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REPLACEMENT OF PIIHONUA RESERVOIR NO. 2

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FINAL ENVIRONMENTAL ASSESSMENT

REPLACEMENT OF PI'IHONUA RESERVOIR NO. 2

TMK (3rd): 2-3-30:05
Pi'ihonua, South Hilo District, Hawai'i Island, State of Hawai'i

February 2005

Prepared for:

Hawai'i County Department of Water Supply
345 Kekuanaoa Street, Suite 20
Hilo, Hawai'i 96720

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Pi'ihonua, South Hilo District, Island of Hawai'i, State of Hawai'i

PROPOSING/
APPROVING AGENCY:

County of Hawai'i
Department of Water Supply
345 Kekuanaoa Street, Suite 20
Hilo, Hawai'i 96720

CONSULTANT:

Geometrician Associates LLC
HC 2 Box 9575
Keaau, Hawai'i 96749

and

Okahara & Associates
200 Kohola Street
Hilo HI 96720

CLASS OF ACTION:

Use of State Land
Use of County Funds
Conservation District Use

This document is prepared pursuant to:

The Hawai'i Environmental Protection Act,
Chapter 343, Hawai'i Revised Statutes (HRS), and
Title 11, Chapter 200, Hawai'i Department of Health Administrative Rules (HAR).

TABLE OF CONTENTS

SUMMARY OF THE PROPOSED ACTION, ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

The County of Hawai'i, Department of Water Supply (DWS) plans to replace the existing 0.8 million gallon capacity (0.8Mg) Pi`ihonua Reservoir No. 2 with a 2.0Mg reservoir on the same general site, on Waianuenue Avenue, mauka of Hilo Medical Center. The improvements are necessary because the existing reservoir has reached the end of its service life, is undersized and has required expensive maintenance. The new reservoir will be over twice as large as the existing tank, and thus better able to meet future demands in its water service area.

Because the new reservoir will be larger than the existing facility, a larger area of use will be required. In addition to the reservoir itself, new or relocated improvements will include the following: a new booster pump station with two booster pumps, a new control building to house the motor control center and other electrical equipment and control instrumentation, an asphalt concrete pavement driveway, perimeter fencing and site landscaping, and associated water mains to connect the reservoir to the existing water distribution system. The existing facility, including the reservoir, booster pump station, and ancillary equipment, will be demolished once the new facility is constructed, tested, and in operating order. The land under the existing facility will then be landscaped to match the landscaping for the new facility. The facility would promote public health and safety by improving water storage capacity for the Hilo area, and would thereby enhance the quality of water service.

The contractor will be required to develop a traffic control plan during the design phase to minimize congestion and maintain access to adjacent properties during construction. The contractor shall perform all earthwork and grading in conformance with Chapter 10, Erosion and Sediment Control, Hawai'i County Code. Because the site is greater than one acre in extent, the contractor shall obtain an NPDES permit and develop and implement a Storm Water Pollution Prevention Plan (SWPPP) to contain sediment and storm water runoff during construction. Furthermore, construction equipment shall be kept in good working condition to minimize the risk of fluid leaks that could enter runoff and groundwater. Significant leaks or spills, if they occur, shall be properly cleaned up and disposed of at an approved site. A landscaping plan will be developed and implemented to ensure the visual compatibility of the facility with its residential surroundings. Archeological and cultural survey have determined that no significant historic sites or cultural resources are present; if archaeological resources are encountered during land-altering activities associated with construction, work in the immediate area of the discovery will be halted and the State Historic Preservation Division will be contacted.

PART 1: PROJECT DESCRIPTION, PURPOSE AND NEED AND ENVIRONMENTAL ASSESSMENT PROCESS

1.1 Project Description and Location

The County of Hawai'i, Department of Water Supply (DWS) plans to demolish the existing 0.8 million gallon (Mg) Pi`ihonua Reservoir No. 2 and construct a new and larger 2.0 Mg capacity reservoir on the same general site, on Waianuenue Avenue, about 0.5 mile mauka of Hilo Medical Center (Figures 1a-c). The improvements are necessary because the existing reservoir has reached the end of its service life, is undersized and has required expensive maintenance. Because the new facility will be larger than the existing facility, a larger site is required. In addition to the reservoir itself, new or relocated improvements will include: a new booster pump station with two booster pumps; a new control building to house the motor control center and other electrical equipment and control instrumentation; an asphalt concrete pavement driveway; perimeter fencing and site landscaping; and associated water mains to connect the reservoir to the existing water distribution system (Figs. 2a-c). The existing facility (including the reservoir, booster pump station, and ancillary equipment) will be demolished once the new facility is constructed, tested, and in operating order. The land under the existing facility will then be landscaped to match the landscaping for the new facility.

A separate but related project also merits mention. An existing 4-inch water main will be replaced with an 8-inch ductile iron pipeline. The existing water main is a high pressure by-pass waterline that runs along Waianuenue Avenue and is approximately 1,300 linear feet in length. Water supplying the existing 4-inch water main is from the Pi`ihonua Reservoir No. 1, mauka of the project site; from there, the water pressure is reduced through a control valve station located within the Pi`ihonua Reservoir No. 2 site (the subject site). A new pressure reducing control valve station (which will be located within the project site) will be built to replace the existing control valve station. All existing water meter assemblies from the 4-inch water main will be transferred to the new 8-inch waterline. New fire hydrants will be installed and reconnections of existing fire hydrant assemblies to the new 8-inch water main will be made to meet fire protection requirements of the 2002 Water System Standards. The project is a replacement and minor upgrade of an existing line and is considered exempt from the need for an Environmental Assessment.

1.2 Purpose and Need

The facilities are needed to promote public health and safety by improving water service for the Hilo area community. The improvements are necessary because the existing reservoir has reached the end of its service life, is undersized for current needs, and has required expensive maintenance. The new reservoir will be twice as large as the existing reservoir, and thus better able to meet future demands in their water service area with increased storage capacity.

1.3 Summary of Regulatory Requirements

This Environmental Assessment (EA) process is being conducted in accordance with Chapter 343 of the Hawai'i Revised Statutes (HRS). This law, along with its implementing regulations, Title 11, Chapter 200, of the Hawai'i Administrative Rules (HAR), is the basis for the environmental impact process in the State of Hawai'i. According to Chapter 343, an EA is prepared to determine impacts associated with an action, to develop mitigation measures for adverse impacts, and to determine whether any of the impacts are significant according to thirteen specific criteria. Part 4 of this document states the anticipated finding that no significant impacts are expected to occur; Part 5 lists each criterion and presents the preliminary findings for each made by the Hawai'i County Department of Water Supply, the proposing agency. If, after considering comments to the Draft EA, the proposing agency concludes that, as anticipated, no significant impacts would be expected to occur, then the agency will issue a Finding of No Significant Impact (FONSI), and the action will be permitted to occur. If the agency concludes that significant impacts are expected to occur as a result of the proposed action, then an Environmental Impact Statement (EIS) will be prepared.

1.4 Public Involvement and Agency Coordination

The following agencies and organizations were consulted in development of the environmental assessment.

State:
Department of Land and Natural Resources, Historic Preservation Division
County:
Planning Department
Public Works Department
Police Department
County Council
Private:
Pi`ihonua Houselots Community Association

Copies of communications received during preconsultation are contained in Appendix 4, and Appendix 5 contains the notes from a public meeting held on December 11, 2004, along with written comments on the Draft EA and the responses to these comments. Various places in the EA have been modified to reflect input received at the meeting or in the comment letters; additional or modified text is denoted by double underlines, as in this paragraph.

1.5 Property Ownership

TMK 2-3-:30:5 is State of Hawai`i property in the control of the County of Hawai`i under Executive Order 2683.

PART 2: ALTERNATIVES

2.1 No Action

Under the No Action Alternative, the existing reservoir would not be replaced. At some point in the future the quality of water service in this part of Hilo may not be adequately dependable nor able to meet growing demand. Because of its mandate to provide reliable and high-quality water service to all its customers, the Hawai'i County Department of Water Supply considers the No-Action Alternative unacceptable.

2.2 Alternative Locations or Strategies

During early phases of project planning, DWS examined the Pi`ihonua area and determined that the existing reservoir site provides the best overall location for the required function, as the property is already under County control and is at the proper elevation. As there do not appear to be any environmental or other disadvantages associated with the proposed site, no alternative sites have been advanced in the Environmental Assessment. There is no other approach to water storage and transmission that would accomplish the goals of the project.

PART 3: ENVIRONMENTAL SETTING, IMPACTS AND MITIGATION MEASURES

Basic Geographic Setting

The parcel upon which the new reservoir would be constructed and the old reservoir demolished is referred to throughout this EA as the *project site*. The term *project area* is used to describe the general environs of Pi`ihonua, and, in some cases, Hilo.

The project site is located at approximately 650 feet in elevation along Waianuenue Avenue, about 0.5 mile mauka of Hilo Medical Center (see Figs. 1a-c). The vegetation of the project area has been extensively modified for farming, ranching, and house sites, and the project site is covered with secondary, non-native forest. The average maximum daily temperature is approximately 75 degrees F., with an average minimum of 65 degrees, and annual rainfall averages approximately 200 inches (U.H. Hilo-Geography 1998:57). Adjacent land is primarily residential with some scattered agricultural use in the area.

3.1 Physical Environment

3.1.1 Geology, Soils and Geologic Hazards

Environmental Setting

Geologically, Pi`ihonua is located on the lower flank of the dormant Mauna Loa near the Wailuku Stream (commonly called the Wailuku River). The surface consists of weathered basalt soils on Pleistocene-era (greater than 10,000 years old) lava flows from Mauna Loa. The project site soil is classified by the National Resource Conservation Service (formerly Soil Conservation Service) as Keaukaha extremely rocky muck (rKFD), a dark brown and strongly acid soil that is approximately 8" thick, varying with the undulating topography of the underlying pahoehoe lava flows. Permeability is rapid, runoff moderate, and erosion hazard slight. Its Capability Subclass is IV, and it is mainly used for pasture and woodland (U.S. Soil Conservation Service 1973).

The entire Big Island is subject to geologic hazards, especially lava flows and earthquakes. Volcanic hazard as assessed by the United States Geological Survey in this area of Hilo is 3 on a scale of ascending risk 9 to 1 (Heliker 1990:23). The high hazard risk is based on the fact Mauna Loa is presently an active volcano. Volcanic hazard zone 3 areas have had 1-5% of their land area covered by lava or ash flows since the year 1800, but are at lower risk than zone 2 areas because of their greater distances from recently active vents and/or because the local topography makes it less likely that flows will cover these areas.

In terms of seismic risk, the entire Island of Hawai'i is rated Zone 4 Seismic Probability Rating (*Uniform Building Code, 1997 Edition*, Figure 16-2). Zone 4 areas are at risk

from major earthquake damage, especially to structures that are poorly designed or built. The project site does not appear to be subject to subsidence, landslides or other forms of mass wasting.

Impacts and Mitigation Measures

In general, geologic conditions impose no constraints on the proposed action, and the proposed water system improvements are not imprudent to construct. The reservoir is designed in accordance with applicable American Water Works Association and American Concrete Institute standards for Seismic Zone 4, as well as all applicable County Building Department requirements. The wall of the tank will be wire-wound, pre-stressed concrete with seismic cables extending into the wall footing. In addition, to avoid over-stressing the top and bottom connection of the tank wall, the wall will be able to slide independently from the tank footing and roof slab on bearing pads and a specially designed interface.

3.1.2 Drainage, Water Features and Water Quality

Existing Environment

The project area has a number of surface water bodies, including the Wailuku River, which is located about 0.2 mile north of the project site. A small perennial tributary stream also flows about 0.2 mile south of the project site and merges with the Wailuku River near Carvalho Park at the intersection of Kaumana Drive and Waianuenue Avenue. Additionally, a number of artesian springs are found approximately 0.5 mile makai of the project site. No streams or springs appear to be present on the site itself. No stream poses a flooding hazard to the project site. No known areas of local (non-stream related) flooding are present. The Flood Insurance Rate Maps (FIRM) 860C – 880C (9/16/88) show that the project site is in Flood Zone X, outside of the 500 year flood plain.

The *Hawai'i Stream Assessment* (Hawai'i State CWRM 1990) inventoried streams statewide (including over a hundred on the Hilo/Hamakua coast) for their water quality/supply, habitat, cultural and recreational resource value. Streams are ranked in various resources categories. Of particular importance are the *Candidate Streams for Protection*, which meet the criteria for either diversity of outstanding resources or "blue-ribbon resources." Four such streams are present on the Hamakua/Hilo coast: Waikoloa, Kolekole, Honoli`i, and Wailuku Streams. Wailuku Stream is listed as a candidate for both its scenic and recreational characteristics.

Impacts and Mitigation Measure

Because of the limited scale of construction and the environmental setting, the risks for flooding or impacts to water quality are negligible. No impacts to stream banks or stream waters will occur, as none are present. There will be no effect on Wailuku Stream.

In order to minimize the potential for sedimentation and erosion, the contractor shall perform all earthwork and grading in conformance with Chapter 10, Erosion and Sediment Control, Hawai'i County Code. Because the project will disturb more than one acre of soil, a National Pollutant Discharge Elimination System (NPDES) permit must be obtained by the contractor before the project commences. This permit requires the completion of a Storm Water Pollution Prevention Plan (SWPPP). In order to properly manage storm water runoff, the SWPPP will describe the emplacement of a number of best management practices (BMPs) for the project. These BMPs may include, but will not be limited to, the following:

- Minimization of soil loss and erosion by revegetation and stabilization of slopes and disturbed areas of soil, possibly using hydromulch, geotextiles, or binding substances, as soon as possible after working;
- Minimization of sediment loss by emplacement of structural controls possibly including silt fences, gravel bags, sediment ponds, check dams, and other barriers in order to retard and prevent the loss of sediment from the site;
- Minimizing disturbance of soil during periods of heavy rain;
- Phasing of the project to disturb the minimum area of soil at a particular time;
- Application of protective covers to soil and material stockpiles;
- Construction and use of a stabilized construction vehicle entrance, with designated vehicle wash area that discharges to a sediment pond;
- Washing of vehicles in the designated wash area before they egress the project site;
- Use of drip pans beneath vehicles not in use in order to trap vehicle fluids;
- Routine maintenance of BMPs by adequately trained personnel;
- Coordination of storm water BMPs and wind erosion BMPs whenever possible; and
- Significant leaks or spills, if they occur, shall be properly cleaned up and disposed of at an approved site.

In order to illustrate some of the practices that are expected to be implemented on the site, a draft Erosion Control Plan has been developed and is illustrated in Figure 2c. It should be emphasized that the plan is draft and will be replaced by the SWPPP.

3.1.3 Flora, Fauna and Ecosystems

Existing Environment

The natural vegetation of this part of Hilo was most likely lowland rain forest dominated by 'ohi'a (*Metrosideros polymorpha*) and koa (*Acacia koa)* (Gagne and Cuddihy 1990). These original communities, however, have been destroyed or heavily degraded by cattle grazing, agriculture and clearing for farms and residences, and the vegetation of Pi`ihonua is now either managed vegetation (i.e., farms, pasture or landscaped grounds) or adventive "communities" of various alien weeds. A walk-through biological survey of the project site was performed in August 2004. Table 1 is a list of plant species detected.

Table 1: Pi`ihonua Project Site Species List

Scientific Name	Family	Common Name	Life Form	Status*
DICOTS				
Asystasia gangetica	Acanthaceae	Asystasia	Vine	A
Justicia betonica	Acanthaceae	Shrimp Plant	Shrub	A
Pseuderanthemum sp.	Acanthaceae	Pseuderanthemum	Shrub	A
Sanchezia sp.	Acanthaceae	Sanchezia	Shrub	A
Thunbergia fragrans	Acanthaceae	White Thunbergia	Vine	A
Alternanthera sessilis	Amaranthaceae	Sessile Joyweed	Herb	A
Mangifera indica	Anacardiaceae	Mango	Tree	A
Centella asiatica	Apiaceae	Asiatic Pennywort	Herb	A
Allamanda cathartica	Apocynaceae	Allamanda	Vine	A
Ageratum conyzoides	Asteraceae	Ageratum	Herb	A
Bidens pilosa	Asteraceae	Beggar's Tick	Herb	A
Conyza bonariensis	Asteraceae	Hairy Horseweed	Herb	A
Emilia sonchifolia	Asteraceae	Flora's Paintbrush	Herb	A
Synedrella nodiflora	Asteraceae	Nodeweed	Herb	A
Wedelia trilobata	Asteraceae	Wedelia	Herb	A
Youngia japonica	Asteraceae	Oriental Hawksbeard	Herb	A
Impatiens wallerana	Balsaminaceae	Impatiens	Herb	A
Begonia sp.	Begoniaceae	Begonia	Herb	A
Spathodea campanulata	Bignoniaceae	African Tulip	Tree	A
Hippobroma longiflora	Campanulaceae	Star-of-Bethlehem	Herb	A
Sambucus mexicana	Caprifoliaceae	Mexican Elder	Shrub	A
Drymaria cordata	Caryophyllaceae	Pipili	Herb	A
Silene gallica	Caryophyllaceae	Catchfly	Herb	A
Clusia rosea	Clusiaceae	Autograph Tree	Tree	A
Ipomoea alba	Convolvulaceae	Moon Flower	Vine	A
Merremia aegyptia	Concolvulaceae	Merremia	Vine	A
Merremia tuberosa	Convolvulaceae	Wood Rose	Vine	A
Chamaesyce hirta	Euphorbiaceae	Spurge	Herb	A
Chamaesyce prostrata	Euphorbiaceae	Spurge	Herb	A
Phyllanthus debilis	Euphorbiaceae	Niruri	Herb	A
Paraserianthes falcataria	Fabaceae	Albizia	Tree	A
Desmodium incanum	Fabaceae	Spanish Clover	Herb	A
Desmodium triflorum	Fabaceae	None	Herb	A
Mimosa pudica	Fabaceae	Sleeping Grass	Herb	A
Prunella vulgaris	Lamiaceae	Prunella	Herb	A
Lagerstroemia speciosa	Lythraceae	Giant Crape Myrtle	Tree	A
Michelia champaca	Magnoliaceae	Mulang	Tree	A
Hibiscus sp.	Malvaceae	Hibiscus	Shrub	A
Dissotis rotundifolia	Melastomataceae	Dissotis	Herb	A
Melastoma candidum	Melastomataceae	Melastoma	Shrub	A
Pterolepis glomerata	Melastomataceae	Pterolepis	Shrub	A
Cecropia obtusifolia	Moraceae	Trumpet Tree	Tree	A
Ardisia elliptica	Myrsinaceae	Shoebutton Ardisia	Tree	A
Eucalyptus robusta	Myrtaceae	Swamp Mahogany	Tree	A
Psidium cattleianum	Myrtaceae	Waiawi	Tree	A
Psidium guajava	Myrtaceae	Guava	Tree	A
Syzygium jambos	Myrtaceae	Rose Apple	Tree	A
Oxalis corniculata	Oxalidaceae	Wood-sorrel	Herb	A
Plantago major	Plantaginaceae	Plantain	Herb	A
Rubus rosifolius	Rosaceae	Thimbleberry	Herb	A
Borreria laevis	Rubiaceae	Buttonweed	Herb	A

Paederia scandens	Rubiaceae	Maile Pilau	Vine	A
Lindernia crustacea	Scrophulariaceae	None	Herb	A
Melochia umbellata	Sterculiaceae	Melochia	Tree	A
Trema orientalis	Ulmaceae	Gunpowder Tree	Tree	A
Stachytarpheta jamaicensis	Verbenaceae	Stachytarpheta	Herb	A
MONOCOTS				
Cordyline fruticosa	Agavaceae	Ki	Shrub	A
Alocasia macrorrhiza	Araceae	Alocasia	Herb	A
Dieffenbachia sp.	Araceae	Dumb Cane	Shrub	A
Monstera sp.	Araceae	Monstera	Shrub	A
Philodendron sp.	Araceae	Philodendrom	Shrub / Vine	A
Scindapsus aureus	Araceae	Taro Vine	Vine	A
Unknown Fan-Leafed Palm	Arecaceae	Immature plant	Tree	A
Archontophoenix alexandrae	Arecaceae	Alexandra	Palm	A
Cocos nucifera	Arecaceae	Niu	Tree	A
Commelina diffusa	Commelinaceae	Honohono	Herb	A
Dichorosandra thyrsiflora	Commelinaceae	Blue Ginger	Herb	A
Cyperus halpan	Cyperaceae	Sedge	Herb	A
Kyllinga sp.	Cyperaceae	Kili'o'opu	Herb	A
Pycreus polystachyos	Cyperaceae	Sedge	Herb	A
Asparagus sprengeri	Liliaceae	Asparagus	Fern	A
Pleomele spp.	Liliaceae	Money Tree (3 species)	Shrubs	A
Heliconia spp	Musaceae	Heliconia (3/4 species)	Herb	A
Musa sp.	Musaceae	Banana	Shrub	A
Arundina graminifolia	Orchidaceae	Bamboo Orchid	Herb	A
Epidendrum sp.	Orchidaceae	Epidendrum	Herb	A
Spathoglottis plicata	Orchidaceae	Phillipine Ground Orchid	Herb	A
Brachiaria mutica	Poaceae	California Grass	Herb	A
Eleusine indica	Poaceae	Wiregrass	Herb	A
Oplismenus hirtellus	Poaceae	Basket Grass	Herb	A
Panicum maximum	Poaceae	Guinea Grass	Herb	A
Paspalum conjugatum	Poaceae	Hilo Grass	Herb	A
Pennisetum purpureum	Poaceae	Napier Grass	Herb	A
Sacciolepis indica	Poaceae	Glenwood Grass	Herb	A
Setaria gracilis	Poaceae	Yellow Foxtail	Herb	A
Setaria palmifolia	Poaceae	Palmgrass	Herb	A
Sporobolus africanus	Poaceae	African Dropseed	Herb	A
Hedychium coronarium	Zingiberaceae	White Ginger	Herb	A
Hedychium flavescens	Zingiberaceae	Yellow Ginger	Herb	A
FERNS AND FERN ALLIES				
Psilotum nudum	Psilotaceae	Moa	Herb	I
Diplazium esculentum	Athyriaceae	Paco	Shrub	A
Cibotium glaucum	Dicksoniaceae	Hapu'u Pulu	Shrub	I
Dicranopteris linearis	Gleicheniaceae	Uluhe	Vine	I
Nephrolepis exaltata	Nephrolepidaceae	Sword Fern	Herb	I
Phelbodium aureum	Polypodiaceae	Laua'e Haole	Herb	A
Pleopeltis thunbergiana	Polypodiaceae	Pakahakaha	Herb	A
Phymatosorus grossus	Polypodiaceae	Maile Scented Fern	Herb	A
Christella dentata	Thelypteridaceae	Downy Wood Fern	Herb	A
Cyclosorus interruptus	Thelypteridaceae	Neke	Herb	I

A = alien, E = endemic, I = indigenous, End = Federal and State listed Endangered Species

No listed, candidate or proposed endangered plant species were found or would be expected to be found on the project site. In terms of conservation value, no botanical resources requiring special protection are present.

