DEPARTMENT OF WATER SUPPLY • COUNTY OF HAWAII
345 KEKUANAOA STREET, SUITE 20 • HILO, HAWAII 96720
TELEPHONE (808) 961-8050 • FAX (808) 961-8657

April 22, 2003

RECEIVED
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OFC. OF ENVIRONMENTAL QUALITY CONTROL

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

FINDING OF NO SIGNIFICANT IMPACT (FONSI) FOR THE WAI'AHA PRODUCTION WELL AND RESERVOIR TAX MAP KEY 7-5-14:16, 7-5-15:08, AND 7-5-15:15 NORTH KONA DISTRICT, ISLAND OF HAWAII

The County of Hawaii, Department of Water Supply, has reviewed the comments received during the public review period which began on January 23, 2003. Based on our review, we have affirmed our determination that this project will not have significant environmental effects. Consequently, we have issued a Finding of No Significant Impact (FONSI). Please publish this notice in the May 8, 2003, OEQC Environmental Notice.

We have enclosed a completed OEQC Publication Form, four (4) copies of the Final EA, 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

ON:sco/dms

Encs. – 1. OEQC Publication Form
2. Final Environmental Assessment, Wai'aha Production Well and Reservoir (4 copies)
3. Project Summary on 3.5" disk; file name: WaiahaWell. doc

Final Environmental Assessment

WAI'AHA PRODUCTION WELL AND RESERVOIR

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

PREPARED BY:
PLANNING SOLUTIONS

APRIL 2003

PROJECT SUMMARY

Project:	**WAI'AHA WELL AND RESERVOIR**
Applicant/Approving Agency	Department of Water Supply (DWS) County of Hawai'i Contact: Milton Pavao (808-961-8050) 345 Keküanaõ'a Street., Suite 20, Hilo, HI 96720
Location	North Kona District; Island of Hawai'i
Tax Map Keys	7-5-14:16, 7-5-15:08, and 7-5-15:15
Parcel Areas	0.719 acres (Parcel 08); 1.088 acres (15); 1.02 acres (16)
Project Site Area	2.827 acres
State Land Use District	Agriculture
County Zoning	Ag-1a
Proposed Action	DWS proposes to convert an existing exploratory well on its Wai'aha Reservoir Site to a production well. It will remove existing, unused facilities and install the systems to operate the new well. Electrical power for the permanent pump motor will be obtained from an existing overhead power line. DWS will install a single 2-million gallon storage tank (36' high, diameter 103') and a single-story, 660 square-foot, control building on land now occupied by abandoned facilities. Water from the well will augment water from the present water sources in the southern portion of the North Kona Water System.
Associated Actions Requiring Environmental Assessment	Proposed use of County land and funds.
Consultation	The State Office of Environmental Control, Office of Hawaiian Affairs, the Historic Preservation Division of the State Dept. of Land & Natural Resources, the County of Hawai'i Department of Planning and County Department of Environmental Management have been consulted.
Required Permits and Approvals	• Plan Approval, Hawai'i County Planning Department • Construction noise variance, State Department of Health • Building Permit, Hawai'i County • Pump Installation Permit (granted administratively following receipt of pump test results), State Commission on Water Resource Management • 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

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1.0 PROJECT DESCRIPTION

1.1 PURPOSE OF AND NEED FOR THE PROJECT

The purpose of the proposed well, reservoir, and related facilities is to supply the North Kona District of Hawai'i County with a new and reliable supply of high-quality potable water. The site is already owned and maintained by the County of Hawai'i Department of Water Supply (DWS), is located near the center of the service area, and is at an elevation that allows water to be distributed by gravity to most of the homes and businesses served.

The North Kona District has experienced rapid population growth during the last thirty years: increasing from 4,832 in 1970 to 28,543 in 2000. As shown by the following tabulation, while the growth was greatest in relative terms (average annual percent change) early in this period, the rate of growth has been relatively constant in absolute numbers.

Table 1-1. Resident Population Change in North Kona District: 1970-2000

Date	Resident Population	Change	% change
April 1, 1970	4,832		
April 1, 1980	13,748	8,916	185%
April 1, 1990	22,284	8,536	62%
April 1, 2000	28,543	6,259	28%
Source: U.S. Census, (1970, 1980, 1990, and 2000).			

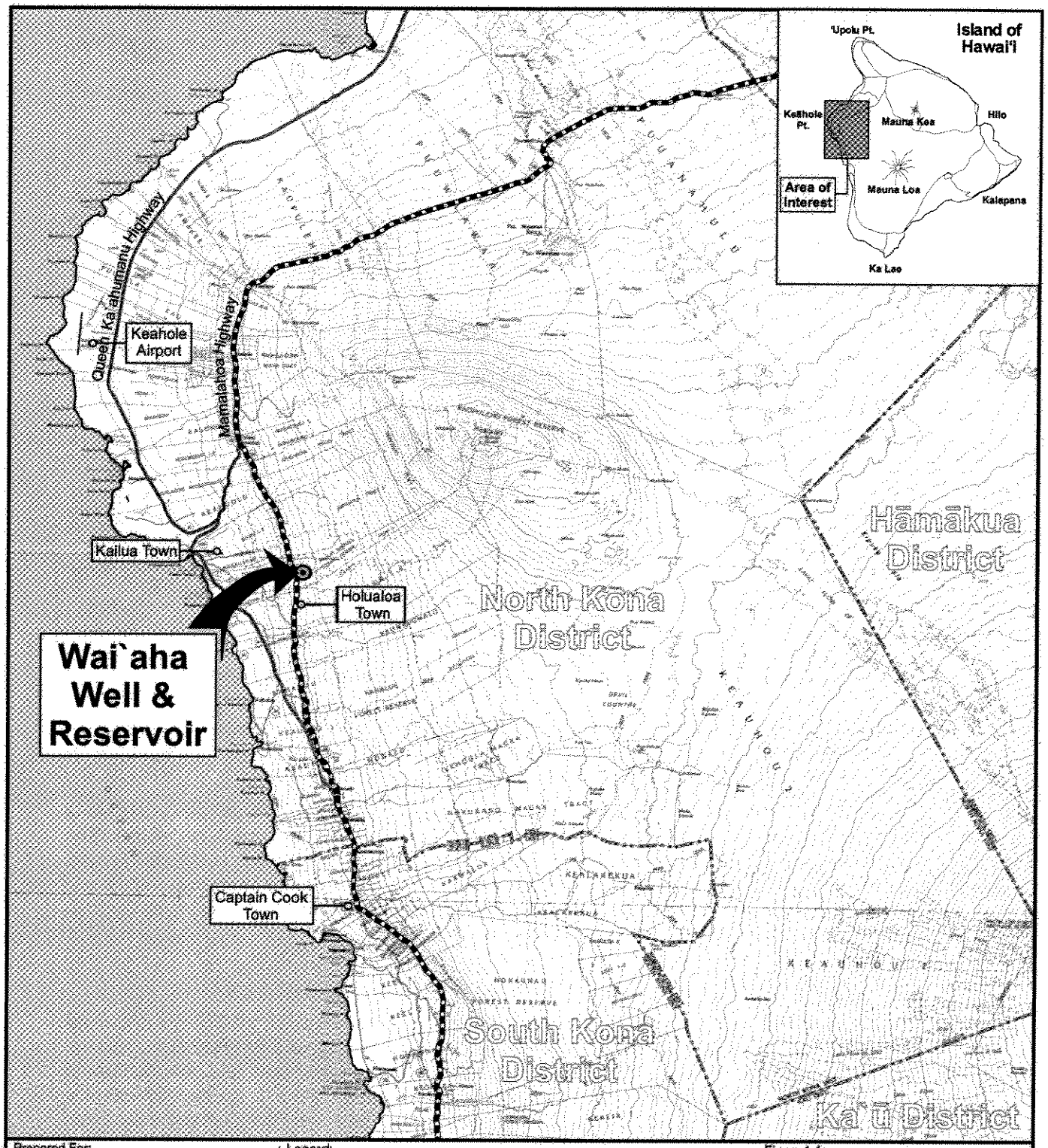
The County of Hawai'i predicts, under assumptions of moderate growth, that the resident population of the North Kona District will increase by another 5,500 people to a total of about 34,000 by 2010 (County of Hawai'i 2001, Series B Growth Scenario).

Currently, DWS relies on four drilled wells and one inclined shaft at Kahalu'u and one well each at Hōlualoa, KeahuoLū, Honokōhau, Hualālai and North Kalaoa to supply the North Kona system. The Kahalu'u wells, particularly the inclined shaft, produce the majority of the water used in the system. In order to satisfy the rising demand, DWS has had to pump the shaft in excess of its appropriate maximum rate. DWS needs additional sources of supply so that it can reduce the draft from the shaft while still meeting the system's projected supply requirements.

1.2 LOCATION AND EXISTING USE OF THE PROPOSED SITE

The proposed Wai'aha Production Well and reservoir are located on the existing DWS site at Wai'aha (TMKs 7-5-14:16, 7-5-15:08, and 7-5-15:15, see Figure 1-1). The original DWS facilities on the site were constructed more than 50 years ago. These were used to store, treat, and distribute water collected from the Wai'aha springs, which are located approximately one mile upslope from the site at an elevation of about 2,300 ft. When they were constructed, these were the most important water treatment and storage facilities in North Kona.

The spring source was abandoned many years ago, however, and the only DWS facilities on the site that are still active are a 50,000-gallon water storage tank on its southeastern corner and a small office and storage shed near the highway. The other DWS facilities located on the property, including two steel water storage tanks (with capacities of 1 million and 2 million gallons), a sand filtration system, chlorination tanks, and ancillary equipment, have been abandoned (Figure 1-2). The Wai'aha site is particularly important to the North Kona Water system because its elevation, 1,542 feet, and central location facilitate efficient water distribution both to the north and to the south (see Figure 1-3).



Prepared For:

County of Hawai`i, Dept. of Water Supply

Prepared By:

PLANNING SOLUTIONS

Source:

USGS 7.5' Quad Map: Kealakekua
State of Hawai`i GIS 1982-84

Legend:

Wai`aha Well Site

District Boundaries

Māmalahoa Highway

0 2 4 8

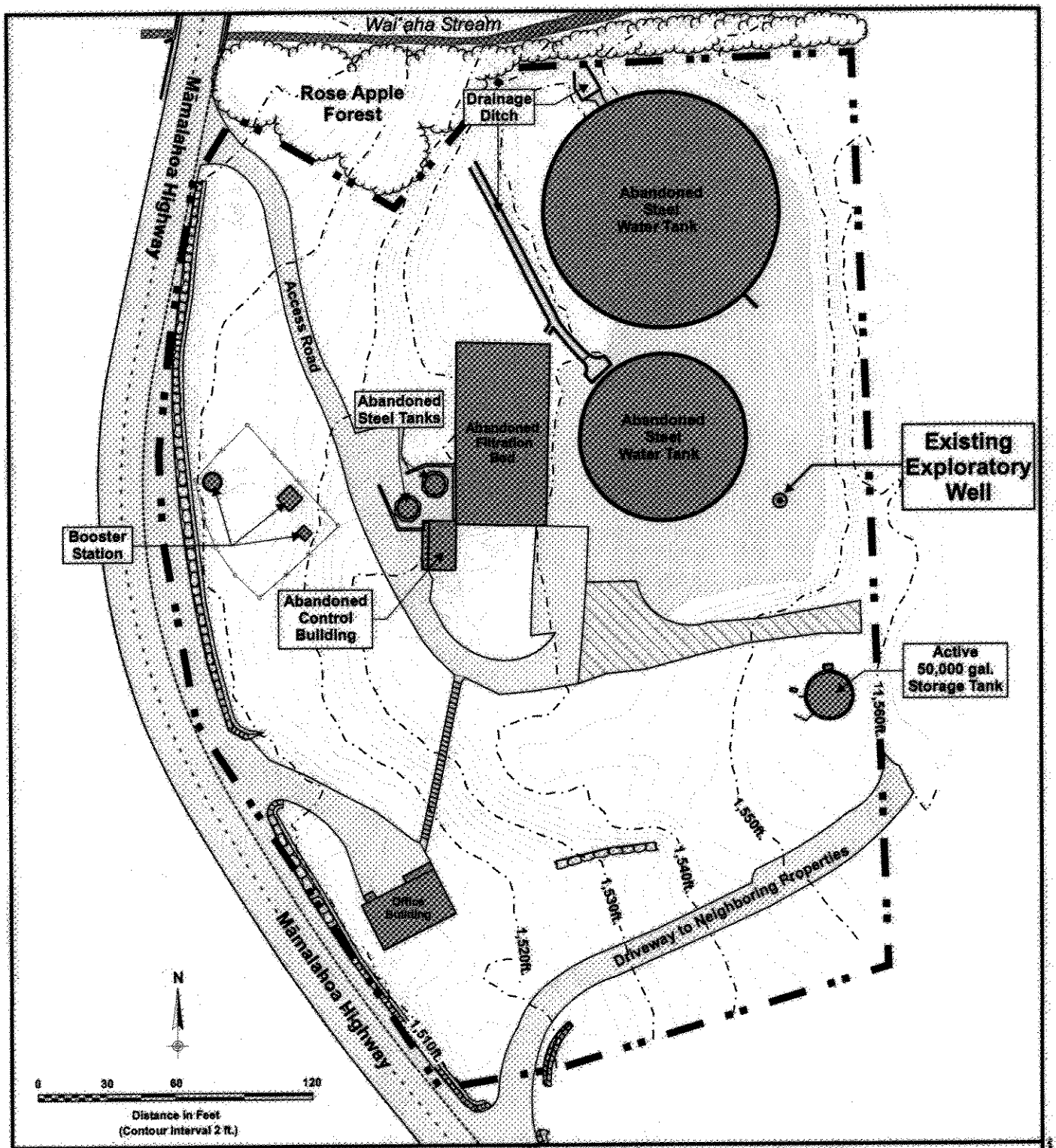
Distance in Miles

N

Figure 1-1:

Project Location

Wai`aha Production Well & Reservoir



Prepared For:
County of Hawai'i, Dept. of Water Supply

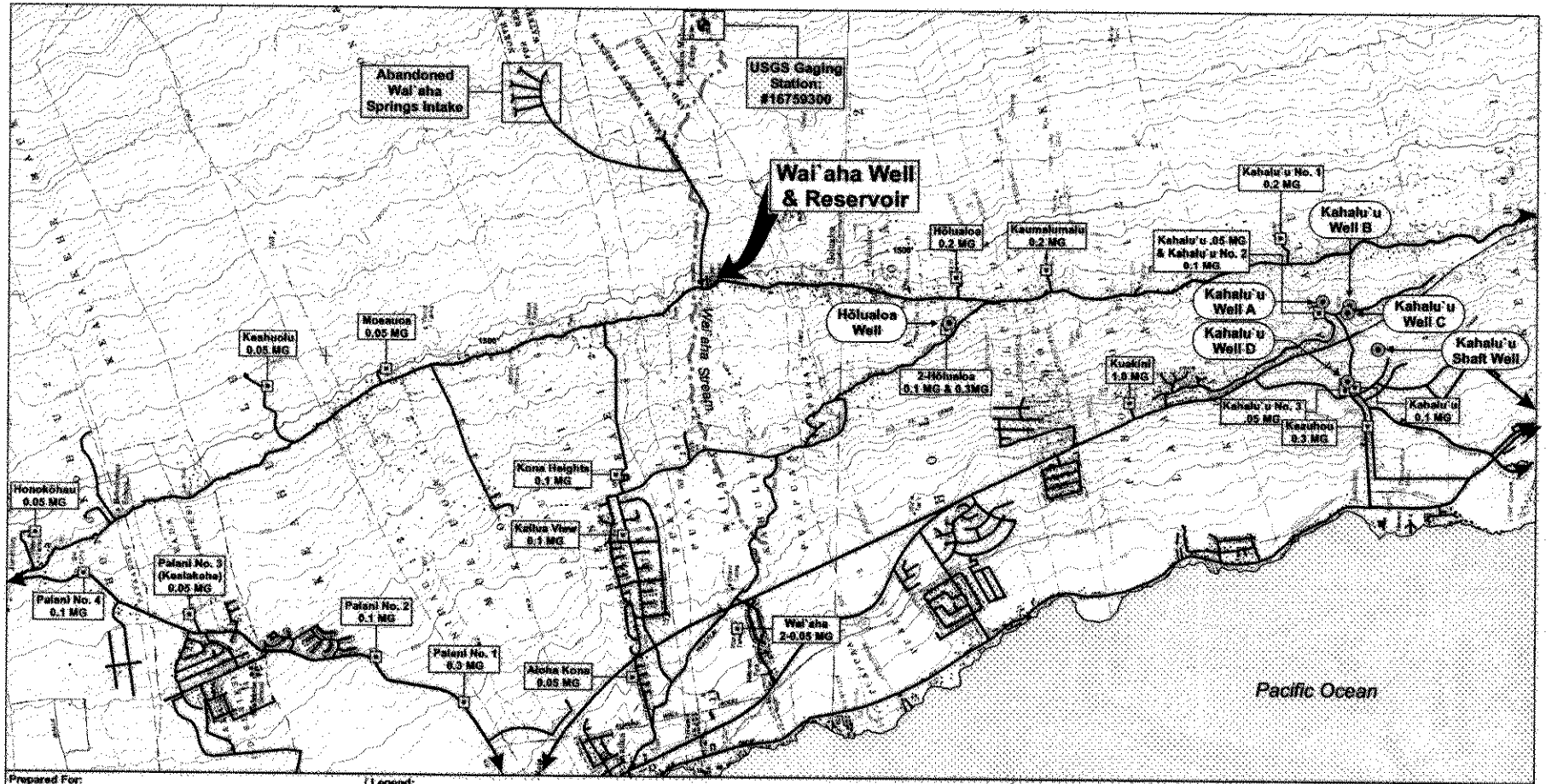
Prepared By:
PLANNING SOLUTIONS

Source:
Tom Nance Water Resource Engineering
Ronaldo B. Aurelio, Surveyor

Legend:
- Existing Structures
- Paved Areas
- Gravel Road
- Parcel Boundary
- Rock Walls
- 10' Elevation Contours

