William P. Kenoi
Mayor

Walter K. M. Lau
Managing Director

Warren H. W. Lee
Director

Brandon A. K. Gonzalez
Deputy Director

County of Hawai'i
DEPARTMENT OF PUBLIC WORKS
Aupuni Center
101 Pauahi Street, Suite 7 · Hilo, Hawai'i 96720-4224
(808) 961-8321 · Fax (808) 961-8630
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June 24, 2014

Ms. Jessica Wooley, Director
Office of Environmental Quality Control
Department of Health, State of Hawai'i
235 South Beretania Street, Suite 702
Honolulu, Hawai'i 96813

Subject: HAIHAI FIRE STATION DRAFT ENVIRONMENTAL ASSESSMENT AND ANTICIPATED FINDING OF NO SIGNIFICANT IMPACT (DEA-AFONSI)

Dear Ms. Wooley:

The County of Hawai'i Department of Public Works hereby transmits the draft environmental assessment and anticipated finding of no significant impact (DEA-AFONSI) for the Haihai Fire Station situated at TMK 2-4-051:001 (portion), in the South Hilo District on the Island of Hawai'i. Please publish a notice of availability for this project in your next edition of *The Environmental Notice*, July 8, 2014.

Enclosed is a completed OEQC Publication Form, two copies of the DEA-AFONSI, and an Adobe Acrobat PDF file of the same. Simultaneous with this letter, we have submitted the completed OEQC Publication Form in a text file by electronic mail to your office.
If there are any questions, please contact David Yamamoto at (808) 981-8466.
Sincerely,

Warren H.W. Lee, P.E.
Director

Enclosures

AGENCY ACTIONS
SECTION 343-5(B), HRS
PUBLICATION FORM (FEBRUARY 2013 REVISION)

Project Name: **Haihai Fire Station**
Island: **Hawai'i**
District: **South Hilo**
TMK: **TMK 2-4-051:001 (portion)**
Permits: **Chapter 343, HRS Compliance; Plan Approval; National Pollutant Discharge Elimination System (NPDES) Permit; Subdivision Permit; Grading/Building Permits; Noise Permit**

Proposing/Determination Agency:
County of Hawai'i Department of Public Works
Aupuni Center, 101 Pauahi Street, Suite 7
Hilo, HI 96720
Contact: David Yamamoto; Phone: (808) 981-8356; Fax (808) 981-2037

Accepting Authority:
(for EIS submittals only)

Consultant:
PBR Hawaii & Associates, Inc., 1001 Bishop Street, Suite 650, Hononlulu, HI 96813
Contact: Vincent Shigekuni; Phone: (808) 521-5631; Fax (808) 523-1402

Status (check one only):

_X_DEA-AFNSI — Submit the proposing agency notice of determination/transmittal on agency letterhead, a hard copy of DEA, a completed OEQC publication form, along with an electronic word processing summary and a PDF copy (you may send both summary and PDF to oeqchawaii@doh.hawaii.gov); a 30-day comment period ensues upon publication in the periodic bulletin.

__FEA-FONSI — Submit the proposing agency notice of determination/transmittal on agency letterhead, a hard copy of the FEA, an OEQC publication form, along with an electronic word processing summary and a PDF copy (send both summary and PDF to oeqchawaii@doh.hawaii.gov); no comment period ensues upon publication in the periodic bulletin.

__FEA-EISPN — Submit the proposing agency notice of determination/transmittal on agency letterhead, a hard copy of the FEA, an OEQC publication form, along with an electronic word processing summary and PDF copy (you may send both summary and PDF to oeqchawaii@doh.hawaii.gov); a 30-day consultation period ensues upon publication in the periodic bulletin.

__Act 172-12 EISPN — Submit the proposing agency notice of determination on agency letterhead, an OEQC publication form, and an electronic word processing summary (you may send the summary to oeqchawaii@doh.hawaii.gov). NO environmental assessment is required and a 30-day consultation period upon publication in the periodic bulletin.

