BENJAMIN J. CAYETANO
GOVERNOR
STATE OF HAWAII

RAYNARD C. SOON
CHAIRMAN
HAWAIIAN HOMES COMMISSION

JOBIE M. K. M. YAMAGUCHI
DEPUTY TO THE CHAIRMAN

STATE OF HAWAII
DEPARTMENT OF HAWAIIAN HOME LANDS
P.O. BOX 1879
HONOLULU, HAWAII 96805

July 11, 2002

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

Dear Ms. Salmonson:

Subject: Finding of No Significant Impact
Panaewa Residence Lots, Unit 6
TMK: 2-2-47: 1

The Department of Hawaiian Home Lands has reviewed the comments received during the 30-day public comment period which began on May 23, 2002. We have determined that this project will not have significant environmental effects and have issued a Finding of No Significant Impact. Please publish this notice in the July 23, 2002, OEQC Environmental Notice.

We have enclosed a completed OEQC Publication Form and four copies of the final EA. The required summary of the proposed action will be e-mailed to your office by our consultant, Brian Nishimura.

Should you have any questions regarding this matter please contact Darrell Ing of our Land Development Division at 586-3844.

Aloha,

Raynard C. Soon, Chairman
Hawaiian Homes Commission

Enc.

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FILE PLAN

PANAEWA (WAIAKEA) RESIDENTIAL LOTS UNIT 6

Land situated on the North side of Panaewa (Waiakea) Residential Lots, Unit III , Phase 1, (File Plan 2036)

At Waiakea, South Hilo, Island of Hawaii, Hawaii

Being a portion of The Hawaiian Home Lands of Panaewa designated under section 203 of the Hawaiian Homes Commission Act, 1920 and adopted by Hawaiian Homes Commission Resolution No. 2 dated June 19, 1924

Owner: Department of Hawaiian Home Lands
Address: P.O. Box 1879
Honolulu, Hawaii 96805

Subdivision of Lot 7 into Lots 1 to 41, inclusive and Roadway Lots A and B

Area = 20.796 Acres

Subject, However, to a restriction of Vehicle Access Rights affecting Lots 11 to 14, inclusive, and Lot 41

This map is from an actual survey on the ground made under the direct supervision of the undersigned between and and may be checked by the State Surveyor with field books number and calculation folder 01–30

RAY KAZUO NAKAMURA LICENSED PROFESSIONAL LAND SURVEYOR NO. 4329 HAWAII, U.S.A.

Imata and Associates, Inc.
Ray Kazuo Nakamura
Licensed Professional Land Surveyor
Certificate Number 4329
171 Kapiolani Street
Hilo, Hawaii 96720

Notes:

1. Figures shown thus (3) indicate the number of course in description.
2. Owners of adjoining lands as shown on map are from records in the Tax Map Branch.

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2002-07-23-HI-FEA-

FINAL ENVIRONMENTAL ASSESSMENT AND ANTICIPATED FINDING OF NO SIGNIFICANT IMPACT

PANAEWA RESIDENCE LOTS, UNIT 6

Waiakea, South Hilo, Hawaii

JULY 2002

PREPARED FOR:
DEPARTMENT OF HAWAIIAN HOME LANDS

P.O. BOX 1879
HONOLULU, HAWAII 96805

PREPARED BY:
BRIAN T. NISHIMURA, PLANNING CONSULTANT

101 AUPUNI STREET
SUITE 217
HILO, HAWAII 96720

FINAL ENVIRONMENTAL
ASSESSMENT/FINDING OF NO SIGNIFICANT
IMPACT (FONSI)
DEPARTMENT OF HAWAIIAN HOME LANDS
PANAEWA RESIDENCE LOTS, UNIT 6
TAX MAP KEY: (3) 2-2-47: portion of 1

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1 Introduction

1.1 Purpose

The State of Hawaii, Department of Hawaiian Home Lands (DHHL), is proposing to develop a 41 lot, single family residential subdivision on approximately 20.796 acres of land in Waiakea, South Hilo, Hawaii, Tax Map Key: (3) 2-2-47: portion of 01. The 41 lot subdivision consists of 40 single family residential lots, plus one 3.901 acre buffer lot along Puainako Street. The purpose of this Environmental Assessment is to comply with the requirements of Chapter 343, Hawaii Revised Statutes (HRS) which are triggered by the use of State land and funds for the proposed project.

1.2 Identification of Proposing Agency

Mr. Raynard C. Soon is the Chairman of the Hawaiian Homes Commission. The mailing address for the Department of Hawaiian Home Lands is P.O. Box 1879, Honolulu, Hawaii 96805.

1.3 Identification of Approving Agency

In accordance with Chapter 343, HRS, the Department of Hawaiian Home Lands is also the appropriate accepting authority of the Environmental Assessment.

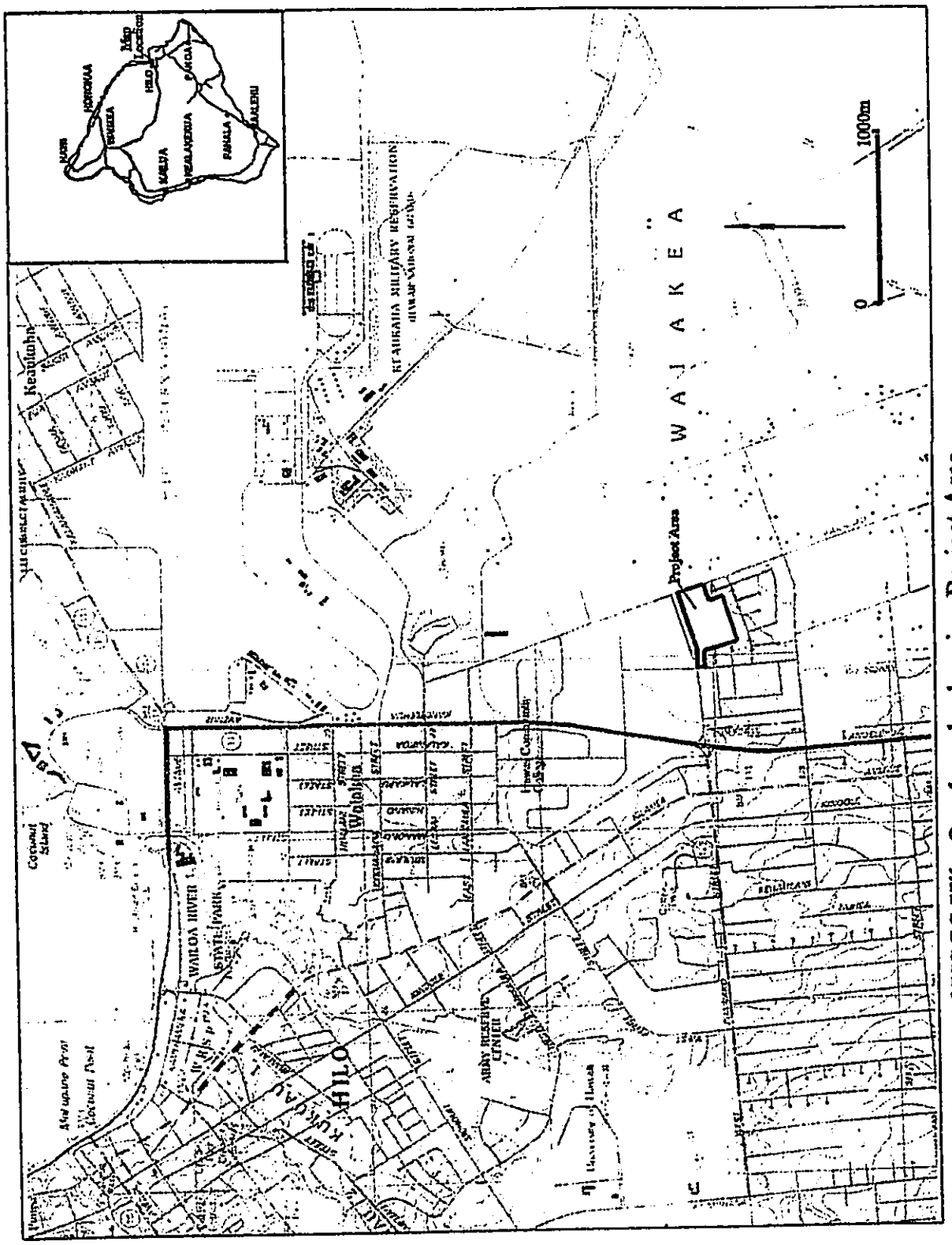
1.4 Technical Description

Tax Map Key No. (3) 2-2-47: 1 is a split parcel which consists of a 2.278 acre piece situated west of Ohuohu Street and south of Puainako Street as well as a 20.796 acre piece situated east of Ohuohu Street and south of Puainako Street. The proposed project will utilize the entire 20.796 portion of parcel 1 which is also bounded by Railroad Ave. and the Panaewa Residential Lots Unit III, Phase I subdivision. (Please see the attached location map and preliminary plat map)

The proposed Panaewa Residential Lots, Unit 6 project will consist of 40 single family residential lots, plus one 3.901 acre buffer lot along Puainako Street. The residential parcels will have lot sizes ranging from 15,000 square feet to approximately 23,000 square feet. Site improvements shall include roadways, lot grading, drainage system, water system, street tree planting, underground and/or overhead electric, telephone, and street light system. The DHHL intends to develop the property to standards which are similar to those of the previous increments already developed in the area. Access to the project will be provided by existing Panaewa Residential Lot roadways including Keonaona Street, Paipai Street and Pohai Street. The proposed project will not have any new connections to Puainako Street or Railroad Avenue.

Upon completion, the improved residential parcels will be leased to qualified native Hawaiians in accordance with the Hawaiian Homes Commission Act of 1920, as amended. Income restrictions or requirements have not yet been established for this project.

FIGURE 1 LOCATION MAP



Portion of USGS Hilo Quadrangle showing Project Area

MAP/DRAWING

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Construction of the proposed project will commence within one year from the date of preliminary subdivision approval and will be completed within one year thereafter. The estimated cost of construction is approximately 2.25 million dollars.

1.5 Project Background

1.5.1 Need for the Project

The DHHL has an existing list of 4,948 native Hawaiian beneficiaries waiting for a residential homestead award on the island of Hawaii. The statewide waiting list for a residential homestead award is 17,041. The demand for residential parcels is more than a hundred times greater than the number of units in the proposed project.

1.5.2 Land Use Designations

The subject property is situated within the State Land Use Agricultural District. The County General Plan Land Use Pattern Allocation Guide Map (LUPAG) designation for most of the project area is Low Density (Urban). The County zoning designation for the property is Agricultural (A-5a). The project area is not situated within the County's Special Management Area (SMA).

Lands set aside under the Hawaiian Homes Act are exempt from the State Land Use Law and County Code requirements and the DHHL will exercise this exemption to develop the property into residential use. Nevertheless the proposed project is consistent with the Low Density Urban designation of the County's General Plan. In addition, the project will be developed to standards consistent with the Single Family Residential fifteen thousand (RS-15) zoning designation with a minimum lot size of 15,000 square feet.

1.5.3 Listing of Permits and Approvals

Federal	None
State of Hawaii	
Department of Health	NPDES General Permit Underground Injection Control (Approval of Drywells) Approval of Individual Wastewater Systems
County of Hawaii	
Department of Public Works	Grading/Grubbing Permit Approval of Project Construction Plans
Department of Water Supply	Approval-Project Construction Plans
Planning Department	Subdivision Approval

1.6 Agency and Public Consultation

The following public and private organizations and individuals were consulted during the preparation of this environmental assessment:

United States Fish and Wildlife Services, Division of Ecological Services
State of Hawaii, Department of Land and Natural Resources, Historic Preservation Division
State of Hawaii, Department of Land and Natural Resources, Division of Forestry and Wildlife
State of Hawaii, Department of Health
State of Hawaii, Department of Transportation
State of Hawaii, Office of Hawaiian Affairs
County of Hawaii, Planning Department
County of Hawaii, Department of Public Works
County of Hawaii, Department of Environmental Management, Solid Waste Division
County of Hawaii, Department of Water Supply
County of Hawaii, Police Department
County of Hawaii, Fire Department
Panaewa Hawaiian Home Lands Community Association
Keaukaha-Panaewa Farmers Association

2. ENVIRONMENTAL SETTING

2.1 Physical Environment

2.1.1 Geology and Hazards

Environmental Setting

The project area is located on the lower northeastern slopes of Mauna Loa and consists of the Kau volcanic series (Sterns and Macdonald, 1946). The Kau volcanic series consists mainly of basaltic lava flows.

The volcanic hazard as assessed by the United States Geological Survey for the project area is "3" on a scale of ascending risk 9 to 1 (Heliker 1990). Zone "3" includes the lower slopes of Mauna Loa, which are "gradationally less hazardous than Zone 2 because of greater distance from recently active vents and/or because the topography makes it less likely that flows will cover these areas."

The island of Hawaii is one of the most seismically active areas in the world and has experienced more than twenty large earthquakes (magnitude 6 or larger) over the past 166 years. (Wyss and Koyanagi, 1992) Magnitude 6 earthquakes can be expected to cause structural damage to non-reinforced buildings.

Impacts and Mitigation Measures

The proposed project will not expose the residents of the proposed subdivision to any additional hazard risk that does not already exist for the entire city of Hilo. The volcanic hazard risk is relatively low and the same as any other alternative site that could be utilized for the same purpose.

2.1.2 Soils

Environmental Setting

The soils of the project area are classified as Papai extremely stony muck, 3 to 25 percent slopes (rPAE) by the U.S. Department of Agriculture Soil Conservation Service (SCS) Soil Survey (U. S. Soil Conservation Service 1973). The Papai soil series consists of well-drained, thin, extremely stony organic soils over fragmented A'a lava. In a representative profile the surface layer is very dark brown extremely stony muck about 8 inches thick underlain by fragmented A'a lava. Permeability is rapid, runoff is slow, and the erosion hazard is slight.

Impacts and Mitigation Measures

The project area has been previously graded and is relatively flat. As such, the potential for soil erosion is negligible. In addition, all construction activities will comply with the applicable requirements of the State Department of Health and the Department of Public Works.

2.1.3 Climate

Environmental Setting

Hawaii's climate is generally characterized as mild with uniform temperatures, moderate humidity, and two identifiable seasons. The "summer" season, between May and October is generally warmer and drier. The "winter" season, between October and April is cooler and wetter. The project area is situated along the "windward" side of the Island of Hawaii which is exposed to northeasterly trade winds that causes relatively high rainfall (over 150 inches annually). The average monthly minimum temperature in Hilo ranges from the mid 60's to 70 degrees Fahrenheit while the average monthly maximum temperature ranges from the high 70's to the high 80's. (University of Hawaii Press, 1983)

Impacts

The climatic conditions of the project area will not have a significant impact on the proposed project.

2.1.4 Hydrology and Drainage

Environmental Setting

The project area is within the Hilo aquifer system which has a sustainable yield of approximately 347 million gallons per day. In fiscal year 1993-94 daily withdrawals from the Hilo aquifer system averaged approximately 90.8 million gallons per day. (This figure includes large amounts of water used for hydroelectric and steam power generation plants as well as for industrial cooling.)

According to the Flood Insurance Rate Map (FIRM) prepared by the Federal Emergency Management Agency dated September 16, 1988, the project area is situated within Flood Zone "X" (areas determined to be outside the 500 year flood plain).

Impacts and Mitigation Measures

All project generated runoff will be handled on site with the construction of drywells. The project lies below the UIC line and it is anticipated that the UIC permits for the drywells will be obtained. The proposed project will adhere to all State and County drainage regulations.

2.1.5 Water Quality

Environmental Setting

The Waiakea Pond is the closest water body to the project area and is situated more than 1.5 miles northwest of the subject property. The nearest coastal waters are situated approximately two miles northwest of the project site.

Impacts

The proposed project is not expected to have any direct impact on any streams or marine waters.

2.1.6 Flora and Fauna

Environmental Setting

A botanical survey of the subject property was conducted in April, 2002, by Evangeline J. Funk, Ph.D. Botanical Consultants. A two person field team collected site data using the walk through method. The heavily vegetated project site was found to include mostly introduced trees and shrubs. Only two native species were found on the study site which included several 'Ohia trees and one sapling Psychotria. No candidate, proposed, or listed threatened or endangered species as set forth in the Endangered Species Act of 1973, as amended are known from this area and none were found during the botanical survey. The complete botanical survey report for the project site is included as an addendum to the draft environmental assessment

Although a faunal survey was not conducted, it is highly unlikely that any candidate, proposed, or listed threatened or endangered species would be found on the project site. This is due to the extensive prior disturbance of the project site by earthmoving equipment evidenced by numerous linear piles of stones and soil as well as many areas unnaturally level and relatively free of stones; and, the extensive urban development surrounding the project site including major streets and residential subdivisions. Furthermore, the Department of Land and Natural Resources, Division of Forestry and Wildlife (DOFAW), stated, in part, that "we have no objections to the proposed development , as it will not impact any of DOFAW's management programs."

Impacts

The proposed project will not have any significant impact on any protected or native species since the project area has been previously disturbed and does not serve as a habitat for any endangered plant or animal species.

2.1.7 Air Quality

Environmental Setting

The air quality of the subject area is affected by pollutants derived from the volcanic emissions from the ongoing Kilauea eruption. Other sources of air pollutants to a limited degree include vehicle exhaust emissions along the neighboring streets. In general, however, the ambient air quality of the project area meets all federal and state standards as evidenced by its designation as an "attainment" area bu the State Department of Health, Clean Air Branch.

Impacts and Mitigation Measures

Short term impacts will result from the construction activity including dust and exhaust from machinery involved in the construction of the proposed subdivision. Given the relative short construction time period, the potential impacts of these construction activities should be minimal. In addition, the contractor will be instructed to utilize best management practices to minimize dust impact and comply with provisions of Hawaii Administrative Rules, Chapter 11-60.1, "Air Pollution Control," and Section 11-60.1-33, Fugitive Dust

2.1.8 Noise

Environmental Setting

Existing noise levels are typical of a single family residential setting which is affected primarily by traffic on the adjacent streets. The project site is situated approximately 1.75 miles south of the main runway for Hilo International Airport but is not in close proximity to any significant noise generators such as heavy industrial activity or major highways.