Figure 1-2:
Existing Facilities and Site Topography

Wai'aha Production Well & Reservoir


Abandoned Wai`aha Springs Intake
USGS Gaging Station: #16759300
Wai`aha Well & Reservoir
Wai`aha Stream
Kahalu`u No. 1 0.2 MG
Kahalu`u Well B
Hōlualoa 0.2 MG
Kaumalumalu 0.2 MG
Kahalu`u .05 MG & Kahalu`u No. 2 0.1 MG
Kahalu`u Well A
Kahalu`u Well C
Kahalu`u Well D
Kahalu`u Shaft Well
Hōlualoa Well
2-Hōlualoa 0.1 MG & 0.1MG
Kuakini 1.0 MG
Kahalu`u No. 3 .05 MG
Kaauhou 0.3 MG
Kahalu`u 0.1 MG
Moeauoa 0.05 MG
Keahuolu 0.05 MG
Kona Heights 0.1 MG
Kailua View 0.1 MG
Honokōhau 0.05 MG
Palani No. 5 (Kealakeha) 0.05 MG
Palani No. 4 0.1 MG
Palani No. 2 0.1 MG
Palani No. 1 0.3 MG
Aloha Kona 0.05 MG
Wai`aha 2-0.05 MG
Pacific Ocean
Prepared For:
County of Hawai`i, Dept.of Water Supply
Prepared By:
PLANNING SOLUTIONS
Source:
Department of Water Supply, County of Hawai`i
USGS 7.5' Quadrangle Maps, Kailua and Kealakekua 1982-84
Legend:
Water Transmission/Distribution Line
Well Name
Reservoir Name and Capacity
Distance in Feet
Island of Hawai`i
Area of Interest
Figure 1-3:
Existing Wells, Reservoirs & Pipelines Near Project Site
Wai`aha Production Well & Reservoir

1.3 DESCRIPTION OF THE PROPOSED ACTION

DWS proposes to convert the existing exploratory well at the Wai'aha site to a production well and to construct a new water storage tank and related facilities. Concurrent with construction of these new facilities, DWS will demolish and remove much of existing unused equipment at the site. The following sections describe the general features of the project design and construction plans.

1.3.1 DESCRIPTION OF THE WORK

The project will involve demolition of long since de-activated facilities at the site and the installation of new ones. Major elements to be demolished and removed are the two large existing steel water storage tanks, the sand filtration bed, the old chlorination system, a drainage ditch, and portions of the existing chain link fencing. New construction will include the following:

- A control building;
- A 2-million-gallon, reinforced-concrete, water storage tank;
- Chlorination equipment;
- A 1,400 gallons per minute (GPM), 700 horsepower submersible pump and motor;
- Perimeter fencing; and
- Associated equipment and access structures (see Figure 1-4).

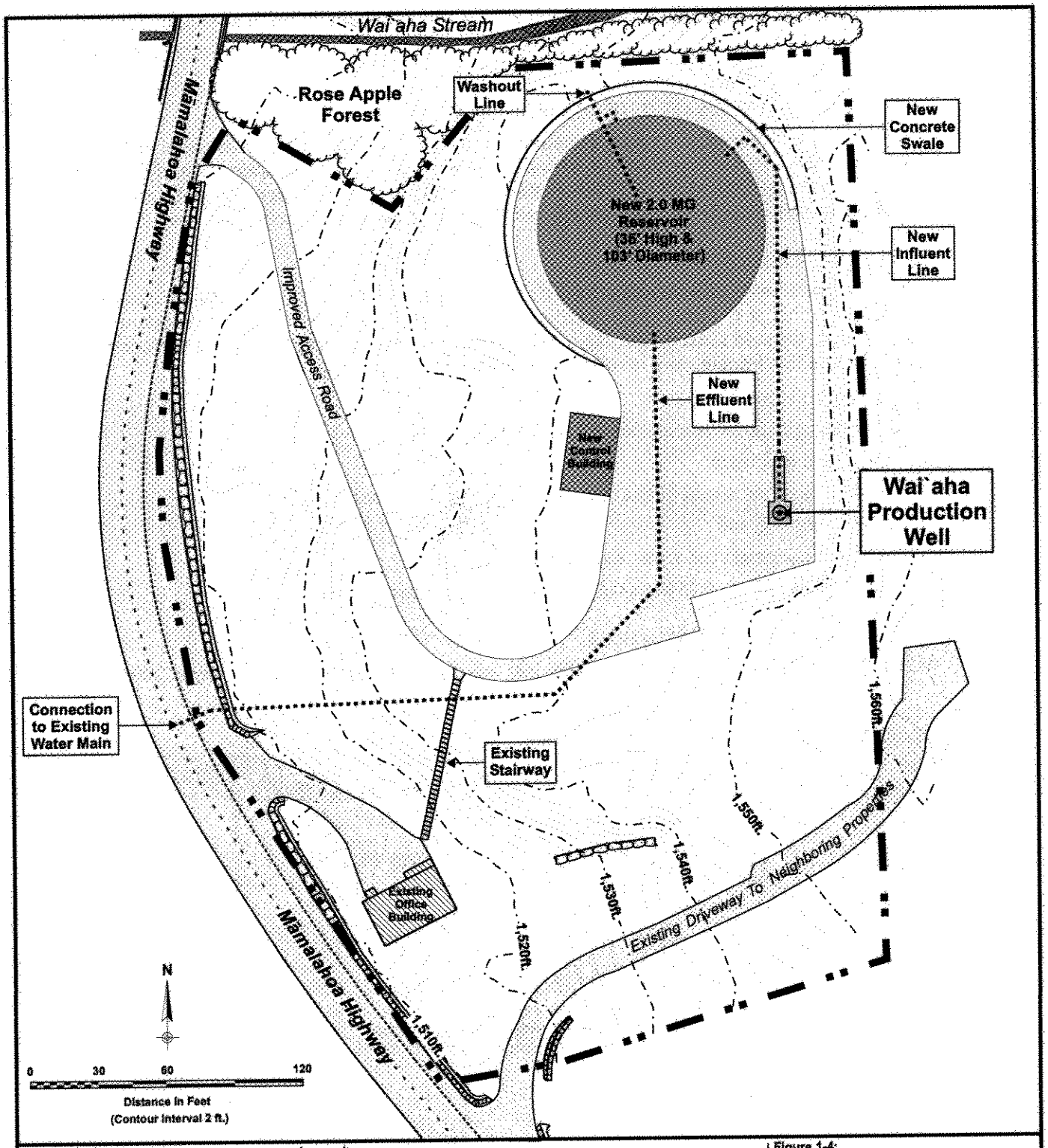
A total of approximately 0.75 acres will be disturbed due to these activities.

1.3.2 CONSTRUCTION SCHEDULE

The DWS schedule for the project (see Table 1-2) calls for the well to be on line in July of 2004.

Table 1-2 Preliminary Project Schedule

Task	*Estimated Completion Date*
Final Design	March 31, 2003
Design Review	May 30, 2003
Bid Solicitation	June 30, 2003
Award and Notice to Proceed	July 14, 2003
Construction and Testing	July 14, 2004
Source: Tom Nance Water Resource Engineering	



Prepared For:

Department of Water Supply
County of Hawai`i

Prepared By:

PLANNING SOLUTIONS

Source:

Tom Nance Water Resource Engineering
Ronaldo B. Aurelio, Surveyor

Legend:

- New Structures
- 10' Elevation Contours
- Paved Areas
- Parcel Boundary
- Rock Walls

Figure 1-4:

Proposed Wai`aha Production Well and Reservoir

Wai`aha Production Well & Reservoir

1.3.3 PROJECT COSTS

Table 1-3 presents the estimated costs for the project

Table 1-3 Preliminary Project Costs

Item	*Estimated Cost*
Site Preparation	$440,000
Reservoir and Control Building	$2,670,000
Access Road	$42,000
Water lines and valves	$133,000
Mechanical Systems (Pumps & chlorination)	$480,000
Electrical Systems (electrical, phone, controls)	$425,000
Subtotal	**$4,190,000**
Contingency (20%)	**838,000.**
Total	**$5,028,000**
Source: Tom Nance Water Resource Engineering	

2.0 EXISTING CONDITIONS

2.1 GEOLOGY

The Wai'aha Well site is situated at an elevation of 1,542 feet above mean sea level (MSL) on the southwestern flank of Hualālai. Most of the surface area of this volcano is composed of geologically young but prehistoric lava flows. Geologists believe the volcano emerged above sea level some 300,000 years ago, while the oldest rocks found on the surface are about 128,000 years old. Over the last 3,000 years, Hualālai has erupted near its summit, along the northwest and south-southeast rift zones, and from vents on the north flank of the volcano. Other major eruptions occurred about 300 and 700 years ago. A large flow from the 700-year-old eruption forms the north side of Keauhou Bay, south of Kailua. Twenty-five percent of the volcano is covered by flows less than 1,000 years old. No commercially useful minerals are present.

Hualālai last erupted between 1800 and 1801. Flows originated at the northwestern ridge of the mountain at elevations of about 6,000 feet (the Ka'ūpūlehu flow) and 1,500 feet (the Hu'ehu'e flow). Both of these flows traveled down slope to the west and north. The Ka'ūpūlehu flow entered the ocean just to the west of Kīholo Bay, while the Hu'ehu'e flow entered the ocean just north of Keāhole Point (McDonald, Abbott, and Peterson 1983; Moore et al. 1987). Of these two historic flows, the Hu'ehu'e flow came closest to the Wai'aha site, but was never nearer than eight to ten miles away.

The U.S. Geological Survey has divided the island into zones based on the probability of coverage by future lava flows; Zone 1 represents the greatest hazard and Zone 9 the least. All of Hualālai is in Zone 4. About 5 percent of the land surface in areas classified as Zone 4 has been covered by lava since 1800, and 15 percent has been covered by lava in the last 750 years. Hualālai's flanks do not have a distinctly lower hazard than its rift zones because the distance from the vents to the coast is short and the slopes are steep. Hualālai erupts less often than Kīlauea and Mauna Loa, but flows typically cover large areas. Other direct hazards from eruptions, such as tephra fallout and ground cracking and settling, tend to be greatest in the areas of highest hazard from lava flows.

2.2 TOPOGRAPHY AND SOILS

The Wai'aha Well site slopes from east to west, with an elevation of about 1,490 ft. MSL on the west side fronting Māmalahoa Highway and about 1,560 ft. MSL on the eastern boundary (see Figure 1-2). The average slope across the site is about 20% to 25%, but the existing storage tanks and exploratory well are on a graded level area that occupies much of the eastern half of the site.

The soil is aptly classified as "Kona extremely rocky muck" by Sato et. al. (1973). The soil is thin in most spots, generally between 5 and 12 inches thick, and overlies pāhoehoe lava bedrock. Soil permeability is quite high, and water rapidly runs through the soil and into cracks in the lava bedrock. Consequently, the erosion hazard is relatively low. The site and adjacent properties are <u>not</u> designated as Agricultural Lands of Special Interest to the State of Hawai'i.

2.3 HYDROLOGY

2.3.1 SURFACE WATER

The Wai'aha Well site is adjacent to the Wai'aha Stream (see Figure 1-2). The State Department of Health classifies the Wai'aha Stream as Class 2 Inland Waters (DOH 2000b). The State of Hawai'i Geographical Information System (State of Hawai'i 2001) lists the stream segment near the project site as perennial. Data from U.S. Geological Survey Gaging Station 16759300[1] indicate that the

[1] Measured at the U.S. Geological Survey Gaging Station #16759300, which operated reliably during the period between May, 1960 through September, 1969. This Station collected the only available flow data for the stream.

Wai'aha Stream flows only intermittently. While there is measurable flow at the gaging station on approximately two-thirds of the days of the year, there is no flow more than two-thirds of the days during the winter months (see Table 2-1). Storm peak flow measurements collected over the same 9-year period show a maximum storm peak rate of 3,100 cubic feet per second (cfs).

2.3.2 GROUNDWATER

The Wai'aha site is in the Keauhou Aquifer System of the Hualālai Sector (see Figure 2-1). The State of Hawai'i Commission on Water Resource Management (CWRM) has determined that the Keauhou System has a Sustainable Yield of 38 million gallons per day (MGD), while the entire Hualālai Sector Sustainable Yield is 56 MGD (CWRM 1995).

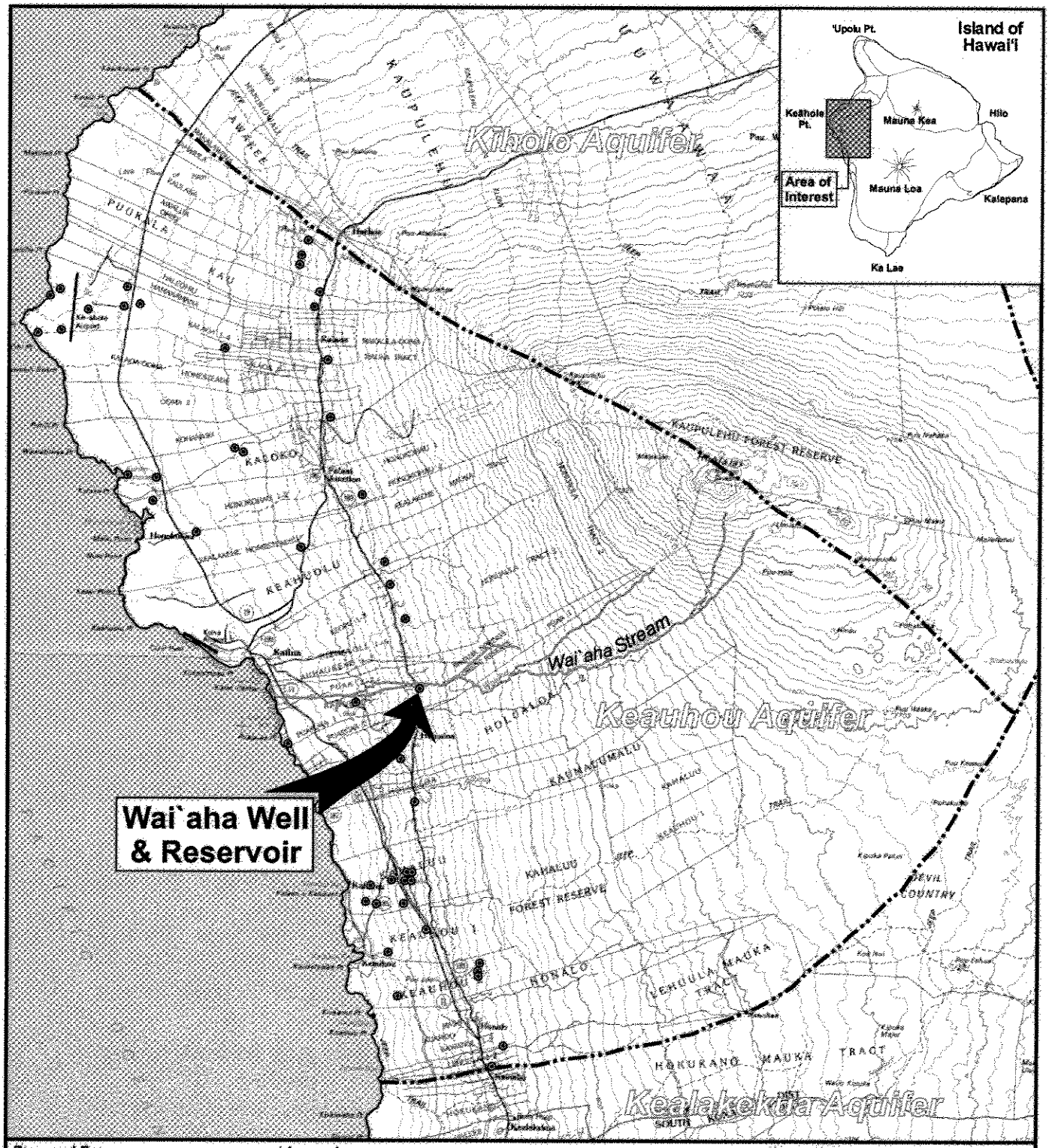
The DWS system for Kona can be divided into the North Kona and South Kona systems. These systems are interconnected, and it is possible to transport water from one system to the other. However, this is done only during emergencies and on a very limited basis. The Kahalu'u wells and shaft provide the bulk of the water for the North Kona system. The present average water usage is about 8.5 MGD.