Residents have reported that Hawaiian Hawks (*Buteo solitarius*) and Hawaiian hoary bats (*Lasiurus cinereus semotus*) are often seen in the area. Both are listed endangered species, and both are commonly observed in many parts of East Hawai`i.

Impacts and Mitigation Measures

Because of the lack of native ecosystems, or threatened or endangered plant species, no adverse impacts to botanical resources would occur as a result of clearing and improvements. A landscape plan (see Fig. 3 – major discussion in Section 3.1.4) will be implemented to preserve not only the scenic values of the area but also to mitigate any impact to the erosion control functions of the existing vegetation.

Although the native trees favored by Hawaiian Hawks for nesting are not present in the alien vegetation on the project site, there is at least some possibility that clearing could affect a nesting pair of hawks on this or nearby land. If disturbed while sitting on eggs, or caring for young, adult birds may abandon the nest, thus putting their eggs or young at grave risk of harm or death. To reduce the potential for interactions between clearing and grubbing activity and nesting Hawaiian Hawks, it is recommended that such activities not take place during the breeding season, which extends from March through July. If this is unavoidable it is recommended that audio playback nesting activity surveys be conducted by a qualified ornithologist using currently approved protocols within the areas slated for clearing, prior to the commencement of such activities. If nesting activity is detected, consultation with the U. S. Fish & Wildlife Service will be required.

The principal potential impact that the project poses to the endangered Hawaiian hoary bats is during the clearing and grubbing of the site. Female bats while caring for their young are extremely vulnerable to disturbance. While carrying young and feeding them the adult bats are under immense stress, and move relatively slowly. If a lactating bat carrying young were to be roosting in vegetation that was removed during clearing and grubbing operations it is possible that she would not be able to flee the vegetation as it was being cleared. To reduce the potential for interactions between clearing and grubbing activity and Hawaiian hoary bats, it recommended that clearing and grubbing not be undertaken during the period that bats are caring for young, which occurs between the months of June and August.

3.1.4 Air Quality, Noise, and Scenic Resources

Environmental Setting

Air pollution in East Hawai'i is minimal, and is mainly derived from volcanic emissions of sulfur dioxide, which convert into particulate sulfate and produce a volcanic haze

(vog) that occasionally blankets the district. The persistent tradewinds keep the project area relatively free of vog for most of the year.

Noise on the project site is low and derived mainly from motor vehicles, with occasional noise from residential and road maintenance activities.

The project area contains several sites that are considered significant for their scenic character in the Hawai`i County General Plan, including Rainbow Falls and Kaimukanaka Falls, both located makai of Hilo Medical Center, and Boiling Pots, mauka of the project site. However, the project site is sufficiently distant from these scenic sites (and because of topography not visible from them) that it will not affect the character of visual quality of these resources.

Impacts and Mitigation Measures

The proposed action would not measurably affect air quality or noise levels except minimally during construction. Operationally, noise levels should improve relative to existing levels because the pump will be placed behind the reservoir, farther from existing residences. Removal of existing non-native trees would be required in order to site the reservoir on the property. A landscaping plan has been developed (see Figure 3 for draft plan) that will mitigate the impacts of removing vegetation by providing an attractive and well-managed appearance from the exterior and still providing functionality. The plan retains some crape myrtle trees as a border and further shields the facility with layers of native and other trees and shrubs. Given the landscaping plan, the removal of existing vegetation over much of the site would not substantially affect the scenic character of the Pi`ihonua area, which will be enhanced by the proposed plantings. No important viewplanes or scenic sites recognized in the Hawai`i County General Plan would be affected.

3.1.5 Hazardous Substances, Toxic Waste and Hazardous Conditions

Muranaka & Associates inspected the materials of the walls, roof, pumps and other parts of the reservoir and associated structures for suspect asbestos-containing material (ACM) and lead-containing paint (LCP). A letter report detailing the inspection is attached to this EA as Appendix 3. Lead-containing paint was used to paint the existing reservoir, and asbestos is present in pump gaskets and on the Transite material roof.

As ACM and materials painted with LCP are present, project demolition and disposal will require compliance regulation of the federal Environmental Protection Agency (EPA), the Hawai`i State Department of Health, Division of Occupational Health and Safety (HIOSH), and the Occupational Safety and Health Administration (OSHA). As

part of this process, LCP material and ACM may undergo further testing to determine if material may be disposed of in a municipal landfill. Metal debris coated with lead paint may be sent to recyclers as scrap metal without removing the paint.

Based on onsite inspection and information on file, it appears that the project site contains no other hazardous or toxic substances and exhibits no other hazardous conditions. No permanent or temporary land use that would tend to result in these conditions appears to have ever occurred on the project site.

3.2 Socioeconomic and Cultural

3.2.1 Socioeconomic Characteristics

The project would affect and benefit the district of South Hilo. Table 2 provides information on the socioeconomic characteristics of Hilo along with those of Hawai'i County as a whole for comparison, from the United States 2000 census.

Impacts

The proposed project would benefit public health in the Hilo Area through maintenance and improvement of the continued quality of water supply.

Table 2
Selected Socioeconomic Characteristics

CHARACTERISTIC	ISLAND OF HAWAI`I	HILO
Total Population	148,677	36,836
Percent Caucasian	31.5	15.8
Percent Asian	26.7	39.6
Percent Hawaiian	9.7	13.3
Percent Two or More Races	28.4	26.5
Median Age (Years)	38.6	38.0
Percent Under 18 Years	26.1	25.8
Percent Over 65 Years	13.5	15.8
Percent Households with Children	21.3	37.8
Average Household Size	2.75	2.85
Percent Housing Vacant	15.5	9.6

Source: U.S. Bureau of the Census. May 2001. *Profiles of General Demographic Characteristics, 2000 Census of Population and Housing, Hawai'i.* (U.S. Census Bureau Web Page).

3.2.2 Cultural Setting

Existing Environment

A cultural and archaeological study of the subject area was conducted by Rechtman Consulting, Inc. It is attached as Appendix 2 and summarized in this and the next section.

The purpose of the study was to document the presence of any historic properties or traditional cultural properties that might exist within the project area, assess the significance of any such resources, and provide a statement of impact to any such resources as a result of the proposed construction of the reservoir. The study used historic maps and documents, archaeological summaries of the area, and field investigation. This information provided a context for the search for potential historic or traditional cultural properties.

The earliest historical knowledge of Hilo comes from legends written by Kamakau (1961) of a 16th century chief 'Umi-a-Liloa (son of Liloa), who at that time ruled the entire island of Hawai'i. Descendants of Umi and his sister-wife were referred to as "Kona" chiefs, controlling Ka'ū, Kona, and Kohala, while descendants of Umi and his Maui wife were "Hilo" chiefs, controlling Hāmākua, Hilo, and Puna (Kelly 1981:1). According to Kamakau (1961), both sides fought over control of the island, desiring access to resources such as feathers, *māmaki* tapa, and canoes on the Hilo side, and *wauke* tapa, and warm lands and waters on the Kona side (c.f. Kelly 1981:3).

Sometime near the end of the 16th century or early in the 17th century, the lands of Hilo were divided into *ahupua'a,* which till today retain their original names (Kelly 1981:3). These include the *ahupua'a* of Pu'u'eo, Pi'ihonua, Punahoa, Pōnohawai, Kūkūau and Waiākea. The design of these land divisions was such that residents could have access to all that they needed to live, with ocean resources at the coast, and agricultural and forest resources in the interior. However, only Pi'ihonua and Waiākea provided access to the full range of resources stretching from the sea up to 6,000 feet along the slopes of Mauna Kea (Kelly 1981:5).

Historical accounts (McEldowney 1979) place the current study area in a zone of agricultural productivity. As Isabella Bird recorded upon arriving in Hilo in 1873:

> "Above Hilo, broad lands sweeping up cloudwards, with their sugar cane, *kalo*, melons, pine-apples, and banana groves suggest the boundless liberality of Nature" (Bird 1964:38).

Handy and Handy (1972) also describe the general region as an agricultural area:

> "On the lava strewn plain of Waiakea and on the slopes between Waiakea and Wailuku River, dry taro was formerly planted wherever there was enough soil. There were forest plantations in Panaewa and in all the lower fern-forest zone above Hilo town along the course of the Wailuku River" (Handy and Handy 1972:539).

Maly (1996) refers to a 1922 article from the Hawaiian Language newspaper, *Ka Nupepa Kū 'oku 'a*, where planting on *pāhoehoe* lava flats is described:

> "There are *pahoehoe* lava beds walled in by the ancestors in which sweet potatoes and sugar cane were planted and they are still growing today. Not only one or two but several times forty (*mau ka 'au*) of them. The house sites are still there, not one or two but several times four hundred in the woods of the Panaewa. Our indigenous bananas are growing wild, these were planted by the hands of our ancestors" (Maly 1996:A-2) .

Pi 'ihonua Ahupua 'a

As part of an archaeological assessment study, Maly (1996) conducted historical research for the lands of Wainaku, Pōnohawai, Waiākea, and Pi'ihonua. He discusses the significance of the use of the Hawaiian word *wai* in the place names: Pōnohawai, Waiākea, Wainaku, and Wailuku (River). According to Maly, the word *wai* (water) has strong metaphorical associations with the Hawaiian concept of wealth (*waiwai*), stressing its cultural importance (Maly 1996:A-2). In this context, the importance of Hilo can be better understood, with its copious streams that fed taro pondfields and its numerous fishponds. Maly refers to the origins of the names Waiākea and Pi'ihonua in the Hawaiian legend of Ka'ao Ho'oniua Pu'uwai no Ka-Miki. Pi'ihonua literally translates to: "Ascending Earth," and the *ahupua 'a* is named for Pi'ihonua-a-ka-lani, the brother of Waiākea and Pana'ewa, and the father of the chiefesses 'Ohele and Waiānuenue (Maly 1996:A-4).

Pi'ihonua along with Punahoa and Waiākea were held by Kamehameha I until the time of his death in 1819, at which time his holdings, including Pi'ihonua, were passed down to his son, Liholiho. Kelly (1981) speculates that Pi'ihonua may have been given to Chief Kalaeokekio by Kauikeaouli or Boki in 1828. Pi'ihonua was surrendered at the time of the *Māhele* and classified as Crown Land (Kelly 1981); no *kuleana* claims were registered for lands in the vicinity of the current subject property (Maly 1996). Following the *Māhele,* the population of Hilo grew and the scattered upland habitations gave way to sugar cultivation (McEldowney 1979:37). At the turn of the century, there were remnants of *heiau* and at least one intact *heiau* within Pi'ihonua. Thrum (1907) describes a *heiau* named Kaipālaloa that had been destroyed and another called Papio, which was purportedly for bird catchers and canoe builders. Stokes (1991) reported

another *heiau* in Pi'ihonua called Pinao that was once located near the intersection of Waiānuenue and Ululani Streets (Maly 1996).

Beginning in the late 1880s Pi'ihonua was home to the Hawaii Mill Company, built on the Alenaio Stream (Kelly 1981). By 1905, according to Thrum (1923) the Hawaii Mill Company had 10 miles of cane flumes and produced twenty-five tons of sugar per day. In 1920 Hawaii Mill Company was taken over by the Hilo Sugar Company (Kelly 1981). Commercial sugar production lasted in Pi'ihonua until the mid twentieth century, at which time many of the fields were converted to pasturage associated with cattle ranching.

The subject property has been extensively disturbed by agriculture, by agricultural infrastructure construction (flumes), and more recently by its use as a reservoir by the Department of Water Supply. As discussed in the next section, no significant archaeological remains reflecting cultural history or supporting cultural values appear to be present. Furthermore, no caves, springs, pu`u, native forest groves, gathering resources or other natural features are present on or near the project site. The vegetation is highly disturbed and does not contain the quality and quantity or resources that would be important for native gathering.

Impacts and Mitigation Measures

As part of the current study an effort was made to obtain information about any potential traditional cultural properties and associated practices that might be present, or have taken place in upper Pi'ihonua Ahupua'a. The Office of Hawaiian Affairs (East Hawai'i) and the Hilo Hawaiian Civic Club were contacted but had no information relative to the existence of traditional cultural properties in the immediate vicinity of the current project area; nor did they provide any information indicating current use of the area for traditional and customary practices.

As no resources or practices of a potential traditional cultural nature (i.e., landform, vegetation, etc.) appear to be present on or near the project site, and there is no evidence of any traditional gathering uses or other cultural practices, the proposed construction and maintenance would not appear to impact any culturally valued resources or cultural practices.

3.2.3 Archaeology and Historic Sites

Existing Environment

A cultural and archaeological study of the subject area was conducted by Rechtman Consulting, Inc., (see Appendix 2) and summarized in this and the preceding section, which discussed the cultural/historical background of the area.

Two archaeological sites, both remnant stacked stone walls, were recorded in the study area. The most intact wall, SIHP (State Inventory of Historic Places) Site 24268, is located such that it may have been associated with an early twentieth-century flume shown on maps running along the study property boundary. This flume likely carried water to the Hawaii Mill Company facility in lower Pi'ihonua. The second wall segment, SIHP Site 24267, is only six meters long and may be a remnant feature associated with the other similar stacked stone features observed by Sinoto (1978) to the east of the current study parcel and interpreted as agricultural and residential features dating to a time prior to the development of commercial sugarcane cultivation.

SIHP Site 24267 is not considered significant, as it retains no integrity of design, setting, feeling, or association. This site and its immediate surroundings have been wholly impacted by agricultural and infrastructure development dating back to the late nineteenth century and continuing into modern times.

SIHP Site 24268 is considered significant under Criteria D for the information it has yielded regarding early twentieth century sugarcane associated infrastructure. However, as the current inventory survey project recorded Site 24268 in detail and there is no excavation potential, no further work is recommended.

Impacts and Mitigation Measures

As SIHP Site 24267 is not considered significant, and no further work is recommended for SIHP Site 24268, no impacts to historic properties is expected. The archaeological inventory has been submitted to the State Historic Preservation Division, along with this EA, and the agency is expected to concur with this recommendation. SHPD's concurrence or other comments will be documented in the Final EA.

In the unlikely event that archaeological resources are encountered during future development activities within the current study area, work in the immediate area of the discovery should be halted and DLNR-SHPD contacted as outlined in Hawai'i Administrative Rules 13§13-275-12.

3.3 Infrastructure

3.3.1 Utilities

Existing Facilities and Services

Electrical power to the facility is supplied by Hawai'i Electric Light Company (HELCO), a privately owned utility company regulated by the State Public Utilities Commission, via their island-wide distribution network. Electrical service is available at the project site.

Telephone service is available from Verizon Hawaii, but not required, for the project. No wastewater system is available or necessary for the project.

Impacts and Mitigation Measures

The proposed action would not have any substantial impact on existing electrical facilities or HELCO's ability to provide electricity. Appropriate coordination with HELCO and Verizon Hawaii will be conducted during the design and construction of the improvements. No other utilities will be affected in any way.

3.3.2 Roadways

Existing Facilities

Waianuenue Avenue, which provides access to the reservoir (see Figs. 1-2), is a relatively narrow two-lane facility with only intermittent shoulders, maintained by the County of Hawai'i.

Impacts and Mitigation Measures

As an existing reservoir is already present, no new operational use of these roadways would be expected. The new driveway will require a permit from the Hawaii County Department of Public Works and must comply with **Chapter 22 of the Hawai'i County Code.** The proposed action would require construction vehicles to access the site during a period of several months for grading, hauling fill and materials, building the new reservoir, and demolishing the old one. Public input, particularly consultation of the Hawai`i County Police Department (see App. 4) and discussions with the Pi`ihonua Houselots Community Association, has identified traffic congestion as the most important potentially adverse impact of the project. In response, the DWS will require the contractor to develop a traffic control plan during the design phase of the project that will outline the steps needed to minimize congestion and maintain access to adjacent properties at all times during construction. For short periods, traffic may be rerouted along Wailuku Drive. Implementation of construction will be coordinated with agencies to prevent conflicts in activities.

3.4 Secondary and Cumulative Impacts

The proposed project will not involve any secondary or cumulative impacts, such as population changes or effects on public facilities, because it simply fulfills the mandate of the Department of Water Supply to provide high-quality service to its customers in existing service areas. Although the project would provide some short-term construction jobs, these would almost certainly be filled by local residents and would not induce in-migration.

Cumulative impacts result when implementation of several projects that individually have limited impacts combine to produce more severe impacts or conflicts in mitigation measures. The adverse effects of the project – very minor and temporary disturbance to

air quality, noise, visual and traffic congestion quality during construction – are very limited in severity, nature and geographic scale. At the current time, according to files at the Planning Department, there do not appear to be any roadway, utility or development projects being undertaken in the Pi`ihonua area that would combine in such a way as to produce adverse cumulative effects or involve a commitment for larger actions.

3.5 Required Permits and Approvals

The following permits and approvals would be required:

- Hawai'i County Building Division Approval and Building Permit
- Hawai'i County Planning Department Approval
- Hawai'i County Public Works Department Grading Permit and Permit to Construct Within Right of Way
- Hawai`i State Conservation District Use Permit
- National Pollutant Discharge Elimination System Permit (NPDES)

3.6 Consistency With Government Plans and Policies

3.6.1 Hawai'i State Plan

Adopted in 1978 and last revised in 1991 (Hawai'i Revised Statutes, Chapter 226, as amended), the Plan establishes a set of themes, goals, objectives and policies that are meant to guide the State's long-run growth and development activities. The three themes that express the basic purpose of the *Hawai'i State Plan* are individual and family self-sufficiency, social and economic mobility and community or social well-being. The proposed project would promote these goals by modernizing and improving water service for the South Hilo district.

3.6.2 Hawai'i County General Plan and Zoning

The *General Plan* for the County of Hawai'i is a policy document expressing the broad goals and policies for the long-range development of the Island of Hawai'i. The plan was adopted by ordinance in 1989. The *General Plan* itself is organized into thirteen elements, with policies, objectives, standards, and principles for each. There are also discussions of the specific applicability of each element to the nine judicial districts comprising the County of Hawai'i. Most relevant to the proposed project is the following Goal and Standards:

J. Public Facilities (1) Water Policies:

- Water system improvements shall promote the County's desired land use pattern.
- Improve and replace inadequate systems.

Courses of Action: South Hilo: Public Facilities: Water

- Continue to implement water system maintenance and improvement programs in order to provide the city with a dependable and consistently safe drinking water supply.

Discussion: The proposed project satisfies relevant goals, objectives, and courses of action related to water systems in the South Hilo District. It should be noted that the *Hawai'i County General Plan* is currently in the final stages of a periodic update. The proposed action is unlikely to be inconsistent with any aspect of the update.

The *Hawai'i County General Plan Land Use Pattern Allocation Guide (LUPAG).* The LUPAG map component of the *General Plan* is a graphic representation of the Plan's goals, policies, and standards as well as of the physical relationship between land uses. It also establishes the basic urban and non-urban form for areas within the planned public and cultural facilities, public utilities and safety features, and transportation corridors. The project site is classified as CONSERVATION (GP designation) in the LUPAG. The proposed project is consistent with this designation.

Hawai'i County Zoning. The project site is in conservation district land is therefore does not have a county zoning designation. The proposed project is a permitted use within this designation given acceptance of conservation district use application. The property is not situated within the County's Special Management Area (SMA).

3.6.3 Hawai'i State Land Use Law

All land in the State of Hawai'i is classified into one of four land use categories – Urban, Rural, Agricultural, or Conservation – by the State Land Use Commission, pursuant to Chapter 205, HRS. The property is in the State Land Use Conservation District, General subzone. Any proposed use must undergo an examination for its consistency with the goals and rules of this district and subzone. The applicant will prepare a Conservation District Use Application (CDUA), to which this EA will be an Appendix. The project consists of demolition and reconstruction of a public water system reservoir. The action is therefore a *Public Purpose Use* as defined in Section 13-5-22 (P-6, D-1), which is defined as a land use undertaken by the State of Hawai`i or the counties to fulfill a mandated governmental function, activity, or service for public benefit and in accordance with public policy and the purpose of the conservation district. Such land uses may include transportation systems, communications systems, and recreational facilities.

The CDUA will include a detailed evaluation of the consistency of the project with the criteria of the Conservation District permit process. Briefly, the following individual consistency criteria should be noted.

1. The proposed land use is consistent with the purpose of the Conservation District;

The purpose of the Conservation District is to conserve, protect and preserve the important natural resources of the State through appropriate management and use to promote their long-term sustainability and the public health, safety and welfare. The action is consistent with this purpose, in that it will contribute to public health.

2. The proposed land use is consistent with the objectives of the subzone of the land on which the use will occur;

The proposed action is consistent with the objectives of the General subzone, which is to designate open space where specific conservation uses may not be defined, but where urban use would be premature. The action involves a properly managed use that ensures sustained use of the natural resources of the area by providing a safe and adequate source of potable water.

3. The proposed land use complies with provisions and guidelines contained in Chapter 205A, Hawaii Revised Statutes (HRS), entitled "Coastal Zone Management," where applicable;

The property is not within Special Management Area (SMA) and is not otherwise subject to the provision of the CZM regulatory process. The project is not inconsistent with the goals or objectives of the CZM program.

4. The proposed land use will not cause substantial adverse impact to existing natural resources within the surrounding area, community or region;

The proposed action will include mitigation measures to prevent soil erosion. The proposed project will have no adverse impacts to historic sites or to the scenic character of the area. No substantial adverse impact will occur to existing natural resources.

5. The proposed land use, including buildings, structures and facilities, shall be compatible with the locality and surrounding areas, appropriate to the physical conditions and capabilities of the specific parcel or parcels;

The proposed action is compatible with the existing use as a water reservoir site and is compatible with and supportive of adjacent residential uses.

6. The existing physical and environmental aspects of the land, such as natural beauty and open space characteristics, will be preserved or improved upon, whichever is applicable;

The current reservoir is somewhat dilapidated and unsightly. The reconstructed reservoir, although larger, will include landscaping, and the project will preserve and enhance the scenic characteristics of the area.

7. Subdivision of land will not be utilized to increase the intensity of land uses in the Conservation District;

The proposed action does not involve or depend upon subdivision.