Impacts and Mitigation Measures

Temporary noise impacts will occur from construction activities of the proposed project and are unavoidable. Mitigation measures can be taken, however, to minimize noise impacts including the use of mufflers and implementing construction curfew periods. All project activities must comply with the Administrative Rules of the Department of Health, Chapter 11-46, on "Community Noise Control".

2.1.9 Scenic Resources

Environmental Setting

The predominant scenic views in the vicinity of the project area are of Mauna Kea and Mauna Loa. These views will not be adversely affected by the proposed single family residential subdivision.

Impacts

The open space and scenic resources in the vicinity of the project area will not be adversely affected by the proposed subdivision.

2.2 Social, Cultural and Economic Setting

2.2.1 Socio-Economic Characteristics

Setting

Hawaii County's population increased by more than 56,000 persons between 1980 and 2000. Between 1980 and 1990, Hawaii Island's population increased by 30.7 percent, and increased by 23.6 percent between 1990 and 2000. The April 1, 2000 population figure for Hawaii County was 148,677 according to census figures compiled by the County of Hawaii, Department of Research and Development.

The South Hilo district had a population of 47,386 in 2000 which represented approximately 32 percent of the total population for Hawaii Island. The City of Hilo is the largest population center on the island with the main offices of the county government, branch offices of federal and state agencies located there. The island's major deep draft harbor and international airport are also located in Hilo. In addition to industrial, commercial and social service activities, the University of Hawaii at Hilo and Hawaii Community College and affiliated research programs play an important role in Hilo's economy.

Hilo and the rest of the east Hawaii communities are adjusting to the loss of the sugar industry in the mid 1990's. Industrial activities that remain include quarrying, construction material manufacturing and fabrication, storage, wholesaling facilities, garment manufacturing, processing and packaging of agricultural products and supportive services to businesses. Although the district enjoys some economic benefit from tourism, much of it is indirect through the spinoffs from the primary tourism activity in West Hawaii.

Impacts

The proposed DHHL residential subdivision will help address a small portion of the great demand for residential parcels on the island of Hawaii and in particular, this section of the South Hilo district. The DHHL has an existing list of 4,948 native Hawaiian beneficiaries waiting for a residential homestead award on the island of Hawaii. The statewide waiting list for a residential homestead award is 17,041. The proposed single

family residential subdivision, in and of itself, will not generate growth, but provides the necessary support to sustain a growing population and economy in the region.

2.2.2 Adjacent Land Uses

Existing Setting

The project area is predominantly residential in character with previous increments of DHHL residential subdivisions situated adjacent and and to the south and west of the project site. The proposed single family residential subdivision will have three street connections to the existing Unit II and Unit III phases of the Panaewa Residential Lot projects. The eastern boundary of the subject property is bordered by Puainako Street while the northern boundary is bordered by Railroad Ave. The surrounding parcels are also owned by the DHHL with the vacant parcel across Puainako Street intended as a cultural center while the parcels to the east are occupied by agricultural lessees. A major retail-commercial center, the Prince Kuhio Plaza is situated northwest of the project site on the north side of Puainako Street

Impacts and Mitigation Measures

The proposed single family residential subdivision will have temporary impacts on the surrounding properties due to the noise and other disturbances caused by the construction activity. These impacts will be mitigated through careful construction management practices and compliance with federal, state and county regulations.

2.3 Public Facilities and Services

2.3.1 Roads

Existing Setting

Railroad Avenue, fronting the project site, has a pavement width of 24 feet within a 60 foot wide road right-of-way while Puainako Street is a divided roadway with two travel lanes in each direction within a 120 foot wide right-of-way. The proposed project will not have any direct connection to Railroad Avenue or Puainako Street. Ho'ohua Street with a pavement width of 24 feet within a 50 foot wide right-of-way provides a connection from Railroad Avenue and Ohuohu Street with a pavement width of 24 feet within a 50 foot wide right-of-way provides a connection from Puainako Street.

Impacts

The proposed 41 unit residential subdivision is not anticipated to have any significant adverse impact on the roads and traffic circulation in the area.

2.3.2 Water System

Existing Setting

Water is available from existing 8-inch and 6-inch waterlines within Unit III, Phase I, of the Panaewa Residence Lots subdivision. The Department of Water Supply has indicated that a water commitment may be issued pursuant to the Department's "Water Commitment Guidelines Policy".

Impacts

The proposed project will not have a significant adverse impact on the existing Department of Water Supply system serving the subject location.

2.3.3 Protective Services

Existing Setting

The closest County fire station is situated approximately two miles southwest of the project site on Kawailani Street. The police station is situated approximately 3.5 miles away and the hospital is situated approximately 4.5 miles away.

Impacts

The proposed project will not create an additional burden on the existing service providers.

2.3.4 Schools

Existing Setting

The project area is served by Waiakea Elementary School, Waiakea Intermediate School and Waiakea High School. Waiakea Elementary and Waiakea Intermediate are located on Puainako Street, approximately one mile west of the project site. Waiakea High School is situated on Kawili Street, adjacent and to the north of the Waiakea Elementary and Waiakea Intermediate school complexes. The enrollment level at all three schools are currently below their operating capacity.

Impacts

The purblic schools serving the project area have the capacity to accommodate the additional students to be generated by the proposed project.

2.3.5 Power and Communication Systems

Setting

The project area is served by Hawaii Electric Light Company's (HELCO) power lines from existing roadways serving previous increments of the Panaewa Residence Lots subdivision. Telephone service to newly constructed subdivisions on Hawaiian Home Lands is provided by Sandwich Isles Communications. Cabling shall be underground.

Impacts

The proposed project will not have any significant adverse impact on the power and communication systems serving the region.

2.3.6 Wastewater

Setting

The project area is not within the service limits of the County wastewater disposal system. The nearest County sewer line is approximately 3,000 feet from the project site. The previous increments of the Panaewa Residence Lots Subdivision are utilizing individual wastewater disposal systems.

Impacts

The proposed project will utilize individual wastewater systems approved by the Department of Health.

2.4 Archaeology, Historic and Cultural Resources

Setting

A archaeological inventory survey of the subject property was conducted in April, 2002, by Haun & Associates. The inventory survey summary states that "No archaeological sites or features were identified during the survey. The parcel has been completely modified by earthmoving equipment, evidenced by numerous linear piles of soil and stone, bulldozed road cuts bordered by berms, and secondary growth vegetation consisting predominantely of small *guava* and *hau*. There are no historic sites on the property and given the extent of prior earthmoving the potential for buried cultural deposits is very unlikely. No further archaeological work is recommended for the property."

The report further states that, "Prehistoric to early historic use of the project area was probably limited because the focus of settlement was along the coast and the lower reaches of the Wailoa River. The project area is situated at the lower extent of

McEldowny's (1979) Upland Agricultural Zone that is characterized by scattered residences among agricultural plots and lava tubes used for shelter and burial. Historic use may have included sugar cane cultivation and cattle ranching." At the present time, there has been no indication that any traditional and customary Native Hawaiian Rights are being practiced on the property.

The complete archaeological inventory survey report for the project site is included as an addendum to the draft environmental assessment

Impacts

The proposed project is anticipated to have "no effect" on signifcant historic sites or cultural activities.

3. SUMMARY OF POTENTIAL ADVERSE ENVIRONMENTAL IMPACTS AND PROPOSED MITIGATION MEASURES

3.1 Short Term Impacts

Construction Activity:

Impacts: Short term impacts will result from the proposed construction activity including increased noise levels, dust and exhaust from machinery involved in the development of the 41-lot subdivision.

Mitigation: Given the relative short construction time period, the potential impacts of the construction activities should be minimal. In addition, the contractor will be instructed to utilize best management practices to minimize impacts and comply with State Department of Health regulations.

3.2 Long Term Impacts

Drainage:

Impacts: County requirements stipulate that, all development generated runoff be disposed on site and cannot be directed toward any adjacent properties.

Mitigation: All project generated runoff will be handled on site with the construction of drywells. The proposed project will adhere to all State and County drainage regulations. The design engineer and/or the contractor will obtain all necessary permits to comply with all drainage requirements. The contractor will be required to utilize best management practices to minimize any potential impacts.

Socio-Economic:

Impacts: The proposed 41-lot residential subdivision will take a positive step towards addressing a portion of the large demand for residential parcels evidenced by the DHHL's current list of 4,948 beneficiaries waiting for residential homestead award on the island of Hawaii. The proposed subdivision, in and of itself, will not generate growth, but provides necessary support to sustain a growing population and economy in the region.

Mitigation: The socio-economic impacts of the project are essentially beneficial and require no mitigation.

4. ALTERNATIVES

4.1 Alternative Actions Considered

If the proposed 41-lot residential project is not developed, the subject property will remain vacant until planning and funding for alternative uses of the property are in place. Certain members of the community have recommended that a portion of the project site be utilized for elderly housing and medical facilities. While these alternative uses merit consideration, they are still conceptual in nature without any definite timetable for development or implementation. As such, the property may remain vacant for an undetermined number of years before any other alternative would be ready for construction.

Rather than delay the engineering and construction of the infrastructure and roadways pending the submittal of detailed alternative development proposals, the DHHL will proceed with the development of the proposed project. Should the Hawaiian Homes Commission approve a significant change to the existing project scope, an amendment to this Environmental Assessment shall be published

4.2 Alternative Location

The DHHL has additional land holdings which could be utilized as an alternative location for the proposed subdivision. The impacts generated by utilizing an alternative site would not be any less significant than utilizing the proposed site. Furthermore, any alternative location will not have the same proximity to infrastructure and services as the present site which would also add additional time and expense to the project.

5. DETERMINATION, FINDINGS AND REASONS FOR SUPPORTING DETERMINATION

5.1 Significance Criteria

According to the Department of Health Rules (11-200-12), an applicant or agency must determine whether an action may have a significant impact on the environment, including all phases of the project, its expected consequences both primary and secondary, its cumulative impact with other projects, and its short and long-term effects. In making the determination, the Rules establish "Significance Criteria" to be used as a basis for identifying whether significant environmental impact on the environment if it meets any one of the following thirteen criteria.

1. **Involves an irrevocable commitment to loss or destruction of any natural or cultural resources.**

   The proposed project involves the construction of a 41-lot residential subdivision on a 21 acre parcel that has been previously disturbed by earthmoving equipment. The subject property does not contain any existing natural or cultural resources that will be destroyed or irrevocably lost by the development of the proposed project.

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

   The project site is covered by a dense stand of vegetation that is primarily composed of alien species. The development of the subject site with a 41-lot residential subdivision will not adversely affect the environment of the surrounding area.

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

   The proposed development is consistent with the Environmental Policies established in Chapter 344, HRS, and the National Environmental Policy Act.

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

   The proposed project will have a positive impact on the economic and social welfare of the community. The proposed 41-lot residential subdivision will take a positive step towards addressing a portion of the large demand for residential parcels evidenced by the DHHL's current list of 4,948 beneficiaries waiting for residential homestead award on the island of Hawaii. The proposed subdivision, in and of itself, will not generate growth, but provides necessary support to sustain a growing population and economy in the region.

5. **Substantially affects public health**

The proposed project will not have any substantial impact on public health. Potential noise, air, water and drainage impacts will be addressed through careful construction mangement practices and compliance with federal, state and county requirements.

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

The proposed project will not have any substantial secondary impacts because it is not a generator of growth. Rather, the proposed subdivision will support and sustain a growing population and economy in the region.

7. **Involves a substantial degradation of environmental quality.**

The proposed residential subdivision will be developed to standards similar to the previous increments of the Panaewa Residence Lots Subdivision and will not involve a substantial degradation of environmental quality.

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

As stated previously, the proposed project will not have any substantial secondary impacts but rather completes development of the surrounding residential neighborhood. The proposed project does not involve a commitment for larger actions and will not induce other actions having a cumulative effect on the environment.

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

The project site has been extensively disturbed by earthmoving equipment and does not have any candidate, proposed, or listed threatened or endangered species on the property. As such, the proposed project will not have any substantial adverse effect on any rare, threatened or endangered species or its habitat.

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

Short term impacts will result from the proposed project including increased noise levels, dust and exhaust from machinery involved in the construction of project improvements. Given the relative short construction time period the potential impacts of these construction activities should be minimal. The contractor will be instructed to utilize best management practices to minimize all impacts and comply with State Department of Health regulations.

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

    The proposed project is not situated in an environmentally sensitive area such as a flood plain, tsunami zone, beach, erosion-prone area, geologically hazardous land, estuary, freshwater, or coastal waters.

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

    The proposed project involves the development of a 41-lot residential subdivision in an area that has been previously developed with over 250 similar residential parcels. As such, any impacts to the scenic vistas of the area will be similar to what already exists.

13. **Requires substantial energy consumption.**

    The proposed project will not require substantial energy consumption.

5.2 Findings

Based on the foregoing information presented, it is determined that the proposed Panaewa Residence Lots, Unit 6 project will not have a significant effect. As such, a determination of a Finding of No Significant Impact for the proposed action is appropriate.

5.3 Reasons Supporting Determination

The nature and scale of the proposed action is such that no significant environmental effects are anticipated. Potential impacts, if any, can be mitigated through careful construction management practices and compliance with all governmental requirements including those of the State Department of Health and the County Department of Public Works.

REFERENCES

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APPENDIX A - REPRODUCTION OF COMMENTS AND RESPONSES MADE DURING THE PRE-ASSESSMENT CONSULTATION PERIOD

1. State of Hawaii, Department of Land and Natural Resources, Division of Forestry and Wildlife, April 22, 2002.

2. State of Hawaii, Department of Health, April 30, 2002.

3. State of Hawaii, Office of Hawaiian Affairs, April 15, 2002.

4. State of Hawaii, Department of Transportation, May 9, 2002
   RESPONSE: Brian T. Nishimura, July 1, 2002

5. County of Hawaii, Planning Department, April 3, 2002.

6. County of Hawaii, Police Department, April 3, 2002.

7. County of Hawaii, Department of Environmental Management, Solid Waste Division, April 8, 2002.

8. County of Hawaii, Fire Department, April 9, 2002.

9. County of Hawaii, Department of Water Supply, April 4, 2002

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

April 22, 2002

Mr. Brain T. Nishimura
Planning Consultant
101 Aupuni Street, Suite 217
Hilo, Hawaii 96720

Dear Mr. Nishimura:

Subject: Request for comments: Pre-Environmental Assessment Consultation by DHHL to Develop a 41 unit, Single Family Residential Subdivsion on 20.796 acres on Land in Waiakea, South Hilo, Hawaii TMK: (3) 2-2-47:01.

We appreciate reviewing the subject project above and based on the information; we have no objections to the proposed development, as it will not impact any of DOFAW's management programs. Thank you for the opportunity to comment on this project.

Sincerely yours,

Michael G. Buck
Administrator

C: Hawaii DOFAW Branch
DLNR, Land Divison

BENJAMIN J. CAYETANO
GOVERNOR OF HAWAII

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

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

In reply, please refer to:
File:
02-082/cpo

April 30, 2002

Mr. Brian T. Nishimura, Planning Consultant
101 Aupuni Street, Suite 217
Hilo, Hawaii 96720

Dear Mr. Nishimura:

Subject: Pre-Environmental Assessment Consultation (PEA)
Panaewa Residential Lot Subdivision, Waiakea, South Hilo
Tax Map Key: 2-2-047:01

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

Clean Water Branch

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

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

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

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

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

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

e. Discharge of hydro-testing water;

f. Discharge of construction dewatering effluent;

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

h. Discharge of treated effluent from well drilling activities.

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

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

4. The applicant may be required to apply for an individual NPDES permit if there is any type of activity in which wastewater is discharged from the project into State waters.

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

Wastewater Branch (WWB)

Wastewater treatment and disposal are not thoroughly addressed in the PEA submittal. As the project is located near the County sewer system, the proposed subdivision will be required to connect to the sewer line.

All wastewater plans must conform to applicable provisions of the Department of Health's Administrative Rules, Chapter 11-62, "Wastewater Systems". We reserve the right to review the detailed wastewater plans for conformance to applicable rules.

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

Clean Air Branch (CAB)

There is a significant potential for fugitive dust emissions during the removal, transport, installation and construction activities. It is recommended that a dust control management plan be developed which identifies and addresses activities having a potential to generate fugitive dust. Implementation of adequate dust control measures during all phases of construction is warranted.

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

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

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

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

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

d. Controlling of dust from shoulders and access roads;

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

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

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

Noise, Radiation and Indoor Air Quality (NRIAQ) Branch

All project activities shall comply with the Administrative Rules of the Department of Health, Chapter 11-46, on "Community Noise Control".

If you have any questions, please contact the NRIAQ at (808) 586-4701.

Sincerely,

GARY GILL
Deputy Director
Environmental Health Administration

c: CWB
WWB
CAB
NRIAQ

PHONE (808) 594-1888

FAX (808) 594-1865

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

HRD02-549

April 15, 2002

Mr. Brian T. Nishimura
Planning Consultant
101 Aupuni Street – Suite 217
Hilo, Hawaii 96720

SUBJECT: DHHL PROPOSAL – 41 UNIT, SINGLE FAMILY RESIDENTIAL LOT SUBDIVISION – PRE-ENVIRONMENTAL ASSESSMENT CONSULTATION

Dear Mr. Nishimura:

Thank you for the opportunity to review your proposal for DHHL's construction of a 41 unit single family residential lot subdivision in Waiakea, South Hilo.

The Office of Hawaiian Affairs (OHA) has no comment at this point in time. We look forward to receiving the Draft Environmental Assessment when completed. If you have any questions, please contact Jerry B. Norris at 594-1847 or email him at jnorris@oha.org.

Sincerely,

Ialna S. Keala
Acting Director, Hawaiian Rights Division

cc: OHA Board of Trustees
Clyde W. Namu'o, OHA Administrator
Ululani Sherlock, Hilo Community Affairs Coordinator

BENJAMIN J. CAYETANO
GOVERNOR

BRIAN K. MINAAI
DIRECTOR

DEPUTY DIRECTORS
JEAN L. OSHITA
JADINE Y. URASAKI

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

IN REPLY REFER TO

HWY-PS
2.6503

MAY 9 2002

Mr. Brian T. Nishimura
Planning Consultant
101 Aupuni Street, Suite 217
Hilo, Hawaii 96720

Dear Mr. Nishimura:

Subject: Pre-Environmental Assessment Consultation, Department of Hawaiian Home Lands, 41-Unit Single Family Dwelling, Waiakea, South Hilo, TMK: 2-2-47: 01

Thank you for transmitting the subject document for our review and comments.