Table 2-1 Daily Average Flow Rates in Wai'aha Stream at Elevation of 2,850 Feet

Month	*% Days With No flow*	*Average Flow Rates in cfs*		
		Mean	*Median*	*Max*
January	69.9	0.55	0.00	28
February	70.5	0.31	0.00	29
March	44.1	1.21	0.01	57
April	28.5	1.66	0.08	84
May	13.9	1.03	0.19	69
June	11.3	0.85	0.15	54
July	12.3	0.68	0.09	30
August	7.1	1.54	0.11	119
September	3.0	0.82	0.12	22
October	21.5	1.49	0.05	224
November	56.7	0.84	0.00	60
December	72.4	0.25	0.00	19
Overall	**33.0**	**0.96**	**0.03**	**224**

Note: Data reduced from all available (3,440 total) daily records (between May 1, 1960 and Sept. 30, 1969). These data are from U.S. Geological Survey Gaging Station #16759300, which is situated approximately 1.5 miles inland of the Wai'aha well site.

Source: U.S. Geological Survey, Honolulu HI, Gaging Station 16759300.



Prepared For:
County of Hawai`i, Dept. Of Water Supply

Prepared By:
PLANNING SOLUTIONS

Source:
State of Hawai`i GIS
USGS 7.5' Quad Map; Kealakekua 1982-84

Legend:
- Well Location
- Aquifer Boundaries

0 — 5
Distance in Miles

N

Figure 2-1:

Keauhou Aquifer System

Wai`aha Production Well & Reservoir

Table 2-2 Peak Flow Measurements, Wai'aha Stream: 1960-1969.

Date	*cfs*	*Gage Height (ft.)*
3/29/1961	484	4.61
8/4/1962	379	4.34
3/23/1963	446	4.51
5/27/1964	480	4.6
8/14/1965	1,430	6.37
5/1/1966	190	3.72
10/17/1966	650	4.96
9/29/1968	780	5.28
10/3/1968	3,100	8.46

Source: U.S. Geological Survey, Honolulu HI; Gaging Station 16759300; 5/1/1960-9/30/1969

Unlike the DWS wells at Kahalu'u and Hōlualoa, the Wai'aha well taps into high-level groundwater that stands about 60 feet above sea level. The existence of high-level groundwater inland of the Māmalahoa Highway is a relatively recent (1990) discovery. Based on the wells that have been drilled since then, the high level groundwater appears to extend from Kalaoa on its north end to Kealakekua on its south end, a distance of about 16 miles. Based on data from the 18 or more wells that have been drilled into this high-level resource, it can be characterized as follows:

- The geologic features that cause this groundwater to impound from 40 to 500 feet about sea level are not known. However, they appear to be linearly oriented and roughly parallel to and coincident with the Māmalahoa Highway.
- The high-level groundwater is extremely fresh (chlorides of 10 mg/L or less), but not very cold (70° to 73° F).
- There is not a sufficiently coherent pattern among the water levels of the wells to permit conclusions regarding their flow directions.
- With proper sizing and development, such as was done for the Wai'aha well, pumping at rates up to 1,400 GPM (2 MGD) are achievable.

2.4 POTENTIAL FOR WELL CONTAMINATION

For reasons outlined below, there is a low probability that water from the proposed Wai'aha Production Well and Reservoir Project is, or would become, contaminated.

- The area surrounding the proposed well site is used primarily for low-density residential housing and coffee cultivation. Generally, Kona coffee cultivation uses few or no pesticides.
- Maps prepared by the State Department of Health (DOH 1998) show no contaminated wells in the Hualālai Aquifer System.
- As required by the State Department of Health to obtain certification before putting the well into service, in the spring of 2000 DWS completed extensive testing of the well water and found no evidence of contamination.
- According to the County of Hawai'i Department of Environmental Management, Solid Waste Division, the nearest landfill to the project site is in Pu'uanahulu, which is near the coast and almost 20 miles from the well site.

- The nearest solid-waste transfer station is in Keauhou, down gradient and more than 8 miles from the site.
- The nearest cesspools to the well are located in an adjacent parcel, 240 ft. from the well and near the office building within the project parcel, 265 ft from the well. The potential for contamination from these two cesspools is remote because there is natural protection from the filtration and decomposition that will occur during the 1,500-foot vertical travel distance through hundreds of different lava flows.
- Based on the State Department of Health Office of Hazard Evaluation and Emergency Response report covering the area (DOH 2000a), no identified site of concern to the State Department of Health is located near the Wai'aha well site. The nearest listed sites are all in the Kailua-Kona area, several miles away.

2.5 CLIMATE AND AIR QUALITY

The rain gauging station at Lanihau, located an elevation of 1,530 feet MSL 2.4 miles north of the DWS' Wai'aha property, provides a good indication of rainfall at the project site. The median annual precipitation at Lanihau between 1971 and 2000 was 53.5 inches (NOAA 2002). June was the wettest month during this period, with an average monthly rainfall of 6.78 inches. The average monthly rainfall in November, the driest month, was 2.8 inches. In general, rain occurs in the afternoon in concert with the normal diurnal onshore winds.

Temperatures in the area are very moderate. Daily low temperatures are typically 58-59° F between December and March and 63-64° between June and November. Normal daily high temperatures are 76-77° between December and May and 79-80° between August and November.[2]

No site-specific wind data are available from the well location. However, DWS' Wai'aha Well site and Kona in general are protected from the normal northeasterly trade winds by the massive Hualālai, Mauna Loa, and Mauna Kea volcanoes. Consequently, winds are typically light, averaging less than 5 miles per hour (mph). The wind direction varies diurnally. Winds move gently down slope and to the northwest during nighttime hours at speeds averaging 1-2 mph. During midday, they are usually upslope to the east-northeast at speeds averaging 8-9 miles per hour. Kona storms, which usually occur in the winter, can bring stronger southerly winds to the site (Juvik, Juvik and Paradise 1998).

There passing traffic on the Māmalahoa Highway is the only source of anthropogenic air emissions near the project site. The northeasterly trade winds carry emissions from volcanic eruptions around the southern side of the island to the well site and can occasionally lead to some impairment of air quality.

2.6 TERRESTRIAL FLORA AND FAUNA

DWS has used the project site for water collection and storage facilities for more than fifty years, and much of the site is either paved or covered by exposed lava rock (see Figure 1-2). The northern margin of the parcel is almost completely covered by a dense forest of rose apple trees (*Syzygium jambos*), which dominate the riparian habitat along the Wai'aha Stream. The rest of the vegetation on the premises consists of planted landscape species, such as hibiscus, bird-of-paradise, and ti, as well as other historically introduced species, including fig (*Ficus sp.*), guava (*Psidium sp.*), Christmas-berry (*Schinus terebinthifolius Raddi*), Indian ginger (*Hedychium sp.*), Indian rhododendron (*Melastoma candidum*), various grasses, and coffee bushes. The coffee probably started from seeds transported from the neighboring plantations. Given the disturbed nature of the habitat, there is no

[2] Temperature data from the National Climatic Data Center/NESDIS/NOAA Kainaliu Station #512751. The station is located along the Māmalahoa Highway to the south of the well site, approximately 7.2 miles away at the same elevation (1,500 ft. MSL).

reason to believe that any rare or endangered species are present nor that the area hosts biologically sensitive habitats or communities.

2.7 AQUATIC RESOURCES

As noted in Section 2.3.1, the segment of Wai'aha Stream passing the project site flows only intermittently. During an inspection of the site on April 18, 2002, the streambed was dry and there was no evidence of small pools or other aquatic habitat. Moreover, because there is no defined drainageway below an elevation of about 450 feet, there is no possible aquatic access to the ocean. Thus, the stream reach near the well site does not appear to host significant aquatic communities.

2.8 NOISE

A person's ability to hear a sound depends greatly on its frequency. Young, healthy people can hear frequencies as low as about 20 Hertz (Hz) and as high as about 20,000 Hz. One hertz is equivalent to one wave per second (or cycle) per second). People hear sounds best when the predominant sound energy is between 1,000 and 6,000 Hz. Sounds at frequencies above 10,000 Hz are much more difficult to hear, as are sounds at frequencies below about 100 Hz.

To measure sound on a scale that reflects the way people perceive it, more weight must be given to the frequencies that people hear more easily. One weighing procedure that attempts this is called "A-weighting". The U.S. EPA recommends the A-weighting scale for environmental noise because it is convenient to use, accurate for most purposes, and is used extensively throughout the world. The variables used in this report to indicate sound levels all use A-weighting to describe different features of sound collected over a fixed measurement interval. During the measurement interval, sound levels are recorded continuously and the signal is integrated over shorter intervals to permit statistical analysis. The instrument[3] used for the data collected at the Wai'aha Well was set to collect data for 10-minute intervals and to integrate the data within this interval every second.

We used the data to determine the baseline levels shown in Table 2-3 for four parameters:

- Equivalent Sound Level (Leq). This variable is the root-mean square (RMS) average of the time-varying sound energy measured during the 10-minute measurement interval. Leq correlates reasonably well with the effects of noise on people, even for wide variations in environmental sound levels and time patterns.
- Maximum Sound Level (Lmax). This is the maximum sound level (1-second integrated value) recorded during the measurement interval.
- Minimum Sound Level (Lmin). This is the minimum sound level (1-second integrated value) recorded during the measurement interval.
- Maximum Peak Level (MaxP). This is the instantaneous maximum sound level measured during the measurement interval.

2.9 ARCHAEOLOGICAL, HISTORIC AND CULTURAL FEATURES

DWS records do not indicate the presence of any historic, archaeological, or cultural features on the project site when the original facilities were constructed there. The entire area that would be used for the proposed facilities was disturbed when those existing facilities were installed, and the disturbance has continued during the more than 50 years that it has been used as a DWS facility.

On September 9, 2002, staff of Paul H. Rosendahl, Inc. conducted an archaeological reconnaissance survey of the parcel. Their inspection confirmed that even the small portions of it that are not occupied by existing DWS facilities (i.e., water tanks, abandoned water treatment facility, etc.) are

[3] A Brüel & Kjær Integrating meter, Type 2239A.

overgrown with vegetation. They found no surviving evidence of any prehistoric or early historic period occupation or use of the project area. Neither did they see any evidence of any potentially significant cultural properties, features, natural resources, practices, or beliefs within the project site.

Table 2-3 Baseline Sound Levels at Wai'aha Well Site

Station Description	*Leq*	*MaxP*	*MinL*	*MaxL*
1: At east property line below neighboring houses	49.9	87.5	31.5	65.9
2: At main gate on Māmalahoa Hwy	60.6	99.7	36.0	76.9

Notes: A-Weighted, 10-minute interval; 1-sec. integration; 30-100 dBA scale; 04/18/2002
Station 1: The loudest noise at this location was from a truck backing up to the house.
Station 2: The loudest noise at this location was from traffic, chickens, and other birds

Source: Planning Solutions, Inc.

2.10 VOLCANIC AND SEISMIC HAZARDS

As discussed in 2.1, the U.S.G.S. Volcanic Lava Flow Hazard rating of the site is level 4. This is in the middle of the range for the Big Island.

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 (USGS 1997). For the purposes of structural design, most of the Island of Hawai'i, including the Wai'aha 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 (FHSA) nor within a Tsunami Evacuation area (State of Hawai'i 2002). However, the streambed of the Wai'aha Stream adjacent to the site is designated as an FHSA (Flood Zone A).

2.12 SCENIC AND AESTHETIC RESOURCES

Only a few of the existing facilities on the Wai'aha site can be seen from Māmalahoa Highway (see the top photograph in Figure 2-2). The remainder are hidden by trees and other intervening vegetation and by the steep slope. Vegetation also forms an effective screen between the existing facilities and the residences to the east of the Project Site (see the bottom photograph in Figure 2-2). No unique or outstanding viewpoints are found at the site.

2.13 EXISTING LAND USE & ECONOMIC AND CULTURAL ENVIRONMENT

The proposed facilities are located within an existing DWS complex. DWS already uses the site for water storage and distribution. There are no existing industrial activities in the vicinity, but portions of several of nearby properties are currently devoted to coffee cultivation.

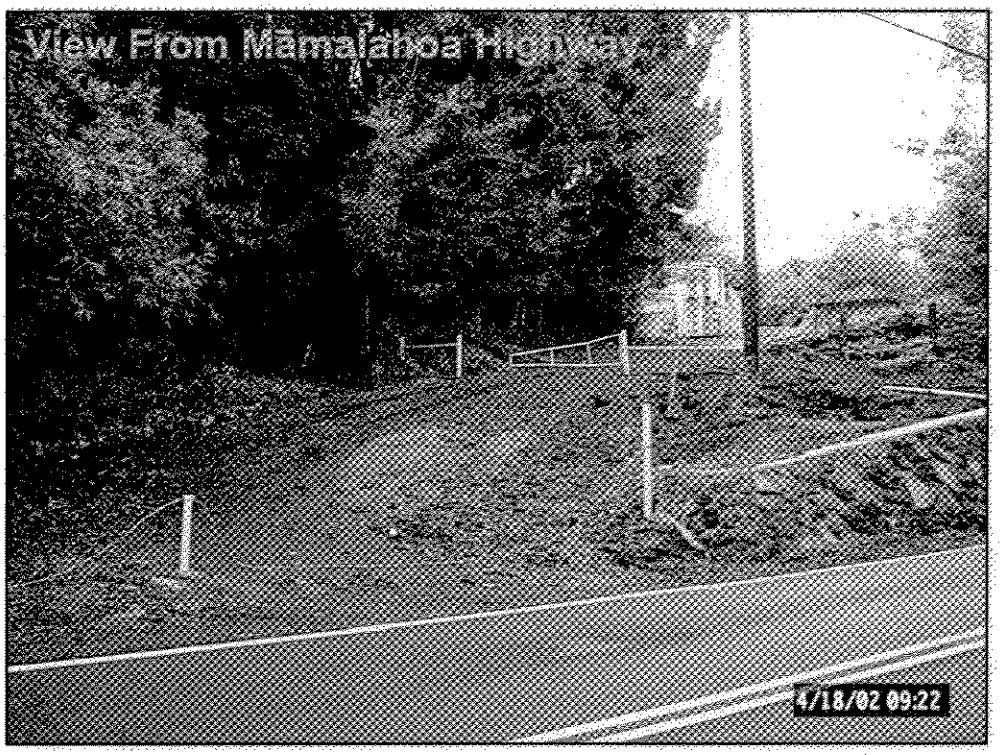
The nearest homes are located approximately 125 feet southeast of the well. Access to these residences is via a private driveway that crosses the southern part of DWS' Wai'aha facility.

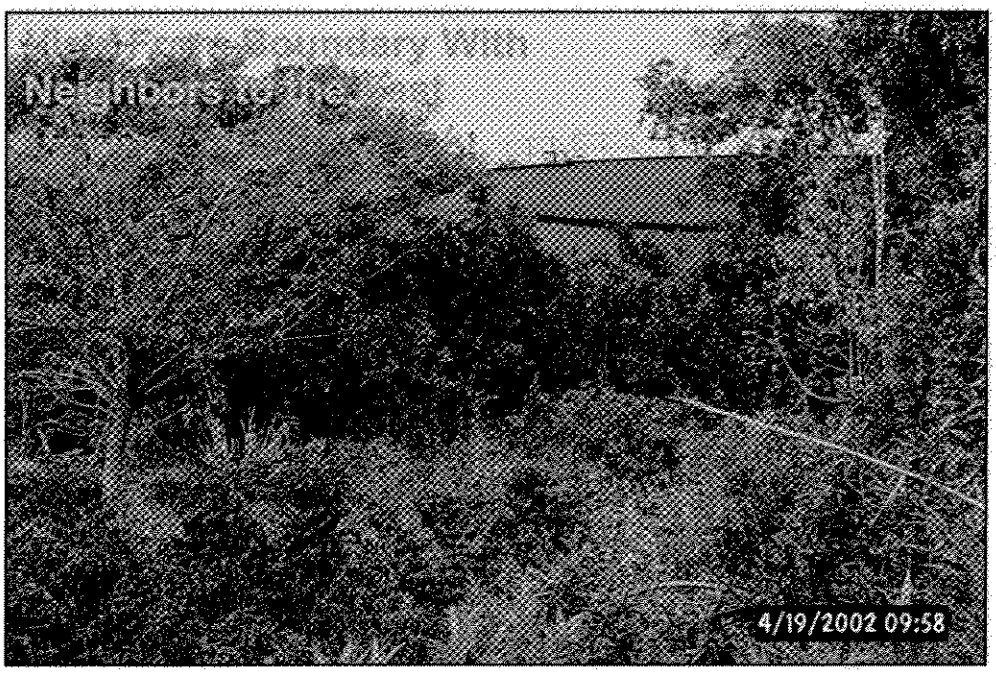
2.14 LAND USE CONTROLS

The site is in the State Agriculture District. The County zoning is also Agriculture (Ag-1a). The proposed facilities are allowable uses in both these zoning districts.