__DEIS — The proposing agency simultaneously transmits to both the OEQC and the accepting authority, a hard copy of the DEIS, a completed OEQC publication form, a distribution list, along with an electronic word processing summary and PDF copy of the DEIS (you may send both the summary and PDF to oeqchawaii@doh.hawaii.gov); a 45-day comment period ensues upon publication in the periodic bulletin.

__FEIS — The proposing agency simultaneously transmits to both the OEQC and the accepting authority, a hard copy of the FEIS, a completed OEQC publication form, a distribution list, along with an electronic word processing summary and PDF copy of the FEIS (you may send both the summary and PDF to oeqchawaii@doh.hawaii.gov); no comment period ensues upon publication in the periodic bulletin.

__ Section 11-200-23 Determination — The accepting authority simultaneously transmits its determination of acceptance or nonacceptance (pursuant to Section 11-200-23, HAR) of the FEIS to both OEQC and the proposing agency. No comment period ensues upon publication in the periodic bulletin.

__Section 11-200-27

Determination	The accepting authority simultaneously transmits its notice to both the proposing agency and the OEQC that it has reviewed (pursuant to Section 11-200-27, HAR) the previously accepted FEIS and determines that a supplemental EIS is not required. No EA is required and no comment period ensues upon publication in the periodic bulletin.
__Withdrawal (explain)	

Summary (Provide proposed action and purpose/need in less than 200 words. Please keep the summary brief and on this one page):

The County of Hawai'i Department of Public Works is proposing to construct a new fire station near the Hilo Municipal Golf Course Driving Range. The proposed fire station would be located on State land on the southwest corner of Haihai Street and Laula Road.

The primary purpose for the Haihai Fire Station is to improve emergency services from Panaewa Makai to Waiākea Uka. The existing Kawailani Fire Station is limited in size (0.5 acre) and inadequate to meet the space requirements of the Fire Department. The Kawailani Fire Station is surrounded by residential homes, Kawailani Street and the Hilo Municipal Golf Course, and does not allow for future expansion. In addition, emergency services provided by the Hawai'i Fire Department from Kawailani Street Station now include Emergency Medical Services (EMS), and the required EMS personnel, vehicles and equipment can no longer be accommodated at the current location.

The proposed Haihai Fire Station will: 1) replace the existing fire station located on Kawailani Street; and 2) provide additional space required for EMS. The proposed Haihai Fire Station would provide a much needed public safety facility for the South Hilo District.

HAIHAI FIRE STATION

DRAFT ENVIRONMENTAL ASSESSMENT
ANTICIPATED FINDING OF NO SIGNIFICANT IMPACT

Applicant:
County of Hawai'i

Prepared by:
PBR HAWAII
& ASSOCIATES, INC.

June 2014

SUMMARY

Project Name:	Haihai Fire Station
Location:	Waiākea Homesteads, Waiākea, South Hilo, Island and County of Hawai‘i
Judicial District:	South Hilo
Tax Map Key (TMK):	(3) 2-4-051: 001 (portion)
Land Area:	Approximately 2 acres
Proposing/Determining Agency:	County of Hawai‘i Department of Public Works
Landowner:	State of Hawai‘i
Existing Use:	Vacant pasture land
Proposed Action:	The Project consists of constructing a new fire station using State Land and County funds.
Current Land Use Designations:	*State Land Use:* Urban *County General Plan LUPAG:* Open Area and Low Density Urban *County Zoning*: Open *Special Management Area (SMA)*: Not in SMA
Alternatives Considered:	Three alternatives were considered: • No action • Alternative sites • Alternative designs

Potential Impacts and Mitigation Measures:	Anticipated impacts during construction include construction equipment noise and the potential for dust generation. Both impacts can be mitigated by incorporating established mitigation measures, such as ensuring mufflers are in proper operating condition, limiting construction hours, and wetting down exposed surfaces. In the long term, the open space of a portion of pasture will be replaced with a new fire station building. According to a traffic assessment, emergency egress of emergency vehicles will not be a problem for the emergency vehicles, and the additional traffic by the emergency vehicles will not be significant. Drivers of the emergency vehicles are trained to turn on the sirens only when necessary to minimize noise impact.
Anticipated Determination:	Finding of No Significant Impact (FONSI)