A traffic assessment and a drainage report should be included in the Environmental Assessment for our review and comments.

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

Very truly yours,

BRIAN K. MINAAI
Director of Transportation

BRIAN T. NISHIMURA, PLANNING CONSULTANT
101 Aupuni Street, Suite 217
Hilo, Hawaii 96720
Phone: (808) 935-7692 Fax: (808) 935-6126 e-mail: btnishi@interpac.net

July 1, 2002

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

Subject: Pre-Environmental Assessment Consultation Comments
Panaewa Residence Lots, Unit 6 - Department of Hawaiian Home Lands
TMK: 2-2-47: 1

Dear Mr. Minaai:

This is to acknowledge receipt of your letter dated May 9, 2002, regarding the subject project. Although your letter was received after the Draft Environmental Assessment was already completed, we are responding to your comments as part of the Final Environmental Assessment as follows:

1. **Comment:** "A traffic assessment and a drainage report should be included in the Environmental Assessment for our review and comments."

   Response: The proposed Panaewa Residence Lots, Unit 6 project is the last undeveloped section of the Panaewa Residence Lots subdivision which was initiated in 1964. Since that time, 262 single family residential parcels have been created and the proposed project will bring the total to 302 single family residential parcels. Traffic impacts for the entire Panaewa Residence Lots subdivision have been previously addressed by other reports including the Panaewa Plan completed in 1986. As such, we believe that a new traffic assessment should not be required for this last increment of the Panaewa Residence Lots subdivision.

   With regard to the request for a drainage report, we also believe that it is unnecessary. All drainage will be handled on-site with the construction of dry-wells. As such, the proposed project will not have any drainage impacts on any State highway.

Thank you for taking the time to comment on the proposed project.

Sincerely,

Brian T. Nishimura, Planning Consultant

Harry Kim
Mayor

Christopher J. Yuen
Director

Roy R. Takemoto
Deputy Director

County of Hawaii

PLANNING DEPARTMENT
25 Aupuni Street, Room 109 • Hilo, Hawaii 96720-4252
(808) 961-8288 • Fax (808) 961-8742

April 3, 2002

Mr. Brian Nishimura
101 Aupuni Street, Suite 217
Hilo, Hawaii 96720

Dear Mr. Nishimura:

Subject: Pre-Environmental Assessment Consultation
Request: Comments for proposed 41-unit single family residential subdivision
TMK: 2-2-47:1

This is to acknowledge receipt of your letter dated March 27, 2002, location map and preliminary plat map for the development of a 41-unit single family residential subdivision on approximately 20.796 acres of land. We assume that the proposed environmental assessment is being prepared due to the anticipated use of State-owned lands. We offer the following comments for your consideration.

The subject property is located in the State Land Use Agricultural district and zoned Agricultural (A-5a) by the County. The property is not located in the Special Management Area (SMA). The General Plan LUPAG designation for the property is Low Density Urban. As you are aware, lands set aside under the Hawaiian Homes Act are not subject to the requirements of the County Code, including the Zoning Code. However, please indicate whether the Department of Hawaiian Home Lands will develop the proposed residential subdivision in a manner consistent with all requirements of the Zoning and Subdivision Code. If not, please identify the specific scope of development, including residential unit density for each parcel.

Thank you for the opportunity to provide comments. Please call this department at 961-8288 if you have any questions.

Sincerely,

CHRISTOPHER J. YUEN
Planning Director

PF:pak
p:\wpwin60\ch343\2002\DEA02-06.doc

cc: Long Range Planning

Harry Kim
Mayor

James S. Correa
Police Chief

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

April 3, 2002

Mr. Brian T. Nishimura
Planning Consultant
101 Aupuni Street, Suite 217
Hilo, Hawaii 96720

Dear Mr. Nishimura:

SUBJECT: PRE-ENVIRONMENTAL ASSESSMENT CONSULTATION

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

Sincerely,

JAMES S. CORREA
POLICE CHIEF

TH:mh

DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
SOLID WASTE DIVISION

COUNTY OF HAWAII – 108 RAILROAD AVENUE – HILO, HI 96720
HILO (808) 961-8339 WAIMEA (808) 887-3018 KONA (808) 327-3507

April 8, 2002

TO: Christopher Yuen, Director
Planning Department

FROM: Laurence E. Capellas, P.E.
Solid Waste Division Chief

SUBJECT: DEPARTMENT of HAWAIIAN HOMES LANDS (DHHL)
TMK: (3) 2-2-47:01
PANAEWA RESIDENTIAL LOTS

The request for comments from Planning Consultant, Brian Nishimura, has been reviewed. Please have the consultant review the attached Solid Waste Management Plan guidelines to address the issues therein.

The consultant may provide us a review copy directly. Following our review, this division will provide comments to the Planning Department. Thank you.

LEC
Attachments

DEPARTMENT OF PUBLIC WORKS
COUNTY OF HAWAII
HILO HAWAII

DATE: July 26, 2000

SOLID WASTE MANAGEMENT PLAN
Guidelines

INTENT AND PURPOSE

This is to establish guidelines for reviewing solid waste management plans, for which special conditions are placed on developments. The solid waste management plan will be used to; (1) encourage recycling and recycling programs, (2) predict the waste generated by the proposed development to anticipate the loading on County transfer stations, landfills, and recycling facilities, and (3) predict the additional traffic being generated because of waste and recycling transfers.

REPORT

The consultant's report will contain the following:

1. Description of the project, its location, and the potential waste it may be generating; i.e., analysis of anticipated waste volume and composition. This includes waste generated during the construction and operational phases. Greenwastes will be included in this report for both construction grubbing and future operational landscape maintenance.

2. Description and location of the possible sites for waste disposal or recycling. We will not allow the use of the County transfer stations for any commercial development; commercial development as defined under the policies of the Department of Public Works, Solid Waste Division.

3. Since the Department of Public Works promotes recycling, indicate onsite source separation facilities by waste-stream; i.e., source separation bins of glass, metal, plastic, cardboard, aluminum, etc.

4. Identification of the proposed disposal site and transportation methods for the various components of the waste disposal and recycling system. Including the number of truck traffic and the route that truck will be using to transport the waste and recycled materials.

5. The report will include any impacts to County waste and recycling facilities, and the appropriate mitigation measures. All recommendations and mitigation measures will be addressed.

6. Description of the waste reduction component that analyzes techniques to be employed to achieve a reduction goal.

7. Analysis will be based on the highest potential use or zoning of the development.

REQUIREMENTS AND CONDITIONS

1. A solid waste management plan will be done for all commercial developments, as defined under the policies of the Department of Public Works, Solid Waste Division.

2. We will require the developer to provide or resolve all recommendations and mitigation measures as outlined in the report; besides any conditions placed on the applicant by the Department of Public Works.

3. A licensed environmental or civil engineer will draft and certify the solid waste management plan.

CONCUR:

ROBERT K. YANABU
Chief Engineer

Harry Kim
Mayor

Darryl J. Oliveira
Fire Chief

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

April 9, 2002

Mr. Brian T. Nishimura
Planning Consultant
101 Aupuni Street, Suite 217
Hilo, HI 96720

Dear Mr. Nishimura:

RE: PRE-ENVIRONMENTAL ASSESSMENT
TMK: (3)2-2-47:01
DHHL PANAEWA RESIDENTIAL LOTS

Our Fire Prevention Division has reviewed your submittal and offers the following recommendation.

The fire access roads shall not be less than required under the Uniform Fire Code, 1988, Section 10.207 with amendments. The water requirements shall conform to the Water System Standards, Table 16, State of Hawaii, 1985, Volume 1.

No further notification or consultation on the project will be required.

Should you require further information on this matter, please feel free to call Battalion Chief Richard Kihara at 961-8350.

Thank you for the opportunity to comment.

Sincerely,

DARRYL J. OLIVEIRA
Fire Chief

DJO:lk

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

April 4, 2002

Mr. Brian T. Nishimura
Planning Consultant
101 Aupuni Street, Suite 217
Hilo, HI 96720

REQUEST FOR PRE-ENVIRONMENTAL ASSESSMENT CONSULTATION
APPLICANT – DEPARTMENT OF HAWAIIAN HOME LANDS
TAX MAP KEY: 2-2-047:001

We have reviewed the subject request for the proposed subdivision and have the following comments.

Water can be made available from existing 8-inch and 6-inch waterlines within Unit III, Phase 1, of the Panaewa Residence Lots in accordance with the Department's existing water availability conditions, which are subject to change.

Pursuant to the Department's "Water Commitment Guidelines Policy," a copy of which is enclosed, a water commitment may be issued. Based on the 40 additional lots in the proposed 41-lot subdivision development, the required water commitment deposit is $6,000.00.

Remittance of the $6,000.00 is requested, as soon as possible, so that a water commitment may be formally issued. The commitment will be in writing with specific conditions and effective dates stated. Please keep in mind that this letter shall not be construed as a water commitment. In other words, unless a water commitment is officially effected, water availability is subject to change depending on the water situation.

For your information, final subdivision approval will be subject to the following requirements:

1. Construct necessary water system improvements, which shall include, but not be limited to:

   a. water mains capable of delivering water at adequate pressure and volume under peak-flow and fire-flow conditions (minimum diameter of mains shall be 6 inches),

   b. service laterals that will accommodate 5/8-inch sized meters to each lot, and

   c. fire hydrants spaced not more than 600 feet apart.

Submit construction plans and design calculations prepared by a professional engineer, registered in the State of Hawaii, for review and approval.

2. Remit the prevailing facilities charge, which is subject to change, of $174,940.00. This is due and payable upon completion of the installation of the required water system improvements and prior to final subdivision approval being granted.

The appropriate documents shall be submitted, properly prepared and executed, to convey the water system improvements and necessary easements to the Water Board of the County of Hawaii prior to final subdivision approval being granted. A registered land surveyor shall stamp and certify the metes and bounds description within the conveyance documents. However, prior to water meter services being granted to the development or any lots within, the conveyance documents shall be accepted by the Water Board.

Should there be any questions, the applicant may contact our Water Resources and Planning Branch at 961-8070.

Sincerely yours,

Milton D. Pavao, P.E.
Manager

WA:jkh

Enc.

DEPARTMENT OF WATER SUPPLY
COUNTY OF HAWAII

WATER COMMITMENT GUIDELINES POLICY

1. Guidelines for Issuing Water Commitments

   a. All water commitments shall be based on the availability of water, at the time the application is made, from the water system which will service the proposed project.

   b. In determining the availability of water, the Department shall consider economic impact of the proposed development, population, projections, environmental constraints, past water usage, zoning, land use districting, water system constraints, outstanding water commitments, capital improvement program scheduling, undeveloped available water resources, regulatory requirements of ground water control areas, and any other significant factors.

   c. Where the estimated water requirements of a project exceed 120,000 gallons per day (GPD), the applicant may be required to enter into a special water assessment agreement with the Commission as specified in 1.d.

   d. Where the Department has determined that the water is not available but could be available with some improvement, the applicant may be required to enter into a special water assessment agreement with the Commission should the applicant want a water commitment. The agreement will include, among other things, provisions for the payment for the development of additional sources and system improvements, duration of the water commitment, and quantity of water allocated to the project.

      In the event several applicants require the same improvements, the Commission may collectively plan and contract for the improvement and assess each applicant by the amount of water required by each.

2. Application for Water Commitment

   Water commitments, in the case of subdivisions, rezoning requests, Land Use change requests, all other project development requests and meter requests, will be acted upon only after a formal application has been submitted to the proper reviewing agency, hereafter referred to as "reviewing agency," and a water commitment deposit is paid to the Department.

3. Water Commitment Deposit

   The water commitment deposit shall be $150.00 per lot or per 600 gallons per day committed.

4. Terms of the Water Commitment

   a) The initial water commitment shall be valid for three (3) years and shall automatically expire unless a request for an extension is submitted and approved. Extensions to water commitments will be no longer than one (1) year each extension.

   b) Should the Department certify the availability of water on an application made to the County Planning Department, County Planning Commission, or the State Land Use Commission and said application is denied by the agency, the water commitment automatically expires.

   c) Where the applicant has contributed to the cost of improving the system, terms of the water commitment will be made by the special water assessment agreement.

   d) A water commitment issued for one (1) specific parcel cannot be transferred to another parcel unless provided for by special agreement where the developer has contributed to the water system improvements.

   e) Where a parcel of land is issued a water commitment and that land changes ownership, the new owner will be subject to the terms of the commitments given to the previous owner.

5. Extension of Water Commitment

   Requests for extension of a water commitment shall be submitted to the Department in writing by the applicant prior to the commitment expiration date. The request for extension shall include a justification report indicating the project status and reasons for the delay.

   Notice of the Department's action shall be made in writing to the applicant. An approved extension shall be valid for a period of no more than one (1) year from the previous commitment expiration date. Extensions will be subject to an additional water commitment deposit payment as determined in Section 3. Extensions will be considered for applicants who have sincerely and in good faith proceeded with their project. No extensions will be given to applicants when little or no progress on their developments has been made.

6. Refund for Payment of Water Commitment Deposit

   Should the applicant's request be denied by the reviewing agency, 80% of the payment made for the water commitment deposit as specified in Section 3 will be refunded to the applicant. Should the applicant voluntarily withdraw or does not proceed with his development within a reasonable time and an extension of time for his commitment is denied, the deposit will be forfeited.

ADOPTED BY THE WATER COMMISSION
OF THE COUNTY OF HAWAII
JUNE 26, 1984

APPENDIX B - REPRODUCTION OF COMMENTS AND RESPONSES MADE DURING THE 30-DAY COMMENT PERIOD

1. State of Hawaii, Office of Environmental Quality Control, June 21, 2002.
   RESPONSE: Raynard C. Soon, July 1, 2002.

BENJAMIN J. CAYETANO
GOVERNOR

GENEVIEVE SALMONSON
DIRECTOR

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

June 21, 2002

Mr. Darrell Ing
State of Hawai'i - Department of Hawaiian Home Lands
P.O. Box 1879
Honolulu, Hawai'i 96805

Mr. Brian Nishimura, Planning Consultant
101 'Aupuni Street, No. 217
Hilo, Hawai'i 96720

Dear Messrs. Ing and Nishimura:

Having reviewed the draft environmental assessment (DEA) for the Pana'ewa Residence Lots, Unit 6, Tax Map Key 2-2-47, parcel 1, in South Hilo, the Office of Environmental Quality Control offers the following comments for your consideration and response in the final environmental assessment.

1. **CULTURAL IMPACTS**: Page 14, of the DEA states that "... there has been no indication that any traditional and customary Native Hawaiian Rights are being practiced on the property." We also examined Appendix B which inventoried plant species on the project site and note that Dr. Funk noted the on-site presence of the following species with Hawaiian ethnobotanical associations: laua'e (*Polypodium scolopendrium*); 'uhaloa (*Waltheria indica*); 'ohi'a (*Metrosideros polymorpha*); ki (*Cordyline fruticosa*); niu (*Cocos nucifera*); and pala'a (*Sphenomeris chusana*). Please provide details as to how this conclusion was reached, and any documentation through correspondence or interviews with cultural practicioners or native Hawaiians.

2. **CUMULATIVE EFFECTS OF NON-SEWERED LOTS ON GROUND WATER AND NEAR SHORE WATER QUALITY**: Please discuss the secondary and cumulative impacts of not connecting the project to the municipal sewer system for Hilo. We believe that given time, the individual wastewater disposal systems present on each lot will have a cumulative effect on the ground water quality of the Hilo aquifer through an increase in the nutrient load; given hydrogeological considerations, one expects that there may a a concomitant impact on nearshore water quality of Hilo. Please consult with a hydrogeologist and the Department of Health's wastewater branch on potential secondary and cumulative impacts to ground water and nearshore water quality.

3. **GUIDELINES FOR SUSTAINABLE BUILDING DESIGN IN HAWAI'I**: We ask that you consider implementing some of the techniques discussed in the enclosed guidelines for sustainable building design.

4. **USE OF RECYCLED GLASS**: To promote the use of recycled materials in-state as found in section 103D-407, Hawai'i Revised Statutes, we ask that you consider using materials with minimum recycled glass content in the design.

5. **INDIGENOUS AND POLYNESIAN INTRODUCED PLANTS FOR USE IN PUBLIC LANDSCAPING**: We ask that you consider the use of native, indigenous and polynesian introduced plants in your landscaping.

CORRECTION

THE PRECEDING DOCUMENT(S) HAS BEEN REPHOTOGRAPHED TO ASSURE LEGIBILITY
SEE FRAME(S)
IMMEDIATELY FOLLOWING

BENJAMIN J. CAYETANO
GOVERNOR

GENEVIEVE SALMONSON
DIRECTOR

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

June 21, 2002

Mr. Darrell Ing
State of Hawai'i - Department of Hawaiian Home Lands
P.O. Box 1879
Honolulu, Hawai'i 96805

Mr. Brian Nishimura, Planning Consultant
101 'Aupuni Street, No. 217
Hilo, Hawai'i 96720

Dear Messrs. Ing and Nishimura:

Having reviewed the draft environmental assessment (DEA) for the Pana'ewa Residence Lots, Unit 6, Tax Map Key 2-2-47, parcel 1, in South Hilo, the Office of Environmental Quality Control offers the following comments for your consideration and response in the final environmental assessment.

1. **CULTURAL IMPACTS**: Page 14, of the DEA states that "... there has been no indication that any traditional and customary Native Hawaiian Rights are being practiced on the property." We also examined Appendix B which inventoried plant species on the project site and note that Dr. Funk noted the on-site presence of the following species with Hawaiian ethnobotanical associations: laua'e (*Polypodium scolopendrium*); 'uhaloa (*Waltheria indica*); 'ohi'a (*Metrosideros polymorpha*); ki (*Cordyline fruticosa*); niu (*Cocos nucifera*); and pala'a (*Sphenomeris chusana*). Please provide details as to how this conclusion was reached, and any documentation through correspondence or interviews with cultural practicioners or native Hawaiians.

