BOARD OF WATER SUPPLY

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

December 4, 2002

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Ms. Genevieve Salmonson, Director
Office of Environmental Quality Control
Central Pacific Plaza, 4th Floor
220 South King Street
Honolulu, Hawaii 96813

Dear Ms. Salmonson:

Subject: Finding of No Significant Impact for the Board of Water Supply's Proposed Ewa Shaft Renovation Project, Ewa, Oahu, Hawaii

The Board of Water Supply has reviewed the comments received during the public comment period which began on July 23, 2002. We have determined that the environmental impacts of this project have been adequately addressed as discussed in the Final Environmental Assessment (EA) and are therefore, issuing a Finding of No Significant Impact. We request that the proposed project and our issuance be published in the next Office of Environmental Quality Control (OEQC) Bulletin.

Attached are the completed OEQC bulletin publication form, project summary on diskette and four copies of the Final EA for your review.

If you have any questions, please contact Scot Muraoka at 527-5221.

Very truly yours,

CLIFFORD S. JAMILE
Manager and Chief Engineer

Attachments

cc: Andy Huang, M&E Pacific, Inc.

2002-12-23-OA-FEA-

FINAL ENVIRONMENTAL ASSESSMENT

FOR THE EWA SHAFT RENOVATION EWA, OAHU, HAWAII

Prepared for:

Board of Water Supply
City and County of Honolulu

Prepared by:

M&E Pacific, Inc.
Suite 500 Pauahi Tower
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Honolulu, HI 96813

DECEMBER 2002

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1.0 INTRODUCTION

The Honolulu Board of Water Supply (BWS) is proposing to renovate the existing Ewa Shaft Pump Station (Oahu Sugar Co. EP 15 & 16) in the Ewa District on Oahu. Upon completion, Ewa Shaft will produce up to 12.15 mgd of potable water for the Ewa District.

The proposed work will involve primarily the demolition of existing pump building and electrical room, pump replacement, sealing of the vertical shaft and placing of concrete lining for a portion of the adjacent Honouliuli Gulch. The existing pump station will be raised approximately 12.0 feet to avoid potential flooding. A new control building will be provided with control panels and chlorination equipment. The renovated Ewa Shaft will be interconnected with BWS 228' Water System. The receiving reservoir will be constructed under a separate contract.

The project site is adjacent to the H-1 Freeway and is surrounded by agricultural plots. The general area has been highly altered, providing little or no habitat for wild animals. There is also no evidence of rare and endangered species within the project area. In addition, there are no significant historic sites in the project area.

Short-term construction related impacts such as reduced air quality and increased noise levels are anticipated for this project. The effects will be minimal since there are no residents within one-mile radius of the project site. During construction, the contractor will be responsible for providing proper erosion controls. The contractor will also be required to protect the water quality of the Honouliuli Gulch with appropriate best management practices (BMPs).

2.0 PURPOSE OF ENVIRONMENTAL ACCESSMENT

This environmental assessment (EA) was prepared in accordance with Section 343, Hawaii Revised Statutes (HRS) and Chapter 200 of Title 11, Hawaii Administrative Rules (HAR). An EA is required for this project because the proposed actions will involve the use of County (BWS) funds.

The approving agency on a determination of significance for this document is the BWS. Based on the information provided in this document, the BWS finds that the proposed project will not significantly impact the environment and therefore does not require the preparation of an environmental impact station (EIS).

3.0 CONSULTATION LIST

The following parties having jurisdiction or expertise have been involved in the EA review process and/or during the preparation of construction contract documents:

- **Federal**
  - United States Army Corps of Engineer
    - Honolulu Engineer District
  - United States Department of the Interior
    - U.S. Fish and Wildlife Service Pacific Islands Ecoregion
  - United States Department of Agriculture
    - National Resources Conservation Service
- **State of Hawaii**
  - Department of Land and Natural Resources (DLNR)
    - Commission on Water Resource Management
    - State Historic Preservation Division
    - Division of Forestry and Wildlife
  - Department of Business, Economic Development and Tourism
    - Office of State Planning (OSP)
  - Office of Hawaiian Affairs
  - Department of Health (DOH)
    - Clean Water Branch
    - Wastewater Branch
    - Clean Air Branch
    - Noise, Radiation and Indoor Air Quality Branch
    - Office of Environmental Quality Control (OEQC)
  - Department of Transportation
  - Disability and Communication Access Board
  - University of Hawaii At Manoa Environmental Center
  - Hawaii Natural Heritage Program

- **City and County of Honolulu**
  - Department of Planning and Permitting
  - Department of Design and Construction
  - Board of Water Supply

- **Private and Community Organizations**
  - The Estate of James Campbell (Campbell)
  - Hawaiian Electric Company (HECO)
  - Verizon Hawaii
  - Life of the Land
  - Hawaiian Civic Club of Ewa
  - Native Hawaiian Advisory Council

4.0 PROJECT OBJECTIVE AND NEED

Ewa Shaft is a major existing groundwater source in Leeward Oahu (see **Figure 1** - Location Map). It was first developed in the late 1930's by the Ewa Plantation Company and subsequently managed by Oahu Sugar Company to provide irrigation for its sugarcane fields. With the closure of the Oahu Sugar Company in 1995, sugarcane operations are slowly being replaced with smaller diversified agriculture plots. The diversified crops typically use less water and employ more efficient irrigation systems, thus sharply reducing the need for the shaft's irrigation water over the past several years.

While irrigation water needs have declined, ongoing residential developments in Ewa and the new city of Kapolei have increased the potable water demand in the region. According to the Ewa Development Plan (EDP) as revised in 1997, the Board of Water Supply (BWS), City and County of Honolulu projects that an additional 35 mgd of potable water will be needed in Ewa by 2020 to meet the projected growth in residential and commercial demand. See **Figure 2** - EWA DEVELOPMENT PLAN PHASING MAP.

Meeting this demand will require reallocation of water within the island-wide system, as well as development of existing and new sources. The proposed Ewa Shaft Renovation project will play a significant role in achieving this goal. Currently, the allowable pumpage at Ewa Shaft is approximately 12.15 mgd, or more than 30% of the 35 mgd projected increase for Ewa Oahu by 2020.

5.0 PROPOSED ACTIONS

The proposed project will preserve the groundwater source (shaft) but remove all existing supporting facilities at the Ewa Shaft site. New equipment, structures and utilities, etc. will be provided to meet current BWS pump station design standards. Specifically, the work consists of the following:

- Demolish existing crane, pump building, electrical room, chain-link fence, handrails and stairs, etc.
- Repair and seal approx. 140 feet of existing shaft with concrete. Provide shaft access for maintenance purposes.
- Construct approx. 2,000 square yard of concrete gulch lining.
- Construct approx. 740 feet of retaining wall with heights varying from 5 feet to 25 feet.
- Construct approx. 415 feet of 12-foot wide access road.
- Construct approx. 150 feet of 12-foot wide maintenance road.
- Install three 7.5-mgd deepwell pump units and associated control valves, discharge piping, blowoff line and flow measurement device.
- Install approx. 115 feet of 36-inch supply line for future connection.
- Construct a control building to house electrical panels, motor control center and disinfection equipment.
- Provide electrical power and transformer for pump operations and indoor lighting.
- Provide telephone connection for telemetering or supervisory control of pumps.
- Provide chlorination equipment for disinfection of product water.

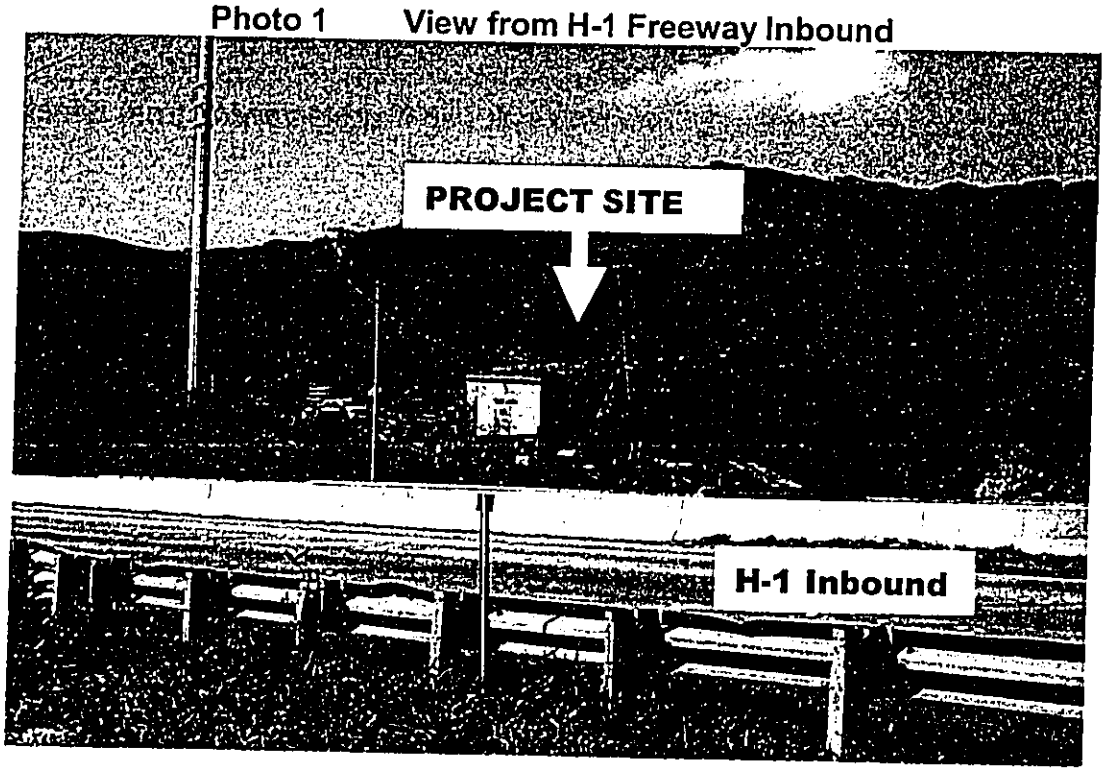
Additional information on the proposed work can be found in **Section 7.** A site plan will be provided later in the report to indicate the physical locations of the proposed improvements.

6.0 DESCRIPTION OF AFFECTED ENVIRONMENT

6.1 Project Location and Access

The proposed Ewa Shaft Renovation project site is located at the northern end of the Ewa District in Leeward Oahu, immediately mauka of H-1 Freeway and approximately 1.2 miles west of the Kunia Road interchange (see **Figure 3**). The proposed construction activities will take place within a single parcel identified by Tax Map Key (TMK): 9-2-01: por. 11. **Photo No. 1** shows a distant view of the existing facility and the surrounding environment.

Photo 1 View from H-1 Freeway Inbound



Access to Ewa Shaft is currently via two alternative routes through Campbell properties (see **Figure 3**). The first route is a 100-foot wide black-top cane haul road that connects to the Palehua Road just mauka of the H-1 Freeway. The second route is a dirt road off Farrington Highway near the existing BWS Kapolei Booster Pump Station. It follows an existing 20-foot wide utility easement in favor of BWS for a 42-inch main leading to the Honouliuli Reservoir 228. With the landowner's permission, heavy equipment such as cranes, excavators, and concrete mixer trucks will utilize the cane haul road during construction. The dirt road is narrow and has a height restriction of about 14 feet at the freeway crossing.

6.2 Land Use and Zoning

The proposed project site is classified as Agricultural by the State of Hawaii (see **Figure 2**). It is in the Restricted Agricultural District (AG-1) designated by the City and County of Honolulu (see **Figure 3**). Utility installations such as water wells and sewage pump stations are permitted at the project site with current state and city zonings. See **Appendix A** for the newly revised Ewa Public Infrastructure Map (PIM), which shows a publicly funded potable water well symbol at the project location.

6.3 Climate

Ewa Shaft is located on the leeward side of Oahu. The general climate in the region is sunny, dry and relatively uniform throughout the year. Daytime temperatures range between 70-80 °F, whereas at night, the temperatures occasionally dip into the 60's. The mean annual rainfall at project area is approximately 25 to 30-inches.

6.4 Topography

The existing facility resides on a three-tier site with ground elevations varying from approximately 144.0 feet above mean sea level (MSL) at the pump station entrance to approximately 169.0 feet at the electrical room (see **Figure 4**). In the mauka direction, the site falls steeply toward the Honouliuli Gulch. There is an abrupt rise in the makai direction before sloping down toward Farrington Highway along the access road. The proposed project will raise the existing pump station to the driveway level at approximately 155 feet. In addition, the upper level will be eliminated and a retaining wall will be constructed. The finished site will be relatively flat with 2% slope from west to east.

6.5 Infrastructure

Vertical Shaft

From the surface, Ewa Shaft penetrates approximately 150 feet into the ground. The entrance to the shaft is a 6 feet by 16 feet opening at about 143 feet above Mean Sea Level (MSL). At approximately sea level, the shaft opens into two horizontal infiltration tunnels each with 10 feet by 8 feet (height × width) entrance. Tunnel A is about 52 feet long and Tunnel B is about 1,054 feet long. See **Figure 5** for the approximate tunnel locations.

On February 13, 1998, Dr. Eric Mchuron, an engineering geologist with PSC Consultants, LLC inspected the shaft. According to Dr. Mchuron's report, the upper 24-26 feet of the shaft is covered with formed concrete. The next 90 feet (to water surface) is covered with a thin layer of gunite.

The walls are in very good condition and there are only a few areas where the gunite has spalled off. It was observed that ground water was dripping from the north wall from elevation 75 feet which corresponds to the elevation of Honouliuli Gulch. It was suspected that the dripping water was a source of contamination and the shaft could be under the influence of surface water (in the Honouliuli Gulch).

Electricity and Telephone

Existing electrical equipment at the site includes a 500-Hp synchronous motor rated at 2200 volts (V) for pump number 15, an 800-Hp synchronous motor rated at 2200 V for pump number 16, and motor starters. These two pumps are no longer in service. The transformers have recently been removed from the site. A third pump is located on site with a 100-Hp, 480 V submersible motor. This motor is fed from three HECO pole-mounted transformers. Each transformer is rated at 75-kilo volts ampere (kVA), 11.5-kilo volts (kV) primary, 480 V, 3-phase secondary. These transformers were installed as recently as 1995 and are in good condition (GMP, 1997).

Currently there are no telephone services at the site. Telephone connection will be provided in this project for supervisory control of the deepwell pumps.

Water System

Ewa Shaft was used to provide irrigation water for the sugarcane fields until 1995. Presently, the two vertical turbine deepwell pumps with 10 and 15 mgd capacity are no longer in service, whereas the recently installed submersible pump (1.0 mgd) is still in working condition. The proposed project will demolish the turbine pumps and discharge piping. The submersible pump will be salvaged and turned over to BWS.

Three new pumps will be installed in the shaft to achieve an average pumping rate of approximately 15.0 mgd. A 36-inch discharge (supply) line will be installed and capped for the future connection to the proposed Honouliuli 228' Reservoir No. 3.

Wastewater System

Currently there is no wastewater system at the project site. Such a system is not proposed for this project since the new pump station will be unmanned. Operations personnel will be onsite periodically to perform routine maintenance only.

Drainage

Storm water runoff from the existing pump station site sheet flows to the nearby Honouliuli Gulch. Honouliuli Gulch is one of two natural drainage pathways for the Honouliuli watershed that encompasses approximately 6,900 acres of agricultural land, mostly located mauka of the H-1 Freeway and the project site (see **Figure 3**).

The new site will be graded so that the storm runoff will flow to a sump where a drain inlet and an 18-inch pipe will direct the storm runoff through the retaining wall and into the lined gulch. An 8-inch inlet and a 6-inch PVC pipe will drain the small area in the back of the control building. The estimated peak runoff from the new site is 1.6 cfs (cubic foot per second) during a 50-year, 1-hour storm event. This flow is insignificant compared to the estimated peak flow of approximately 16,402 cfs in the Honouliuli Gulch during a 100-year, 24-hour storm event.

Existing Structures

As shown in **Figure 4**, the existing structures within the project site mainly include an electrical control building, a receiving area, an old stationary steel crane, and a pump (shaft) building. The facility was constructed on a three-tiered site with concrete and gravity-type retaining walls delineating the individual tier levels (see **Photo 2**).

The existing pumps are housed in a 28 feet by 30 feet steel frame building with concrete retaining walls on the south and east, corrugated metal sheets facing north and west. The building floor is a 1/4-inch thick steel plate supported by steel angles, approximately 4 feet above the ground surface. The corrugated roof is removable, providing access to the pumps for the crane (see **Photo 3**).

Photo 2 Existing structures

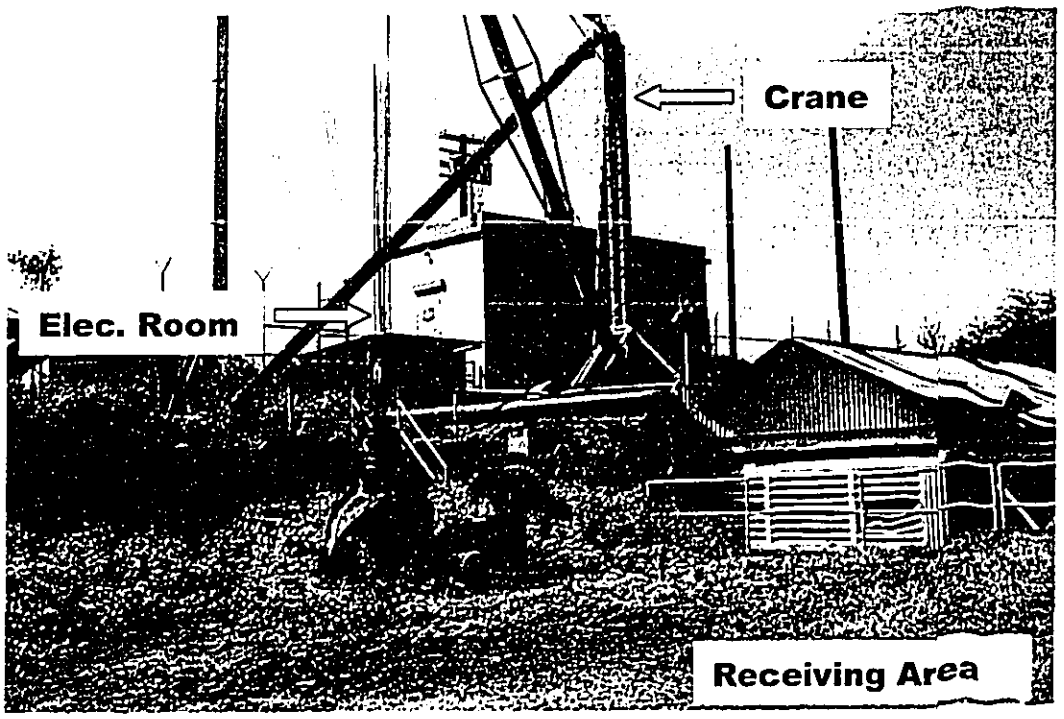
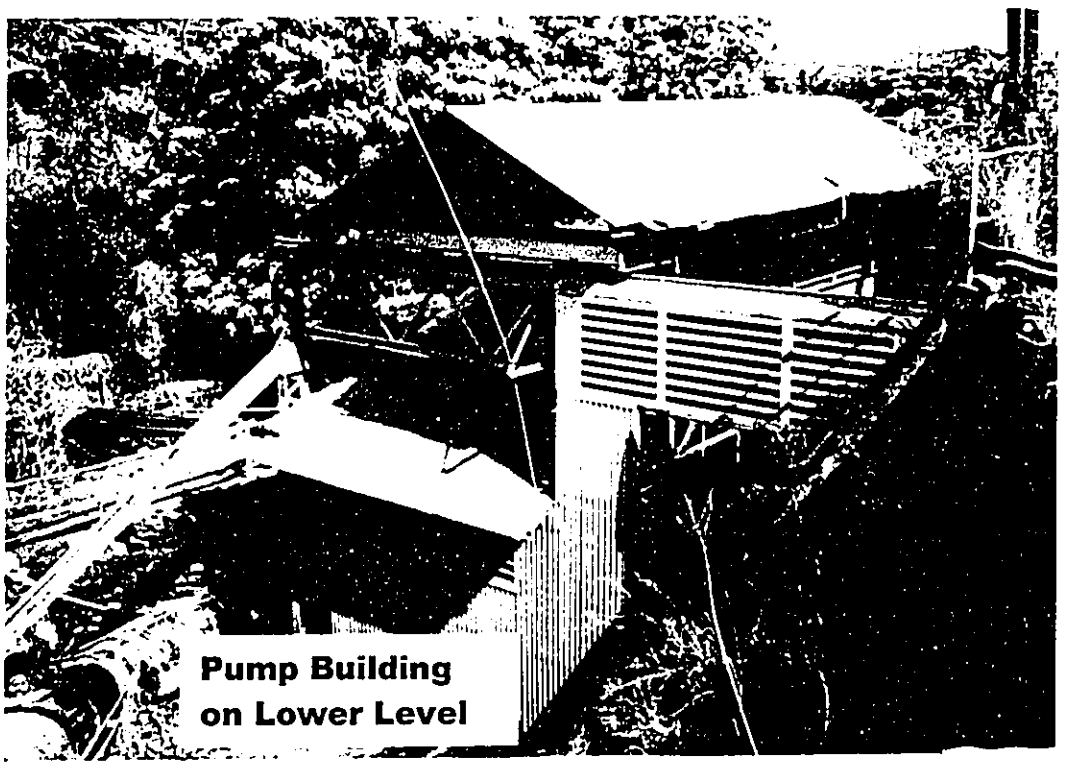


Photo 3 Existing Pump Building with Removable Roof



6.6 Geology

Ewa plain is bordered by the Koolau range on the east and the Waianae range on the west. The geology of the Ewa area was formed by a combination of volcanic activity and the emergence of reefs along the southern edge of Oahu. Ewa plain is underlain by a broad elevated coral reef, partly covered by alluvium carried out from the mountains. (See **Figure 6**)

PSC Consultants, LLC conducted a geological evaluation for Ewa Shaft on February 23, 1998. According to PSC's report, the geologic condition around the Ewa Shaft varies from outcrops of lava flows in the sides of the gulch, alluvial materials in the base of the gulch and along a portion of the road cuts of H-l. A significant portion of fill is present in the immediate vicinity of the shaft. This fill appears to be related to the original excavation of the shaft and tunnels.

6.7 Groundwater Resources

The renovated Ewa Shaft will be interconnected with the Board of Water Supply's 228' Water System (designated by reservoir spillway elevation). Currently the 228' Water System is fed by a total of 18 wells (see **Table 1**) located in the Pearl Harbor Water Management Area (WMA) as designated by the State of Hawaii Commission on Water Resource Management (CWRM).

The Pearl Harbor WMA receives fresh water from rainfall in the Koolau and Waianae mountains, recharge from irrigation of agricultural lands, and leakage from the Wahiawa high-level aquifer. It is the largest water body on Oahu. Groundwater pumped from this water body supplies over 50% of Oahu's municipal water demand.

The Pearl Harbor WMA consists of five aquifer systems: Waimalu, Waipahu-Waiawa, Ewa, and Kunia as depicted in **Figure 7**. Ewa Shaft acts as a skimmer that collects water from the upper surface of the fresh water lens of Waipahu-Waiawa system, which has an estimated 104 mgd capacity. The existing permitted use for Ewa Shaft is 12.15 mgd.

Figure 8 shows a plot of mean daily flows versus time for Ewa Shaft from 1949 to 1994. It is apparent that higher flows (up to 23.5 mgd) were pumped between 1946 to 1970 and pumpage reduced gradually thereafter. After 1990 there is a steep drop in the flow pumped from Ewa Shaft to just 5.0 mgd. This corresponds to the fact that Oahu Sugar Company was in the process of phasing out sugarcane cultivation (GMP, 1997).

Table 1 Wells Serving the 228' Water System

NAME OF WELL	NO. OF WELLS	TOTAL PUMPAGE (MGD)
Waipahu Wells II	2	0.76
Hoaeae Wells	6	9.78
Kunia Wells I	4	4.55
Honouliuli Wells I	2	Out of Service
Honouliuli Wells II	4	6.58

6.8 Water Quality

A comprehensive water quality analysis for Ewa Shaft was conducted in February 1998 per U.S. Environmental Protection Agency (EPA) and State of Hawaii Department of Health (DOH) Safe Drinking Water Standards. Additional testing was done in May 1998 and March 1999 to determine the risk for surface influence. Marc M. Siah & Associates, Inc. prepared a *Water Quality Assessment and Construction Cost Estimates for Ewa Shaft* in June 2000 based on the previous test results. This document is available for review upon request. The significant findings are summarized as follows:

Among the inorganic contaminants and with the exception of Iron, concentrations of Beryllium, Cadmium, Chromium, Copper, Lead, Mercury, and Selenium are all below their limits set by the Secondary Drinking Water Standards. The highest level for Iron concentration was reported at 3.31 mg/l, which exceeds the Secondary Maximum Contaminant Level, SMCL, of 0.3 mg/l. The source of iron is believed to come from the aged discharge piping. Please note that milligrams per liter "mg/l" is equivalent to parts per million (ppm). Similarly, micrograms per liter "µg/l" is equivalent to parts per billion (ppb)

Concentrations of Chlorides, Sulfates, Fluorides and Total Dissolved Solids are within the limits set by the Secondary Drinking Water Standards. The highest concentration of Nitrates as Nitrogen detected in 1998 is 3.3 mg/l, one third of the regulatory limit of 10 mg/l for potable water. However, this is more than the natural background levels found in most BWS wells that range from 1 to 2 mg/l. The corresponding concentration in 1994-1996 analyses was 3.2 mg/l. The concentration of Nitrites as Nitrogen determined in 1998 is 0.001 mg/l, which is much lower than the MCL set at 1 mg/l.

Due to concerns for potential oil and lubricant leakage from the pump assembly into the shaft, water samples were also analyzed for Total Petroleum Hydrocarbon (TPH). The TPH concentrations were found to be well below the detection limit of 0.61 mg/l.

Although there is no turbidity limit for groundwater, turbidity levels were reported at 2.28 NTU, which is more than the limit of 0.5-1 in surface water standards. BWS will purge the shaft to remove silt deposit when the permanent pumps are installed.

With the exception of Atrazine, the concentrations of semi volatile organic are all below their detection limits. Atrazine level was reported at 0.09 µg/l but is still below the MCL set at 0.003 mg/l. Atrazine, an herbicide, is soluble in water and has a low chronic toxicity in animials.

Results for pesticides, such as DBCP, EDB, Alachlor, Chlordane, Heptachlor, etc., as well as the volatile organic are all below their detection limits. The best available treatment recommended by EPA for herbicides and pesticides is Granular Activated Carbon (GAC). The BWS will construct a GAC treatment plant under a separate contract to remove any volatile organic contaminations from the Ewa Shaft.

The only area of concern is the presence of fecal and total coliform in the water. Among the samples tested by EPA laboratory, two samples indicated moderate risk for the shaft to be under surface influence. The third sample indicated low risk. The source of contamination can be attributed to surface sources because the top of the shaft is currently open to atmosphere. Because this source provided agricultural irrigation water rather than drinking water, biological exposure was not a concern to the plantation.

