms. Engelhard:

Thank you for your June 27, 2002 letter on the Department of Water Supply Draft Environmental Assessment for the proposed Honoumua Well Project. We appreciate the time you and your staff spent reviewing the document. We note that you have no comments on or objections to the project.

If you have any further questions concerning the project, please call me at (808) 593-1288.

Sincerely,

Charles L. Morgan
Charles L. Morgan
Project Consultant

cc: Department of Water Supply, County of Hawaii



STATE OF HAWAII
DEPARTMENT OF HEALTH

PO BOX 3378
HONOLULU, HAWAII 96801-3378

June 28, 2002

BRUCE S. ANDERSON, P.E., M.S.E.
DIRECTOR OF HEALTH

In reply, please refer to
SECTION 5

②

Mr. Milton Pavao, P.E.
June 28, 2002
Page 2

Mr. Milton Pavao, P.E., Manager
Department of Water Supply
County of Hawaii
345 Kekuaaoa Street, Suite 20
Hilo, Hawaii 96720

Dear Mr. Pavao:

SUBJECT: DRAFT ENVIRONMENTAL ASSESSMENT FOR HONOMU WELL

We have reviewed the Draft Environmental Assessment which proposes to drill and test, and if successful complete a new municipal water supply well to replace the Akaka Falls Spring source and have the following comments to offer:

1. The aforementioned project is currently on the Drinking Water State Revolving Fund (DWSRF) loan program priority list.
 - a. Section 5.3: Please include a review of two additional Federal Cross Cutters.
 - Wild and Scenic Rivers Act (16 U.S.C. 271)
 - Wilderness Act (16 U.S.C. 1131)

If the Department of Water Supply is interested in funding this project through the DWSRF program, please contact the DWSRF program and submit a loan application for the project.

2. The aforementioned project is slated to replace the Akaka Falls Spring source which the Department of Water Supply suspects is under the direct influence of surface water. Please note that the Department of Health will require a physical break in the line between the Akaka Falls Spring and the system. Please include a statement of this disconnect in the report.
3. The Draft Environmental Assessment indicates that the project will include the development of a new source of potable water. Section 11-20-29 of Chapter 20 requires that

all new sources of potable water serving a public water system be approved by the Director of Health prior to its use. Such an approval is based primarily upon the submission of a satisfactory engineering report which addressed the requirements set in Section 11-20-29.

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

Should you have any questions, please call Denise Dang of the Safe Drinking Water Branch at 586-4258.

Sincerely,

William Wong
WILLIAM WONG, P.E. CHIEF
Safe Drinking Water Branch
Environmental Management Division

DD:1a

- c: Planning Solutions
Attn: Perry White
1210 Auahi St., Suite 221
Honolulu, HI 96814
- Office of Environmental Quality Control
Wastewater Branch
DWSRF File
DWSRF Project File



P L A N N I N G
S O L U T I O N S

1210 ADAMI STREET, SUITE 211
HONOLULU, HAWAII 96814
PHONE: 808 533-1230
FAX: 808 533-1934

August 22, 2002

Mr. William Wong, Chief
Safe Drinking Water Branch
State of Hawaii Department of Health
P.O. Box 3378
Honolulu, HI 96801-3378

Subject: Draft Environmental Assessment, Honomū Well

Dear Mr. Wong:

Thank you for your June 28, 2002 letter commenting on the Department of Water Supply Draft Environmental Assessment for the proposed Honomū Well Project. We appreciate the time you and your staff spent reviewing the document and providing written comments. Item-by-item responses to your comments (reproduced for your convenience in italics before each response) are provided below.

1. *The aforementioned project is currently on the Drinking Water State Revolving Fund (DWSRF) loan program priority list.*

a. *Section 5.3: Please include a review of two additional Federal Cross Cutters.*

- *Wild and Scenic Rivers Act (16 U.S.C. 271)*

- *Wilderness Act (16 U.S.C. 1131)*

If the Department of Water Supply is interested in funding this project through the DWSRF program, please contact the DWSRF program and submit a loan application for the project.

Two new sections have been added to Section 5.3 to assess the consistency of this project with the provisions of these laws. They are reproduced below. The Department of Water Supply is currently planning to seek funding through the DWSRF program and will contact your office as recommended here.

5.3.10 WILD AND SCENIC RIVERS ACT (16 U.S.C. 1271-1287)

The purpose of this act, as stated in Section (b) of its preamble is as follows:

It is hereby declared to be the policy of the United States that certain selected rivers of the Nation which, with their immediate environments, possess outstandingly remarkable scenic, recreational, geologic, fish and wildlife, historic, cultural, or other similar values, shall be preserved in free-flowing condition, and that they and their immediate environments shall be protected for the benefit and enjoyment of present and future generations. The Congress declares that the established national policy of present and future generations as appropriate sections of the rivers of the United States needs to be complemented by a policy that would preserve other selected rivers or sections thereof in their free-flowing condition to protect the water quality of such rivers and to fulfill other vital national conservation purposes.

As discussed in Section 2.8, both the Pāhe'ehē and Honomū Streams have been listed by the U.S. National Park Service as candidates for designation as Scenic Rivers and therefore potentially subject to the provisions of this Act. As discussed in Sections 3.3.2, 3.4, and 3.7, development of the Honomū well does not have the potential to affect the hydrology, water quality, or aquatic resources in these streams and therefore is consistent with the provisions of the Wild and Scenic Rivers Act.

Page 2

Mr. William Wong, Chief, Safe Drinking Water Branch
872/02

5.3.11 WILDERNESS ACT (16 U.S.C. 1131)

The purpose of this legislation is stated in Section 2(a) of the Act as follows:

In order to assure that an increasing population, accompanied by expanding settlement and growing mechanization, does not occupy and modify all areas within the United States and its possessions, leaving no lands designated for preservation and protection in their natural condition, it is hereby declared to be the policy of the Congress to secure for the American people of present and future generations the benefits of an enduring resource of wilderness. For this purpose there is hereby established a National Wilderness Preservation System to be composed of federally owned areas designated by Congress as "wilderness areas", and these shall be administered for the use and enjoyment of the American people in such manner as will leave them unimpaired for future use and enjoyment as wilderness, and so as to provide for the protection of these areas, the preservation of their wilderness character, and for the gathering and dissemination of information regarding their use and enjoyment as wilderness; and no Federal lands shall be designated as "wilderness areas" except as provided for in this chapter or by a subsequent Act.

The nearest designated Wilderness Area to the proposed Honomū well site is in the Hawai'i Volcanoes National Park on the flanks of the Kilauea and Mauna Loa volcanoes, approximately 30 miles from the proposed well site. The Honomū region and the Hāxalau aquifer are not linked hydrologically to these Wilderness Area lands and the development of the well would have no impact on them. Thus the project is consistent with the provisions of the Act.

2. *The aforementioned project is slated to replace the Akaka Falls Spring source which the Department of Water Supply suspects is under the direct influence of surface water.*

Please note that the Department of Health will require a physical break in the line between the Akaka Falls Spring and the system. Please include a statement of this disconnect in the report.

The following sentence has been added to the end of the last paragraph in Section 1.3.1. Design of the Proposed Facilities:

"Before the well is placed into service, DWS will install at the well site a physical break/disconnect in the distribution line from the current 'Akaka Falls Spring' water source to ensure that no contamination from this source can occur."

3. *The Draft Environmental Assessment indicates that the project will include the development of a new source of potable water. Section 11-20-29 of Chapter 30 requires that all new sources of potable water serving a public water system be approved by the Director of Health prior to its use. Such an approval is based primarily upon the submission of a satisfactory engineering report which addressed the requirements set in Section 11-20-29.*

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

The following paragraph has been added to the end of Section 1.3.2 to make explicit these requirements for the development of the well as part of a public water system:

Page 3
Mr. William Wong, Chief, Safe Drinking Water Branch
8/22/02

"DWS will submit an engineering report to the State Department of Health Safe Drinking Water Branch (SDWB) that identifies all potential sources of contamination and alternative control measures. The report shall be prepared by a licensed professional engineer, experienced in such fields as water resources, hydrogeology, water supply, or environmental engineering, and shall address all the requirements set forth in Hawai'i Administrative Rules Section 11-20-29. Before the well is placed into service as part of the Hoosonui System, DWS will obtain approval from the SDWB, as required by these regulations."

If you have any further questions concerning the project, please call me at (808) 593-1288.

Sincerely,


Charles L. Morgan
Project Consultant

cc: Department of Water Supply, County of Hawai'i

Harry Kim
Mayor



County of Hawaii

POLICE DEPARTMENT
349 Kapiolani Street • Hilo, Hawaii 96720-3998
(808) 935-3311 • Fax (808) 961-8849

③
James S. Correa
Police Chief



PLANNING SOLUTIONS

1210 AUAKI STREET, SUITE 221
HONOLULU, HAWAII 96814
PHONE: 808 593-1288
FAX: 808 593-1938

August 22, 2002

July 1, 2002

Perry J. White
Planning Solutions
1210 Auahi Street, Suite 221
Honolulu, Hawaii 96814

Dear Mr. White:

**SUBJECT: HONOMU WELL
DRAFT ENVIRONMENTAL ASSESSMENT/ANTICIPATED FINDING
OF NO SIGNIFICANT IMPACT**

Staff has reviewed the proposed Honomu Well project and has no objections to the implementation of this project.

Should construction of this project require partial or temporary closure of Akaka Falls Road, appropriate safeguards need to be taken to mitigate safety concerns.

Thank you for the opportunity to comment.

Sincerely,

JAMES S. CORREA
POLICE CHIEF

Thomas J. Hickcox
THOMAS J. HICKCOX
ASSISTANT POLICE CHIEF
FIELD OPERATIONS BUREAU

RN:via

cc: Office of Environmental Quality Control
Mr. Milton Pavao, Department of Water Supply

Chief James S. Correa
County of Hawaii's Police Department
349 Kapiolani Street
Hilo, HI 96720-3998

Subject: Draft Environmental Assessment, Honomu Well

Dear Chief Correa:

Thank you for your July 1, 2002 letter commenting on the Department of Water Supply Draft Environmental Assessment for the proposed Honomu Well Project. We appreciate the time you and your staff spent reviewing the document and providing written comments. We understand that the Department has no objections to the implementation of the project.