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APPENDICES

TABLES

FIGURES

(in Appendix A)

ACRONYMS

AFONSI	Anticipated Finding of No Significant Impact
AIS	Archaeological Inventory Survey
ALISH	Agricultural Lands of Importance to the State of Hawai‘i
BMP	Best Management Practices
CIA	Cultural Impact Assessment
CWRM	State of Hawai‘i Commission on Water Resource Management
CZM	Coastal Zone Management
DBEDT	State of Hawai‘i Department of Business, Economic Development, and Tourism
DLNR	State of Hawai‘i Department of Land and Natural Resources
DOE	State of Hawai‘i Department of Education
DOH	State of Hawai‘i Department of Health
DOT	State of Hawai‘i Department of Transportation
DPR	County of Hawai‘i Department of Parks and Recreation
DWS	County of Hawai‘i Department of Water Supply
EA	Environmental Assessment
EIS	Environmental Impact Statement
EPA	Environmental Protection Agency
FAA	Federal Aviation Administration
FEMA	Federal Emergency Management Agency
FIRM	Flood Insurance Rate Map
FONSI	Finding of No Significant Impact
gpd	Gallons per day
HAR	Hawai‘i Administrative Rules
HELCO	Hawai‘i Electric Light Company, Inc.
HRS	Hawai‘i Revised Statutes
LOMR	Letter of Map Revision
LEED	Leadership in Energy and Environmental Design
LID	Low Impact Development
LSB	Land Study Bureau
LUC	State of Hawai‘i Land Use Commission
LUPAG	County of Hawai‘i General Plan Land Use Pattern Allocation Guide
MGD	Million gallons per day
NASA	National Aeronautics and Space Administration
NOAA	National Oceanic and Atmospheric Administration
NPDES	National Pollutant Discharge Elimination Systems
NRCS	Natural Resources Conservation Service
NPS	National Park Service
OEQC	State of Hawai‘i Office of Environmental Quality Control
ROW	Right-of-way

SCS	Scientific Consultant Services, Inc.
SHPD	State of Hawai‘i Historic Preservation Division
SMA	Special Management Area
TMK	Tax map key
USDA	United States Department of Agriculture
USFWS	United States Fish and Wildlife Service
USGS	United States Geological Survey

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1 INTRODUCTION

The County of Hawai‘i Department of Public Works is proposing to construct a new fire station near the Hilo Municipal Golf Course Driving Range (Figure 1). The proposed fire station would be located on State land on the southwest corner of Haihai Street and Laula Road intersection (Figure 2).

The proposed use of State lands and County funds triggers an environmental requirement for the preparation of an Environmental Assessment (EA) in compliance with Chapter 343, HRS.

1.1 LANDOWNER

The State of Hawai‘i is the landowner of record (Figure 2). The proposed Haihai Fire Station would be located on a portion of General Lease No. 5570 to Michael Tulang. At its meeting of September 13, 2013, the State of Hawai‘i Board of Land and Natural Resources approved in concept, the County of Hawai‘i’s request to withdraw a portion from the aforementioned General Lease and set aside by Executive Order to the County of Hawaii for the relocation of the Kawailani Fire Station. The Hawai‘i Department of Public Works is the applicant for the applicable entitlements.

1.2 PROPOSING/DETERMINING AGENCY

The County of Hawai‘i Department of Public Works is the proposing/determining agency.

Contact: County of Hawai‘i Department of Public Works
ATTN: David Yamamoto
Hilo, Hawai‘i 96720
Phone: (808) 981-8356
Fax: (808) 981-2037

1.3 ENVIRONMENTAL CONSULTANT

PBR HAWAI‘I is the environmental planning consultant.