There are two permanent features being constructed to ensure the Ewa Shaft is adequately sealed. The BWS proposes to install over 2,000 square yards of impermeable lining in the Honouliuli gulch adjacent to the pump station. The lining will consist of 4 inches of base course and 6 inches of concrete. The BWS also proposes to repair and seal the shaft with non-shrink grout held together with welded wire fabric and anchor bolts.

The EPA and DOH are tasked with the establishing drinking water standards and informing the public on health issues. After the permanent pumps are installed and facilities are disinfected, the BWS will fully analyze water samples. DOH will review the test results for conformance. Water sources that do not meet drinking water standards are not allowed to supply the public drinking water system.

6.9 Saltwater Intrusion

Ewa Shaft (intake at approximately 5 feet below sea level) collects water from the top part of a basal aquifer. It is not as susceptible as a deep well to the upconing of saltwater, which is more than 700 feet below the sea level. BWS has analyzed historical records on pumping and chloride concentrations dated back to the initial construction start-up between 1937-1939. For the most recent period, 1985-1994, the maximum flow recorded was 25 mgd with the highest

chloride concentration observed at 168 ppm. With a proposed average pumping rate of 15 mgd, the chloride levels should be below this peak chloride concentration.

6.10 Air Quality

Ewa Shaft is located immediately next to the H-1 Freeway. The vehicular traffic on the freeway is the primary source of indirect emissions in the project area. The existing access road is used sparingly with 40-60 vehicles per day at the most. The air quality in the project area is generally considered good and within the State and Federal Ambient Air Quality Standards.

6.11 Noise

The vehicular traffic on the H-1 Freeway is the primary source of noise emissions in the project area. The ambient noise level in the project area could be as high as 85 decibels (dBA) with vehicles traveling at the speed limit of 60 miles per hour (mph). The DOH standard for residential area is 65 dBA and below. The noise attributed to the movement of farming vehicles is brief and relatively insignificant.

6.12 Natural Hazards

Flood: The project is located in the zone D, in which flood hazards are undetermined. See **Figure 3.**

Tsunami: The project location is outside of the tsunami-evacuated area as indicated in the Tsunami Evacuation Maps. See **Figure 9.**

Earthquake: The entire island of Oahu is in Seismic Zone 2A as determined in the 1997 edition of the Uniform Building Code.

6.13 Cultural Resources

It is believed that the *ahupua'a* of Honouliuli was once widely inhabited by precontact Hawaiian populations, including the Hawaiian *ali'i*. The substantial population is attributable for the most part to the plentiful marine and estuarine resources available at the coast, the irrigated lowlands suitable for wet land taro cultivation, as well as the lower forest area of the mountain slopes for the procurement of forest goods.

Subsequent to western contact in the area, the landscape of the Ewa plains and Waianae slopes was adversely affected by the removal of the sandalwood forest and the introduction of domesticated animals and new vegetation species. In 1877, James Campbell purchased most of the Honouliuli *ahupua'a*, including the project area, which had been used for stock running and grazing.

By 1881, the Campbell property of Honouliuli prospered as a cattle ranch. In 1889, Campbell leased his property to Benjamin Dillingham, who subsequently formed the O.R. & L Company in 1890. Dillingham subleased all land below 200 feet to William Castle who in turn sublet the area to the Ewa Plantation Company for sugar cane cultivation. Sugar cane cultivation continued on Campbell Estate land until 1995 when the Oahu Sugar Company shut down. (Cultural Surveys Hawaii, December 2001)

6.14 NHPA Section 106 Consultation

In accordance with the National Historic Preservation act (NHPA), Section 106, request-for-consultation letters have been sent to various native Hawaiian groups and organizations (see letter to OHA in **Appendix B** for mail list). Thus far, we have not received any input. However, should the proposed project impact any cultural resource as defined by NHPA, the BWS will work with all parties until an agreement is reached.

6.15 Archaeological Resources

Cultural Surveys Hawaii conducted an archaeological inventory survey on November 20, 2001 in support of the proposed project. The coverage of the field investigation included the pump station enclosure and the surrounding one acre Honouliuli Gulch area. According to Cultural Surveys Hawaii, no historic properties were observed in the interior of the pump station enclosure. Areas outside Honouliuli Gulch had been previously disturbed by agricultural land cultivation and infrastructure associated with the pumping station. Based on the background studies and the field investigation, Cultural Surveys Hawaii did not recommend further archaeological research.

A stone wall alignment (Site 50-80-08-6370) was discovered in the Honouliuli Gulch, approximately 15 meters from the pump station's perimeter fence. It is believed that the wall was constructed as a barrier to cattle movement in the mid 1800s. In addition, based on the position and angle of the wall alignment relative to Honouliuli Gulch, the wall may have been related to the construction and maintenance of the pump station. The wall would function in diverting flood waters away from the well.

Due to the historic origin, degradation of structural integrity, and lack of present day use of the stone wall alignment, Site 50-80-06-6370 was determined to not be significant in an archaeological or historical content. The State Historic Preservation Division has reviewed the findings of the inventory survey and concurs that no significant historic sites are in the project area. The proposed undertaking (Ewa Shaft Renovation) will have "no effect" on significant historic properties (see **Appendix C**).

6.16 Biological Resources

The existing pump station site is completely developed, providing little or no habitat for terrestrial flora and fauna. Cultural Surveys reported that 60-70% of the land surface outside the enclosed pump station was covered with vegetation that included low-lying dry grasses (tall grasses along the stream bed), mature *kiawe* (*Prosopis pallida*), and scrub *koa haole* (*Leucana glauca*). One *kukui* (*Aleurites moleccana*) and one mango (*Mangifera indica*) were also observed along the pump station perimeter. The findings are consistent with the database information from the University of Hawaii Natural Heritage Program, that there have been no recordings of rare or endangered species within the project area.

A topographic survey was conducted for the proposed project in November 2001. The extent of the coverage included the pump station and the adjacent properties (see **Figure 4**). There were no animals reported throughout the work area. This could be attributed to the pump station development previously and the proximity of the H-1 Freeway alignment. In addition, the areas outside of the Honouliuli Gulch have been disturbed by agricultural activities for more than a century. Any habitat for wild animals may have been damaged and destroyed.

The office of State Planning's Wetlands and Waterbird Recovery Habit Map (see **Figure 14**) shows no wetlands in the project area. The only wetland and/or sensitive riparian habitats near the proposed site is within the Honouliuli Gulch near the West Loch of Pearl Harbor National Wildlife Refuge. U.S. Fish and Wildlife Service's National Wetland Inventory Map identifies the Honouliuli Gulch as an R4SBC habitat or Riverine, Intermittent, Stream Bed, Seasonal.

6.17 Hazardous Materials

NEXUS Environmental Group, Inc. conducted a hazardous materials survey at the Ewa Shaft site on November 14, 2001. The findings indicate that the electrical insulation (brown outer and black inner layer) for the existing motor wiring contain 45% chrysotile asbestos. In addition, all painted surfaces contain lead in excess of the limit of detection. Several of the surfaces were probably painted with a lead-based primer since the measured concentrations were in excess of 100,000 ppm. These hazardous materials will have to be removed by qualified professionals in accordance with applicable federal and state rules and regulations.

7.0 GENERAL DESCRIPTION OF THE PROJECT'S TECHNICAL, SOCIAL AND ECONOMIC CHARACTERISTICS

7.1 Technical Characteristics

7.1.1 Demolition

Existing infrastructures on site including the pump building, electrical building and the broken crane will be demolished. All insulation with brown outer and black inner layer will be considered as asbestos-containing material and removed by qualified professionals. Loose, flaking, and poorly adhered lead-based paint will be removed from the surfaces. Surface preparation will be conducted in a regulated area supervised by a competent person in accordance with applicable standards.

7.1.2 Shaft Improvement

The vertical section of the Shaft will be improved to enhance its structural integrity and prevent leakage. Following surface preparation, the interior walls from static water level (19.5 MSL) and up will be sealed with reinforced concrete. Once the concrete is cured, all wall surfaces will be thoroughly disinfected by hosing or spraying a diluted chlorine solution with a minimum concentration of 100 mg/l in accordance with AWWA C654-97.

7.1.3 Gulch Lining and Retaining Wall

Approximately 2,000 square yard of gulch lining will be installed in the vicinity of the shaft to eliminate the potential for surface water infiltration. In addition, approximately 740 feet of retaining wall will be constructed to contain storm water and protect the new pump station. The extent of the concrete lining and the retaining wall heights are based on a 100-year, 24-hour storm event.

7.1.4 Deepwell Pumps

Three new 450-Hp, 7.5 mgd vertical line shaft deepwell pumps will be installed at Ewa Shaft (see **Figure 11**). Each pump will have a 16-inch suction column and a 16-inch discharge. The discharge piping will consist of an individual blowoff line, a pump control valve unit, a pump discharge valve, an isolation valve and appurtenances in accordance with BWS standard practices.

The pumps will be controlled either manually or remotely through telemetering (signal from Beretania Main Station). A pressure transducer

will be installed to monitor the water level in the shaft. Pump(s) will be shut down if the water level drops below a preset point.

7.1.5 Well Flushing

All new pumping equipment to be installed in the shaft will be disinfected with chlorine solution. Prior to any pump operating test, BWS will take a bacteriological sample from the shaft and determine the presence of bacteria. Given the results of previous tests, it is likely that the first sample will show the presence of excessive bacteria. The Contractor will be instructed to flush the shaft and pumping equipment by injecting chlorine solution specified by BWS. The chlorine solution will remain in the shaft for at least 8 hours before the second sample is taken for testing. The same procedure is repeated until a satisfactory result is obtained.

7.1.6 Water Disinfection

Sodium hypochlorite solution with a chlorine concentration of approximately 12.5 percent will be used to disinfect the product water. Sodium hypochlorite solution usually comes in 53-gallon drums. The solution is injected to the water line at a rate that is proportional to the pump's discharge rate. Two positive displacement, mechanical diaphragm type metering pumps will be provided at Ewa Shaft to deliver a chlorine dosage ranging from 0.1 to 0.5 mg/l against approximately 50 psi water pressure.

7.1.7 Distribution System

As shown in **Figure 11**, water from Ewa Shaft will eventually be pumped to the proposed Honouliuli 228' Reservoir No.3. This project will provide a 36-inch stubout next to the existing 42-inch main, approximately 80-feet south of the deep well pumps. The BWS 228' Water System provides water service for Waipahu, West Loch Estates, West Loch Fairways, Honouliuli, Ewa By Gentry, Ewa Beach, and Puuloa. The existing water network in this service area is illustrated in **Figure 12 & Figure 13**. The proposed Honouliuli 228' Reservoir No.3 is shown in **Figure 14**.

7.1.8 Access Road

The existing access road will be replaced with a new 12-foot wide concrete access road. The new road will be realigned slightly and sloped to achieve maximum high clearance possible under the H-1 Freeway. Both BWS maintenance vehicles and nearby farmers' vehicles will utilize the new road.

7.1.9 Maintenance Road

A new maintenance road will be constructed underneath the H-1 Freeway. It will also be 12-foot wide and made of concrete. The road will be used exclusively by BWS personnel to maintain the gulch lining and retaining walls on both sides of the gulch.

7.1.10 Electrical System

The existing electrical system will be replaced. Electrical demolition work will be coordinated with HECo to disconnect the existing electrical service to the site. The incoming feeder from HECO will be increased. New pad mounted transformers will provide electrical power for the three 450 HP motor units at 4160 Volts, 3-phase. A 3 × 3 pump control selector matrix system will be provided to control the three (3) well pumps. MCC panels and switchgears will be located in a new control building. Electrical power will also be provided for lighting and other requirements within the control building.

7.2 Social and Economic Characteristics

7.2.1 Land Use Ownership

The project area is located on a portion of land identified by TMK: 9-2-01:11, which is presently owned by the Estate of James Campbell. BWS has acquired the project area to regulate surface activities, which may have a direct impact on the groundwater quality.

Historically, the Ewa Plains have been the primary location for the island's agricultural resources. Ewa Shaft was used to support the sugar cane cultivation by Ewa Plantation Co. and subsequently by Oahu Sugar Co., Ltd since 1890. Oahu Sugar Co., Ltd ceased operations in 1995, freeing up 10,500 acres on Oahu for other land uses such as diversified agriculture.

7.2.2 Population

The population density throughout the Honouliuli area is lower than the average density for Oahu. The area is primarily home to agricultural businesses. According to Ewa Development Plan (1997), the population in Ewa area will have grown from 43,000 people in 1990 to almost 125,000 by 2020. Nearly 28,000 new housing units will have been built in a series of master planned communities.

7.2.3 Economy

The economy of Ewa Plains area primarily is agriculturally oriented. The surrounding areas of Ewa Shaft had been cultivated by the Oahu Sugar Co., Ltd until 1995. Currently the land is being used for growing vegetables and diversified agriculture by independent farmers.

7.2.4 Police and Fire Protection

There are no immediate police or fire stations in the project area. The nearest police stations are in Waipahu and Kapolei.

7.2.5 Medical Facilities

The only major medical facility in the general vicinity of the project site is the Saint Francis West Medical Center, located 2 miles southeast of the project between Waipahu and Ewa. Other facilities in the area include Kahi Mohala Behavioral Healthcare Facility near the Saint Francis West Medical Center, the Ewa Hospital located in Ewa and the Kaiser Punawai Clinic in Waipahu.

7.2.6 Recreational Facilities

The nearest recreational facilities to Ewa Shaft site are located in the adjacent residential areas. There are 12 parks within the west Waipahu, Makakilo, Kapolei and Ewa areas. Specifically, these parks are the Mauka Lani Community Park, Mauka Lani Neighborhood Park, West Loch Shoreline Community Park, Honowai Playground, Hoaeae Community Park, Pupuloe Street Mini Park, Waipahu Cultural Park, Waipahu Uka Park, Ewa Beach Community Park, Ewa Beach Park, and Ewa Mahiko Park.

The Ewa Plains area is also home to many golf courses. The eight nearest golf courses to the proposed reservoir site are the Kapolei, Hawaii Prince, Coral Creek, Ewa Villages, Ewa Beach International, Waikele, Ted Makalena, and West Loch. The nearest course, West Loch is less than two miles from the project site.

7.2.7 Schools

The schools in the regional area of Ewa Shaft are Makakilo Elementary, Kapolei Elementary, Lanakila Baptist and Honowai Elementary. The nearest school, Honowai Elementary, is approximately 1.2 miles from the project site, makai of Kunia Interchange between Honowai Street and Waipahu Street.

7.2.8 Consistency with County General Plan

The General Plan of the City and County of Honolulu designates the Ewa area as the location for a Secondary Urban Center for Oahu. The Secondary Urban Center is to be the focus of major economic activity and housing development, and a center for government services. Under the topic of "Transportation and Utilities," the General Plan lists:

- Objective: To meet the needs for the people of Oahu for an adequate supply of water and for environmentally sound systems of waste disposal.
- Policy 1: Develop and maintain an adequate water supply of water for both residents and visitors.
- Policy 2: Develop and maintain an adequate water supply of water for agricultural and industrial needs.

This project will provide a long-term reliable source of potable water for residences and visitors, as well as for agricultural and industrial uses.

8.0 PROBABLE IMPACTS AND MITIGATION MEASURES

In the long term, this project will provide potable water for the residents and businesses in Ewa Oahu. This is in conformance with the adopted Ewa Development Plan, which plans for the growth of urban areas and protects prime agricultural lands with the establishment of the urban growth boundary. The following impacts are short-term and construction related.

8.1 Air Quality

The proposed construction activities such as grubbing and excavation could affect the air quality in the vicinity of the work area. The contractor will be required to comply with provisions of Chapter 11-60.1, Hawaii Administrative Rules, Section 11-60.1-33 on fugitive dust and use best management practices (BMPs) such as frequent wetting down of loose soil areas with water, and covering of dirt-hauling trucks. The temporary stockpile will be wetted down with water and covered to suppress dust. The contractor will be responsible for general housekeeping of the site and keeping adjacent areas free of mud and sediment.

Hydrocarbon emissions from the construction equipment and vehicles are expected. This should not significantly change the air environment in the project area, which is located immediately next to the heavily traveled H-1 Freeway. The contractor will be required to use emission control devices on all construction vehicles. All construction activities will need to comply with state air pollution control regulations (Chapter 60, Title 11, Administrative Rules of the State of Hawaii Department of Health).

8.2 Noise

The proposed construction activities may increase noise levels in the project area. The loudest potential noise generating activity would be the breaking of basalt boulders and cobbles with a hoe ram. Since no residents reside within one-mile radius of the project area, construction related noise impacts would be minimal. In addition, the project area is located immediately next to the heavily traveled H-1 Freeway. The ambient noise level is normally high.

Should construction noise level exceeds the applicable maximum permissible sound levels (MPSL) as specified in HAR Chapter 11-46, the contractor must obtain noise permit or variance. BWS construction management personnel and DOH inspector will monitor construction activities. Violations of permit and variance terms and conditions would potentially result in shutdown.

8.3 Traffic

Traffic around the project area will increase during construction. Heavy construction equipment such as concrete mixers, excavators and crane will utilize the black-top cane haul road via Palehua Street. Compact vehicles like pickup trucks and utility trucks may use the existing access road. Inconvenience is anticipated for farmers, especially during the construction of the new access road. To lessen the impact, the contractor will be given names and numbers of the nearby farmers (in construction documents) for coordination purposes. It will be the contractor's responsibility to notify the farmers of any activities what will affect their operations. The landowner, Campbell will also be notified on an as-needed basis.

8.4 Water Quality

This project will involve in-stream activities for the retaining walls, gulch lining and the maintenance road. If not managed properly, construction debris could enter the Honouliuli Gulch and cause pollution, especially during a storm event.

The contractor will be required to take appropriate control measures to minimize impact. Best Management Practices (BMPs) such as the installation of silt fences at the base of all slopes and the immediate grassing of all graded areas will be utilized. The contractor will not be allowed to close more than half of the gulch at any given time. Work areas will be isolated from the rest of the gulch such that storm water can be diverted away from the work areas.

BWS will be applying for a DOH Section 401 Water Quality Certification (WQC) for the in-stream work. The Contractor will be required to comply with the terms and conditions of the WQC, monitoring and reporting procedures in particular. Violations may result in fines and other penalties.

8.5 Archaeological Resources

While the likelihood of Ewa Shaft Renovation Project encountering human remains or other significant cultural deposits is regarded as exceedingly low, if in the unlikely event such deposits are encountered, all subsurface work in the immediate vicinity will immediately cease and the State Historic Preservation Division will be promptly notified.

8.6 Economy

The construction activities will not have an adverse impact on the local economy. With the exception of increased traffic, the agricultural operations in the surrounding area will not be affected. The construction fund from BWS will benefit the local economy by providing jobs and utilizing local construction materials.

8.7 Visual

The existing pump station is located immediately mauka of the H-1 Freeway. The surrounding areas are being used for diversified agriculture. The panoramic view identified in the Ewa Development Plan is makai of the H-1 Freeway. See **Figure 15.**

A new control building and three low-profile outdoor pumps will replace the existing pump station. At project completion, motorists traveling on H-1 Freeway will no longer see the broken crane the rusty metal roofing (see Photo 1). The top of the new control building (elev. 175 feet) will be three (3) feet lower than the existing electrical room. This will lessen the visual impact, if any, for ewa bound motorists. A hedge (podocarpus) will be provided along the access road mauka of the H-1 Freeway. As a result, town bound motorists will not see the new control building as they approach the site.

9.0 ALTERNATIVES TO THE PROPOSED ACTION

9.1 No Action

Without the development of new water sources, the anticipated increase in water demand in Ewa Oahu will not be met. Water supply will become unreliable for residential consumption, commercial use and fire protection. As a result, the water supply issues will remain unsolved, future development in Ewa Oahu will be hindered. Therefore, this is not an acceptable alternative.

9.2 Alternatives

A recent feasibility study was prepared to assess the value of the existing shaft and determine the costs for alternatives (M&E Pacific, Inc., August 2000). The three (3) alternatives identified in the study are as follows:

1. Three new vertical wells along existing horizontal tunnels.
2. A new equivalent capacity shaft.
3. Equivalent capacity well stations with three (3) options.

Alternative 1 - Construction of three 30-inch diameter wells

This alternative involves the sealing of the existing shaft using select backfill material and concrete. There will be three (3) new 30-inch diameter wells inserted along the existing horizontal tunnel(s). Each well accommodates a 7.5 mgd vertical turbine pump. Geotechnical exploration will be required to verify the exact location of existing horizontal tunnel. A separate study may be required to determine hydrogeologic conditions. In addition, an Environmental Impact Statement (EIS) may be required to facilitate the site selection. This alternative assumes that the existing shaft may become contaminated by surface water runoff from Honouliuli Gulch.

Alternative 2 - Construction of an equivalent capacity shaft

This alternative involves the construction of a new facility that will replicate the existing shaft. The new shaft will have three (3) new 500 Hp constant speed pumps and a new Motor Control Center. Similar to Ewa Shaft, the equivalent capacity shaft will involve: 1) a vertical shaft and horizontal tunnels; 2) pump building and ancillary equipment; 3) site work; 4) 36-inch transmission main; 5) treatment plant, and 6) disinfection and sealing of the vertical shaft.

Similar to Alternative 1, this alternative will need a hydrogeologic study. It may need an EIS to facilitate site selection. The new site for the equivalent capacity shaft should have similar desirable attributes; e.g., 1) limited zone of influence (with minimal interference from existing wells) and limited upconing (saltwater intrusion), 2) excellent water quality, 3) feasible land and easements

acquisitions, 4) compatibility with master plan(s) for future development in the Ewa Oahu, and 5) close proximity to water storage facilities and distribution. In addition to these desirable site attributes, site selection will also be subject to both government and public acceptance.

Alternative 3 - Construction of equivalent capacity well stations

This alternative is based on a previous study by the BWS to assign a value to Ewa Shaft and determine the cost of developing the same amount of capacity in existing and new wells. Three options were presented in the study and are described as follows:

Option 1: Install Kunia Wells IV station, increase pump capacity at Kunia Wells III, Waipahu Wells II, Waipahu Wells IV, and Waipahu Wells II.

Option 2: Install Kunia Wells IV and Waipahu Wells IV stations, increase pump capacity at Waipahu Wells II and Waipahu Wells III.

Option 3: Install Kunia Wells IV, Waipahu Wells IV, Ekahanui Wells, and Manana Wells stations.

For options 1 and 2, adjacent Oahu Sugar Company (OSCo) wells were assumed abandoned and therefore would not interfere with the production of the sources. Options 3 assumed that OSCo wells would be retained for agriculture and non-potable irrigation, and the new well stations were not likely to interfere with the performance of these existing wells. Other assumptions noted by BWS are as follows:

1. Granular activated carbon (GAC) treatment will be required, except for Manana and Ekahanui Wells which are in different aquifers;
2. Operating and maintenance costs for higher lift systems are not accounted for;
3. Offsite transmission was not evaluated but is assumed adequate;
4. Land is available for acquisition; and
5. Costs for Kunia III and most of Waipahu III funded by others.

These assumptions are reflected in the estimated construction costs for each option. At $29.4 million, Option 1 is the most cost-effective option among the three considered.

The results of the feasibility study show that Ewa Shaft Renovation is the most cost-effective option at $21.9 million, assuming GAC treatment will be required. The estimated costs for the three alternatives are $22.6 million, $27.9 million and $29.4 million, respectively. Details of the cost estimation can be found in the final Economic Feasibility Study prepared by M&E Pacific, Inc. in August 2000.

In addition to cost-effectiveness, Ewa Shaft is a proven groundwater source and is readily available for renovation. Therefore, a hydrogeologic study and a potentially lengthy site selection process can be avoided. The current Ewa Shaft design does not include the GAC treatment and the 36-inch transmission main called for in the study. These items will be constructed under different projects as the need arises in the future.

10.0 LIST OF PERMITS

The following permits and clearances will be required as part of this project:

Federal Agency

- CWA Section 404, Permit for Activities in Waterways
  Department of the Army, Corps of Engineers

State of Hawaii

- Preliminary Engineering Report of New Potable Water Sources
  Department of Health, Safe Drinking Water Branch
- CWA Section 402, NPDES: Storm Water Discharges Associated with Construction Activity Permit
  Department of Health, Clean Water Branch
- CWA Section 401 Water Quality Certification
  Department of Health, Clean Water Branch
- Pump Installation Permit
  Department of Land and Natural Resources, Commission on Water Resource Management

City and County of Honolulu

- Grubbing, Grading, and Stockpiling Permit
  City Department of Planning and Permitting
- Building Permit for Building, Electrical and Demolition Work
  City Department of Planning and Permitting

11.0 DETERMINATION

In accordance with Chapter 343, Hawaii Revised Statutes, this Environmental Assessment has characterized the technical and environmental issues of the Ewa Shaft Renovation project, identified potential impacts and their significance. See **Appendix B** for draft EA comments and responses. It is anticipated that the proposed project will not significantly impact the environment. Therefore, a Finding of No Significant Impact (FONSI) is declared for this project. This determination is based on the significance criteria listed in §11-200-12 of the Environmental Impact Statement Rules. Specifically, these significance criteria are addressed as follows:

1. The proposed project will not result in an irrevocable commitment to loss or destruction of any natural or cultural resources. According to the University of Hawaii Natural Heritage Program, there have been no recordings of rare or endangered species within the project area. The potential for impacts to cultural resources is believed to be minimal, based on a recent archaeological inventory survey.

2. The range of beneficial uses of the environment will not be curtailed. The proposed project will renovate the existing Ewa Shaft pump station (Oahu Sugar CO. EP 15 & 16, State Well No. 2202-21) to produce potable water for the growing communities in Ewa Oahu.

3. The project will not conflict with the state's long-term environmental policies or goals and guidelines as expressed in Chapter 344, HRS, and any revisions thereof and amendments thereto, court orders or executive orders. The project is consistent with, and supports the objectives and policies of the CCH's General Plan. The Public Infrastructure Map for the Ewa Development Plan area was revised to include a publicly funded potable water well symbol for the proposed project (City Council Resolution No. 01-261).

4. The proposed project will not adversely affect the economic or social welfare of the community or state. Implementation of the proposed project will result in temporary economic benefits to the construction industry. In the long run, Ewa Shaft will support the anticipated growth in Ewa Oahu, which has a positive effect on the economic or social welfare of the state.

5. The project will not adversely affect public health. The project will provide potable water to communities in Ewa Oahu, in accordance with EPA and DOH safe drinking water standards.

6. The project will not involve substantial adverse secondary impacts, such as population changes or effects on public facilities. The proposed project

corresponds to the current population trend as outlined in the EDP. It will provide potable water for the projected population increases in Ewa Oahu.

7. The project will not involve a substantial degradation of environmental quality. The project will renovate the existing Ewa Shaft pump station which is located adjacent to the H-1 Freeway. The site is currently abandoned and overgrown. The proposed project will re-grade the area and rebuild the access road. The rusty metal roof of the existing pump shed and the broken crane will be removed from the site. The general vicinity, however, will experience a short-term increase in traffic and noise levels, and a short-term decrease in air quality during construction.

8. The project will not include considerable cumulative effects upon the environment nor involves a commitment for larger actions. The source project is in conformance with the Ewa Development Plan, which plans for the growth of urban areas and protects prime agricultural lands with the establishment of the urban growth boundary. It should be noted that the change in land use from agriculture to urban would cause cumulative and secondary effects. With the demise of sugar, land use changes are already occurring and fallow agricultural lands and subsequent conversion into irrigated urban lands can create changes in microclimate patterns. In a theoretical sense, any development that changes the existing ground surface could change the microclimate patterns.