Should construction of the project require partial or temporary closure of Akaka Falls Road, the County Department of Water Supply will take appropriate safeguards to mitigate any potential safety concerns.

If you have any further questions concerning the project, please call me at (808) 593-1288.

Sincerely,

Charles L. Morgan
Charles L. Morgan
Project Consultant

cc: Department of Water Supply, County of Hawaii's

DEPARTMENT OF THE ARMY
U.S. ARMY ENGINEER DISTRICT, HONOLULU
FT. SHAFTER, HAWAII 96814

MEMORANDUM
ATTENTION OF

July 1, 2002

Civil Works Technical Branch

Mr. Perry J. White
Planning Solutions
1210 Auahi Street, Suite 221
Honolulu, Hawaii 96814

Dear Mr. White:

Thank you for the opportunity to review and comment on the Draft Environmental Assessment (DEA) for the Honoumū Well Project, Hilo, Hawaii (TWSK 2-8-13: 5 and 55). The following comments are provided in accordance with Corps of Engineers authorities to provide flood hazard information and to issue Department of the Army (DA) permits.

- a. Based on the information provided, a DA permit will not be required for the project.
- b. The flood hazard information provided on page 5-4 of the DEA is correct.

Should you require additional information, please contact Ms. Jessie Dobinchick of my staff at (808) 438-8876.

Sincerely,

James Pennaz
James Pennaz, P.E.
Chief, Civil Works
Technical Branch



P L A N N I N G
S O L U T I O N S

1210 AUAHI STREET, SUITE 221
HONOLULU, HAWAII 96814
PHONE: 808 593-1228
FAX: 808 593-1838

Mr. James Pennaz, Chief
Civil Works Technical Branch
Department of the Army
Honolulu Engineer District
Fort Shafter, Hawaii 96838-5440

Subject: Draft Environmental Assessment (DEA), Honoumū Well

Dear Mr. Pennaz:

Thank you for your July 1, 2002 letter commenting on the Department of Water Supply Draft Environmental Assessment for the proposed Honoumū Well Project. We appreciate the time you and your staff spent reviewing the document and providing written comments.

Thank you for confirming that a Department of the Army permit will not be required for the project and that the flood hazard information provided in Section 5.3.7 of the DEA is correct.

If you have any further questions concerning the project, please call me at (808) 593-1288.

Sincerely,

Charles L. Morgan
Charles L. Morgan
Project Consultant

cc: Department of Water Supply, County of Hawaii

August 22, 2002

4

WILLIAM J. CATTANO
COMPTROLLER



STATE OF HAWAII
DEPARTMENT OF ACCOUNTING AND GENERAL SERVICES
P.O. BOX 118, HONOLULU, HAWAII 96810

JUL - 2 2002

5

GLENN M. OKIMOTO
COMPTROLLER
MARY ALICE WALKER
DEPUTY COMPTROLLER

LETTER NO. 2002-027



P L A N N I N G
S O L U T I O N S

1210 AUAAHI STREET, SUITE 221
HONOLULU, HAWAII 96814
PHONE: 808 593-1288
FAX: 808 593-1288

August 22, 2002

Mr. Glenn M. Okimoto, State Comptroller
State of Hawai'i
Department of Accounting and General Services
P.O. Box 119
Honolulu, HI 96810

Subject: Draft Environmental Assessment (DEA), Honomā Well

Dear Mr. Okimoto:

Thank you for your July 2, 2002 letter commenting on the Department of Water Supply Draft Environmental Assessment for the proposed Honomā Well Project. We understand that you have no comments on the project and that it would not impact any of your facilities.

If you have any further questions concerning the project, please call me at (808) 593-1288.

Mr. Perry J. White
Planning Solutions, Inc.
1210 Auahi Street, Suite 221
Honolulu, Hawaii 96814

Dear Mr. White:

Subject: Draft Environmental Assessment

Honomā Well
Honoma, Hawaii
TMK: 2-8-13:55 and por. 2-8-13:05

Thank you for the opportunity to review the subject draft environmental assessment. The proposed Honomā well does not impact any of our facilities. Therefore, we have no comments.

If there are any questions regarding the above, please have your staff call Ms. Christine Kinimaka of the Public Works Division at 586-0499.

Very truly yours,

GLENN M. OKIMOTO
State Comptroller

Sincerely,

Charles L. Morgan
Project Consultant

cc: Department of Water Supply, County of Hawai'i

Harry Kim
Mayor



County of Hawaii

PLANNING DEPARTMENT
25 Airport Street, Room 109 • Hahaione, Hawaii 96720-4233
(808) 941-4233 • Fax (808) 941-4742

Christopher J. Yuen
Director

Roy R. Takemoto
Deputy Director

6

Mr. Perry J. White
PLANNING SOLUTIONS
Page 2
June 27, 2002

June 27, 2002

Mr. Perry J. White
PLANNING SOLUTIONS
1210 Auahi Street, Suite 221
Honolulu, HI 96814

Dear Mr. White:

Subject: Draft Environmental Assessment
Applicant: Department of Water Supply
Request: Drilling and testing of a new water well & construction of a control building
TMK: 2-8-13: 55 and Por. 5

This is to acknowledge receipt of your draft environmental assessment dated June 20, 2002, requesting preliminary comments on the environmental assessment for the drilling and testing of a new water well and construction of a control building on the above-referenced properties. We have the following comments to offer:

- The State Land Use designation for the properties is Agricultural and the County zoning is Agricultural (A-20a).
- The properties are not situated within the County's Special Management Area (SMA).

This project is a permitted public use or structure according to the Hawaii County Zoning Code, and is consistent with Sections 25-4-11(c) and 25-5-72(a)(22). Accessory uses or buildings to the project are also permitted uses, pursuant to Section 25-5-72(e).

Thank you for the opportunity to provide comments. If you have any questions, please call us at 961-8288.

Sincerely,

CHRISTOPHER J. YUEN
Planning Director

PF:pak
c:\perry\49\04\13\55\1\DEAD\W\1\exam02_06.doc

cc: Long Range Planning
Planning Department - Kona



P L A N N I N G
S O L U T I O N S

1510 NUUANU STREET, SUITE 221
HONOLULU, HAWAII 96814
PHONE 808.533-1288
FAX 808.533-1938

Mr. Christopher J. Yuen, Director
County of Hawaii's Planning Department
25 Auahi Street, Room 109
Hilo, HI 96720-4252

August 22, 2002

Subject: Draft Environmental Assessment (DEA), Honoomā Well

Dear Mr. Yuen:

Thank you for your June 27, 2002 letter commenting on the Department of Water Supply Draft Environmental Assessment for the proposed Honoomā Well Project. We appreciate the time you and your staff spent reviewing the document and providing written comments. Item-by-item responses to your comments (reproduced for your convenience in italics before each response) are provided below.

The State Land Use designation for the properties is Agricultural and the County zoning is Agricultural (A-20a)

Thank you for confirming the appropriate State land use designation, as noted in the Project Summary. In the Final EA, we have modified the designation of the County zoning in the Summary from "Ag-20" as noted in the DEA, to "Agricultural (A-20a)" to be consistent with your notation.

The properties are not situated in the County's Special Management Area (SMA)

Thank you for confirming this fact. We have modified the first sentence of the second paragraph in the subsection "MARINE RESOURCES" in Section 5.3.3 to note this fact explicitly as follows:

"The proposed Honoomā Well project is located several miles from the coastline and is not within the County's SMA."

This project is a permitted public use or structure according to the Hawaii's County Zoning Code, and is consistent with Sections 25-4-1(c) and 25-5-72(a)(22). Accessory uses or buildings to the project are also permitted uses, pursuant to Section 25-5-72(e).

Thank you for confirming the project's consistency with the County Zoning Code. For clarity and completeness, we have inserted the following sentences at the end of the last paragraph of Section 5.1 of the Final EA:

"The County of Hawaii's Planning Department has confirmed that this project is a permitted public use or structure according to the Hawaii's County Zoning Code, and is consistent with Sections 25-4-1(c) and 25-5-72(a)(22). Accessory uses or buildings to the project are also permitted uses, pursuant to Section 25-5-72(e)."

If you have any further questions concerning the project, please call me at (808) 593-1288.

Sincerely,

Charles L. Morgan
Project Consultant

cc: Department of Water Supply, County of Hawaii

6



United States Department of the Interior

U.S. GEOLOGICAL SURVEY
WATER RESOURCES DISCIPLINE
677 Ala Moana Blvd., Suite 415
Honolulu, HI 96813
Phone: (808) 587-2400/Fax: (808) 587-2401

July 9, 2002

Mr. Perry J. White
Planning Solutions
1210 Auahi Street, Suite 221
Honolulu, Hawaii 96814

Dear Mr. White:

Subject: Honomū Well
Draft Environmental Assessment/Anticipated Finding of No Significant Impact

Thank you for forwarding the subject Draft Environment Assessment/Anticipated Finding of No Significant Impact for review and comment by the staff of the U.S. Geological Survey, Water Resources Discipline, Hawaii District office. We regret however, that due to prior commitments and lack of available staff, we are unable to review this document.

We appreciate the opportunity to participate in the review process.

Sincerely,

Gordon Tribble
District Chief

(7)



P L A N N I N G
S O L U T I O N S

1210 AUAAHI STREET, SUITE 221
HONOLULU, HAWAII 96814
PHONE: 808 593-1288
FAX: 808 593-1935

August 22, 2002

Mr. Gordon Tribble, District Chief
U.S. Geological Survey
Water Resources Discipline
677 Ala Moana Blvd., Suite 415
Honolulu, HI 96813

Subject: Draft Environmental Assessment (DEA), Honomū Well

Dear Dr. Tribble:

Thank you for your July 9, 2002 letter on the Department of Water Supply Draft Environmental Assessment for the proposed Honomū Well Project. We regret that you are unable to review the DEA.

If you have any further questions concerning the project, please call me at (808) 593-1288.

Sincerely,

Charles L. Morgan
Project Consultant

cc: Department of Water Supply, County of Hawai'i

BENJAMIN J. CAYETANO
GOVERNOR OF HAWAII



STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
DIVISION OF AQUATIC RESOURCES
1151 PUNCHBOWL STREET
HONOLULU, HAWAII 96813

July 8, 2002

Mr. Perry J. White
Planning Solutions
1210 Auahi Street, Suite 221
Honolulu, Hawaii 96814

Dear Mr. Perry,

This is in response to your request for a review of the Draft Environmental Assessment (DEA)/Anticipated Finding of No Significant Impact (FONSI) for the proposed Honoumū Well project. Our staff has reviewed this report and offers the following comments. The review is limited to the Aquatic Resources portions since this is the Division's area of expertise.