8. The proposed land use will not be materially detrimental to the public health, safety and welfare.

The proposed action will enhance the quality of water service and will have a beneficial effect upon public safety, health, and welfare.

PART 4: DETERMINATION

Based on the information presented in the Draft EA, and also considering oral comments received at the public meeting and comment letters responding to the Draft EA, the Hawai`i County Department of Water Supply has determined that the proposed project will not significantly alter the environment, as impacts will be minimal. It has therefore determined that an Environmental Impact Statement is not warranted, and is issuing a Finding of No Significant Impact (FONSI).

PART 5: FINDINGS AND REASONS

Chapter 11-200-12, Hawai'i Administrative Rules, outlines those factors agencies must consider when determining whether an Action has significant effects:

1. *The proposed project will not involve an irrevocable commitment or loss or destruction of any natural or cultural resources.* No valuable natural or cultural resources would be committed or lost.
2. *The proposed project will not curtail the range of beneficial uses of the environment.* No restriction of beneficial uses would occur.
3. *The proposed project will not conflict with the State's long-term environmental policies.* The State's long-term environmental policies are set forth in Chapter 344, HRS. The broad goals of this policy are to conserve natural resources and enhance the quality of life. The project is minor, environmentally beneficial, and fulfills aspects of these policies calling for an improved social environment. It is thus consistent with all elements of the State's long-term environmental policies.
4. *The proposed project will not substantially affect the economic or social welfare of the community or State.* The project would not have any adverse effect on the economic or social welfare of the County or State, and would improve the water system infrastructure to the Hilo area.
5. *The proposed project does not substantially affect public health in any detrimental way.* The facility would promote public health and safety by improving water storage capacity for the Hilo area, and would thereby enhance the quality of water service.

6. *The proposed project will not involve substantial secondary impacts, such as population changes or effects on public facilities.* No secondary effects are expected to result from the proposed action, which would simply improve water system facilities for an existing service area and would not induce in-migration or affect public facilities.
7. *The proposed project will not involve a substantial degradation of environmental quality.* The project is minor and environmentally benign, and would thus not contribute to environmental degradation.
8. *The proposed project will not substantially affect any rare, threatened or endangered species of flora or fauna or habitat.* The project site supports overwhelmingly alien vegetation. Impacts to rare, threatened or endangered species of flora or fauna will not occur. Proper mitigation related to Hawaiian Hawks and Hawaiian hoary bats during construction activities can minimize impacts to these species, which are relatively common in Hilo and may make occasional use of the project site.
9. *The proposed project is not one which is individually limited but cumulatively may have considerable effect upon the environment or involves a commitment for larger actions.* The project is not related to other activities in the region in such a way as to produce adverse cumulative effects or involve a commitment for larger actions.
10. *The proposed project will not detrimentally affect air or water quality or ambient noise levels.* No adverse effects on these resources would occur. Mitigation of construction-phase impacts will preserve water quality. Ambient noise impacts due to construction will be temporary and restricted to daytime hours.
11. *The project does not affect nor would it likely to be damaged as a result of being located in environmentally sensitive area such as a flood plain, tsunami zone, erosion-prone area, geologically hazardous land, estuary, fresh water, or coastal area.* Although the project is located in an area with volcanic and seismic risk, the entire Island of Hawai'i shares this risk, and the project is not imprudent to construct, and employs design and construction standards appropriate to the seismic zone.
12. *The project will not substantially affect scenic vistas and viewplanes identified in county or state plans or studies.* No scenic vistas and viewplanes will be adversely affected by the project.
13. *The project will not require substantial energy consumption.* The construction and operation of the facility would require minimal consumption of energy. No adverse effects would be expected.

For the reasons above, the proposed Action will not have any significant effect in the context of Chapter 343, Hawai'i Revised Statues and section 11-200-12 of the State Administrative Rules.

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APPENDIX 1

FIGURES

Index to Figures

Figure 1a
Project Area Map

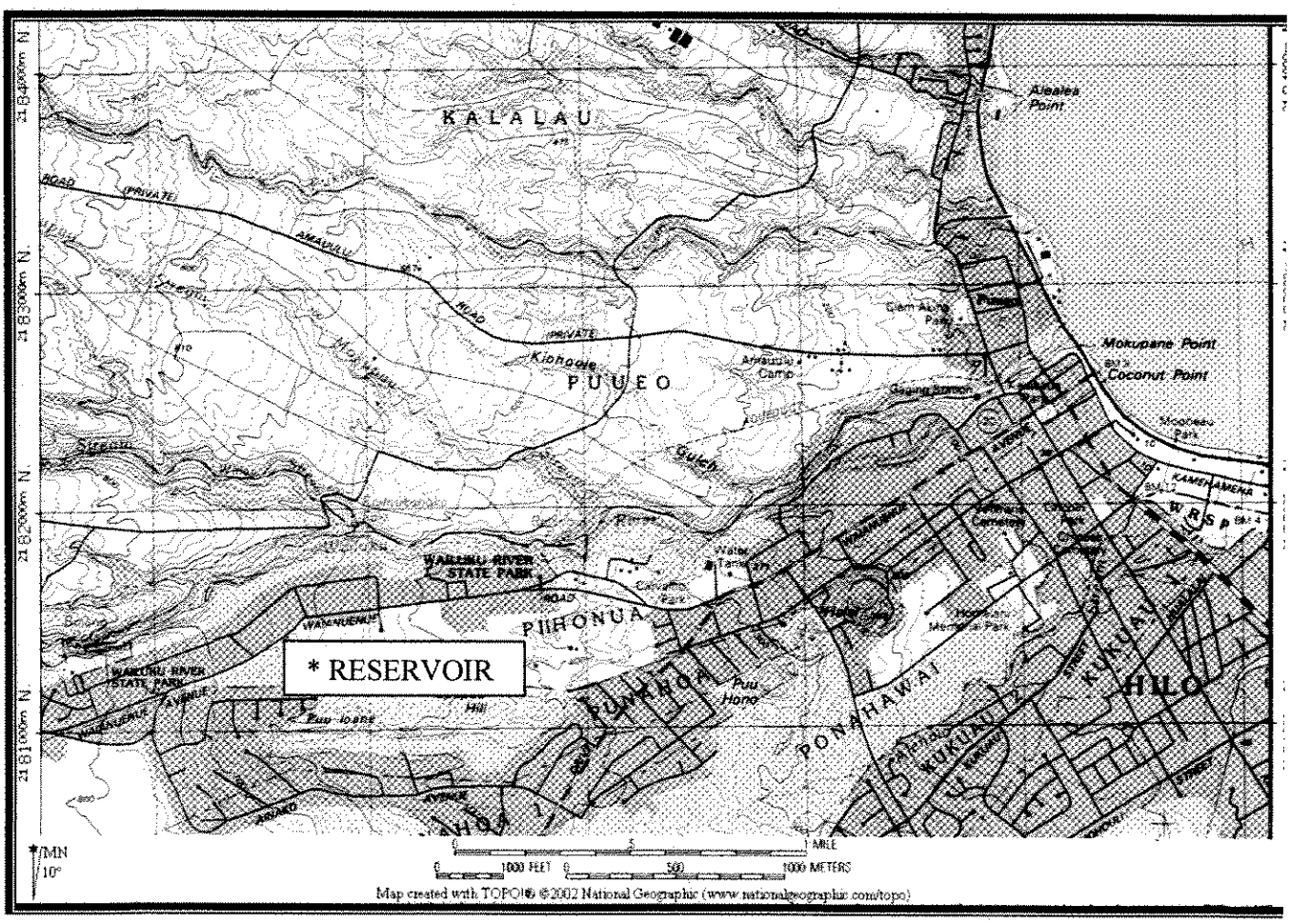


Figure 1b
Project Site Airphoto

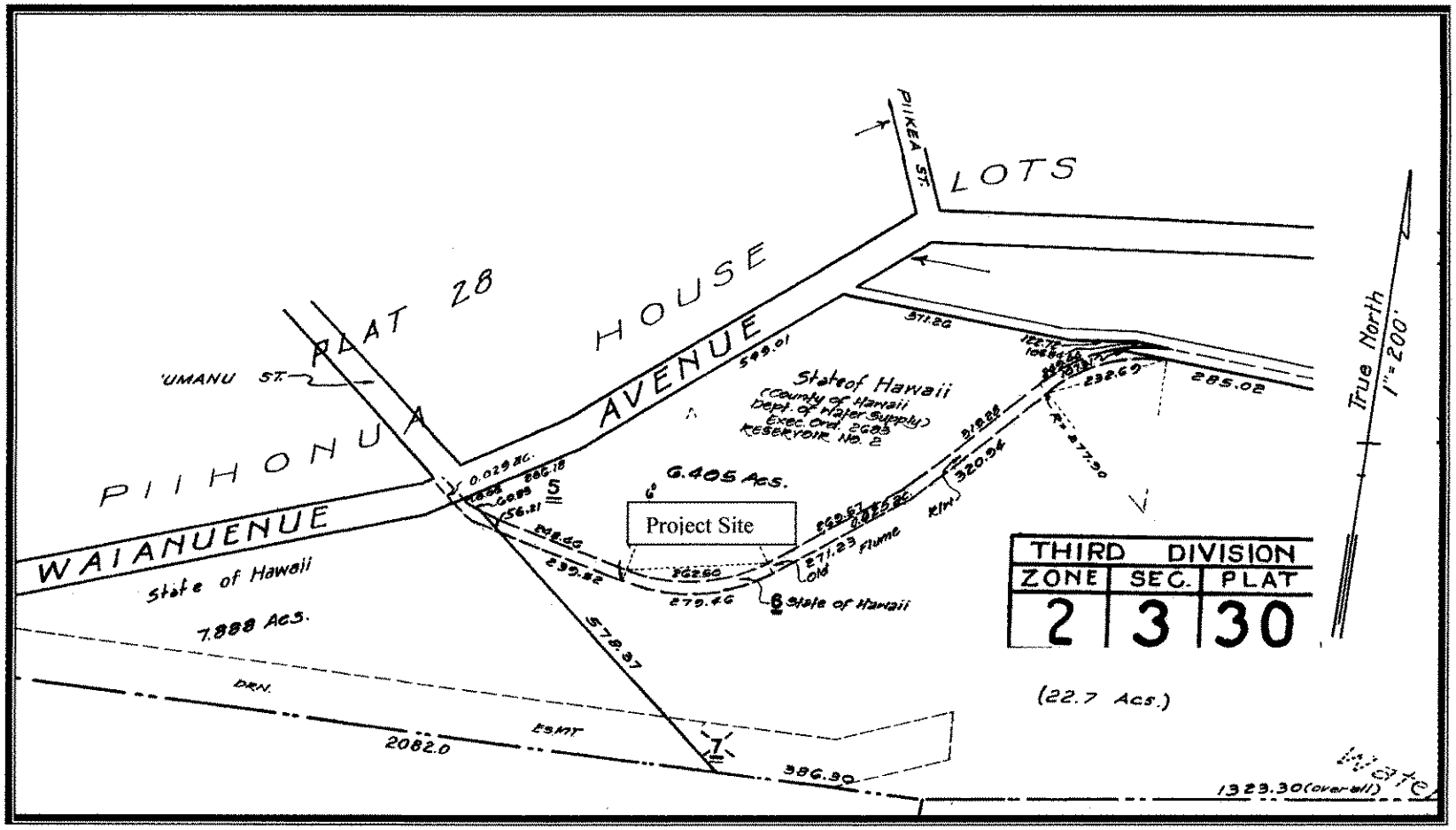


Figure 1c
Project Site TMK Map

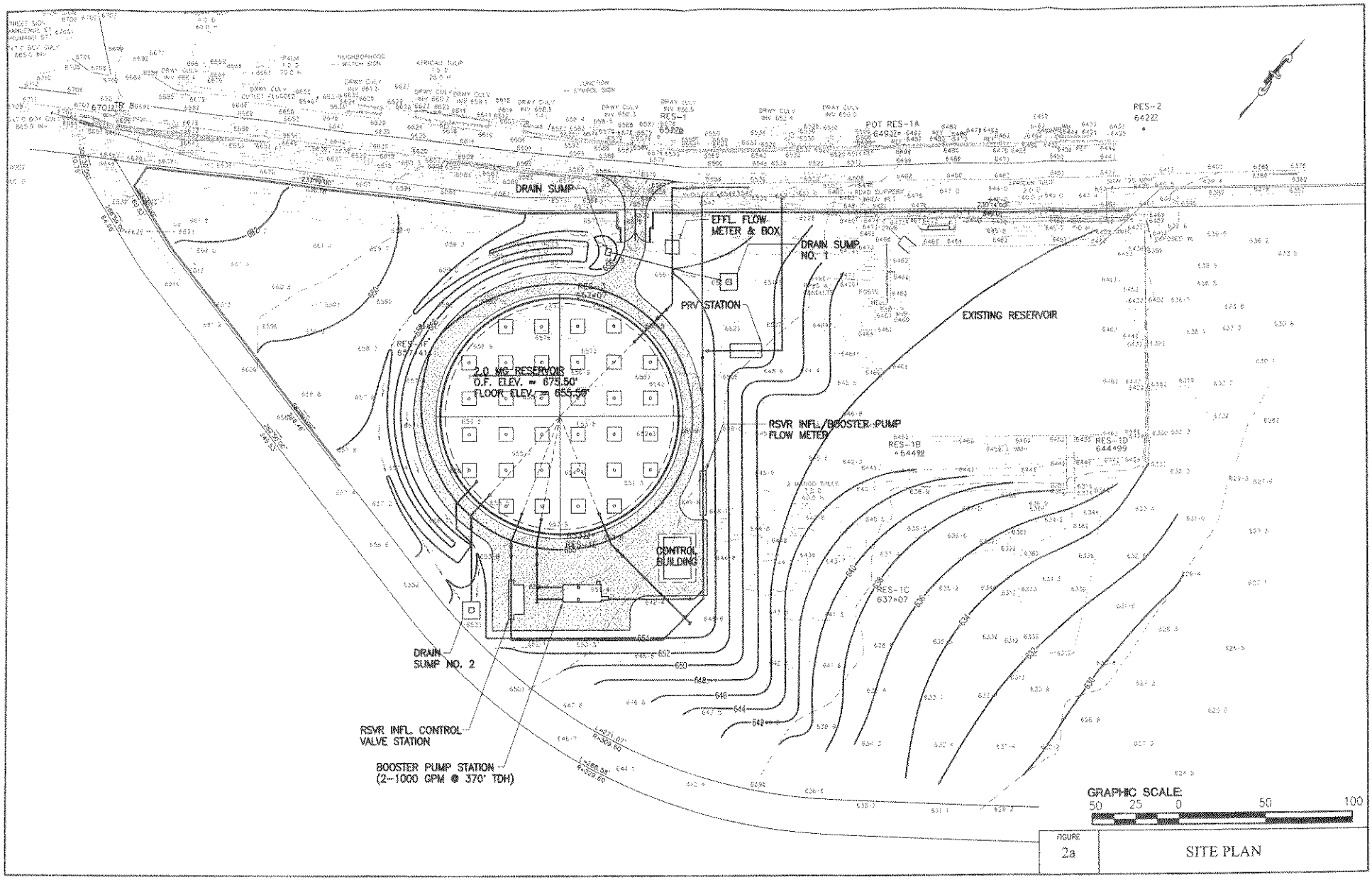
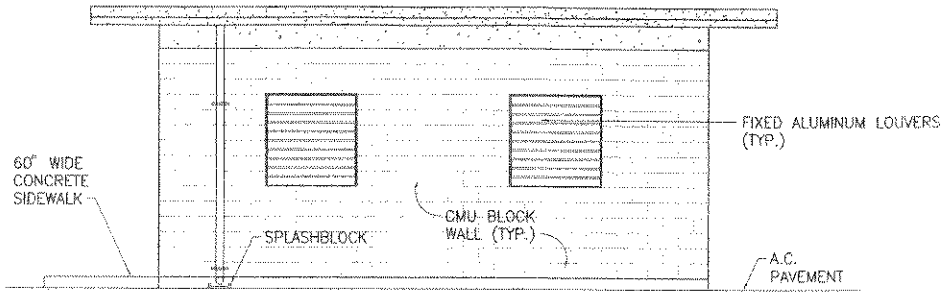
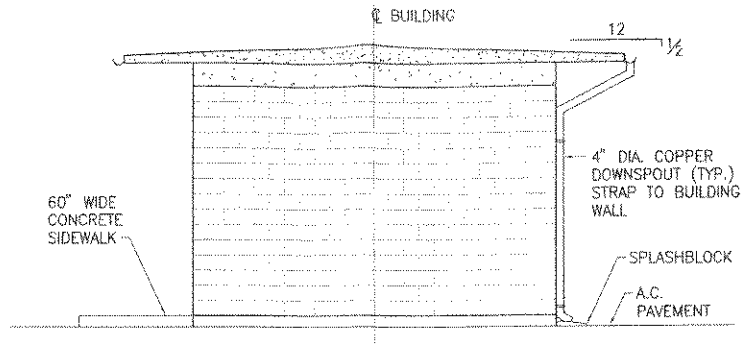


FIGURE 2a

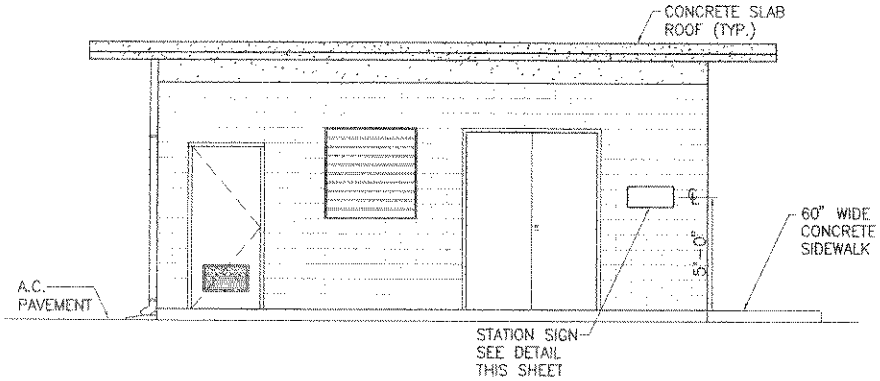
SITE PLAN



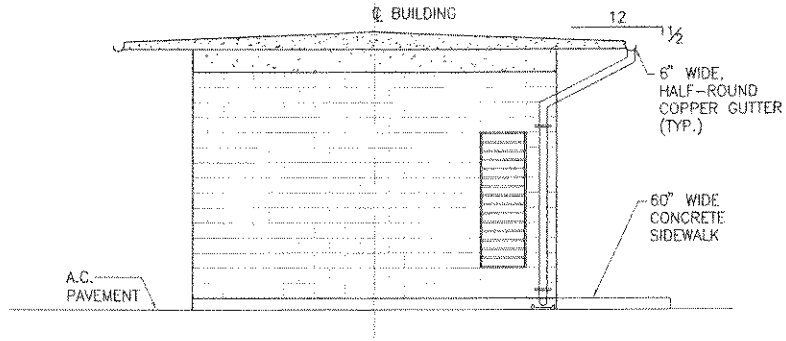
EAST ELEVATION



SOUTH ELEVATION



WEST ELEVATION



NORTH ELEVATION

EXTERIOR ELEVATIONS

SCALE: 3/16" = 1'-0"

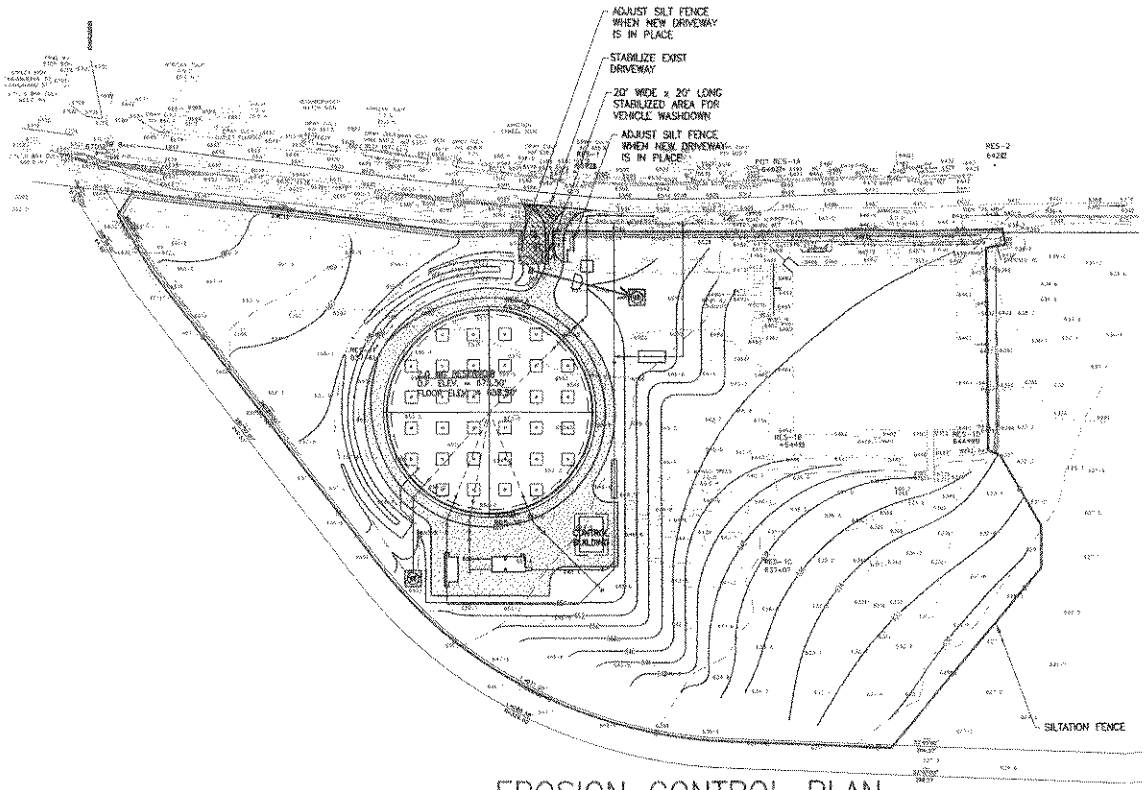
GRAPHIC SCALE:

SCALE: 3/16" = 1'-0"

12" 0 2 4 6 8 10 12 14

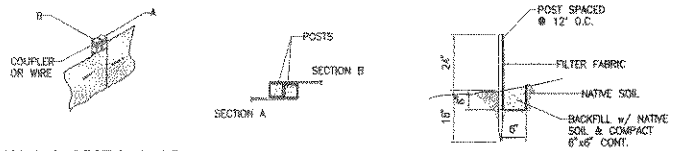
6"