9. The project will not substantially affect a rare, threatened or endangered species, or its habitat. The database of University of Hawaii Natural Heritage Program shows no records of rare or endangered species within the project area. The project area was highly disturbed during the construction of the existing pump station and the H-1 Freeway. In addition, the surrounding areas had been cultivated by Oahu Sugar Co., LTD until 1995 and are currently being used for diversified agriculture.

10. The project will not detrimentally affect air or water quality or ambient noise levels. A short-term decrease in air quality and increase in noise level may occur during the construction phase. In addition, the water quality in the Honouliuli Gulch (normally dry) could be affected by the proposed in-stream activities. To minimize these impacts, the contractor will be required to implement best management practices such as dust screening, silt fencing and mufflers for heavy machinery.

11. The project will not affect an environmentally sensitive area such as a flood plain, tsunami zone, erosion-prone area, geological hazardous land, estuary, fresh water, or coastal waters. The existing pump station will be raised to above 100-yr flood level. The hydraulic capacity of the Honouliuli Gulch will not be affected due to the proposed improvements.

12. The project does not affect identified scenic vistas or view planes. The existing pump station is located immediately mauka of the H-1 Freeway. The surrounding areas are being used for diversified agriculture. The panoramic view identified in the Ewa Development Plan is makai of the H-1 Freeway.

13. The project does not require substantial energy consumption. This project will provide electricity for three (3) 450 Hp deepwell pumps, control building lighting and motor control equipments. The infrastructure for the proposed electrical service will consist of a new 45' double riser pole and anchor, a PME-6 switching vault, and a 1,500 KVA 3-phase transformer.

12.0 REFERENCES

City and County of Honolulu, Planning Department. *Ewa Development Plan*. August 1997.

City and County of Honolulu, Department of Planning and Permitting & Board of Water Supply. Oahu Water Management Plan. 1990.

GMP Associates, Inc. Feasibility Study for Ewa Shaft Renovation. October 1997.

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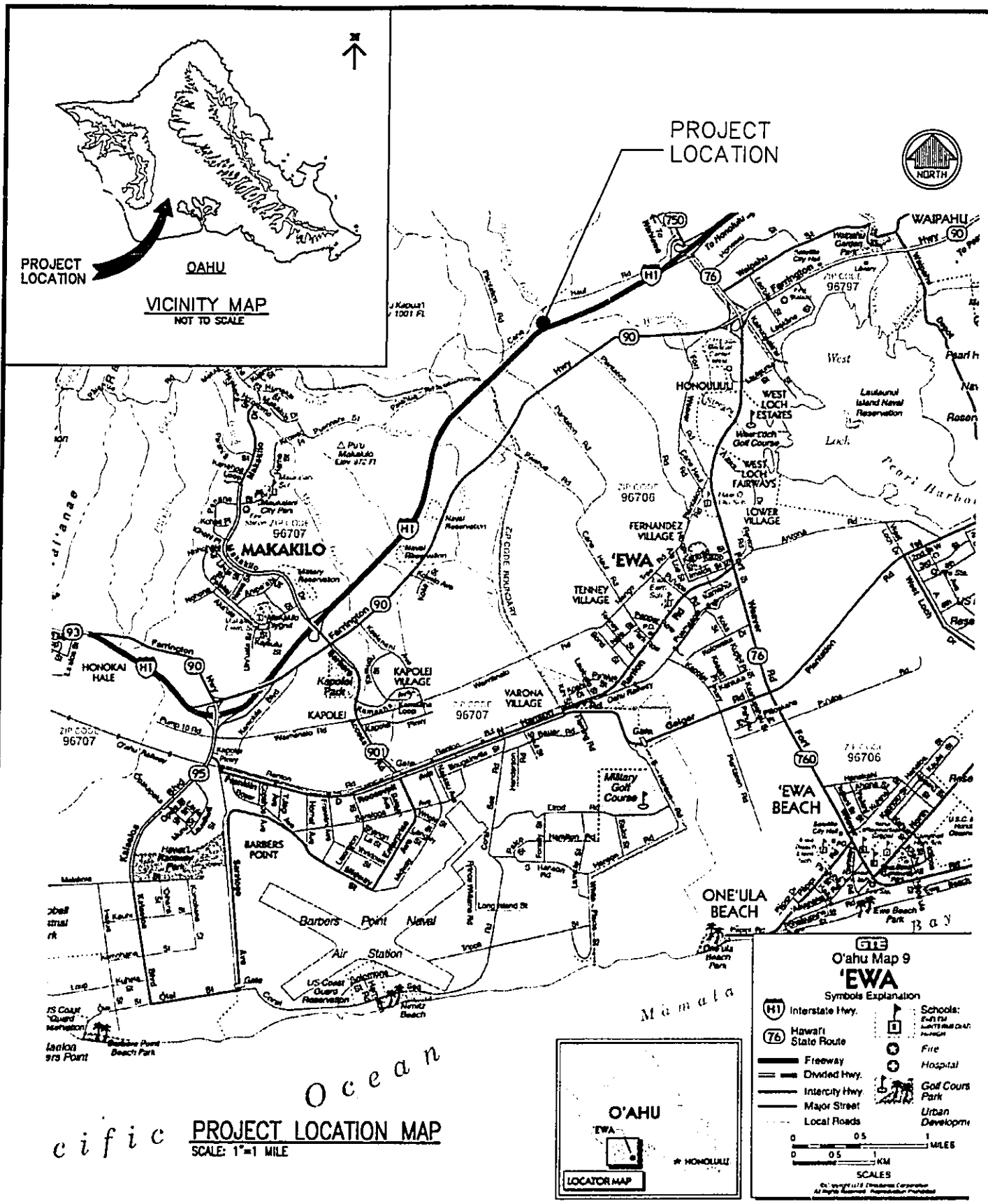
Marc M. Siah & Associates, Inc. Hydrologic Investigation – Drainage Study for Honouliuli Watershed Oahu. June 1999.

Marc M. Siah & Associates, Inc. Final Environmental Assessment/Finding of No Significant Impact (FONSI) for The Honouliuli 228' Reservoir No. 3. January 2001.

PBR Hawaii. University of Hawai'i – West O'ahu Environmental Impact Statement Preparation Notice. August 1998.

Cultural Surveys Hawaii. Archaeological Inventory Survey in Support of the Proposed 'Ewa Shaft Renovation Project, Honouliuli Ahupua'a, 'Ewa District, Island of O'ahu. December 2001.

FIGURES

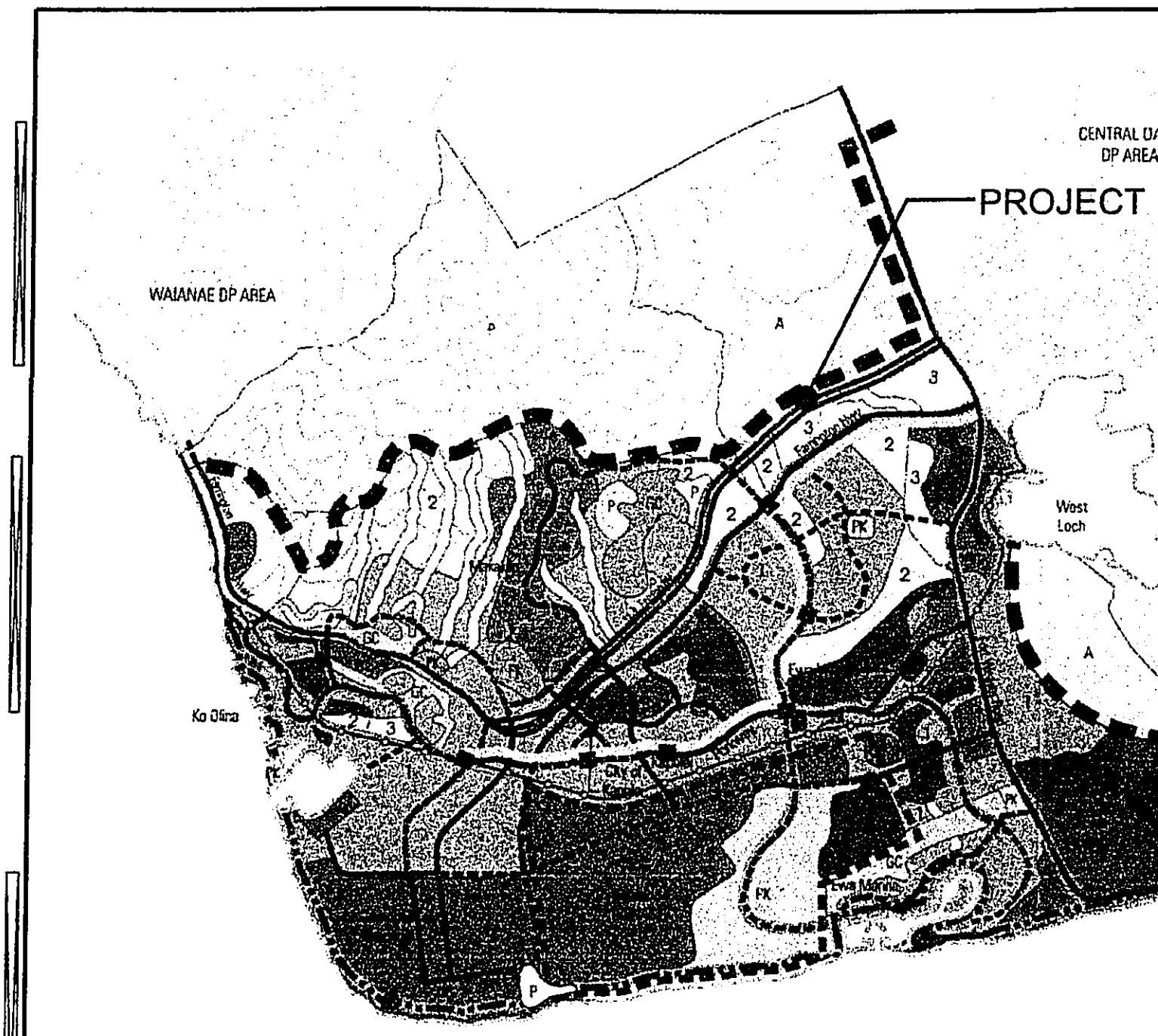


Source

M&E Pacific, Inc.
ENGINEERS & ARCHITECTS
SUITE 500, PAUAHI TOWER · 1001 BISHOP ST., HONOLULU, HAWAII 96813

PROJECT LOCATION MAP
FIGURE 1
Environmental Assessment
Ewa Shaft Renovation
Ewa, Oahu, Hawaii
July 2002

DOCUMENT CAPTURED AS RECEIVED



SOURCE: EWA DEVELOPMENT PLAN 1997

Source:

M&E Pacific, Inc.
ENGINEERS & ARCHITECTS
SUITE 500, PAUAHI TOWER · 1001 BISHOP ST., HONOLULU, HAWAII 96813

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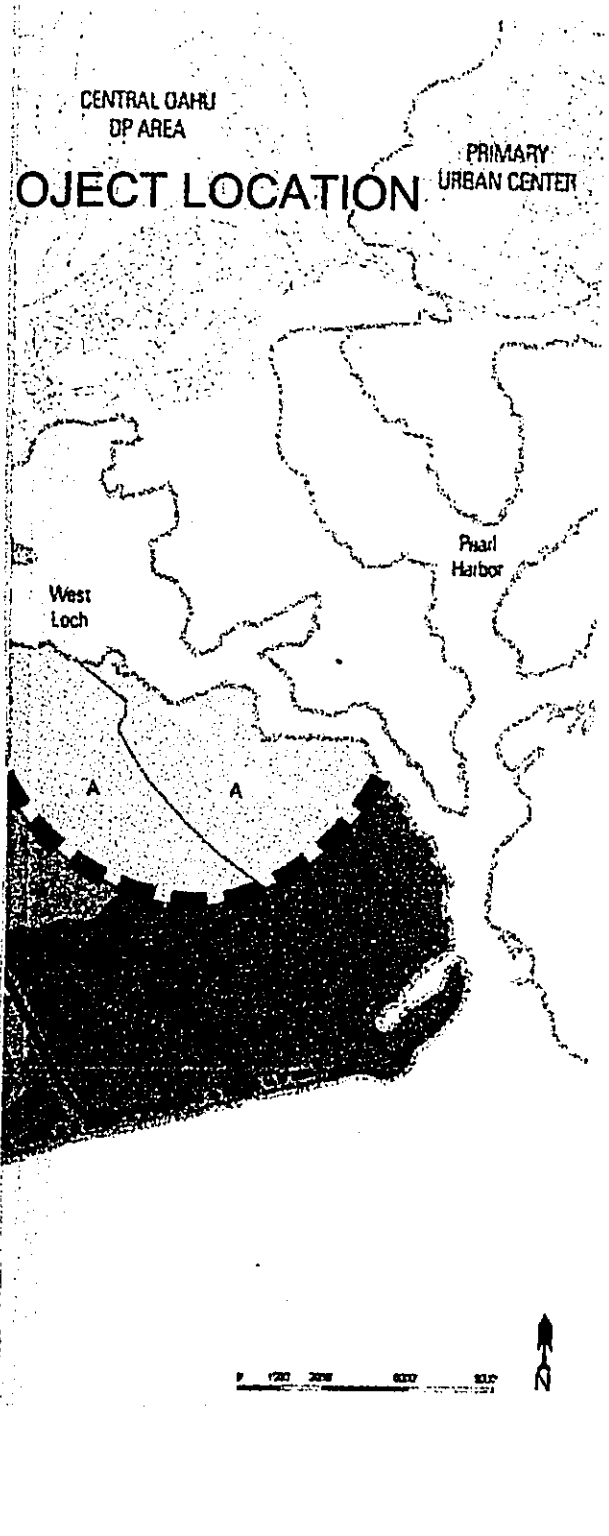


EWA DEVELOPMENT PLAN

Phasing Map

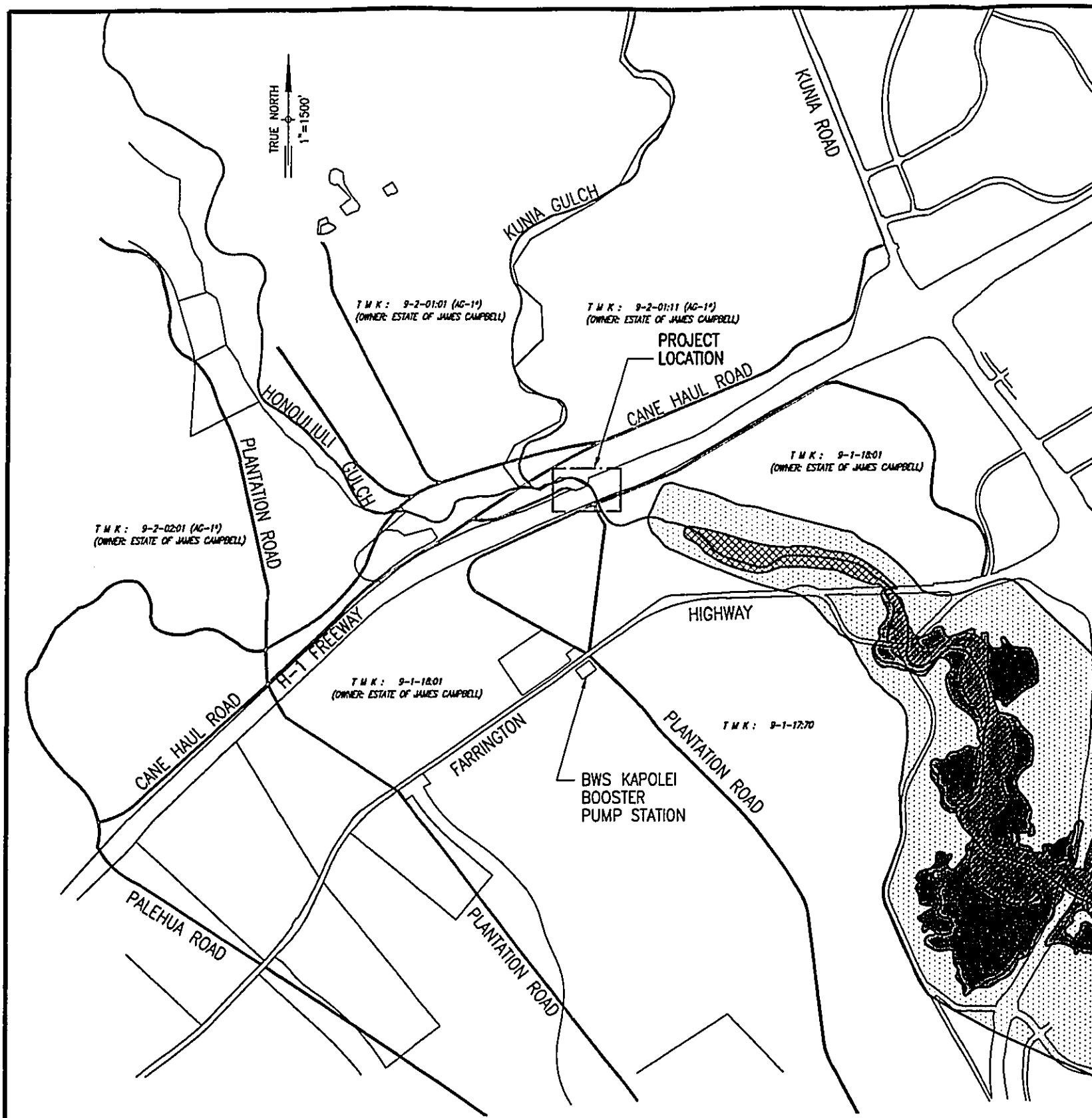
- P — Preservation Areas
- A — Agricultural Areas
- Existing Urban Areas
- Urban Expansion 1997 - 2005
- 2 — Urban Expansion 2006 - 2015
- 3 — Urban Expansion 2016 and Beyond
- Special Areas
- Urban Growth Boundary
- Transit Corridor
- Transit Node
- Historic Railway
- Shoreline Access

EXISTING	FUTURE	
	GC	Golf Courses
	PK	Parks
		Highways, Arterial and Major Collector Streets
		Landscaped Boulevard/ Greenway

N

EWA DEVELOPMENT PLAN PHASING MAP
FIGURE 2

Environmental Assessment
Ewa Shaft Renovation
Ewa, Oahu, Hawaii
July 2002



GENERAL PLAN
SCALE: 1"=1500'

Source:

M&E Pacific, Inc.
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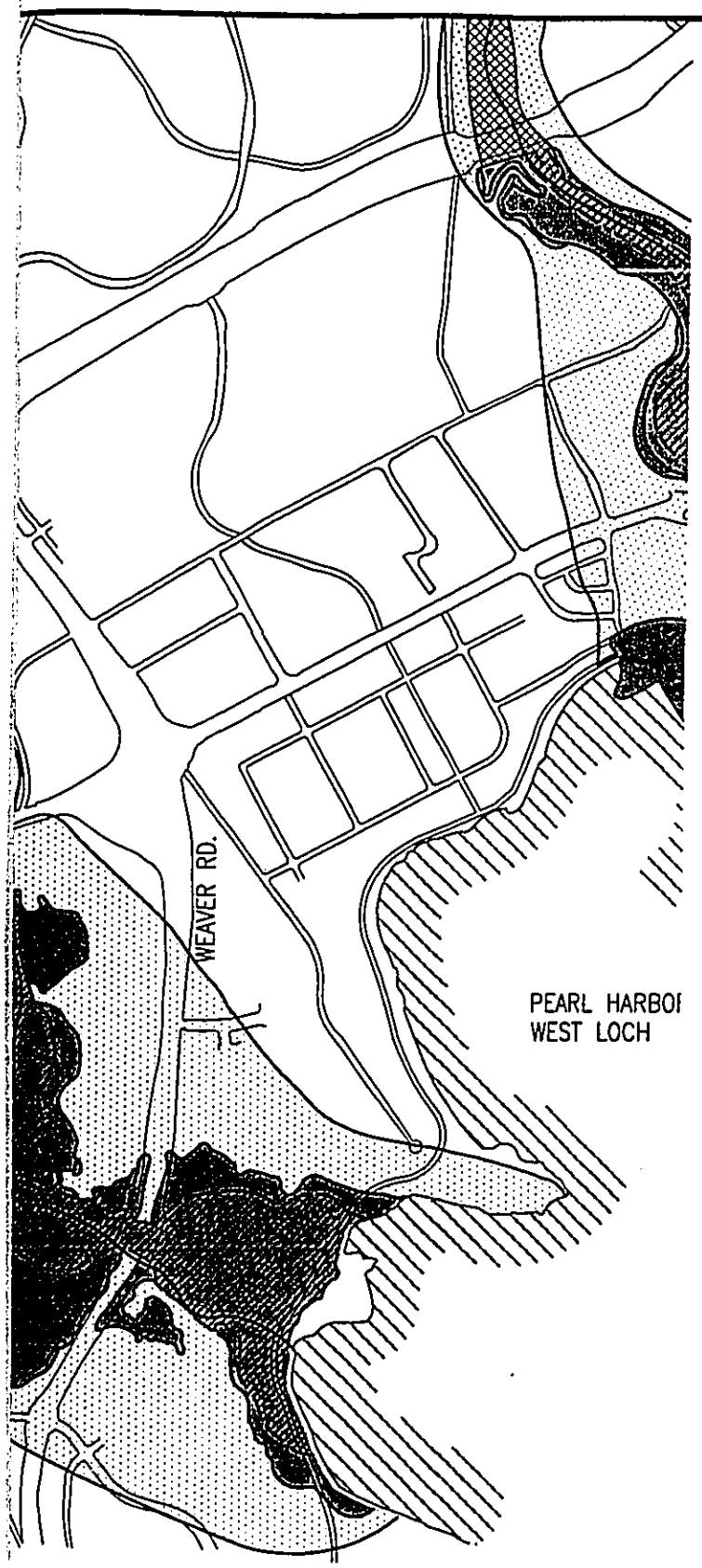


LEGEND

- ZONE AE: BASE FLOOD ELEVATIONS DETERMINED
- FLOODWAY AREA IN ZONE AE
- ZONE D: AREAS IN WHICH FLOOD HAZARDS ARE UNDETERMINED
- ZONE X: AREAS DETERMINED TO BE OUTSIDE 500-YEAR FLOOD PLAN
- ZONE X: AREAS OF 500-YEAR FLOOD; AREAS OF 100-YEAR FLOOD WITH AVERAGE DEPTHS OF LESS THAN 1 FOOT OR WITH DRAINAGE AREAS LESS THAN 1 SQUARE MILE; AND AREAS PROTECTED BY LEVEES FROM 100-YEAR FLOOD
- ZONE A: NO BASE FLOOD ELEVATIONS DETERMINED

*AG-1 CITY AND COUNTY OF HONOLULU, ZONE RESTRICTED AGRICULTURE

SCALE

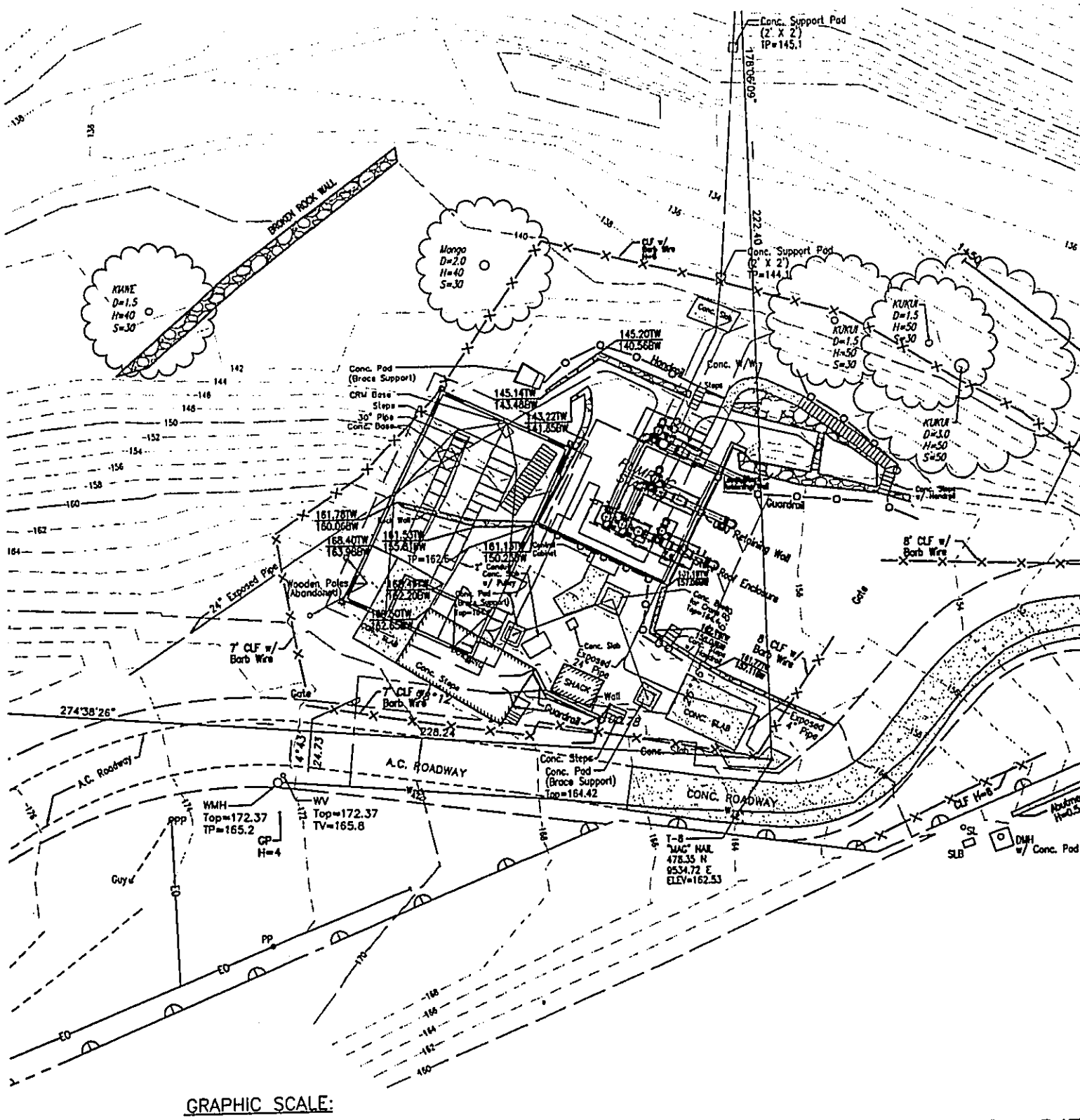
1500' 0 1500' 3000'

NERAL PLAN
1"=1500'

VICINITY MAP

FIGURE 3

Environmental Assessment
Ewa Shaft Renovation
Ewa, Oahu, Hawaii
July 2002



GRAPHIC SCALE:

30' 0 30' 60'

1" = 30'

EXISTING SIT

SCALE: 1"=30'

Source:

M&E Pacific, Inc.
ENGINEERS & ARCHITECTS
SUITE 500, PAUAHI TOWER · 1001 BISHOP ST., HONOLULU, HAWAII 96813

TRUE NORTH

1"=30'

KEAWE
D=3.0
H=50
S=40

KUKUI NUT
D=2.0
H=30
S=30

Washout

1+00

Exposed 4" Pipe

CONC. ROADWAY

DIRT

BOT. BEAM=154.3

BOT. BEAM=154.4

BOT. BEAM=154.7

BOT. BEAM=154.6

FREEWAY (Overlook)

Trap Stump
D=3.0
H=4

Abutment
H=0.5-3.4

158.90TW
148.10BW
158.83TW
152.41BW

DMH
w/ Conc. Pad

A.C. ROADWAY

24" RCP Pipe

Exposed 12" PVC

CONC. WALL
CONC. WALL

Conc. Support
Columns (Typ.)