We have some concerns about the proposed project because the well is located near and between Paheke and Honoumū Streams. Both of these streams are of high biological value providing habitat for populations of native freshwater species such as *Lamprologina concolor*, *Sicyopterus japonicus*, *Awaous guayanaensis* and other native stream animals.

Our main concern is that we do not know whether the stream flow will be affected if water is removed from the new well. If stream flow is diminished due to the removal of water through the Honoumū Well, the populations of native freshwater animals may be affected. Since there is no available information as to whether pumping will affect stream flow, this would be a good opportunity to find this out. Therefore, the Division would have no objections to this project provided that the stream flow is monitored when the pumps are in operation. If stream flow diminishes and native freshwater animal populations are affected, pumping should cease.

We agree with the contractor's plan to use best management practices to minimize adverse impacts to the surrounding stream areas. In addition to monitoring stream flow, we recommend the applicant take mitigative measures during construction of the well site to prevent contaminants such as dirt cuttings, cutting extraction medium, sediment, pollutants, petroleum products, and debris from possibly entering the aquatic environment. We also suggest that site work be scheduled for periods of minimal rainfall and lands denuded of vegetation be replanted or covered as quickly as possible to control erosion.

Thank you for the opportunity to provide comments.

Sincerely,

William S. Devick
Administrator



P L A N N I N G
S O L U T I O N S

1210 AUAAHI STREET, SUITE 221
HONOLULU, HAWAII 96814
PHONE: 808-533-1214
FAX: 808-533-1216

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

Subject: Draft Environmental Assessment, Honoumū Well

Dear Mr. Devick:

Thank you for your July 8, 2002 letter commenting on the Department of Water Supply Draft Environmental Assessment for the proposed Honoumū Well Project. We appreciate the time you and your staff spent reviewing the document and providing written comments. Item-by-item responses to your comments (reproduced for your convenience in italics before each response) are provided below.

We have some concerns about the proposed project because the well is located near and between Paheke and Honoumū Streams. Both of these streams are of high biological value providing habitat for populations of native freshwater species such as Lamprologina concolor, Sicyopterus japonicus, Awaous guayanaensis and other native stream animals.

Our main concern is that we do not know whether the stream flow will be affected if water is removed from the new well. If stream flow is diminished due to the removal of water through the Honoumū Well, the populations of native freshwater animals may be affected. Since there is no available information as to whether pumping will affect stream flow, this would be a good opportunity to find this out. Therefore, the Division would have no objections to this project provided that the stream flow is monitored when the pumps are in operation. If stream flow diminishes and native freshwater animal populations are affected, pumping should cease.

The well is expected to tap basal groundwater, which stands on the order of five feet above sea level. Since this groundwater body would only intersect the stream at the shoreline, the only possible effect on the stream's flow would be at the mouth. However, both stream mouths are characterized by poorly permeable alluvial deposits which effectively seal off groundwater input in the nearshore area.

It is possible that higher elevation, perched groundwater will be encountered during the progress of drilling. This groundwater could, in fact, drain into the streams. However, it will be sealed off with cement after the casing is installed, so the well will have no impact on the perched groundwater or its potential discharge into streams. For these reasons it is not possible for the well withdrawals to influence the flow of these streams and, therefore, monitoring stream flow is not necessary.

We agree with the contractor's plan to use best management practices to minimize adverse impacts to the surrounding stream areas. In addition to monitoring stream flow, we recommend the applicant take mitigative measures during construction of the well site to prevent contaminants such as dirt cuttings, cutting extraction medium, sediment, pollutants, petroleum products, and debris from possibly entering the aquatic environment. We also suggest that site work be scheduled for periods of minimal rainfall and lands denuded of vegetation be replanted or covered as quickly as possible to control erosion.

Page 2
Mr. William Devick, Administrator, Department of Aquatic Resources
8/72/2002

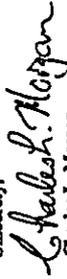
We have modified the first paragraph in Section 3.4, *Water Quality*, replacing it with the following two paragraphs to ensure that these concerns are explicitly addressed by the contractor during construction of the well facilities:

"As discussed above, storm water runoff from the site will flow overland and through existing drainage swales, eventually reaching Pāhe'ehē'e Stream. The State Department of Health classifies this stream as Class 2 Inland Waters (DOH 2000b). The removal of the existing vegetative cover during the site-clearing and grading phase of construction would temporarily increase the potential for erosion. The contractor would use best management practices to minimize this potential increase and to confine soil particles on the project site. Mitigative measures would be implemented as necessary during construction of the well site to prevent contaminants such as drill cuttings, cutting extraction medium, sediment, pollutants, petroleum products, and debris from possibly entering the aquatic environment. The work would be scheduled as practically possible for periods of minimal rainfall, and lands denuded of vegetation would be replanted or covered as quickly as possible to control erosion.

"Moreover, the long flow path between the site and the stream would further mitigate the potential for adverse impact on water quality. In any event, the potential effect would be a small fraction of the effect that the receiving water experienced repeatedly for the many decades that sugarcane was cultivated on and around the site."

If you have any further questions concerning the project, please call me at (808) 593-1288.

Sincerely,


Charles L. Morgan
Project Consultant

cc: Department of Water Supply, County of Hawai'i

8

BILLIAM J. CANTLAND
GOVERNOR OF HAWAII



STATE OF HAWAII

DEPARTMENT OF LAND AND NATURAL RESOURCES

HISTORIC PRESERVATION DIVISION
1210 AWAHI STREET, SUITE 221
HONOLULU, HAWAII 96814

HERBERT E. COLWELL, CHAIRMAN
BOARD OF HISTORIC PRESERVATION
COMMISSION ON WATER RESOURCES MANAGEMENT

DEPUTY
DIRECTOR
LAND RESOURCES

AQUATIC RESOURCES
BOATING AND OCEAN RECREATION
COUNTRYSIDE AND WATER RESOURCES
MANAGEMENT
CONSERVATION AND RESOURCES
DEVELOPMENT
CULTURAL RESOURCES
FORESTRY AND WILDLIFE
HISTORIC PRESERVATION
LAND
STATE PARKS

LOG NO: 29995 ✓
DOC NO: 0205PM13

June 3, 2002

Mr. Pety White
Planning Solutions
1210 Awahi Street, Suite 221
Honolulu, Hawaii 96814

Dear Mr. White:

SUBJECT: Proposed County of Hawaii Department of Water Supply Well
Honoumū, South Hilo, Hawaii Island
TMK: (3) 2-8-13:05

Thank you for your letter of May 30, 2002 regarding the proposed County of Hawaii Department of Water Supply well at Honoumū. The project was discussed over the phone with staff archaeologist Patrick McCoy on May 29, 2002.

Your letter indicates that the proposed project area, located adjacent to the existing Honoumū Reservoir along Akaka Falls Road, is old sugarcane land. We agree that the potential for significant historic sites in the project area is extremely low based on the history of prior land use. We thus believe that no historic properties will be affected by the proposed well.

If you should have any questions about this project please contact our Hawaii Island archaeologist, Patrick McCoy (692-8029).

Aloha,

DON HIBBARD, Administrator
State Historic Preservation Division

c. Chris Yuen, County of Hawaii Planning Department
Kai Embler, County of Hawaii Department of Public Works

PM:amk



P L A N N I N G
S O L U T I O N S

1210 AWAHI STREET, SUITE 221
HONOLULU, HAWAII 96814
PHONE: 808 593-1288
FAX: 808 593-1938

August 22, 2002

Mr. Don Hibbard, Administrator
State of Hawaii, Department of Land and Natural Resources
Historic Preservation Division
Kakuhewa Building, Room 555
Kapolei, HI 96707

Subject: Draft Environmental Assessment (DEA), Honoumū Well

Dear Dr. Hibbard:

Thank you for your June 3, 2002 letter commenting on the Department of Water Supply Draft Environmental Assessment for the proposed Honoumū Well Project. We appreciate the time you and your staff spent reviewing the project and project documents. Thank you for corroborating our belief that no historic properties will be affected by the proposed well.

If you have any further questions concerning the project, please call me at (808) 593-1288.

Sincerely,

Charles L. Morgan
Project Consultant

cc: Department of Water Supply, County of Hawaii



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



PLANNING
SOLUTIONS

1210 AVAHI STREET, SUITE 221
HONOLULU, HAWAII 96816
PHONE: 808 593-1288
FAX: 808 593-1936

OFFICE OF THE SUPERINTENDENT

July 11, 2002

Mr. Perry J. White
Planning Solutions
1210 Avahi Street, Suite 221
Honolulu, Hawaii 96814

Dear Mr. White:

Subject: Honoumu Well - South Hilo District, Hawai'i
TMK: 2-8-13:05

The Department of Education has reviewed the Draft Environmental Assessment for the proposed Honoumu Well. The Department of Water Supply (DWS), Hawai'i County, would like to replace the spring source of water for the Honoumu area with a drilled well to be located on Akaka Falls Road adjacent to an existing DWS water reservoir.

DOE has no comment on the proposed project and appreciates the opportunity to review the plans.

Should you have any questions or concerns, please call Ms. Heidi Meeker of the Facilities and Support Services Branch at 733-4862.

Very truly yours,

Patricia Hamamoto
Superintendent

PH:hy

cc: A. Suga, OBS

August 22, 2002

Ms. Patricia Hamamoto, Superintendent
State of Hawai'i Department of Education
P.O. Box 2360
Honolulu, HI 96804

Subject: Draft Environmental Assessment, Honoumu Well

Dear Superintendent Hamamoto:

Thank you for your July 11, 2002 letter commenting on the Department of Water Supply Draft Environmental Assessment for the proposed Honoumu Well Project. We appreciate the time you and your staff spent reviewing the document and providing written comments. We understand that the Department has no comment on the project.

If you have any further questions concerning the project, please call me at (808) 593-1288.