2.15 LAND OWNERSHIP

DWS owns the site in fee. Adjacent parcels to the north (Wai'aha Stream), south, and east are privately owned. The land to the west is within the Māmalahoa Highway right-of-way and is owned by the State of Hawai'i.





Prepared For:

County of Hawai`i, Dept. of Water Supply

Prepared By:

PLANNING SOLUTIONS

Source:

Planning Solutions, Inc.

Figure 2-2:

Views Toward the Existing Facility

Wai`aha Production Well & Reservoir

3.0 PROBABLE IMPACTS AND MITIGATION

3.1 IMPACTS ON TOPOGRAPHY AND DRAINAGE

Work on the project would begin with removal of the two large steel tanks, the sand filter, and old control building. As shown in Figure 1-4, the area on which DWS proposes to construct the new facilities is relatively flat. Hence, the contractor will undertake only minor excavation and finished grading for the control building and the storage tank. Finally, the contractor will upgrade the landscaping on the portions of the site not used for structures or pavement. These modifications will not substantially change the overall topography or drainage pattern of the surrounding area, and they will not increase the impermeable surface and/or potential surface runoff.

3.2 IMPACTS ON GEOLOGY AND SOILS

As noted in Section 2.2, the Kona extremely rocky muck that constitutes the soil at the site is not particularly valuable for agriculture, and the site itself has not been used for agriculture for at least 50 years. The proposed project would not substantially change exposure to geological hazards or bar the use of significant geological resources (such as minerals).

3.3 HYDROLOGIC IMPACTS

3.3.1 CONSTRUCTION PHASE IMPACTS ON SURFACE RUNOFF VOLUME

Replacing the existing reservoirs and ancillary facilities with a single new reservoir, control building, and permanent pump will slightly reduce the amount of impermeable surface on the property. This will marginally reduce stormwater runoff. Because the project plans call for stormwater to be discharged at essentially the same locations as at present, the project will not alter the existing drainage pattern.

3.3.2 IMPACTS OF WELL OPERATIONS ON GROUNDWATER

Table 3-1 presents the key dimensions of the exploratory well at the Wai'aha site. DWS conducted pump tests of the well between April 9 and 14, 2001. First, it performed a step-drawdown test on the morning of April 9, 2001. During that test, it measured drawdown at four pumping rates ranging from 915 to 1,770 gallons per minute (GPM), with each rate run for 60 minutes (see Table 3-2 for the results). After completing the step-drawdown test, DWS ran a constant-rate pump test. It began the test at 1:30 p.m. on April 9 and ended it at 9:45 A.M. on April 14 after a total pumping time of 116.25 consecutive hours. The average pumping rate during this 5-day test was 1,412 GPM, equivalent to 2.03 MGD.

Table 3-2 and Table 3-3 show the results of these tests, which indicate the following:

- The Wai'aha well taps high-level groundwater that stands approximately 60 feet above sea level.
- The hydraulics of the well are excellent. Drawdown at 1,400 GPM was about 6.5 feet at the end of one hour and increased only a half-foot to a little over seven feet at the end of five days.
- The well will produce water of consistently excellent quality; chlorides were 5 mg/L or less throughout the test.
- No boundary effect of the high level compartment tapped by the well was evident during the 5-days of testing. Rather, it appears that drawdown stabilized, except for semi-diurnal barometric changes, before the end of the second day of the pump test. This suggests that the well taps a relatively large high-level compartment.

Table 3-1 As-Built Dimensions of Wai'aha Well (State #3857-01)

Description	*Dimension*
Basic Well Parameters	
Casing Diameter (inches)	20
Ground Elevation (feet MSL)	1,542
Total Well Depth (feet)	1,750
Elevation at Bottom (feet MSL)	-208
Solid Casing	
Length Below Ground (feet)	1,542
Elevation at Bottom (feet MSL)	0
Perforated Casing	
Length (feet)	60
Elevation at Bottom (feet MSL)	-60
Open Hole	
Diameter (inches)	19
Length (feet)	148
Static Water Level :	
Depth Below Ground (feet)	1,482.4
Elevation (feet MSL)	59.6
Source: Tom Nance Water Resource Engineering	

Table 3-2 Results of Step-Drawdown Testing, April 9, 2001

Pumping Rate (GPM)	*Drawdown (feet)*	*Conductivity (µS@25 °C)*	*Chlorides (mg/L)*	*Temp. (°F)*
915	4.62	129.2	5.0	69.9
1,160	5.78	129.0	4.9	70.2
1,415	6.58	129.0	4.9	70.1
1,770	7.88	128.9	4.8	69.9

Notes:
1. Conductivity measured with a HACH SensIon-5® meter, calibrated to a 100 pSeimen standard.
2. Chlorides titrated with mercuric nitrate titrant.
3. Temperatures measured with a precision of 0.010° F.

Source: Tom Nance Water Resource Engineering

Table 3-3 Test Results from Constant-Rate Pump Test, April 9 to 14, 2001

Date in April, 2001	*Time of Day*	*Conductivity (µS@25 °C)*	*Chlorides (mg/L)*	*Temp. (°F)*
9	13:40	128.4	4.5	70.1
10	01:30	129.1	4.9	70
10	13:30	128.1	4.3	70
11	01:30	127.8	4.2	70
11	13:30	128.8	4.8	70
12	01:30	128.8	4.8	70
12	13:30	129.1	4.9	70
13	01:30	129.1	4.9	70
13	13:30	128.9	4.8	70
14	01:30	128.8	4.8	70
14	09:40	128.9	4.8	70.3

Notes:
1. Conductivity measured with a HACH SensIon-5® meter, calibrated to a 100 pSeimen standard.
2. Chlorides titrated with mercuric nitrate titrant.
3. Temperatures listed to 0.1° measured by TWNRE with a precision of 0.010° F. All others measured by contractor with mercury thermometer.

Source: Tom Nance Water Resource Engineering (TNWRE)

Based on these results, it appears that pumping up to 2.0 MGD (1,400 GPM) is sustainable from the viewpoint of the individual well. As noted in Section 2.3.2, the Keauhou Aquifer System has a sustainable yield of 38 MGD. Present total withdrawals of potable water from this aquifer system are on the order of 10 to 12 MGD. The draft by brackish irrigation wells is approximately 2 MGD. Since the combined pumpage of up to 14 MGD is significantly less than the aquifer system's sustainable yield of 38 MGD, the use of the Wai'aha Production Well appears to be sustainable on an overall aquifer basis as well.

3.3.3 IMPACTS OF WELL OPERATIONS ON SURFACE-WATER FLOW

There are two reasons why operation of the proposed well does not have the potential to affect surface water flow. First, the fact that it the well would withdraw water from a basal aquifer whose surface is approximately 60 feet above MSL at the well site means that it does not have the potential to affect the high-level sources of water that feed the Wai'aha Stream. Secondly, the fact that there is no well-defined stream channel or persistent flow below an elevation of approximately 450 feet MSL (i.e., 390 feet above the top of the basal lens) means that well pumping does not have the potential to affect groundwater discharge into the stream below an elevation of 60 feet MSL.

3.4 WATER QUALITY IMPACTS

3.4.1 CONSTRUCTION PHASE

Construction activities have the potential to affect the quality of State waters through stormwater runoff from disturbed areas. The contractor will use best management practices as necessary during

construction of the well site to prevent contaminants such as sediment, pollutants, petroleum products, and debris from possibly entering the aquatic environment. It will attempt to schedule work for periods of minimal rainfall, and lands denuded of vegetation will replant as quickly as possible to control erosion. Since the disturbed area is expected to be well under an acre, ill obtain an NPDES Construction Stormwater permit[4] for these construction activities from the State of Hawai'i Department of Health should the area disturbed during construction exceed one (1) acre. During the pump installation phase of the project, the contractor will direct the discharge from testing into the site's existing drainage system, which discharges into the Wai'aha Stream.

3.4.2 OPERATIONAL PHASE

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

3.5 IMPACTS ON AIR QUALITY

3.5.1 CONSTRUCTION PHASE

3.5.1.1 Particulate Matter and Construction Equipment Emissions

Only minor amounts of grading and excavation are contemplated as part of the project. This, together with the relatively high rainfall, generally moderate wind speeds, and distance from most sensitive receptors, means that fugitive dust is unlikely to be a problem during construction.

No more than a few pieces of construction equipment would operate on the site at any one time. Moreover, work would be limited to period of a several months. Consequently, pollutant emissions from construction equipment do not have the potential to affect the local or regional air quality substantially.

3.5.1.2 Hazardous Material Emissions

EnviroServices & Training Center surveyed the site for DWS to determine the presence or absence of asbestos-containing materials, lead-based paint, and other hazardous materials. While the survey indicated that the site is generally free of heavy metals, it showed that some asbestos and lead-based paint is present. For example, the tests showed that the roofing material used on several small sheds and the gasket material on some reservoir discharge lines and piping contain greater than 1% of Category I and Category II non-friable asbestos material.[5] In addition, it found that some paint samples collected from structures that DWS plans to demolish contain significant levels of lead. DWS will contract with qualified consultants to monitor and inspect the removal activities that affect these facilities to ensure compliance with applicable Federal and State regulations.[6]

[4] National Pollutant Discharge Elimination System administered through the Clean Water Branch of the State Department of Health (Hawai'i Administrative Rules, 11-55, Appendix C)

[5] The National Emission Standards for Hazardous Air Pollutants (40 CFR 61) defines asbestos-containing materials as any material containing greater than 1% asbestos. Non-friable materials are those that cannot be reduced to powder by hand pressure. Category I materials include asphalt roofing materials and some floor coverings. Category II materials include other types of materials, including stucco and transite.

[6] These regulations, including 29 CFR 1910 and 40 CFR 61, are administered by the Federal Environmental Protection Agency and Occupational Safety and Health Administration and the State Office of Safety and Health in the Department of Health.

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 power generation (and, therefore, fuel consumption and gaseous emissions) by the Hawaii Electric Light Company. This will occur only insofar as pumping from the proposed well is not offset by reduced pumping elsewhere in DWS system. In any event, the power use represents such a small portion of total electrical power use on the island that its effects would be insubstantial.

3.6 IMPACTS ON TERRESTRIAL FLORA AND FAUNA

Construction of the proposed facilities will affect approximately 32,000 square feet (0.75 acre) of already-developed land. Virtually all of this is covered with structures or impervious surfaces that do not constitute useful habitat. The few plants and animals that are present in the area are primarily introduced and invasive species. The affected area is not 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 IMPACTS ON AQUATIC RESOURCES

As noted in Section 2.7, the Wai'aha Stream at the well site flows only intermittently and does not host substantial aquatic communities. As noted in Section 3.3.3, the project does not have the potential for modifying the flow of the stream. For these reasons, the project does not have the potential to affect freshwater aquatic resources substantially. Groundwater withdrawal from the well would slightly reduce groundwater discharge into the ocean, but the fact that the change would be distributed over a broad area combined with the active mixing that occurs in the ocean will prevent any substantial effect.

3.8 NOISE IMPACTS

3.8.1 ENVIRONMENTAL NOISE GUIDELINES, STANDARDS, AND CRITERIA

Hawai'i Administrative Rules (HAR) §11-46 defines three classes of zoning districts and specifies corresponding maximum permissible sound levels due to (i) stationary noise sources and (ii) equipment related to agricultural, construction, and industrial activities. Those limits, applicable at the property boundary of the parcels containing the affected land use, are shown in Figure 1-2. 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.

3.8.2 CONSTRUCTION PHASE IMPACTS

Demolition and construction will involve the operation of diesel-powered equipment for a period of up to 12 months. Noise from loudest 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 more than 60 dBA at the property line of the nearest residence (which is about 50 - 75 feet *mauka* of the property line). Noise levels on other, more distant properties would be lower. Noise of this magnitude would be clearly audible above the existing 35-to-50 dB background levels at the nearest homes.

Table 3-4. Maximum Permissible Sounds Levels in dBA (HAR §11-46).

Zoning Districts	*Daytime (7 a.m. to 10 p.m.)*	*Nighttime (10 p.m. to 7a.m.)*
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: Hawai'i Administrative Rules, Title 11, Department of Health, Chapter 46, Community Noise Control

Based on the distance to the dwelling closest to the well site, demolition and construction activities could exceed the 70 dBA daytime limit for agricultural areas (as the location is zoned) and well above the 55 dBA daytime limit applicable to residential areas. Because of this, a construction noise permit will probably be needed from the State Department of Health.

HAR §11-46-7 gives the Director of Health the authority to issue permits that allow the limits shown in the table to be exceeded so long as:

- the best available control technology is used;
- the granting of the permit is found to be in the public interest;
- the services or activities for which the permit is sought are temporary and cannot be delayed, postponed, or rescheduled to a time period in which such services are permitted;

- the applicant requires additional time to alter or modify the applicant's activity or operation to comply with this chapter;
- the applicant has disclosed any possible impact from noises created by any proposed nighttime activity which may affect the immediate surrounding; and
- The applicant plans to notify the people in the surrounding area of planned nighttime activity.

The regulations contain the specific limitations on the Director's ability to issue permits for construction activity. Those limits, measured at the property boundary, are:

- No permit shall allow any construction activities which emit noise in excess of the maximum permissible sound levels for the hours before 7:00 a.m. and after 6:00 p.m. of the same day, Monday through Friday;
- No permit shall allow any construction activities which emit noise in excess of the maximum permissible sound levels for hours before 9:00 a.m. and after 6:00 p.m. on Saturday; and
- No permit shall allow any construction activities, which emit noise in excess of the maximum permissible sound levels on Sundays and on holidays.
- HAR §11-46-8 also provides for variances in situations where it is not possible to meet all of the conditions required for permits.

At present it is anticipated that development of the Wai'aha Well and reservoir would qualify for a noise permit; hence, it is not anticipated that a variance will be needed.

3.8.3 OPERATIONAL PHASE NOISE IMPACTS

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 line. This is below the most stringent noise limit in HAR §11-46 and would probably not be detectable from the nearest dwelling.

3.9 IMPACTS ON TRAFFIC

Access to the project site is via the Māmalahoa Highway. Adequate space exists alongside the roadway and on the existing access driveway such that vehicle parking associated with construction activities will not interfere with the active traffic lanes. The only possible exception to this is brief intervals when large construction equipment and material for the tanks and other structures are moved onto and off the site. The well will not require manned operation, but only occasional monitoring and maintenance. Service vehicles will park 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 IMPACTS ON ARCHAEOLOGICAL AND HISTORIC FEATURES OR CULTURAL PRACTICES

As discussed in Section 2.9, DWS records suggest that there were no archaeological or historical features on DWS property when the existing facilities were constructed. The reconnaissance survey conducted by PHRI staff on September 9, 2002, confirmed that no surficial archaeological resources of any kind are present, and the Historic Preservation Division of the State Department of Land and Natural Resources has concurred with this opinion.

PHRI also performed a Cultural Impact Analysis of the proposed project (see Appendix A). It concluded that the Wai'aha project site has been extensively modified and developed during historic times. In support of this conclusion it cited (a) the existing modified condition of the property and (b) the negative findings of the archaeological reconnaissance survey. The latter yielded no evidence of the presence of any potentially significant cultural resources–properties, features, natural resources,

practices, or beliefs—either within or related to the project site. It further found that there is no indication of any kind that the project area has resources necessary to or currently being used by Native Hawaiian cultural practitioners exercising traditional and customary access and use rights for any purposes or by individuals of any other cultural affiliation for any traditional cultural purposes. Based on these findings PHRI concluded that the proposed action would not have short- or long-term adverse effects on cultural resources.

The DWS construction contract for work on the parcel will stipulate that should any artifact or burial site be encountered during construction, all activities would halt and SHPD would be notified. It will provide that work may be resumed only after consultation with the SHPD is completed and a monitoring program is in place.

3.11 NATURAL HAZARDS

3.11.1 FLOODING FROM STREAMS OR TSUNAMI

As discussed in (Section 2.11), DWS' Wai'aha property is not subject to flooding or tsunami. Neither will it increase runoff in a way that might increase hazards on other properties. Hence, there is no natural hazard risk from that source.

3.11.2 GEOLOGICAL RISKS

3.11.2.1 Lava Flows

As discussed in Section 2.1, the U.S. Geological Survey (1987) has designated the area in which the project site is located as Volcanic Lava Flow Hazard Level 4, which is midway along its risk scale. The estimated probability that property in this zone will be covered by fresh lava within the next 200 years is less than 5 percent; the estimated probability of it being overrun within the next 1,000 years is less than 15 percent. Because the remainder of the western flank of Hualālai is in the same risk zone, it is not possible to relocate the well to a safer location where it could draw water from the same aquifer.