FIGURE	
2b	CONTROL BUILDING EXTERIOR ELEVATION



EROSION CONTROL PLAN

SCALE: 1" =80'



JOINING SECTIONS OF SILTATION FENCE

TOP VIEW

SILTATION FENCE DETAIL

NOT TO SCALE

LEGEND:

PERMANENT STRUCTURES

- SITE & ACCESS ROAD (ASPHALT CONCRETE)
- DRAIN LINE
- DRAIN SUMP
- DRAIN INLET

TEMPORARY EROSION CONTROL STRUCTURES

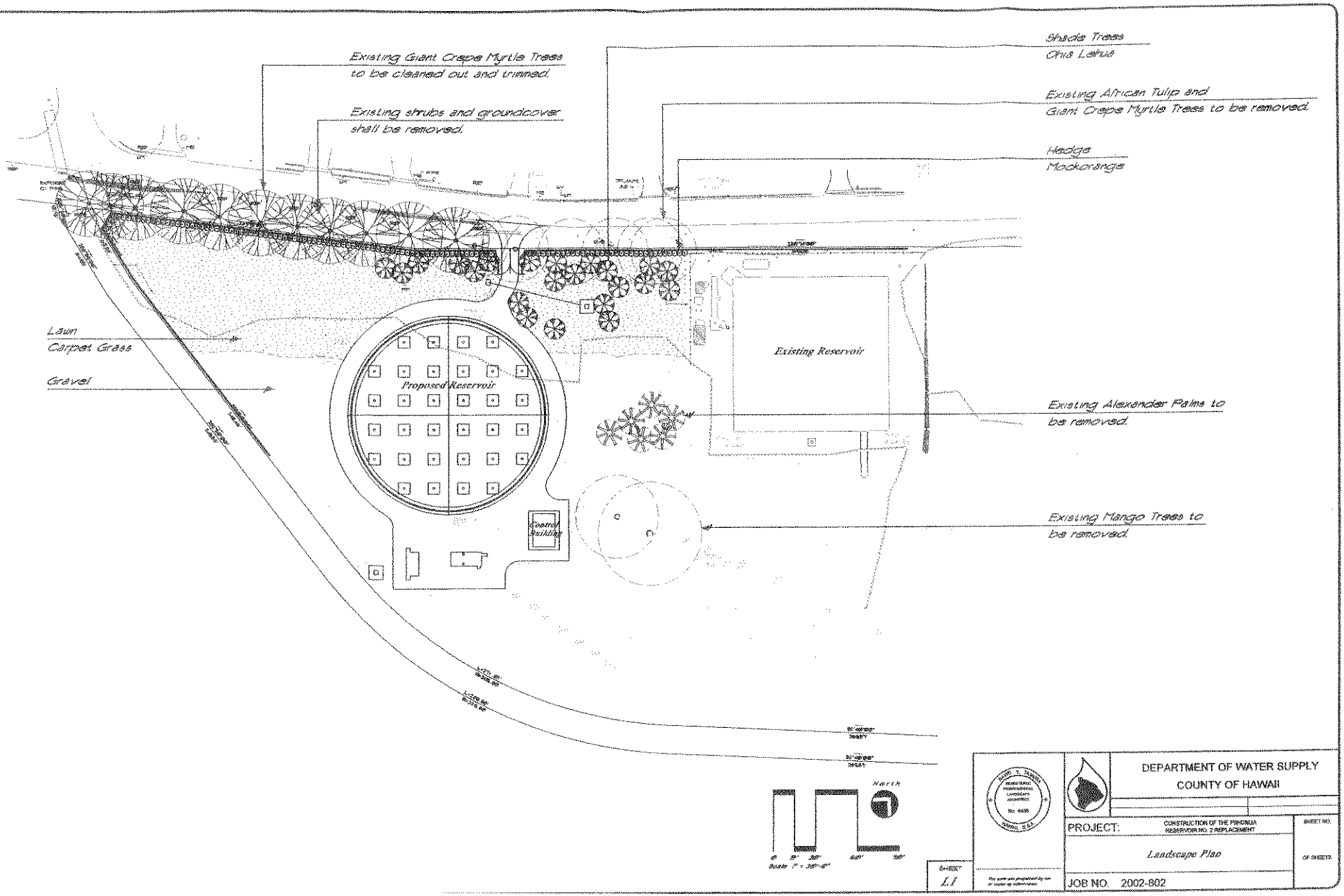
- SILTATION FENCE
- STABILIZED AREA (3" LAYER OF ¾" GRAVEL)

GRAPHIC SCALE:

SCALE: 1" = 80'

80' 40' 0 80' 160'

FIGURE	
2c	EROSION CONTROL PLAN



DEPARTMENT OF WATER SUPPLY
COUNTY OF HAWAII

PROJECT: CONSTRUCTION OF THE PIHONUA RESERVOIR NO. 2 REPLACEMENT

Landscape Plan

JOB NO. 2002-802

SHEET NO.

OF SHEETS

SHEET L1

The work was prepared by me or under my supervision.

APPENDIX 2

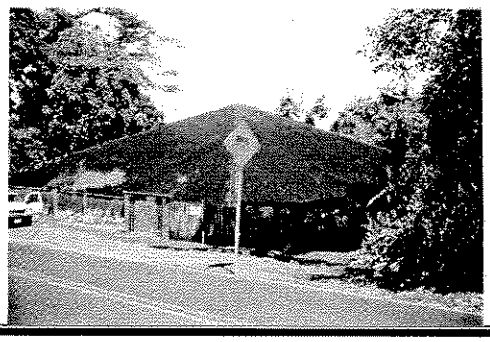
ARCHAEOLOGICAL AND CULTURAL ASSESSMENT

RC-0273

Archaeological Inventory Survey and Limited Cultural Assessment for a Proposed Department of Water Supply Reservoir

TMK:3-2-3-30:5 (por.)

Pi'ihonua Ahupua'a
South Hilo District
Island of Hawai'i



PREPARED BY:

Robert B. Rechtman, Ph.D.

PREPARED FOR:
Ron Terry, Ph.D.
Geometrician
HCR 2 Box 9575
Kea'au, HI 96749

September 2004

RECHTMAN CONSULTING, LLC
HC 1 Box 4149 Kea'au, Hawai'i 96749-9710
phone: (808) 966-7636 fax: (808) 443-0065
e-mail: bob@rechtmanconsulting.com
ARCHAEOLOGICAL, CULTURAL, AND HISTORICAL STUDIES

Archaeological Inventory Survey and Limited Cultural Assessment for a Proposed Department of Water Supply Reservoir

(TMK: 3-2-3-30:5 por.)

Pi'ihonua Ahupua'a
South Hilo District
Island of Hawai'i

RECHTMAN CONSULTING

EXECUTIVE SUMMARY

At the request of Ron Terry, Ph.D., Rechtman Consulting, LLC performed an archaeological inventory survey and limited cultural assessment for the proposed construction of a water tank/reservoir and demolition of the existing tank/reservoir at a Hawai'i County Department of Water Supply property in Pi'ihonua Ahupua'a, South Hilo District, Island of Hawai'i. The project area is located approximately 450 feet above sea level and is a combination of open land and disturbed forest. An enclosed water tank/reservoir (Figure 4) owned and operated by the Hawai'i County Department of Water Supply occupies the northwestern portion of the property fronting Waiānuenue Avenue, the northwestern boundary. Several single-family residential structures border the study area along the north, and remainder of the project area boundary is currently undeveloped. Vegetation in the study area ranges from thick to fairly open dominated by dense disturbed forest (Figure 5) with a variety of exotic trees. The existing vegetation pattern indicates that the study property has undergone substantial alteration in the past including but not limited to mechanized clearing and earth moving.

Systematic survey of the project area produced no evidence that the area had been or was currently being accessed for the exercise of traditional and customary practices. Two archaeological sites, both remnant stacked stone walls, were recorded in the study area. The most intact wall, SIHP Site 24268, is located such that it may have been associated with an early twentieth-century flume shown on maps running along the study property boundary. This flume likely carried water to the Hawaii Mill Company facility in lower Pi'ihonua. The second wall segment, SIHP Site 24267, is only six meters long and may be a remnant feature associated with the other similar stacked stone features observed on the adjacent parcel to the east of the current study parcel and previously interpreted as agricultural and residential features dating to a time prior to the development of commercial sugarcane cultivation.

SIHP Site 24267 is not considered significant, as it retains no integrity of design, setting, feeling, or association. This site and its immediate surroundings have been wholly impacted by agricultural and infrastructure development dating back to the late nineteenth century and continuing into modern times. SIHP Site 24268 is considered significant under Criteria D for the information it has yielded regarding early twentieth century sugarcane associated infrastructure. However, as the current inventory survey project recorded this site in detail and there is no excavation potential, no further work is recommended.

CONTENTS

FIGURES

TABLE

INTRODUCTION

At the request of Ron Terry, Ph.D., Rechtman Consulting, LLC performed an archaeological inventory survey and limited cultural assessment for the proposed construction of a water tank/reservoir and demolition of the existing tank/reservoir at a Hawai'i County Department of Water Supply property in Pi'ihonua Ahupua'a, South Hilo District, Island of Hawai'i (Figure 1). The proposed infrastructural developments will occur on state-owned land (TMK:3-2-3-30:5) (Figure 2). The purpose of this study is to document the presence of any historic properties (including traditional cultural properties) that might exist within the project area, assess the significance of any such resources and provide a statement of impact to any such resources as a result of the proposed construction of the water tank.

This report is intended to accompany an Environmental Assessment (EA) being prepared in compliance with Chapter 343 Hawai'i Revised Statues, as well as fulfilling the requirements of the County of Hawai'i Planning Department and the Department of Land and Natural Resources-State Historic Preservation Division (DLNR-SHPD) with respect to permit approvals for land-altering and development activities.

In the Hawai'i Administrative Rules (HAR 13§13-275-2) that govern the regulatory activities of the State Historic Preservation Division, a definition of historic property is provided.

> "Historic property" means any building, structure, object, district, area, or site, including *heiau* and underwater site, which is over 50 years old.

This definition should not be confused with the definition of Historic Property contained in the Federal legislation and its implementing regulation (Section 106 of the National Historic Preservation Act and 36 CFR 800, respectively), where Historic Property is defined as a resource "listed or eligible for listing in the National Register of Historic Places." The difference being that in the state-used definition ALL buildings, structures, objects, districts, areas, or sites older than fifty years are historic properties and need to be assessed as such. In the Federally used definition, ONLY those buildings, structures, objects, districts, areas, or sites that are determined to be significant are considered Historic Properties.

The criteria for the evaluation of significance contained in the Hawai'i Administrative Rules generally follows that which was promulgated by the Federal government, with the addition of Significance Criterion E, which is not contained in the Federal evaluation criteria. To be significant the resource must possess integrity of location, design, setting, materials, workmanship, feeling, and association and meet one or more of the following criteria:

A Be associated with events that have made an important contribution to the broad patterns of our history;

B Be associated with the lives of persons important in our past;

C Embody the distinctive characteristics of a type, period, or method of construction; represent the work of a master; or possess high artistic value;

D Have yielded, or is likely to yield, information important for research on prehistory or history;

E Have an important value to the native Hawaiian people or to another ethnic group of the state due to associations with cultural practices once carried out, or still carried out, at the property or due to associations with traditional beliefs, events or oral accounts—these associations being important to the group's history and cultural identity.

A working definition of Traditional Cultural Property is as follows:

> "Traditional cultural property" means any historic property associated with the traditional practices and beliefs of an ethnic community or members of that community for more than fifty years. These traditions shall be founded in an ethnic community's history and contribute to maintaining the ethnic community's cultural identity. Traditional associations are those demonstrating a continuity of practice or belief until present or those documented in historical source materials, or both.

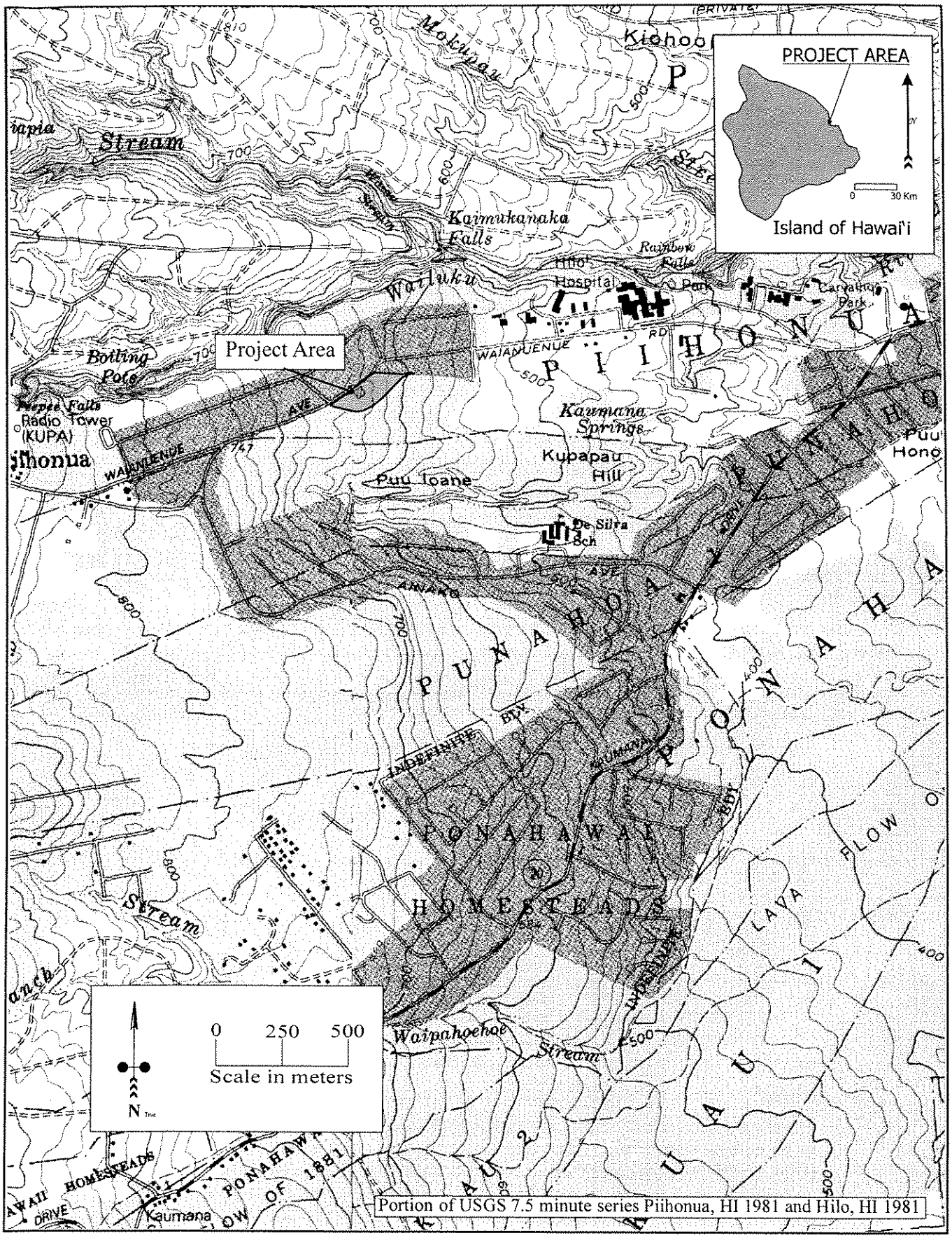


Figure 1. Project area location.

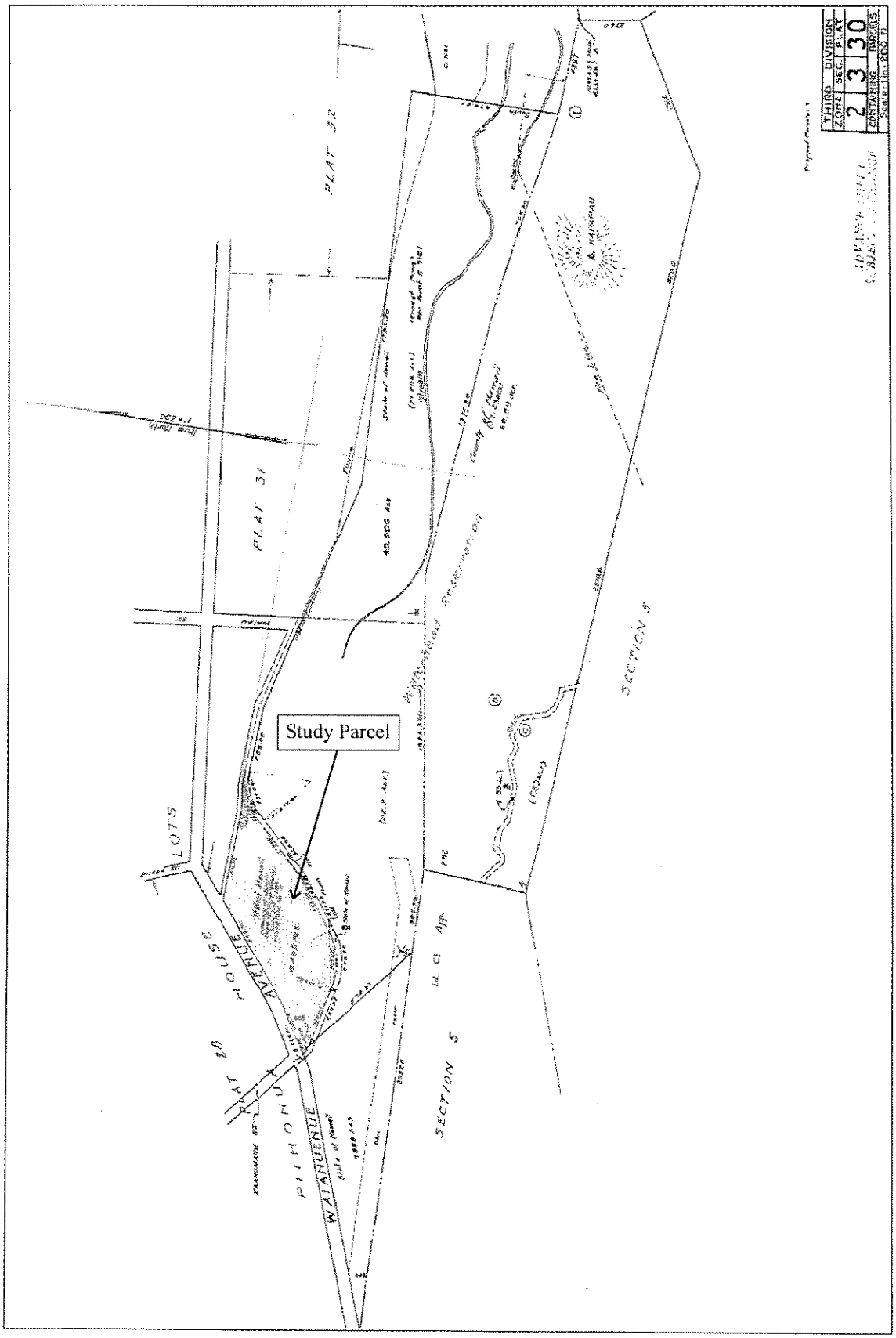


Figure 2. Portion of TMK:3-2-3-30 showing study parcel.

The origin of the concept of Traditional Cultural Property is found in National Register Bulletin 38 published by the U.S. Department of Interior-National Park Service. "Traditional" as it is used, implies a time depth of at least 50 years, and a generalized mode of transmission of information from one generation to the next, either orally or by act. "Cultural" refers to the beliefs, practices, life-ways, and social institutions of a given community. The use of the term "Property" defines this category of resource as an identifiable place. Traditional Cultural Properties are not intangible, they must have some kind of boundary; and are subject to the same kind of evaluation as any other historic resource, with one very important exception. By definition, the significance of Traditional Cultural Properties should be determined by the community that values them.

PROJECT AREA DESCRIPTION

The current project area is located approximately 450 feet above sea level and is a combination of open land and disturbed forest (Figure 3). An enclosed water tank/reservoir (Figure 4) owned and operated by the Hawai'i County Department of Water Supply occupies the northwestern portion of the property fronting Waiānuenue Avenue, the northwestern boundary. Several single-family residential structures border the study area along the north, and remainder of the project area boundary is currently undeveloped (see Figure 2).

The soil in the study area is classified as Keaukaha extremely rocky muck (rKFD), a dark brown and strongly acid soil that is approximately 8 inches thick, and follows the undulating topography of the underlying *pāhoehoe* flow. Permeability is rapid, runoff moderate, and erosion hazard slight. Its Capability Subclass is IV, and it is mainly used for pasture and woodland (Sato et al. 1973).

Vegetation in the study area ranges from thick to fairly open dominated by dense disturbed forest (Figure 5) with a variety of exotic trees, including palm *(Archontophoenix alexandrae)*, guava *(Psidium guajava)*, *waiawi (Psidium cattleianum)*, mango (*Mangifera indica*), rose apple *(Syzygium jambos)*, and swamp mahogany *(Eucalyptus robusta)* with an understory of *hapu'u pulu* (*Cibotium spp.*) and various shrubs and ornamental plants (Table 1). Large patches of weeds and grasses are present in the southern part of the study property (Figure 6). The existing vegetation pattern indicates that the study property has undergone substantial alteration in the past including but not limited to mechanized clearing and earth moving.

Figure 4. Water tank/reservoir along Waiānuenue Avenue.

Figure 3. Aerial photograph of project area to show vegetation.

Figure 5. Forest vegetation in the project area.

Figure 6. Dense weeds in the project area.

Table 1. Plant species identified within the project area (from Terry 2004).