Conc. Footing Edge
Exposed Edge
Buried w/ Dirt

NG SITE PLAN

50'

EXISTING SITE PLAN

FIGURE 4

Environmental Assessment
Ewa Shaft Renovation
Ewa, Oahu, Hawaii
July 2002

PROPERTY LINE

5+20

TUNNEL B

H—

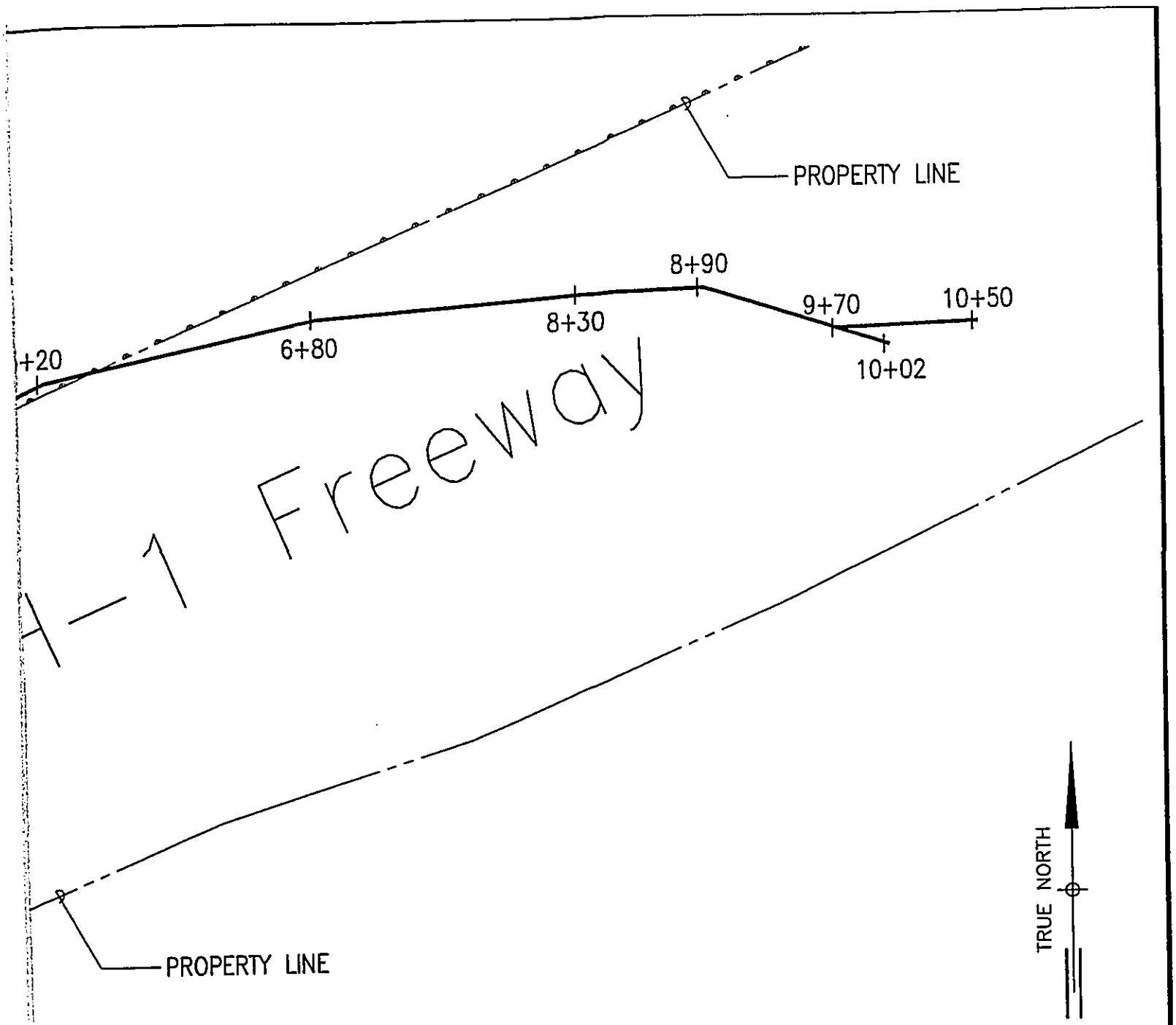
TUNNEL A

APPROXIMATE LOCATION OF

SCALE: NTS

Source:

M&E Pacific, Inc.
ENGINEERS & ARCHITECTS
SUITE 500, PAUAHI TOWER · 1001 BISHOP ST., HONOLULU, HAWAII 96813

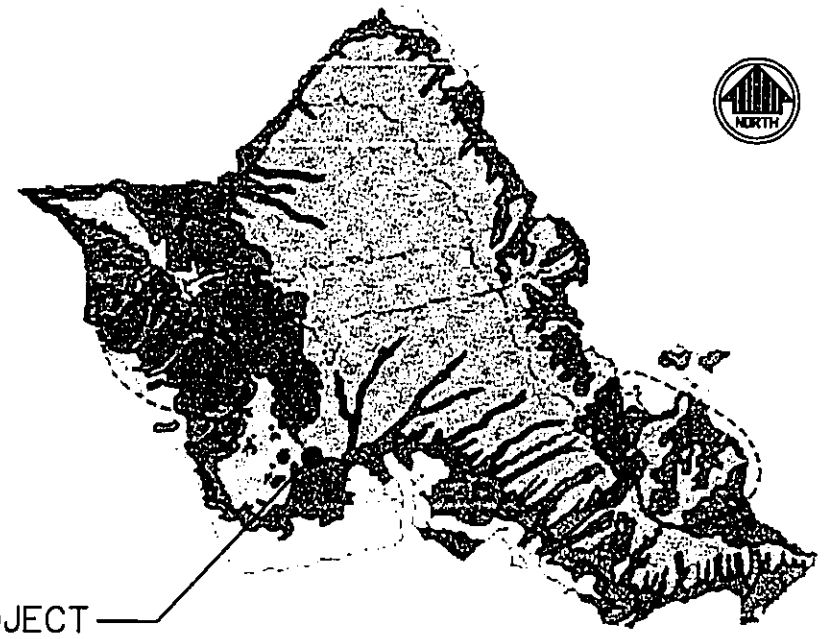


OF HORIZONTAL TUNNELS

APPROXIMATE LOCATION OF HORIZONTAL TUNNELS

FIGURE 5

Environmental Assessment
Ewa Shaft Renovation
Ewa, Oahu, Hawaii
June 2002



GEOLOGICAL MAP
NOT TO SCALE

GEOLOGY

IGNEOUS ROCKS

- Historic lava flows (since 1750)
- Post-erosional lavas
- Cones at vents of post-erosional lavas
- Late stage lavas
  Trachyte flow from Puu Waawaa, Hawaii
- Cones at vents of late stage and main lavas
  (Includes small intrusive masses on Maui)
- Koolau Volcano
- Waianae Volcano

SEDIMENTARY ROCKS

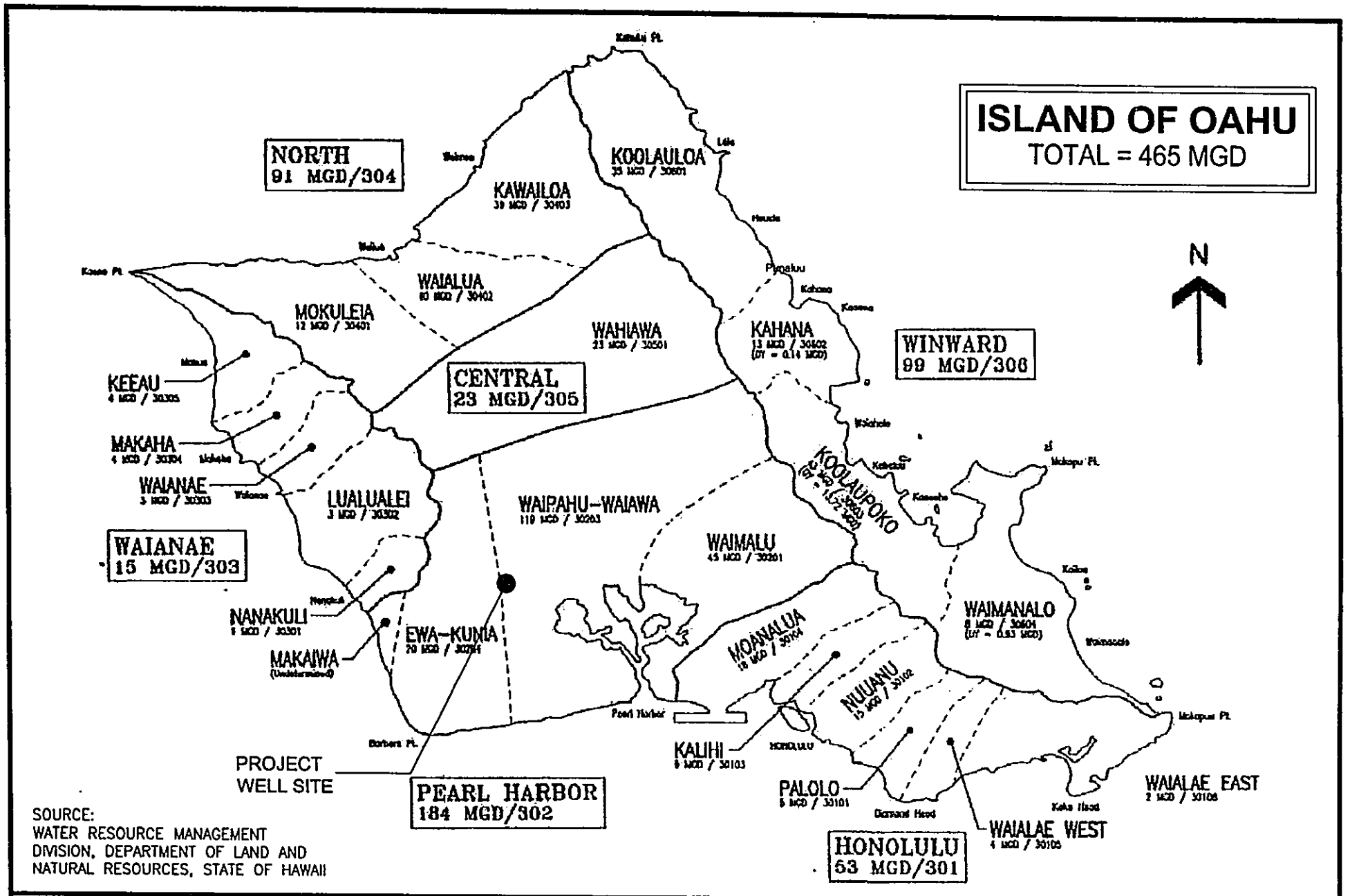
- Detrital sediments (alluvium, dune sand, colluvium, mudflow deposits, lagoonal deposits)
- Coral reef

Source: Atlas of Hawaii, 1997

Source:

M&E Pacific, Inc.
ENGINEERS & ARCHITECTS
SUITE 500, PAUAHI TOWER · 1001 BISHOP ST., HONOLULU, HAWAII 96813

GEOLOGICAL FEATURES
FIGURE 6
Environmental Assessment
Ewa Shaft Renovation
Ewa, Oahu, Hawaii
July 2002

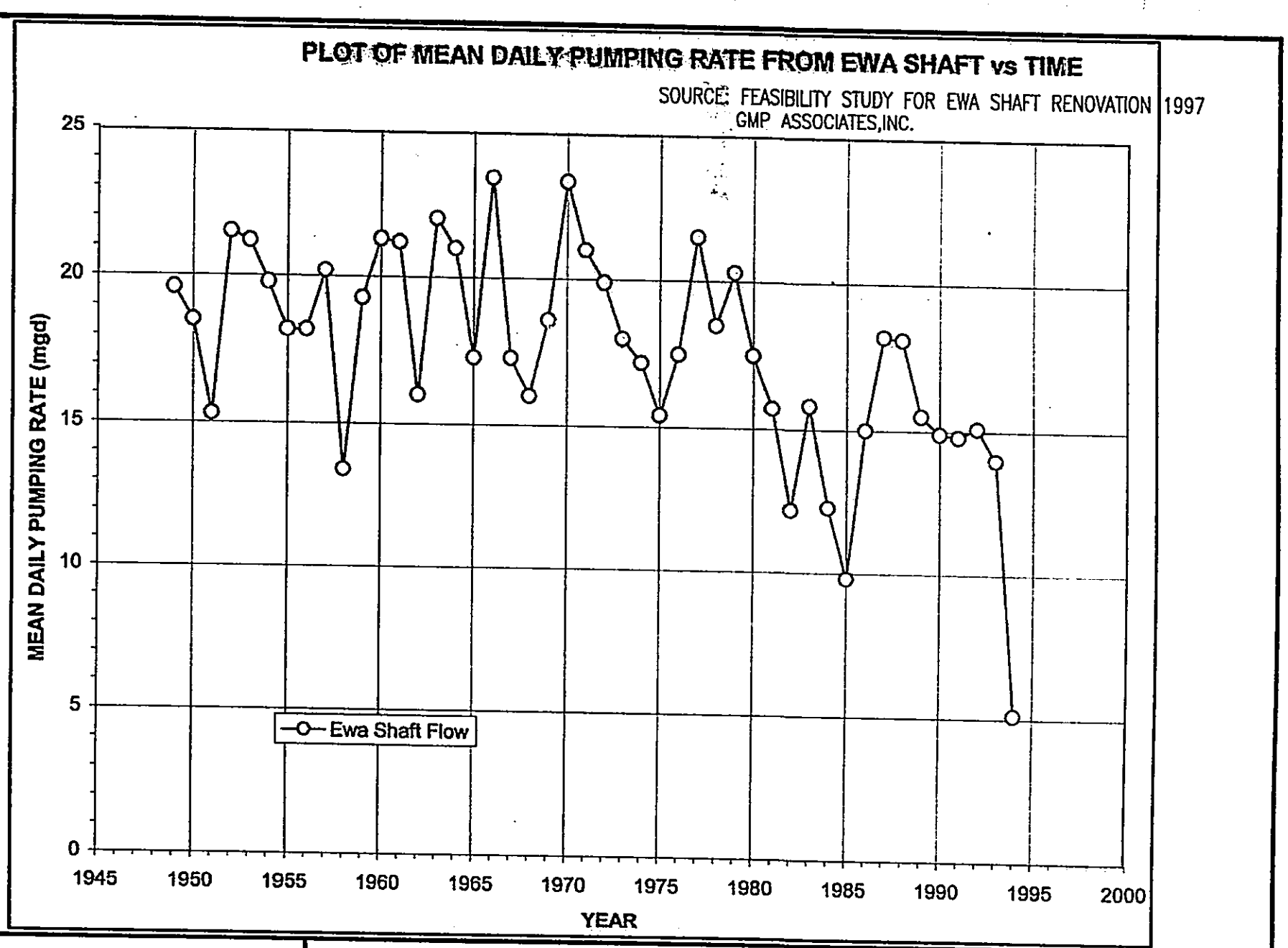


SOURCE:
WATER RESOURCE MANAGEMENT
DIVISION, DEPARTMENT OF LAND AND
NATURAL RESOURCES, STATE OF HAWAII

Source:

M&E Pacific, Inc.
ENGINEERS & ARCHITECTS
SUITE 500, PAUAHI TOWER · 1001 BISHOP ST., HONOLULU, HAWAII 96813

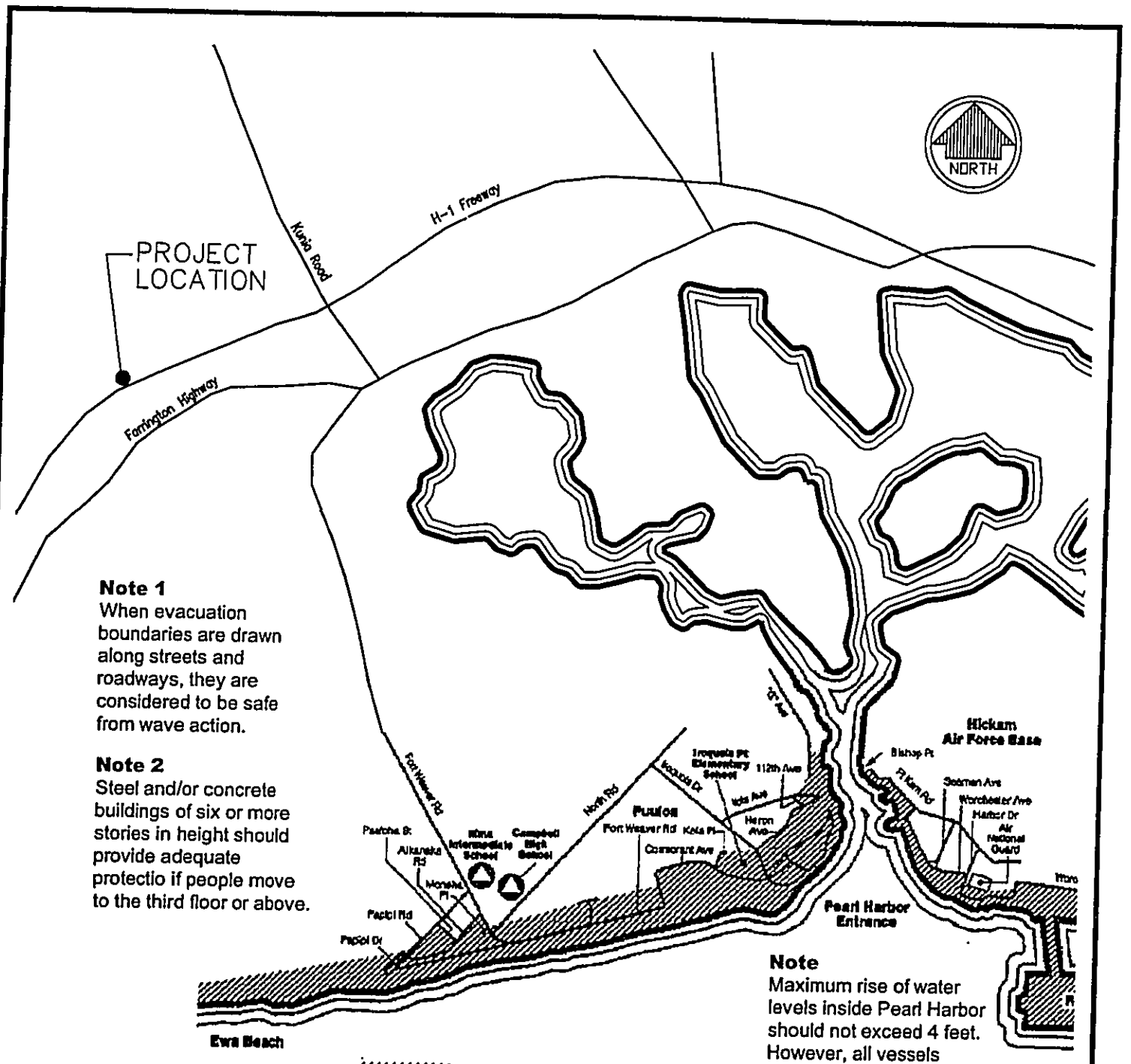
ISLAND OF OAHU HYDROLOGIC MAP
Figure 7
Environmental Assessment
Ewa Shaft Renovation
Ewa, Oahu, Hawaii
May 2002



Source:

M&E Pacific, Inc.
ENGINEERS & ARCHITECTS
SUITE 500, PAUAHI TOWER · 1001 BISHOP ST., HONOLULU, HAWAII 96813

MEAN DAILY FLOWS FOR EWA SHAFT FROM 1949–1994
FIGURE 8
Environmental Assessment
Ewa Shaft Renovation
Ewa, Oahu, Hawaii
May 2002



TSUNAMI EVACUATION ZONE MAP

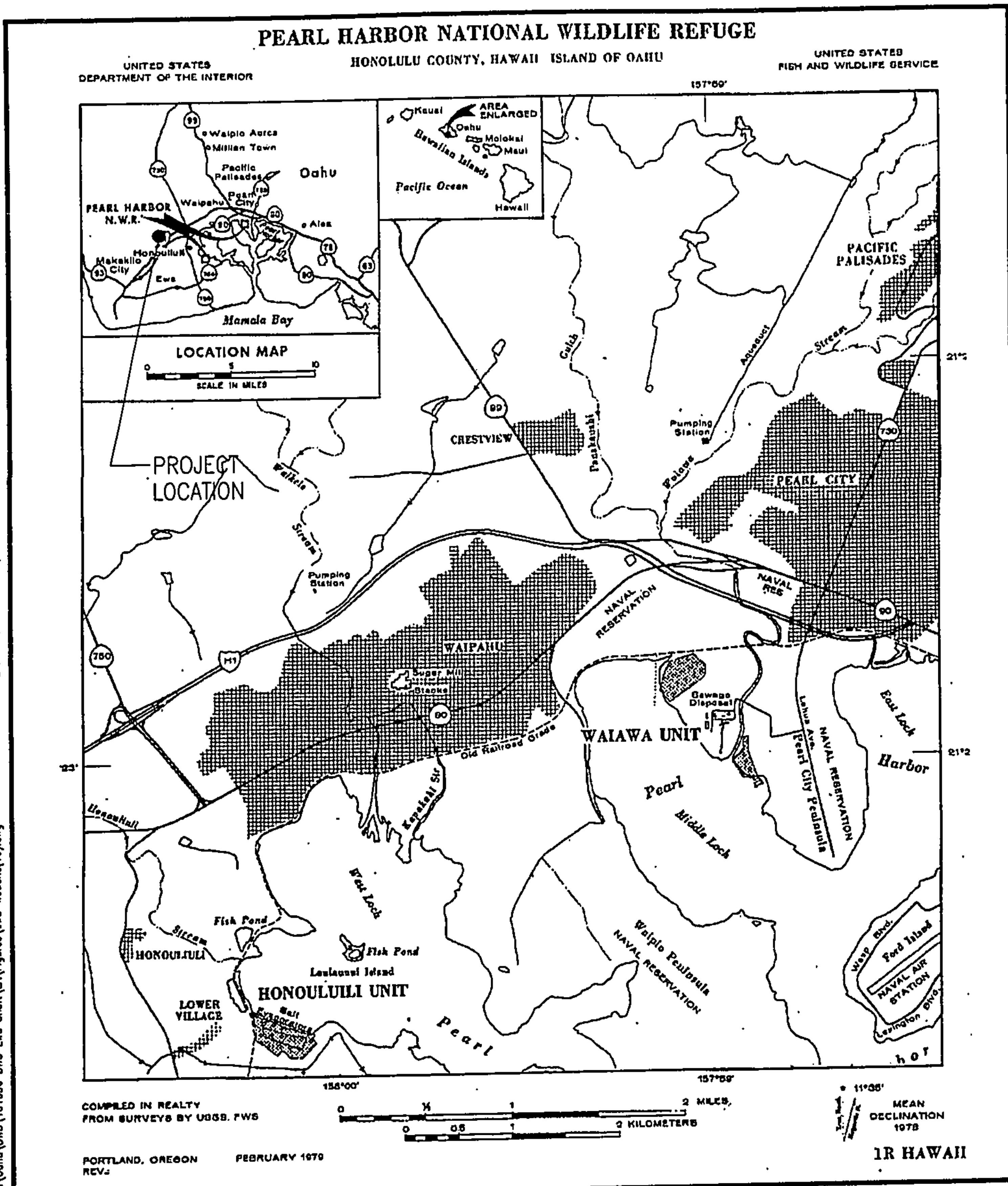
NOT TO SCALE

Source:

M&E Pacific, Inc.
ENGINEERS & ARCHITECTS
SUITE 500, PAUAHI TOWER · 1001 BISHOP ST., HONOLULU, HAWAII 96813

TSUNAMI EVACUATION ZONE MAP
FIGURE 9
Environmental Assessment
Ewa Shaft Renovation
Ewa, Oahu, Hawaii
May 2002

PLOT DATE: June 20, 2002 @ 11:31:33 am
LAST UPDATE: June 20, 2002 @ 08:29:43 am
PATH/FILENAME: P:\Projects\Oahu\CAD\101056 ewa Shaft\EA\Figures\ewa-tsunami(9).dwg

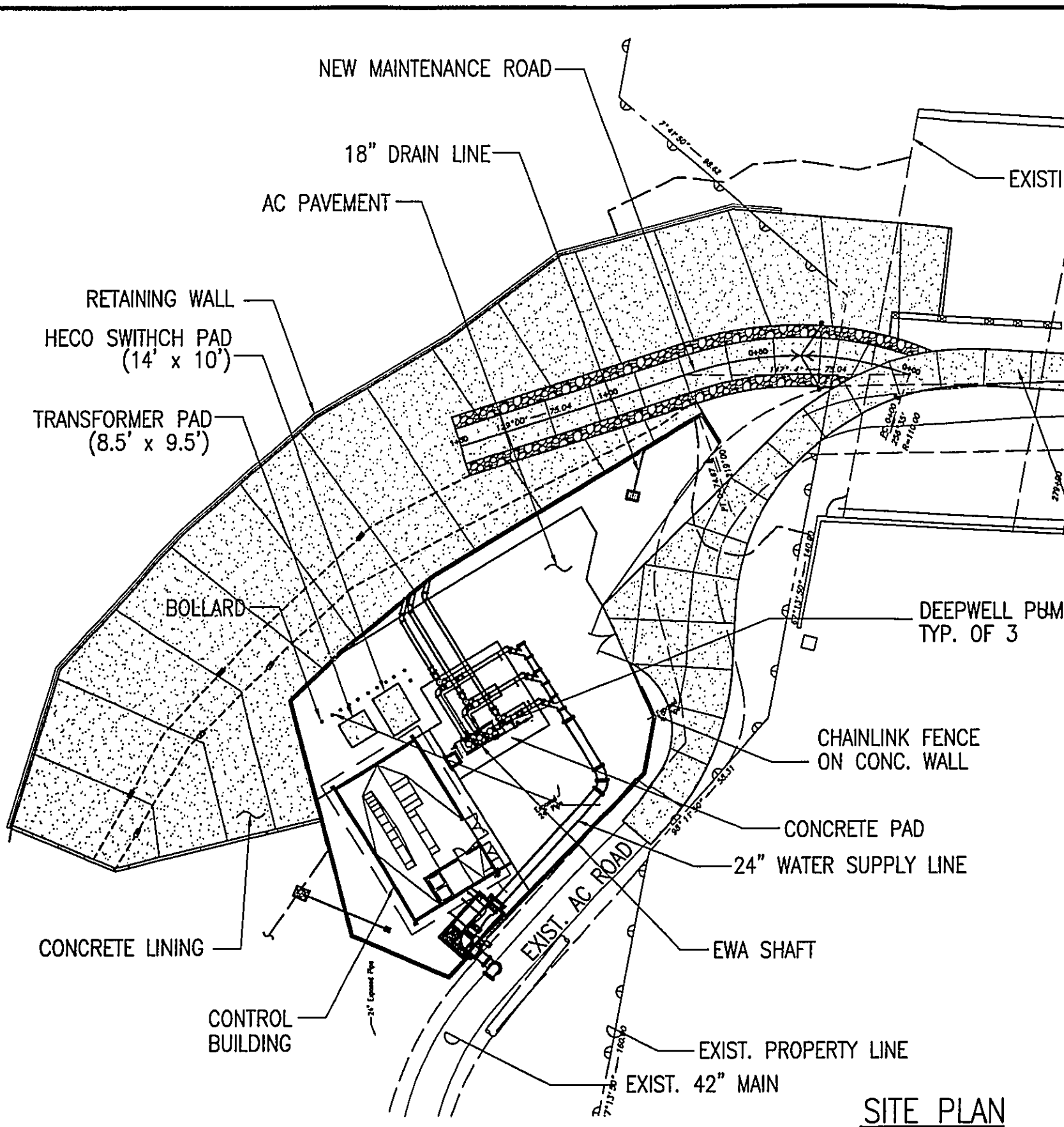


Source:

M&E Pacific, Inc.
ENGINEERS & ARCHITECTS
SUITE 500, PAUAHI TOWER • 1001 BISHOP ST., HONOLULU, HAWAII 96813

HONOULIULI WETLAND
FIGURE 10
Environmental Assessment
Ewa Shaft Renovation
Ewa, Oahu, Hawaii
May 2002

PLOT DATE: June 20, 2002 @ 11:32:02 am
LAST UPDATE: June 20, 2002 @ 08:50:11 am

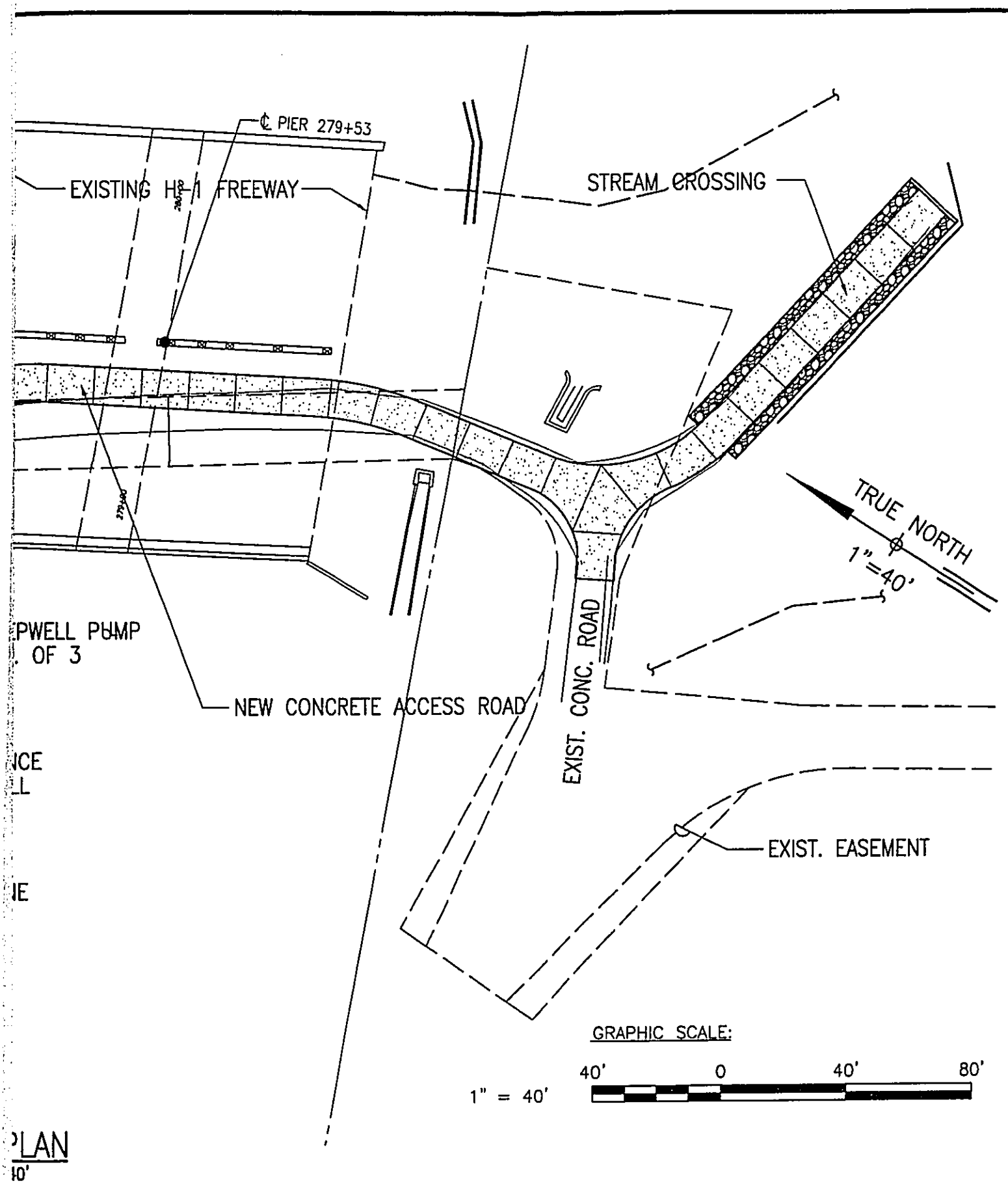


SITE PLAN

SCALE: 1"=40'

Source:

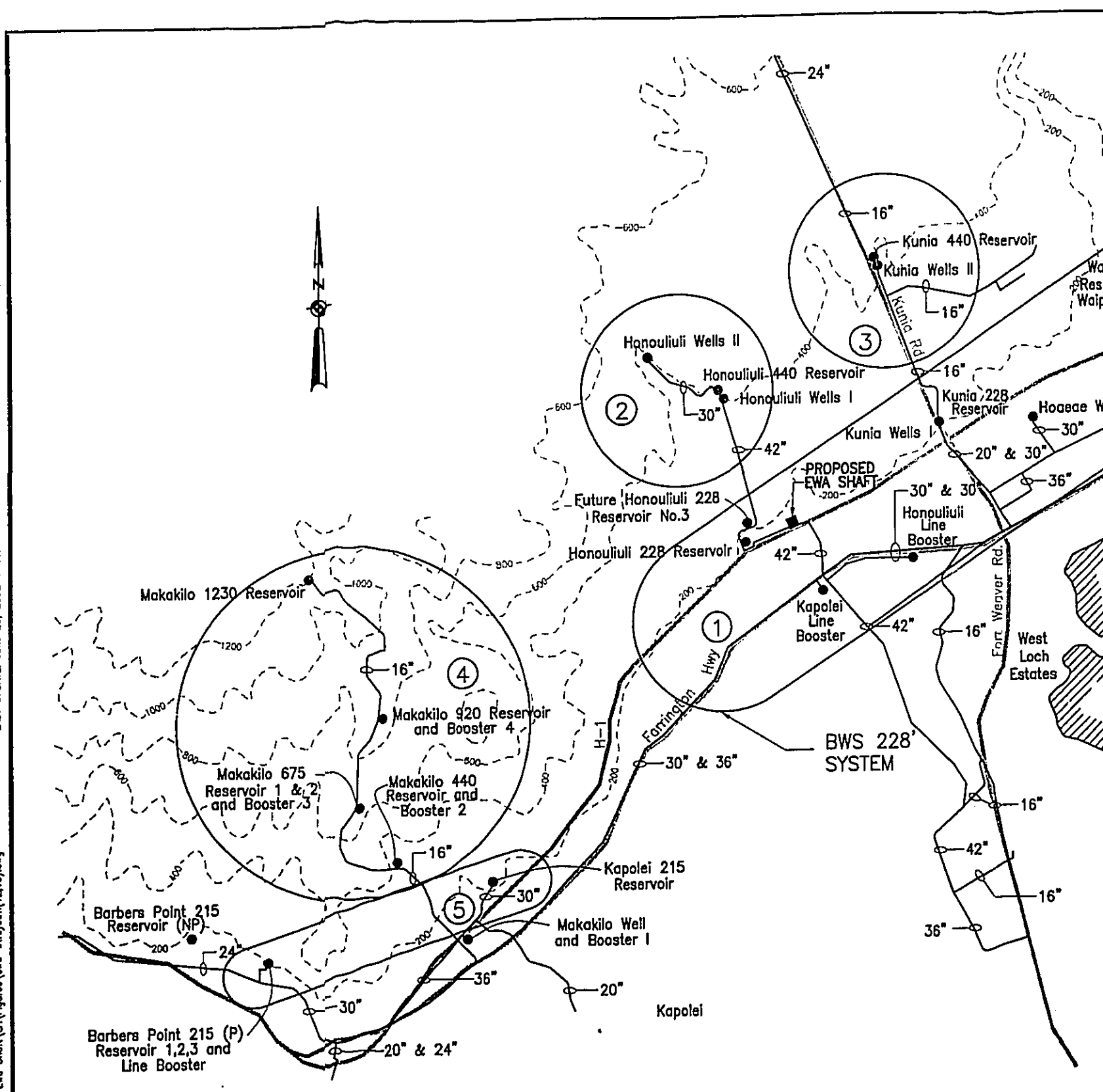
M&E Pacific, Inc.
ENGINEERS & ARCHITECTS
SUITE 500, PAUAHI TOWER • 1001 BISHOP ST., HONOLULU, HAWAII 96813



SITE PLAN

FIGURE 11

Environmental Assessment
Ewa Shaft Renovation
Ewa, Oahu, Hawaii
July 2002



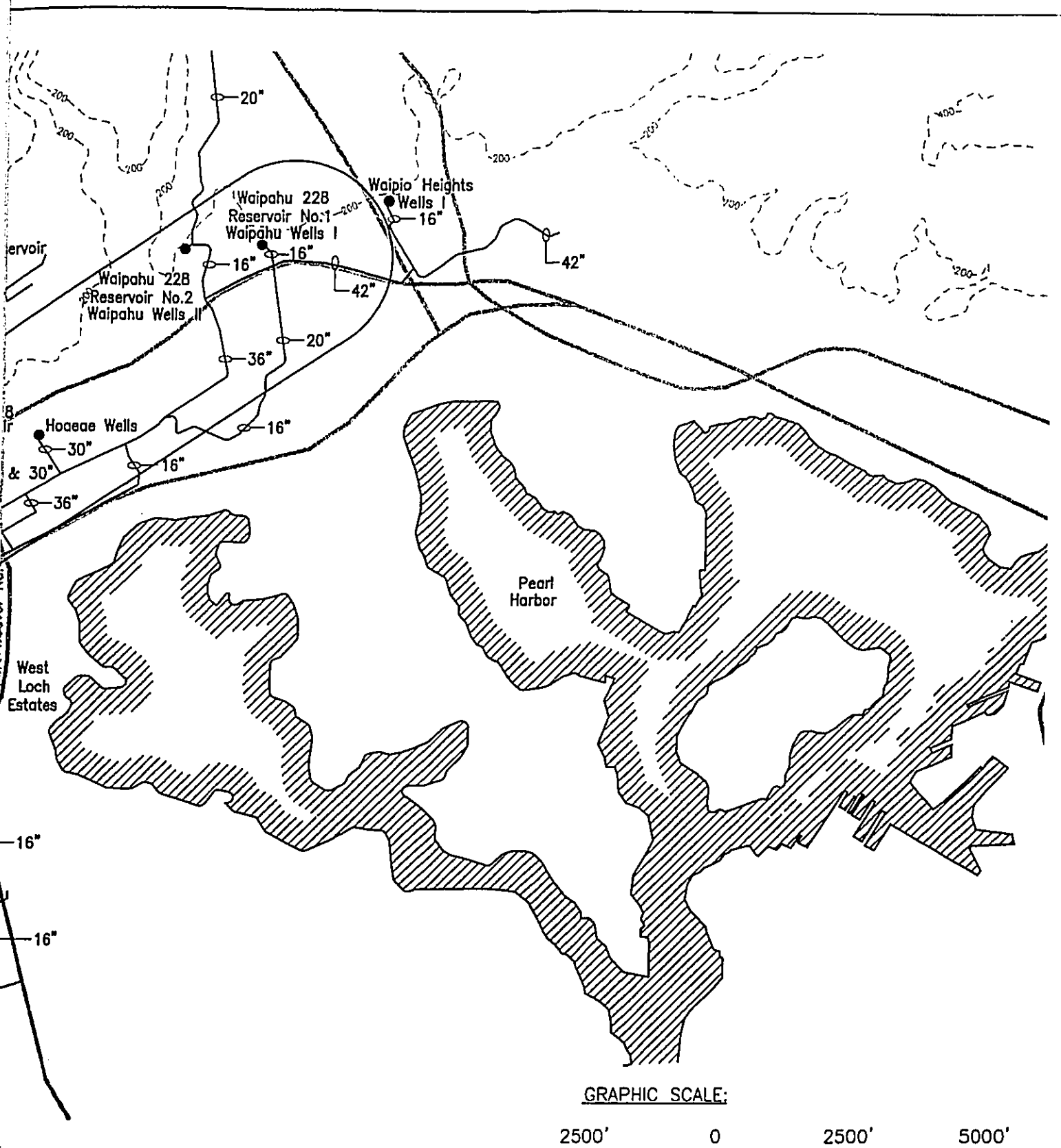
PEARL HARBOR WATER MANA

SCALE: 1"=2500'

SOURCE: Marc M. Siah & Associates, Inc.

Source:

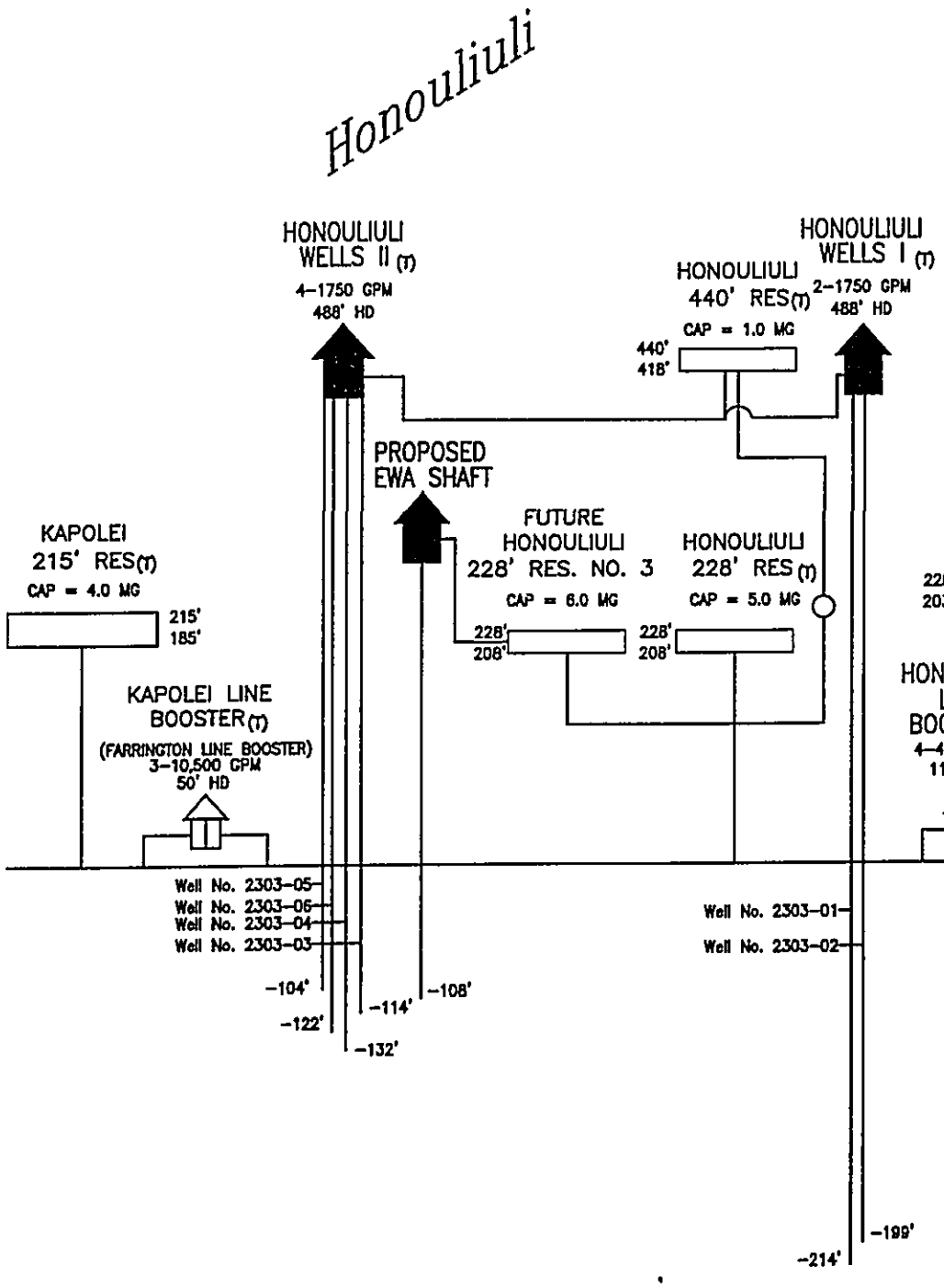
M&E Pacific, Inc.
ENGINEERS & ARCHITECTS
SUITE 500, PAUAHI TOWER · 1001 BISHOP ST., HONOLULU, HAWAII 96813



R MANAGEMENT AREA

PEARL HARBOR WATER MANAGEMENT AREA
FIGURE 12

Environmental Assessment
Ewa Shaft Renovation
Ewa, Oahu, Hawaii
June 2002

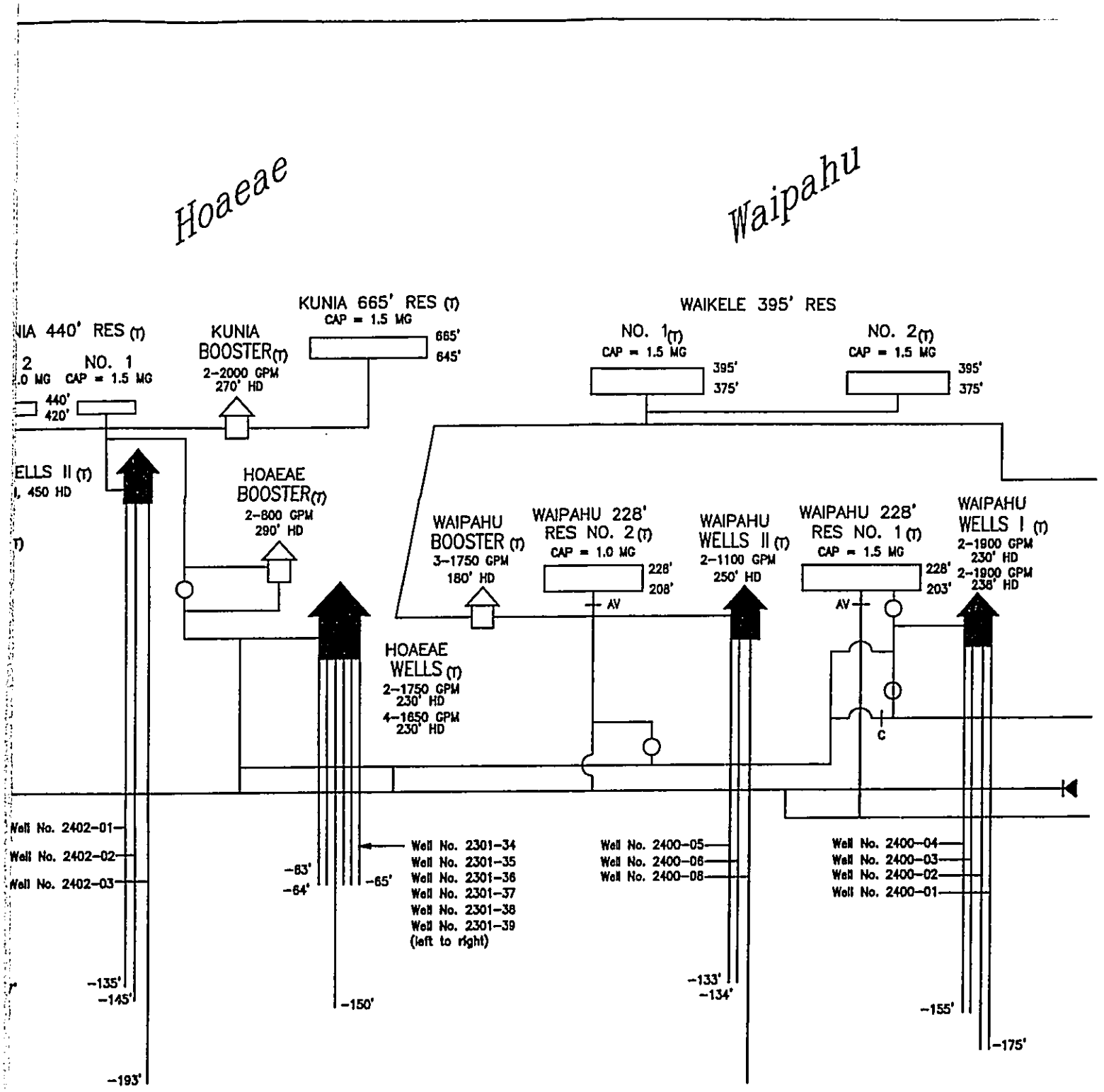


WATER SYSTEM SCHEM

SCALE: NTS

Source:

M&E Pacific, Inc.
ENGINEERS & ARCHITECTS
SUITE 500, PAUAHI TOWER · 1001 BISHOP ST., HONOLULU, HAWAII 96813

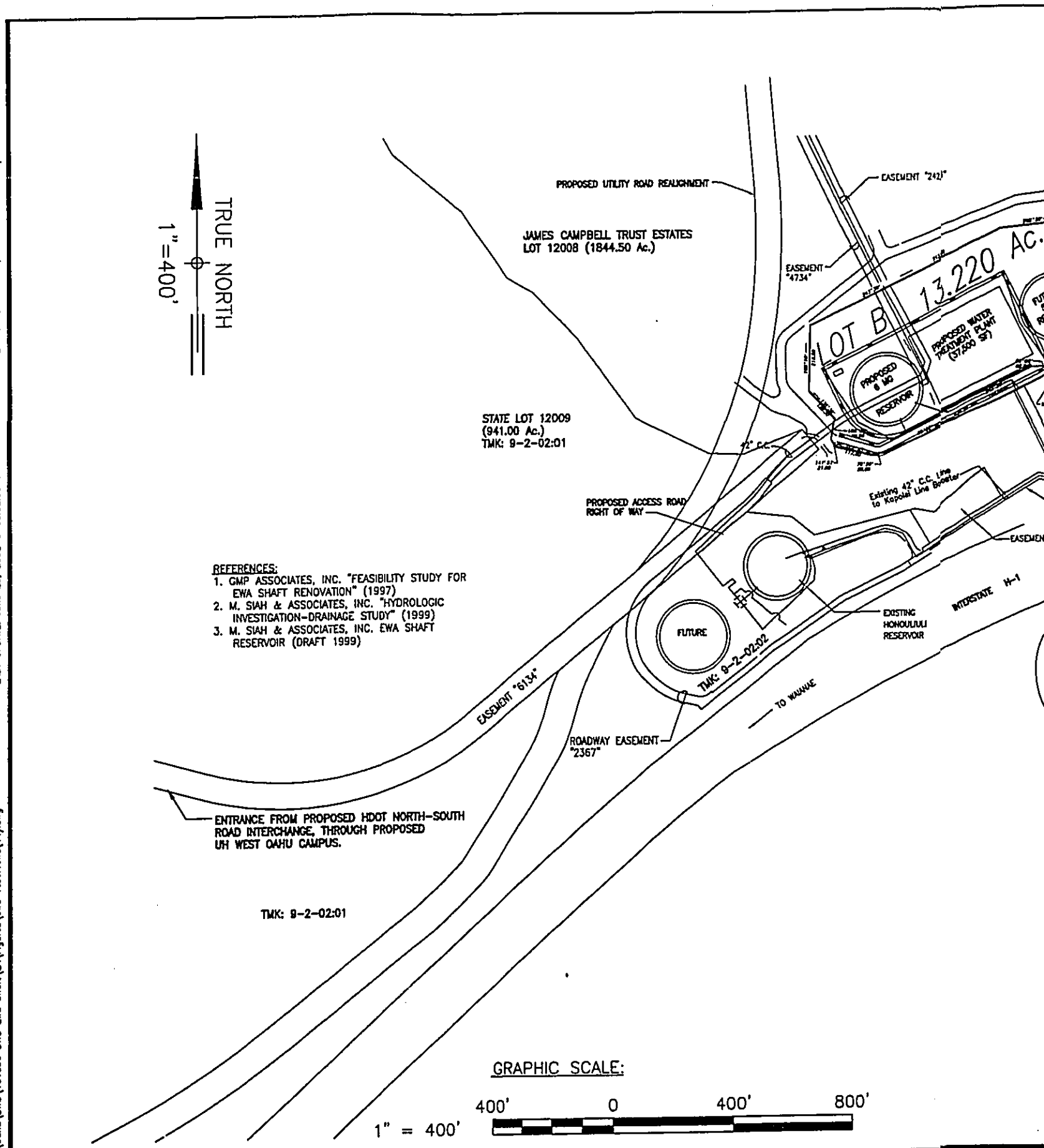


SCHEMATIC DIAGRAM

SOURCE:
BOARD OF WATER SUPPLY
CITY & COUNTY OF HONOLULU
SCHEMATIC DIAGRAM OF WATER SUPPLY SYSTEM, JUNE 30, 1997

228' WATER SYSTEM SCHEMATIC DIAGRAM
FIGURE 13

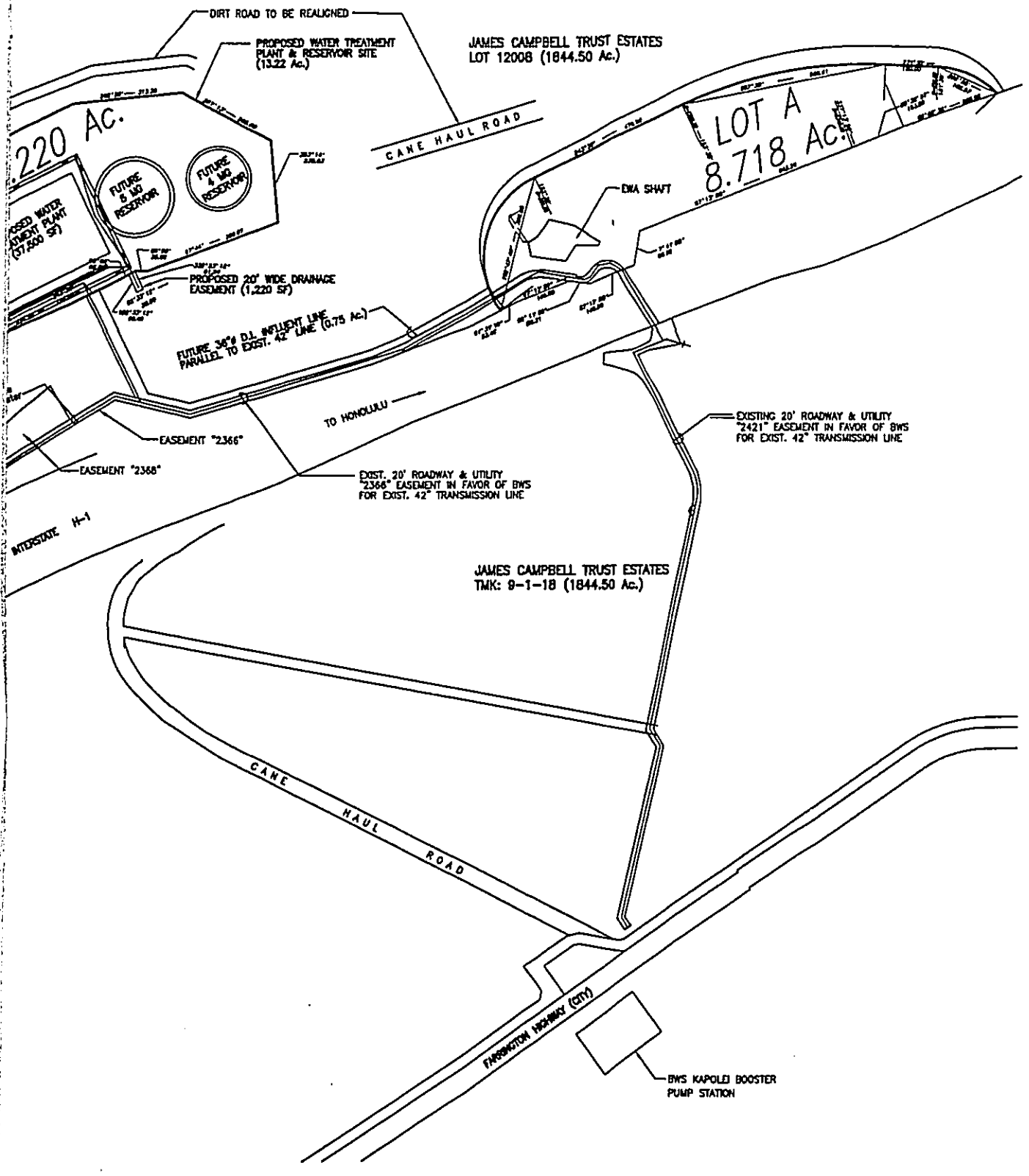
Environmental Assessment
Ewa Shaft Renovation
Ewa, Oahu, Hawaii
June 2002