3.11.2.2 Earthquakes

The Island of Hawai'i experiences thousands of earthquakes each year, but the vast majority are so small that they can only be detected by instruments. Strong earthquakes endanger people and property by shaking structures and by causing ground cracks, ground settling, and landslides. The size of an earthquake is commonly expressed by its magnitude on the Richter scale; an increase of one whole number on the Richter scale represents a tenfold increase in the amplitude of the seismograph recording.

As can be seen by the U.S. Geological Survey's plot of the location and size of the larger earthquakes that occurred on the Island of Hawai'i between 1962 and 1985 (Figure 3-1), the majority of the earthquakes are centered near Kīlauea, but no part of the island is completely free of them. Figure 3-2, another U.S. Geological Survey drawing, shows the generalized locations of damaging earthquakes of magnitude 6 or greater that have occurred since 1868 on the Island. Information on those events in presented in Table 3-5.

Distinguishing between different levels of hazard for earthquakes is more difficult than for eruptions, and the USGS has not attempted it for the Island. For the purposes of structural design, nearly all of the Island of Hawai'i, including the Wai'aha area, is classified as Zone 3 by the Uniform Building Code adopted by the County of Hawai'i in 1993 (USGS 1994). All structures in the proposed project will be built to comply with the Uniform Building Codes for Earthquake Zone 3.

Figure 3-1 Recent Earthquakes on and Near the Island of Hawai'i, 1962-1985.

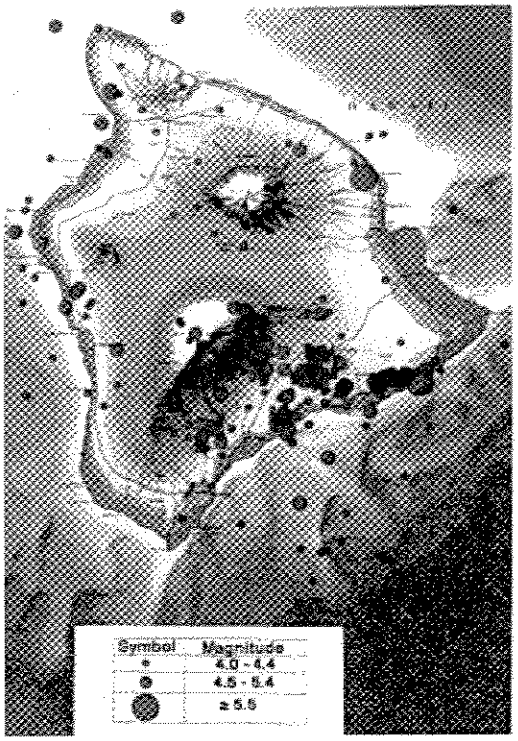
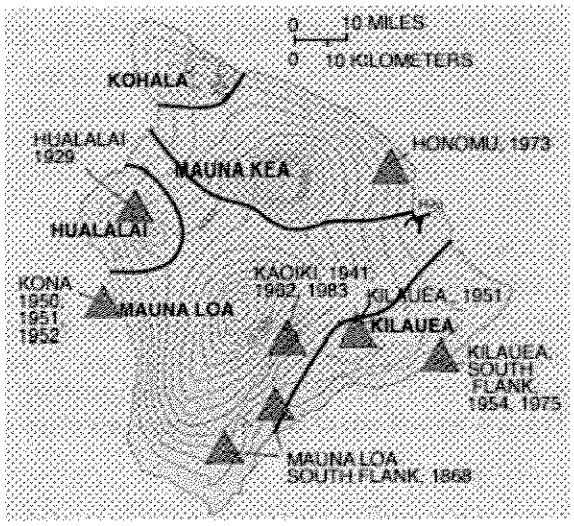


Figure 3-2 Generalized Locations of Damaging Earthquakes of Magnitude 6 or Greater Since 1868 on the Island of Hawai'i.



Source: Volcanic and Seismic Hazards on the Island of Hawai'i. Updated July 18, 1997

Table 3-5 Damaging Earthquakes of Magnitude 6 or Greater Since 1868 on the Island of Hawai'i.

Year	Date	Region	Magnitude	Depth (Mi)
1868	Mar. 28	Mauna Loa south flank	6.5-7.0*	No data
1868	Apr. 2	Mauna Loa south flank	7.5-8.1*	No data
1929	Oct. 5	Hualalai	6.5*	No data
1941	Sept. 25	Ka'oiki	6.0*	No data
1950	May 29	Mauna Loa southwest rift	6.2	No data
1951	Apr. 22	Kīlauea	6.3	20
1951	Aug. 21	Kona	6.9	5
1952	May 23	Kona	6.0	5
1954	Mar. 30	Kīlauea south flank	6.5	5
1962	June 27	Ka'oiki	6.1	6
1973	Apr. 26	Honomu	6.2	25
1975	Nov. 29	Kīlauea south flank	7.2	6
1983	Nov. 16	Ka'oiki	6.6	7
1989	June 25	Kīlauea south flank	6.1	9

Source: *Volcanic and Seismic Hazards on the Island of Hawai'i.* Updated July 18, 1997

3.11.3 FLOOD AND TSUNAMI HAZARDS

The proposed well site is not located within a designated Flood Hazard Safety Area (FHSA) nor within a Tsunami Evacuation area (State of Hawai'i 2002). However, the streambed of the Wai'aha Stream adjacent to the site is designated as an FHSA (Flood Zone A).

3.12 IMPACTS ON SCENIC AND AESTHETIC RESOURCES

As noted above, trees and topographic features will screen most of the facilities to be constructed from the highway below and the residences uphill from the site. No scenic viewpoints will be modified by the project. For these reasons, the project will not have any substantial impacts on scenic and aesthetic resources.

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

DWS has used the project site for water storage and treatment facilities for at least 50 years. Consequently, the proposed facilities do not constitute a change in use. The production well, replacement reservoir, and related facilities are similar to (and generally smaller than) the facilities that would be removed. The project will not affect recreational activities in the area. Neither would it alter views.

3.14 IMPACTS ON POPULATION AND ECONOMIC ACTIVITY

The proposed well and reservoir will increase DWS' total source and storage capacity in the North Kona District. This will allow the Department to meet the additional demand created by population growth that is occurring in accordance with approved County plans. Aside from the temporary

construction employment and expenditures that it would create, the project will not in and of itself stimulate or otherwise promote population growth or economic activity.

4.0 ALTERNATIVES CONSIDERED

DWS considered a number of alternatives before determining that the proposed project is the best course of action. These included "No Action", enhanced water conservation, development of new surface or well sources at other locations, and delayed action. The reasons the Department rejected these alternatives are discussed below.

4.1 NO ACTION ALTERNATIVE

The "No Action" Alternative consists of the continued reliance on the existing water sources and storage facilities for the North Kona system. The existing DWS sources serving the area are already producing water at rates that are beyond what is prudent for the long-term stability of the freshwater aquifer. According to the U.S. Census, the population of the North Kona District grew 28 per cent between 1990 an 2000 and the County forecasts that it will increase another 19% between 2000 and 2010 (see Section 1.1).

The "No Action" Alternative would force DWS to continue or increase withdrawals from these existing sources, possibly leading to deterioration in the quality of the water it is able to supply to its customers in North Kona. Alternately, it would leave it unable to meet its customers needs. Consequently, DWS believes that this is not a viable alternative.

4.2 ENHANCED WATER CONSERVATION ALTERNATIVE

The County of Hawai'i has already adopted measures to promote water conservation. For example, Section 29-1 of the Hawai'i County Code addresses water use and development. It acknowledges that the waters of the State are held for the benefit of the citizens of Hawai'i and that the State's citizens have a right to have those waters protected for their use. Chapter 29 of the Hawai'i County Code commits the County to actions needed to comply with the provisions of the State Water Code (Chapter 174C, Hawai'i Revised Statutes). Accordingly, the Hawai'i County Department of Water Supply has prepared a *Water Use and Development Plan* and updates the Plan periodically.

Chapter 17 of the Hawai'i County Code establishes specific design standards intended to promote water conservation. These include requirements that:

- Water supply faucets or valves have approved flow control devices which limit flow to a maximum three gallons per minute.
- Shower heads and kitchen faucets have approved flow control devices which limit flow to a maximum of 2.5 gallons per minute at 80 pounds per square inch (psi).
- Lavatory faucets have flow control devices which limit flow to a maximum of 2.0 gallons per minute at 60 psi.
- Tank-type water closets and urinals have volume limiting devices or methods which will limit the discharge to 1.6 gallons and 1 gallon per flush, respectively.
- New installations of equipment for cooling that use potable water for cooling at a rate exceeding one gallon per minute or operate more than 10 hours in a twenty-four hour period recirculate or reuse the cooling water.
- New decorative water features using potable water be designed to recirculate the water.

Implementation of these conservation measures has already reduced water use substantially. However, the greatest savings from these measures have already been realized, and DWS believes that it is very unlikely that further measures eliminate or substantially reduce the need for the new facilities that it is proposing as part of the Wai'aha Well project. Consequently, enhanced water conservation is not a viable alternative to the proposed action.

4.3 OTHER SOURCE DEVELOPMENT ALTERNATIVES

Because of the substantial groundwater flux through the general area, it is likely that wells drilled in other locations at similar high elevations would also be productive. While DWS could probably develop a production well elsewhere in the North Kona District, the proposed Wai'aha Well project has two characteristics that make it unlikely that a different location would be superior from an operational viewpoint. These are:

- The proposed location is an existing DWS facility that has a proven exploratory well in place. Other possible well locations would require the acquisition of property and drilling of a well in addition to the development of the production and storage facilities that are part of the proposed action. The attempted duplication of these existing assets would unnecessarily increase the project cost and would add the risk of drilling an unsuccessful exploratory well.
- The well's strategic location, approximately at the center and top of the North Kona water system, would provide additional flexibility and reliability to the water distribution system.

A detailed analysis of potential impacts from development of alternative water sources was beyond the scope of this assessment. However, in view of the absence of adverse effects documented above, it seems unlikely that other well locations might be better from an environmental standpoint.

4.4 DELAYED ACTION

As discussed above, current withdrawals from low-level wells in this aquifer threaten to contaminate the aquifer by salt-water intrusion. Once such an intrusion of saline waters into the aquifer occurs, there can be irreparable damage done to the aquifer, rendering it useless as a source of potable water. Because of the long lead-time necessary to develop a production well (see Table 1-2), it is undesirable to delay development of the well until salinity levels from the existing wells approach unacceptably high levels. Thus, DWS believes that delaying the construction of it proposed new production well and reservoir at the Wai'aha site would increase, rather than reduce, potential adverse environmental effects.

Because it would increases the risk to the aquifer, DWS does not consider delaying the proposed action a viable alternative.

5.0 RELATIONSHIPS TO RELEVANT PLANS, POLICIES & CONTROLS

5.1 COUNTY OF HAWAI'I GENERAL PLAN

5.1.1 APPLICABLE GOALS, POLICIES, AND RECOMMENDED ACTIONS

The Department of Water Supply operates and maintains over twenty separate water systems in the County of Hawai'i, including the North Kona System. The 2001 Draft Revision to the *Hawai'i County General Plan* contains goals and policies concerning the development and operation of essential water supply facilities. The *General Plan* recognizes that water supply facilities are needed to support the patterns of development which the *General Plan* seeks to achieve. It makes planning for the location of utility facilities such as wells, reservoirs, and pumping stations an integral part of the land planning process.

The *Draft 2001 General Plan* makes it the goal of the County to:

- Ensure that properly regulated, adequate, efficient and dependable public and private utility services are available to users.
- Maximize efficiency and economy in the provision of public utility services.
- Design public utility facilities that fit into their surroundings or are concealed from public view.

To achieve those goals, the *2001 Draft General Plan* makes it County policy to:

- Design public utility facilities so that they complement adjacent land uses and operate them so as to minimize pollution or disturbance.
- Encourage the use of properties or easements owned by public or private utility companies or agencies as supplemental open space and recreational areas.
- Provide utilities and service facilities that minimize total cost to the public and effectively service the needs of the community.
- Design utility facilities to minimize conflict with the natural environment and natural resources.
- Improve existing utility services to meet the needs of users.
- Develop capital improvement programs and plans for public utilities that are consistent with the *General Plan*.
- Coordinate water system improvements with the County's desired land use development pattern.
- Design and build facilities to Department of Water Supply standards.
- Improve and replace inadequate systems.
- Protect water sources from depletion and contamination.
- Install water system improvements first in areas that have established needs.
- Identify and develop sources of additional water supply needed to meet the future needs of high growth areas and agricultural production.

The *Draft 2001 Hawai'i County General Plan* identifies a number of actions to implement these policies in the North Kona District. Specifically, it directs DWS to:

- Continue to pursue groundwater source investigation, exploration and development in areas as needed to provide for anticipated growth.

- Construct reservoirs as needed.
- Explore and develop a well in Wai'aha.

5.1.2 CONFORMANCE WITH THE 2001 *HAWAI'I COUNTY GENERAL PLAN*

DWS constructed the existing Wai'aha Exploratory Well in accordance with the specific *General Plan* mandate to explore a well at Wai'aha. The production well that is part of the proposed action is responsive to the same directive.

The proposed project is designed to meet all applicable design standards. It will allow DWS to continue to meet the needs of the people of North Kona in a cost-effective manner while complying with the State Department of Health requirements for reliability and quality of potable water sources. The well is intended to allow DWS to reduce withdrawals from existing well sources that might otherwise be over used. The proposed well and ancillary facilities are located on a site that is already part of the DWS system; they fit into their surroundings and would be largely hidden from public view. The facility is allowable under existing State and County zoning and development regulations. Operation of the well would not produce substantial air or noise emissions that would disturb existing uses on adjacent properties.

5.2 COUNTY OF HAWAI'I ZONING ORDINANCE

The Hawai'i County Code (2000 Edition), Section 25-4-11(b) states:

> *Any substation used by a public utility for the purpose of furnishing telephone, gas, electricity, water, radio, or television shall be a permitted use in any district provided that the use is not hazardous or dangerous to the surrounding area and the director has issued plan approval for such use.*

The proposed well and reservoir would be a public utility that would furnish water for the North Kona community and would thus qualify as a permitted use under this regulation. DWS will submit an *Application for Plan Approval* to the County Department of Planning to obtain the necessary director's approval for the project.

5.3 STATE OF HAWAI'I LAND USE

As discussed in Section 2.13, the site is in the State Agriculture District. HRS Chapter 205 §205-4.5 (7) lists public utility facilities such as those that are proposed as permissible uses within the State Agricultural District.

5.4 ARCHEOLOGICAL AND HISTORIC PRESERVATION ACTS

The results of investigations conducted during preparation of this document indicate that the proposed Wai'aha Well Project is consistent with the Archeological and Historic Preservation Act (16 U.S.C. § 469a-1) and the National Historic Preservation Act (16 U.S.C. § 470(f)). It is also consistent with all applicable State historic preservation requirements, including Hawai'i Revised Statutes Chapter 6E - Historic Preservation and Hawaii Administrative Rules §13-198 and §13-300. As discussed in Section 3.9, the project site is located in an area that has been used as a DWS facility for at least 50 years, and no known archaeological or historic features exist at the site. Project planners consulted with the State of Hawai'i Historic Preservation Division (SHPD) of the Department of Land and Natural Resources and contacted the Office of Hawaiian Affairs during preparation of this report. The SHPD finding of "No Significant Effect" is reproduced in Appendix B. Both agencies were provided copies of this *Draft EA*. Neither of these agencies provided further comment on the project.

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

As discussed in Sections 2.5 and 3.5, air quality at the Wai'aha Well site is good. It 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 during construction of the project. This and the wet climate mean that fugitive dust will not be a problem during construction. Most of the demolition that is required involves steel structures and does not have the potential to release substantial amounts of particulate matter. Investigations of the potential for hazardous materials to be released during demolition indicate that the site is generally free of heavy metals but does contain some asbestos and lead-based paint. DWS will contract with qualified consultants to monitor and inspect the removal activities that affect these facilities to ensure compliance with applicable Federal and State regulations.

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. Some of this will be offset by decreased electrical use at other DWS facilities. The increase represents such a small portion of total power use that its effect not be significant in and of itself.

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

Enacted as Chapter 205A, HRS, the Hawai'i 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 tsunami, 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 Hawai'i CZM program.

The proposed Wai'aha Well project is located more than 2.5 miles from the coastline. It does not involve the placement, erection, or removal of materials near the coastline. As documented in this environmental assessment, the type and scale of the activities that it involves 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 the *Draft EA* was sent to the Office of Coastal Zone Management at the State of Hawai'i Department of Business, Economic Development, and Tourism. The office declined to comment of the project.

5.5.2 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. It provides 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.