Scientific Name	*Common Name*	*Life Form*	*Status*
Dicots			
Asystasia gangetica	Asystasia	Vine	A
Justicia betonica	Shrimp Plant	Shrub	A
Pseuderanthemum sp.	Pseuderanthemum	Shrub	A
Sanchezia sp.	Sanchezia	Shrub	A
Thunbergia fragrans	White Thunbergia	Vine	A
Alternanthera sessilis	Sessile Joyweed	Herb	A
Mangifera indica	Mango	Tree	A
Centella asiatica	Asiatic Pennywort	Herb	A
Allamanda cathartica	Allamanda	Vine	A
Ageratum conyzoides	Ageratum	Herb	A
Bidens pilosa	Beggar's Tick	Herb	A
Conyza bonariensis	Hairy Horseweed	Herb	A
Emilia sonchifolia	Flora's Paintbrush	Herb	A
Synedrella nodiflora	Nodeweed	Herb	A
Wedelia trilobata	Wedelia	Herb	A
Youngia japonica	Oriental Hawksbeard	Herb	A
Impatiens wallerana	Impatiens	Herb	A
Begonia sp.	Begonia	Herb	A
Spathodea campanulata	African Tulip	Tree	A
Hippobroma longiflora	Star-of-Bethlehem	Herb	A
Sambucus mexicana	Mexican Elder	Shrub	A
Drymaria cordata	*Pipili*	Herb	A
Silene gallica	Catchfly	Herb	A
Clusia rosea	Autograph Tree	Tree	A
Ipomoea alba	Moon Flower	Vine	A
Merremia aegyptia	Merremia	Vine	A
Merremia tuberosa	Wood Rose	Vine	A
Chamaesyce hirta	Spurge	Herb	A
Chamaesyce prostrata	Spurge	Herb	A
Phyllanthus debilis	Niruri	Herb	A
Paraserianthes falcataria	Albizia	Tree	A
Desmodium incanum	Spanish Clover	Herb	A
Desmodium triflorum	???	Herb	A
Mimosa pudica	Sleeping Grass	Herb	A
Prunella vulgaris	Prunella	Herb	A
Lagerstroemia speciosa	Crape Myrtle	Tree	A
Michelia champaca	Mulang	Tree	A
Hibiscus sp.	Hibiscus	Shrub	A
Dissotis rotundifolia	Dissotis	Herb	A
Melastoma candidum	Melastoma	Shrub	A
Pterolepis glomerata	Pterolepis	Shrub	A
Cecropia obtusifolia	Trumpet Tree	Tree	A
Ardisia elliptica	Shoebutton Ardisia	Tree	A
Eucalyptus robusta	Swamp Mahogany	Tree	A
Psidium cattleianum	*Waiawi*	Tree	A
Psidium guajava	Guava	Tree	A
Syzygium jambos	Rose Apple	Tree	A
Oxalis corniculata	Wood-sorrel	Herb	A
Plantago major	Plantain	Herb	A

continued on next page

Table 1 Continued.

Scientific Name	*Common Name*	*Life Form*	*Status*
Rubus rosifolius	Thimbleberry	Herb	A
Borreria laevis	Buttonweed	Herb	A
Paederia scandens	*Maile Pilau*	Vine	A
Lindernia crustacea	None	Herb	A
Melochia umbellata	Melochia	Tree	A
Trema orientalis	Gunpowder Tree	Tree	A
Stachytarpheta jamaicensis	Stachytarpheta	Herb	A
Monocots			
Cordyline fruticosa	Ti	Shrub	A
Alocasia macrorrhiza	Alocasia	Herb	A
Dieffenbachia sp.	Dumb Cane	Shrub	A
Monstera sp.	Monstera	Shrub	A
Philodendron sp.	Philodendrom	Shrub / Vine	A
Scindapsus aureus	Taro Vine	Vine	A
Archontophoenix alexandrae	Alexandra	Palm	A
Cocos nucifera	*Niu*	Tree	A
Commelina diffusa	*Honohono*	Herb	A
Dichorosandra thyrsiflora	Blue Ginger	Herb	A
Cyperus halpan	Sedge	Herb	A
Kyllinga sp.	*Kili'o'opu*	Herb	A
Pycreus polystachyos	Sedge	Herb	A
Asparagus sprengeri	Asparagus	Fern	A
Pleomele spp.	Money Tree (3 species)	Shrubs	A
Heliconia spp	Heliconia (3/4 species)	Herb	A
Musa sp.	Banana	Shrub	A
Arundina graminifolia	Bamboo Orchid	Herb	A
Epidendrum sp.	Epidendrum	Herb	A
Spathoglottis plicata	Phillipine Ground Orchid	Herb	A
Brachiaria mutica	California Grass	Herb	A
Eleusine indica	Wiregrass	Herb	A
Oplismenus hirtellus	Basket Grass	Herb	A
Panicum maximum	Guinea Grass	Herb	A
Paspalum conjugatum	Hilo Grass	Herb	A
Pennisetum purpureum	Napier Grass	Herb	A
Sacciolepis indica	Glenwood Grass	Herb	A
Setaria gracilis	Yellow Foxtail	Herb	A
Setaria palmifolia	Palmgrass	Herb	A
Sporobolus africanus	African Dropseed	Herb	A
Hedychium coronarium	White Ginger	Herb	A
Hedychium flavescens	Yellow Ginger	Herb	A
Ferns and Fern Allies			
Psilotum nudum	*Moa*	Herb	I
Diplazium esculentum	Paco	Shrub	A
Cibotium glaucum	*Hapu'u Pulu*	Shrub	I
Dicranopteris linearis	*Uluhe*	Vine	I
Nephrolepis exaltata	Sword Fern	Herb	I
Phelbodium aureum	*Laua'e Haole*	Herb	A
Pleopeltis thunbergiana	*Pakahakaha*	Herb	A
Phymatosorus grossus	*Maile* Scented Fern	Herb	A
Christella dentata	Downy Wood Fern	Herb	A
Cyclosorus interruptus	*Neke*	Herb	I

**A = alien and I = indigenous.*

BACKGROUND STUDIES

This section of the report describes and synthesizes prior archaeological, cultural, and historical studies that are relevant to the current project area; and provides a brief culture-historical background.

Previous Archaeology

There have been two prior archaeological investigations conducted that have included the current project area as part of larger studies. Both of these were related to the proposed Kaumana Springs Wilderness Park (Sinoto 1978; Walters, Kimura and Associates 1976). The current study area was included in the extreme western portion of the proposed Kaumana Springs Wilderness Park study area.

In 1976 Walters, Kimura and Associates (W.K.A.) investigated the area as part of an environmental assessment. In their report, W.K.A. failed to recognize the historic significance of agricultural features that they encountered reasoning that the area had been extensively altered by historic cultivation:

> No archaeological or historical sites have been located in the Kaumana Springs Wilderness Park area by the CDP [Hilo Community Development Plan]. The project site was formerly used for agriculture as evidenced by the furrowed land and rock mounds and walls, which were created when the land was cleared for cultivation. This use destroyed any possible archaeological or historical sites, which might have formerly been in the area. (Walters, Kimura and Associates 1976:9; cited in Sinoto 1978:2)

Contrary to that study, Aki Sinoto (1978) found that much of the larger area, particularly that east of the current study property had not been impacted by historic cultivation as W.K.A. had claimed. Sinoto found instead that the area retained extensive archaeological features that he interpreted as Precontact in age. Sinoto identified six major clusters of features, all of which lie outside the boundaries of the subject property (Figure 7). He identified stone terraces, alignments, walls, mounds, and cairns, platforms, enclosures, *'auwai* and stone reinforced stream banks (Sinoto 1978:2,3); and concluded that the sites contain remnant features from Precontact Hawaiian agriculture and habitation, adding that some of the walls appear to be more recent and may have been associated with ranching. He suggests that the area represented a single continuous site (SHPD Site 50-10-34-18696). Sinoto also posited that the paucity of sites in the surrounding areas (including the current project area) was due to later mechanized agricultural activities. Sinoto did not report any cultural resources within the current study property. Sinoto suggested that the sites remain and be incorporated into the park development "for public interpretation" (1978:4). A recent conversation with the Hawai'i County Parks and Recreation Department (9/13/04) confirmed that the area was never developed into a wilderness park.

Two other archaeological surveys were conducted in the vicinity of the current project. In 1992, Scientific Consulting Services (SCS) conducted an inventory survey (Spear 1992) of a 12-acre parcel approximately 1,800 meters west of the subject property. The parcel (TMK: 2-3-32:1B) is located on the south side of Waiānuenue Avenue west of a rehabilitation center. Vegetation reported closely resembles that of the current study property. Spear identifed two Historic era stacked stone walls associated with a stream channel.

In 1996, Paul H. Rosendahl Ph.D., Inc. (PHRI) (Walker and Rosendahl 1996) prepared a study for a parcel on Waiānuenue Avenue across from the Hilo Hospital (TMK:2-3-32:1), which included the parcel earlier studied by SCS. After concluding that the 42.3 acres had likely been impacted by historic sugarcane cultivation, PHRI surveyed only 11% (approximately 4.6 acres) of the property. As a result, they missed the two walls previously documented by Spear (1992), and neglected to include Spear's study in their review of previous archaeology. PHRI recorded no sites within the 4.6 acres they surveyed, concluding that areas outside the streambed were modified by sugarcane cultivation, whereas areas within the streambed may not have been affected by historic land use and may therefore contain archaeological remains (Walker and Rosendahl 1996:13).

Archaeological sites reported in the nearby area include SHPD Site 18696, and Historic Period structures such as the Old Hilo Hospital (SHPD Site 7450), a Portuguese oven (SHPD Site 7482), and the Hilo County Jail (SHPD Site 7457) (Spear 1992). Other studies that have been conducted in the broader area include: Kelly and Athens (1982), Wickler (1990), and Wickler and Ward (1992); all associated with the improvements to the Alenaio Stream drainage basin.

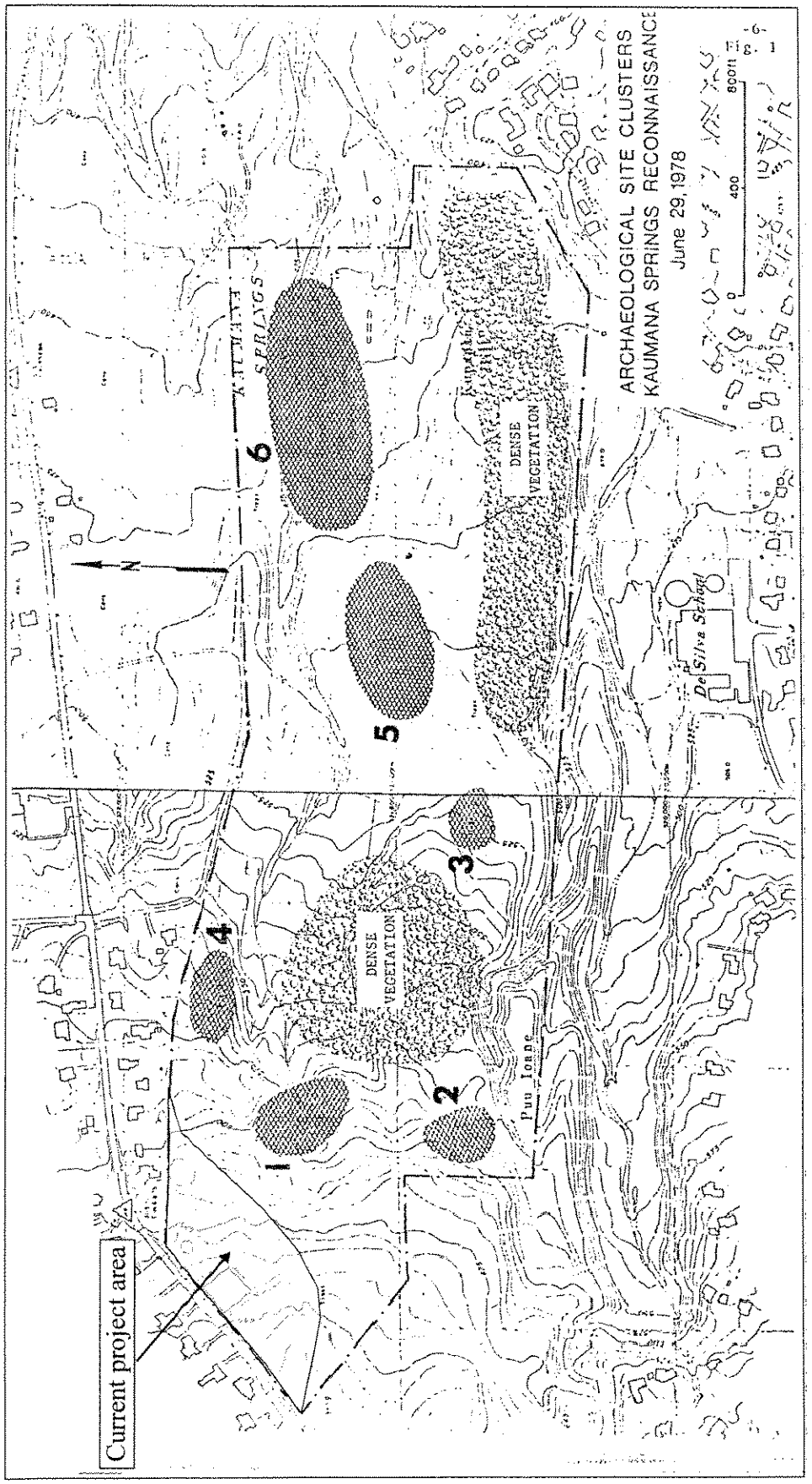


Figure 7. Site clusters identified by Sinoto (1978) in relation to current project area.

Culture-Historical Background

This section summarizes the general cultural history of Hilo and more specifically the history of Pi'ihonua Ahupua'a. For a more in-depth historical background the reader is referred to Kelly (1981), Maly (1996), and McEldowney (1979).

The earliest historical knowledge of Hilo comes from legends written by Kamakau (1961) of a 16th century chief 'Umi-a-Liloa (son of Liloa) who at that time ruled the entire island of Hawai'i. Descendants of Umi and his sister-wife were referred to as "Kona" chiefs, controlling Ka'ū, Kona, and Kohala, while decendants of Umi and his Maui wife were "Hilo" chiefs, controlling Hāmākua, Hilo, and Puna (Kelly 1981:1). According to Kamakau (1961) both sides fought over control of the island, desiring access to resources such as feathers, *māmaki* tapa, and canoes on the Hilo side; and *wauke* tapa, and warm lands and waters on the Kona side (c.f. Kelly 1981:3).

Sometime near the end of the 16th century or early in the 17th century, the lands of Hilo were divided into *ahupua'a* that today retain their original names (Kelly 1981:3). These include the *ahupua'a* of Pu'u'eo, Pi'ihonua, Punahoa, Pōnohawai, Kūkūau and Waiākea (Figure 8). The design of these land divisions was that residents could have access to all that they needed to live, with ocean resources at the coast, and agricultural and forest resources in the interior. However, only Pi'ihonua and Waiākea provided access to the full range of resources stretching from the sea up to 6,000 feet along the slopes of Mauna Kea (Kelly 1981:5).

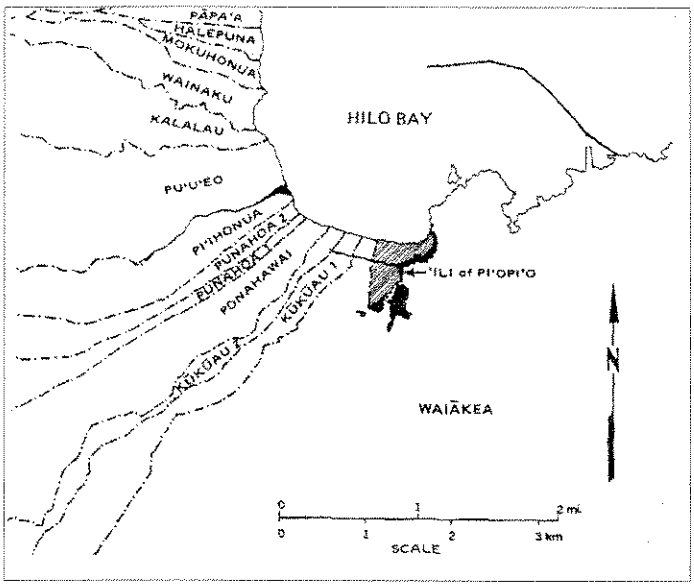


Figure 8. Hilo Bay showing *ahupua'a* (from Kelly 1981:2).

Historical accounts (McEldowney 1979) place the current study area in a zone of agricultural productivity. As Isabella Bird recorded upon arriving in Hilo in 1873:

> Above Hilo, broad lands sweeping up cloudwards, with their sugar cane, *kalo*, melons, pine-apples, and banana groves suggest the boundless liberality of Nature. (Bird 1964:38)

Handy and Handy (1972) also describe the general region as an agricultural area:

> On the lava strewn plain of Waiakeia and on the slopes between Waiakea and Wailuku River, dry taro was formerly planted wherever there was enough soil. There were forest plantations in Panaewa and in all the lower fern-forest zone above Hilo town along the course of the Wailuku River. (Handy and Handy 1972:539)

Maly (1996) refers to a 1922 article from the Hawaiian Language newspaper, *Ka Nupepa Kū'oku'a*, where planting on *pāhoehoe* lava flats is described.

> There are *pahoehoe* lava beds walled in by the ancestors in which sweet potatoes and sugar cane were planted and they are still growing today. Not only one or two but several times forty (*mau ka'au*) of them. The house sites are still there, not one or two but several times four hundred in the woods of the Panaewa. Our indigenous bananas are growing wild, these were planted by the hands of our ancestors. (Maly 1996:A-2)

Pi'ihonua Ahupua'a

As part of an archaeological assessment study, Maly (1996) conducted historical research for the lands of Wainaku, Pōnohawai, Waiākea, and Pi'ihonua. He discusses the significance of the use of the Hawaiian word *wai* in the place names: Pōnohawai, Waiākea, Wainaku, and Wailuku (River). According to Maly, the word *wai* (water) can be likened to the Hawaiian concept of wealth "*waiwai,*" stressing its cultural importance (Maly 1996:A-2). In this context, the importance of Hilo can be better understood, with its copious streams that fed taro pondfields and its numerous fishponds. Maly refers to the origins of the names Waiākea and Pi'ihonua in the Hawaiian legend of Ka'ao Ho'oniua Pu'uwai no Ka-Miki. Pi'ihonua literally translates to: "Ascending Earth," and the *ahupua'a* is named for Pi'ihonua-a-ka-lani, the brother of Waiākea and Pana'ewa, and the father of the chiefesses 'Ohele and Waiānuenue (Maly 1996:A-4).

Pi'ihonua along with Punahoa and Waiākea were held by Kamehameha I until the time of his death in 1819, at which time his holdings, including Pi'ihonua were passed down to his son, Liholiho. Kelly (1981) speculates that Pi'ihonua may have been given to Chief Kalaeokekio by Kauikeaouli or Boki in 1828. Pi'ihonua was surrendered at the time of the *Māhele* and classified as Crown Land (Kelly 1981); and no *kuleana* claims were registered for lands in the vicinity of the current subject property (Maly 1996). Following the *Māhele,* the population of Hilo grew and the scattered upland habitations gave way to sugar cultivation (McEldowney 1979:37). At the turn of the century, there were remnants of *heiau* and at least one intact *heiau* within Pi'ihonua. Thrum (1907) describes a *heiau* named Kaipālaloa that had been destroyed and another called Papio, which was purportedly for bird catchers and canoe builders. Stokes (1991) reported another *heiau* in Pi'ihonua called Pinao that was once located near the intersection of Waiānuenue and Ululani Streets (Maly 1996).

Beginning in the late 1880s Pi'ihonua was home to the Hawaii Mill Company, built on the Alenaio Stream (Kelly 1981). By 1905, according to Thrum (1923) the Hawaii Mill Company had 10 miles of cane flumes and produced twenty-five tons of sugar per day. In 1920 Hawaii Mill Company was taken over by the Hilo Sugar Company (Kelly 1981). Commercial sugar production lasted in Pi'ihonua until the mid twentieth century, at which time many of the fields were converted to pasturage associated with cattle ranching.

CURRENT PROJECT EXPECTATIONS

Based on soil substrate and elevation, the current project area falls within the Upland Agricultural Zone (Zone II) as defined by McEldowney (1979). The archaeological expectations for the zone include Precontact agricultural features and habitation sites. The proximity of the study area to known water sources (Sinoto 1978; Wolforth 1999) also supports an expectation of agricultural use. However, based on results of the previous archaeological studies on the property (Sinoto 1978; Walters, Kimura and Associates 1976) it appears that nineteenth and twentieth century mechanized cultivation may have impacted any earlier features and resulted in an overlay of more recent agriculture-related sites. While the two earlier studies that included the current project area did not report the presence of sites with in the current study area, the historical trend in prior studies in the area indicates that some features may be extant.

FIELDWORK METHODS AND RESULTS

On August 26, 2004, under the supervision of Robert B. Rechtman, Ph.D., Mathew R. Clark, B.A. and Karen A. Desilets, M.A. performed a field survey of the project area, the limits of which were marked on a map provided by Dr. Ron Terry and clearly identified in the field. The field investigators walked transects at a 10-meter spacing interval; ground visibility was good with the localized dense patches of*hapu'u* and guinea grass.

Two previously unrecorded sites were discovered during the current archaeological field survey. Both sites are stacked stone walls. Detailed descriptions of the two sites are provided below and their locations within the project area are shown on Figure 9. During the current survey, a wall, a platform, and a terraced platform were also observed to the southwest outside of the property boundary. These features are likely those noted by Aki Sinoto as Cluster 1 during his 1978 reconnaissance (see Figure 7).

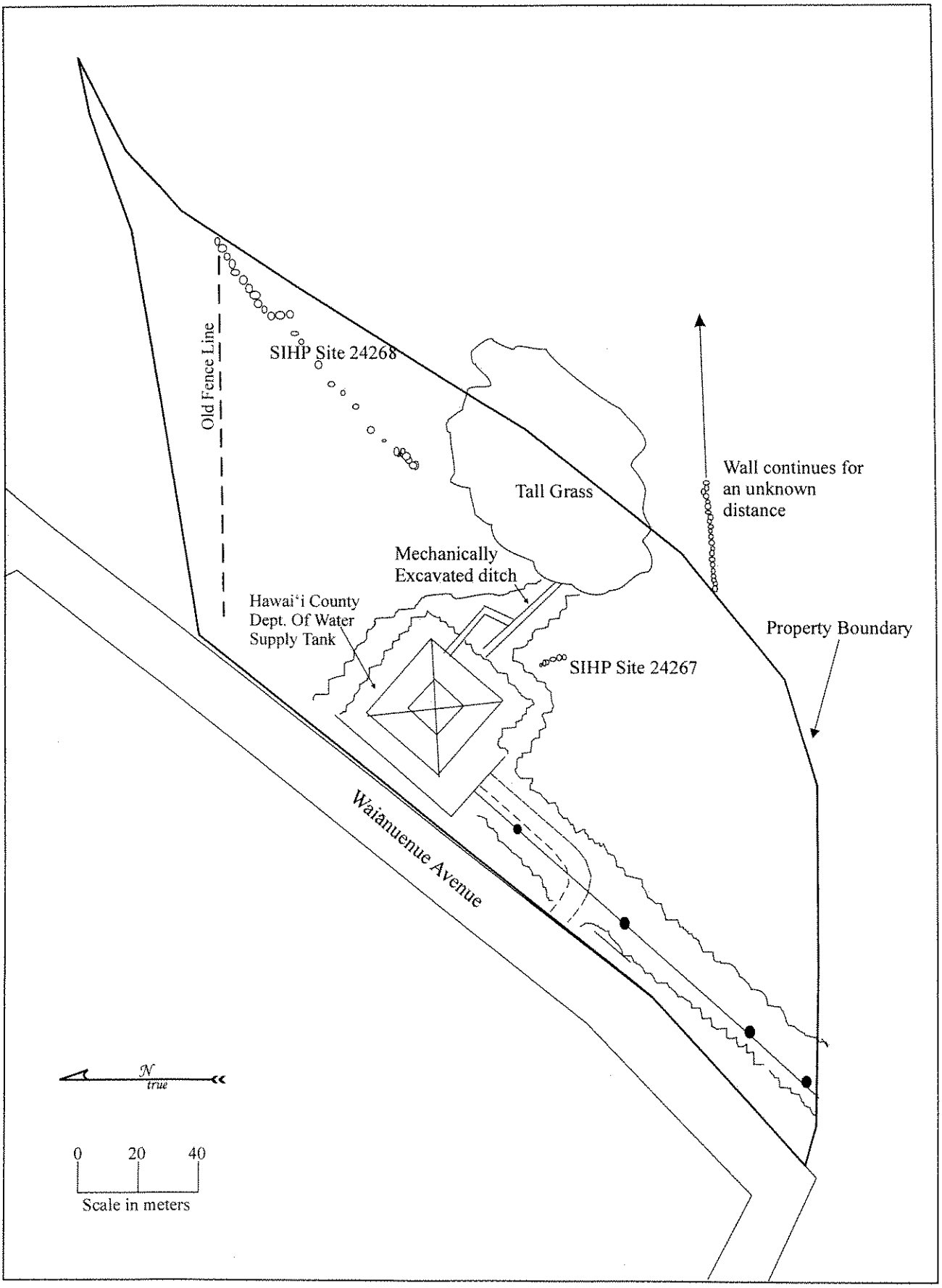


Figure 9. Subject property showing locations of SIHP Sites 24267 and 24268.