Sincerely,

Charles L. Morgan
Project Consultant

cc: Department of Water Supply, County of Hawai'i

11

RONALD J. CANTANO
GOVERNOR



GENEVIEVE SALMONSON
DIRECTOR

STATE OF HAWAII
OFFICE OF ENVIRONMENT QUALITY CONTROL
1210 SOUTH MERCHANT STREET
SUITE 201
HONOLULU, HAWAII 96813
TELEPHONE: (808) 548-2600
FACSIMILE: (808) 548-2100

July 22, 2002

Mr. Milton Pardo
Department of Water Supply, County of Hawaii
345 Kakaiaho's Street, Suite 20
Hilo, Hawaii 96720

Mr. Perry White
Planning Solutions
1210 Anah'i Street, Suite 221
Honolulu, Hawaii 96814

Dear Messrs. Pardo and White:

Thank you for your submission of the draft environmental assessment (DEA) for the proposed drilling and testing for a new municipal water supply well adjacent to an existing 100,000 gallon tank on State route 200, U.S. routes 11 and 19, Parcels 5 and 53 in the judicial district of South Hilo. We have reviewed the document, concise and clearly written and submit the following comments for your consideration and response.

1. **GUIDELINES FOR ASSESSING WATER WELL DEVELOPMENT PROJECTS:** Please find enclosed the Office's 1998 guidelines for water well development projects which delineate the environmental assessment should contain to conduct a meaningful assessment (sustainable yield of the aquifer, etc.). As noted in the guidelines, environmental assessments for exploratory wells should not need to comply with all the information requested therein. Should the exploratory wells yield positive results and demonstrate production capability, a second environmental assessment for the production well should be prepared to comply address all information requirements contained within the enclosed guidance document.
2. **GUIDELINES FOR SUSTAINABLE BUILDING DESIGN IN HAWAII:** Please find enclosed a copy of the Guidelines for Sustainable Building Design prepared by the Environmental Council.
3. **USE OF RECYCLED GLASS:** Please consider the use of glass-substrate aggregate ("glassphalt") in the design of impervious surfaces.
4. **INDIGENOUS AND POLYNESIAN INTRODUCED PLANTS FOR USE IN PUBLIC LANDSCAPING:** Please consider the use of native, indigenous and polynesian introduced plants in your landscaping.

Thank you for the opportunity to comment. If there are any questions, please call Leslie Segundo, Environmental Health Specialist, at (808) 546-4185.

Sincerely,

GENEVIEVE SALMONSON
Director

Enclosures

GUIDELINES FOR ASSESSING WATER WELL DEVELOPMENT PROJECTS
Prepared by the Office of Environmental Quality Control, May 1998

I. INTRODUCTION

Water is recognized as one of Hawaii's most important resources. Its quality and availability for a wide variety of purposes is essential to both humans and the natural environment. Hawaii's water supply, development and distribution is a critical environmental issue today and is likely to become even more sensitive in the future. The establishment of guidance protocols such as this will encourage understanding and careful planning of this important resource.

These guidelines are not new rules or law. The purpose of the guidelines is to provide preparers and reviewers a general standard of completeness to apply for any EA or EIS relating to well development. The objectives of this guidance document are to integrate the review of environmental concerns with existing planning and regulatory processes and to alert decision makers of the environmental effects of the well project. The approving agency or accepting authority remains responsible for the contents of the EA or EIS.

Pursuant to HAR §11-200-8(a)(5), basic data collection, research, experimental management, and resource evaluation activities which do not result in a serious or major disturbance to an environmental resource may be exempt from preparing an environmental assessment. Accordingly, drilling of monitor wells as defined by the CWRM (provided the well shall not be capable of being used or intended to be used to withdraw groundwater for the purposes of exploring or developing ground water) may be exempt.

Environmental assessments for exploratory wells should not need to comply with all the information requirements below because some of the information will not be available until the well is tested. Should the exploratory well yield positive results and demonstrate production capability, a second environmental assessment for the production well should be prepared to comply with all the information requirements.

II. IMPACT ASSESSMENT CONTENT

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

1. Orientation Maps

Maps with the appropriate scale and coverage to analyze the aquifer or hydrologic unit that show the following:

- a) General information: location of proposed well, TMK or land ownership maps, location

of existing and future wells in the affected aquifer or hydrologic unit, and general references such as roads, schools, etc.

b) Hydrologic information: aquifer or hydrologic unit boundary, nearby streams and wetlands, known or assumed groundwater flowpaths, known or assumed water level contours.

c) Contamination information: Points or regions of known contamination, points of potential contamination (landfills, individual wastewater disposal systems (cesspools, septic tanks, aeration units), hazardous waste sites, dry wells and injection wells), known or assumed chloride levels at specified depths in relation to nearest or adjacent wells, likely wellhead protection area for the proposed well.

NOTE: New injection wells and dry wells are typically prohibited from within 1/4 mile of a drinking water well. Other restrictions could apply. New water wells should not be situated in areas that have a significant need for injection wells, dry wells or on-site individual wastewater disposal systems.

2. Aquifer or Hydrologic Unit Status

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

- Sustainable yields or other measures of water availability
- Authorized water use by the Commission on Water Resource Management (for Water Management Areas only)
- Data table presenting the following information as appropriate
 - Current water use totals, including subtotals for individual users
 - Current installed capacity including subtotals for individual wells and/or groups of wells.
 - Pending installed capacity and/or use for the proposed well and subtotals for individual wells and/or groups of wells within the aquifer

NOTE: Format suggestions and sample data tables for aquifer status data are contained in appendix #1.

3. Contamination Analysis and Vulnerability Assessment

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

The potential for contamination should be assessed based on geologic and hydrologic considerations. Although sources of contamination might be presently absent, vulnerability to contamination might be great, if contamination sources occur in the future, due to factors such as high rates of infiltration or thin, protective soil horizons.

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

4. Hydrologic Impact Analysis

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

NOTE: See appendix #2 for sample description.

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

5. Biological Assessment

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

6. Archaeological and Cultural Impact Assessment

A description of the archaeological and cultural significance of the region, including an on-site survey as well as consultations with Native Hawaiian groups such as DHH, OHA and local community associations. (If applicable, the Environmental Council's Guidelines for Assessing Cultural Impacts could be used for this purpose.)

7. Financial and Institutional Arrangements

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

(11)

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

Any or all of these arrangements and all permits or governmental approvals required to fulfill these commitments should be listed.

8. Watershed and Land Use Analysis

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

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

9. Alternative Analysis

A list of alternatives to new groundwater development and discussion of their related costs and benefits. The list should include but not be limited to alternative locations, wastewater reuse, rainfall catchment, existing potable and non-potable water supplies, water conservation and Demand Side Management or Integrated Resources Planning. Show why developing a new source is more cost efficient than water conservation programs (slow-flow and low-flush retrofits, leak detection, etc.). In the case of back-up wells, there should be a discussion of the feasibility of providing a back-up pump only, rather than drilling a second well.

10. Impacts of Accessory Facilities

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

The inclusion of this information will help make environmental assessments and environmental impact statements complete. If you have any questions, please call OEQC at 586-4185.

11

Appendix #1

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

Sustainable Yield

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

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

Data Subtotals and Grouping

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

Categories for Data Entries in the EA

- Current installed capacity
- Current installed capacity
- Pending installed capacity
- Authorized installed capacity

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

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

Aquifer or Hydrologic Unit Status Data

Sustainable Yield = 40 mgd
 Initial head = 20 feet
 Equilibrium head = 18 feet
 Authorized Water Use (for water management areas only) = 36 mgd

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

Land Owner	Authorized Water Use (Permitted by CWRM)	Existing (E)		Planned/Pending (P)		Potential Future (E + P)	
		Pump Capacity*	Average Use **	Pump Capacity	Proposed Use	Pump Capacity	Proposed Use
A	4	5	4	+5	+4	10	8
B	7	10	7	+3	+2	13	9
C	25	25	15	-10	-5	15	10
Total	36	40	26	-2	+1	38	27

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

Well Site	Authorized Water Use (Permitted by CWRM)	Existing (E)		Planned/Pending (P)		Potential Future (E + P)	
		Pump Capacity	Average Use	Pump Capacity	Proposed Use	Pump Capacity	Proposed Use
Mauka	10	10	8	0	0	10	8
Makai	5	5	0	-5	0	0	0
Central	10	10	7	-5	-5	5	2
Total	25	25	15	-10	-5	15	10

Notes:
 • Total amount of water a well pump is capable of removing from the ground under ideal conditions in a 24-hour period. This number should be the same as the "rated pump capacity or installed pump capacity" as reported by the well owner to the CWRM.
 • Average water use based upon water meter readings as reported by the well owner to the CWRM. The average should be based on the appropriate number of years of data.

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

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

Watershed:

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

Recharge Area:

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

SOURCES OF INFORMATION

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

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

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

Safe Drinking Water Branch

- a) results of water quality tests of nearby wells;
- b) records of contamination problems in the aquifer; and
- c) locations of drywells and injection wells.

Wastewater Branch

- a) locations of individual wastewater systems.

Solid and Hazardous Waste Branch

- a) location of hazardous waste sites; and
- b) location of landfills.

3) Preliminary information about the well head protection area may be obtained from the Safe Drinking Water Branch, Department of Health.

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

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

Guidelines for Sustainable Building Design in Hawai'i

A planner's checklist

(Adopted by the Environmental Council on October 13, 1999)

Introduction

Hawai'i law calls for efforts to conserve natural resources, promote efficient use of water and energy and encourage recycling of waste products. Planning a project from the very beginning to include sustainable design concepts can be a critical step toward meeting these goals.

The purpose of the state's environmental review law (HRS Ch. 343) is to encourage a full, accurate and complete analysis of proposed actions, promote public participation and support enlightened decision making by public officials. The Office of Environmental Quality Control offers the following guidelines for preparers of environmental reviews under the authority of HRS 343 to assist agencies and applicants in meeting these goals.

These guidelines do not constitute rules or law. They have been refined by staff and peer review to provide a checklist of items that will help the design team create projects that will have a minimal impact on Hawai'i's environment and make wise use of our natural resources. In a word, projects that are *sustainable*.