Sections 2.7, 3.6, and 3.7 of this EA discuss existing biota on and near the project site. The discussion documents the fact that there are no known rare or endangered species on or immediately adjacent to the project site. 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 for review and comment, but they declined to comment on the project.

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

The Federal Fish and Wildlife Coordination Act, as amended, authorizes the Secretaries of Agriculture and Commerce to require consultation with the U.S. 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 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. Floodplain Management (42 U.S.C. § 4321) but did not provide any written comments on the project.

Based on the latest available (December, 2001) Flood Insurance Rate Map for the area, the project site 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.

5.5.4 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 SDWA requires that all public water systems meet stringent water quality standards. These standards cover a long list of potential chemical, radiological and biological contaminants.

As discussed in Section 1.1, the primary purpose of the proposed Wai'aha Well project is to permit continued compliance of the North Kona Water System with the standards mandated pursuant to the Act, by providing a source of high quality freshwater for the system. Before connecting the new Wai'aha Production Well to its existing system, DWS will test water from it 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 Wai'aha Well project is located.

5.5.5 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.

6.0 DETERMINATION

6.1 SIGNIFICANCE CRITERIA

Hawai'i 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. Hawai'i 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 view planes identified in county or state plans or studies; or,*
13. *Requires substantial energy consumption.*

6.2 FINDINGS

The DWS evaluated the potential effects of the proposed project described earlier in this document using these significance criteria. The findings with respect to each criterion are summarized below:

6.2.1 IRREVOCABLE LOSS OR DESTRUCTION OF VALUABLE RESOURCE

The proposed project would be constructed on already developed land at 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 and operation will not curtail beneficial uses of the site. The water that the DWS proposes to withdraw 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. The project would significantly enhance the utility of the Wai'aha site for North Kona customers of DWS.

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, Hawai'i 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 salt-water intrusion.

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 North Kona and to accommodate the likely growth provided for in the *County of Hawai'i General Plan*. It will not have a substantial adverse effect on economic or social welfare except insofar as it allows 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 will 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. Instead, it will only support development already authorized by the *County of Hawai'i General Plan*.

6.2.7 SUBSTANTIALLY DEGRADE ENVIRONMENTAL QUALITY

The proposed project will not have substantial long-term environmental effects. Noise from construction and demolition activities 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 construction 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

Development of the proposed well and reservoir is not a commitment to a larger action and is not intended to facilitate substantial population growth. Instead, it is intended primarily to replace existing water withdrawals from low-level sources. Continued withdrawals from these low-level sources at the current rates have the potential of harming the potable water quality in the system and even irreparably damaging the aquifer.

6.2.9 AFFECTS ON RARE, THREATENED, OR ENDANGERED SPECIES

The proposed project will be constructed on an already developed site. 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 near the proposed project. The Island of Hawai'i as a whole is subject to certain geologic hazards, such as earthquakes and lava flows. The project site is above the tsunami evacuation zone and is not any more subject to lava flows than any other prospective well site in the region. The structures built as part of the well and reservoir 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, water storage tank, and equipment building are small and will comprise only a small incremental change to the already developed facility. Because the existing tanks and other equipment that will be removed are larger than the new facilities that will replace them, there will be more open space on the parcel after the project is implemented than at present. The proposed new facilities are not within 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 new well will require more energy than is used for the withdrawals from the low-level wells. The increase is relatively small, however, and would be largely, if not completely, offset by a decrease in the electrical energy that is now used to pump water from low level sources to users located at elevations that can be served by gravity from the proposed Wai'aha Reservoir.

6.3 DETERMINATION

In view of the foregoing, 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.

7.0 BIBLIOGRAPHY

CWRM (State of Hawai'i Commission on Water Resource Management). (1995) *Ground Water Hydrologic Units.* In Water Data Section of CWRM web site. URL: http://www.state.hi.us/dlnr/cwrm/data/maps.htm

County of Hawai'i (2001) *County of Hawai'i General Plan Revision.* County of Hawai'i Planning Department, December 21, 2001.

DOH (State of Hawai'i Department of Health) (1998) *Groundwater Contamination Maps for the State of Hawai'i, 1997/1998, 1998.* Environmental Health Division, Safe Drinking Water Branch. URL: http://www.state.hi.us/health/eh/sdwb/conmaps.htm

DOH (State of Hawai'i Department of Health) (2000a) *Facilities, Sites, or Areas in which HEER has an Interest.* URL: http://www.state.hi.us/health/eh/heer/records.html

DOH (State of Hawai'i Department of Health) (2000b) *Classification of Hawaii State Waters.* URL: http://www.state.hi.us/health/eh/cwb/wqmaps/wqstand.htm

Juvik, S.P., J.O. Juvik, and T.R. Paradise (1998) *Atlas of Hawai'i, Third Edition.* University of Hawai'i Press, Honolulu, 333 p.

Macdonald, G.A., A.T. Abbott, and F.L. Peterson. (1983). *Volcanoes in the Sea: The Geology of Hawai'i.* 2nd Edition. Honolulu: University Press, 517 p.

Moore, R.B., D.A. Clague, R. Meyer, and W.A. Bohrson, (1987). *Hualalai Volcano: A preliminary summary of Geologic, Petrologic, and Geophysical data,* In: *Volcanism in Hawaii,* USGS Professional Paper 1350, pages 571-585.

NOAA (National Oceanic and Atmospheric Administration) (2002) *CLIMATOGRAPHY OF THE UNITED STATES NO. 81: Monthly Station Normals of Temperature, Precipitation, and Heating and Cooling, Degree Days1971 - 2000* . 51 Hawai'i. 21 p.

Sato, H.H., W. Ikeda, R. Paeth, R. Smythe, and M. Takehiro, Jr. (1973) *Soil Survey of the Island of Hawaii, State of Hawaii.* U.S. Dept. of Agriculture, Soil Conservation Service in cooperation with the University of Hawai'i Agricultural Experiment Station.

State of Hawai'i (2001) *Hawaii Statewide GIS Program.* Office of Planning, Department of Business, Economic Development and Tourism. URL: http://www.hawaii.gov/dbedt/gis/

USGS (United States Geological Survey) (1987) *Lava Flow Hazard Zone Maps.* Compiled by USGS Staff members Donal Mullineaux and Donald Peterson. URL: http://pubs.usgs.gov/gip/hazards/maps.html

USGS (United States Geological Survey) (1997). *Earthquake Hazards.* Compiled by USGS Staff Kathie Watson. URL: http://pubs.usgs.gov/gip/hazards/earthquakes.html

USGS (United States Geological Survey) (1994). *Seismic Hazards on the Island of Hawai'i.* URL: http://wwwhvo.wr.usgs.gov/volcanowatch/1994/94_08_05.html

8.0 PARTIES CONSULTED

8.1 DRAFT ENVIRONMENTAL ASSESSMENT DISTRIBUTION

Table 8-1 lists the organizations contacted in the development of this Draft EA (DEA).

Table 8-1 Organizations Contacted in Preparation of the Draft EA

State Agencies
Office of Environmental Quality Control
Department of Land & Natural Resources, Historic Preservation Division
County of Hawai'i
Department of Environmental Management, Solid Waste Division
Department of Planning
Source: Planning Solutions, Inc.

On January 23, 2003, the DEA was distributed to the individuals and organizations listed in Table 8-2. The cover letter sent with each copy of the DEA is reproduced here as Figure 8-1.

Table 8-2 Preliminary 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, CZM Office
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
County of Hawai'i	
Planning Department	Fire Department
Department of Parks and Recreation	Department of Environmental Management, Solid Waste Division
Other Organizations	
Environmental Reporter, *Honolulu Star-Bulletin*	Environmental Reporter, *West Hawai'i Today*
Environmental Reporter, *Hawai'i Tribune Herald*	
Libraries and Depositories	
Hawai'i State Library Hawai'i Documents Center	Hilo Regional Public Library
University of Hawai'i, Hilo Campus Library	Kailua-Kona Regional Library
Holualoa Public Library	

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January 23, 2003

Subject: Wai'aha Production Well and Reservoir
Draft Environmental Assessment/Anticipated Finding of No Significant Impact

A copy of the Draft Environmental Assessment (DEA) for the proposed Wai'aha Production Well and Reservoir project is enclosed. An announcement of its availability appeared in the January 23, 2003, edition of *The Environmental Notice* published by the State Office of Environmental Quality Control (OEQC).

DWS proposes to convert an existing exploratory well on its Wai'aha Reservoir Site to a production well. It will remove existing, unused facilities and install the systems to operate the new well. Electrical power for the permanent pump motor will be drawn from an existing overhead power line. It will install a single 2-million gallon storage tank (36' high, diameter 103') and a single-story, 660 square-foot, control building on land now occupied by abandoned facilities. Water from the well will augment water from the present water sources in the southern portion of the North Kona Water System.

As indicated in the DEA, the Department of Water Supply has concluded that construction and operation of the well and reservoir would not have substantial adverse impacts on the environment. It proposes to mitigate short-term construction impacts on nearby residents by requiring the selected contractor to incorporate mitigation measures in its work program. Consequently, it anticipates a Finding of No Significant Impact (FONSI) for the project.

We would appreciate it if you would review the DEA/Anticipated FONSI and write to us with any comments or suggestions. If you have any questions or would like additional information before reaching a conclusion, please call Mr. Charles Morgan or me at (808) 593-1288.

Sincerely,

Perry J. White

Enclosure: *Draft Environmental Assessment, Wai'aha Production Well and Reservoir*

cc: Office of Environmental Quality Control (w/o Attachment)
Mr. Milton D. Pavao, Hawaii County DWS (w/o Attachment)

Figure 8-1. General Distribution Letter Sent With Draft Environmental Assessment

Copies of the DEA were also sent to the neighboring landowners. Table 8-3 lists the names and Tax Map Key numbers of these neighbors, and the cover letter that accompanied these copies is presented here as Figure 8-2.

Table 8-3 Neighboring Landowners Sent Copies of the Draft Environmental Assessment

Landowner Name	*Property Tax Map Key(s)*
Skip D. Dahlen	7-5-14:01, 02 and 26
Susan Bird	7-5-15:16
Sara J. Peck	7-5-15:09
Stephen Murata	7-5-16-:33
Norman E. Nakamoto	7-5-16:34
Melvin T. Kunishima	7-5-16:51
Douglas D. Troxel	7-5-16:35 and 50

Source: Planning Solutions, Inc. and County of Hawai'i Dept. of Water Supply, Engineering Division

8.2 WRITTEN COMMENTS RECEIVED AND RESPONSES

In response to the above distribution, we received written comments on the DEA from the parties listed in Table 8-4. Copies of those letters and our responses to them are included at the end of this section. For ease of reference, each comment letter is designated by a number, listed in this table and reproduced on the copy of the comment letter. The State of Hawai'i Historic Preservation Department (SHPD) responded to earlier consultation to confirm the unlikelihood of and significant historic features at the project site. The earlier letter is included here as Appendix B. SHPD did not comment further on the DEA.

PLANNING
SOLUTIONS

1210 AUAHI STREET, SUITE 221
HONOLULU, HAWAII 96814
Phone: 808 593-1288
Fax: 808 593-1956

March 12, 2003

Subject: Wai'aha Production Well and Reservoir
Draft Environmental Assessment/Anticipated Finding of No Significant Impact

I am writing to you because you own property adjacent to the land on which the Hawai'i County Department of Water Supply's Wai'aha Well and Reservoir Facilities are located. DWS proposes to convert an existing exploratory well on the property to a production well. It will remove existing, unused facilities and install the pump, piping, and control systems needed to operate the new well. Electrical power for the permanent pump motor will be drawn from an existing overhead power line. It will install a single 2-million gallon storage tank (36' high, diameter 103') and a single-story, 660 square-foot, control building on land now occupied by abandoned facilities. Water from the well will augment water from the present water sources in the southern portion of the North Kona Water System.

A copy of the *Draft Environmental Assessment (DEA) for the proposed Wai'aha Production Well and Reservoir project* is enclosed. An announcement of its availability appeared in the January 23, 2003, edition of *The Environmental Notice* published by the State Office of Environmental Quality Control (OEQC). As indicated in the DEA, the Department of Water Supply has concluded that construction and operation of the well and reservoir would not have substantial adverse impacts on the environment. It proposes to mitigate short-term construction impacts by requiring the selected contractor to incorporate mitigation measures in its work program.

We would appreciate it if you would review this document and provide any comments you may have to us by April 14, 2003. If you have any questions or would like additional information before reaching a conclusion, please call me at (808) 593-1288.

Sincerely,

Perry J. White

Enclosure: *Draft Environmental Assessment, Wai'aha Production Well and Reservoir*

cc: Office of Environmental Quality Control (w/o Attachment)
Mr. Milton D. Pavao, Hawaii County DWS (w/o Attachment)

Figure 8-2 Cover Letter Accompanying Draft EA Sent to Neighboring Landowners

Table 8-4 Written Comments Received

Name& Title of Commenter	*Organization*	*Letter Number*
Gordon Tribble, District Chief	U.S. Geological Survey, Water Resources Office, Honolulu	1
Raynor Minami, Director, Facilities & Support	State of Hawai'i Department of Education	2
Desmond K. Wery, Deputy Fire Chief	County of Hawai'i Fire Department	3
James Pennaz, Chief, Civil Works Technical Branch	Department of the Army	4
James E.T. Moncur, Director	University of Hawai'i at Mānoa, Water Resources Center	5
Russ K. Saito, State Comptroller	State of Hawai'i Department of Accounting and General Services	6
June F. Harrigan-Lum, Manager, Environ. Planning	State of Hawai'i Department of Health	7
Patricia Englehard, Director	County of Hawai'i Department of Parks and Recreation	8
Genevieve Salmonson, Director	State of Hawai'i Office of Environmental Quality Control	9
Edward T. Teixeira, Vice Director of Civil Defense	State of Hawai'i Department of Defense, Office of the Director of Civil Defense	10

Source: Compiled by Planning Solutions, Inc.

#1

United States Department of the Interior

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

January 31, 2003

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

Dear Mr. White:

Subject: Wai'aha Production Well and Reservoir
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

#1

PLANNING SOLUTIONS

1210 AUAHI STREET SUITE 221
HONOLULU, HAWAII 96814
Phone 808 593 1288
Fax 808 593-1959

April 28, 2003

Dr. 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), Wai'aha Production Well and Reservoir

Dear Dr. Tribble:

Thank you for your January 31, 2003 letter to the Department of Water Supply concerning the *Draft Environmental Assessment (DEA)* for the proposed Wai'aha Well and Reservoir Project. We regret that you were unable to review the *DEA*.

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

Sincerely,

Perry J. White
Project Consultant

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

[redacted]
LINDA LINGLE
GOVERNOR

PATRICIA HAMAMOTO
SUPERINTENDENT

#2

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

OFFICE OF BUSINESS SERVICES

February 4, 2003

Mr. Perry J. White
Planning Solutions
1210 Auahi Street, Suite 221
Honolulu, Hawai'i 96814

Dear Mr. White:

Subject: Wai'aha Production Well and Reservoir, Wai'aha, North District, Hawai'i; TMK: 5-7-14:16, 7-5-15:8, and 7-5-15:15

The Department of Education (DOE) has reviewed the Draft Environmental Assessment (DEA) for the proposed Wai'aha well and reservoir. The Hawaii County Department of Water Supply (DWS) would like to convert an exploratory well into a production well. DWS would install a storage tank and construct a control building. The DOE has no comments on the proposed project but appreciates the opportunity to review plans.

Sincerely,

Raynor M. Minami, Director
Facilities and Support Services Branch

RMM:mp

cc: P. Hamamoto, Superintendent
A. Suga, OBS

AN AFFIRMATIVE ACTION AND EQUAL OPPORTUNITY EMPLOYER

#2

PLANNING SOLUTIONS
1210 AUAHI STREET, SUITE 221
HONOLULU, HAWAII 96814
Phone: 808 593-1288
Fax: 808 593-1966

April 28, 2003

Mr. Raynor M. Minami, Director
Facilities and Support Services Branch
Department of Education
State of Hawai'i
P.O. Box 2360
Honolulu, HI 96804

Subject: Draft Environmental Assessment, Wai'aha Production Well and Reservoir

Dear Mr. Minami:

Thank you for your February 4, 2003 letter commenting on the Department of Water Supply's *Draft Environmental Assessment* for the proposed Wai'aha Production Well and Reservoir Project. We appreciate the time you and your staff spent reviewing the document and providing written comments. We understand that the Department has no comments on the project.

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

Sincerely,

Perry J. White
Project Consultant

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

#3

Harry Kim
Mayor

Darryl J. Oliveira
Fire Chief

Desmond K. Wery
Deputy Fire Chief

County of Hawai'i
FIRE DEPARTMENT
25 Aupuni Street • Suite 103 • Hilo, Hawai'i 96720
(808) 961-8297 • Fax (808) 961-8296

February 5, 2003

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

Dear Mr. White:

RE: WAI'AHA PRODUCTION WELL AND RESERVOIR
DRAFT ENVIRONMENTAL ASSESSMENT/ANTICIPATED FINDING OF NO SIGNIFICANT IMPACT

This responds to your request for comments on the above-referenced Draft Environmental Assessment.