SIHP Site 24267

Site 24267 is located approximately 20 meters southwest of the current reservoir structure fronting Waiānuenue Avenue (see Figure 9). The site is a remnant of a linear wall constructed from stacked *pāhoehoe* cobbles (Figure 10). The remnant wall is 6.5 meters long, 1.9 meters (tumbled) wide and approximately 60 centimeters high, and ranges from two to four courses. The wall remnant is oriented north/northwest and appears to have been disturbed by development activities associated with construction of the water supply compound. No associated features or surface artifacts were observed.

Figure 10. Section of SIHP Site 24267.

SIHP Site 24268

Site 24268 is located close to the northeast corner of the subject property and runs approximately parallel with the southern boundary (see Figure 9). The site is the remnants of a low wall constructed from stacked (3-5 course) *pāhoehoe* cobbles (Figure 11). Close to 85 meters of the wall remains, however a large middle section of the wall (roughly 60 meters) appears to have been disturbed by bulldozing leaving only its base course intact. The wall is approximately one meter wide and 60 centimeters high. No other features or surface artifacts were encountered in the vicinity of Site 24268.

Figure 11. Section of SIHP Site 24268.

Discussion

Systematic survey of the project area produced no evidence that the area had been or was currently being accessed for the exercise of traditional and customary practices. Two archaeological sites, both remnant stacked stone walls, were recorded in the study area. The most intact wall, SIHP Site 24268, is located such that it may have been associated with an early twentieth-century flume shown on maps (e.g. Figure 2) running along the study property boundary. This flume likely carried water to the Hawaii Mill Company facility in lower Pi'ihonua. The second wall segment, SIHP Site 24267, is only six meters long and may be a remnant feature associated with the other similar stacked stone features observed by Sinoto (1978) to the east of the current study parcel and interpreted as agricultural and residential features dating to a time prior to the development of commercial sugarcane cultivation.

CONSULTATION

As part of the current study an effort was made to obtain information about any potential traditional cultural properties and associated practices that might be present, or have taken place in upper Pi'ihonua Ahupua'a. The Office of Hawaiian Affairs (East Hawai'i) and the Hilo Hawaiian Civic Club were contacted but had no information relative to the existence of traditional cultural properties in the immediate vicinity of the current project area; nor did they provide any information indicating current use of the area for traditional and customary practices.

SIGNIFICANCE EVALUATION AND TREATMENT RECOMMENDATIONS

The above-described archaeological sites are assessed for their significance based on criteria established and promoted by DLNR-SHPD and contained in the Hawai'i Administrative Rules 13§13-284-6. This significance evaluation should be considered as preliminary until DLNR-SHPD provides concurrence. For resources to be considered significant they must possess integrity of location, design, setting, materials, workmanship, feeling, and association and meet one or more of the following criteria:

A Be associated with events that have made an important contribution to the broad patterns of our history;

B Be associated with the lives of persons important in our past;

C Embody the distinctive characteristics of a type, period, or method of construction; represent the work of a master; or possess high artistic value;

D Have yielded, or is likely to yield, information important for research on prehistory or history;

E Have an important traditional cultural value to the native Hawaiian people or to another ethnic group of the state due to associations with traditional cultural practices once carried out, or still carried out, at the property or due to associations with traditional beliefs, events or oral accounts—these associations being important to the group's history and cultural identity.

SIHP Site 24267 is not considered significant, as it retains no integrity of design, setting, feeling, or association. This site and its immediate surroundings have been wholly impacted by agricultural and infrastructure development dating back to the late nineteenth century and continuing into modern times.

SIHP Site 24268 is considered significant under Criteria D for the information it has yielded regarding early twentieth century sugarcane associated infrastructure. However, as the current inventory survey project recorded Site 24268 in detail and there is no excavation potential, no further work is recommended.

In the unlikely event that archaeological resources are encountered during future development activities within the current study area, work in the immediate area of the discovery should be halted and DLNR-SHPD contacted as outlined in Hawai'i Administrative Rules 13§13-275-12.

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APPENDIX 3

ASBESTOS AND LEAD PAINT REPORT

MURANAKA
ENVIRONMENTAL CONSULTANTS, INC.
P.O. Box 4341 • Honolulu, Hawaii 96812

August 12, 2004

Okahara & Associates, Inc.
200 Kohola Street
Hilo, Hawaii 96720

Attention: Mr. Terrance Nago, P.E.

Regarding: Piihonua Reservoir No. 2 Replacement
Asbestos and Lead Paint Survey
MEC Project No. 2002-0219

Dear Mr. Nago,

This is Muranaka Environmental Consultants, Inc.'s (MEC) final report for the subject project.

Okahara & Associates, Inc., retained Muranaka Environmental Consultants, Inc. (MEC) to conduct an asbestos-containing material (ACM) and lead-containing paint (LCP) survey at the Piihonua Reservoir No. 2 located in Hilo, Hawaii. The purpose of the survey was to identify suspect ACM and LCP that would affect the project. Our scope of work included collecting samples, analyzing the samples, and providing a written report. The asbestos samples were sent to AmeriSci Los Angeles for analyses. Polarized-light microscopy and the method outlined in 40 CFR 763, Appendix A to Subpart F, *Interim Method for the Determination of Asbestos in Bulk Insulation Samples* (EPA–600/M4–82–020) was used to determine the type and amount of asbestos in the samples. The paint samples were also sent to AmeriSci Los Angeles for analyses. Paint samples were analyzed using flame atomic absorption (EPA *Method 7420*) to determine the amount of lead in each sample. MEC's on-site inspector was Kyle Y. Tanaka, State of Hawaii asbestos inspector certification number HIASB-0530, expiration date,11/5/04.

Asbestos

The asbestos sampling was conducted on July 7, 2004. Asbestos fibers in amounts greater than (>)10% were detected in the black rubber gasket on the north side exterior pump. In addition, the entire roof of the reservoir was identified as Transite material which typically contains approximately 35% chrysotile asbestos fibers. See Table 1 for the results, Table 2 for the summary of the results, Appendix A for the supporting laboratory reports, and Appendix C for the photo log.

MURANAKA
ENVIRONMENTAL CONSULTANTS, INC.
P.O. Box 4341 • Honolulu, Hawaii 96812

July 27, 2004

Okahara & Associates, Inc.
200 Kohola Street
Hilo, Hawaii 96720

Attention: Mr. Terrance Nago, P.E.

Regarding: Piihonua Reservoir No. 2 Replacement
Asbestos and Lead Paint Survey
MEC Project No. 2002-0219

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Asbestos

The asbestos sampling was conducted on July 7, 2004. Asbestos fibers in amounts greater than (>)10% were detected in the black rubber gasket on the north side exterior pump. See Table 1 for the results, Table 2 for the summary of the results, Appendix A for the supporting laboratory reports, and Appendix C for the photo log.

Table 1: Asbestos Sampling Results
Piihonua Reservoir No. 2

Sample Number	Location	Sample Description	Condition			Asbestos % and Type	Asbestos Containing?
			% Damaged	Extent of Damage	Type of Damage		
2002-0219-A1	North side exterior pump	Black rubber gasket	50%	Distributed	Deterioration	30% Chrysotile	Yes
2002-0219-A2	West side exterior pump	Black rubber gasket	50%	Distributed	Deterioration	None Detected	No
2002-0219-A3	West side exterior pump	Black rubber gasket	50%	Distributed	Deterioration	None Detected	No
2002-0219-A4	Northwest CMU bldg., north side of door frame	Light-green glazing	0	NA	NA	None Detected	No
		White caulking	0	NA	NA	None Detected	No
2002-0219-A5	Northwest CMU bldg., north side of door frame	Light-green glazing	0	NA	NA	None Detected	No
		White caulking	0	NA	NA	None Detected	No
2002-0219-A6	Northwest CMU bldg., north side of door frame	Light-green glazing	0	NA	NA	None Detected	No
		White caulking	0	NA	NA	None Detected	No
2002-0219-A7	Northwest CMU bldg., south side of door frame	Gray grout	0	NA	NA	None Detected	No
2002-0219-A8	Northwest CMU bldg., south side of door frame	Gray grout	0	NA	NA	None Detected	No
2002-0219-A9	Northwest CMU bldg., south side of door frame	Gray grout	0	NA	NA	None Detected	No
2002-0219-A10	In wooden pump enclosure, on west wall	Black foam padding	0	NA	NA	None Detected	No
2002-0219-A11	In wooden pump enclosure, on north wall	Black foam padding	0	NA	NA	None Detected	No
2002-0219-A12	In wooden pump enclosure, on east wall	Black foam padding	0	NA	NA	None Detected	No
2002-0219-A13	In wooden pump enclosure, on west wall, beneath black foam padding	Gray mastic on wood	0	NA	NA	None Detected	No
2002-0219-A14	In wooden pump enclosure, on north wall, beneath black foam padding	Gray mastic on wood	0	NA	NA	None Detected	No
2002-0219-A15	In wooden pump enclosure, on east wall, beneath black foam padding	Gray mastic on wood	0	NA	NA	None Detected	No

- Materials containing greater than 1% of asbestos mineral fibers are considered to be asbestos-containing materials as defined by the National Emission Standards for Hazardous Air Pollutants (NESHAP) regulation (40 CFR 61).

Table 2: Asbestos-Containing Materials Summary
Piihonua Reservoir No. 2

Asbestos Material	Location	Condition
Black rubber gasket	North and west side exterior pumps	Poor

Lead

The lead paint survey was also conducted on July 7, 2004. Detectable amounts of lead was found in the green paint on the west wall of the reservoir building, peach/brown/green layered paint on the door of the northwest CMU building, light-green/blue/dark-green layered paint on the west side exterior pump, brown/peach layered paint on the double doors of the southwest CMU building, light-green paint on the wood frame for the corrugated metal roof of the southwest CMU building, white paint on the corrugated roof of the southwest CMU building, green/dark-brown layered paint on the transformer box, and light-green/dark-green layered paint on the conduit at the entrance of the southwest CMU building. See Table 3 for results, Table 4 for the summary of the results, Appendix B for the supporting laboratory reports, and Appendix C for the photo log.

Table 3: Lead Sampling Results
Piihonua Reservoir No. 2

Sample Number	Sample Description	Location	Condition of Paint	Lead %	Lead-containing?
2002-0219-L1	Green paint on metal	Reservoir building, west wall, north side	Poor	2.4	Yes
2002-0219-L2	Peach/brown/green layered paint on metal	Northwest CMU building, on door	Fair	0.098	Yes
2002-0219-L3	Light-green paint on CMU	Northwest CMU building, east wall, at entrance	Good	<0.01	No
2002-0219-L4	Light-green/blue/dark-green layered paint on metal	West side exterior pump	Poor	0.032	Yes
2002-0219-L5	Dark-green paint on wood	Pump enclosure	Good	<0.01	No
2002-0219-L6	Brown/peach layered paint on wood	Southwest CMU building, on double doors	Fair	0.16	Yes
2002-0219-L7	Light-green/dark-green layered paint on CMU	Southwest CMU building, east wall, north side	Good	<0.01	No
2002-0219-L8	Light-green paint on wood	Wood frame for corrugated metal roof of the southwest CMU building	Good	0.010	Yes
2002-0219-L9	White paint on metal	Corrugated metal roof of the southwest CMU building	Good	0.029	Yes
2002-0219-L10	Green/dark-brown layered paint on metal	Transformer box	Good	0.22	Yes
2002-0219-L11	Light-green/dark-green paint on metal	Southwest CMU building, on conduit at entrance	Poor	0.016	Yes

Table 4: Lead Sampling Summary
Piihonua Reservoir No. 2

Lead containing paint	Location	Condition
Green paint on metal	Reservoir building walls	Poor
Peach/brown/green layered paint on metal	Northwest CMU building door	Fair
Light-green/blue/dark-green layered paint on metal	Exterior pumps	Poor
Brown/peach layered paint on wood	Southwest CMU building double doors	Fair
Light-green paint on wood	Wood frame for corrugated metal roof of the southwest CMU building	Good
White paint on metal	Corrugated metal roof of the southwest CMU building	Good
Green/dark-brown layered paint on metal	Transformer box	Good
Light-green/dark-green paint on metal	Conduits for northwest and southwest CMU buildings	Poor

Any asbestos-containing material and lead-containing paints that are in poor condition should be addressed to reduce potential health hazards. When the affected surfaces, no matter what their condition, are disturbed during renovation or demolition, proper handling procedures which comply with EPA, OSHA, State of Hawaii Department of Health and State of Hawaii Department of Labor, Division of Occupational Safety and Health (HIOSH) regulations, must be adhered to.

When paint containing any level of lead is encountered during demolition or renovation, the Occupational Safety and Health Administration (OSHA) requirements apply and any work should be performed in compliance with 29 CFR 1926.62 and HIOSH 12-148.1.

The conclusions, the observations, and the recommendations made in this report are based on the limitations of the contract and the condition of the property at the time the sampling and inspection was conducted. MEC accepts no responsibility for the inaccuracy or inapplicability of any part of this report that may be attributable to a change in the condition of the property after the survey was conducted or attributable to property conditions that were not readily accessible or observable at the time of the survey. In addition, we accept no responsibility for inaccurate or missing information provided by existing documents.

If you have any questions regarding this report, please feel free to contact me at 836-8822.

Sincerely,

Mark T. Muranaka

President

Inspector,

Kyle Y. Tanaka

Certification No. HIASB-0530

APPENDIX A

ASBESTOS
LABORATORY REPORT

AMERI SCI

AmeriSci Richmond
13635 GENITO ROAD
MIDLOTHIAN, VA 23112
TEL: (804) 763-1200 • FAX: (804) 763-1800

PLM Bulk Asbestos Report

Muranaka Environmental
Consultants, Inc.
Attn: Kyle Tanaka
P.O. Box 4341
Honolulu, HI 96812

Date Received 07/14/04
Date Examined 07/14/04

AmeriSci Job No. 104071299
P.O. # 2002-0219

RE 2002-0219; Piihona Reservoir

Client No. / HGA	Lab No.	Asbestos Present	Total % Asbestos
2002-0219-A1	104071299-01	*Yes*	30 %

Location:

Description: Green/Black, Heterogeneous, Bulk Material
Asbestos Types: Chrysotile 30. %
Other Material: Non-fibrous 70. %

2002-0219-A2	104071299-02	*No*	NAD

Location:

Description: Green/Black, Heterogeneous, Bulk Material
Asbestos Types:
Other Material: Non-fibrous 100. %

2002-0219-A3	104071299-03	*No*	NAD

Location:

Description: Green/Black, Heterogeneous, Bulk Material
Asbestos Types:
Other Material: Non-fibrous 100. %

2002-0219-A4	104071299-04.1	*No*	NAD

Location:

Description: White, Homogeneous, Caulking
Asbestos Types:
Other Material: Non-fibrous 100. %

2002-0219-A4	104071299-04.2	*No*	NAD

Location:

Description: Lt. Green, Homogeneous, Glazing
Asbestos Types:
Other Material: Non-fibrous 100. %

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P.O. # 2002-0219

RE 2002-0219; Piihona Reservoir

Client No. / HGA	Lab No.	Asbestos Present	Total % Asbestos
2002-0219-A5	104071299-05.1	*No*	NAD

Location:
Description: White, Homogeneous, Caulking
Asbestos Types:
Other Material: Non-fibrous 100. %

2002-0219-A5	104071299-05.2	*No*	NAD

Location:
Description: Lt. Green, Homogeneous, Glazing
Asbestos Types:
Other Material: Non-fibrous 100. %

2002-0219-A6	104071299-06.1	*No*	NAD

Location:
Description: White, Homogeneous, Caulking
Asbestos Types:
Other Material: Non-fibrous 100. %

2002-0219-A6	104071299-06.2	*No*	NAD

Location:
Description: Lt. Green, Heterogeneous, Glazing
Asbestos Types:
Other Material: Non-fibrous 100. %

2002-0219-A7	104071299-07	*No*	NAD

Location:
Description: Gray, Homogeneous, Cementitious, Bulk Material
Asbestos Types:
Other Material: Non-fibrous 100. %

AMERI SCI

AmeriSci Richmond
13635 GENITO ROAD
MIDLOTHIAN, VA 23112
TEL: (804) 763-1200 • FAX: (804) 763-1800

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Date Received 07/14/04
Date Examined 07/14/04

AmeriSci Job No. 104071299
P.O. # 2002-0219

RE 2002-0219; Piihona Reservoir

Client No. / HGA	Lab No.	Asbestos Present	Total % Asbestos
2002-0219-A8	104071299-08	*No*	NAD

Location:
Description: Gray, Homogeneous, Cementitious, Bulk Material
Asbestos Types:
Other Material: Non-fibrous 100. %

2002-0219-A9	104071299-09	*No*	NAD

Location:
Description: Gray, Homogeneous, Cementitious, Bulk Material
Asbestos Types:
Other Material: Non-fibrous 100. %

2002-0219-A10	104071299-10	*No*	NAD

Location:
Description: Black, Heterogeneous, Bulk Material
Asbestos Types:
Other Material: Cellulose Trace, Non-fibrous 100. %

2002-0219-A11	104071299-11	*No*	NAD

Location:
Description: Black, Homogeneous, Bulk Material
Asbestos Types:
Other Material: Cellulose Trace, Non-fibrous 100. %

2002-0219-A12	104071299-12	*No*	NAD

Location:
Description: Black, Homogeneous, Bulk Material
Asbestos Types:
Other Material: Cellulose Trace, Non-fibrous 100. %

AMERI SCI

AmeriSci Richmond
13635 GENITO ROAD
MIDLOTHIAN, VA 23112
TEL: (804) 763-1200 • FAX: (804) 763-1800

PLM Bulk Asbestos Report

Muranaka Environmental
Consultants, Inc.
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P.O. Box 4341
Honolulu, HI 96812

Date Received 07/14/04
Date Examined 07/14/04

AmeriSci Job No. 104071299
P.O. # 2002-0219
Page 4 **of** 4

RE 2002-0219; Piihona Reservoir

Client No. / HGA	Lab No.	Asbestos Present	Total % Asbestos
2002-0219-A13	104071299-13	*No*	NAD

Location:
Description: Gray/Tan, Homogeneous, Bulk Material
Asbestos Types:
Other Material: Non-fibrous 100. %

2002-0219-A14	104071299-14	*No*	NAD

Location:
Description: Gray/Tan, Homogeneous, Bulk Material
Asbestos Types:
Other Material: Non-fibrous 100. %

2002-0219-A15	104071299-15	*No*	NAD

Location:
Description: Gray/Tan, Homogeneous, Bulk Material
Asbestos Types:
Other Material: Non-fibrous 100. %

Reporting Notes:

Analyzed by: Gordon T. Saleeby Gordon T. Saleeby Date July 14, 2004

*NAD/NSD = no asbestos detected; Detection Limit <1%; Reporting Limits: CVES = 1%, 400 Pt Ct = 0.25%, 1000 Pt Ct = 0.1%; NA = not analyzed; NA/PS = not analyzed / positive stop; PLM Bulk Asbestos Analysis by EPA 600/M4-82-020 per 40 CFR 763 (NVLAP Lab #101904-0) and ELAP PLM Analysis Protocol 198.1 for New York samples (NYSDOH ELAP Lab # 10984); CA ELAP Lab # 2508; Note: PLM is not consistently reliable in detecting asbestos in floor coverings and similar non-friable organically bound materials. TEM is currently the only method that can be used to determine if this material can be considered or treated as non-asbestos-containing in New York State (also see EPA Advisory for floor tile, FR 59, 146, 38970, 8/1/94). National Institute of Standards and Technology Accreditation requirements mandate that this report must not be reproduced except in full without the approval of the laboratory. This PLM report relates ONLY to the items tested.

Reviewed By: MC

Scientific Laboratories of California, Inc.
24416 South Main Street, Suite 308
Carson, CA 90745
Phone: (310) 834-4868
Fax: (310) 834-4772

-104071299

9940 1

CHAIN OF CUSTODY/LABORATORY SERVICES REQUEST

LAB REPORT NO.: _____ MEC PROJECT NO.: 2002-0219 (SAMPLES RECEIVED WILL BE DISCARDED AFTER 90 DAYS) PAGE: 1 OF: 2

CLIENT INFORMATION

CLIENT NAME: Muranaka Environmental Consultants, Inc.