2. **CUMULATIVE EFFECTS OF NON-SEWERED LOTS ON GROUND WATER AND NEAR SHORE WATER QUALITY**: Please discuss the secondary and cumulative impacts of not connecting the project to the municipal sewer system for Hilo. We believe that given time, the individual wastewater disposal systems present on each lot will have a cumulative effect on the ground water quality of the Hilo aquifer through an increase in the nutrient load; given hydrogeological considerations, one expects that there may a a concomitant impact on nearshore water quality of Hilo. Please consult with a hydrogeologist and the Department of Health's wastewater branch on potential secondary and cumulative impacts to ground water and nearshore water quality.

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4. **USE OF RECYCLED GLASS**: To promote the use of recycled materials in-state as found in section 103D-407, Hawai'i Revised Statutes, we ask that you consider using materials with minimum recycled glass content in the design.

5. **INDIGENOUS AND POLYNESIAN INTRODUCED PLANTS FOR USE IN PUBLIC LANDSCAPING**: We ask that you consider the use of native, indigenous and polynesian introduced plants in your landscaping.

If you have any questions concerning this letter, please call Leslie Segundo, Environmental Health Specialist, at (808) 586-4185; alternatively, you may send electronic mail to him at lsegund@mail.health.state.hi.us. Thank you for the opportunity to comment.

Sincerely,

GENEVIEVE SALMONSON
Director

Enclosures

State of Hawaii
OFFICE OF ENVIRONMENTAL QUALITY CONTROL
Guidelines for Assessing Cultural Impacts

Adopted by the Environmental Council, State of Hawaii
November 19, 1997

I. INTRODUCTION

It is the policy of the State of Hawaii under Chapter 343, HRS, to alert decision makers, through the environmental assessment process, about significant environmental effects which may result from the implementation of certain actions. An environmental assessment of cultural impacts gathers information about cultural practices and cultural features that may be affected by actions subject to Chapter 343, and promotes responsible decision making.

Articles IX and XII of the State Constitution, other state laws, and the courts of the state require government agencies to promote and preserve cultural beliefs, practices, and resources of native Hawaiians and other ethnic groups. Chapter 343 also requires environmental assessment of cultural resources, in determining the significance of a proposed project.

The Environmental Council encourages preparers of environmental assessments and environmental impact statements to analyze the impact of a proposed action on cultural practices and features associated with the project area. The Council provides the following methodology and content protocol as guidance for any assessment of a project that may significantly affect cultural resources.

II. CULTURAL IMPACT ASSESSMENT METHODOLOGY

Cultural impacts differ from other types of impacts assessed in environmental assessments or environmental impact statements. A cultural impact assessment includes information relating to the practices and beliefs of a particular cultural or ethnic group or groups.

Such information may be obtained through scoping, community meetings, ethnographic interviews and oral histories. Information provided by knowledgeable informants, including traditional cultural practitioners, can be applied to the analysis of cultural impacts in conjunction with information concerning cultural practices and features obtained through consultation and from documentary research.

In scoping the cultural portion of an environmental assessment, the geographical extent of the inquiry should, in most instances, be greater than the area over which the proposed action will take place. This is to ensure that cultural practices which may not occur within the boundaries of the project area, but which may nonetheless be affected, are included in the assessment. Thus, for example, a proposed action that may not physically alter gathering practices, but may affect access

to gathering areas would be included in the assessment. An ahupua'a is usually the appropriate geographical unit to begin an assessment of cultural impacts of a proposed action, particularly if it includes all of the types of cultural practices associated with the project area. In some cases, cultural practices are likely to extend beyond the ahupua'a and the geographical extent of the study area should take into account those cultural practices.

The historical period studied in a cultural impact assessment should commence with the initial presence in the area of the particular group whose cultural practices and features are being assessed. The types of cultural practices and beliefs subject to assessment may include subsistence, commercial, residential, agricultural, access-related, recreational, and religious and spiritual customs.

The types of cultural resources subject to assessment may include traditional cultural properties or other types of historic sites, both man made and natural, including submerged cultural resources, which support such cultural practices and beliefs.

If the subject area is in a developed urban setting, cultural impacts must still be assessed. Many incorrectly assume that the presence of urban infrastructure effectively precludes consideration of current cultural factors. For example, persons are known to gather kauna''oa, ''ilima, ''uhaloa, noni or ki on the grassy slopes and ramps of the H-1 freeway and some state highways on the neighbor islands. Certain landmarks and physical features are used by Hawaiian navigators for sailing, and the lines of sight from landmarks to the coast by fisherman to locate certain fishing spots. Blocking these features by the construction of buildings or tanks may constitute an adverse cultural impact.

The Environmental Council recommends that preparers of assessments analyzing cultural impacts adopt the following protocol:

(1) identify and consult with individuals and organizations with expertise concerning the types of cultural resources, practices and beliefs found within the broad geographical area, e.g., district or ahupua`a;

(2) identify and consult with individuals and organizations with knowledge of the area potentially affected by the proposed action;

(3) receive information from or conduct ethnographic interviews and oral histories with persons having knowledge of the potentially affected area;

(4) conduct ethnographic, historical, anthropological, sociological, and other culturally related documentary research;

(5) identify and describe the cultural resources, practices and beliefs located within the potentially affected area; and

(6) assess the impact of the proposed action, alternatives to the proposed action, and mitigation measures, on the cultural resources, practices and beliefs identified.

Interviews and oral histories with knowledgeable individuals may be recorded, if consent is given, and field visits by preparers accompanied by informants are encouraged. Persons interviewed

should be afforded an opportunity to review the record of the interview, and consent to publish the record should be obtained whenever possible. For example, the precise location of human burials are likely to be withheld from a cultural impact assessment, but it is important that the document identify the impact a project would have on the burials. At times an informant may provide information only on the condition that it remain in confidence. The wishes of the informant should be respected.

Primary source materials reviewed and analyzed may include, as appropriate: Mahele, land court, census and tax records, including testimonies; vital statistics records; family histories and genealogies; previously published or recorded ethnographic interviews and oral histories; community studies, old maps and photographs; and other archival documents, including correspondence, newspaper or almanac articles, and visitor journals. Secondary source materials such as historical, sociological, and anthropological texts, manuscripts, and similar materials, published and unpublished, should also be consulted. Other materials which should be examined include prior land use proposals, decisions, and rulings which pertain to the study area.

III. CULTURAL IMPACT ASSESSMENT CONTENTS

In addition to the content requirements for environmental assessments and environmental impact statements, which are set out in HAR §§§§ 11-200-10 and 16 through 18, the portion of the assessment concerning cultural impacts should address, but not necessarily be limited to, the following matters:

1. A discussion of the methods applied and results of consultation with individuals and organizations identified by the preparer as being familiar with cultural practices and features associated with the project area, including any constraints or limitations which might have affected the quality of the information obtained.

2. A description of methods adopted by the preparer to identify, locate, and select the persons interviewed, including a discussion of the level of effort undertaken.

3. Ethnographic and oral history interview procedures, including the circumstances under which the interviews were conducted, and any constraints or limitations which might have affected the quality of the information obtained.

4. Biographical information concerning the individuals and organizations consulted, their particular expertise, and their historical and genealogical relationship to the project area, as well as information concerning the persons submitting information or interviewed, their particular knowledge and cultural expertise, if any, and their historical and genealogical relationship to the project area.

5. A discussion concerning historical and cultural source materials consulted, the institutions and repositories searched, and the level of effort undertaken. This discussion should include, if appropriate, the particular perspective of the authors, any opposing views, and any other relevant constraints, limitations or biases.

6. A discussion concerning the cultural resources, practices and beliefs identified, and, for resources and practices, their location within the broad geographical area in which the

proposed action is located, as well as their direct or indirect significance or connection to the project site.

7. A discussion concerning the nature of the cultural practices and beliefs, and the significance of the cultural resources within the project area, affected directly or indirectly by the proposed project.

8. An explanation of confidential information that has been withheld from public disclosure in the assessment.

9. A discussion concerning any conflicting information in regard to identified cultural resources, practices and beliefs.

10. An analysis of the potential effect of any proposed physical alteration on cultural resources, practices or beliefs; the potential of the proposed action to isolate cultural resources, practices or beliefs from their setting; and the potential of the proposed action to introduce elements which may alter the setting in which cultural practices take place.

11. A bibliography of references, and attached records of interviews which were allowed to be disclosed.

The inclusion of this information will help make environmental assessments and environmental impact statements complete and meet the requirements of Chapter 343, HRS. If you have any questions, please call 586-4185.

Guidelines for Sustainable Building Design in Hawai`i

A planner's checklist

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

Introduction

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

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

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

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

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

VII. Use resource-efficient building materials (e.g. materials with recycled content and low embodied energy, and materials that are recyclable, renewable, environmentally benign, non-toxic, low VOC (Volatile Organic Compound) emitting, durable, and that give high life cycle value for the cost.)

VIII. Provide the highest quality product practical at competitive (affordable) first and life cycle costs.

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

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

TABLE OF CONTENTS

I. Pre Design

___1. Hold programming team meeting with client representative, Project Manager, planning consultant, architectural consultant, civil engineer, mechanical, electrical, plumbing (MEP) engineer, structural engineer, landscape architect, interior designer, sustainability consultant and other consultants as required by the project. Identify project and sustainability goals. Client representatives and consultants need to work together to ensure that project and environmental goals are met.

___2. Develop sustainable guideline goals to insert into outline specifications as part of the Schematic Design documents. Select goals from the following sections that are appropriate for the project.

___3. Use Cost-Benefit Method for economic analysis of the sustainability measures chosen. (Cost-Benefit Method is a method of evaluating project choices and investments by comparing the present and life cycle value of expected benefits to the present and life cycle value of expected costs.)

___4. *Include "Commissioning" in the project budget and schedule.* (Building "Commissioning" is the process of ensuring that systems are designed, installed, functionally tested, and capable of being operated and maintained in accordance with specifications that meet the owner's needs, and recognize the owner's financial and operational capacity. It improves the performance of the building systems, resulting in energy efficiency and conservation, improved air quality and lower operation costs. *Refer to Section IX.*)

II. Site Selection & Site Design

A. Site Selection

___1. Analyze and assess site characteristics such as vegetation, topography, geology, climate, natural access, solar orientation patterns, water and drainage, and existing utility and transportation infrastructure to determine the appropriate use of the site.

___2. Whenever possible, select a site in a neighborhood where the project can have a positive social, economic and/or environmental impact.

___3. Select a site with short connections to existing municipal infrastructure (sewer lines, water, waste water treatment plant, roads, gas, electricity, telephone, data communication lines and services). Select a site close to mass transportation, bicycle routes and pedestrian access.

B. Site Preparation and Design

___1. Prepare a thorough existing conditions topographic site plan depicting topography, natural and built features, vegetation, location of site utilities and include solar information,

rainfall data and direction of prevailing winds. Preserve existing resources and natural features to enhance the design and add aesthetic, economic and practical value. Design to minimize the environmental impact of the development on vegetation and topography.

___2. Site building(s) to take advantage of natural features and maximize their beneficial effects. Provide for solar access, daylighting and natural cooling. Design ways to integrate the building(s) with the site that maximizes and preserves positive site characteristics, enhances human comfort, safety and health, and achieves operational efficiencies.

___3. Locate building(s) to encourage bicycle and pedestrian access and pedestrian oriented uses. Provide bicycle and pedestrian paths, bicycle racks, etc. Racks should be visible and accessible to promote and encourage bicycle commuting.

___4. Retain existing topsoil and maintain soil health by clearing only the areas reserved for the construction of streets, driveways, parking areas, and building foundations. Replant exposed soil areas as soon as possible. Reuse excavated soils for fill and cut vegetation for mulch.

___5. Grade slopes to a ratio of less than 2 : 1 (run to rise). Balance cut and fill to eliminate hauling. Check grading frequently to prevent accidental over excavation.

___6. Minimize the disruption of site drainage patterns. Provide erosion and dust controls, positive site drainage, and siltation basins as required to protect the site during and after construction, especially, in the event of a major storm.

___7. Minimize the area required for the building footprint. Consolidate utility and infrastructure in common corridors to minimize site degradation, and cost, improve efficiency, and reduce impermeable surfaces.

___8. For termite protection, use non toxic alternatives to pesticides and herbicides, such as Borate treated lumber, Basaltic Termite Barrier, stainless steel termite barrier mesh, and termite resistant materials.

III. Building Design

___1. Consider adaptive re-use of existing structures instead of demolishing and/or constructing a new building. Consult the State Historic Preservation Officer for possible existing historic sites that may meet the project needs.

___2. Plan for high flexibility while designing building shell and interior spaces to accommodate changing needs of the occupants, and thereby extend the life span of the building.

___3. Design for re-use and/or disassembly. (For recyclable and reusable building products, see Section VII).

___4. Design space for recycling and waste diversion opportunities during occupancy.

___5. Provide facilities for bicycle and pedestrian commuters (showers, lockers, bike racks, etc.) in commercial areas and other suitable locations.

___6. Plan for a comfortable and healthy work environment. Include inviting outdoor spaces, wherever possible. *(Refer to Section VIII.)*

___7. Provide an Integrated Pest Management approach. The use of products such as Termi-mesh, Basaltic Termite Barrier and the Sentricon "bait" system can provide long term protection from termite damage and reduce environmental pollution.

___8. Design a building that is energy efficient and resource efficient. *(See Sections IV, V, VII.)* Determine building operation by-products such as heat gain and build up, waste/gray-water and energy consumption, and plan to minimize them or find alternate uses for them.

___9. For natural cooling, use
   a. Reflective or light colored roofing, radiant barrier and/or insulation, roof vents
   b. Light colored paving (concrete) and building surfaces
   c. Tree Planting to shade buildings and paved areas
   d. Building orientation and design that captures trade winds and/or provides for convective cooling of interior spaces when there is no wind.

IV. Energy Use

___1. Obtain a copy of the State of Hawai'i Model Energy Code (available through the Hawai'i State Energy Division, at Tel. 587-3811). Exceed its requirements. (Contact local utility companies for information on tax credits and utility-sponsored programs offering rebates and incentives to businesses for installing qualifying energy efficient technologies.)

___2. Use site sensitive orientation to :
   a. Minimize cooling loads through site shading and carefully planned east-west orientation.
   b. Incorporate natural ventilation by channeling trade winds.
   c. Maximize daylighting.

___3. Design south, east and west shading devices to minimize solar heat gain.

___4. Use spectrally selective tints or spectrally selective low-e glazing with a Solar Heat Gain Coefficient (SHGC) of 0.4 or less.

___5. Minimize effects of thermal bridging in walls, roofs and window systems.

___6. Maximize efficiencies for lighting, Heating, Ventilation, Air Conditioning (HVAC) systems and other equipment. Use insulation and/or radiant barriers, natural ventilation, ceiling fans and shading to avoid the use of air conditioning whenever appropriate.

___7. Eliminate hot water in restrooms when possible.

___8. Provide tenant sub-metering to encourage utility use accountability.

___9. Use renewable energy. Use solar water heaters and consider the use of photovoltaics and Building Integrated Photovoltaics (BIPV).

__10. Use available energy resources such as waste heat recovery, when feasible.

A. Lighting

___1. Design for at least 15% lower interior lighting power allowance than the Energy Code.
___2. Select lamps and ballasts with the highest efficiency, compatible with the desired level of illumination and color rendering specifications. Examples that combine improved color rendering with efficient energy use include compact flourescents and T8 flourescents that use tri-phosphor gases.
___3. Select lighting fixtures which maximize system efficacy and which have heat removal capabilities
___4. Reduce light absorption on surfaces by selecting colors and finishes that provide high reflectance values without glare.
___5. Use task lighting with low ambient light levels.
___6. Maximize daylighting through the use of vertical fenestration, light shelves, skylights, clerestories, building form and orientation as well as through translucent or transparent interior partitions. Coordinate daylighting with electrical lighting for maximum electrical efficiency.
___7. Incorporate daylighting controls and/or motion activated light controls in low or intermittent use areas.
___8. Avoid light spillage in exterior lighting by using directional fixtures.
___9. Minimize light overlap in exterior lighting schemes.
__10. Use lumen maintenance procedures and controls.

B. Mechanical Systems

___1. Design to comply with the Energy Code and to exceed its efficiency requirements.
___2. Use "Smart Building" monitor/control systems when appropriate.
___3. Utilize thermal storage for reduction of peak energy usage.
___4. Use Variable air volume systems to save fan power.
___5. Use variable speed drives on pumping systems and fans for cooling towers and air handlers.
___6. Use air-cooled refrigeration equipment or use cooling towers designed to reduce drift.
___7. Specify premium efficiency motors.
___8. Reduce the need for mechanical ventilation by reducing sources of indoor air pollution. Use high efficiency air filters and ultraviolet lamps in air handling units. Provide for regular maintenance of filtration systems. Use ASHRAE standards as minimum.
___9. Locate fresh air intakes away from polluted or overheated areas. Locate on roof where possible. Separate air intake from air exhausts by at least 40 ft.
__10. Use separate HVAC systems to serve areas that operate on widely differing schedules and/or design conditions.
__11. Use shut off or set back controls on HVAC system when areas are not occupied.
__12. Use condenser heat, waste heat or solar energy. (Contact local utility companies for information on the utility-sponsored Commercial and Industrial Energy Efficiency

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

__13. Evaluate plug-in loads for energy efficiency and power saving features.

__14. Improve comfort and save energy by reducing the relative humidity by waste reheat, heat pipes or solar heat.

__15. Minimize heat gain from equipment and appliances by using:
   a. Environmental Protection Agency (EPA) Energy Star rated appliances.
   b. Hoods and exhaust fans to remove heat from concentrated sources.
   c. High performance water heating that exceeds the Energy Code requirements.

__16. Specify HVAC system "commissioning" period to reduce occupant exposure to Indoor Air Quality (IAQ) contaminants and to maximize system efficiency.

V. Water Use

A. Building Water

___1. Install water conserving, low flow fixtures as required by the Uniform Plumbing Code.

___2. If practical, eliminate hot water in restrooms.

___3. Use self closing faucets (infrared sensors or spring loaded faucets) for lavatories and sinks.

B. Landscaping and Irrigation

(See Section VI.)

VI. Landscape and Irrigation

___1. Incorporate water efficient landscaping (xeriscaping) using the following principles:
   a. Planning, Efficient irrigation: Create watering zones for different conditions. Separate vegetation types by watering requirements. Install moisture sensors to prevent operation of the irrigation system in the rain or if the soil has adequate moisture. Use appropriate sprinkler heads.
   b. Soil analysis/improvement: Use (locally made) soil amendments and compost for plant nourishment, improved water absorption and holding capacity.
   c. Appropriate plant selection: Use drought tolerant and/or slow growing hardy grasses, native and indigenous plants, shrubs, ground covers, trees, appropriate for local conditions, to minimize the need for irrigation.
   d. Practical turf areas: Turf only in areas where it provides functional benefits.