We have no comments to offer at this time regarding the Draft EA.

Thank you for the opportunity to comment.

Sincerely,

DESMOND K. WERY
Deputy Fire Chief

RK:lk

#3

PLANNING SOLUTIONS
1210 AUAHI STREET, SUITE 221
HONOLULU, HAWAII 96814
Phone: 808 593-1288
Fax: 808 593-1850

April 28, 2003

Mr. Desmond K. Wery, Deputy Fire Chief
County of Hawai'i Fire Department
25 Aupuni Street, Suite 103
Hilo, HI 96720

Subject: Draft Environmental Assessment, Wai'aha Production Well and Reservoir

Dear Mr. Wery:

Thank you for your February 5, 2003 letter commenting on the Department of Water Supply's *Draft Environmental Assessment* for the proposed Wai'aha Production Well and Reservoir Project. We appreciate the time you and your staff spent reviewing the document and providing written comments.

We understand that the Department has no comments to offer on the project at this time. If you have any further questions concerning the project, please call me at (808) 593-1288.

Sincerely,

Perry J. White
Project Consultant

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

#4

DEPARTMENT OF THE ARMY
U.S. ARMY ENGINEER DISTRICT, HONOLULU
FORT SHAFTER, HAWAII 96858-5440

REPLY TO
ATTENTION OF: CEPOH-EC-T

February 17, 2003

Civil Works Technical Branch

Mr. Perry 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 Waiaha Production Well and Reservoir Project, Oahu (TMKs 7-5-14: 16 and 7-5-15: 8 and 15). 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 provided no work is performed below the ordinary high water line of Waiaha Stream.

b. The flood hazard information provided on page 2-14 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, P.E.
Chief, Civil Works
Technical Branch

#4

PLANNING SOLUTIONS
1210 AUAHI STREET SUITE 221
HONOLULU, HAWAII 96814
Phone 808 593-1288
Fax 808 593-1956

April 28, 2003

Mr. James Pennaz, Chief
Civil Works Technical Branch
Department of the Army
Honolulu Engineer District
Fort Shafter, Hawai'i 96858-5440

Subject: Draft Environmental Assessment (DEA), Wai'aha Production Well and Reservoir

Dear Mr. Pennaz:

Thank you for your February 17, 2003 letter commenting on the Department of Water Supply's *Draft Environmental Assessment* for the proposed Wai'aha Production Well and Reservoir Project. We appreciate the time you and your staff spent reviewing the document and providing written comments.

We appreciate your confirmation that a Department of the Army permit will not be required for the project and that the flood hazard information provided on page 2-14 of the DEA is correct.

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

Sincerely,

Perry J. White
Project Consultant

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

UNIVERSITY OF HAWAI'I AT MĀNOA
Water Resources Research Center

#5

February 7, 2003

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

Dear Mr. White:

Thank you for the opportunity to review the draft environmental assessment for the proposed Wai'aha Production Well and Reservoir project.

My colleague, Dr. Roger Fujioka, read the report and feels that the project is needed, environmental impacts are not likely to be significant, and the work plans appear very reasonable.

I am returning your report herein.

Sincerely,

James E.T. Moncur

James E.T. Moncur
Director

Holmes Hall 283, 2540 Dole Street, Honolulu, HI 96822
Telephone (808) 956-7847, Facsimile (808) 956-5044, Web site: www2.hawaii.edu/~wrrc/WRRC.html

#5

PLANNING SOLUTIONS
1210 AUAHI STREET, SUITE 221
HONOLULU, HAWAII 96814
Phone: 808 480-1288
Fax: 808 593-1058

April 28, 2003

Dr. James Moncur, Director
U.H. Water Resources Research Center
Holmes Hall 283, 2540 Dole Street
Honolulu, HI 96822

Subject: Draft Environmental Assessment (DEA), Wai'aha Production Well and Reservoir

Dear Dr. Moncur:

Thank you for your February 7, 2003 letter commenting on the Department of Water Supply's *Draft Environmental Assessment* for the proposed Wai'aha Well and Reservoir Project. We appreciate the time that you and Dr. Fujioka spent reviewing the report.

We are pleased that Dr. Fujioka shares the Department of Water Supply's belief that the project is needed and that it is unlikely to have significant effects. Thank you also for indicating that the work plan is reasonable.

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

Sincerely,

Perry J. White
Project Consultant

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

#6

LINDA LINGLE
GOVERNOR

RUSS K. SAITO
COMPTROLLER

KATHERINE H. THOMASON
DEPUTY COMPTROLLER

(P)1038.3

STATE OF HAWAII
DEPARTMENT OF ACCOUNTING AND GENERAL SERVICES
P.O. BOX 119, HONOLULU, HAWAII 96810

FEB 12 2003

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

Dear Mr. White:

Subject: Waiaha Production Well and Reservoir, Hawaii
Draft Environmental Assessment/Anticipated Finding of No Significant Impact

Thank you for the opportunity to review the subject project's Draft Environmental Assessment/Anticipated Finding of No Significant Impact. The project does not directly impact any of the Department of Accounting and General Services' projects or existing facilities. Therefore, we have no comments to offer.

If there are any questions regarding the above, please have your staff call Mr. Bruce Rennet of the Public Works Division at 586-0491.

Sincerely,

RUSS K. SAITO
State Comptroller

c: Mr. Milton D. Pavao, Hawaii County DWS
Ms. Genevieve Salmonson, OEQC

#6

PLANNING SOLUTIONS
1210 AUAHI STREET SUITE 221
HONOLULU, HAWAII 96814
Phone 808 593 1288
Fax 808 526-1958

April 28, 2003

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

Subject: Draft Environmental Assessment (DEA), Wai'aha Production Well and Reservoir

Dear Mr. Saito:

Thank you for your February 12, 2003 letter commenting on the Department of Water Supply's *Draft Environmental Assessment* for the proposed Wai'aha Production Well and Reservoir Project. We appreciate the time that you and your staff spent reviewing the document and drafting your letter.

We are pleased that it would not adversely affect any of your projects or facilities and understand that you have no comments to offer. If you have any further questions concerning the project, please call me at (808) 593-1288.

Sincerely,

Perry J. White
Project Consultant

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

#7

LINDA LINGLE
GOVERNOR OF HAWAII

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

CHIYOME L. FUKINO, M.D.
DIRECTOR OF HEALTH

In reply, please refer to
File:

03-022/epo

February 12, 2003

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

Dear Mr. White.

Subject: Draft Environmental Assessment (DEA)
Waiaha Production Well And Reservoir
TMK: 7-5-014:016, 7-5-015:008 & 015

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:

Clean Water Branch (CWB)

1. The Army Corps of Engineers should be contacted to identify whether a Federal permit (including a Department of Army permit) is required for this project. Pursuant to Section 401(a)(1) of the Federal Water Pollution Act (commonly known as the "Clean Water Act"), a Section 401 Water Quality Certification is required for "[a]ny applicant for Federal license or permit to conduct any activity including, but not limited to, the construction or operation of facilities, which may result in any discharge into the navigable waters...."

2. A National Pollutant Discharge Elimination System (NPDES) general permit coverage is required for the following activities:

   a. Storm water associated with industrial activities, as defined in Title 40, Code of Federal Regulations, Sections 122.26(b)(14)(i) through 122.26(b)(14)(ix) and 122.26(b)(14)(xi);

      (Note; After March 10, 2003, an NPDES permit will be required for construction activities, including clearing, grading, and excavation that result in the disturbance of one (1) acre or more.)

   b. 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. **An NPDES permit is required before the commencement of the construction activities.**

   c. Discharge of treated effluent from leaking underground storage tank remedial activities;

   d. Discharge of once through cooling water less than one (1) million gallons per day;

   e. Discharge of hydrotesting water;

   f. Discharge of construction dewatering effluent;

   g. Discharge of treated effluent from petroleum bulk stations and terminals;

   h. Discharge of treated effluent from well drilling activities;

   i. Discharges of treated effluent from recycled water distribution systems;

   j. Discharges of storm water from a small municipal separate storm sewer system; and

   k. Discharge of circulation water from decorative ponds or tanks.

   The CWB requires that a Notice of Intent (NOI) to be covered by a NPDES general permit for any of the above activities be submitted at least 30 days before the commencement of the respective activities. The NOI forms may be picked up at our office or downloaded from our website at http://www.state.hi.us/doh/eh/cwb/forms/genl-index.html.

3. The applicant may be required to apply for an individual NPDES permit if there is any type of activity in which wastewater is discharged from the project into State waters, and/or coverage of the discharge(s) under the NPDES general permit(s) is not permissible. An application for the NPDES permit is to be submitted at least 180 days before the commencement of the activities. The NPDES application forms may also be picked up at our office or downloaded from our website at http://www.state.hi.us/doh/eh/cwb/forms/indiv-index.html.

4. Hawaii Administrative Rules, Section 11-55-38, also requires the owner to either submit a copy of the NOI or NPDES permit application to the State Department of Land and Natural Resources, State Historic Preservation Division (SHPD) or demonstrate to the satisfaction of the DOH that the project, activity, or site covered by the NOI or application has been or is being reviewed by SHPD.

If you have any questions, please contact the CWB at (808) 586-4309.

Solid and Hazardous Waste Branch (SHWB)

1. The Office of Solid Waste Management recommends recycling construction and demolition wastes, if appropriate. The developer shall ensure that all solid waste generated during project construction is directed to a Department of Health permitted solid waste disposal or recycling facility.

2. If the Department of Water Supply, county of Hawaii, plans to install an underground storage tank (UST) as part of the system to operate the new well, they will be subject to state UST requirements. The installation of any new UST *must* comply with existing State, Federal, and City & County Fire Department regulations. The Department of Health has adopted new UST rules requiring a permit for all regulated UST installed after January 28, 2000. For the removal of UST, the Solid and Hazardous Waste Branch (SHWB) must be notified 30 days prior to any activity. The removal of UST must follow the Department of Health guidelines for site assessment following removal activities.

If you have any questions, please contact the Solid and Hazardous Waste Branch at (808) 586-4226.

Sincerely,

June F. Harrigan-Lum

JUNE F. HARRIGAN-LUM
Manager
Environmental Planning Office

c: CWB
SHWB

#7

PLANNING SOLUTIONS
1210 AUAHI STREET, SUITE 221
HONOLULU, HAWAII 96814
Phone: 808 990-1285
Fax: 808 593-1855

April 28, 2003

Ms. June F. Harrigan-Lum, Manager
Environmental Planning Office
Department of Health
State of Hawai'i
P.O. Box 3378
Honolulu, HI 96801-3378

Subject: Draft Environmental Assessment (DEA), Wai'aha Production Well and Reservoir

Dear Ms. Harrigan-Lum:

Thank you for your February 12, 2003 letter commenting on the Department of Water Supply's *Draft Environmental Assessment* (*DEA*) for the proposed Wai'aha Production Well and Reservoir 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.

Clean Water Branch (CWB)

1. *The Army Corps of Engineers should be contacted to identify whether a Federal permit (including a Department of Army permit) is required this project. Pursuant to Section 401(a)(1) of the Federal Water Pollution Act (commonly known as the "Clean Water Act"), a Section 401 Water Quality Certification is required for "[a]ny applicant for Federal license or permit to conduct any activity including, but not limited to, the construction or operation of facilities, which may result in any discharge into the navigable waters....*

Response: We contacted the Corps of Engineers (COE) during the preparation of the *EA*. As stated in its letter commenting on the *DEA* (see attached), the COE has determined that a Department of the Army permit will not be required for the project.

2. *A National Pollutant Discharge Elimination System (NPDES) general permit coverage is required for the following activities:*

   a. Storm water associated with industrial activities, as defined in Title 40, Code of Federal Regulations, Sections 122.26(b)(14)(i) through 122.26(b)(14)(ix) and 122.26(b)(14)(xi); (Note: After March 10, 2003, an NPDES permit will be required for construction activities, including clearing, grading, and excavation that result in the disturbance of one (1) acre or more.)

   b. 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. An NPDES permit is required before the commencement of the construction activities.

c. Discharge of treated effluent from leaking underground storage tank remedial activities;

d. Discharge of once through cooling water less than one (1) million gallons per day;

e. Discharge of hydrotesting water;

f. Discharge of construction dewatering effluent;

g. Discharge of treated effluent from petroleum bulk stations and terminals;

h. Discharge of treated effluent from well drilling activities,

i. Discharges of treated effluent from recycled water distribution systems;

j. Discharges of storm water from a small municipal separate storm sewer system; and

k. Discharge of circulation water from decorative ponds or tanks.

The CWB requires that a Notice of Intent (NOI) to be covered by a NPDES general permit for any of the above activities be submitted at least 30 days before the commencement of the respective activities.

3. *The applicant may be required to apply for an individual NPDES permit if there is any type of activity in which wastewater is discharged from the project into State waters, and/or coverage of the discharge(s) under the NPDES general permit(s) is not permissible. An application for the NPDES permit is to be submitted at least 180 days before the commencement of the activities. The NPDES application forms may also be picked up at our office or downloaded from our website at http://www.state.hi.us/doh/eh/cwb/forms/indiv-index.html.*

4. *Hawaii Administrative Rules, Section 11-55-38, also requires the owner to either submit a copy of the NOI or NPDES permit application to the State Department of Land and Natural Resources, State Historic Preservation Division (SHPD) or demonstrate to the satisfaction of the DOH that the project, activity, or site covered by the NOI or application has been or is being reviewed by SHPD.*

Response: The area disturbed for the project will be substantially smaller than one acre (see Section 1.3.1 of the *DEA*). Consequently, a construction NPDES permit will not be required.

The proposed project does not involve any of the other discharges you noted. More specifically, the DWS will not discharge treated effluent from leaking underground storage tank remedial activities, once-through cooling water, hydro-testing water, construction dewatering effluent, treated effluent from petroleum bulk stations and terminals, treated effluent from well drilling activities, treated effluent from recycled water distribution systems, storm water from a small municipal separate storm sewer system, or circulation water from decorative ponds or tanks. Consequently, DWS anticipates that no NPDES discharge permits will be required for the project. Absent the need for an NPDES discharge permit, there is no need for the SHPD clearance specified in HAR §11-55-38.

Solid and Hazardous Waste Branch (SHWB)

1. *The Office of Solid Waste Management recommends recycling construction and demolition wastes, if appropriate. The developer shall ensure that all solid waste generated during project construction is directed to a Department of Health permitted solid waste disposal or recycling facility.*

Response: All non-hazardous construction and demolition wastes will be disposed at DOH-permitted County of Hawai'i Landfills. Construction wastes will be recycled to the extent it is practically and economically feasible. As described in Section 3.5.1.2 of the *DEA*, demolition activities will be carefully monitored and controlled to prevent potentially hazardous emissions of asbestos and lead and to ensure compliance with applicable State and Federal standards.

2. *If the Department of Water Supply, county of Hawaii, plans to install an underground storage tank (UST) as part of the system to operate the new well, they will be subject to state UST requirements. The installation of any new UST must comply with existing State, Federal, and City & County Fire Department regulations. The Department of Health has adopted new UST rules requiring a permit for all regulated UST installed after January 28, 2000. For the removal of UST, the Solid and Hazardous Waste Branch (SHWB) must be notified 30 days prior to any activity. The removal of UST must follow the Department of Health guidelines for site assessment following removal activities.*

Response: The project does not include the installation of any underground storage tanks, and therefore the Department of Water Supply does not anticipate the need for such permitting.

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

Sincerely,

Perry J. White
Project Consultant

Enclosure: Dept. of the Army Response Letter (#4)

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

#8

Harry Kim
Mayor

Patricia G. Engelhard
Director

Pamela N. Mizono
Deputy Director

County of Hawai'i
DEPARTMENT OF PARKS AND RECREATION
101 Pauahi Street, Suite 6 • Hilo, Hawai'i 96720
(808) 961-8311 • Fax (808) 961-8411

February 14, 2003

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

Re: Wai'aha Production Well and Reservoir, North Kona
Draft EA/Anticipated FONSI

Dear Mr. White:

We have reviewed the Draft EA and have no adverse comments to offer.

Thank you for the opportunity to review the report.

Sincerely,

Patricia Engelhard
Director

#8

PLANNING SOLUTIONS
1210 AUAHI STREET, SUITE 221
HONOLULU, HAWAII 96814
Phone: 808 593-1288
Fax: 808 593-1955

April 28, 2003

Ms. Patricia Engelhard, Director
Department of Parks and Recreation
County of Hawai'i
101 Pauahi Street, Suite 6
Hilo, HI 96720

Subject: Draft Environmental Assessment, Wai'aha Production Well and Reservoir

Dear Ms. Engelhard:

Thank you for your February 14, 2003 letter on the Department of Water Supply's *Draft Environmental Assessment* for the proposed Wai'aha Production Well and Reservoir Project. We appreciate the time you and your staff spent reviewing the document.