Source:

M&E Pacific, Inc.
ENGINEERS & ARCHITECTS
SUITE 500, PAUAHI TOWER · 1001 BISHOP ST., HONOLULU, HAWAII 96813

PATH/FILENAME: P:\Projects\Oahu\BWS\101056 BWS Ewa Shaft\EA\Figures\ewa-reservoir3(14).dwg LAST UPDATE: June 20, 2002 @ 08:32:30 am PLOT DATE: June 20, 2002 @ 01:10:49 pm



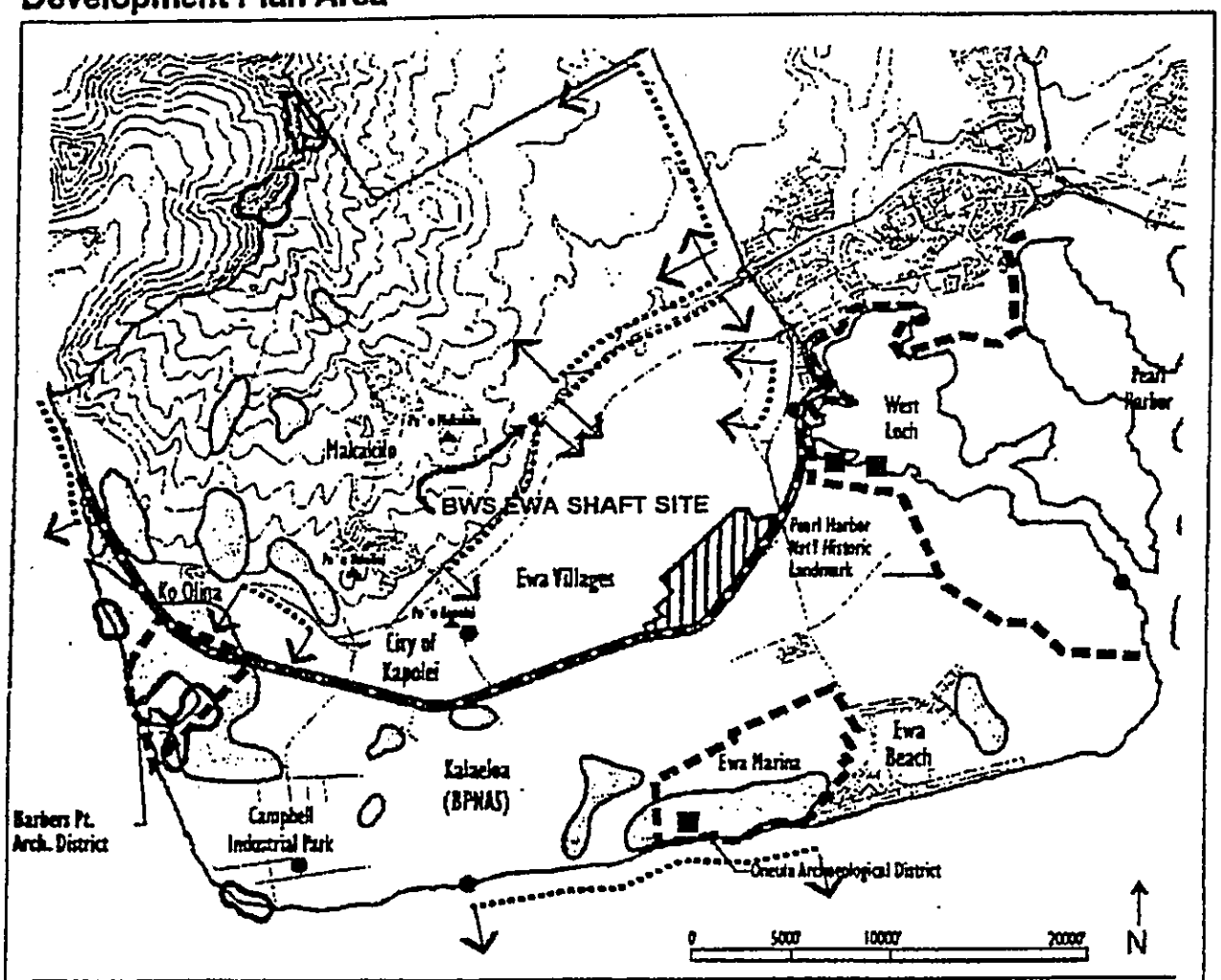
PROPOSED 6.0 MG HONOULIULI 228' RESERVOIR NO. 3

FIGURE 14

Environmental Assessment
Ewa Shaft Renovation
Ewa, Oahu, Hawaii
June 2002

Exhibit 3.2

Map of Natural, Historic and Scenic Resources in the Ewa Development Plan Area



Legend

- Single and Concentrated Archaeological Sites
- Dispersed Archaeological Sites
- Historic Archaeological District
- Plantation Villages
- Historic Railway/Bikeway Corridor
- Rare/Endangered Native Species
- Natural Preserves/Wildlife Refuges
- Wetland/Waterbird Habitat
- Panoramic Views

Note: Some dispersed archaeological sites and rare/endangered species habitat were identified in project Environmental Impact Statements. In such areas, subsequent development approvals and associated mitigation measures should be reviewed to identify which sites still retain archaeological or environmental resource value.

Source:

M&E Pacific, Inc.
ENGINEERS & ARCHITECTS
SUITE 500, PAUAHI TOWER • 1001 BISHOP ST., HONOLULU, HAWAII 96813

SCENIC RESOURCES IN THE EWA DEVELOPMENT PLAN AREA
FIGURE 15
Environmental Assessment
Ewa Shaft Renovation
Ewa, Oahu, Hawaii
July 2002

APPENDIX A

Revision of Public Infrastructure Map
For
Ewa Development Plan Area

CITY COUNCIL
CITY AND COUNTY OF HONOLULU
HONOLULU, HAWAII

No. 01-261

RESOLUTION

ADOPTING A REVISION TO THE PUBLIC INFRASTRUCTURE MAP FOR THE EWA DEVELOPMENT PLAN AREA, EWA, OAHU, HAWAII

WHEREAS, the Public Infrastructure Map for the Ewa Development Plan area has been revised on April 5, 2001 by the City Council as Resolution 2000-37; and

WHEREAS, the Ewa Shaft Renovation project shown in Exhibit A is consistent with the General Plan, the Ewa Development Plan, and Board of Water Supply's Six-Year Capital Improvements Program; now, therefore,

BE IT RESOLVED by the Council of the City and County of Honolulu that the Public Infrastructure Map for the Ewa Development Plan be revised to include a potable water well symbol for this project; and

BE IT FURTHER RESOLVED by the Council of the City and County of Honolulu that the potable water well symbol shall be deleted from the Public Infrastructure Map by administrative procedure once completion of the facility has been certified in writing by the applicant/agency to the Department of Planning and Permitting and the City Council.

BE IT FINALLY RESOLVED that the City Clerk is directed to transmit a certified copy of this resolution to the Director of Planning and Permitting and to the Manager and Chief Engineer of the Board of Water Supply.

DPPPIM5.R01

PPS

RESOLUTION

INTRODUCED BY:

(BK)

Councilmembers

DATE OF INTRODUCTION:

SEP 13 2001

Honolulu, Hawaii

g:ipd\pim\1pim5res.wpd

CITY COUNCIL

CITY AND COUNTY OF HONOLULU
HONOLULU, HAWAII

I hereby certify that the foregoing RESOLUTION was adopted by the COUNCIL OF THE CITY AND COUNTY OF HONOLULU on the date and by the vote indicated to the right.

ATTEST:

GENEVIEVE G. WONG
City Clerk

JON C. YOSHIMURA
CHAIR AND PRESIDING OFFICER

Dated 10/17/01

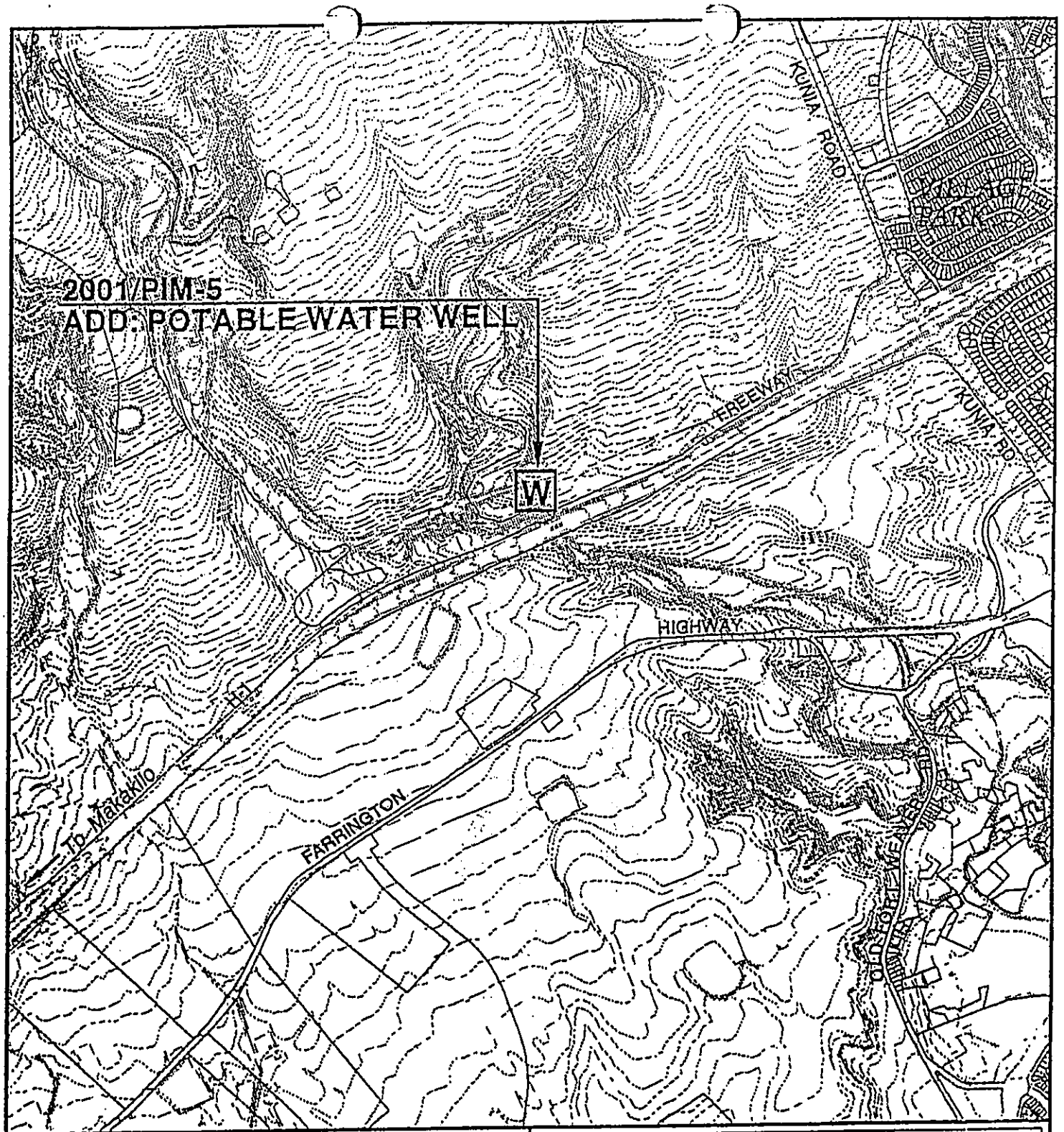
ADOPTED MEETING HELD 10/17/01			
	AYE	NO	A/E
BAINUM	X		
CACHOLA	X		
DeSOTO	X		
FELIX	X		
HOLMES	X		
MANSHO	X		
MIRIKITANI	X		
OKINO	X		
YOSHIMURA	X		
	9	0	0

Reference: D 752

Report No. PPS-438

Resolution No.

01-261



LOCATION MAP

TAX MAP KEY(S): 9-2-001:001

FOLDER NO.: 2001/PIM-5

Prepared by: Department of Planning & Permitting
City & County of Honolulu

EXHIBIT A

APPENDIX B

Draft EA Comments and Responses

BENJAMIN J. CAYETANO
GOVERNOR OF HAWAII

RECEIVED JUL 3 1 2002

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

July 25, 2002

GILBERT S. COLOMA-AGARAN
CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES

Eric T. Hirano
DEPUTY

AQUACULTURE DEVELOPMENT PROGRAM
AQUATIC RESOURCES
BOATING AND OCEAN RECREATION
CONSERVATION AND ENVIRONMENTAL AFFAIRS
CONSERVATION AND RESOURCES ENFORCEMENT
CONVEYANCES
FORESTRY AND WILDLIFE
HISTORIC PRESERVATION
LAND MANAGEMENT
STATE PARKS
WATER AND LAND DEVELOPMENT
WATER RESOURCES MANAGEMENT

Mr. Andy Huang, P.E.
Project Engineer
M&E Pacific, Inc.
1001 Bishop Street
Suite 500, Pauahi Tower
Honolulu, Hawaii 96813

Dear Mr. Huang:

Subject: Draft Environmental Assessment for Ewa Shaft Renovation Project, Ewa, Oahu, Hawaii.

We appreciate your efforts to include us in the review of the subject matter above. The Department of Land and Natural Resources, Division of Forestry and Wildlife has no objections to this project as it will not impact any of our core management programs. Thank you for the opportunity to comment on this project.

Sincerely,

Randall W. Kennedy
for Michael G. Buck
Administrator

C: DOFAW Oahu Branch

BOARD OF WATER SUPPLY
CITY AND COUNTY OF HONOLULU
630 SOUTH BERETANIA STREET
HONOLULU, HI 96843

JEREMY HARRIS, Mayor

EDDIE FLORES, JR., Chairman
CHARLES A. STED, Vice Chairman
JAN M.L.Y. AMI
HERBERT S.K. KAOPUA, SR.
DAROLYN H. LENDIO

BRIAN K. MINAAI, Ex-Officio

CLIFFORD S. JAMILE
Manager and Chief Engineer

DONNA FAY K. KIYOSAKI
Deputy Manager and Chief Engineer

October 30, 2002

Mr. Michael G. Buck, Administrator
Division of Forestry and Wildlife
Department of Land and Natural Resources
State of Hawaii
1151 Punchbowl Street
Honolulu, Hawaii 96813

Dear Mr. Buck:

Subject: Your Letter of July 25, 2002 to M&E Pacific, Inc.,
Regarding the Draft Environmental Assessment for the Board
of Water Supply's Proposed Ewa Shaft Renovation, Ewa, Oahu

Thank you for reviewing the Draft Environmental Assessment for the Board of Water Supply's Ewa Shaft Renovation project.

We acknowledge that the Division of Forestry and Wildlife has no objections to the proposed project as it will not impact any of your core management programs.

If you have any questions, please contact Scot Muraoka at 527-5221.

Very truly yours,

CLIFFORD S. JAMILE
Manager and Chief Engineer

cc: Andy Huang, M&E Pacific, Inc.

BENJAMIN J. CAYETANO
GOVERNOR OF HAWAII

RECEIVED AUG 08 2002

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT
P.O. BOX 621
HONOLULU, HAWAII 96809

August 5, 2002

Ref.ewa shaft EA.dr

Mr. Andy Huang, P.E.
Project Engineer
M&E Pacific, Inc.
1001 Bishop Street
Suite 500, Pauahi Tower
Honolulu, HI 96813

Dear Mr. Huang:

SUBJECT: Ewa Shaft Renovation Draft Environmental Assessment

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

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

[X] We recommend coordination with the county government to incorporate this project into the county's Water Use and Development Plan.

[ ] We recommend coordination with the Land Division of the State Department of Land and Natural Resources to incorporate this project into the State Water Projects Plan.

[ ] We are concerned about the potential for ground or surface water degradation/contamination and recommend that approvals for this project be conditioned upon a review by the State Department of Health and the developer's acceptance of any resulting requirements related to water quality.

[ ] A Well Construction Permit and/or a Pump Installation Permit from the Commission would be required before ground water is developed as a source of supply for the project.

[ ] The proposed water supply source for the project is located in a designated water management area, and a Water Use Permit from the Commission would be required prior to use of this source.

[ ] Groundwater withdrawals from this project may affect streamflows, which may require an instream flow standard amendment.

[ ] We are concerned about the potential for degradation of instream uses from development on highly erodible slopes adjacent to streams within or near the project. We recommend that approvals for this project be conditioned upon a review by the corresponding county's Building Department and the developer's acceptance of any resulting requirements related to erosion control.

BOARD OF WATER SUPPLY
CITY AND COUNTY OF HONOLULU
630 SOUTH BERETANIA STREET
HONOLULU, HI 96843

November 12, 2002

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

Attention: Lenore Nakama

Dear Ms. Nishioka:

Subject: Your Letter of August 5, 2002 to M&E Pacific, Inc., Regarding the Draft Environmental Assessment for the Board of Water Supply's Ewa Shaft Renovation, Ewa, Oahu, Hawaii

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

We have the following response to your comments:

1. We will coordinate incorporation of this project into the county's Water Use and Development Plan.

2. We acknowledge that written notification is required to be submitted to the Commission on Water Resource Management no later than the first working day after initiation of the proposed pump replacement work and that submission of the Well Completion Report-Part II is required within 30 days of completion of the work.

3. Section 6.7 will be revised in the Final EA to reflect the revised sustainable yield of the Waipahu-Waiawa Aquifer system, which is currently set at 104 million gallons per day.

[ ] If the proposed project includes construction of a stream diversion, the project may require a stream diversion works permit and amend the instream flow standard for the affected stream(s).

[ ] If the proposed project alters the bed and banks of a stream channel, the project may require a stream channel alteration permit.

[X] OTHER:

The Hawaii Well Construction and Pump Installation Standards requires written notification no later than the first working day after initiation of the proposed pump replacement work and submission of a Well Completion Report – Part II within 30 days of completion of the work.

Section 6.7 of the report, Groundwater Resources, should be updated to reflect the revised sustainable yield of the Waipahu-Waiawa Aquifer System, which is currently set at 104 mgd.

At the location of the Ewa Shaft, Honouliuli Gulch does not contain sufficient flows to support instream uses. Therefore, it is not considered to be a stream, and Stream Channel Alteration and Diversion Works permits will not be required.

The report cites the 1997 Ewa Development Plan's projection of 35 mgd of potable water that will be needed in Ewa by 2020 to justify the need for this project. We strongly recommend that the City update its Water Use and Development Plan (WUDP), the preparation of which is the responsibility of each county under Chapter 174C HRS, to reflect this new demand projection and outline its long-term, comprehensive strategies to meet not only Ewa area demands, but island-wide demands. The objective of the WUDP is to set forth the allocation of water to land use in each county; therefore, it should be updated when the Development Plans are updated. The last adoption of the City's WUDP was in 1990. Since then, the potable demand projection has been revised, and reclaimed water has become a viable option to meeting nonpotable demands. The WUDP should be updated to clarify both potable and nonpotable demand projections, identify all available sources to meet these demands, and outline an integrated, comprehensive, long-term strategy for meeting the demands.

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

Sincerely,

LINNEL T. NISHIOKA
Deputy Director

LN:ss

c: DLNR, Land Division

4. We acknowledge your determination that Honouliuli Gulch is not considered to be a stream; therefore, Stream Channel Alteration and Diversion Works permits will not be required.

5. We will continue working with the City on the update of the Water Use and Development Plan, including addressing potable and nonpotable demand projections, identifying all available sources to meet these demands and outlining an integrated, comprehensive, long-term strategy for meeting the demands.

If you have any questions, please contact Scot Muraoka at 527-5221.

Very truly yours,

for CLIFFORD S. JAMILE
Manager and Chief Engineer

cc: Andy Huang, M&E Pacific, Inc.

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

REPLY TO ATTENTION OF

Regulatory Branch

August 8, 2002

RECEIVED AUG 09 2002

Mr. Andy Huang, P.E.
Project Engineer
M&E Pacific, Inc.
1001 Bishop Street
Suite 500, Pauahi Tower
Honolulu, Hawaii 96813

Dear Mr. Huang:

This responds to your request for review of the Draft Environmental Assessment (DEA) for the Ewa Shaft Renovation, Ewa, Oahu, Hawaii. We have reviewed the document with respect to the Corps' authority to issue Department of the Army (DA) permits under Section 10 of the River and Harbor Act of 1899 (33 USC 403) and Section 404 of the Clean Water Act (33 USC 1344).

The DEA indicates that the project would include the construction of approximately 31,200 square feet of concrete lining in Honouliuli Gulch. Based on the project information you provided, I have made a preliminary determination that the project would involve the discharge of dredged or fill material into waters of the U.S. and that a DA permit will be required.

File No. 2000200456 has been assigned to this project. Should you have questions concerning this preliminary determination, please contact Mr. Peter Galloway of my staff (telephone (808) 438-8416; fax (808) 438-4060). Mailed correspondence should be addressed to: Regulatory Branch (CEPOH-EC-R/P. Galloway); U.S. Army Engineer District, Honolulu; Building 230; Fort Shafter, Hawaii 96858-5440. Thank you for working with the Corps of Engineers in protecting the aquatic resources of Hawaii.

Sincerely,

William B. Lennan Jr.
for George P. Young, P.E.
Chief, Regulatory Branch

BOARD OF WATER SUPPLY

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

October 30, 2002

JEREMY HARRIS, Mayor

EDDIE FLORES, JR., Chairman
CHARLES A. STED, Vice Chairman
JAN M.L.Y. AMI
HERBERT S.K. KAOPUA, SR.
DAROLYN H. LENDIO

BRIAN K. MINAAL Ex-Officio

CLIFFORD S. JAMILE
Manager and Chief Engineer

DONNA FAY K. KIYOSAKI
Deputy Manager and Chief Engineer

Mr. George P. Young, P.E.
Chief, Regulatory Branch
Department of the Army
U.S. Army Engineer District, Honolulu
Fort Shafter, Hawaii 96858-5440

Dear Mr. Young:

Subject: Your Letter of August 8, 2002 to M&E Pacific, Inc.,
Regarding the Draft Environmental Assessment for the Board
of Water Supply's Proposed Ewa Shaft Renovation, Ewa, Oahu

Thank you for reviewing the Draft Environmental Assessment for the Board of Water Supply's Ewa Shaft Renovation project.

We acknowledge that a Department of the Army permit will be required if the project involves the discharge of dredged or fill material into waters of the U.S.

If you have any questions, please contact Scot Muraoka at 527-5221.

Very truly yours,

CLIFFORD S. JAMILE
Manager and Chief Engineer

cc: Andy Huang, M&E Pacific, Inc.

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

THE ESTATE OF JAMES CAMPBELL

August 14, 2002

Mr. Andy Huang, P.E.
Project Manager
M&E Pacific, Inc.
1001 Bishop Street
Pauahi Tower, Suite 500
Honolulu, HI 96813

Dear Mr. Huang:

Ewa Shaft Renovation Draft Environmental Assessment (EA)

Thank you for sending us the draft Eva Shaft Renovation EA for our review.

We have no comments regarding the draft EA. However, the performance of any construction or grading work that may encroach on Estate lands shall not commence without proper consent from the Estate.

Sincerely,

Bert L. Hatton
Manager, Agriculture/
Natural Resources

jlr:04034600\K10020

1001 Kamokila Boulevard, Kapolei, Hawaii 96707 Phone (808) 674-6674 Facsimile (808) 674-3111 Website: www.kapolei.com

BOARD OF WATER SUPPLY

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

JEREMY HARRIS, Mayor

EDDIE FLORES, JR., Chairman
CHARLES A. STED, Vice Chairman
JAN M.L.Y. AMI
HERBERT B.K. KAOPUA, SR.
CAROLYN H. LENDIO

BRIAN K. MINAAI, Ex-Officio

CLIFFORD S. JAMILE
Manager and Chief Engineer

DONNA FAY K. KIYOSAKI
Deputy Manager and Chief Engineer

October 30, 2002

Mr. Bert L. Hatton, Manager
Agriculture/Natural Resources
The Estate of James Campbell
1001 Kamokila Boulevard
Kapolei, Hawaii 96707

Dear Mr. Hatton:

Subject: Your Letter of August 14, 2002 to M&E Pacific, Inc.,
Regarding the Draft Environmental Assessment for the Board
of Water Supply's Proposed Ewa Shaft Renovation, Ewa, Oahu

Thank you for reviewing the Draft Environmental Assessment (EA) for the Board of Water Supply's Ewa Shaft Renovation project.

We acknowledge that you have no comments regarding the Draft EA. We note that any construction or grading work that may encroach on Estate lands will require proper consent from the Estate.

If you have any questions, please contact Scot Muraoka at 527-5221.

Very truly yours,

CLIFFORD S. JAMILE
Manager and Chief Engineer

cc: Andy Huang, M&E Pacific, Inc.