A sustainable building is built to minimize energy use, expense, waste, and impact on the environment. It seeks to improve the region's sustainability by meeting the needs of Hawai'i's residents and visitors today without compromising the needs of future generations. Compared to conventional projects, a resource-efficient building project will:

- I. Use less energy for operation and maintenance
- II. Contain less *embodied* energy (e.g. locally produced building products often contain less embodied energy than imported products because they require less energy-consuming transportation.)
- III. Protect the environment by preserving/conserving water and other natural resources and by minimizing impact on the site and ecosystems
- IV. Minimize health risks to those who construct, maintain, and occupy the building
- V. Minimize construction waste
- VI. Recycle and reuse generated construction wastes

- VII. Use resource-efficient building materials (e.g. materials with recycled content and low embodied energy, and materials that are recyclable, renewable, environmentally benign, non-toxic, low VOC (Volatile Organic Compound) emitting, durable, and that give high life cycle value for the cost.)
- VIII. Provide the highest quality product practical at competitive (affordable) first and life cycle costs.

In order to avoid excessive overlapping of items, the checklist is designed to be read in totality, not just as individual sections. This checklist tries to address a range of project types, large scale as well as small scale. Please use items that are appropriate to the type and scale of the project.

Although this list will help promote careful and sensitive planning, mere compliance with this checklist does not confirm sustainability. Compliance with and knowledge of current building codes by users of this checklist is also required.

TABLE OF CONTENTS

I. Pre Design	Page 3
II. Site Selection, and Site Design	Page 3
III. Building Design	Page 4
IV. Energy Use	Page 5
V. Water Use	Page 7
VI. Landscape and Irrigation	Page 7
VII. Building Materials and Solid Waste Management	Page 8
VIII. Indoor Air Quality	Page 10
IX. Commissioning & Construction Project Close-out	Page 10
X. Occupancy and Operation	Page 11
XI. Resources	Page 12

11

I. Pre Design

1. Hold programming team meeting with client representative, Project Manager, planning consultant, architectural consultant, civil engineer, mechanical, electrical, plumbing (MEP) engineer, structural engineer, landscape architect, interior designer, sustainability consultant and other consultants as required by the project. Identify project and sustainability goals. Client representatives and consultants need to work together to ensure that project and environmental goals are met.
2. Develop sustainable guideline goals to insert into outline specifications as part of the Schematic Design documents. Select goals from the following sections that are appropriate for the project.
3. Use Cost-Benefit Method for economic analysis of the sustainability measures chosen (Cost-Benefit Method is a method of evaluating project choices and investments by comparing the present and life cycle value of expected benefits to the present and life cycle value of expected costs.)
4. Include "Commissioning" in the project budget and schedule. (Building "Commissioning" is the process of ensuring that systems are designed, installed, functionally tested, and capable of being operated and maintained in accordance with specifications that meet the owner's needs, and recognize the owner's financial and operational capacity. It improves the performance of the building systems, resulting in energy efficiency and conservation, improved air quality and lower operation costs. Refer to Section IX.)

II. Site Selection & Site Design

- A. Site Selection
 1. Analyze and assess site characteristics such as vegetation, topography, geology, climate, natural access, solar orientation patterns, water and drainage, and existing utility and transportation infrastructure to determine the appropriate use of the site.
 2. Whenever possible, select a site in a neighborhood where the project can have a positive social, economic and/or environmental impact.
 3. Select a site with short connections to existing municipal infrastructure (sewer lines, water, waste water treatment plant, roads, gas, electricity, telephone, data communication lines and services). Select a site close to mass transportation, bicycle routes and pedestrian access.
- B. Site Preparation and Design
 1. Prepare a thorough existing conditions topographic site plan depicting topography, natural and built features, vegetation, location of site utilities and include solar information,

- rainfall data and direction of prevailing winds. Preserve existing resources and natural features to enhance the design and add aesthetic, economic and practical value. Design to minimize the environmental impact of the development on vegetation and topography.
2. Site building(s) to take advantage of natural features and maximize their beneficial effects. Provide for solar access, daylighting and natural cooling. Design ways to integrate the building(s) with the site that maximizes and preserves positive site characteristics, enhances human comfort, safety and health, and achieves operational efficiencies.
3. Locate building(s) to encourage bicycle and pedestrian access and pedestrian oriented uses. Provide bicycle and pedestrian paths, bicycle racks, etc. Racks should be visible and accessible to promote and encourage bicycle commuting.
4. Retain existing topsoil and maintain soil health by clearing only the areas reserved for the construction of streets, driveways, parking areas, and building foundations. Replant exposed soil areas as soon as possible. Reuse excavated soils for fill and cut vegetation for mulch.
5. Grade slopes to a ratio of less than 2 : 1 (run to rise). Balance cut and fill to eliminate hauling. Check grading frequently to prevent accidental over excavation.
6. Minimize the disruption of site drainage patterns. Provide erosion and dust controls positive site drainage, and siltation basins as required to protect the site during and after construction, especially, in the event of a major storm.
7. Minimize the area required for the building footprint. Consolidate utility and infrastructure in common corridors to minimize site degradation, and cost, improve efficiency, and reduce impermeable surfaces.
8. For termite protection, use non toxic alternatives to pesticides and herbicides, such as Borate treated lumber, Basaltic Termite Barrier, stainless steel termite barrier mesh, and termite resistant materials.

III. Building Design

1. Consider adaptive re-use of existing structures instead of demolishing and/or constructing a new building. Consult the State Historic Preservation Officer for possible existing historic sites that may meet the project needs.
2. Plan for high flexibility while designing building shell and interior spaces to accommodate changing needs of the occupants, and thereby extend the life span of the building.
3. Design for re-use and/or disassembly. (For recyclable and reusable building products, see Section VII.)
4. Design space for recycling and waste diversion opportunities during occupancy.
5. Provide facilities for bicycle and pedestrian commuters (showers, lockers, bike racks, etc.) in commercial areas and other suitable locations.
6. Plan for a comfortable and healthy work environment. Include inviting outdoor spaces, wherever possible. (Refer to Section VIII.)

- 11
- ___ 7. Provide an Integrated Pest Management approach. The use of products such as Termi-mesh, Basaltic Termite Barrier and the Sentinel "bait" system can provide long term protection from termite damage and reduce environmental pollution.
 - ___ 8. Design a building that is energy efficient and resource efficient. (See Sections IV, V, VII.) Determine building operation by-products such as heat gain and build up, waste/gray-water and energy consumption, and plan to minimize them or find alternate uses for them.
 - ___ 9. For natural cooling, use
 - a. Reflective or light colored roofing, radiant barrier and/or insulation, roof vents
 - b. Light colored paving (concrete) and building surfaces
 - c. Tree Planting to shade buildings and paved areas
 - d. Building orientation and design that captures trade winds and/or provides for convective cooling of interior spaces when there is no wind.

IV. Energy Use

- ___ 1. Obtain a copy of the State of Hawai'i Model Energy Code (available through the Hawai'i State Energy Division, at Tel. 587-3811). Exceed its requirements. (Contact local utility companies for information on tax credits and utility-sponsored programs offering rebates and incentives to businesses for installing qualifying energy efficient technologies.)
- ___ 2. Use site sensitive orientation to :
 - a. Minimize cooling loads through site shading and carefully planned east-west orientation.
 - b. Incorporate natural ventilation by channeling trade winds.
 - c. Maximize daylighting.
- ___ 3. Design south, east and west shading devices to minimize solar heat gain.
- ___ 4. Use spectrally selective tints or spectrally selective low-e glazing with a Solar Heat Gain Coefficient (SHGC) of 0.4 or less.
- ___ 5. Minimize effects of thermal bridging in walls, roofs and window systems.
- ___ 6. Maximize efficiencies for lighting, Heating, Ventilation, Air Conditioning (HVAC) systems and other equipment. Use insulation and/or radiant barriers, natural ventilation, ceiling fans and shading to avoid the use of air conditioning whenever appropriate.
- ___ 7. Eliminate hot water in restrooms when possible.
- ___ 8. Provide tenant sub-metering to encourage utility use accountability.
- ___ 9. Use renewable energy. Use solar water heaters and consider the use of photovoltaics and Building Integrated Photovoltaics (BIPV).
- ___ 10. Use available energy resources such as waste heat recovery, when feasible.

A. Lighting

- ___ 1. Design for at least 15% lower interior lighting power allowance than the Energy Code.
- ___ 2. Select lamps and ballasts with the highest efficiency, compatible with the desired level of illumination and color rendering specifications. Examples that combine improved color rendering with efficient energy use include compact fluorescents and T8 fluorescents that use tri-phosphor gases.
- ___ 3. Select lighting fixtures which maximize system efficacy and which have heat removal capabilities
- ___ 4. Reduce light absorption on surfaces by selecting colors and finishes that provide high reflectance values without glare.
- ___ 5. Use task lighting with low ambient light levels.
- ___ 6. Maximize daylighting through the use of vertical fenestration, light shelves, skylights, clerestories, building form and orientation as well as through translucent or transparent interior partitions. Coordinate daylighting with electrical lighting for maximum electrical efficiency.
- ___ 7. Incorporate daylighting controls and/or motion activated light controls in low or intermittent use areas.
- ___ 8. Avoid light spillage in exterior lighting by using directional fixtures.
- ___ 9. Minimize light overlap in exterior lighting schemes.
- ___ 10. Use lumen maintenance procedures and controls.

B. Mechanical Systems

- ___ 1. Design to comply with the Energy Code and to exceed its efficiency requirements.
- ___ 2. Use "Smart Building" monitor/control systems when appropriate.
- ___ 3. Utilize thermal storage for reduction of peak energy usage.
- ___ 4. Use Variable air volume systems to save fan power.
- ___ 5. Use variable speed drives on pumping systems and fans for cooling towers and air handlers.
- ___ 6. Use air-cooled refrigeration equipment or use cooling towers designed to reduce drift.
- ___ 7. Specify premium efficiency motors.
- ___ 8. Reduce the need for mechanical ventilation by reducing sources of indoor air pollution. Use high efficiency air filters and ultraviolet lamps in air handling units. Provide for regular maintenance of filtration systems. Use ASHRAE standards as minimum.
- ___ 9. Locate fresh air intakes away from polluted or overheated areas. Locate on roof where possible. Separate air intake from air exhausts by at least 40 ft.
- ___ 10. Use separate HVAC systems to serve areas that operate on widely differing schedules and/or design conditions.
- ___ 11. Use shut off or set back controls on HVAC system when areas are not occupied.
- ___ 12. Use condenser heat, waste heat or solar energy. (Contact local utility companies for information on the utility-sponsored Commercial and Industrial Energy Efficiency

11

Programs which offer incentives to businesses for installing qualifying energy efficient technologies.)