Contact: PBR HAWAI‘I & Associates, Inc.
ATTN: Vincent Shigekuni
1001 Bishop Street, Suite 650
Honolulu, Hawai‘i 96813
Telephone: (808) 521-5631
Fax: (808) 523-1402

1.4 COMPLIANCE WITH STATE OF HAWAIʻI ENVIRONMENTAL LAWS

Preparation of this document is in accordance with the provisions of Chapter 343, HRS and Title 11, Chapter 200, Hawaiʻi Administrative Rules (HAR) pertaining to Environmental Impact Statements. Section 343-5, HRS established nine "triggers" that require either an EA or an Environmental Impact Statement (EIS). The use of State or County lands or funds is one of these "triggers." Because the County of Hawaiʻi Fire Department will use State lands and County funds to build the new fire station, the preparation of an Environmental Assessment is required.

1.5 STUDIES CONTRIBUTING TO THIS EA

The information contained in this report has been developed from site visits, generally available information regarding the characteristics of the proposed Haihai Fire Station site and surrounding areas, and technical studies. Technical studies are provided as appendices to this EA. These studies include:

- Flora and Fauna Surveys
- Archaeological Inventory Survey
- Cultural Impact Assessment
- Transportation Assessment Report

2 PROJECT DESCRIPTION

2.1 BACKGROUND INFORMATION

2.1.1 Location and Property Description

The Haihai Fire Station is proposed to be located in Waiākea Homesteads, Waiākea *ahupua'a*, South Hilo District, Island and County of Hawai'i (Figure 1). The approximately 3-acre study area is identified as a portion of TMK (3) 2-4-051:001 (Figure 2). The entire parcel is 35.7 acres and is being leased for pasture use. The proposed project will be located in the northwestern portion of the parcel along Haihai Street and across from the Hilo Municipal Golf Course Driving Range. While the study area is comprised of approximately 3 acres, only 2 acres will be developed as a fire station.

The property is bound by Haihai Street to the north, Laula Road to the east, open undeveloped land to the south, and residential homes to the west.

Vegetation at the property is dominated by pasture grasses, reflecting the present use as pasture for horses and cattle (Figure 3). Figure 4 contains site photographs.

Elevations range from approximately 320 to 340 feet above mean sea level, with average slope of less than 5 percent in *mauka* to *makai*, west to east direction.

Current access to the Property is from Laula Road via a locked gate.

2.1.2 Existing Land Use Designations

Current land use designations for the Haihai Fire Station project area are:

- State Land Use: Urban (Figure 5);
- County General Plan LUPAG: Open Area and Low Density Urban (Figure 6);
- County Zoning: Open (Figure 7);
- Special Management Area (SMA): Not in SMA (Figure 8).

2.1.3 Surrounding Land Uses

North: Haihai Street is immediately north of the proposed fire station site. Hilo Municipal Golf Course is directly across Haihai Street to the north of the proposed fire station site.

East: Laula Road is immediately to the east of the proposed fire station site. The eastern side of Laula Road is bordered by single-family homes and the AJA Veterans' Council facility on the corner of Laula Road and Haihai Street (Figure 3).

South: Lands immediately south of the proposed fire station site within the property are in pasture, and south of the property are agricultural lots.

West: Lands immediately west of the proposed fire station site within the property are in pasture, and west of the property are single-family residential homes.

2.2 PURPOSE AND NEED

The proposed Haihai Fire Station will: 1) replace the existing fire station located on Kawailani Street; and 2) provide additional space required for Emergency Medical Services.

The Hawai‘i Fire Department is requesting approximately two acres of land be withdrawn from State General Lease No. S-5570 to be set aside to construct a new fire station in Waiākea Homesteads as the Department has outgrown the existing station located on Kawailani Street. In addition, emergency services provided by the Hawai‘i Fire Department from Kawailani Street Station now include Emergency Medical Services, and the required personnel, vehicles and equipment can no longer be accommodated at the current location.

Alternatives were considered, but rejected as being too far out of the central part the city or too far at the edge of the fire response district. See Section 6 on Alternatives for a full discussion. The proposed set aside location is most favorable due to it being centrally located and able to serve the population that the existing Kawailani Street Station serves, inclusive of the area from Panaewa Makai up to Waiākea Uka and will provide the additional space required for the Emergency Medical Services personnel.