Pure Water . . our greatest need - use it wisely

DEPARTMENT OF DESIGN AND CONSTRUCTION
CITY AND COUNTY OF HONOLULU
650 SOUTH KING STREET, 11TH FLOOR
HONOLULU, HAWAII 96813
Phone: (808) 523-4864 • Fax: (808) 523-4567
Web site: www.co.honolulu.hi.us

JEREMY HARRIS
MAYOR

RAE M. LOUI, P.E.
DIRECTOR

ERIC O. CRISPIN, AIA
DEPUTY DIRECTOR

GEORGE T. TAMASHIRO, P.E.
ASSISTANT DIRECTOR

WW.P 02-325

August 19, 2002

Mr. Andy Huang, P.E.
Project Engineer
M&E Pacific, Inc.
Pauahi Tower
1001 Bishop Street, Suite 500
Honolulu, HI 96813

Dear Mr. Huang:

Subject: Ewa Shaft Renovation Draft Environmental Assessment (EA)

We have reviewed the subject Draft EA submitted by your Letter of July 22, 2002. Aside from the spelling error for Palehua Road shown on Figure 3, we have no other comments to offer. Thank you for allowing us to review the Draft EA.

If you have any questions, please contact Bill Liu of the Wastewater Division at 527-5388.

Very truly yours,

RAE M. LOUI, P.E.
Director

BOARD OF WATER SUPPLY
CITY AND COUNTY OF HONOLULU
630 SOUTH BERETANIA STREET
HONOLULU, HI 96843

RECEIVED NOV 07 20

October 30, 2002

TO: MS. RAE M. LOUI, P.E., DIRECTOR
DEPARTMENT OF DESIGN AND CONSTRUCTION

FROM: CLIFFORD S. JAMILE, MANAGER AND CHIEF ENGINEER

SUBJECT: YOUR LETTER OF AUGUST 19, 2002 TO M&E PACIFIC, INC., REGARDING THE DRAFT ENVIRONMENTAL ASSESSMENT FOR THE BOARD OF WATER SUPPLY'S PROPOSED EWA SHAFT RENOVATION, EWA, OAHU

Thank you for reviewing the Draft Environmental Assessment for the Board of Water Supply's Ewa Shaft Renovation project.

We acknowledge that aside from the spelling error for Palehua Road on Figure 3, you have no other comments to offer.

If you have any questions, please contact Scot Muraoka at 527-5221.

c: Andy Huang, M&E Pacific, Inc.

FIRE DEPARTMENT
CITY AND COUNTY OF HONOLULU
3375 KOAPAKA STREET, SUITE H428
HONOLULU, HAWAII 96819-1869

JEREMY HARRIS
MAYOR

RECEIVED AUG 08 2002

ATTILIO K. LEONARDI
FIRE CHIEF

JOHN CLARK
DEPUTY FIRE CHIEF

August 2, 2002

Mr. Andy Huang, P.E.
Project Engineer
M&E Pacific, Inc.
1001 Bishop Street
Suite 500, Pauahi Tower
Honolulu, Hawaii 96813

Dear Mr. Huang:

Subject: Ewa Shaft Renovation Draft Environmental Assessment (EA)

We received your letter dated July 22, 2002, regarding the Draft Environmental Assessment for the Ewa Shaft Renovation project. We have reviewed the information and find that the proposed project will not have an adverse impact on services provided by the Honolulu Fire Department.

Should you have any questions, please call Battalion Chief Kenneth Silva of our Fire Prevention Bureau at 831-7778.

Sincerely,

ATTILIO K. LEONARDI
Fire Chief

AKL/KB:jo

BOARD OF WATER SUPPLY
CITY AND COUNTY OF HONOLULU
630 SOUTH BERETANIA STREET
HONOLULU, HI 96843

JEREMY HARRIS, Mayor

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BRIAN K. MIHAAL, Ex-Officio

CLIFFORD S. JAMILE
Manager and Chief Engineer

DONNA FAY K. KIYOSAKI
Deputy Manager and Chief Engineer

October 30, 2002

TO: ATTILIO K. LEONARDI, FIRE CHIEF
FIRE DEPARTMENT

FROM: CLIFFORD S. JAMILE, MANAGER AND CHIEF ENGINEER

SUBJECT: YOUR LETTER OF AUGUST 2, 2002 TO M&E PACIFIC, INC., REGARDING THE DRAFT ENVIRONMENTAL ASSESSMENT FOR THE BOARD OF WATER SUPPLY'S PROPOSED EWA SHAFT RENOVATION, EWA, OAHU

Thank you for reviewing the Draft Environmental Assessment for the Board of Water Supply's Ewa Shaft Renovation project.

We acknowledge that the proposed project will not have any adverse impact on services provided by the Honolulu Fire Department.

If you have any questions, please contact Scot Muraoka at 527-5221.

cc: Andy Huang, M&E Pacific, Inc.

BENJAMIN J. CAYETANO
GOVERNOR OF HAWAII

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

DEPUTIES
ERIC T. HIRANO
LINNEL NISHIOKA

RECEIVED AUG 09 2002

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

July 31, 2002

Andy Huang, P. E.
Project Engineer
M & E Pacific, Inc.
1001 Bishop Street, Suite 500
Honolulu, Hawaii 96813

LOG NO: 30415
DOC NO: 0207EJ39

Dar Mr. Huang:

SUBJECT: Chapter 6E-8 Historic Preservation Review –Environmental Assessment for the Board of Water Supply Ewa Shaft Renovation, Ewa, O`ahu, Hawaii
Honouliuli, `Ewa, O`ahu
TMK: (1) 9-2-001

Thank you for the opportunity to comment on the EA for the `Ewa Shaft Renovation Project. Our review is based on historic reports, maps, and aerial photographs maintained at the State Historic Preservation Division; no field inspection was made of the project areas. We received the EA for review on July 24, 2002.

The EA correctly incorporates the results of an archaeological inventory survey that was conducted for this project (Tulchin et al. 2001. *Archaeological Inventory Survey in Support of the Proposed `Ewa Shaft Renovation Project, Honouliuli Ahupua`a, `Ewa District, Island of O`ahu [TMK: 9-2-01]*). No historic properties were found within the existing pump station although a stone wall alignment of was located c. 15 meters from the stations perimeter fence. The wall is believed to be of historic origin and may have served as a cattle barrier or may be related to the construction of the existing pump shaft site. This wall alignment was determined not to be significant because of its lack of structural integrity. Because no significant historic sites have been found within the project area, we believe that the `Ewa Shaft Renovation project will have "no effect" on significant historic sites.

In the unlikely event that historic sites, including human burials, are uncovered during routine construction activities, all work in the vicinity must stop and the State Historic Preservation division must be contacted at 692-8015.

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

Aloha,

Don Hibbard, Administrator
State Historic Preservation Division

EJ:jk

BOARD OF WATER SUPPLY

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

JEREMY HARRIS, Mayor

EDDIE FLORES, JR., Chairman
CHARLES A. STED, Vice Chairman
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DAROLYN H. LENDIO

BRIAN K. MIKAAL, Ex-Officio

CLIFFORD S. JAMILE
Manager and Chief Engineer

DONNA FAY K. KIYOSAKI
Deputy Manager and Chief Engineer

October 30, 2002

Mr. Don Hibbard, Administrator
Historic Preservation Division
Department of Land and Natural Resources
State of Hawaii
Kakuhihewa Building, Room 555
601 Kamokila Boulevard
Kapolei, Hawaii 96707

Dear Mr. Hibbard:

Subject: Your Letter of July 31, 2002 to M&E Pacific, Inc.,
Regarding the Draft Environmental Assessment for the Board
of Water Supply's Proposed Ewa Shaft Renovation, Ewa, Oahu

Thank you for reviewing the Draft Environmental Assessment for the Board of Water Supply's Ewa Shaft Renovation project.

We acknowledge that the Ewa Shaft Renovation project will have "no effect" on significant historic properties since no significant historic sites have been found in the project area. In the unlikely event that historic sites, including human burials, are uncovered during routine construction activities, all work in the vicinity will stop and the State Historic Preservation Division will be notified.

If you have any questions, please contact Scot Muraoka at 527-5221.

Very truly yours,

CLIFFORD S. JAMILE
Manager and Chief Engineer

cc: Andy Huang, M&E Pacific, Inc.

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

PHONE (808) 594-1888 FAX (808) 594-1865

STATE OF HAWAI'I
OFFICE OF HAWAIIAN AFFAIRS
711 KAPI'OLANI BOULEVARD, SUITE 500
HONOLULU, HAWAI'I 96813

RECEIVED AUG 2 1 2002

August 19, 2002

Mr. Andy Huang, P.E.
Project Engineer
M & E Pacific, Inc. (HRD #02-684)
1001 Bishop Street, Suite 500, Pauahi Tower
Honolulu, Hawaii 96813

Subject: Ewa Shaft Renovation Draft Environmental Assessment (DEA) Ewa, O'ahu, Hawai'i

Dear Mr. Huang:

Thank you for the opportunity to comment on the above referenced project. The Office of Hawaiian Affairs offers the following comments.

NHPA Section 106 Consultation

We note that federal funds are being used for this project, which requires a NHPA Section 106 Consultation. A formal consultation does not begin until a written Request for Consultation is made by the respective Federal agency to OHA. The request should be sent by mail to the following address:

Attn: Request for Section 106 Consultation
Administrator
Office of Hawaiian Affairs
711 Kapiolani Blvd. – Suite 500
Honolulu, HI 96813-5249

Stakeholder Identification

OHA's position with regards to the propriety and adequacy of any and all Section 106 consultations is that without proper identification of all potentially interested stakeholders at the outset, the consultation process will be flawed and inadequate. NHPA requires any Federal agency contemplating an undertaking to attempt to identify all potentially interested stakeholders.

BOARD OF WATER SUPPLY
CITY AND COUNTY OF HONOLULU
630 SOUTH BERETANIA STREET
HONOLULU, HI 96843

November 12, 2002

Ms. Jalna Keala
Acting Hawaiian Rights Division Director
Office of Hawaiian Affairs
711 Kapiolani Boulevard, Suite 500
Honolulu, Hawaii 96813

Attention: Mark Mararagan

Dear Ms. Keala:

Subject: Your Letter of August 19, 2002 to M&E Pacific, Inc., Regarding the Board of Water Supply's Ewa Shaft Renovation Draft Environmental Assessment, Ewa, Oahu, Hawaii

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

We have the following responses to your comments:

1. NHPA Section 106 Consultation: We wish to clarify that this project is being funded entirely by the Honolulu Board of Water Supply (BWS). However, this project will require a Department of Army permit (DA 404) for the proposed activities in the Honouliuli Gulch. Therefore, the Section 106 Consultation requirement is still applicable.

   We have sent out over 20 request-for-consultation letters to different native Hawaiian groups and organizations that might have information on the cultural practices or resources at the project site. Office of Hawaiian Affairs is on the mailing list.

2. Stakeholder Identification: See enclosed consultation list which includes: 1) local Hawaiian civic clubs, 2) local chapters of the royal societies, and 3) individuals who might be familiar with cultural practices at the site.

If you have any questions, please call Scot Muraoka at 527-5221.

Very truly yours,

Barry Usagawa

for CLIFFORD S. JAMILE
Manager and Chief Engineer

cc: Andy Huang, M&E Pacific, Inc.

OHA cannot speak for all Hawaiian organizations and individuals that may be affected by an undertaking. Some potential organizations that you should contact include:

- Local Hawaiian civic clubs
- Local chapters of the royal societies
- Individuals familiar with cultural practices of the areas affected by your undertakings

If you have any questions, please contact Mark A. Mararagan, policy analyst at 594-1756, or e-mail him at markm@oha.org.

Sincerely,

Jalna Keala
Acting Hawaiian Rights Division Director

cc: OHA Board of Trustees
OHA Administrator Clyde W. Namu'o

Title	First Name	Last Name	Job Title	Company	Address 1	Phone	City	State	Postal Code
Ms.	Mary Ann	Hutchinson	Pelekikena (President)	'Ahahui Ka'ahumanu Society	Chapter I—Honolulu P.O. Box 2809	732-7372	Honolulu	HI	96803
Ms.	Tara Lulani	Kulukulualani-Arquette	President/CEO	Alu Like, Inc.	458 Keawe Street	535-6710	Honolulu	HI	96819
Mr.	Ike K.	Ka'aihue	Pelekikena (President)	Association of Hawaiian Civic Clubs	O'ahu District Council 1773-B Puowaina Street	947-6322	Honolulu	HI	96813
Ms.	Sandi L.	Haluaiani	Office Manager	Bernice Pauahi Bishop Museum, Native Hawaiian Culture & Arts Program	1525 Bernice Street	532-5630	Honolulu	HI	96817-2704
Dr.	Chiyome Leina'ala	Fukino, MD	President	E Ola Mau	210 Ward Avenue Suite 330	522-0432	Honolulu	HI	96814
Ms.	Corinne	Chun Fujimoto	Curator	The Friends of 'Iolani Palace	P.O. Box 2259	522-0822	Honolulu	HI	96804
Mr.	Hailana	Farden	Ikū Ha'i	Hale O Na Ali'i 'O Hawai'i / 'Ahahui Po'o	P.O. Box 2477		Honolulu	HI	96804-2477
Mr.	George	Kaeliwai, Jr.	Pelekikena (President)	Hawaiian Civic Club of 'Ewa	2460-A Na'ai St.	848-0054	Honolulu	HI	96819
Ms.	Barbara E.	Dunn	Administrative Director	Hawaiian Historical Society	560 Kawaiaha'o Street	537-6271	Honolulu	HI	96813
Mr.	David	Scott	Director	Historic Hawai'i Foundation	680 Iwilei Road Suite 690	523-2900	Honolulu	HI	96817
Mr.	Joe I. K.	Kamalu	Founder	Hui 'O Aikāne	1723-A Lehua Street		Honolulu	HI	96819
Ms.	Kawaikaula'au	Aona-Ueoka	Mgr Director	Kapa Aloha Perpetuation Association (KAPA)	P.O. Box 20	237-7072	Ka'a'awa	HI	96730
Ms.	Gladys	Shiroma	Pelekikena (President)	King Kamehameha Hawaiian Civic Club	1823 Skyline Drive		Honolulu	HI	96817
Ms.	Elizabeth	Pa Martin	Executive Director	Native Hawaiian Advisory Council	417H Uluniu Street	261-1151	Kailua	HI	96734
Ms.	Eunice	Kalahele	Paralegal	Native Hawaiian Legal Corporation	1164 Bishop Street Suite 1205	521-2302	Honolulu	HI	96813
Ms.	Danielle Ululani	Beirne	President	Native Hawaiian Protocol & Consultant Service	P.O.Box 653	237-8856	Kāne'ohe	HI	96744
Mr.	A. Van Horn	Diamond	Chair	O'ahu Island Burial Council c/o SHPD	601 Kamokila Boulevard		Kapolei	HI	96707

Title	First Name	Last Name	Job Title	Company	Address 1	Phone	City	State	Postal Code
				Kakuhihewa Building, Room 555					
Mr.	Wally	Lau	Kū'auhau Nui	Royal Order of Kamehameha I	P.O. Box 30681		Honolulu	HI	96820
Ms.	Keahi	Allen	Executive Director	State Council on Hawaiian Heritage	P.O. Box 3022		Honolulu	HI	96802
Mr.	Kai	Markell	Director	State of Hawai'i, Department of Land and Natural Resources, State Historic Preservation Division	Burial Sites Program, Kakuhihewa Building, 601 Kamokila Boulevard Room 555		Kapolei	HI	96707
Mr.	Raynard C.	Soon	Chairman	State of Hawai'i, Department of Hawaiian Home Lands, Hawaiian Homes Commission	P.O. Box 1879	586-3830	Honolulu	HI	96805
Mr.	Clyde	Namu'o	Administrator	State of Hawai'i, Office of Hawaiian Affairs, Office of the Administrator	711 Kapi'olani Boulevard, Suite 500	594-1890	Honolulu	HI	96813-5249

CORRECTION

Title	First Name	Last Name	Job Title	Company	Address 1	Phone	City	State	Postal Code
Ms.	Mary Ann	Hutchinson	Pelekikena (President)	'Ahahui Ka'ahumanu Society	Chapter I—Honolulu P.O. Box 2809	732-7372	Honolulu	HI	96803
Ms.	Tara Lulani	Kulukulualani-Arquette	President/CEO	Alu Like, Inc.	458 Keawe Street	535-6710	Honolulu	HI	96819
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Mr.	George	Kaeliwai, Jr.	Pelekikena (President)	Hawaiian Civic Club of 'Ewa	2460-A Na'ai St.	848-0054	Honolulu	HI	96819
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Mr.	Raynard C.	Soon	Chairman	State of Hawai'i, Department of Hawaiian Home Lands, Hawaiian Homes Commission	P.O. Box 1879	586-3830	Honolulu	HI	96805
Mr.	Clyde	Namu'o	Administrator	State of Hawai'i, Office of Hawaiian Affairs, Office of the Administrator	711 Kapi'olani Boulevard, Suite 500	594-1890	Honolulu	HI	96813-5249

LIFE OF THE LAND

Ua Mau Ke Ea O Ka 'Aina I Ka Pono

76 North King Street Suite 203 * Honolulu, Hawai'i 96817
Phone: 533-3454 * Fax: 533-0993 * E-mail: katbrady@hotmail.com
Website: www.lifeoftheland.org

August 20, 2002

Andy Huang, P.E.
M&E Pacific, Inc.
1001 Bishop Street
Suite 500, Pauahi Tower
Honolulu, Hawai'i 96813

Andy Okada
Board of Water Supply
630 South Beretania Street
Honolulu, Hawai'i 96813

Office of Environmental Quality Control
235 South Beretania Street, Suite 702
Honolulu, Hawai'i 96813

Aloha!

Mahalo for this opportunity to review the Environmental Assessment for the 'Ewa Shaft Renovation.

Life of the Land was surprised that this project is being proposed since the transfer of the Water use Permit from Campbell Estate to the Board of Water Supply is currently being challenged in the Hawai'i Supreme Court.

On December 22, 2000, Earthjustice Legal Defense Fund filed, in the Supreme Court of the State of Hawai'i, a Writ of Mandamus to the Commission on Water Resource Management challenging the transfer, which was done administratively with no public input or participation. From the filing...

> "The Windward Parties seek a writ of mandamus directing the Commission to withdraw its approval of the purported permit transfer of the 'Ewa Shaft water use permit by Campbell to the Board of Water Supply, void its administrative issuance of a new water use permit for the 'Ewa Shaft to the Board of Water Supply, and declare that the permit may not be transferred except pursuant to proceedings complying with the Water Code, including HRS §§ 174C-49(a), 51 and 57 (a).
>
> Although the Water Code provides for the administrative transfer of water use permits, such transfers are only permitted if:
> [t]he conditions of use of the permit, including, but not limited to, place, quantity and purpose of the use, remain the same; and (2) the commission is informed of the transfer within ninety days.... A transfer which involves a change in any condition of the permit, including a change in use covered in section 174C-57, is also invalid and constitutes ground for revocation."

BOARD OF WATER SUPPLY

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

November 25, 2002

RECEIVED NOV 26 2002

Ms. Kat Brady, Assistant Executive Director
Life of the Land
76 North King Street, Suite 203
Honolulu, Hawaii 96817

Dear Ms. Brady:

Subject: Your Letter of August 20, 2002 Regarding the Draft Environmental Assessment for the Board of Water Supply's Ewa Shaft Renovation, Ewa, Oahu, Hawaii

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

We have the following response to your comments:

1. With regard to Earthjustice Legal Defense Fund's ("Earthjustice") December 22, 2000 Petition for Writ of Mandamus challenging the transfer of the Ewa Shaft water use permit, the Hawaii Supreme Court has already ruled on this petition. In this petition, Earthjustice requested that the Hawaii Supreme Court direct the Commission on Water Resource Management ("Commission") to vacate its approval of the transfer of the water use permit for the Ewa Shaft.

   On April 25, 2001, the Hawaii Supreme Court denied the petition but ruled that Earthjustice could raise the issue in the Waiahole Ditch contested case hearing and by other alternative means. After the Supreme Court's ruling, Earthjustice raised the issue in their opening statement and closing argument at the Waiahole remanded contested case hearing. In its decision dated December 28, 2001, the Commission found that "the windward parties had full and fair opportunity to present these issues and did present these issues in the context of this contested case hearing based on the evidence presented." The Commission concluded that the transfer of the Ewa Shaft water use permit was legal because the provisions of the Water Code were met.

   Although the Commission's decision in the Waiahole remanded contested case hearing is now on appeal before the Supreme Court, the Commission's decision that the transfer of the Ewa Shaft water use permit was legal is the prevailing law at this time.

The transfer is currently on appeal and Life of the Land wonders, then, how the Board of Water Supply can proceed with any project related to the 'Ewa Shaft. This document states:

> *"While irrigation water needs have declined, ongoing residential developments in 'Ewa and the new city of Kapolei have increased the drinking (or potable) water demand in the region."*

This is clearly a change in use deemed invalid by the Water Code, as referenced in section 174C-57. Life of the Land is also deeply concerned that the transfer from Campbell to the Board of Water Supply was done behind closed doors and appears to violate the fundamental intent of the Water Code to include public participation. We see this as a very dangerous precedent. Now the Board of Water Supply is proposing a project on the 'Ewa Shaft before the Supreme Court even renders a decision. Please explain how you can propose a project while the Supreme Court is deciding if the transfer was, in fact, legal.

Section 6.8 Water Quality discusses contaminants found in the water. This issue is of great concern to Life of the Land. The report lists the level of Atrazine reported in terms not understandable by a lay person. The EPA's maximum contamination level (MCL) for Atrazine is 3 parts per billon (ppb), please explain the level reported in the 'Ewa Shaft in terms of ppb. An environmental review is meant to disclose the impacts of a project in understandable terms. It should be readable by any interested community member.

The report of pesticide levels such as DBCP, EDB, Alachlor, Chlordane, Heptachlor, etc. appears to be insufficient for reviewers. Please include all the pesticides and herbicides and any other contaminants found in the water with their reported levels. Of course, we ask that you use understandable terms for the levels reported such as ppb, etc. It would also be helpful to describe how these contaminants interact with each other. We also request that you describe how these contaminants interact with humans who would consume the water or the workers who will be involved in construction, maintenance, or operation of the 'Ewa Shaft - i.e. soil contamination.

Life of the Land is aware that the EPA changes the MCLs on various contaminants when more research emerges. We are therefore interested to know where these contaminants came from, how they came to be in the water, and if their levels are likely to increase. We would like to know if these contaminants bind to the soil and/or water and the risk levels for human consumption or contact through touch or breathing. Do they bio-accumulate in humans or animals?

The levels of fecal and total coliform in the water are also a concern to us. Please explain why two out of three tests indicated moderate risk and one test indicated low risk. What do you mean by sealing and disinfecting the shaft properly? What material will you use to line the gulch and is this a temporary or permanent solution.

Is there salt intrusion in the aquifer this shaft will be tapping? How does the Board of Water Supply deal with that?

2. UNIT OF DENSITY

Micrograms per liter "µg/l" is the metric unit for density and is mathematically equivalent to parts per billion (ppb). Similarly, milligrams per liter "mg/l" is equivalent to parts per million (ppm). We will insert this statement in the Final EA to avoid confusion. As for the Atrazine level, the Draft EA inadvertently reported it as 0.9 µg/l (ppb), which will be revised to 0.09 µg/l (ppb) in the Final EA.

3. LIST OF CONTAMINANTS

In February 1998, water samples from Ewa Shaft were analyzed for all contaminants listed by the State Department of Health (DOH) for new potable water sources. A Water Quality Assessment was later prepared (June 2000) to evaluate the results of this analysis. A discussion will be added to the Final EA. This project will require a Section 11-20-29 Engineering Report approved by the DOH to certify that this water source is suitable for public consumption prior to placing the source in service. All safe drinking water quality standards will be met.

4. SOURCE OF CONTAMINANTS

Similar to other Board of Water Supply (BWS) wells in the area that draw water from the Koolau aquifer, the primary concern for Ewa Shaft is the presence of pesticides and herbicides used for pineapple and sugar cane production. Over the years, these chemicals have slowly percolated into the ground with rainfall and irrigation. A granular activated carbon treatment system will be installed under a separate contract to remove any volatile organic contaminants from the Ewa Shaft.

5. HEALTH CONCERNS

The EA will include additional discussion on contaminants, their properties, associated with the health effects and concentration trends, if any. The only pesticide found in the initial water quality analyses was Atrazine, an herbicide, which is soluble in water and has a low chronic toxicity in animals.

The Environmental Protection Agency (EPA) and DOH are tasked with establishing drinking water standards and informing the public on health issues. After the permanent pumps are installed and the facilities are disinfected, BWS will fully analyze water samples as part of the aforementioned Engineering Report for source certification as a public water supply. DOH will review the test results for conformance. Water sources that do not meet drinking water standards are not allowed to supply the public drinking water system.

Section 8.0 states that "...this project will provide high quality drinking water for the residents and businesses in 'Ewa, O'ahu. This would allow for projected growth without restrictions." Wow, that is a scary statement. Does O'ahu have an endless supply of high quality potable water? We are an island and this kind of cavalier statement is frankly appalling to us. O'ahu cannot sustain uncontrolled growth.

Section 8.4 discusses the in-stream activities for retaining wall, gulch lining, and the maintenance road. It admits that if these activities are not managed properly, construction debris could enter the Honoiliuli Gulch and cause pollution, especially during a storm event. Will there be monitoring by any state or city department during construction to insure that this does not happen?

Life of the Land is pleased with the maps included in the Draft Environmental Assessment and found them quite helpful.

In closing, Life of the Land appreciates this opportunity to review this document and looks forward to your responses to our concerns.

Sincerely,

Kat Brady
Assistant Executive Director

6. FECAL COLIFORM AND SURFACE INFLUENCE

BWS Water Quality Laboratory between May 1998 and March 1999 tested water samples positive for fecal and total coliform. Three water samples were analyzed at the EPA laboratory in Port Orchard, Washington between January 11, 1999 and March 1, 1999 for surface influence; the results indicated moderate to low risk. Sample concentrations typically have a range of values. The source of contamination can be attributed to surface sources because the top of the shaft is open to atmosphere. Because this source provided agricultural irrigation water rather than drinking water, biological exposure was not a concern to the plantation.

There are two permanent features being constructed to ensure the Ewa Shaft is adequately sealed. We propose to install over 2,000 square yards of impermeable lining in the Honouliuli gulch adjacent to the pump station. The lining will consist of 4 inches of base course and 6 inches of concrete. We also propose to repair and seal the shaft with non-shrink grout held together with welded wire fabric and anchor bolts. As mentioned in the Draft EA, the renovated shaft and the new pumping equipment will be disinfected prior to use. Water chlorination equipment will be installed to disinfect the product water. Once in production, microbiological monitoring will be performed as a part of regular operational procedures.

7. SALT WATER INTRUSION

We do not anticipate saltwater intrusion at this source. Ewa Shaft's intake is at approximately 45-feet below sea level and therefore collects water from the top part of a basal aquifer. It is not as susceptible as a deep well to the upconing of saltwater, which is more than 700-feet below the sea level.

BWS has analyzed historical records on pumping and chloride concentrations dated back to the initial construction start-up between 1937-1939. For the most recent period, 1985-1994, the maximum flow recorded was 25 mgd with the highest chloride concentration observed at 168 ppm, which is within the secondary safe drinking water standards. With a proposed average pumping rate of 15 mgd, the chloride levels should be below this peak chloride concentration.