- 13. Evaluate plug-in loads for energy efficiency and power saving features.
- 14. Improve comfort and save energy by reducing the relative humidity by waste reheat, heat pipes or solar heat.
- 15. Minimize heat gain from equipment and appliances by using:
 - a. Environmental Protection Agency (EPA) Energy Star rated appliances.
 - b. Hoods and exhaust fans to remove heat from concentrated sources.
 - c. High performance water heating that exceeds the Energy Code requirements.
- 16. Specify HVAC system "commissioning" period to reduce occupant exposure to Indoor Air Quality (IAQ) contaminants and to maximize system efficiency.

V. Water Use

A. Building Water

- 1. Install water conserving, low flow fixtures as required by the Uniform Plumbing Code.
- 2. If practical, eliminate hot water in restrooms.
- 3. Use self closing faucets (infrared sensors or spring loaded faucets) for lavatories and sinks.

B. Landscaping and Irrigation

(See Section VI.)

VI. Landscape and Irrigation

- 1. Incorporate water efficient landscaping (xeriscaping) using the following principles:
 - a. **Planning. Efficient irrigation:** Create watering zones for different conditions. Separate vegetation types by watering requirements. Install moisture sensors to prevent operation of the irrigation system in the rain or if the soil has adequate moisture. Use appropriate sprinkler heads.
 - b. **Soil analysis/improvement:** Use (locally made) soil amendments and compost for plant nourishment, improved water absorption and holding capacity.
 - c. **Appropriate plant selection:** Use drought tolerant and/or slow growing hardy grasses, native and indigenous plants, shrubs, ground covers, trees, appropriate for local conditions, to minimize the need for irrigation.
 - d. **Practical turf areas:** Turf only in areas where it provides functional benefits.

- e. **Mulches:** Use mulches to minimize evaporation, reduce weed growth and retard erosion.

Contact the local Board of Water Supply for additional information on xeriscaping such as efficient irrigation, soil improvements, mulching, lists of low water-demand plants, tours of xeriscaped facilities, and xeriscape classes.

- 2. Protect existing beneficial site features and save trees to prevent erosion. Establish and carefully mark tree protection areas well before construction.
- 3. Limit staging areas and prevent unnecessary grading of the site to protect existing, especially native, vegetation.
- 4. Use top soil from the graded areas, stockpiled on the site and protected with a silt fence to reduce the need for imported top soil.
- 5. Irrigate with non-potable water or reclaimed water when feasible. Collect rainwater from the roof for irrigation.
- 6. Sub-meter the irrigation system to reduce water consumption and consequently water and sewer fees. Contact the local county agency to obtain irrigation sub-metering requirements and procedures. Locate irrigation controls within sight of the irrigated areas to verify that the system is operating properly.
- 7. Use pervious paving instead of concrete or asphalt paving. Use natural and man-made berms, hills and swales to control water runoff.
- 8. Avoid the use of solvents that contain or leach out pollutants that can contaminate the water resources and runoff. Contact the State of Hawaii's Clean Water Branch at 586-4309 to determine whether a NPDES (National Pollutant Discharge Elimination System) permit is required.
- 9. Use Integrated Pest Management (IPM) techniques. IPM involves a carefully managed use of biological and chemical pest control tactics. It emphasizes minimizing the use of pesticides and maximizing the use of natural process.
- 10. Use trees and bushes that are felled at the building site (i.e. mulch, fence posts). Leave grass trimmings on the lawn to reduce green waste and enhance the natural health of lawns.
- 11. Use recycled content, decay and weather resistant landscape materials such as plastic lumber for planters, benches and decks.

VII. Building Materials & Solid Waste Management

A. Material Selection and Design

- 1. Use durable products.
- 2. Specify and use natural products or products with low embodied energy and/or high recycled content. Products with recycled content include steel, concrete with glass,

drywall, carpet, etc. Use ground recycled concrete, graded glass cullet or asphalt as base or fill material.

- ___ 3. Specify low toxic or non-toxic materials whenever possible, such as low VOC (Volatile Organic Compounds) paints, sealers and adhesives and low or formaldehyde-free materials. Do not use products with CFCs (Chloro-fluoro-carbons).
- ___ 4. Use locally produced products such as plastic lumber, insulation, hydro-mulch, glass tiles, compost.
- ___ 5. Use advanced framing systems that reduce waste, two stud corners, engineered structural products and prefabricated panel systems.
- ___ 6. Use materials which require limited or no application of finishing or surface preparation. (i.e. finished concrete floor surface, glass block and glazing materials, concrete block masonry, etc.)
- ___ 7. Use re-milled salvaged lumber where appropriate and as available. Avoid the use of old growth timber.
- ___ 8. Use sustainably harvested timber.
- ___ 9. Commit to a material selection program that emphasizes efficient and environmentally sensitive use of building materials, and that uses locally available building materials. (A list of Earth friendly products and materials is available through the Green House Hawai'i Project. Call Clean Hawai'i Center, Tel. 587-3802 for the list.)

B. Solid Waste Management, Recycling and Diversion Plan

- ___ 1. Prepare a job-site recycling plan and post it at the job-site office.
- ___ 2. Conduct pre-construction waste minimization and recycling training for employees and sub-contractors.
- ___ 3. Use a central area for all cutting.
- ___ 4. Establish a dedicated waste separation/diversion area. Include Waste/Compost/Recycling collection areas and systems for use during construction process and during the operational life cycle of the building.
- ___ 5. Separate and divert all unused or waste cardboard, ferrous scrap, construction materials and fixtures for recycling and/or forwarding to a salvage exchange facility. Information on "Minimizing C&D (construction and demolition) waste in Hawai'i" is available through Department of Health, Office of Solid Waste Management, Tel. 586-4240.
- ___ 6. Use all green waste, untreated wood and clean drywall on site as soil amendments or divert to offsite recycling facilities.
- ___ 7. Use concrete and asphalt rubble on-site or forward the material for offsite recycling.
- ___ 8. Carefully manage and control waste solvents, paints, sealants, and their used containers. Separate these materials from C&D (construction and demolition) waste and store and dispose them of them carefully.
- ___ 9. Donate unused paint, solvents, sealants to non-profit organizations or list on HIMEX (Hawai'i Materials Exchange). HIMEX is a free service operated by Maui Recycling

Group, that offers an alternative to landfill disposal of usable materials, and facilitates no-cost trades. See web site, www.himex.org.

- ___ 10. Use suppliers that re-use or recycle packaging material whenever possible.

VIII. Indoor Air Quality

- ___ 1. Design an HVAC system with adequate supply of outdoor air, good ventilation rates, even air distribution, sufficient exhaust ventilation and appropriate air cleaners.
- ___ 2. Develop and specify Indoor Air Quality (IAQ) requirements during design and contract document phases of the project. Monitor compliance in order to minimize or contain IAQ contaminant sources during construction, renovation and remodeling.
- ___ 3. Notify occupants of any type of construction, renovation and remodeling and the effects on IAQ.
- ___ 4. Inspect existing buildings to determine if asbestos and lead paint are present and arrange for removal or abatement as needed.
- ___ 5. Supply workers with, and ensure the use of VOC (Volatile Organic Compounds)-safe masks where required.
- ___ 6. Ensure that HVAC systems are installed, operated and maintained in a manner consistent with their design. Use UV lamps in Air Handling Units to eliminate mold and mildew growth. An improperly functioning HVAC system can harbor biological contaminants such as viruses, bacteria, molds, fungi and pollen, and can cause Sick Building Syndrome (SBS).
- ___ 7. Install separate exhaust fans in rooms where air polluting office equipment is used, and exhaust directly to the exterior of the building, at sufficient distance from the air intake vents.
- ___ 8. Place bird guards over air intakes to prevent pollution of shafts and HVAC ducts.
- ___ 9. Control indoor air pollution by selecting products and finishes that are low or non-toxic and low VOC emitting. Common sources of indoor chemical contaminants are adhesives, carpeting, upholstery, manufactured wood products, copy machines, pesticides and cleaning agents.
- ___ 10. Schedule finish application work to minimize absorption of VOCs into surrounding materials e.g. allow sufficient time for paint and clear finishes to dry before installing carpet and upholstered furniture. Increase ventilation rates during periods of increased pollution.
- ___ 11. Allow a flush-out period after construction, renovation, remodeling or pesticide application to minimize occupant exposure to chemicals and contaminants.

IX. Commissioning & Construction Project Closeout

1. Appoint a Commissioning Authority to develop and implement a commissioning plan and a preventative maintenance plan. Project Manager's responsibilities must include coordination of commissioning activities during project closeout.
2. Commissioning team should successfully demonstrate all systems and perform operator training before final acceptance.
3. Provide flush-out period to remove air borne contaminants from the building and systems.
4. Provide as-built drawings and documentation for all systems. Provide data on equipment maintenance and their control strategies as well as maintenance and cleaning instructions for finish materials.

X. Occupancy and Operation

A. General Objectives

1. Develop a User's Manual for building occupants that emphasizes the need for Owner/Management commitment to efficient sustainable operations.
2. Management's responsibilities must include ensuring that sustainability policies are carried out.

B. Energy

1. Purchase EPA rated, Energy Star, energy-efficient office equipment, appliances, computers, and copiers. (Energy Star is a program sponsored by U.S. Dep. Of Energy. Use of these products will contribute to reduced energy costs for buildings and reduce air pollution.)
2. Institute an employee education program about the efficient use of building systems and appliances, occupants impact on and responsibility for water use, energy use, waste generation, waste recycling programs, etc.
3. Re-commission systems and update performance documentation periodically per recommendations of the Commissioning Authority, or whenever modifications are made to the systems.

C. Water

1. Start the watering cycle in the early morning in order to minimize evaporation.
2. Manage the chemical treatment of cooling tower water to reduce water consumption.

D. Air

1. Provide incentives which encourage building occupants to use alternatives to and to reduce the use of single occupancy vehicles.

2. Provide a location map of services within walking distance of the place of employment (child care, restaurants, gyms, shopping).
3. Periodically monitor or check for indoor pollutants in building.
4. Provide an IAQ plan for tenants, staff and management that establishes policies and documentation procedures for controlling and reporting indoor air pollution. This helps tenants and staff understand their responsibility to protect the air quality of the facility.