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

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

___2. Protect existing beneficial site features and save trees to prevent erosion. Establish and carefully mark tree protection areas well before construction.

___3. Limit staging areas and prevent unnecessary grading of the site to protect existing, especially native, vegetation.

___4. Use top soil from the graded areas, stockpiled on the site and protected with a silt fence to reduce the need for imported top soil.

___5. Irrigate with non-potable water or reclaimed water when feasible. Collect rainwater from the roof for irrigation.

___6. Sub-meter the irrigation system to reduce water consumption and consequently water and sewer fees. Contact the local county agency to obtain irrigation sub-metering requirements and procedures. Locate irrigation controls within sight of the irrigated areas to verify that the system is operating properly.

___7. Use pervious paving instead of concrete or asphalt paving. Use natural and man-made berms, hills and swales to control water runoff.

___8. Avoid the use of solvents that contain or leach out pollutants that can contaminate the water resources and runoff. Contact the State of Hawai'i Clean Water Branch at 586-4309 to determine whether a NPDES (National Pollutant Discharge Elimination System) permit is required.

___9. Use Integrated Pest Management (IPM) techniques. IPM involves a carefully managed use of biological and chemical pest control tactics. It emphasizes minimizing the use of pesticides and maximizing the use of natural process

__10. Use trees and bushes that are felled at the building site (i.e. mulch, fence posts). Leave grass trimmings on the lawn to reduce green waste and enhance the natural health of lawns.

__11. Use recycled content, decay and weather resistant landscape materials such as plastic lumber for planters, benches and decks.

VII. Building Materials & Solid Waste Management

A. Material Selection and Design

___1. Use durable products.

___2. Specify and use natural products or products with low embodied energy and/or high recycled content. Products with recycled content include steel, concrete with glass,

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

___3. Specify low toxic or non-toxic materials whenever possible, such as low VOC (Volatile Organic Compounds) paints, sealers and adhesives and low or formaldehyde-free materials. Do not use products with CFCs (Chloro-fluoro-carbons).

___4. Use locally produced products such as plastic lumber, insulation, hydro-mulch, glass tiles, compost.

___5. Use advanced framing systems that reduce waste, two stud corners, engineered structural products and prefabricated panel systems.

___6. Use materials which require limited or no application of finishing or surface preparation. (i.e. finished concrete floor surface, glass block and glazing materials, concrete block masonry, etc.).

___7. Use re-milled salvaged lumber where appropriate and as available. Avoid the use of old growth timber.

___8. Use sustainably harvested timber.

___9. Commit to a material selection program that emphasizes efficient and environmentally sensitive use of building materials, and that uses locally available building materials. (A list of Earth friendly products and materials is available through the Green House Hawai`i Project. Call Clean Hawai`i Center, Tel. 587-3802 for the list.)

B. Solid Waste Management, Recycling and Diversion Plan

___1. Prepare a job-site recycling plan and post it at the job-site office.

___2. Conduct pre-construction waste minimization and recycling training for employees and sub-contractors.

___3. Use a central area for all cutting.

___4. Establish a dedicated waste separation/diversion area. Include Waste/Compost/Recycling collection areas and systems for use during construction process and during the operational life cycle of the building.

___5. Separate and divert all unused or waste cardboard, ferrous scrap, construction materials and fixtures for recycling and/or forwarding to a salvage exchange facility. Information on "Minimizing C&D (construction and demolition) waste in Hawai`i" is available through Department of Health, Office of Solid Waste Management, Tel. 586-4240.

___6. Use all green waste, untreated wood and clean drywall on site as soil amendments or divert to offsite recycling facilities.

___7. Use concrete and asphalt rubble on-site or forward the material for offsite recycling.

___8. Carefully manage and control waste solvents, paints, sealants, and their used containers. Separate these materials from C&D (construction and demolition) waste and store and dispose them of them carefully.

___9. Donate unused paint, solvents, sealants to non-profit organizations or list on HIMEX (Hawai`i Materials Exchange). HIMEX is a free service operated by Maui Recycling

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

__10. Use suppliers that re-use or recycle packaging material whenever possible.

VIII. Indoor Air Quality

___1. Design an HVAC system with adequate supply of outdoor air, good ventilation rates, even air distribution, sufficient exhaust ventilation and appropriate air cleaners.

___2. Develop and specify Indoor Air Quality (IAQ) requirements during design and contract document phases of the project. Monitor compliance in order to minimize or contain IAQ contaminant sources during construction, renovation and remodeling.

___3. Notify occupants of any type of construction, renovation and remodeling and the effects on IAQ.

___4. Inspect existing buildings to determine if asbestos and lead paint are present and arrange for removal or abatement as needed.

___5. Supply workers with, and ensure the use of VOC (Volatile Organic Compounds)-safe masks where required.

___6. Ensure that HVAC systems are installed, operated and maintained in a manner consistent with their design. Use UV lamps in Air Handling Units to eliminate mold and mildew growth. An improperly functioning HVAC system can harbor biological contaminants such as viruses, bacteria, molds, fungi and pollen, and can cause Sick Building Syndrome (SBS).

___7. Install separate exhaust fans in rooms where air polluting office equipment is used, and exhaust directly to the exterior of the building, at sufficient distance from the air intake vents.

___8. Place bird guards over air intakes to prevent pollution of shafts and HVAC ducts.

___9. Control indoor air pollution by selecting products and finishes that are low or non-toxic and low VOC emitting. Common sources of indoor chemical contaminants are adhesives, carpeting, upholstery, manufactured wood products, copy machines, pesticides and cleaning agents.

__10. Schedule finish application work to minimize absorption of VOCs into surrounding materials e.g. allow sufficient time for paint and clear finishes to dry before installing carpet and upholstered furniture. Increase ventilation rates during periods of increased pollution.

__11. Allow a flush-out period after construction, renovation, remodeling or pesticide application to minimize occupant exposure to chemicals and contaminants.

IX. Commissioning & Construction Project Closeout

___1. Appoint a Commissioning Authority to develop and implement a commissioning plan and a preventative maintenance plan. Project Manager's responsibilities must include coordination of commissioning activities during project closeout.
___2. Commissioning team should successfully demonstrate all systems and perform operator training before final acceptance.
___3. Provide flush-out period to remove air borne contaminants from the building and systems.
___4. Provide as-built drawings and documentation for all systems. Provide data on equipment maintenance and their control strategies as well as maintenance and cleaning instructions for finish materials.

X. Occupancy and Operation

A. General Objectives

___1. Develop a User's Manual for building occupants that emphasizes the need for Owner/Management commitment to efficient sustainable operations.
___2. Management's responsibilities must include ensuring that sustainability policies are carried out.

B. Energy

___1. Purchase EPA rated, Energy Star, energy-efficient office equipment, appliances, computers, and copiers. (Energy Star is a program sponsored by U.S. Dep. Of Energy. Use of these products will contribute to reduced energy costs for buildings and reduce air pollution.)
___2. Institute an employee education program about the efficient use of building systems and appliances, occupants impact on and responsibility for water use, energy use, waste generation, waste recycling programs, etc.
___3. Re-commission systems and update performance documentation periodically per recommendations of the Commissioning Authority, or whenever modifications are made to the systems.

C. Water

___1. Start the watering cycle in the early morning in order to minimize evaporation.
___2. Manage the chemical treatment of cooling tower water to reduce water consumption.

D. Air

___1. Provide incentives which encourage building occupants to use alternatives to and to reduce the use of single occupancy vehicles.

___2. Provide a location map of services within walking distance of the place of employment (child care, restaurants, gyms, shopping).
___3. Periodically monitor or check for indoor pollutants in building.
___4. Provide an IAQ plan for tenants, staff and management that establishes policies and documentation procedures for controlling and reporting indoor air pollution. This helps tenants and staff understand their responsibility to protect the air quality of the facility.

E. Materials and Products

___1. Purchase business products with recycled content such as paper, toners, etc.
___2. Purchase Furniture made with sustainably harvested wood, or with recycled and recycled content materials, which will not off gas VOC's.
___3. Remodeling and painting should comply with or improve on original sustainable design intent.
___4. Use low VOC, non-toxic, phosphate and chlorine free, biodegradable cleaning products.

F. Solid Waste

___1. Collect recyclable business waste such as paper, cardboard boxes, and soda cans.
___2. Avoid single use items such as paper or Styrofoam cups and plates, and plastic utensils.

XI. Resources

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

Acknowledgments

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

Environmental Problems on O'ahu - Who you gonna call?

Abandoned barrels, containers of unknown materials (if emergency, CALL 911)	DOH-EHA-HEER at (808) 586-4249
Abandoned automobiles	HON at (808) 532-7700
Air complaints (visible emissions from stationary sources, dust, incinerators, boilers, agricultural burning, etc.)	DOH-EMD-CAB at (808) 586-4200
Air conditioning and ventilation permits	DOH-EHSD-SAN at (808) 586-8000
Air toxics emissions	DOH-EMD-CAB at (808) 586-4200
Asbestos removal and abatement (AHERA/NESHAPS)	DOH-EMD-CAB at (808) 586-4200
Alien species (such as snakes or alligators)	DOA at (808) 586-PEST
Boating violations and other ocean problems	(808) 587-1963
Burial remains	CALL 911 and DLNR-SHPD at (808) 587-0010
Burning used oil (permit applications)	DOH-EMD-CAB at (808) 586-4200
Cesspools (failures, overflows and odours)	DOH-EHSD-SAN at (808) 586-8000
Cesspool pumping	HON at (808) 523-4421
Cosmetic adulteration and misbranding	DOH-EHSD-FDB at (808) 586-4275
Dead animal pickup (huge for disposal/cremation)	HON-DES at (808) 523-4685
Demolition permits	DOH-EHSD-VEC at (808) 831-6767
Disease outbreak	DOH-EPI at (808) 586-4586
Drinking water/groundwater monitoring	DOH-EMD-SDWB at (808) 586-4258
Emergency response (Title III Superfund, hazardous material release)	CALL 911
Environmental advocates	
Life of the Land	(808) 533-3454
EarthJustice Legal Defense Fund	(808) 599-2436
Sierra Club	(808) 538-6616
Hawai'i Audubon Society	(808) 528-1432
Native Hawaiian Legal Corporation	(808) 521-2302
Environmental impact statements and rules	DOH-DO-OEQC at (808) 586-4185
Environmental concern hotline	HON at (808) 527-5091
Food adulteration and misbranding	DOH-EHSD-FDB at (808) 586-4725
Food contamination, illness from food	DOH-EHSD-FDB at (808) 586-4725
Food handling/Food establishment/permit/license/enforcement	DOH-EHSD-SAN at (808) 586-8000
Graffitti hotline	HON at (808) 296-9473
Groundwater contamination	DOH-EHA-EPO at (808) 586-4337
Hazard evaluation, risk assessment	DOH-EHA-HEER at (808) 586-4249
Hazardous waste generation, transportation or disposal	DOH-EMD-SHWB at (808) 586-4226

Hazardous materials training (personnel protection and safety) ..... DOH-EHA-HEER at (808) 586-4249
Honeybees and wasps ..... DOH-EHSD-VEC at (808) 831-6767
Land Use Advocates
Land Use Research Foundation ..... (808) 521-4717
Lead acid battery disposal ..... DOH-EMD-SHWB at (808) 586-4227
Lead poisoning/indoor air health ..... DOH-EHSD-VEC at (808) 586-4249
Leptospirosis (in streams and other standing water bodies) ..... DOH-EPI at (808) 586-4586
Marine animal injuries (whales, turtles, dolphins, seals) ..... 1-(800) 853-1964
Medical devices misbranding ..... DOH-EHSD-FDB at (808) 586-4725
Miconia sightings ..... (808) 973-9538
National Pollutant Discharge Elimination System (NPDES) permits ..... DOH-EMD-CWB at (808) 586-4309
Noise ..... CALL 911 and DOH-EHSD-NR at (808) 586-4700
Non-point source pollution ..... DOH-EHA-EPO at (808) 586-4337
Non-prescription drug misbranding ..... DOH-EHSD-FDB at (808) 586-4725
Radiation (all issues involving X-rays, nuclear materials, waste, and radiological health in general) ..... DOH-EHSD-NR at (808) 586-4700
Rats and other vermin (fleas, flies, bugs, mosquitoes) ..... DOH-EHSD-VEC at (808) 831-6767
Recycling information (city) ..... HON at (808) 527-5335
Sanitation practices for occupations (tattoo, barbers, electrologists, embalmers, cemeteries) and housing ..... DOH-EHSD-SAN at (808) 586-8000
Seabird injuries ..... (808) 587-0077
Sewage spills ..... DOH-EMD-CWB at (808) 586-4309
Sewage treatment plants (private) ..... DOH-EMD-WWB at (808) 586-4294
Sewer problems (city) ..... HON-DES at (808) 523-4423
Sludge (sewage) ..... DOH-EMD-WWB at (808) 586-4294
Stream alteration ..... DLNR-DWRM at (808) 587-0214
Streams, ditches and drains (cleaning and maintenance) ..... HON at (808) 523-4472
Underground storage tanks (notification, registration, installation, removal and closure) ..... DOH-EMD-SHWB at (808) 586-4225
Used oil ..... DOH-EMD-SHWB at (808) 586-4227
Waste oil ..... DOH-EMD-SHWB at (808) 586-4227
Wastewater Systems (individual non-cesspool) ..... DOH-EMD-WWB at (808) 586-4294
Water pollution ..... DOH-EMD-CWB at (808) 586-4309
Water quality certification (under Section 401, Clean Water Act) ..... DOH-EMD-CWB at (808) 586-4309
Zoning, Land Use Information ..... HON-DPP at (808) 523-4131

BENJAMIN J. CAYETANO
GOVERNOR
STATE OF HAWAII

RAYNARD C. SOON
CHAIRMAN
HAWAIIAN HOMES COMMISSION

JOBIE M. K. M. YAMAGUCHI
DEPUTY TO THE CHAIRMAN

STATE OF HAWAII
DEPARTMENT OF HAWAIIAN HOME LANDS
P.O. BOX 1879
HONOLULU, HAWAII 96805

July 1, 2002

To: Genevieve Salmonson, Director
Office of Environmental Quality Control

From: Raynard C. Soon, Chairman
Hawaiian Homes Commission

Subject: Draft Environmental Assessment
Panaewa Residence Lots, Unit 6
South Hilo, Hawaii (TMK: 2-2-47: 001)

This is in response to your letter dated June 21, 2002, providing comments on the subject Draft Environmental Assessment. Responses to your comments are provided as follows:

1. **CULTURAL IMPACTS:** Page 14, of the DEA states that "…there has been no indication that any traditional and customary Native Hawaiian Rights are being practiced on the property." We also examined Appendix B which inventoried plant species on the project site and note that Dr. Funk noted the on-site presence of the following species with Hawaiian ethnobotanical associations: laua'e (*Polypdium scolopendrium*); 'uhaloa (*Waltheria indica*); ki (*Cordyline fruticosa*); niu (*Cocos nucifera*); and pala'a (*Sphenomeris chusana*). Please provide details as to how this conclusion was reached, and any documentation through correspondence or interviews with cultural practicioners or native Hawaiians.

   Response: The referenced conclusion was reached after discussing the field observations and findings of the botanical and archaeological consultants. In addition, this matter was further confirmed during the community meeting which was held on May 22, 2002 at the Panaewa Community Center. A list of the community members attending this meeting is enclosed.

2. **CUMULATIVE EFFECTS OF NON-SEWERED LOTS ON GROUND WATER AND NEARSHORE WATER QUALTIY:** Please discuss the secondary and cumulative impacts of not connecting the project to the municipal sewer system for Hilo. We believe that given time, the individual wastewater disposal systems present on each lot will have a cumulative effect on the ground water quality of the Hilo aquifer through an increase in the nutrient load; given hydrogeological considerations, one expects that there may a a (sic) concomitant impact on nearshore water quality of Hilo.. Please consult with a hydrogeologist and the Department of Health's wastewater branch on potential secondary and cumulative impacts to ground water and nearshore water quality.

   Response: The engineering consultant has discussed this matter with Mr. Peter Boucher, Division Head, Wastewater Division, County of Hawaii as well as with Mr. Dennis Tulang, Engineering Program Manager, Wastewater Branch, Department of Health. The above-referenced representatives of the County Wastewater Division and the Department of Health's Wastewater Branch have agreed after due consideration of all factors including the cumulative effect on ground water quality and nearshore water quality, that the proposed project will not be required to connect to the County sewer system. Individual wastewater systems will be allowed to service the lots in the proposed Unit 6 subdivision, similar to those that have been approved for the previous units of the Panaewa Subdivision.

3. **GUIDELINES FOR SUSTAINABLE BUILDING DESIGN IN HAWAII:** We ask that you consider implementing some of the techniques discussed in the enclosed guidelines for sustainable building design.

   Response: The Department of Hawaiian Home Lands (DHHL) will be awarding vacant lots to eligible lessees to design and construct houses that are appropriate to their needs and financial situation. The DHHL will not impose any design restrictions, except for compliance with the County building code.

4. **USE OF RECYCLED GLASS:** To promote the use of recycled materials in-state as found in section 103D-407, Hawaii Revised Statutes, we ask that you consider using materials with minimum recycled glass content in the design.

Response: The DHHL will consider using materials with minimum recycled glass content in the design.

5. **INDIGENOUS AND POLYNESIAN INTRODUCED PLANTS FOR USE IN PUBLIC LANDSCAPING:** We ask that you consider the use of native, indigenous and Polynesian introduced plants in your landscaping.

   Response: The DHHL will encourage the use of native indigenous and Polynesian introduced plants in the landscaping for the proposed project.

Should you have any questions regarding this matter please contact Darrell Ing of our Land Development Division at 586-3844.

encl.