ADDRESS: P. O. Box 4341
Honolulu, HI 96812

TELEPHONE NUMBER: (808) 836-8822 FAX: (808) 836-8833

CONTACT PERSON: Kyle Tanaka

PROJECT NAME/SITE: Pu'honua Reservoir

SAMPLER:

TURN AROUND TIME REQUIRED:
(BASED ON WORKING DAYS)
Please circle choice below:

SAME DAY

1 DAY*

2, 3 or 4 DAY

(5) 10 DAY

REPORT WILL BE SENT TO CLIENT ADDRESS. PLEASE: ☐ PHONE ☐ FAX PRELIMINARY RESULTS (✓)

CLIENT SAMPLE ID NUMBER	LAB ID NUMBER	NUMBER OF CONTAINERS	DATE SAMPLED	TIME SAMPLED	SAMPLE MATRIX	AIR SAMPLE VOLUME IN LITERS	CONDITION OF SAMPLE RECEIVED	PLM (BULK ASBESTOS IDENTIFICATION)	PCM (FIBER CONCENTRATION) NIOSH 7400	LEAD EPA 7420 (AA)	METALS (LIST EACH)	TCLP 8 RCRA METALS	BTEX EPA 8020	TPH GASOLINE EPA 8015M	TPH DIESEL EPA 8015M	HALOGENATED VOC EPA 8010
2002-0219-A1		1	7/7/04		BULK			✓								
A2																
A3																
A4																
A5																
A6																
A7																
A8																
A9																
A10																

RELINQUISHED BY:	DATE:	RELINQUISHED BY:	DATE:	RELINQUISHED BY:	DATE:
PRINT NAME: Kyle Y. Tanaka	TIME: 13:40	PRINT NAME:	TIME:	PRINT NAME:	TIME:
RECEIVED BY:	DATE:	RECEIVED BY:	DATE:	RECEIVED BY: Rose Cortes	DATE: 7/9/04
PRINT NAME:	TIME:	PRINT NAME:	TIME:	PRINT NAME: Rose Cortes	TIME: 10:20

RECEIVED
JUL 14 2004
By CAS 10130 am

Scientific Laboratories of California, Inc.
24416 South Main Street, Suite 308
Carson, CA 90745
Phone: (310) 834-4868
Fax: (310) 834-4772

-10407129

9040711

CHAIN OF CUSTODY/LABORATORY SERVICES REQUEST

LAB REPORT NO.: _____ MEC PROJECT NO.: 2002-0219 (SAMPLES RECEIVED WILL BE DISCARDED AFTER 90 DAYS)

CLIENT INFORMATION

CLIENT NAME: Muranaka Environmental Consultants, Inc.

ADDRESS: P. O. Box 4341
Honolulu, HI 96812

TELEPHONE NUMBER: (808) 836-8822 FAX: (808) 836-8833

CONTACT PERSON: Kyle Tanaka

PROJECT NAME/SITE: Pilhanua Reservoir

SAMPLER:

TURN AROUND TIME REQUIRED:
(BASED ON WORKING DAYS)
Please circle choice below:

SAME DAY

1 DAY*

2, 3 or 4 DAY

(5) 10 DAY

REPORT WILL BE SENT TO CLIENT ADDRESS. PLEASE: ☐ PHONE ☐ FAX PRELIMINARY RESULTS (✓)

CLIENT SAMPLE ID NUMBER	LAB ID NUMBER	NUMBER OF CONTAINERS	DATE SAMPLED	TIME SAMPLED	SAMPLE MATRIX	AIR SAMPLE VOLUME IN LITERS	CONDITION OF SAMPLE RECEIVED	PLM (BULK ASBESTOS IDENTIFICATION)	PCM (FIBER CONCENTRATION) NIOSH 7400	LEAD EPA 7420 (AA)	METALS (LIST EACH)	TCLP 8 RCRA METALS	BTEX EPA 8020	TPH GASOLINE EPA 8015M	TPH DIESEL EPA 8015M	HALOGENATED VOC EPA 8010
2002-0219-A11		1	7/7/04		BULK			✓								
A12																
A13																
A14																
A15																

RELINQUISHED BY:	DATE:	RELINQUISHED BY:	DATE:	RELINQUISHED BY:	DATE:
PRINT NAME: Kyle Y. Tanaka	TIME: 13:40	PRINT NAME:	TIME:	PRINT NAME:	TIME:
RECEIVED BY:	DATE:	RECEIVED BY:	DATE:	RECEIVED BY: Rosa Cortes	DATE: 7/14/04
PRINT NAME:	TIME:	PRINT NAME:	TIME:	PRINT NAME: Rosa Cortes	TIME: 10:10

RECEIVED JUL 14 2004 By CH 10:30am

APPENDIX B

LEAD
LABORATORY REPORT

AMERI SCI

AmeriSci Los Angele
24416 SOUTH MAIN STREET • SUITE 308
CARSON, CA 90745
TEL: (310) 834-4868 • FAX: (310) 834-4772

AmeriSci Job #: 404071072

Date Received: 07/09/04
Date Analyzed: 07/15/04

Lead Analysis Results

Paint

EPA Method 3050/7420

Muranaka Environmental Consultants, Inc.

Honolulu, HI

Job Site: 2002-0219; Piihonva Reservoir

AmeriSci # 404071072	Client Number	Sample Location	% Lead (w/w)	Lead (mg/kg = ppm)
01	2002-0219-L1	Paint Chips	2.4	24,000
02	2002-0219-L2	Paint Chips	0.098	980
03	2002-0219-L3	Paint Chips	<0.01	<100
04	2002-0219-L4	Paint Chips	0.032	320
05	2002-0219-L5	Paint Chips	<0.01	<100
06	2002-0219-L6	Paint Chips	0.16	1,600
07	2002-0219-L7	Paint Chips	<0.01	<100
08	2002-0219-L8	Paint Chips	0.010	100
09	2002-0219-L9	Paint Chips	0.029	290
10	2002-0219-L10	Paint Chips	0.22	2,200
11	2002-0219-L11	Paint Chips	0.016	160

AmeriSci Reporting Limit is 0.01%, or 100mg/kg.
AmeriSci does not correct sample results by the blank value.
CA ELAP No. 2322. AIHA Lab No. 100530.

Reviewed by: _____

Analyzed by: Thu Nguyen
Thu Nguyen

ELAP No: CA 2322

Scientific Laboratories of California, Inc.
24416 South Main Street, Suite 308
Carson, CA 90745
Phone: (310) 834-4868
Fax: (310) 834-4772

404071072

CHAIN OF CUSTODY/LABORATORY SERVICES REQUEST

PAGE: 1 OF: 1

LAB REPORT NO.: _____ MEC PROJECT NO.: 2002-0219 (SAMPLES RECEIVED WILL BE DISCARDED AFTER 90 DAYS)

CLIENT INFORMATION

CLIENT NAME: Muranaka Environmental Consultants, Inc.
ADDRESS: P. O. Box 4341
Honolulu, HI 96812
TELEPHONE NUMBER: (808) 836-8822 FAX: (808) 836-8833
CONTACT PERSON: Kyle Tanaka
PROJECT NAME/SITE: Pilhonua Reservoir
SAMPLER:

TURN AROUND TIME REQUIRED: (BASED ON WORKING DAYS) Please circle choice below:
SAME DAY
1 DAY*
2, 3 or 4 DAY
(10 DAY

REPORT WILL BE SENT TO CLIENT ADDRESS. PLEASE: ☐ PHONE ☐ FAX PRELIMINARY RESULTS (✓)

CLIENT SAMPLE ID NUMBER	LAB ID NUMBER	NUMBER OF CONTAINERS	DATE SAMPLED	TIME SAMPLED	SAMPLE MATRIX	AIR SAMPLE VOLUME IN LITERS	NUMBER OF SAMPLE LISTED
2002-0219-L1		1	7/7/04		Paint chips		
L2							
L3							
L4							
L5							
L6							
L7							
L8							
L9							
L10							
L11							

PLM (BULK ASBESTOS IDENTIFICATION)	PCM (FIBER CONCENTRATION) NIOSH 7400	LEAD EPA 7420 (AA)	METALS (LIST EACH)	TCLP 8 RCRA METALS	BTEX EPA 8020	TPH GASOLINE EPA 8015M	TPH DIESEL EPA 8015M	HALOGENATED VOC EPA 8010
		✓						

RELINQUISHED BY: Kyle Y. Tanaka
PRINT NAME: Kyle Y. Tanaka
DATE: 7/8/04
TIME: 13:40
RECEIVED BY:
PRINT NAME:
DATE:
TIME:

RELINQUISHED BY:
PRINT NAME:
RECEIVED BY:
PRINT NAME:
DATE:
TIME:

RELINQUISHED BY:
PRINT NAME:
DATE:
TIME:

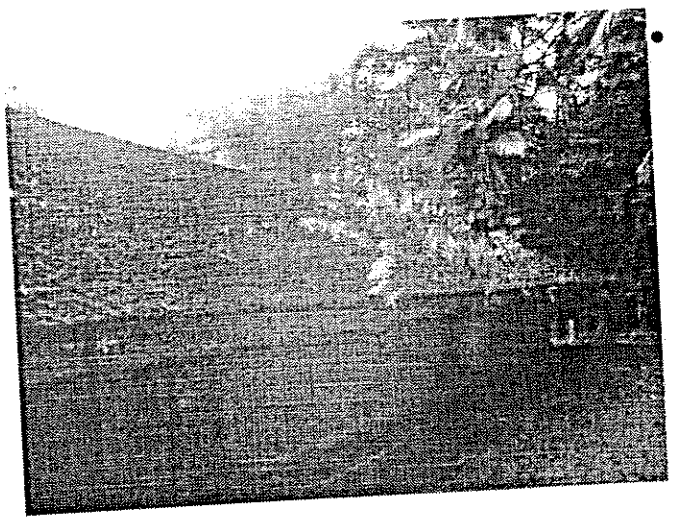
RELINQUISHED BY:
PRINT NAME:
RECEIVED BY: Rod Oates
PRINT NAME: Rod Oates
DATE: 7/9/04
TIME: 10:10

07/15/2004 21:19

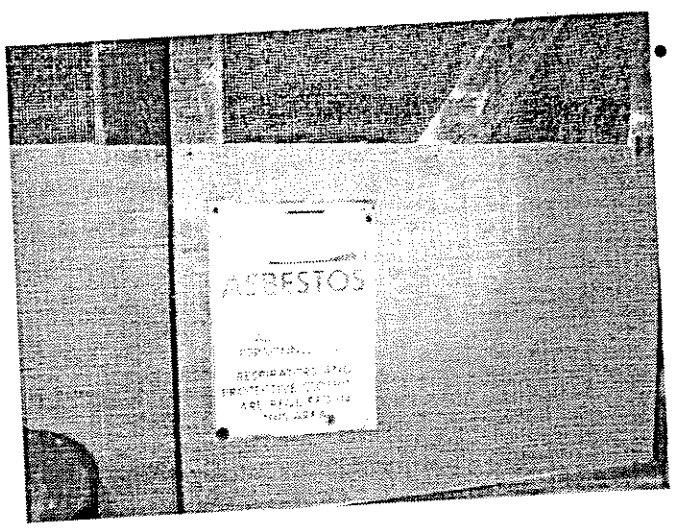
APPENDIX C

PHOTO LOG

Piihonua Reservoir No. 2
Hilo, Hawaii

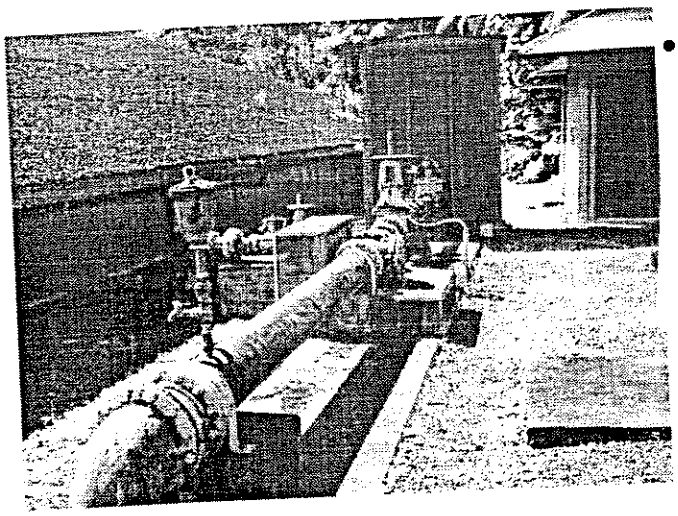


- Metal wall of Reservoir Building (lead-containing green paint on metal)

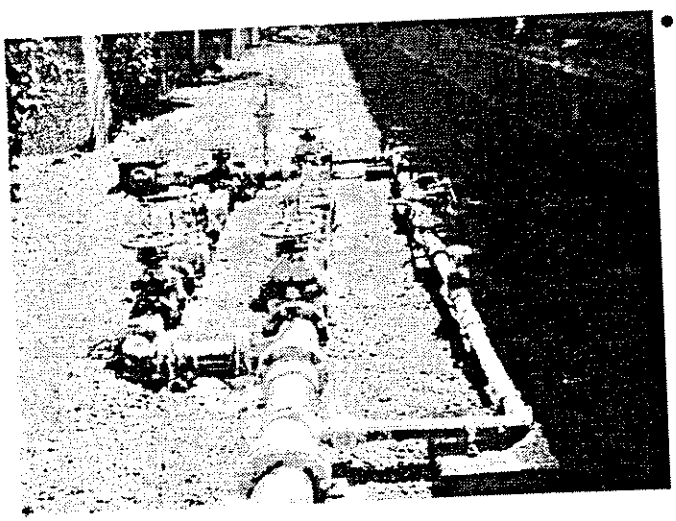


- Metal wall of Reservoir Building (lead-containing green paint on metal)

Piihonua Reservoir No. 2
Hilo, Hawaii

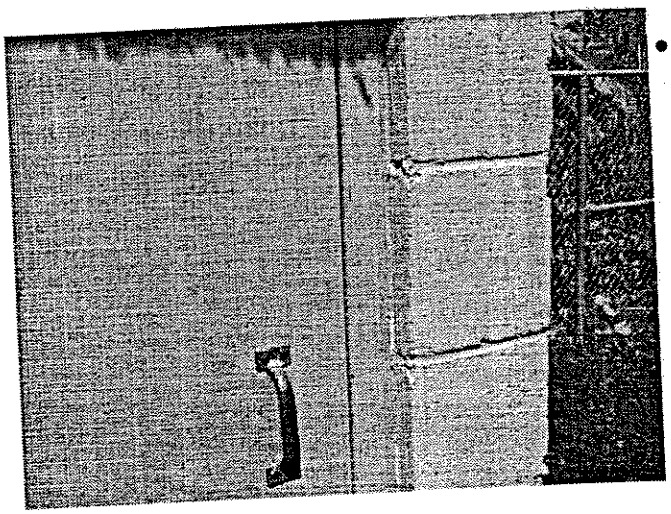


- West side exterior pump (asbestos-containing black rubber gaskets and lead-containing light-green/blue/dark-green layered paint on metal)

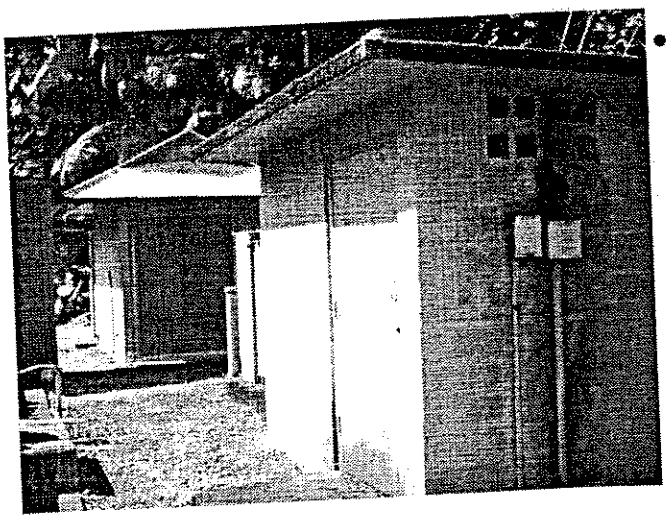


- North side exterior pump (asbestos-containing black rubber gaskets and lead-containing light-green/blue/dark-green layered paint on metal)

Piihonua Reservoir No. 2
Hilo, Hawaii

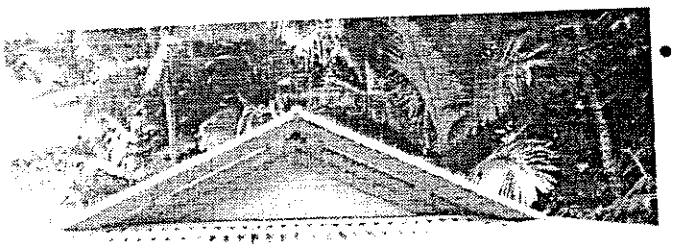


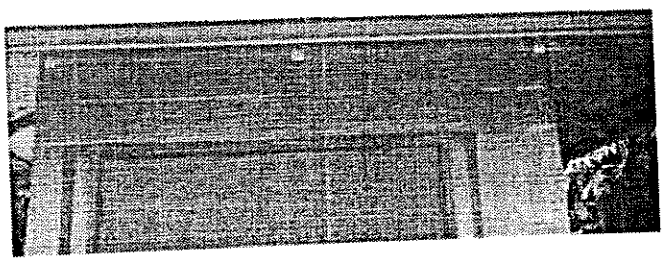
- Northwest CMU building door (lead-containing peach/brown/green layered paint on metal)



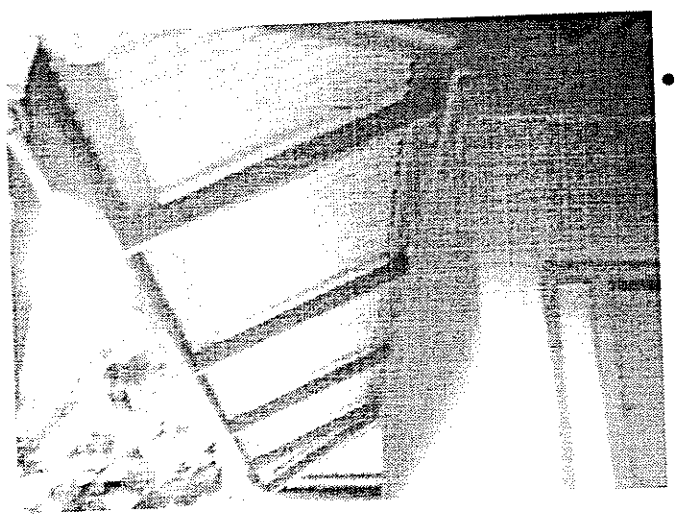
- Northwest CMU building in front & southwest CMU building in back

Piihonua Reservoir No. 2
Hilo, Hawaii



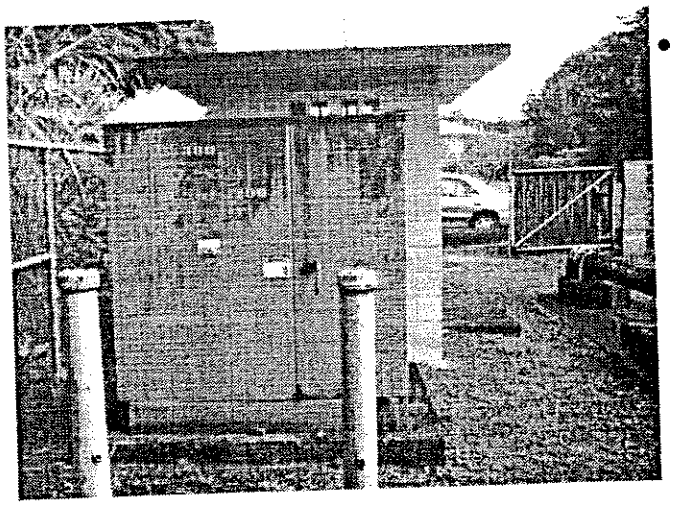


- Southwest CMU building, corrugated metal roof (lead-containing white paint on metal) & double doors (lead-containing brown/peach layered paint on wood)

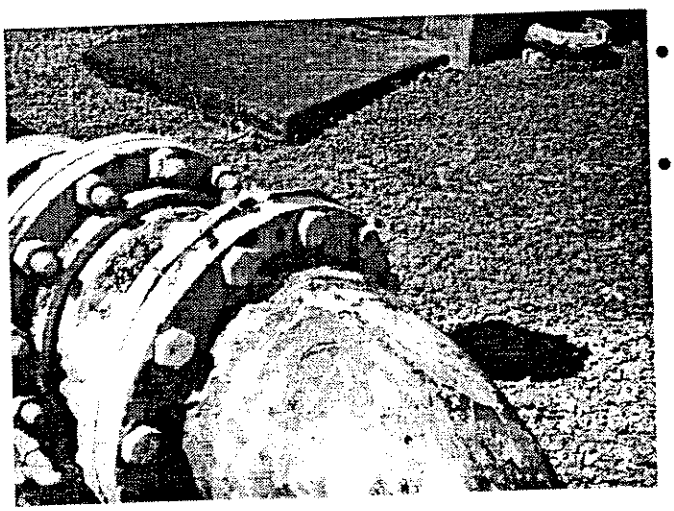


- Southwest CMU building, wood frame (lead-containing light-green paint on wood) for corrugated metal roof

Piihonua Reservoir No. 2
Hilo, Hawaii



- Transformer box
  Lead-containing green/dark-brown layered paint on metal



- Asbestos-containing black gasket on exterior pumps
- Lead-containing light-green/blue/dark-green layered paint on metal

APPENDIX 4

COMMENTS IN RESPONSE TO PRE-CONSULTATION

Harry Kim
Mayor

Christopher J. Yuen
Director

Roy R. Takemoto
Deputy Director

County of Hawaii
PLANNING DEPARTMENT
101 Pauahi Street, Suite 3 • Hilo, Hawaii 96720-3043
(808) 961-8288 • Fax (808) 961-8742

June 10, 2004

Mr. Ron Terry
Geometrician Associates, LLC
HC 2 Box 9575
Keaau, HI 96749

Dear Mr. Terry:

Subject: Draft Environmental Assessment
Applicant: County of Hawaii, Department of Water Supply
Project: Piihonua Reservoir Demolition and Reconstruction
TMK: 2-3-30:5, Hilo, Hawaii

This is in response to your May 28, 2004 letter requesting our comments on the above-referenced project.

According to your submittal, the existing 0.80-million gallon reservoir tank facility will be demolished and replaced by a 2.0 million gallon reservoir and related improvements. We have the following to offer for the subject parcel:

1. Although this 6.405 acre parcel is zoned Open (O) by the County, it is also designated Conservation by the State Land Use Commission. Due to this Conservation designation, there is no County zoning per se. Therefore, the Department of Land and Natural Resources has jurisdiction on any use, which occurs on the subject property.

2. The General Plan designation is Conservation.

3. The subject parcel is not located within the County's Special Management Area.

Please provide us with a copy of the Draft Environmental Assessment for our review and file.