E. Materials and Products

1. Purchase business products with recycled content such as paper, toners, etc.
2. Purchase Furniture made with sustainably harvested wood, or with recycled and recycled content materials, which will not off gas VOC's.
3. Remodeling and painting should comply with or improve on original sustainable design intent.
4. Use low VOC, non-toxic, phosphate and chlorine free, biodegradable cleaning products.

F. Solid Waste

1. Collect recyclable business waste such as paper, cardboard boxes, and soda cans.
2. Avoid single use items such as paper or Styrofoam cups and plates, and plastic utensils.

XI. Resources

Financing: *Energy Efficiency in Buildings*. U.S. Department of Energy, DOE/EE-0152, May, 1998 (Call Tel. 1-800-DOE-EREC or visit local office)

Building Commissioning: *The Key to Quality Assurance*. U.S. Department of Energy, DOE/EE-0153, May, 1998 (Call Tel. 1-800-DOE-EREC or visit local office)

Guide to Resource-Efficient Building in Hawaii. University of Hawai'i at Manoa, School of Architecture and Energy, Resources and Technology Division, Department of Business, Economic Development and Tourism, October 1998. (Call Tel. 587-3804 for publication)

Hawaii Model Energy Code. Energy, Resources and Technology Division, Department of Business, Economic Development and Tourism, November 1997 (Call Tel. 587-3810 for publication)

Photovoltaics in the Built Environment: A Design Guide for Architects and Engineers. NREL Publications, DOE/GO #10097-436, September 1997 (Call Tel. 1-800-DOE-EREC or visit local office)

Building Integrated Photovoltaics: A Case Study. NREL Publications #TP-472-7574, March 1995 (Call Tel. 1-800-DOE-EREC or visit local office)

Solar Electric Applications: An overview of Today's Applications. NREL Publications, DOE/GO #10097-357, Revised February, 1997 (Call Tel. 1-800-DOE-EREC or visit local office)

Green Lights: An Enlightened Approach to Energy Efficiency and Pollution Prevention. U.S. Environmental Protection Agency, Pacific Island Contact Office (Call Tel. 541-2710 for publication.)

Healthy Lawn. Healthy Environment. U.S. Environmental Protection Agency, Pacific Island Contact Office. (Call Tel. 541-2710 for this and related publications)

How to Plant a Native Hawaiian Garden. Office of Environmental Quality Control (OEQC), Department of Health, State of Hawaii (Call Tel. 586-4185 for publication)

Buy Recycled in Hawaii. Clean Hawaii Center, Energy, Resources and Technology Division, Department of Business, Economic Development and Tourism, November 1997. (Call Tel. 587-3802 for publication)

Hawaii Recycling Industry Guide and other recycling and reuse related fact sheets. Clean Hawaii Center, Energy, Resources and Technology Division, Department of Business, Economic Development and Tourism, July 1999. (Call Tel. 587-3802 for publication)

Minimizing Construction and Demolition Waste. Office of Solid Waste Management, Department of Health and Clean Hawaii Center, Energy, Resources and Technology Division, Department of Business, Economic Development and Tourism, February 1998. (Call Tel. 586-4240 for publication)

Contractor's Waste Management Guide and Construction and demolition Waste Management Facilities Directory. Clean Hawaii Center, Energy, Resources and Technology Division, Department of Business, Economic Development and Tourism, 1999. (Call Tel. 587-3802 for publication)

Waste Management and Action: Construction Industry. Department of Health, Solid and Hazardous Waste Branch (Call Tel. 586-7496 for publication)

Business Guide For reducing Solid Waste. U.S. Environmental Protection Agency, Pacific Island Contact Office, Tel. 541-2710 (Call for publication.)

13

The Inside Story: A Guide to Indoor Air Quality. U.S. Environmental Protection Agency, Pacific Island Contact Office, Tel. 541-2710 (Call for this and related publications.) Additional information is available from the American Lung Association, Hawaii I, Tel. 537-5966

Selecting Healthier Flooring Materials. American Lung Association and Clean Hawaii Center, February 1999. (Call Tel. 537-5966 x307)

Office Paper Recycling: An Implementation Manual. U.S. Environmental Protection Agency, Pacific Island Contact Office, Tel. 541-2710 (Call for publication.)

Acknowledgments

OEQC and the Environmental Council would like to thank Allison Beale, Gary Gill, Nick H. Huddleston, Gail Suzuki-Jones, Purnima McCutcheon, Virginia B. MacDonald, Steve Meder, Ramona Mullabey, Thomas P. Papandrew, Victor Olgyi, Howard Tanaka, and Howard Wing for their assistance with this project.

14



P L A N N I N G
S O L U T I O N S

1210 ADAMI STREET, SUITE 221
HONOLULU, HAWAII 96813
PHONE: 594-552-1228
FAX: 594-552-1555

August 22, 2002

Ms. Genevieve Salimonson, Director
Office of Environmental Quality Control
State of Hawaii
235 South Beretania Avenue, Suite 702
Honolulu, HI 96813

Subject: Draft Environmental Assessment, Honomā Well

Dear Ms. Salimonson:

Thank you for your July 22, 2002 letter commenting on the Department of Water Supply Draft Environmental Assessment for the proposed Honomā Well Project. We appreciate the time you and your staff spent reviewing the document and providing written comments. Item-by-item responses to your comments (reproduced for your convenience in italics before each response) are provided below.

1. **GUIDELINES FOR ASSESSING WATER WELL DEVELOPMENT PROJECTS:** Please find enclosed the Office's 1998 guidelines for water well development projects which information the environmental assessment should contain to conduct a meaningful assessment (sustainable yield of the aquifer, etc.). As noted in the guidance, environmental assessments for exploratory wells should not need to comply with all the information requested therein. Should the exploratory wells yield positive results and demonstrate production capability, a second environmental assessment for the production well should be prepared to comply address all information requirements contained within the enclosed guidance document.

The well's design and the EA written assessing its impact are based on the assumption that the well will tap basal groundwater standing a few feet above mean sea level. Further, the well is being undertaken to replace a high level spring source serving the Honomā area. There will not be a net increase in water use, just a change in the location of its withdrawal. The basal well does not have the potential to reduce stream flow and the overall use of fresh water which would otherwise reach and discharge into the marine environment will remain essentially the same.

For these reasons, the EA for this well's construction and testing is also applicable for its ultimate and rather modest use when in production. Thus, DWS does not believe that a second EA for production will be necessary unless these assumptions are not borne out in the pump tests for the exploratory well. Should the pump tests result in substantially different results than those assumed for the EA (e.g. no adequate basal groundwater resource is found), then this conclusion will be re-evaluated by the DWS.

2. **GUIDELINES FOR SUSTAINABLE BUILDING DESIGN IN HAWAII:** Please find enclosed a copy of the Guidelines for Sustainable Building Design prepared by the Environmental Council.

Thank you for providing these guidelines. The DWS is in full concurrence with the general principles described in the document and applies them as appropriate in its design efforts for DWS facilities, including the Honomā Well.

Page 2

Ms. Genevieve Salimonson, Director, Office of Environmental Quality Control
8/22/2002

3. **USE OF RECYCLED GLASS.** Please consider the use of glass-asphalt aggregate ("glasphalt") in the design of impervious surfaces.

DWS uses recycled materials such as recycled glass in its construction projects when such materials can be obtained without significant impacts to the project schedules and costs.

4. **INDIGENOUS AND POLYNESIAN INTRODUCED PLANTS FOR USE IN PUBLIC LANDSCAPING:** Please consider the use of native, indigenous and polynesian introduced plants in your landscaping.

DWS routinely uses indigenous and Polynesian plants for landscaping DWS facilities and will do so for this project if it is feasible to do so at a reasonable cost.

If you have any further questions concerning the project, please call me at (808) 593-1288.

Sincerely,

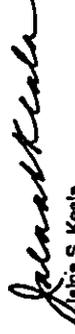
Charles L. Morgan
Project Consultant

cc: Department of Water Supply, County of Hawaii

12

Thank you for the opportunity to comment on the above referenced project. If you have any questions, please contact Sharia Mansley, Policy Analyst at 594-1944, or email her at shariam@oha.org.

Sincerely,



Jaime S. Keala
Acting Director, Hawaiian Rights Division

cc: OHA Board of Trustees
Clyde W. Narmul'o, Administrator
Maui CAC

PHONE (808) 584-1888



STATE OF HAWAII
OFFICE OF HAWAIIAN AFFAIRS
771 KAPOLANE BOULEVARD, SUITE 800
HONOLULU, HAWAII 96813

FAX (808) 584-1888

HRD02-655

July 23, 2002

Perry J. White
Planning Solutions
1210 Auahi street, Suite 221
Honolulu, HI 96814

Subject: Honomu Well
Draft Environmental Assessment

Dear Mr. White:

The Office of Hawaiian Affairs offers the following comments on the above referenced environmental assessment.

Section 106 Consultation
If the Department of Water Supply uses federal funds as planned, then this project constitutes a federal undertaking and implicates Section 106 of the National Historic Preservation Act. Under the law, the Federal agency that is providing the funding must consult with Native Hawaiian organizations on the adverse effects of the undertaking. The final EA should discuss how compliance with this requirement will be ensured.

Traditional and Customary Practices
The draft EA dismisses the presence of traditional and cultural practices but fails to document consultation with Native Hawaiian organizations or individuals in the area.

The final EA should address how this exploratory well will impact neighboring Honomu Stream, which hosts o'opu. Streams containing native fauna traditionally and customarily gathered by Hawaiians can be considered traditional and customary properties and are afforded protection under Section 108 and State law. O'opu is a Hawaiian cultural resource that must be protected to ensure that cultural practices survive. The final EA should examine the extent to which the aquifer feeds the stream and if the extraction of groundwater will have an impact on stream flow and in turn, o'opu habitat.

Further, since the well site is close to the coast, the final EA should examine the extent to which the Hakalau Aquifer discharges freshwater into the near shore area and how extraction of water from this aquifer may affect nearshore marine resources upon which traditional and cultural practices depend.