2.3 PROJECT DESCRIPTION

The new building will be approximately 12,000 square feet in size and contain a total of 30 rooms for living quarters, offices, work rooms, classrooms, bathrooms, showers, an exercise room, locker rooms, a kitchen, storage, a training room, an apparatus bay and a hose tower.

Separate parking lots will be constructed for staff and for the public, with a total of 23 parking stalls, including 2 ADA stalls. New sidewalks will also be installed. New underground utility connections will be placed during the construction phase. A conceptual master plan is shown on Figure 9. The final configuration and dimensions will be determined during the design phase.

To the greatest extent possible the new facility will be designed to LEED Silver standard. The Leadership in Energy and Environmental Design (LEED) Green Building Rating System™ is the nationally accepted benchmark for the design, construction, and operation of high performance green buildings (sustainably designed). LEED promotes a whole-building approach to sustainability by recognizing performance in five key areas of human and environmental health:

sustainable site development, water savings, energy efficiency, materials selection, and indoor environmental quality.

2.4 PERMITS AND APPROVALS

A listing of anticipated permits and approvals required for Haihai Fire Station is presented below:

Table 1: Anticipated Approvals and Permits

Permit/Approval	**Responsible Agency**
Chapter 343, HRS Compliance	County of Hawai‘i Department of Public Works Office of Environmental Quality Control
Plan Approval	Hawai‘i County Planning Department
National Pollutant Discharge Elimination System (NPDES) Permit	State Department of Health
Subdivision	Hawai‘i County Planning Department
Grading/Building Permits	Hawai‘i Department of Public Works
Noise Permit	State Department of Health

2.5 DEVELOPMENT TIMETABLE AND PRELIMINARY COSTS

The County has appropriated Capital Improvement Program (CIP) funds for construction and expects to commence construction after plans and permit applications are approved. The proposed Haihai Fire Station is scheduled to be completed in one phase by the end of 2015 at an approximate cost of $5.9 million.

3 DESCRIPTION OF THE NATURAL ENVIRONMENT, POTENTIAL IMPACTS, AND MITIGATION MEASURES

This section describes existing conditions of the natural environment, potential impacts related to the creation of the Haihai Fire Station, and mitigation measures to minimize impacts.

3.1 CLIMATE

Hawai‘i Island’s geological features heavily influence its climate. Mauna Loa (13,679 foot summit elevation) and Mauna Kea (13,796 foot summit elevation) dominate ground-based atmospheric influences. Northeast trade winds typically occur during the day, while winds from the southwest typically occur during the night due to cold air drainage from the mountains. The mean annual wind speed at the airport is about 8 miles per hour (mph), and usually varies between about 4 and 12 mph during the day.

Regional temperatures are generally cool due to the approximately 330-foot elevation of Waiākea. Average annual temperatures range from 66-82 degrees Fahrenheit (County of Hawai‘i Data Book).

According to *The Rainfall Atlas of Hawai‘i*, the property receives an average annual rainfall of approximately 13 inches (Giambelluca, et al., 2012). Hilo’s rainfall pattern is characterized by windward-leeward differences due to Mauna Loa and Kohala Mountains.

POTENTIAL IMPACTS AND MITIGATION MEASURES

The construction of the Haihai Fire Station will have no effect on the climate or the topography of the surrounding region, therefore no mitigation measures are planned or warranted.

3.2 GEOLOGY AND TOPOGRAPHY

Of the five volcanoes that formed the island of Hawai‘i—Kohala, Hualālai, Mauna Kea, Mauna Loa, and Kīlauea—only Mauna Loa and Kīlauea are presently considered active; the other three are considered dormant. Waiākea is located on the southeastern flank of Mauna Kea which is characterized by several distinctive geological features:

Mauna Kea – The summit of Mauna Kea rises approximately 13,800 feet above mean sea level and provides the backdrop for Hilo town toward the west. The western slope of Mauna Kea is dry and unscathed by erosion; whereas the northeastern slope is exposed to the trade-wind rains creating canyons a few hundred yards deep.

Elevations across the Site range from approximately 320 to 340 feet above mean sea level. The project area is generally flat with an average slope of one percent in a *mauka* to *makai*, west to east direction.