If you have questions, please feel free to contact Esther Imamura or Larry Brown of this office at 961-8288.

Sincerely,

CHRISTOPHER J. YUEN
Planning Department

ETI:pak
P:\WPWIN60\ETI\EAdraftPre-consul\TerryPiihonua23030005.doc

Harry Kim
Mayor

Bruce C. McClure
Director

Ronald K.Takahashi
Deputy Director

County of Hawaii
DEPARTMENT OF PUBLIC WORKS
Aupuni Center
101 Pauahi Street, Suite 7 · Hilo, Hawaii 96720-4224
(808) 961-8321 · Fax (808) 961-8630

June 21, 2004

Mr. Ron Terry
Geometrician Associates, LLC
HC 2 Box 9575
Keaau, Hawaii 96749

SUBJECT: DRAFT ENVIRONMENTAL ASSESSMENT
Piihonua Reservoir Demolition and Reconstruction
TMK: 2-3-30: 005

We have reviewed the subject project as described in your letter dated May 28, 2004 and have the following comments.

1. All development-generated runoff shall be disposed of on site and shall not be directed toward any adjacent properties.

2. The subject parcel is in an area designated as Zone X by the Federal Emergency Management Agency (FEMA). Zone X is an area determined to be outside the 500-year floodplain.

3. Any earthwork activity, including grading and grubbing, shall conform to Chapter 10, Erosion and Sedimentation Control, of the Hawaii County Code.

4. The driveway connection to Waianuenue Avenue shall comply with Chapter 22, County Streets, of the Hawaii County Code and may require a permit from the Department of Public Works.

5. A copy of the completed EA will not be necessary.

Questions may be referred to Mr. Kelly Gomes of the Engineering Division at 961-8327.

Kelly Gomes
for GALEN M. KUBA, Division Chief
Engineering Division

KG

Harry Kim
Mayor

Lawrence K. Mahuna
Police Chief

Harry S. Kubojiri
Deputy Police Chief

County of Hawaii

POLICE DEPARTMENT

349 Kapiolani Street • Hilo, Hawaii 96720-3998
(808) 935-3311 • Fax (808) 961-8869

June 17, 2004

Mr. Ron Terry
Geometrician Associates, LLC
HC2 Box 9575
Keaau, Hawaii 96749

Dear Mr. Terry:

Our staff has conducted a review of the affected area mentioned in your letter.

The following were our findings:

- The proposed demolition and reconstruction at the Piihonua Reservoir will pose a major impact to traffic on Waianuenue Avenue, as the road is narrow.

- Community input will be vital for this project and our recommendation is that meetings be held to inform the community and solicit input.

- Given the size of the proposed project, there could be impacts to the Ainako Terrace subdivision homeowners in terms of construction noise, etc.

Thank you for allowing us the opportunity to comment.

Should you have any questions, please contact Lieutenant James Sanborn at 961-2350.

Sincerely,

LAWRENCE K. MAHUNA
POLICE CHIEF

JNS:lli

APPENDIX 5

PUBLIC MEETING NOTES AND COMMENTS TO DRAFT EA AND RESPONSES

REPLACEMENT OF PI`IHONUA RESERVOIR NO. 2

PLACE: Waianuenue Avenue and Ka`ahumanu Street, TMK 2-3-30:05

AGENCY: Hawai'i County Department of Water Supply

ACTION: Replace existing 0.8 million gallon capacity Pi`ihonua No. 2 Reservoir with a 2 MG reservoir on same general site. Existing facility, including the reservoir, booster pump station, and equipment, will be demolished once the new facility is constructed, tested, and in operating order.

PURPOSE: Promote public health and safety by improving water storage capacity for the Hilo area, and would thereby enhance the quality of water service.

FEATURES: A new booster pump station with two booster pumps; a new control building to house the motor control center and other equipment; a driveway, perimeter fencing and landscaping; and water mains to connect the reservoir to the existing water distribution system

LANDSCAPE: Landscaping plan with existing & new trees, gravel areas and lawn. After demolition, land will then be landscaped to match the new facility.

ENVIRONMENT: Contractor will be required to develop traffic control plan during the design phase to minimize congestion and maintain access to adjacent properties during construction. The contractor shall perform all earthwork and grading to contain sediment and storm water runoff during construction. Archeological and cultural survey have determined that no significant historic sites or cultural resources are present; if archaeological resources are encountered during land-altering activities associated with construction, work in the immediate area of the discovery will be halted and authorities will be contacted.

COMMENTS: PLEASE POSTMARK BY JANUARY 7, 2005

Geometrician Associates		Director		Kurt Inaba
HC 2 Box 9575	& copy:	Office of Env. Quality Control	&	Hawaii County Dept. of Water Supply
Keaau HI 96749235		South Beretania Street, Suite 702		345 Kekuanaoa Street, Suite 20
		Honolulu, HI 96813		Hilo HI 96720
982-5831		(808) 586-4185		961-8070x251

Pi`ihonua Reservoir Replacement Public Meeting Notes
December 11, 2004

Suggestions/requests from residents are *italicized.*

1. Noise
    a. Concern about noise from new facility expressed by nearby residents (residence located directly across from reservoir): At one point, with current system, the pumps were very noisy.
    b. Rushing water in pipes can even be noisy.
    c. Inquiry: How many dBs do pumps put out? (TN: 85 dBs). Response: That's loud for a residential area. Discussion of placement of pumps at back of property behind the reservoir, which should greatly muffle the noise levels at the northern (residential area) property boundary.
2. Construction Impacts
    a. Inquiry: Will entire site be silt fenced, which will be removed at completion? TN: Yes, and it will be removed.
    b. Inquiry: Will road be torn up for 8" water line?. TN: Yes.
    c. Inquiry: Is electrical work involved? (TN: Yes, but two of the three power poles on the site will be removed and the electrical line from the first power pole to the pump station will be buried.)
    d. Inquiry: Does existing reservoir have asbestos containing material? (RT: Yes, and Lead-based paint, both will be abated.)
    e. *Resident wants notification when new reservoir is connected to system, due to their previous experience with pressure and water quality problems.* KI: will notify community.
3. Drainage - Inquiry: Will project involve drainage improvements to Waianuenue? TN: No, it will not affect drainage.
4. Landscaping/Post-construction appearance
    a. Inquiry: Will old reservoir be removed completely? RT: Yes.
    b. Inquiry: Will entire site be grubbed? RT: Yes.
    c. Inquiry: How much of the site will be fenced? TN: Entire site.
    d. Resident suggests building a wall to be topped by a shorter fence as a more attractive alternative to a chain-link fence. RT: This is basic thinking at this point.
    e. *Resident expresses that he does not want chain link fence emplaced because it is unattractive.* (KI: Site fencing is required by Homeland Security regs.)
    f. Inquiry: Will trees on site be saved? (Response: The myrtles fronting Waianuenue will be kept. Summary of tree removal from DT follows.)
    g. *Above (f) discussion includes consensus that African Tulip Trees be removed.*
    h. Resident expresses that illegal dumping of green waste on project site is a problem.
    i. Inquiry: Will any other vehicles be stored on property? TN: No.

5. Traffic
    a. Replacement of Waterline – extent of affect on traffic and roadway. Existing 4" WL will be replaced with 8" WL down to Waiau Street.
    b. Houses fronting regions of replaced waterline will require feeder line replacement.
    c. Inquiry: Will Waianuenue Avenue be closed? (Response: one lane will be closed at times. Ainako Street provides a useful alternative route.)
6. Water Quality - Concerns primarily expressed by two residents directly across Waianuenue from present reservoir at 1554 Wainuenue. Residents expressed that, being the lowest house serviced by Piihonua #1 reservoir, directly above the area serviced by the subject property's reservoir, would experience serious pressure fluctuations when the booster pump would start and stop. They have, one two occasions, experienced serious episodes of poor water quality, with brown-colored water. This was discussed with Terry after the meeting adjourned, who suggested this was due to stagnant backflow.
7. Other - Inquiry: How tall will the reservoir be? (TN:: 22 feet high)

KI: Kurt Inaba, Department of Water Supply TN: Terry Nago, Okahara & Associates. RT: Ron Terry, Geometrician Associates. DT: David Tamura.

Harry Kim
Mayor

Lawrence K. Mahuna
Police Chief

Harry S. Kubojiri
Deputy Police Chief

County of Hawaii
POLICE DEPARTMENT
349 Kapiolani Street • Hilo, Hawaii 96720-3998
(808) 935-3311 • Fax (808) 961-8869

December 15, 2004

Mr. Ron Terry
Geometrician Associates
HC 2 Box 9575
Keaau, HI 96749

Dear Mr. Terry:

Subject: Draft Environmental Assessment (DEA)
Replacement of Pi'ihonua Reservoir No. 2
South Hilo, Hawaii Police Department
Tax Map Key: (3rd): 2-3-30:05

Staff has reviewed the above-referenced DEA and has no comments or objections to offer at this time.

Sincerely,

James M. Day

JAMES M. DAY
MAJOR
AREA I OPERATIONS

LW/lli

DEPARTMENT OF WATER SUPPLY • COUNTY OF HAWAI'I
345 KEKŪANAŌ'A STREET, SUITE 20 • HILO, HAWAI'I 96720
TELEPHONE (808) 961-8050 • FAX (808) 961-8657

February 2, 2005

TO: Major James M. Day, Area I Operations
County of Hawai'i, Police Department

FROM: Milton D. Pavao, Manager

SUBJECT: DRAFT ENVIRONMENTAL ASSESSMENT FOR REPLACEMENT OF PI'IHOUNUA RESERVOIR NO. 2
TAX MAP KEY 2-2-030:005

Thank you for your comment letter dated December 15, 2004, on the Draft EA, in which you stated that you had no comment to the EA.

If in the future, should you have any questions about the project, please contact Mr. Kurt Inaba of our staff at 961-8070, extension 251.

Sincerely yours,

Milton D. Pavao, P.E.
Manager

KYI:sco

copy - Mr. Ron Terry, Geometrician Associates, LLC
Mr. Terrance Nago, Okahara & Associates, Inc.

Harry Kim
Mayor

Christopher J. Yuen
Director

Roy R. Takemoto
Deputy Director

County of Hawaii

PLANNING DEPARTMENT

101 Pauahi Street, Suite 3 • Hilo, Hawaii 96720-3043
(808) 961-8288 • Fax (808) 961-8742

December 20, 2004

Mr. Ron Terry
Geometrician Associates
HC 2 Box 9575
Keaau, HI 96749

Dear Mr. Terry:

Subject:	**Draft Environmental Assessment**
Applicant:	**County of Hawaii, Department of Water Supply**
Request:	**Replacement of Piihonua Reservoir No. 2**
TMK:	**2-3-30:5**

This is in response to your request for comments on the Draft Environmental Assessment for the replacement of Piihonua Reservoir No. 2.

We have no further comments to offer in addition to our letter dated June 10, 2004.

If you have questions, please feel free to contact Esther Imamura or Larry Brown of this office at 961-8288.

Sincerely,

CHRISTOPHER J. YUEN
Planning Director

ETI:cd
P:\WPWIN60\ETI\EA\Terry PiihonuaDWS23030005.doc

xc: Director
Office of Environmental Quality Control
235 South Beretania Street, Suite 702
Honolulu HI 96813

DEPARTMENT OF WATER SUPPLY • COUNTY OF HAWAI'I
345 KEKŪANAŌ'A STREET, SUITE 20 • HILO, HAWAI'I 96720
TELEPHONE (808) 961-8050 • FAX (808) 961-8657

February 2, 2005

TO: Mr. Christoper J. Yuen, Planning Director
Planning Department

FROM: Milton D. Pavao, Manager

SUBJECT: DRAFT ENVIRONMENTAL ASSESSMENT FOR REPLACEMENT OF PI'IHOUNUA RESERVOIR NO. 2
TAX MAP KEY 2-2-030:005

Thank you for your comment letter dated December 20, 2004, on the Draft EA, in which you stated that you had no further comment to offer in addition to those in your letter of June 10, 2004.

If in the future, should you have any questions about the project, please contact Mr. Kurt Inaba of our staff at 961-8070, extension 251.

Sincerely yours,

Milton D. Pavao, P.E.
Manager

KYI:sco

copy - Mr. Ron Terry, Geometrician Associates, LLC
Mr. Terrance Nago, Okahara & Associates, Inc.

... Water brings progress...

LINDA LINGLE
GOVERNOR OF HAWAII

GENEVIEVE SALMONSON
DIRECTOR

STATE OF HAWAII
OFFICE OF ENVIRONMENTAL QUALITY CONTROL
235 SOUTH BERETANIA STREET
SUITE 702
HONOLULU, HAWAII 96813
TELEPHONE (808) 586-4185
FACSIMILE (808) 586-4186
E-mail: oeqc@health.state.hi.us

January 6, 2005

Mr. Milton D. Pavao, Manager
Department of Water Supply
345 Kekuanaoa Street, Suite 20
Hilo, Hawai'i 96720

Dear Mr. Pavao:

Subject: Draft EA for the Pi'ihonua No. 2 Reservoir Replacement, Hawai'i

Thank you for the opportunity to review and comment on the subject project. We have the following comments.

1. Please describe if special building materials or techniques are required for the reservoir since it is located in seismic zone 4.

Should you have any questions, please call Jeyan Thirugnanam at 586-4185.

Sincerely,

Genevieve Salmonson

Genevieve Salmonson
Director

c: Geometrician

DEPARTMENT OF WATER SUPPLY • COUNTY OF HAWAI'I
345 KEKŪANAŌ'A STREET, SUITE 20 • HILO, HAWAI'I 96720
TELEPHONE (808) 961-8050 • FAX (808) 961-8657

February 2, 2005

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

DRAFT ENVIRONMENTAL ASSESSMENT FOR REPLACEMENT OF PI'IHOUNUA RESERVOIR NO. 2
TAX MAP KEY 2-2-030:005

Thank you for your comment letter dated January 6, 2005, on the Draft EA. In answer to your comments about special building materials or techniques related to the Seismic Zone 4 setting, the following information has been added to the Final EA:

"The reservoir is designed in accordance with applicable American Water Works Association and American Concrete Institute standards for Seismic Zone 4, as well as all applicable County Building Department requirements. The wall of the tank will be wire-wound, pre-stressed concrete with seismic cables extending into the wall footing. In addition, to avoid over-stressing the top and bottom connection of the tank wall, the wall will be able to slide independently from the tank footing and roof slab on bearing pads and a specially designed interface."

Again, thank you for your comment. If you have any questions about the project, please contact Mr. Kurt Inaba of our staff at 961-8070, extension 251.

Sincerely yours,

Milton D. Pavao, P.E.
Manager

KYI:sco

copy - Mr. Ron Terry, Geometrician Associates, LLC
Mr. Terrance Nago, Okahara & Associates, Inc.

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Harry Kim
Mayor

Bruce C. McClure
Director

Ronald K. Takahashi
Deputy Director

County of Hawaii
DEPARTMENT OF PUBLIC WORKS
Aupuni Center
101 Pauahi Street, Suite 7 · Hilo, Hawaii 96720-4224
(808) 961-8321 · Fax (808) 961-8630

January 7, 2005

Mr. Ron Terry
Geometrician Associates, LLC
HC 2 Box 9575
Keaau, Hawaii 96749

SUBJECT: DRAFT ENVIRONMENTAL ASSESSMENT
Replacement of Piihonua Reservoir No. 2
TMK: 2-3-30: 005

We have reviewed the subject project as described in the draft environmental assessment forwarded by your memo received December 9, 2004 and have the following comments.

1. All development-generated runoff shall be disposed of on site and shall not be directed toward any adjacent properties.

2. The subject parcel is in an area designated as Zone X by the Federal Emergency Management Agency (FEMA). Zone X is an area determined to be outside the 500-year floodplain.

3. Any earthwork activity, including grading and grubbing, shall conform to Chapter 10, Erosion and Sedimentation Control, of the Hawaii County Code.

4. The driveway connection to Waianuenue Avenue shall comply with Chapter 22, County Streets, of the Hawaii County Code and will require a permit from the Department of Public Works.

Questions may be referred to Mr. Kelly Gomes of the Engineering Division at 961-8327.

Kelly Gomes
for GALEN M. KUBA, Division Chief
Engineering Division

KG

c: DWS (Kurt Inaba)

DEPARTMENT OF WATER SUPPLY • COUNTY OF HAWAI'I
345 KEKŪANAŌ'A STREET, SUITE 20 • HILO, HAWAI'I 96720
TELEPHONE (808) 961-8050 • FAX (808) 961-8657

February 2, 2005

TO: Mr. Galen Kuba, Engineering Division Chief
County of Hawai'i, Department of Public Works

FROM: Milton D. Pavao, Manager

SUBJECT: DRAFT ENVIRONMENTAL ASSESSMENT FOR REPLACEMENT OF PI'IHOUNUA RESERVOIR NO. 2
TAX MAP KEY 2-2-030:005

Thank you for your comment letter dated January 7, 2005, on the Draft EA. In answer to your specific comments:

1. *Development-generated runoff.* The design will insure that this will be disposed of on site and not directed towards adjacent properties.

2. *Area designated Zone X on FIRM maps.* This confirms information reported in the Draft EA.

3. *Earthwork Activity shall conform to Chapter 10, Hawai'i County Code.* All earthwork activity shall so conform.

4. *Driveway connection to Waianuenue Avenue.* A reference to Chapter 22 has been added in the Final EA; the need for a permit was noted in the Draft EA.

Again, thank you for your comment. If you have any questions about the project, please contact Mr. Kurt Inaba of our staff at 961-8070, extension 251.

Sincerely yours,

Milton D. Pavao, P.E.
Manager

KYI:sco

copy – Mr. Ron Terry, Geometrician Associates, LLC
Mr. Terrance Nago, Okahara & Associates, Inc.

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LINDA LINGLE
GOVERNOR OF HAWAII

PETER T. YOUNG
CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT

DAN DAVIDSON
DEPUTY DIRECTOR - LAND

YVONNE Y. IZU
DEPUTY DIRECTOR - WATER

AQUATIC RESOURCES
BOATING AND OCEAN RECREATION
BUREAU OF CONVEYANCES
COMMISSION ON WATER RESOURCE MANAGEMENT
CONSERVATION AND COASTAL LANDS
CONSERVATION AND RESOURCES ENFORCEMENT
ENGINEERING
FORESTRY AND WILDLIFE
HISTORIC PRESERVATION
KAHOOLAWE ISLAND RESERVE COMMISSION
LAND
STATE PARKS

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
OFFICE OF CONSERVATION AND COASTAL LANDS

POST OFFICE BOX 621
HONOLULU, HAWAII 96809

REF.:OCCL:TM

Correspondence: HA 05-136

JAN 11 2005

Ron Terry
Geometrician Associates
HC 2 Box 9575
Keaau, Hi 96749

Dear Mr. Terry,

SUBJECT: Draft Environmental Assessment Review for the Proposed Replacement of the Pi'ihonua Reservoir No. 2 Located at Piihonua, Island of Hawaii, TMK: (3) 2-3-030:005

The Office of Conservation and Coastal Lands (OCCL) is in receipt of your correspondence requesting review of the Draft Environmental Assessment (DEA) for the proposed replacement of the Pi'ihonua Reservoir No. 2.

According to your information, the County of Hawaii, Department of Water Supply (DWS) is proposing to demolish an existing reservoir and construct a new one on the same site. The improvements are necessary because the existing 0.08-million gallon reservoir water tank has reached the end of its service life, is undersized and has required expensive maintenance.

DWS is proposing to construct a new larger 2.0 million gallon reservoir that will require a larger developed area. Other improvements include a new booster pump station with two booster pumps; a new control building to house the motor control center and other electrical equipment and control instrumentation; asphalt concrete pavement driveway, perimeter fencing; landscaping; and associated water mains to connect the reservoir to the existing water distribution system. Once the proposed reservoir is completed and in operation, the existing reservoir will be demolished.

Departmental records indicate that the proposed project area lies within the General subzone of the Conservation District. The OCCL notes that the proposed improvements are an identified land use within the General subzone under the Hawaii Administrative Rules (HAR) § 13-5-22, P-6 PUBLIC PURPOSE USES. As noted by you, the proposed actions will require the filing of a Conservation District Use Application. This project will require a Board permit.

The OCCL notes that the Hawaiian Hawk and the Hawaiian Bat are often seen in the area. Both are listed endangered species. The OCCL notes no listed, candidate or proposed endangered plant species were found or are expected to be found on the project site. The OCCL notes two archaeological sites; both remnant stacked stonewalls were recorded. The archaeological inventory has been submitted to the State Historic Preservation Division. The OCCL believes the DEA has sufficiently described the impacts and mitigative measures for the flora and fauna and the archaeological sites of the project area.

The OCCL notes structures to be demolished are suspect of containing asbestos material and lead containing paint and shall require Federal and State compliance for removal. The OCCL notes the DEA states the Piihonua Houselots Community Association were consulted. This consultation should be included with the Final Environmental Assessment.

The OCCL looks forward to your Conservation District Use Application. Should you have any questions, please feel free to contact Tiger Mills of our Office of Conservation and Coastal Lands at 587-0382.

Aloha,

Samuel J. Lemmo, Administrator
Office of Conservation and Coastal Lands

cc: Chairperson
HDLO
County of Hawaii, Department of Planning

DEPARTMENT OF WATER SUPPLY • COUNTY OF HAWAI'I
345 KEKŪANAŌ'A STREET, SUITE 20 • HILO, HAWAI'I 96720
TELEPHONE (808) 961-8050 • FAX (808) 961-8657

February 2, 2005

Mr. Samuel J. Lemmo, Administrator
State of Hawai'i, Department of Land and Natural Resources
Office of Conservation and Coastal Lands
P.O. Box 621
Honolulu, HI 96809

DRAFT ENVIRONMENTAL ASSESSMENT FOR REPLACEMENT OF PI'IHOUNUA RESERVOIR NO. 2
TAX MAP KEY 2-2-030:005

Thank you for your comment letter dated January 11, 2005, on the Draft EA. In answer to your specific comments:

1. *Sufficient description of impacts and mitigation measures for flora and fauna and archaeology.* Noted.

2. *Need for CDUP.* Thank you for confirming the need for this permit. DWS expects to prepare and submit a CDUA shortly.

3. *Consultation with Piihonua Houselots Community Association.* The notes from the meeting are included in Appendix 5 of the Final EA.

Again, thank you for your comment. If you have any questions about the project, please contact Mr. Kurt Inaba of our staff at 961-8070, extension 251.

Sincerely yours,

Milton D. Pavao, P.E.
Manager

KYI:sco

copy - √Mr. Ron Terry, Geometrician Associates, LLC
Mr. Terrance Nago, Okahara & Associates, Inc.

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