PANAEWA RESIDENCE LOTS, UNIT 6 PROJECT
COMMUNITY MEETING
PANAEWA COMMUNITY CENTER
MAY 22, 2002

NAME	ADDRESS	PHONE
Charlene Manu	105 Pilipaa St	981-5256
Milton R. Lopa.	P.O Box 4811 Hilo Hi.	981-2841
Pearl Haili	33 Nowelo St	959-8026
Ken Okimoto	100 Ohuohu St.	959-2629
Ann Leialoha	39 Paipai St	959 1696
Alex Nathaniel	141 Pelejae	959-2174
Ululani Sherlock	203 TODD	933-0418
[illegible]	171 Kinoole	935-4910
Isabelle & K Knutson	980 Railroad Ave	959-0403
Marie Atkinson	1001 Railroad Ave #6	959-1460
Dane Silva	15-154 Puni Kahakai Lp Pahoa HI 96778	965-8917
Linda Wilson Craig	948 E Railroad Ave	959-4674

APPENDIX C – BOTANICAL SURVEY REPORT OF THE PROPOSED PANAEWA RESIDENTIAL LOTS – UNIT 6 SITE

BOTANICAL SURVEY REPORT OF THE PROPOSED

PANAEWA RESIDENCIAL LOTS – UNIT 6 SITE

FOR
BRIAN T. NISHIMURA, PLANNING CONSULTANT
101 AUPUNI STREET, SUITE 217
HILO, HAWAII 96720

BY
EVANGELINE J. FUNK, PH.D.
BOTANICAL CONSULTANTS
HONOLULU, HAWAII 96815
APRIL 2002

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INTRODUCTION

A botanical survey of the proposed Panaewa Residential Lots-Unit 6 site was carried out in April 2002. The purpose of the survey was to determine what plant species make up the vegetation of the site, to prepare a species list of all taxa found on the site, and to determine if any candidate proposed or listed threatened or endangered species are present on this site.

The proposed Panaewa Residential Lots – Unit 6 Site is located east of Kanolele Street on Puainako Street between Ohuohu Street and Railroad Avenue and consists of approximately twenty acres of land. The undeveloped land in the vicinity of the study site is fairly flat and heavily vegetated with mostly introduced trees and shrubs.

METHODS

A two person field team collected site data using the walk through method. The first inspection was a walk of the periphery with frequent forays into the interior of the site. Then transverse transects across the study site to determine the species composition of the interior vegetation were carried out.

RESULTS

It was found that a wide swath, thirty five to forty feet across, along the Puainoko Street edge of the site is kept mowed. The flora of this area is mostly introduced grasses and weeds. The most common grasses are St. Augustine grass (*Stenotaphrum secundatum* (Walter) Kuntze), molasses grass (*Melinis minutiflora* P. Beauv), and Hilo grass (*Paspalum conjugatum* Berg.). Among these grasses can be found sensitive weed (*Mimosa pudica* L.), Buttonweed (*Spermacoce assurgens* Ruiz & Pav.), *Flaveria trinervas* (Spreng) C. Mohr, *Dissotes rotundifolia* (Sm.) Triana, and many others.

At the western edge of the mowed area there is a stand of dense vegetation that appears to be twenty to thirty feet in height, but beneath this wall of vegetation is a berm of pushed up rock that is eight to ten feet in height and gives the edge vegetation the appearance of being much higher than it actually is. The emergent trees growing on the berm are mostly *Melochia umbellate* (Houtt.) Stapf, bingabing (*Macaranga mappa* (L.) Mull.Arg.), Trumpet tree (*Cecropia obtusifolia* Bertol.) African tulip (*Spathodea campanulata* P. Beauv.), gunpowder tree (*Trema orientalis* (L.) Blume), and octopus tree (*Schefflera actinophylla* (Endl.) Harms). There were at least two scrawny 'Ohia trees (*Metrosideros polymorpha* Gaud.) growing on the berm.

The understory vegetation is made up of *Melastoma candidum* D. Don, seedlings and saplings of strawberry guava (**Psidium cattleianum* Sabine), common guava (*Psidium guajava* L.), Melochia, gun powder tree, with *Miconia calvescens DC* becoming established.

A ground layer of herbaceous plants is to be found around the outer edges of the site. This layer is made up of *Wedelia trilobata* (L.) Hitchc., Dissotes, mixed grasses and ferns.

The floor of the interior of the site is a series of pushed up piles of small to medium sized stones. Growing on this uneven surface are seedlings and sapling strawberry and yellow guava, gunpowder, bingabing, and various other type trees. The ground cover is made up of dead leaves, branches and twigs. Not enough sunlight penetrates the tree canopy to reach the forest floor so most of the surface is bare.

Two native species were found on the study site. The already mentioned 'Ohia trees and one sapling Psychotria. Otherwise the vegetation of the study site is made up of alien species.

ENDANGERED SPECIES

No candidate, proposed, or listed threatened or endangered species as set forth in the Endangered Species Act of 1973, as amended (16 U.S.C. 1531-1543) are known from this area and none were found during this survey.

SPECIES LIST OF THE PLANTS FOUND ON THE PROPOSED

PANAEWA RESIDENTIAL LOTS SITE

This species list contains the names of all plant taxa found on the proposed Panaewa Residential Lots Site. The plant families have been arranged alphabetically within three groups, Ferns and Fern Allies, Monocotyledons, and Dicotyledons. The genera and species are arranged alphabetically within families. The taxonomy and nomenclature follow that of Wagner, Herbst, and Sohmer (1990). For each taxon the following information is provided:

1. An asterisk before the plant name indicates a plant introduced to the Hawaiian Islands since Cook or by the aborigines.
2. The scientific name of the plant.
3. The Hawaiian name or the most widely used common name of the plant.
4. Abundance ratings are for this site only and they have the following meanings:
   Uncommon = a plant that was found less than five times.
   Occasional = a plant that was found between five and ten times.
   Common = a plant considered an important part of the vegetation.
   Locally abundant = plants found in large numbers over a limited area. For example the plants found in grassy patches.
   Abundant= plants found in large numbers on all sites.

This species list is the result of an extensive survey of this site during the wet, spring season (April 2002) and it reflects the vegetative composition of the flora during a single season. Minor changes in the vegetation will occur due to introductions and losses and a slightly different species list would result from a survey conducted during a different growing season.

Scientific Name	Common Name	Abundance
FERNS AND FERN ALLIES		
POLYPODIACEAE - Common Fern Family		
**Blechnum occidentale* L.		Occasional
Christella dentata (Forssk.) Brownsey & Jermy		Locally abundant
Dicranopteris linearis (Burm.) Undrew.	Uluhe	Uncommon
**Dryopteris dentata* (Forssk.) C. Chr.	Oak fern	Locally abundant
**Nephrolepis cordifolia* (L.) Presl.	Sword fern	Common
**Nephrolepis exaltata* (L.) Schott.	Sword fern	Common
Pleopeltis thunbergiana Kaulf.		Occasional
**Polypodium scolopendrium* Burm. F.	Laua'e	Locally abundant
Sphenomeris chusana (L.) Copel.	Lace fern	Uncommon
MONOCOTYLEDONS		
AGAVACEAE – Agave Family		
**Cordyline fruticosa* (L.) A. Chev.	Ti	Occasional
ARECACEAE - Palm Family		
**Cocos nucifera* L.	Coconut palm	Occasional
COMMELINACEAE - Spiderwort Family		
**Commelina diffusa* N. L. Burm.	Honohono	Common
COSTACEAE – Costus Family		
*Costus sp.		Locally abundant
CYPERACEAE – Sedge Family		
**Fimbristylis dichotoma* (L.) Vahl.	Tall fringe rush	Common
Gahnia beecheyi H. Mann		Rare
Pycreus polystachyos (Rottb.) P. Beauv.		Occasional
ORCHIDACEAE – Orchid Family		
**Arundina graminifolia* (D. Don) Hochr.	Bamboo orchid	Common
**Spathoglottis plicata* Blume	Philippine ground orchid	Common

Scientific Name	Common Name	Abundance
POACEAE - Grass Family		
**Andropogon bicornis* L.	Broomsedge	Locally abundant
**Bothriochloa pertusa* (L.) A. Camus	Pitted beardgrass	Common
**Eragrostis unioloides* (Retz.) Nees ex Steud.		Locally abundant
**Eleusine indica* (L.) Gaertn.	Wiregrass	Occasional
**Melinis minutiflora* P. Beauv.	Molasses grass	Abundant
**Oplismenus hirtellus* (L.) P. Beauv.	Basket grass	Locally abundant
**Paspalum conjugatum* Berg.	Hilo grass	Abundant
**Paspalum scrobiculatum* L.	Rice grass	Occasional
**Setaria gracilis* Kunth	Yellow foxtail	Locally abundant
**Rhynchelytrum repens* (Willd.) Hubb.	Natal redtop	Common
**Sacciolepis indica* (L.) Chase	Glenwood grass	Locally abundant
**Sporobolus diander* (Retz.) P. Beauv.	Indian dropseed	Common
**Stenotaphrum secundatum* (Walter) Kuntze	St. Augustine grass	Abundant
ZINGIBERACEAE – Ginger Family		
**Hedychium flavescens* N. Carey ex Roscoe	Yellow ginger	Locally abundant
DICOTYLEDONS		
ACANTHACEAE – Acanthus Family		
**Dicliptera chinensis* (L.) Juss.		Locally abundant
APIACEAE – Parsley Family		
Centella asiatica (L.) Urb.	Asiatic pennywort	Locally abundant
ARALIACEAE – Ginseng - Family		
**Schefflera actinophylla* (Endl.) Harms	Octopus tree	Common
ASTERACEAE – Sunflower Family		
**Ageratum conyzoides* L.	Maile honohono	Occasional
**Emilia sonchifolia* (L.) DC	Flora's paintbrush	Occasional
**Flaveria trinervas* (Spreng) C. Mohr		Locally abundant
**Pluchea symphytifolia* (Mill.) Gillis	Sourbush	Occasional
**Sonchus oleraceus* L.	Pualele	Occasional
**Wedelia trilobata* (L.) Hitchc.	Wedelia	Abundant
**Youngia japonica* (L.) DC	Oriental hawksbeard	Occasional

Scientific Name	Common Name	Abundance
BALSAMINACEAE – touch-me-not Family		
**Impatiens wallerana* J. D. Hook.	Busy Lizzy	Locally abundant
BIGNONIACEAE – Bignonia Family		
**Spathodea campanulata* P. Beauv.	African tulip tree	Occasional
BUDDLEIACEAE – butterfly Bush Family		
**Buddleia asiatica* Lour.	Dog tail	Common
CECROPIACEAE – Cecropia Family		
**Cecropia obtusifolia* Bertol.	Trumpet tree	Common
CONVOLVULACEAE – Morning glory Family		
**Ipomoea indica* (J. Burm.) Merr.	Koali 'awa	Occasional
EUPHORBIACEAE – Spurge Family		
**Chamaesyce hirta* (L.) Millsp.	Hairy spurge	Common
**Chamaesyce hypericifolia* (L.) Millsp.	Graceful spurge	Occasional
**Chamaesyce prostrata* (Aiton) Small.	Prostrate spruge	Occasional
**Macaranga mappa* (L.) Mull.Arg.	Bingabing	Abundant
**Phyllanthus debilis* Klien ex Willd.	Niruri	Uncommon
FABACEAE – Bean Family		
**Chamaecrista nictitans* (L.) Moench	Partridge pea	Common
**Crotalaria incana L.*	Fuzzy rattlebox	Occasional
**Desmodium incanum* DC	Spanish clover	Occasional
**Desmodium tortuosum* (Sw.) DC	Florida beggarweed	Occasional
**Desmodium triflorum* (L.) DC		uncommon
**Mimosa pudica* L.	Sensitive plant	Abundant
LAURACEAE – Laurel Family		
**Persea americana* Mill.	Alligator pear	Uncommon

Scientific Name	Common Name	Abundance
MELASTOMATACEAE – Melastoma Family		
**Dissotes rotundifolia* (Sm.) Triana		Abundant
**Melastoma candidum* D. Don.		Common
**Miconia calvescens* DC	Miconia	Abundant
**Tetrazygia bicolor* (Mill.) Cogn.		Uncommon
MYRTACEAE – Myrtle Family		
Metrosideros polymorpha Gaud.	'Ohi'a	Occasional
**Psidium cattleianum* Sabine	Strawberry guava	Abundant
**Psidium guajava* L.	Common guava	Abundant
**Syzygium jambos* (L.) Alston	Rose apple	Occasional
POLYGALACEAE – Milkwort Family		
**Polygala paniculata* L.		Locally abundant
ROSACEAE – Rose Family		
**Rubus rosifolius* Sm.	Thimbleberry	Uncommon
RUBIACEAE – Coffee Family		
**Paederia foetida* L	Maile pilau	Locally abundant
Psychotria sp.		Uncommon
**Spermacoce assurgens* Ruiz & Pav.	Buttonweed	Uncommon
SOLANACEAE – Nightshade Family		
Solanum americanum Mill.	Popolo	Uncommon
STERCULIACEAE Cacao Family		
**Waltheria indica* L.	'Uhaloa	Common
**Melochia umbellate* (Houtt.)Stapf.		Abundant
ULMACEAE – Elm Family		
**Trema orientalis* (L.) Blume	Gun powder	Abundant
VERBENACEAE – Verbena Family		

**Stachytarpheta dichotoma* (Ruiz & Pav.) Vahl	Owi		Common

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APPENDIX D – ARCHAEOLOGICAL INVENTORY SURVEY
DHHL PROJECT AT PANAEWA
LAND OF WAIAKEA, SOUTH HILO DISTRICT,
ISLAND OF HAWAII (TMK: 2-2-47: 01)

Report 173-041902

ARCHAEOLOGICAL INVENTORY SURVEY
DHHL PROJECT AT PANAEWA
LAND OF WAIAKEA, SOUTH HILO DISTRICT
ISLAND OF HAWAI'I (TMK: 2-2-47:01)

Haun & Associates

Archaeological, Cultural, and Historical Resource Management Services
HCR 1 Box 4730, Keaau, Hawaii 96749 Phone: 982-7755 Fax: 982-6343

ARCHAEOLOGICAL INVENTORY SURVEY

DHHL PROJECT AT PANAEWA

LAND OF WAIAKEA, SOUTH HILO DISTRICT

ISLAND OF HAWAI'I (TMK: 2-2-47:01)

By:

Alan E. Haun, Ph.D.

and

Dave Henry, B.S.

Prepared for:

Department of Hawaiian Home Lands
c/o Mr. Brian Nishimura
101 Aupuni Street, Suite 217
Hilo, Hawaii 96720

April 2002

Haun & Associates

Archaeological, Cultural, and Historical Resource Management Services
HCR 1 Box 4730, Keaau, Hawaii 96749 Phone: 982-7755 Fax: 982-6343

SUMMARY

At the request of Mr. Brian Nishimura, on behalf of DHHL, Haun & Associates conducted an archaeological inventory survey of a c. 28-acre parcel located in the Land of Waiakea, South Hilo District, Island of Hawai'i (TMK: 2-2-47:01). The objective of the survey was to satisfy historic preservation regulatory review inventory requirements of the Department of Land and Natural Resources-State Historic Preservation Division (DLNR-SHPD), as contained within Hawaii Administrative Rules, Title 13, DLNR, Subtitle 13, State Historic Preservation Rules.

No archaeological sites or features were identified during the survey. The parcel has been completely modified by earthmoving equipment, evidenced by numerous linear piles of soil and stone, bulldozed road cuts bordered by berms, and secondary growth vegetation consisting predominately of small *guava* and *hau*. There are no historic sites on the property and given the extent of prior earthmoving the potential for buried cultural deposits is very unlikely. No further archaeological work is recommended for the property.

CONTENTS

INTRODUCTION

At the request of Mr. Brian Nishimura, on behalf of DHHL, Haun & Associates conducted an archaeological inventory survey of a c. 28-acre parcel located in the Land of Waiakea, South Hilo District, Island of Hawai'i (TMK: 2-2-47:01; *Figure 1*). The objective of the survey was to satisfy historic preservation regulatory review inventory requirements of the Department of Land and Natural Resources-State Historic Preservation Division (DLNR-SHPD), as contained within Hawaii Administrative Rules, Title 13, DLNR, Subtitle 13, State Historic Preservation Rules.

The survey fieldwork was conducted April 18, 2002, under the direction of Dr. Alan Haun. Described in this final report are the project scope of work, field methods, background information, survey findings, and significance assessments of the sites with recommended further treatments.

Scope of Work

Based on DLNR-SHPD rules for inventory surveys, the following specific tasks were determined to constitute an appropriate scope of work for the project:

1. Conduct background review and research of existing archaeological and historical documentary literature relating to the project area and its immediate vicinity—including examination of Land Commission Awards, *ahupua'a* records, historic maps, archival materials, archaeological reports, and other historical sources;

2. Conduct a high intensity, 100% pedestrian survey coverage of the project area;

3. Conduct detailed recording of all potentially significant sites including scaled plan drawings, written descriptions, and photographs, as appropriate;

4. Conduct limited subsurface testing (manual excavation) at selected sites (a) to determine the presence or absence of potentially significant buried cultural deposits or features, and (b) to obtain suitable samples for radiocarbon age determination analyses;

5. Analyze background research and field data; and

6. Prepare and submit Final Report.

Project Area Description

The project area consists of a c. 28-acre, roughly rectangular-shaped parcel located in the Land of Waiakea, South Hilo District, Island of Hawai'i. The parcel is bordered on the north by East Puaniako Street, on the east by Railroad Avenue, and on the west and south by developed parcels. The parcel ranges in elevation from 95 ft to 100ft.

The project area has been extensively disturbed by bulldozer activity. There are numerous linear piles of stones and soil throughout the parcel and many areas are unnaturally level and relatively free of stones. Several bulldozed road cuts bordered by stone and soil berms extend through the parcel. Vegetation in the project area is comprised of secondary growth species dominated by guava (*Psidium cattleianum* Sabine), *hau* (*Hibiscus macrophyllus* Roxb.), and dense ferns and vines, with scattered papaya (*Carica papaya* L.), and pandanus (*Pandanus odoratissimus* L. f.). The majority of the trees in the parcel are small, averaging 2" to 3" in diameter. Examples of the vegetation in the parcel are illustrated in *Figures 2* and *3*.