**P L A N N I N G
S O L U T I O N S**

1515 LUAKO STREET, SUITE 201
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FAX: 595 593-1935

Ms. Jalna Keala, Acting Director, Hawaiian Rights Division
Office of Hawaiian Affairs
711 Kapi'olani Blvd., Suite 500
Honolulu, HI 96813

Subject: Draft Environmental Assessment, Honolulu Well

Dear Ms. Keala:

Thank you for your July 23, 2002 letter commenting on the Department of Water Supply Draft Environmental Assessment for the proposed Honolulu Well Project. We appreciate the time you and your staff spent reviewing the document and providing written comments. Item-by-item responses to your comments (reproduced for your convenience in italics before each response) are provided below.

If the Department of Water Supply uses federal funds as planned, then this project constitutes a federal undertaking and implicates Section 106 of the National Historic Preservation Act. Under the law, the Federal agency that is providing the funding must consult with Native Hawaiian organizations on the adverse effects of the undertaking. The final EA should discuss how compliance with this requirement will be ensured.

The project complies with the National Historic Preservation Act (16 U.S.C. §470(F)) and also the Archeological and Historic Preservation Act (16 U.S.C. §469a-1). As discussed in Sections 3.10 and 5.3.1 of the EA, the project site is located in an area that has been used extensively for agriculture for many years. No known archaeological or historic features exist at the site, and no native Hawaiian cultural practices have been identified by direct inspection of the site or through distribution of the EA. The County of Hawai'i has consulted with the State of Hawai'i Historic Preservation Division (SHPD; see letter #9) of the Department of Land and Natural Resources. SHPD and the Office of Hawaiian Affairs were provided copies of the draft EA.

The draft EA dismisses the presence of traditional and cultural practices but fails to document consultation with Native Hawaiian organizations or individuals in the area.

The final EA should address how this exploratory well will impact neighboring Hanomau Stream, which hosts o'opu. Streams containing native fauna traditionally and customarily gathered by Hawaiians can be considered traditional and customary properties and are afforded protection under Section 106 and State law. O'opu is a Hawaiian cultural resource that must be protected to ensure that cultural practices survive. The final EA should examine the extent to which the aquifer feeds the stream and if the extraction of groundwater will have an impact on stream flow and in turn, o'opu habitat.

Further, since the well site is close to the coast, the final EA should examine the extent to which the Hakalan Aquifer discharges freshwater into the near shore area and how extraction of water from this aquifer may affect nearshore marine resources upon which traditional and cultural practices depend.

The well is designed to tap basal groundwater which stands a few feet above sea level. Extraction of this groundwater source would only have the potential to reduce stream flow near the mouth of the

Page 2
Ms. Jalna Keala, Acting Director, Hawaiian Rights Division
8/22/2002

stream where the stream's invert dips as low as the groundwater table. However, the stream at the mouth is full of poorly permeable alluvial sediments which effectively shut off groundwater inflow into the stream channel. Construction, pump testing and ultimate use of the well will therefore, not impact stream flow or the biota in the stream.

In the event that higher elevation, perched groundwater is encountered during the progress of drilling, it will be sealed off with cement after the well's casing is installed. Discharge from perched groundwater into the stream is a possibility, but by sealing off this zone, the well will have no impact on the resource.

It should also be noted that the well is being undertaken to replace the high level spring ('Akaka Falls Spring), which now supplies the Honolulu area. As such, there will not be an increase in fresh water use, only a change in the location of its withdrawal. The amount of fresh water ultimately discharging into the marine environment, an enormous amount which is at least four orders of magnitude greater than the anticipated rate of withdrawal from the well, will not be changed.

If you have any further questions concerning the project, please call me at (808) 593-1288.

Sincerely,

Charles L. Morgan
Charles L. Morgan
Project Consultant

cc: Department of Water Supply, County of Hawai'i

17

WILLIAM L. CARTLAND
GOVERNOR OF HAWAII



STATE OF HAWAII
DEPARTMENT OF HEALTH
P.O. BOX 3379
HONOLULU, HAWAII 96801

July 31, 2002

Mr. Perry J. White
Planning Solutions
1210 Auahi Street, Suite 221
Honolulu, Hawaii 96814

Dear Mr. White:

Subject: Draft Environmental Assessment (DEA)
Honoumu Well, South Hilo, Hawaii
Tax Map Keys: 2-8-13:55 and por. 2-8-13:05

Thank you for the opportunity to review and comment on the subject proposal. The DEA was routed to the various branches of the Environmental Health Administration. We have the following comments.

Safe Drinking Water Branch (SDWB)

Underground Injection Control (UIC)

If the seepage pit (drainage well) is deeper than 8' 4", a UIC permit is needed. Well depth is measured from the ground surface to the bottom of the excavation. Backfill material in the drainage well does not reduce the well's depth. Certain restrictions may apply to a drainage well of this nature. Options should be considered for reducing the drainage well's depth, if a UIC permit is not desired. Questions about this subject may be directed to Chaunroy Hew of the Safe Drinking Water Branch at 586-4258.

Clean Water Branch (CWB)

The Army Corps of Engineers should be contacted to identify whether a Federal permit (including a Department of Army permit) is required for any of the future projects. If it is determined that a Federal permit is required for the subject project, then a Section 401 Water Quality Certification would also be required from our office.

13

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

02-163/epo

Mr. Perry J. White
July 31, 2002
Page 2

If the construction project involves any of the following discharges into Class A or Class 2 State waters, a national Pollutant Discharge Elimination System (NPDES) permit coverage is required for each discharge:

- a. Storm water runoff associated with construction activities, including clearing, grading, and excavation that result in the disturbance of equal to or greater than five (5) acres of total land area. The total land area includes a contiguous area where multiple separate and distinct construction activities may be taking place at different times on different schedules under a larger common plan of development or sale. (Note: After March 10, 2003, an NPDES permit will be required for discharges of storm water associated with construction activities, including clearing, grading, and excavation that result in the disturbance of one (1) acre or more.)
- b. Hydro-testing water;
- c. Construction dewatering effluent; and
- d. Treated effluent from well drilling activities.

If wastewater discharges to State waters results from the operation of the facility after constructed, NPDES individual permit coverage would be required.

The Clean Water Branch requires that Notices of Intent (NOI), for NPDES general permit, be submitted 30 days before the discharge is to occur. NPDES individual permit applications should be submitted 180 days before the discharge is to occur. NOI and NPDES individual permit applications can be picked up at our office or downloaded from our website at <http://www.state.hi.us/doh/eh/cwb/forms/index.html>.

Please note that the current NPDES general permits will expire at midnight, September 21, 2002. If the project continues after this date, you will need to reapply for all applicable NPDES general permit coverages prior to the expiration date.

If you have any questions, please contact Kris Poentis of the Engineering Section, Clean Water Branch at (808) 586-4309.

Sincerely,

GARY GILL
Deputy Director
Environmental Health Administration

c: SDWB
CWB
Hawaii District Office



**P L A N N I N G
S O L U T I O N S**

1210 AUKA STREET, SUITE 221
HONOLULU, HAWAII 96814
PHONE 588 593-1208
FAX: 588 593-1938

Mr. Gary Gill, Deputy Director
Environmental Health Administration
State of Hawaii's Department of Health
P.O. Box 3378
Honolulu, HI 96801-3378

Subject: Draft Environmental Assessment (DEA), Honouliuli Well

Dear Mr. Gill:

Thank you for your July 31, 2002 letter commenting on the Department of Water Supply Draft Environmental Assessment for the proposed Honouliuli Well Project. We appreciate the time you and your staff spent reviewing the document and providing written comments. Item-by-item responses to your comments (reproduced for your convenience in italics before each response) are provided below.

Safe Drinking Water Branch (SDWB)

Underground Injection Control (UIC)

If the seepage pit (drainage well) is deeper than 8' 4", a UIC permit is needed. Well depth is measured from the ground surface to the bottom of the excavation. Backfill material in the drainage well does not reduce the well's depth. Certain restrictions may apply to a drainage well of this nature. Options should be considered for reducing the drainage well's depth, if a UIC permit is not desired. Questions about this subject may be directed to Chauncey Hew of the Safe Drinking Water Branch at 586-4258.

Thank you for noting this requirement. As shown in Figure 1-7 of the DEA, a maximum depth for the seepage pit is specified at 8'. DWS is not planning to obtain a UIC permit for the pit construction. Should it be necessary to construct a pit that is deeper than 8' 4", DWS will seek a UIC permit for the construction.

Clean Water Branch (CWB)

The Army Corps of Engineers should be contacted to identify whether a Federal permit (including a Department of Army permit) is required for any of the future projects. If it is determined that a Federal permit is required for the subject project, then a Section 401 Water Quality Certification would also be required from our office.

The Army was consulted during the development of the DEA and has determined that a Department of the Army permit will not be required for the project (see Comment Letter #4).

If the construction project involves any of the following discharges into Class A or Class 2 State waters; a national Pollutant Discharge Elimination System (NPDES) permit coverage is required for each discharge:

- a. Storm water runoff associated with construction activities, including clearing, grading, and excavation that result in the disturbance of equal to or greater than five (5) acres of total land area.

13

Page 2
Mr. Gary Gill, Deputy Director, Environmental Health Administration
8/22/2002

The total land area includes a contiguous area where multiple separate and distinct construction activities may be taking place at different times on different schedules under a larger common plan of development or sale. (Note: After March 10, 2003, an NPDES permit will be required for discharges of storm water associated with construction activities, including clearing, grading, and excavation that result in the disturbance of one (1) acre or more)

- b. Hydro-testing water.
 - c. Construction dewatering effluent; and
 - d. Treated effluent from well drilling activities.
- If wastewater discharges to State waters result from the operation of the facility after construction, NPDES individual permit coverage would be required.*

The Clean Water Branch requires that Notices of Intent (NOI), for NPDES general permit, be submitted 30 days before the discharge is to occur. NPDES individual permit applications should be submitted 180 days before the discharge is to occur. NOI and NPDES individual permit applications can be picked up at our office or downloaded from our website at <http://www.state.hi.us/doh/cwb/forms/index.html>.

Please note that the current NPDES general permits will expire at midnight, September 21, 2002. If the project continues after this date, you will need to reapply for all applicable NPDES general permit coverages prior to the expiration date.

The project area will be substantially smaller than one acre, so a construction NPDES permit will not be required. No hydro-testing, construction dewatering, or effluent discharges into State waters are planned for the project. Consequently, DWS anticipates that no NPDES permits will be required for the project.

If you have any further questions concerning the project, please call me at (808) 593-1288.

Sincerely,

Charles L. Morgan
Project Consultant

cc: Department of Water Supply, County of Hawaii