8. PROJECT GROWTH IN EWA, OAHU

The Ewa Shaft source is in conformance with the adopted Ewa Development Plan, which plans for the growth of urban areas and protects prime agricultural lands with the establishment of the urban growth boundary. We agree that Oahu's natural water supply is limited and BWS is implementing a strategic approach to water resources management to protect our resources while supporting economic growth. Water conservation, watershed protection and groundwater management is coupled with efforts to expand recycled water use and seawater desalination.

9. STREAM ACTIVITIES

DOH Clean Water Branch monitors in-stream activities statewide. The contractor will be Required to follow best management practices in accordance with the Section 401 Water Quality Certification. DOH and BWS construction management staff have the authority to stop work if violations occur.

If you have any questions, please contact Barry Usagawa at 527-6183.

Very truly yours,

Barry Usagawa
for CLIFFORD S. JAMILE
Manager and Chief Engineer

cc: Andy Huang, M&E Pacific, Inc.

RECEIVED AUG 28 2002

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

In reply, please refer to:
File:
02-196/epo

August 20, 2002

Mr. Andy Huang, P.E.
M&E Pacific, Inc.
1001 Bishop Street, Suite 500, Pauahi Tower
Honolulu, Hawaii 96813

Dear Mr. Huang:

Subject: Draft Environmental Assessment (DEA)
Ewa Shaft Renovation
Tax Map Key: 2-2-056: 056

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 applicant should contact the Army Corps of Engineers to identify whether a federal permit (including a Department of Army permit) is required for this project. A Section 401 Water Quality Certification is required for "Any 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...", pursuant to Section 401(a)(1) of the Federal Water Pollution Act (commonly known as the "Clean Water Act");

2. A National Pollutant Discharge Elimination System (NPDES) general permit coverage is required for the following discharges to waters of the State:

   a. Discharge of storm water runoff associated with industrial activities, as define 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);

   b. Discharge of storm water runoff associated with construction activities that involve the disturbance of five (5) acres or greater, including clearing, grading, and excavation;

BOARD OF WATER SUPPLY
CITY AND COUNTY OF HONOLULU
630 SOUTH BERETANIA STREET
HONOLULU, HI 96843

November 12, 2002

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

Dear Mr. Gill:

Subject: Your Letter of August 20, 2002 to M&E Pacific, Inc., Regarding the Board of Water Supply's Draft Environmental Assessment for the Ewa Shaft Renovation Project, Ewa, Oahu

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

We have the following response to your comments:

CLEAN WATER BRANCH:

1. The Army Corps of Engineers has determined that a Department of the Army permit will be required. We understand a Section 401 Water Quality Certification will also subsequently be required.

2. The proposed project will require National Pollutant Discharge Elimination System (NPDES) general permit coverage for the discharge of hydrotesting water.

3. NPDES general permit coverage for discharges of storm water runoff into State waters will be obtained since the proposed project will disturb more than one acre of land and construction will extend beyond March 10, 2003.

4. We do not anticipate any wastewater discharges at this time.

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

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

e. Discharge of hydro-testing water;

f. Discharge of construction dewatering effluent;

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

h. Discharge of treated effluent from well drilling activities.

Any person requesting to be covered by a NPDES general permit for any of the above activities should file a Notice of Intent with the Department of Health, Clean Water Branch (CWB) at least thirty (30) days prior to commencement of any discharges to State waters;

3. If construction activities involve the disturbance of one acre or greater, including clearing, grading, and excavation, and will take place or extend after March 10, 2003, an NPDES general permit coverage is required for discharges of storm water runoff into State waters; and

4. 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.

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

Wastewater Branch (WWB)

The new pump station will be unmanned and no domestic wastewater is expected to be generated. Therefore, the WWB has no major concern at this time. However, should there be any wastewater generated from the project, wastewater plans must conform to applicable provisions of the Department of Health's Administrative Rules, Chapter 11-62, "Wastewater Systems". We reserve the right to review the detailed wastewater plans fro conformance to applicable rules.

If you have any questions, please contact the Wastewater Branch at (808) 586-4294.

Clean Air Branch

Control of Fugitive Dust

There is a significant potential for fugitive dust emissions during the removal of debris and during the grading, trenching, and construction activities that would impact nearby thoroughfares. It is recommended that a dust control management plan be developed which

CLEAN AIR BRANCH:

1. The contractor will be required to submit a dust control management plan in accordance with State Department of Health Clean Air Branch requirements. The plan will identify and address all activities that have a potential to produce fugitive dust, including measures to control dust during all phases of construction.

If you have any questions, please contact Scot Muraoka at 527-5221.

Very truly yours,

Barry Usagawa

for CLIFFORD S. JAMILE
Manager and Chief Engineer

cc: Andy Huang, M&E Pacific, Inc.

identifies and addresses all activities that have a potential to generate fugitive dust. Implementation of adequate dust control measures during all phases of development and construction activities is warranted.

Construction activities must comply with provisions of Hawaii Administrative Rules, Chapter 11-60.1, "Air Pollution Control," Section 11-60.1-33, Fugitive Dust.

The contractor should provide adequate measures to control dust from the road areas and during the various phases of construction. These measures include, but are not limited to:

a. Planning the different phases of construction, focusing on minimizing the amount of dust generating materials and activities, centralizing on-site vehicular traffic routes, and locating potentially dusty equipment in areas of the least impact;

b. Providing an adequate water source at the site prior to start up of construction activities;

c. Landscaping and rapid covering of bare areas, including slopes, starting from the initial grading phase;

d. Controlling of dust from shoulders and access roads;

e. Providing adequate dust control measures during weekends, after hours, and prior to daily start-up of construction activities; and

f. Controlling of dust from debris being hauled away from project site.

If you have any questions regarding these issues on fugitive dust, please contact the Clean Air Branch at (808) 586-4200.

Sincerely,

GARY GILL
Deputy Director
Environmental Health Administration

c: CWB
WWB
CAB

UNIVERSITY OF HAWAI'I
ENVIRONMENTAL CENTER

August 22, 2002
EA: 0183

Andy Okada
Honolulu Board of Water Supply
630 S. Beretania Street
Honolulu, HI 96843

Dear Mr. Okada

Draft Environmental Assessment
'Ewa Shaft Renovation
'Ewa, Oahu

The Honolulu Board of Water Supply (BWS) is proposing to renovate the existing 'Ewa Shaft Pump Station (O'ahu Sugar Co. EP 15 & 16) in the 'Ewa District on O'ahu. Upon completion, Ewa Shaft will be able to produce up to 12.15 mgd (permitted use) of high quality drinking water for the 'Ewa District.

The proposed work will involve primarily the demolition of the existing pump building and electrical room, pump replacement, sealing of the vertical shaft and concrete lining for a portion of the adjacent Honouliuli Gulch. The existing pump station will be raised approximately 12.0 feet to avoid potential flooding. A new control building will be provided with MCC panels and chlorination equipment. The renovated 'Ewa Shaft will be interconnected with BWS 228' Water System.

General Comments

According to the draft EA, the 1997 revised *'Ewa Development Plan* projects that an additional 35 mgd of potable water will be needed in 'Ewa by 2020 to meet the projected growth in residential and commercial demand. Since this project facilitates this change in land use from agriculture to urban, the draft EA should note that cumulative and secondary effects are likely to result from growth that this project will support.

These effects include but are not limited to: changes in microclimate patterns, consequences of cessation of irrigation, effects of heat advection and decreased evaporative chill, changes in albedo due to urbanization changes (cane to urban, pools, lawns, etc.), effects on the land/sea breeze regime, and brushfire hazards due to altered vegetative distribution.

KRAUSS ANNEX 19 • 2550 DOLE STREET • HONOLULU, HAWAII 96822 • (808) 956-7361 • FAX (808) 956-2980

BOARD OF WATER SUPPLY
CITY AND COUNTY OF HONOLULU
630 SOUTH BERETANIA STREET
HONOLULU, HI 96843

November 27, 2002

RECEIVED DEC - 2 2002

John T. Harrison, Ph.D.
Environmental Coordinator
Environmental Center
Water Resources Research Center
University of Hawaii at Manoa
Krauss Hall 19
2500 Dole Street
Honolulu, Hawaii 96822

Dear Dr. Harrison:

Subject: Your Letter of August 22, 2002 Regarding the Draft Environmental Assessment for the Ewa Shaft Renovation, Ewa, Oahu, Hawaii

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

We have the following responses to your comments:

1. General Comments: The source project is in conformance with the Ewa Development Plan, which plans for the growth of urban areas and protects prime agricultural lands with the establishment of the urban growth boundary. We acknowledge that the change in land use from agriculture to urban will cause cumulative and secondary effects. With the demise of sugar, land use changes are already occurring and fallow agricultural lands and the subsequent conversion into irrigated urban lands can create changes in microclimate patterns. In a theoretical sense, any development that changes the existing ground surface could change the microclimate patterns.

2. Paper Conservation: Thank you for your suggestion to utilize both sides of each page in the production of the Final EA.

If you have any questions, please contact Scot Muraoka at 527-5221.

Very truly yours,

Barry Usagawa
for CLIFFORD S. JAMILE
Manager and Chief Engineer

cc: Andy Huang, M&E Pacific, Inc.

Paper Conservation

Significantly less paper would have been needed had the text been printed on both sides of each page. Incorporating this suggested format would also reduce production costs.

Sincerely,

John T. Harrison
Environmental Coordinator
Environmental Center

cc: OEQC
Paul Ekern
James Moncur
Dave Sims

DEPARTMENT OF PLANNING AND PERMITTING
CITY AND COUNTY OF HONOLULU
650 SOUTH KING STREET • HONOLULU, HAWAII 96813
TELEPHONE: (808) 523-4414 • FAX: (808) 527-6743 • INTERNET: www.co.honolulu.hi.us

JEREMY HARRIS
MAYOR

RECEIVED AUG 26 2002

RANDALL K. FUJIKI, AIA
DIRECTOR

LORETTA K.C. CHEE
DEPUTY DIRECTOR

2002/ELOG-2108 (MH)

August 22, 2002

Mr. Andy Huang, P.E.
M&E Pacific, Inc.
1001 Bishop Street
Suite 500, Pauahi Tower
Honolulu, Hawaii 96813

Dear Mr. Huang:

Ewa Shaft Renovation
Draft Environmental Assessment (DEA)
TMK: 9-2-001: 011, Ewa, Oahu, Hawaii

In response to your request for comments of July 22, 2002, we have no objections to the proposed project and have the following comments to offer:

1. The proposed project is located within the State Land Use Agricultural District. The existing water facility is permitted within the agricultural district. State Special Use Permit would not be required for the facility.

2. The Final Environmental Assessment (FEA) should include a section relating to the City and County of Honolulu's General Plan and how the proposed Ewa Shaft Renovation project is consistent with, and supports the Objectives and Policies of the City and County of Honolulu's General Plan.

3. The proposed project is also consistent with the Ewa Development Plan. According to Table 4.2, of the Ewa Development Plan, the proposed project is identified as one of the potable groundwater resources in the area. The estimated source yield of 15 million gallons per day is consistent with the Plan.

4. The zoning is AG-1 Restricted Agricultural District and the use is a "utility installation, Type A" which is permitted within this district.

5. The proposed project is further consistent with the Ewa Public Infrastructure Map, which shows a symbol for a publicly funded potable water well for the proposed Ewa Shaft Renovation project. Refer to attached Resolution No. 01-261.

BOARD OF WATER SUPPLY
CITY AND COUNTY OF HONOLULU
630 SOUTH BERETANIA STREET
HONOLULU, HI 96843

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Manager and Chief Engineer

DONNA FAY K. KIYOSAKI
Deputy Manager and Chief Engineer

November 12, 2002
RECEIVED NOV 21 2002

TO: RANDALL FUJIKI, DIRECTOR
DEPARTMENT OF PLANNING AND PERMITTING

FROM: for CLIFFORD S. JAMILE, MANAGER AND CHIEF ENGINEER

SUBJECT: YOUR LETTER OF AUGUST 22, 2002 TO M&E PACIFIC, INC., REGARDING THE DRAFT ENVIRONMENTAL ASSESSMENT FOR THE BOARD OF WATER SUPPLY'S EWA SHAFT RENOVATION, TMK: 9-2-001: 011, EWA, OAHU, HAWAII

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

We have the following response to your comments:

1. We acknowledge that a State Special Use Permit will not be required for the proposed facility.

2. The Final EA will include a section relating to the proposed project's consistency with the City and County of Honolulu's General Plan.

3. We note that the proposed project is consistent with the Ewa Development Plan.

4. We acknowledge that the proposed project conforms with the Land Use Ordinance.

5. We understand the proposed project is consistent with the Ewa Public Infrastructure Map, which shows a symbol for a publicly funded potable water well for the Ewa Shaft Renovation Project. A copy of Resolution No. 01-261 will be included in the Final EA.

6. Page 24, Section 10.0 List of Permits, should also include the City and County of Honolulu. It should state that the project will require Grading and Building Permits from DPP.

7. The applicant should submit a stream study to the Civil Engineering Branch of DPP for review and approval.

8. It does not appear that the project will impact existing City roadway facilities. However, the access roadway should be wide enough to accommodate two-way traffic wherever it intersects City streets.

9. Since the site is in close proximity to the H-1 Freeway, the FEA should also disclose potential visual impacts and proposed mitigation measures.

Should you have any questions, please contact Matt Higashida of our staff at 527-6056.

Sincerely yours,

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

RKF:js

Attachment

cc: George Kuo, Board of Water Supply

g:/Planning/DivFunction/Ea-eis/2002/Ewa Shaft Renovation DEA

6. Section 10.0, List of Permits, will be revised to include Grading and Building Permits from DPP.

7. According to the State Commission on Water Resource Management, Honouliuli Gulch is not considered a stream; therefore, a stream study will not be conducted. However, a drainage study has been prepared and was submitted to DPP for one-time review on August 7, 2002.

8. The access roadway will not intersect any City Streets.

9. A new control building and three low-profile outdoor pumps will replace the existing pump station. At project completion, motorists on H-1 Freeway will no longer see the deteriorated crane and the metal roofing of the pump building (See Photo 1 of Draft EA). The top of the new control building (elev. 175 feet) will be 3 feet lower than the existing building. This will lessen the visual impact, if any, for ewa bound motorists. A hedge will be provided along the access road mauka of the H-1 Freeway. As a result, town bound motorists will not see the new control building as they approach the site.

If you have any questions, please contact Scot Muraoka at 527-5221.

cc/ Andy Huang, M&E Pacific, Inc.

BENJAMIN J. CAYETANO
GOVERNOR

GENEVIEVE SALMONSON
DIRECTOR

STATE OF HAWAII
OFFICE OF ENVIRONMENT QUALITY CONTROL
235 SOUTH BERETANIA STREET
SUITE 702
HONOLULU, HAWAII 96813
TELEPHONE (808) 586-4185
FACSIMILE (808) 586-4186

August 22, 2002

Mr. Andy Huang, P.E.
M&E Pacific, Inc.
1001 Bishop Street, Suite 500, Pauahi Tower
Honolulu, Hawai'i 96813

Mr. Andrew Okada
Board of Water Supply, City & County o f Honolulu
630 South Beretania Street
Honolulu, Hawai'i 96843

Dear Messrs. Huang & Okada

The Office of Environmental Quality Control has reviewed the draft environmental assessment for the 'Ewa Shaft Renovation Project, Tax Map Key 9-2-01, portion 11, in the judicial district of 'Ewa, and offers the following additional comments for your consideration and response:

1. *CONSULTATION:* The project appears to be related to sustainable yield of the 'Ewa aquifer. Please consult with the State Commission on Water Resource Management.
2. *CULTURAL IMPACT ASSESSMENT*: Act 50, Session Laws of Hawai'i 2000, requires an assessment of cultural impacts. Please refer to our website at http://www.state.hi.us/health/oeqc/index.html for a copy of the "Cultural Impact Assessment Guidelines" adopted by the Environmental Council in 1997. While the archaeological inventory survey attached to the DEA complies with the historic preservation processes outlined in section 6E, Hawai'i Revised Statutes, it needs to include consultations of the community to ascertain the absence of cultural practices or resources in the region. You may wish to check with the local Hawaiian civic clubs, or the 'Ewa Neighborhood Board.
3. *CUMULATIVE IMPACT ASSESSMENT*: Please elaborate further on the relationship to, and cumulative impacts of the project to the planned future developments in the region especially with respect to Figure 2, the 'Ewa Development Plan Phasing Map.
4. *USE OF RECYCLED GLASS IN CONSTRUCTION PROJECTS.* To promote the use of recycled materials in-state, section 103D-407, Hawai'i Revised Statutes recommends that State/county agencies purchase materials with minimum recycled glass content. We ask that you consider this in the design of your station.
5. *NATIVE, INDIGENOUS AND POLYNESIAN INTRODUCED PLANTS FOR USE IN PUBLIC LANDSCAPING*: We ask that you consider the use of xerophagic native, indigenous and polynesian introduced plants in your landscaping.

If there are any questions, please call Leslie Segundo, Environmental Health Specialist, at (808) 586-4185. Thank you for the opportunity to comment.

Sincerely,

Genevieve Salmonson

GENEVIEVE SALMONSON
Director

BOARD OF WATER SUPPLY
CITY AND COUNTY OF HONOLULU
630 SOUTH BERETANIA STREET
HONOLULU, HI 96843

JEREMY HARRIS, Mayor

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CLIFFORD S. JAMILE
Manager and Chief Engineer

DONNA FAY K. KIYOSAKI
Deputy Manager and Chief Engineer

November 12, 2002

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

Attention: Leslie Segundo, Environmental Health Specialist

Dear Ms. Salmonson:

Subject: Your Letter Dated August 22, 2002 Regarding the Draft Environmental Assessment for the Board of Water Supply's Ewa Shaft Renovation, Ewa, Oahu, Hawaii

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

We have the following response to your comments:

1. CONSULTATION:

   The State Commission on Water Resource Management was consulted during the Draft EA consultation phase and has informed the Board of Water Supply (BWS) that the newly revised sustainable yield of the Waipahu-Waiawa Aquifer system is 104 million gallons per day.

2. CULTURAL IMPACT ASSESSMENT:

   Correspondence has been sent to the Hawaiian Civic Club of Ewa requesting information on any possible cultural practices or resources at the project site. The existing pump station has been in existence since the later 1930's.

3. CUMULATIVE IMPACT ASSESSMENT:

According to the Ewa Development Plan (EDP), new potable and nonpotable water source development is of the highest priority. The Ewa Shaft Renovation will support the urban expansion during the first eight years (1997-2005) of the EDP (See Draft EA Figure 2 – Ewa Development Plan Phasing Map). The Public Infrastructure Map (PIM) for the EDP area was revised on April 5, 2001 by the City Council (Resolution 2000-37) to include a potable water well symbol for the Ewa Shaft Renovation project. The revised PIM will be included in the Final EA.

4. USE OF RECYCLED GLASS IN CONSTRUCTION PROJECTS:

The BWS does not presently require the use of recycled glass since waterline projects do not require a large amount of asphalt aggregate mix. The State Department of Transportation generally requires the use of glassphalt (asphalt mixed with recycled glass) on its road maintenance projects since these projects involve large amounts of aggregate mix.

5. NATIVE PLANTS FOR USE IN PUBLIC LANDSCAPING:

The landscaping requirement for this project is minimal since the pump station site is relatively small. Of the two species (podocarpus and kukui) proposed for landscaping the site, podocarpus was chosen as a hedge because of its dense growth and ability to attain heights suitable to screen the site equipment. Podocarpus has been used for hedges in other BWS projects as well. Two kukui trees (native plant) are also being proposed for the pump station site.

If you have any questions, please contact Scot Muraoka at 527-5221.

Very truly yours,

Barry Usagawa
for CLIFFORD S. JAMILE
Manager and Chief Engineer

cc: Andy Huang, M&E Pacific, Inc.

J.J. CAYETANO
GOVERNOR

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
869 PUNCHBOWL STREET
HONOLULU, HAWAII 96813-5097

BRIAN K. [illegible]
DIRECTOR

DEPUTY DIRECTORS
JEAN L. OSHITA
JADINE Y. URASAKI

IN REPLY REFER TO:
HWY-PS
2.7805

SEP 5 2002

Mr. Andy Huang, P.E.
Project Engineer
M&E Pacific, Inc.
1001 Bishop Street
Pauahi Tower Suite 500
Honolulu, Hawaii 96813

Dear Mr. Huang:

Subject: Draft Environmental Assessment (EA) for the Ewa Shaft Renovation

Thank you for requesting our review of the Draft EA. We have the following comments:

1. Ewa farmers should be consulted to ensure that renovation of the Ewa Shaft and construction of associated infrastructure will not interfere with use of the Honouliuli Stream Bridge and associated farm roads for access to farm lands on either side of Interstate H-1. Alternate routes to cross beneath H-1, such as Palehua Road, may no longer be suitable for farm use after we construct the Ewa North-South Road Interchange.
2. Plans for work within the State highway right-of-way, including work beneath the freeway, must be submitted to our Highways Division Traffic Branch for review and approval.
3. Application for required access and utility easements must be submitted to our Highways Division Right-Of-Way Branch.

If you have any questions, please contact Ronald Tsuzuki, Head Planning Engineer, Highways Division, at 587-1830.

Very truly yours,

BRIAN K. MINAAI
Director of Transportation

c: OEQC

RECEIVED

BOARD OF WATER SUPPLY
CITY AND COUNTY OF HONOLULU
630 SOUTH BERETANIA STREET
HONOLULU, HI 96843

November 12, 2002

Mr. Brian Minaai, Director
Department of Transportation
State of Hawaii
869 Punchbowl Street
Honolulu, Hawaii 96813-5097

Attention: Ronald Tsuzuki

Dear Mr. Minaai:

Subject: Your Letter Dated September 5, 2002 to M&E Pacific, Inc. Regarding the Draft Environmental Assessment for the Board of Water Supply's Ewa Shaft Renovation Project, Ewa, Oahu

Thank you for reviewing the Draft Environmental Assessment for the proposed project.

We have the following responses to your comments:

1. We have met with Campbell Estate and several of its tenants to discuss the proposed project. Their primary concern was the vehicle access underneath the H-1 freeway. The access road design has been modified to accommodate the agricultural equipment. Enclosed is a letter from Campbell Estate dated October 10, 2002 stating that they and their major tenants have no objections to the proposed design.

2. We have transmitted our plans to Highways Division Traffic Branch for review and approval.

3. We are in the process of revising the existing easements and will coordinate with the Highways Division Right-of-Way Branch.

If you have any questions, please call Scot Muraoka at 527-5221.

Very truly yours,

for CLIFFORD S. JAMILE
Manager and Chief Engineer

Enclosure

cc: M&E Pacific, Inc.

APPENDIX C

Archaeological Inventory Survey
For
Ewa Shaft Renovation

(Summary and Recommendations)

CULTURAL SURVEYS HAWAII, INC.

Archaeological Studies
Hallett H. Hammatt, Ph.D.
733 N. Kalaheo Avenue
Kailua, Hawaii 96734
Bus: 262-9972, FAX: (808) 262-4950
e-mail ttulchin@culturalsurveys.com

TRANSMITTAL

TO: Mr. Andy Huang
M & E Pacific, Inc.
1001 Bishop St. #500
Honolulu, HI 96813

DATE SENT: March 21, 2002

FROM: Todd Tulchin

SUBJECT: Revisions to ARCHAEOLOGICAL *INVENTORY SURVEY IN SUPPORT* OF THE PROPOSED `EWA SHAFT RENOVATION PROJECT, HONOULIULI *AHUPUA`A*, `EWA DISTRICT, ISLAND OF O`AHU, (TMK: 9-2-01)

REMARK: Included are a copy of the letter received by CSH from the SHPD in regards to the above inventory survey report, as well as a copy of the requested replacement page.

MAHALO!

BENJAMIN J. CAYETANO
GOVERNOR OF HAWAII

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

March 14, 2002

Mr. William Folk
Cultural Surveys Hawaii, Inc.
733 N. Kalaheo Avenue
Kailua, Hawaii 96734

LOG NO: 29402 ✓
DOC NO: 0203SC15

Dear Mr. Folk:

SUBJECT: Chapter 6E-42 Historic Preservation Review of a Report Documenting the Results of an Archaeological Inventory Survey in Support of the Proposed `Ewa Shaft Renovation Project
Honoluliuli, `Ewa, O`ahu
TMK: (1) 9-2-001

Thank you for the submission of a report documenting the results of an archaeological inventory survey in support of the proposed `Ewa Shaft renovation project in `Ewa (Tulchin et al. 2001. *Archaeological Inventory Survey in Support of the Proposed `Ewa Shaft Renovation Project, Honouliuli Ahupua`a, `Ewa District, Island of O`ahu [TMK: 9-2-01]*). We received the report on January 11, 2002.

At the request of the landowner, your firm conducted an archaeological inventory survey of `Ewa Shaft pump station parcel (less than one acre in size) on the south face of Honouliuli Gulch, just north of the H-1 Interstate Highway.

The historical and archaeological background sections are well done, and provide sufficient data from which to infer likely settlement and land use patterns.

We believe that the project area was acceptably surveyed. One historic site – a portion of a core-fill wall with attached fence posts (State Site No. 50-80-08-6370) – was found on the parcel. This site is acceptably described and interpreted. The wall, which has been damaged and partially dismantled, appears to have been constructed as a cattle barrier.

Although you do not say so explicitly, we assume that you determined that the wall was not significant, and lacked integrity. We agree with this significance evaluation, with the understanding that a replacement page will be sent clarifying this assessment. Thus,

no significant historic sites are in the project area. The proposed undertaking will have "no effect" on significant historic properties.

The report is acceptable, and the historic preservation review process is concluded.

Should you have any questions, please feel free to contact Sara Collins at 692-8026.

Aloha,

Don Hibbard, Administrator
State Historic Preservation Division

SC:jk

V. SUMMARY AND RECOMMENDATIONS

Field investigation of the 'Ewa Shaft project area indicated that areas within the pumping station enclosure and those outside Honouliuli Gulch had been previously disturbed by agricultural land cultivation and infrastructure associated with the pumping station. Based on the background studies and fieldwork completed as part of this project, no further archaeological research is recommended.

The stone wall alignment (Site 50-80-08-6370) discovered in Honouliuli Gulch and within the project area is believed to be of historic origin. Evidence of the historic nature of the wall alignment lies in the discovery of the wooden posts with attached fence wire, embedded eye-bolt, and accumulation of alluvial deposits burying most of the wall. In light of these findings, it is believed that the wall was constructed as a barrier to cattle movement. This supports the findings of McAllister in his survey of Honouliuli *ahupua`a* in that "the great extent of old stone walls, particularly near the Puuloa Salt Works, belongs to the ranching period of about 75 years ago" (1933:107). In addition, based on the position and angle of the wall alignment relative to Honouliuli Gulch and the location of the pumping station, the wall may have been related to the construction and maintenance of the pumping station enclosure. The wall would function in diverting flood waters away from the well.

Due to the historic origin, degradation of structural integrity, and lack of present day use of the stone wall alignment, Site 50-80-08-6370 was determined to not be significant in an archaeological or historical context. There are therefore no significant historic sites within the project area, and the `Ewa Shaft Renovation Project should have no effect on significant surface historic properties.

While the likelihood of `Ewa Shaft Renovation Project encountering human remains or other significant cultural deposits is regarded as exceedingly low, if in the unlikely event such deposits are encountered, all subsurface work in the immediate vicinity should immediately cease and the State Historic Preservation Division should be promptly notified.