The soil within the project area is comprised of Papai extremely stony muck, on 3-25 % slopes (Sato et al. 1973:46). This soil is typified by a thin, very brown, well-drained, very stony organic soil over

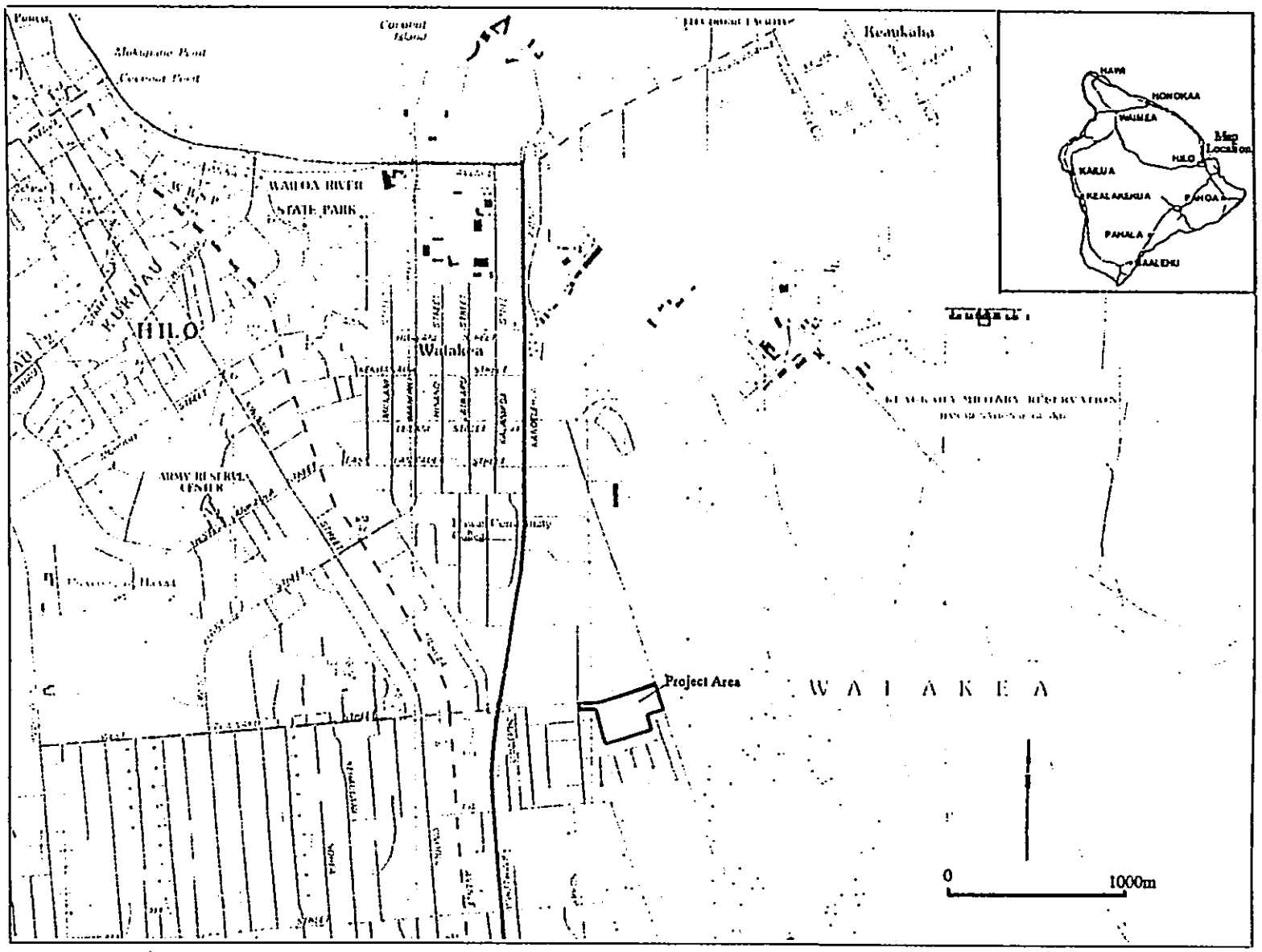

Figure 1. Portion of USGS Hilo Quadrangle showing Project Area

Figure 2. Project Area Vegetation, view to south

Figure 3. Project Area vegetation, view to west

fragmented a'a lava. It has a rapid permeability, a slow runoff and a slight erosional hazard. Sato et al. indicate that this soil is most commonly used for woodland.

Field Methods

The project area was subjected to a 100% surface examination with surveyors spaced at 5-10 m intervals. The transects were oriented in a roughly east-direction parallel to East Puainako Street. No archaeological sites or features were identified during the study.

ARCHAEOLOGICAL AND HISTORICAL BACKGROUND

Historical Documentary Research

The project area is situated in the *ahupua'a* of Waiakea in South Hilo District. The *ahupua'a* is one of the largest in the district covering over 95,000 acres. The *ahupua'a* extends along the coast from the west side of Hilo Bay to the Puna District boundary and inland to approximately 6,000 ft elevation. Much of the following is summarized from *Hilo Bay: A Chronological History* (Kelly et al. 1981), an extensive and thorough compendium of historical information about Hilo including Waiakea.

Hawaiian traditional and legendary accounts attest to the longstanding importance of Waiakea. The chief of the Hilo region, Kulukulu'a, who resided in Waiakea, was the first conquest of 'Umi-a-Liloa in his campaign to unify the districts of Hawaii Island. Hilo with its large bay, fishponds, wet taro fields, and abundant freshwater was a population center for commoners and royalty. Kamehameha I and his court resided in Hilo in the 1890s. In preparation for his planned invasion of Kauai in 1802, Kamehameha built a canoe fleet at Hilo, reportedly consisting of 800 vessels. Kamehameha gave his favorite wife, Ka'ahumanu, the *ili kupono* of Pi'opi'o in Waiakea

Early historic accounts also document the importance of Hilo. In 1823, Ellis estimated the population to be 2,000 people in 400 houses. Ellis described the extensive use of *lauhala* thatch in house construction in Hilo. Lauhala was gathered from eastern Waiakea beyond the Wailoa River. He described the land as intensively cultivated with plantains, bananas, sugar cane, taro, potatoes, melons, coconuts, and breadfruit. Wet taro was grown in mounds (*kipi*) in marshlands. Hilo was a center for trade between the people of Ka'u, Hamakua, and Hilo. Between the 1790s and 1820s, sandalwood was cut and brought to Hilo for export. *Pulu* and *pia* (arrowroot) were also exported. Ellis also describes coastal fishing.

In 1824, a missionary station was established in Waiakea. Soon after, churches and schools were established. Whalers began stopping at Hilo in the mid-1820s. In the 1830s, a sawmill was built, and two stores were opened. By the end of the decade, a sugar cane plantation and mill were established on Ponahawai lands. In 1840, the Wilkes Expedition arrived in Hilo and constructed an observatory on Waiakea Point on the east side of Hilo Bay.

The Waihona 'Aina database (2000) lists 51 parcels claimed by 37 claimants within Waiakea in the mid-1800s (*Table 1*). All claims are for parcels situated to the northwest and west of the project area along the coast and immediately inland along the lower reaches of the Wailoa River less than 0.5 mi inland (*Figure 4*). Twenty-six parcels were awarded to 24 claimants. Chiefess Kamamulu was awarded the entire *ili* of Pi'opi'o under Land Commission Award (LCA) No. 7713. The remaining claims are for *kuleana* parcels ranging from 0.24 to 13.14 acres in area with an average of 3.6 acres. All, except five claims, were for single parcels. The testimonies for several awarded *kuleana* include claims for parcels that were not awarded.

The claim testimonies refer to 18 *ili* land divisions. Five *ili*; Kalonoho, Alenoho, Kolea, Pi'opi'o and Paeaahu; are mentioned two or more times and apparently were linear strips of land extending inland from the coast. *Ili* Kalonoho was situated next to the western *ahupua'a* boundary with Kukuau. Alenoho was the next *ili* to the east followed by Kolea, Pi'opi'o and Paeaahu. The latter two *ili* bordered the west bank of Wailoa River and Fishpond. Six *ili* for LCAs on the east side of the river, from the river mouth

Table 1. Land Commission Award Claims

LCA	Claimant	Apana claimed	Apana awarded	Section	Ili	Land Use	Boundary North	Boundary East	Boundary South	Boundary West	Date Rec'd	Giver	Acreage	Comment
1E	Mahoe	1	1		Keawe Kapu	cultivated	Konohiki's waste land	Mikaeleiki	Kainea	Kainea		Konohiki Pea	4.46	
1F	Kapu	1	1		N/D	cultivated, partly fenced	Kaulu	Kamanuhaku	Konohiki's waste land	Kalua		Parents	1 6	
119B	Kaihenui	1	0		N/D	N/D	N/D	N/D	N/D	N/D	N/D	N/D	N/D	
210B	Kaheananui	1	0		Alenoho	house lot	N/D	N/D	N/D	N/D	N/D	N/D	N/D	
1106	Haae (John Taylor)	1	0		Kolea	cultivated	N/D	N/D	N/D	N/D	N/D	N/D		
1279	S. Kolona Halai	1	1		Kolea	planting plot	konohiki	ocean	Kekuanaoa	Kaihenui's house	1847	Kapuaakuni	0 6	
1333	Kololo	1	1		Alenoho	cultivated field	Waiiani	Kahauai	Kaluahino	Kahue	1840	Kuiana	2 25	
1335	Kaheananui	1	0		Alenoho	cultivated field	Kukuau	Manu	Kalana Stream	Kahue	1841	Kuiana	0	
1738	L Kahuhikaua	1	1		Kamakola	cultivated with 6 houses	Ili Ohelo	Pouaki's field	Mihaeleiki	road beside river	1843	Konhiki Pea	2 98	
2274	Kapuaakuni	1	0		Puainako	house lot with 2 houses, grave	waste land	road to Volcano	waste land	waste land	1847	Kaunuohua	0	
2281	John B. Kaiana	1	1		Alenoho	house lot	Kaapa	new road	waste land	waste land	1847	Kaunuohua	10.25	
2327	Barenaba	1	1		Kalihi	partly enclosed with 5 houses	Ili Alenoho	Ili Kolea	Ili Koloa	stone wall/govt land	1841	Pea	12 25	Claimant was District 1 school supervisor
2338	Samuela	1	0		Koleaiki	breadfruit treas, sweet potatoes, coffee	Kauhopu	Ili Koleanui	Ili Kalili	Ili Alenoho	1847	Konohiki	0	
2402	Keoniho	1	1		N/D	2 kihapais; hala grove	Kukuau Ahupua'a	konohiki	Kahue	konohiki	1844	Kahue	5	
2603	Napeahi	1	1		Kialoa 1	house lot with 4 houses; breafruit and kukui trees	konohiki	Ili Kinaauauwai	konohiki	Ili Kealou 2	Kam. 1 time	parents	1.3	
2663	Kahue	1	1		N/D	N/D	Keaniho	konohiki	konohiki	konohiki	1844	Kaiana	3.75	
3872	Peke	1	0		Alenoho	2 cultivated fields	Aiko	stream	konohiki	main road	N/D	N/D	0	
3996B	Hewahewa	1	0		N/D	uncultivated	konohiki	konohiki	konohiki	konohiki	1847	Kamahiai	0	
4004	Hale	1	1		Hinaauauwai or Mahina auwai 5	4 kihapai; two houses	kenohiki	Ili Haanaauauwai 1st	konohiki	Ili Kialoa/Kaiholena	Kam. 1 time	parents	4.25	
4344	Kuaio	3	1		Kolea									
				1		house lot with 3 houses	Barenaba	Barenaba	Samuela	Keaonui	Kam. 1 time	parents	1.22	Unclear which section
				2		cultivated field	Barenaba	Samuela	Ili Waiuli	Kukaiholo				
				3		uncultivated with one house	Ili Walenoho	Pahulu	konohiki	Kupelea				
4737B	Wahine	1	1		Kalonoho	cultivated with house	govt land	govt road	Moealoha	konohiki	Kam. 1 time	Makaimo	1.01	
4737	Moealoha	1	1		Kalonoho	3 field & 1 house	Kaiana	Alanui	Barenaba	konohiki	1839	Makaino	1.03	
4785	Nakai	1	1		Kanahana	3 wet taro plots & 2 houses	fishpond	Ili Kuahua	konohiki	Ili Kaapea	1834	Kuahopu	1.05	
5018	Keawe	1	1		Puahua	2 cultivated fields	konohiki	Ili Kialoa	Nakai	Ili Hanahaiau	1841	Konohiki Pea	0 24	

Table 1. Land Commission Award Claims (cont.)

LCA	Claimant	Apana claimed	Apana awarded	Section	Ili	Land Use	Boundary North	Boundary East	Boundary South	Boundary West	Date Rec'd	Giver	Acreage	Comment
5157	Kuahopu	6	2		Piopio								13 14	Awarded 2 apana
				1		4 cultivated kihapai & 2 houses	Kolea	Kaihenui	Niihau	Kalua				
				2		1 cultivated kihapai	Kekuaoa's garden	Kaaiana	Kaihe	Kaihenui				
				3		1 kihapai taro mounds	Niihau	Kane	N/D	N/D				
				4		6 taro mounds	Kane	konohiki	Kauhi	Kaiamo				
				5		uncultivated	idle land	idle land	Samuela	Ili Alencho				
				6		2 cultivated fields	Kahalelalu	idle land	Samuela	Kaihenui				
7713	Kamamulu	1	1		Piopio	N/D	N/D	N/D	N/D	N/D	N/D	Kaupchamhea I		Awarded entire *ili*
8081	Hewahewa	1	0		Kalulunui	2 cultivated kihapai, road through lot	konohiki	konohiki	konohiki	konohiki	1847	Kamahiai	0	Awarded 1 parcel in Keaau
8802	Kane	1	0		Ohualolo	pasture, cultivated plot, 2 houses	idle land	idle land	idle land	idle land	1843	Barenaba	0	
8803	Kamanohaka	1	1		Piopio	3 fields	Kuahopu	Levi	fishpond	Kauhi	1845	mother	1.02	
8811	Kilioe	1	0		Paaloa	cultivated	idle land	N/D	N/D	idle land	1846	father	0	
8854	Kalua	4	1		Piopio						Kam II time	parents	3 4	
				1		house lot	Kaulu	Kanaanaaha	fishpond	Kauhi				
				2		cultivated	konohiki	konohiki	Kaehunui	cart road				
				3		3 cultivated fields	Kuahopu	Kauhi	Hoieaniu	Kuahopu				
				4		1 cultivated field	Heienui	Kuahope	konohiki	Niihau				
8868	Kapuakiha	1	0		Pulu	formerly	N/D	N/D	N/D	N/D	N/D	N/D	0	
9982	Levi	4	1		Paiaahu 1 & 2						N/D	Wahinenohoihilo	0 8	Unclear which parcel awarded
				1		uncultivated	Kona	Nuihao	Kaniahiai	Manekaka				
				2		partly cultivated	Apua	Nuihao	Kaniahialio	Apua				
				3		partly cultivated	Aua	Nuiliae	Kaniahiai	Aua				
				4		uncultivated	Apua	konohiki	fishpond	Ili Piopio				
10004	Lahoihilo	1	1		Paeaahu	3 fields & house	Kamaheii	konohiki	fishpond	Levi	Kaliaopuu time	N/D	6 9	
11050B	Kaihenui	2	2		Kolea						1843	Kapapa	5 19	Awarded 2 apana
				1		house	Halai	sea	Barenaba	konohiki				
				2		1 cultivated field & 1 house	Kualiaupu	konohiki	cart road	Barenaba				
11173	Wahinealua	1	1		Alenoho	N/D	Kealiko	Beakey	konohiki	gov't road	1834	Maalo	2 5	
11174	Kealiko	1	1		Alenoho	N/D	Wahinealua	road	Barenaba	Alanui Aupuni	1834	Maalo	1	

Figure 4. Portion of 1891 Map of Hilo (Modified from Kelly et al. 1981)

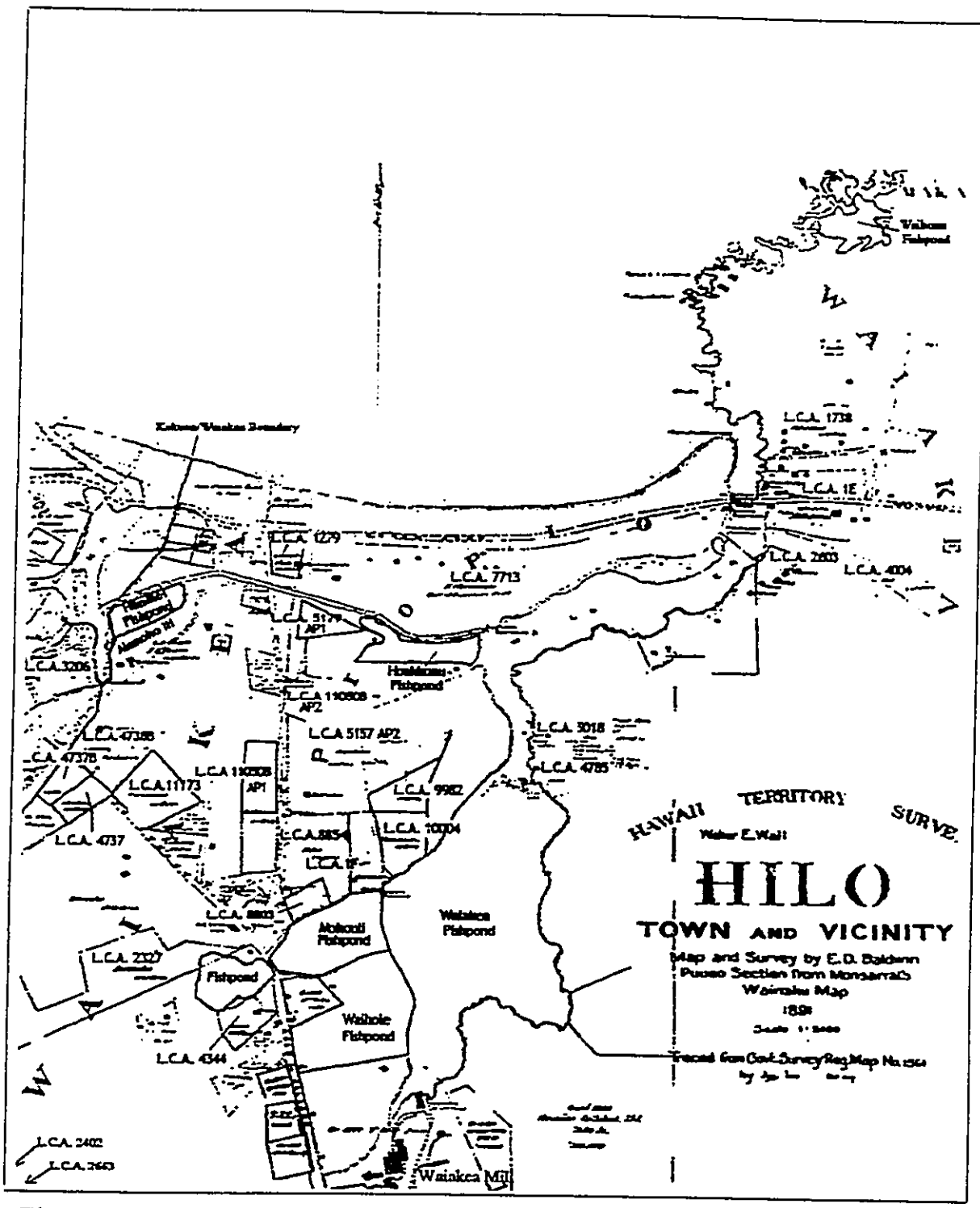

Figure 4. Portion of 1891 Map of Hilo (Modified from Kelly et al. 1981)

inland, consist of Kamakola, Keawe Kapu, Kialoa, Hinaauauwai, Puahua, and Kanahana. Kalihi was situated inland between Alenoho and Kolea. The geographic location of the remaining *ili* cannot be determined because they are mentioned in testimony for claims that were not awarded.