We are pleased that you have no adverse comments to offer. If you have any further questions concerning the project, please call me at (808) 593-1288.

Sincerely,

Perry J. White
Project Consultant

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

#9

LINDA LINGLE
GOVERNOR

GENEVIEVE SALMONSON
DIRECTOR

STATE OF HAWAII
OFFICE OF ENVIRONMENT QUALITY CONTROL
235 SOUTH BERETANIA STREET
SUITE 702
HONOLULU, HAWAII 96813
TELEPHONE (808) 586-4186
FACSIMILE (808) 586-4186

February 18, 2003

Milton Pavao
Department of Water Supply
345 Kekuanaoa Street, #20
Hilo, Hawaii 96720

Dear Mr. Pavao:

Subject: Draft environmental assessment (EA) for **Waiaha Production Well & Reservoir**

We have the following comments to offer:

Water well development: In the final EA please answer all the applicable sections of our Water Well Development guidance document. Contact our office for a paper copy or go to our homepage at: http://www.state.hi.us/health/oeqc/guidance/wells.html

Contacts: Community consultation is an important element of the review process. Your pre-consultation and EA distribution lists did not mention any community groups. Notify the nearest neighbors or neighboring landowners of the proposed project, allowing them sufficient time to review the draft EA and submit comments. Document all contacts in the final EA, including those made during the pre-consultation phase, and include copies of any correspondence.

Cultural impacts assessment:
Your assessment of impacts to local cultural practices did not include interviews with those knowledgeable about the local area. Although the site survey indicated that no cultural resources were present, "old-timers" in the area are often familiar with the traditional uses of a parcel of land, including cultural uses. For example, certain landmarks and physical features can be used as lines of sight to the coast by fishermen to locate certain fishing spots. Blocking these features by the construction of buildings or tanks may constitute an adverse cultural impact. We strongly recommend such a consultation with longtime neighborhood individuals to complete your assessment.

If you need assistance refer to our *Guidelines for Assessing Cultural Impacts*. Contact our office for a paper copy or go to our homepage at *http://www.state.hi.us/health/oeqc/guidance/index.html*.

If you have any questions call Nancy Heinrich at 586-4185.

Sincerely,

GENEVIEVE SALMONSON
Director

c: Perry White

#9

PLANNING SOLUTIONS

1210 ALAKI STREET, SUITE 221
HONOLULU, HAWAII 96814
PHONE: 538 393 1288
FAX: 808 593-1956

April 28, 2003

Ms. Genevieve Salmonson, Director
Office of Environmental Quality Control
State of Hawai'i
235 South Beretania Avenue, Suite 702
Honolulu, HI 96813

Subject: Draft Environmental Assessment, Wai'aha Production Well and Reservoir

Dear Ms. Salmonson:

Thank you for your February 18, 2003 letter commenting on the Department of Water Supply's *Draft Environmental Assessment* (DEA) for the proposed Wai'aha Production Well and Reservoir Project. We appreciate the time you and your staff spent reviewing the document and providing written comments. We have provided item-by-item responses to your comments (reproduced for your convenience in italics before each response) below.

> *Water well development: In the final EA please answer all the applicable sections of our Water Well Development guidance document.*

Response. The Draft and Final EAs address all of the major items listed in OEQC's *Guidelines for Assessing Water Well Development Projects* to the level of detail appropriate for the particular circumstances of this project. The well will utilize high-level groundwater of exceptional purity which comes from an extensive upslope recharge area with no significant sources of contamination. The as-yet-unknown geologic structure(s) that creates this valuable resource is also a barrier to flow into the down-gradient basal lens. As a result, the groundwater resource down-gradient is very saline, has never been utilized, and, given land ownerships, is not likely to be. The following key, listing the items included in the *Guidelines* and referenced to sections and figures in the Final EA (FEA), is provided for your convenience:

1. Orientation maps: Figures 1-1, 1-2, 1-3, 1-4, and 2-1
2. Aquifer Status: Sections 2.3 and 3.3
3. Contamination Analysis: Section 2.4
4. Hydrologic Impact Analysis: Section 3.3
5. Biological Assessment: Section 3.6 and 3.7
6. Archaeological and Cultural Impact Analysis: Section 3.10
7. Financial and Institutional Arrangements: Not applicable
8. Watershed and Land Use Analysis: Sections 3.3.2 and 3.13
9. Alternative Analysis: Section 4.0
10. Impacts of Accessory Facilities: Sections 3.5, 3.8, and 3.9

Contacts: Community consultation is an important element of the review process. Your pre-consultation and EA distribution lists did not mention any community groups. Notify the nearest neighbors or neighboring landowners of the proposed project, allowing them sufficient time to review the draft EA and submit comments. Document all contacts in the final EA, including those made during the pre-consultation phase, and include copies of any correspondence.

Response. As indicated in Table 8-3 of the Final EA, we distributed the DEA to all of the neighboring landowners; none submitted written comments. Section 8 of the Final EA (FEA) documents this, as well as the other distribution efforts already completed and the relevant correspondence.

Cultural Impacts Assessment: Your assessment of impacts to local cultural practices did not include interviews with those knowledgeable about the local area. Although the site survey indicated that no cultural resources were present, "old-timers" in the area are often familiar with the traditional uses of a parcel of land, including cultural uses. For example, certain landmarks and physical features can be used as lines of sight to the coast by fisherman to locate certain fishing spots. Blocking these features by the construction of buildings or tanks may constitute an adverse cultural impact. We strongly recommend such a consultation with longtime neighborhood individuals to complete your assessment.

Response. As discussed in Section 2.9 of the DEA, DWS records indicate that there were no archaeological or historical features on DWS property when the existing facilities were constructed. The reconnaissance survey PHRI staff conducted on September 9, 2002 confirmed that no surficial archaeological resources of any kind are present, and the Historic Preservation Division of the State Department of Land and Natural Resources has concurred with this opinion. PHRI's Cultural Impact Analysis of the proposed project concluded that there is no indication of any kind that the project area has resources necessary to or currently used by Native Hawaiian cultural practitioners exercising traditional and customary access and use rights for any purposes or by individuals of any other cultural affiliation for any traditional cultural purposes. Our consultation with neighbors also revealed no such activity.

Finally, project-related activities, which involve the continuation of the present use, replacement of existing structures with similar ones of equal or smaller size and no new restrictions on access, do not have any conceivable potential to harm cultural resources. The complete absence of any potential nexus of harm has led the DWS to conclude that the further consultation you have suggested is, in this instance, unwarranted.

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

Sincerely,

Perry J. White
Project Consultant

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

#10

LINDA LINGLE
GOVERNOR

MAJOR GENERAL ROBERT G. F. LEE
DIRECTOR OF CIVIL DEFENSE

EDWARD T. TEIXEIRA
VICE DIRECTOR OF CIVIL DEFENSE

STATE OF HAWAII
DEPARTMENT OF DEFENSE
OFFICE OF THE DIRECTOR OF CIVIL DEFENSE
3949 DIAMOND HEAD ROAD
HONOLULU, HAWAII 96816-4495

PHONE (808) 733-4300
FAX (808) 733-4287

March 17, 2003

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

Dear Mr. White:

Wai'aha Production Well and Reservoir, Draft Environmental Impact Statement

After reviewing the Draft Environmental Impact Statement for the Wai'aha Production Well and Reservoir, we have noted that although there is no outdoor siren warning coverage throughout the development, none is required. Recommend that a 5'x 5' plot be set aside near one of the entrances for the possible installation of a siren in the future.

Should you have any questions, please call Mr. Norman Ogasawara, State Civil Defense, at 733-4300, extension 531.

Sincerely,

EDWARD T. TEIXEIRA
Vice Director of Civil Defense

c: Hawaii Civil Defense Agency

Mr. Milton Pavao
Department of Water Supply
County of Hawaii

Office of Environmental Quality Control
State of Hawaii

#10

PLANNING SOLUTIONS
1210 AUAHI STREET, SUITE 221
HONOLULU, HAWAII 96814
Phone: 808 593-1288
Fax 808 593-1256

April 28, 2003

Mr. Edward Teixeira, Vice Director of Civil Defense
State of Hawai'i Department of Defense
3949 Diamond Head Road
Honolulu, HI 96816-4495

Subject: Draft Environmental Assessment, Wai'aha Production Well and Reservoir

Dear Mr. Teixeira:

Thank you for your March 17, 2003 letter commenting on the Department of Water Supply (DWS) *Draft Environmental Assessment* for the proposed Wai'aha Production Well and Reservoir Project. We appreciate the time you and your staff spent reviewing the document and providing written comments.

Regarding your recommendation that the DWS set aside a 5' X 5' plot for a future warning siren, DWS usually does accommodate this type of request and will probably be able to set aside the plot outside the proposed fenced area of the Well and Reservoir site. Should the Civil Defense want to install the siren at the project site, an approved agreement/permission form between the State Department of Defense and DWS would be necessary.

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

Sincerely,

Perry J. White
Project Consultant

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

APPENDIX A: CULTURAL IMPACT ASSESSMENT

PHRI **Paul H. Rosendahl, Ph.D., Inc.**
Archaeological • Historical • Cultural Resource Management Studies & Services
224 Waianuenue Avenue • Hilo, Hawai'i 96720 • (808) 969-1763 • FAX (808) 961-6998
P.O. Box 23305 • G.M.F., Guam 96921 • (671) 472-3117 • FAX (671) 472-3131

PHRI Report 2282-092402 September 2002

CULTURAL IMPACT ASSESSMENT FOR DRAFT ENVIRONMENTAL ASSESSMENT

WAI'AHA PRODUCTION WELL AND STORAGE TANK PROJECT

Land of Wai'aha 1st and 2nd, North Kona District
Island of Hawai'i (TMK: (3) 7-5-14:16; 7-5-15:08,15)

Prepared by
Paul H. Rosendahl, Ph.D.
for
Planning Solutions, Inc.

The purpose of this cultural impact assessment is to comply with the requirements of *Chapter 343 (Haw. Rev. Stat.)*, as amended by H.B. No.2895 H.D. 1 of the Hawai'i State Legislature (2000) and approved by the Governor as *Act 50* on April 26, 2000, and which among other things requires that environmental assessments (EA) and environmental impact statements (EIS) identify and assess the potential effects of any proposed project upon the "...cultural practices of the community and State...." *Chapter 343 (Haw.Rev.Stat.)* was amended by the State legislature because of the perceived need to assure that the environmental review process explicitly addressed the potential effects of any proposed project upon "....Hawai'i's culture, and traditional and customary rights." Guidelines previously prepared and adopted by the State Office of Environmental Quality Control (OEQC) 1997) provide compliance guidance. Both *Act 50* and the OEQC *Guidelines for Assessing Cultural Impacts* mandate consideration of all the different groups comprising the multi-ethnic community of Hawaii. This inclusiveness, however, is generally understated, and the emphasis—as indicated by a background review (PHRI 1998:5-8) of the cultural impact assessment issue, and the intent and evolution of both the legislative action and the guidelines—is clearly meant to be primarily upon aspects of Native Hawaiian culture—particularly traditional and customary access and use rights.

The scope of work and methodology for the Wai'aha Production Well and Storage Tank Project cultural impact assessment is based on the general assumption that the level of study effort appropriate in any project-specific context should involve the consideration of several factors, the most relevant of which are the following: (a) the probable number and significance of known or suspected cultural properties, features, practices, or beliefs within or associated with the specific project area; (b) the potential number of individuals (potential informants) with cultural knowledge of the specific project area; (c) the availability of historical and cultural information on the specific project area or immediately adjacent lands; (d) the physical size, configuration, and natural and human modification history of the specific project area; and (e) the potential effects of the project on known or expected cultural properties, features, practices, or beliefs within or related to the specific project area.

Consideration of these factors within the specific nature and context of the proposed Wai'aha Production Well and Storage Tank indicated that the most appropriate level of study for an adequate assessment of potential cultural impacts would be a limited or abbreviated assessment study. Based on the location, small size, and the extensive recent historic period modification, development and utilization of the project site, this study assumes that (a) potential cultural impact assessment issues would be highly

unlikely, (b) the negative results of the archaeological reconnaissance survey conducted for the project would confirm both the greatly altered physical nature of the project area and the absence of cultural resources within or related to the project area, and (c) in the unlikely instance that any legitimate cultural impact assessment issues should arise during the environmental review period, they could be addressed adequately within the framework of the review process (i.e., from Draft to Final Environmental Assessment).

On September 9, 2002, PHRI Principal Archaeologist Dr. Paul H. Rosendahl and PHRI Supervisory Archaeologist Alan B. Corbin, M.A., conducted an archaeological reconnaissance survey of the 2.827-acre project site. The pedestrian inspection of the project site revealed that–with the exception of a heavily overgrown small area of steep slope on the seaward side of the project site, immediately inland and above the paved access road–the entire project site had been altered and extensively modified during the middle of the 20th century by the construction of a water treatment facility and several large water storage tanks. No archaeological resources of any kind were identified. Furthermore, those small portions of the project site not occupied by existing DWS facilities (i.e., water tanks, abandoned water treatment facility, etc.) are overgrown with vegetation consisting of a variety of historically introduced species, principally including fig (*Ficus* sp.), guava (*Psidium* sp.), Christmas-berry (*Schinus terebinthifolius* Raddi), and Indian ginger (*Hedychium* sp.) No surviving evidence of any prehistoric or early historic period occupation or use of the project area was encountered, nor was any evidence of any potentially significant cultural properties, features, natural resources, practices, or beliefs within the project site.

The proposed Wai'aha Production Well and Storage Tank project site has been extensively modified and developed during historic times, as indicated by (a) the existing modified condition of the property, and (b) the negative findings of the archaeological reconnaissance survey which yielded no evidence of the presence of any potentially significant cultural resources–properties, features, natural resources, practices, or beliefs—either within or related to the project site. Furthermore, there is no indication of any kind that the project area has resources necessary to or currently being used by either Native Hawaiian cultural practitioners exercising traditional and customary access and use rights for any purposes or by individuals of any other cultural affiliation for any traditional cultural purposes.

Based on the negative results of the recently completed archaeological reconnaissance survey and the absence of any evidence that the project area is currently being used for legitimate traditional cultural purposes by either Native Hawaiian cultural practitioners or individuals of any other cultural affiliation, it can be concluded that the proposed Wai'aha Production Well Project should have no significant effects—much less any adverse impacts— upon any cultural resources, and that no mitigation measures of any kind are needed.

REFERENCES CITED

OEQC (Office of Environmental Quality Control, State of Hawai'i)

1997 Guidelines for Assessing Cultural Impacts. Adopted by the Environmental Council; November 19, 1997.

PHRI (Paul H. Rosendahl, Ph.D., Inc.)

1998 Cultural Impact Assessment Study: Identification of Native Hawaiian Cultural Practices Associated with Wa'ahila Ridge. HECO Kamoku-Pukele 138-kv Transmission Line Project. Lands of Manoa, Palolo, and Waikiki; Honolulu (Kona) District; Island of O'ahu. Technical Report for Environmental Impact Study. PHRI Report 1872-091498. Prepared for Hawaiian Electric Company, Inc. (November)

APPENDIX B: SHPD ASSESSMENT OF PROJECT SITE

BENJAMIN J. CAYETANO
GOVERNOR OF HAWAII

106 - ne

GILBERT S. COLOMA-AGARAN, CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCES MANAGEMENT

DEPUTIES
ERIC T. HIRANO
LINNEL NISHIOKA

STATE OF HAWAII

DEPARTMENT OF LAND AND NATURAL RESOURCES

HISTORIC PRESERVATION DIVISION
KAKUHIHEWA BUILDING ROOM 555
601 KAMOKILA BOULEVARD
KAPOLEI, HAWAII 96707

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

October 9, 2002

Mr. Charles Morgan
Planning Solutions
1210 Auahi Street
Honolulu, Hawaii 96814

LOG NO: 30752
DOC NO: 209MM12

Dear Mr. Morgan:

SUBJECT: **Wai'aha Well and Reservoir Draft Environmental Assessment: Impacts on Historic Resources Land of Waiaha, North Kona, Island of Hawaii**
TMK (3) 7-5-14:26

This is in response to your September 12, 2002 inquiry regarding the County of Hawaii Department of Water Supply proposal to convert an existing exploratory well to production and to construct a 2-million gallon storage tank on the subject property. We understand that the project would also include removal of two old storage tanks and other obsolete equipment.

A site visit was conducted on Tuesday, September 16 by MaryAnne B. Maigret and Jeanne Knapp, Assistant Archaeologists for Hawaii Island. They agree with Dr. Paul Rosendahl's assessment that due to previous extensive disturbance of the site, no archaeological features are present. Therefore, the proposed project will have "no effect" on historic sites.

If you have any further questions, please feel free to contact Dr. Pat McCoy, Archaeologist for Hawaii Island at (808) 692-8029, or MaryAnne B. Maigret, Assistant Archaeologist, at (808) 933-0482.

Aloha,

GILBERT COLOMA-AGARAN
State Historic Preservation Officer

MM:ak