Land use described in the LCA claim testimony included agriculture, pasture, burial, and residence. Thirty-four houses are mentioned and LCA 2274 also describes the presence of a grave. Most of the claim testimony mentions cultivated fields. Crops include wet taro, sweet potatoes, breadfruit, coffee, and *kukui*. A hala (*Pandanus* spp.) grove and fishponds are also mentioned.

By 1857, there were three sugar cane mills in the Hilo area. Large tracts of land were put in the cane cultivation and sugar cane was also grown by individuals around their houses. In 1861, a stone wharf was constructed at Waiakea landing on the west side of Waiakea Point. A sugar mill was established in Waiakea at the inland end of Waiakea Fishpond in the late 1870s. A railroad transport system was constructed for the Waiakea Mill between 1879 and 1880. By 1880, 1,400 acres of sugar cane were in cultivation and by the end of the decade over 5,600 acres were cultivated. In 1877, a 16 ft high tsunami struck the coast of Waiakea destroying all houses within 100 yards of the shore along with a wharf, storehouse, a quarantine hospital on Coconut Island, and a bridge.

Between the 1860s and 1880s there were two wharf facilities on the west side of Waiakea Point, one on the Wailoa River, and on the west side of the bay at the foot of Waianuenue Street. By the 1890s, the need for improved wharf facilities was recognized and the development of government harbor facilities began on the west side of Waiakea Point. A ship wharf was completed in 1899.

Between 1900 and the 1930s, the population of Hilo grew dramatically with the expansion of sugar cane cultivation, pineapple production, the timber industry, and other commercial developments. In the 1910s, the Hilo Railroad Company expanded the rail system to Puna and Hilo Town. A railroad wharf was built north of the mouth of the Wailoa River. Between 1909 and 1913, the railroad was extended to North Hilo and Hamakua Districts.

The pending opening of the Panama Canal and anticipated increase in trans-Pacific shipping lead to serious efforts to build a breakwater to protect shipping in Hilo Bay. Construction of the breakwater began in 1908. The breakwater was initially planned for a location just east of Coconut Island, but the plan was modified and the selected site was approximately 6,000 ft east of the island. The initial plans called for a 10,000 ft long breakwater along Blonde Reef. Stone for the structure was brought by railroad from quarries in Puna and Waiakea. The breakwater was completed in 1929.

By the 1910s, the existing railroad and government wharf facilities were inadequate to support shipping. In 1912, the Territorial Government contracted the construction of a new wharf approximately one mile east of Coconut Island and the dredging of the adjacent portion of the bay. The new wharf, designated Kuhio Wharf was completed in 1916. From the beginning, the wharf was congested and plans for a second wharf were made. Construction of the wharf began in 1921 and it was completed in 1923. A third wharf was completed in 1927.

The following discussion of the development of the Hilo airport is summarized from Kelly et al. (1981) and Hammatt and Bush (2000). In 1925, 100 acres were designated as the site for the Hilo Airport and $10,000.00 was appropriated for its construction using prison labor. A 33-acre portion of the land came from an adjacent 216-acre parcel that was dedicated in 1914 for a National Guard of Hawaii rifle range. Progress on the facility was slow because the appropriation did not including funds for equipment. This was resolved in 1927 when an additional $25,000.00 was appropriated. Much of the area had to be filled and Hawaiian Dredging Co. was contracted to transport over 3000 cubic yards of excess material dredged from Hilo Bay during construction of the new port facility. In 1928, the airport lands were increased by 41.45 ac to accommodate modification of the runway orientation relative to the prevailing trade winds. The airport was dedicated in February 1928. An additional 86 acres was added to the facility in 1929 to accommodate further expansion. In October 1929, Inter-Island Airways, Ltd. began regular scheduled service between Hilo and Honolulu with three trips per week.

The airport was further expanded in the 1930s including the construction of a cross-wind runway, hanger, and a terminal building. Additional runways and taxiways were also completed. The expansion included portions of the adjacent Keaukaha Hawaiian Home Commission settlement where 30 homes were either demolished or relocated. In 1938, the National Guard facility, Keaukaha Military Reservation (KMR), provided additional lands for a temporary camp to house prison laborers working on the airport facilities. Following the outbreak of World War II control of the airport and the Hawaii Army National Guard facilities was transferred to the U.S. Army, and further airport expansion occurred. The Hilo Airport was renamed General Lyman Field in 1943 in memory of General Albert Lyman. Lyman was a Hilo native, who served as the chief engineer for the U.S. Army Corps of Engineers Hawaiian Department. He died two days after President Roosevelt nominated him for promotion general.

In 1943 the Hilo Naval Air Station was authorized and facilities construction began beside the existing Hilo Army Air Base. The Naval Air Station facilities were completed in 1945. The station was placed on caretaker status shortly after World War II ended. The 7th Army Air Force was assigned to General Lyman Field in 1946 to support Air Force bases on Oahu. In 1947, the Hawaii National Guard was reactivated and obtained use of KMR facilities.

The airport was returned to civilian control in 1952. A new, $600,000.00 airport facility was dedicated in 1958 and 92 additional acres of Hawaiian Homes Commission land were set aside for airport expansion. In 1963, another 193 acres of Commission land was acquired through a land exchange. In the late 1960s, funds were allocated to expand the airport to accommodate jet planes. A new terminal and expanded airfield were dedicated in May 1976. By 1980, the Hilo Airport Division of the Hawaii Department of Transportation controlled 1,339 acres.

In summary, historical documentary research indicates that the coastal portion of Waiakea fronting Hilo Bay was intensively settled and cultivated. The area was an important political and economic center. The coast to the east of the bay was used for fishing and gathering *lauhala* for thatch. At least seven fishponds were present surrounded by residences, wet taro plots, and gardens cultivated with plantains, bananas, sugar cane, dryland taro, sweet potatoes, arrowroot, coconuts, and breadfruit

In the early 1800s, missionaries established a mission station at Hilo because of its large population, abundant freshwater, and cultivation potential. Soon churches and schools were established. Whalers stopped at Hilo because of the protected anchorage and availability of freshwater and provisions. Sugar cane cultivation, cattle ranching, and trade in *pulu*, arrowroot, and sandalwood rapidly changed the traditional subsistence economy during the early to mid-1800s.

By the late 1800s, vast areas were in sugar cane production and large scale timber harvesting was underway. Transportation infrastructure including a railroad system and wharf facilities were established. The area underwent a dramatic increase in population as people came to the area to work for the plantations and other commercial developments. Between 1925 and 1976, the airport facilities, which surround the present survey areas, were developed.

Previous Archaeological Research

A search of the DLNR-SHPD archaeological report database and other sources identified 23 archaeological projects in Waiakea. *Figure 5* shows the project locations and *Table 2* summarizes the projects. Not included in the figure or table are the studies by Stokes (Stokes and Dye 1991), which focused on major sites, primarily *heiau* throughout Hawaii Island, a survey of east Hawaii by Hudson (1932), the fishpond study of Kikuchi (1973), and the general, primarily archival, studies of McEldowney (1979) and Moniz (n.d.). None of the previous studies included the current project area. Stokes (Stokes and Dye 1991), relying in part on the earlier observations of Thrum, listed six *heiau* for the Hilo area; however, all were destroyed at the time of Stokes fieldwork in 1906. Ohele Heiau, a *luakini* temple, was reported for Waiakea.

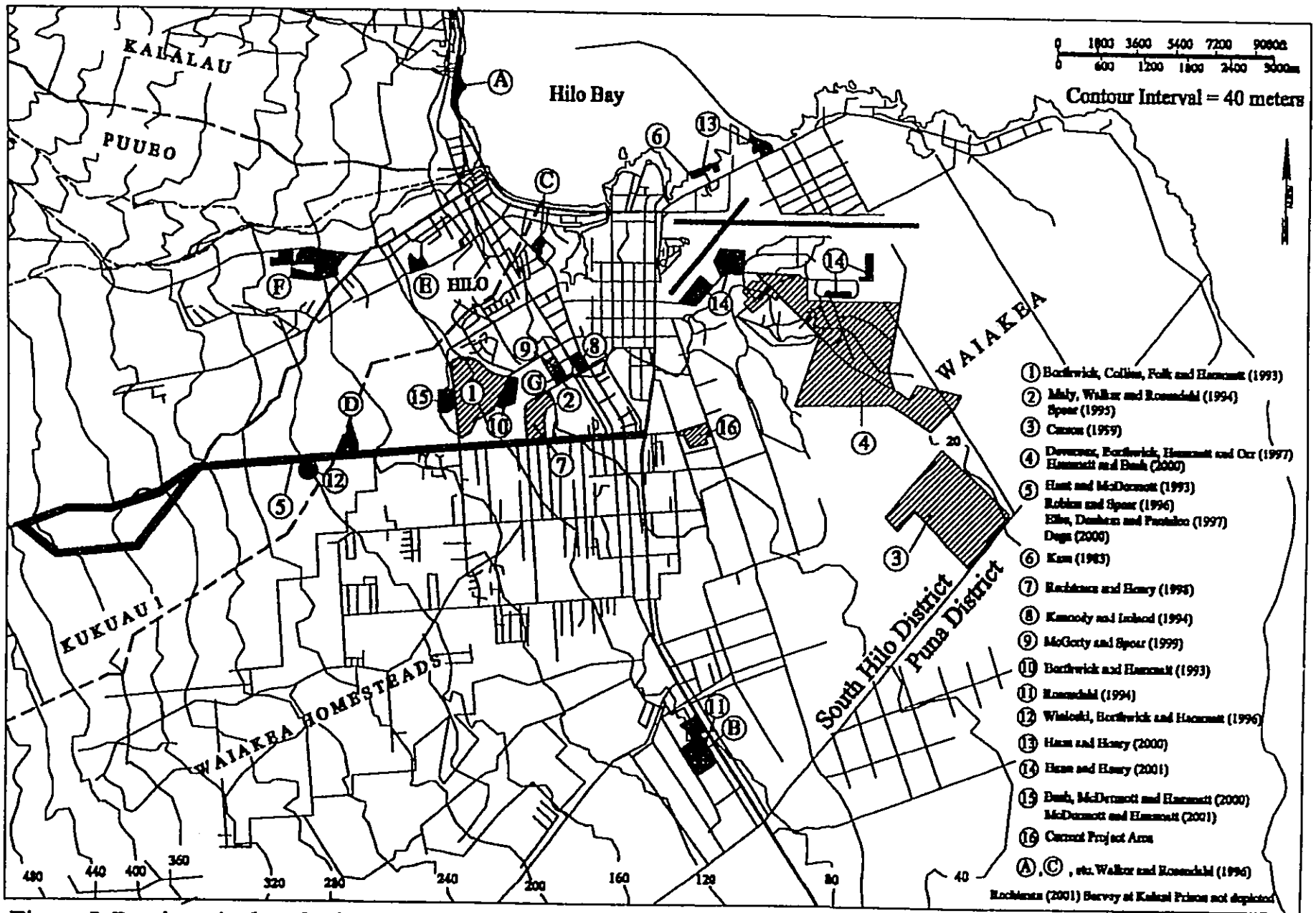

Figure 5. Previous Archaeological Work

Table 2. Summary of Previous Archaeological Research

Author	Date	Study Type*	Elevation	Acreage	Historic Use	No of sites	No of Feas	Traditional Features	Historic Features
Kam	1983	AR	0-5	<1	None	1	1	*heiau*	
Borthwick, Collins, Folk and Hammatt	1993	IN	140-330	163	Sugar cane	4	47		47
Borthwick and Hammatt	1993	IN	120-140	11	Sugar cane	-	4		4
Maly, Walker and Rosendahl	1994	IN	70-80	4.5	Sugar cane	4	51		51
Spear	1995	DR	70-80		Sugar cane				
Walker and Rosendahl	1996	FI	0-460	129.8	Sugar cane/ developed	5	?		1
Rosendahl	1994	FI	250-290	11	?	1	1		
Kennedy and Ireland	1994	RN	70-80	8	?	0			
Hunt and McDermott/ Elbe,Denham and Pantaleo	1993/ 1997	IN/EX	200-1500	106	Sugar cane	11	88		88
Robins and Spear	1996	IN	200-1500	264	Sugar cane	3	18		18
Dega	2000	IN	900-1060	36.3	Sugarcane	1	8		8
Winieski, Borthwick and Hammatt	1996	IN	450-500	5.23	?	0			
Devereux, Borthwick, Hammatt and Orr; and Hammatt and Bush	1997/ 2000	RN/IN	40-80	503.6	Military	4	8	Pit, 5 *ahu*, and Puna Trail	3
Rechtman and Henry	1998	IN	120-205	40	Sugar cane	1	117		117
Carson	1999	IN	98-131	176	?	0			
McGerty and Spear	1999	IN	70	2.5	Sugar cane	1	13		13
Haun and Henry	2000	IN	0-15	20	Port	1	4		4
Haun and Henry	2001	IN	35-40	65.9	Ranching/Air Field	4	5	Terraced depression and wall	1
Bush, McDermott and Hammatt; and McDermott and Hammatt	2000/ 2001	IN	300-360	20	Sugarcane	1	1	Sinkhole w/burial	
Rechtman	2001	IN	5000-5100	5	Ranching	0			
			Total	**1671.83**		**42**	**366**	**11**	**355**

* AR=Archival Research, RN=Reconnaissance Survey, IN=Inventory Survey, DR=Data Recovery, EX=Excavation

The surveys in *Table 2* cover over 1,570 acres of Waiakea between sea level and 5,100 ft elevation. The only traditional Hawaiian sites identified in the vicinity of the project area are an agricultural pit, the Puna Trail, and five *ahu* reported by Hammatt and Bush (2000), a sinkhole containing a human burial identified by Bush et al. (2000), and a terraced depression and associated low wall identified by Haun and Henry (2001). Hammatt and Bush attribute the absence of traditional sites to the massive ground disturbance of sugar cane cultivation and commercial and residential development of the Hilo area. Historic remains identified by the surveys consist of thirty-eight sites with over 350 features. Nearly all of the identified features are the result of stone clearing for sugar cane cultivation.

McEldowney (1979) lists 53 traditional Hawaiian sites for Waiakea and 31 historic sites, primarily buildings. Most of the traditional sites were located by Hudson (1932) and Kikuchi (1973). The remaining six were identified during the Statewide Inventory. Nearly all were situated along the coast. The sites include 17 fishponds, seven burials, six platforms, five enclosures, three *heiau* including one previously identified by Stokes, three house foundations, three trail segments, two shrines, several miscellaneous features, and two complexes of platforms, enclosures, and terraces.

McEldowney used the limited site inventory and historic documentary evidence to develop a land use and settlement pattern model for the Hilo area. The model consists of five elevationally-defined zones: Coastal Settlement, Upland Agricultural, Lower Forest, Rainforest, and Sub-Alpine or Montane. The Coastal Settlement Zone extended approximately 0.5 miles inland from the shoreline between sea level and 50 ft elevation. The zone was the most densely populated with both permanent and temporary habitations, high status chiefly residences, and *heiau*. Settlements were concentrated at Hilo Bay and sheltered bays and coves. Also present were fishponds and gardens where breadfruit, coconut, *kukui*, banana, *wauke*, sugar cane, sweet potato, and wet and dryland taro were cultivated. The ocean provided fish and other marine resources.

The Upland Agricultural Zone was situated between approximately 50 ft and 1,500 ft elevation. Settlement in the zone consisted of scattered residences among economically beneficial trees and agricultural plots of dryland taro and bananas. Lava tubes were utilized for shelter. A pattern of shifting cultivation is believed to have converted the original forest cover to parkland of grass and scattered groves of trees. Wetland cultivation of taro occurred along streams.

The Lower Forest Zone ranged from 1,500 ft to 2,500 ft elevation. Timber and other forest resources such as medicinal plants, *olona*, and birds were gathered from the zone. Site types consisted of temporary habitations, trials, shrines, and minor agricultural features in forest clearings and along streams. Sites in the Rainforest Zone (2,500-5,000 ft elevation) and Subalpine or Montane Zone (5,000-9,000 ft) were limited to trails and associated temporary habitations. These zones were used for intra-island travel and gathering of valued resources including hardwoods, birds, and stone for tool making.

PROJECT EXPECTATIONS

Prehistoric to early historic use of the project area was probably limited because the focus of settlement was along the coast and the lower reaches of the Wailoa River. The project area is situated at the lower extent of McEldowny's (1979) Upland Agricultural Zone that is characterized by scattered residences among agricultural plots and lava tubes used for shelter and burial. Historic use may have included sugar cane cultivation and cattle ranching.

FINDINGS

No archaeological sites or features were identified during the survey. The parcel has been completely modified by earthmoving equipment, evidenced by numerous linear piles of soil and stone, bulldozed road cuts bordered by berms, and secondary growth vegetation consisting predominately of small *guava* and *hau*

CONCLUSION

There are no historic sites on the property and given the extent of prior earthmoving the potential for buried cultural deposits is very unlikely. No further archaeological work is recommended for the property.

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