POTENTIAL IMPACTS AND MITIGATION MEASURES

The project area offers generally flat land which is optimal for development. The proposed project will not adversely impact the topographic nature of the project relative to the remainder of the property or surrounding properties. Due to the generally flat surface, minimal grading will be required. Any grading will be in conformance with the Hawai‘i County Grading Ordinance. To minimize potential impacts, grading will be segmented and exposed areas will be immediately grassed or landscaped before commencement of grading in the next phase, in compliance with Chapter 10 (Erosion and Sedimentation Control) of the Hawai‘i County Code.

3.3 SOILS

Three soil suitability studies prepared for lands in Hawai‘i describe the physical attributes of land and the relative productivity of different land types for agricultural production; these are: 1) the U.S. Department of Agriculture Natural Resource Conservation Services (NRCS) Soil Survey; 2) the University of Hawai‘i Land Study Bureau (LSB) Detailed Land Classification; and 3) the State Department of Agriculture’s Agricultural Lands of Importance to the State of Hawai‘i (ALISH) system.

Natural Resource Conservation Service Soil Survey

The soil at the project site is classified by the U.S. Department of Agriculture Natural Resources Conservation Service as mostly Panaewa very rocky silty clay loam (PeC), with the soils of the northeast portion of the project site classified as Keaukaha Extremely Rocky Muck (rKFD). Please refer to Figure 10.

Panaewa very rocky silty clay loam, 0 to 10 percent slopes – This soil type consist of shallow, moderately well-drained silty clay loams that formed in volcanic ash near Keaau. These soils are nearly level to gently sloping in the uplands underlain by pāhoehoe lava bedrock. Permeability is rapid, runoff is slow, and the erosion hazard is slight. The agricultural capability classification is VIs (Soil Survey of the Island of Hawai‘i, State of Hawai‘i, 1973). Soils in this class have severe limitations that make them generally unsuited to cultivation and limit their use largely to pasture or range, woodland, or wildlife.

Keaukaha Extremely Rocky Muck (rKFD), 6 to 20 percent slopes – This soil type occurs in Hilo and is undulating to rolling and follows the topography of the underlying pāhoehoe lava. Rock outcrops occupy about 25 percent of the area. The soil above the lava is rapidly permeable, and the pāhoehoe lava is very slowly permeable, with water moving rapidly through the cracks. Runoff is medium and erosion hazard is slight. Keaukaha Extremely Rocky Muck lies in Soil Capability class VII. Soils in this class have very severe limitations that make them unsuited to cultivation, and their use is restricted to pasture or range, woodland, or wildlife. (Soil Survey of the Island of Hawai‘i, State of Hawai‘i, 1973).

LSB Detailed Land Classification

The University of Hawai‘i LSB document, Detailed Land Classification, Island of Hawai‘i, classifies soils based on a productivity rating. Letters indicate class of productivity with A representing the highest class and E the lowest. The soils of the project site are not classified (Figure 11).

Agricultural Lands of Importance to the State of Hawai‘i

The ALISH system classifies agricultural lands as Prime, Unique, or Other Agricultural Land. The soils of the project site are not classified under the ALISH system (Figure 12).

POTENTIAL IMPACTS AND MITIGATION MEASURES

Construction of the proposed Haihai Fire Station will not reduce the inventory of agriculturally significant land. The project site has an agricultural capability classification of VIs and VII, meaning it has very severe limitations that make them generally unsuited for cultivation. The project site is not classified under the LSB or under the ALISH system, meaning agricultural suitability of the project site is low.

Impacts to the soils include the potential for soil erosion and the generation of dust during grading and construction. All construction activities will comply with all applicable Federal, State, and County regulations and rules for erosion control. As typically required for projects on land greater than one acre in size, a National Pollutant Discharge Elimination System (NPDES) Notice of General Permit Coverage (NGPC) for Storm Water Associated with Construction Activity will be necessary.

To minimize potential impacts, necessary grading will be segmented and exposed areas will be immediately grassed or landscaped before commencement of grading in the next phase, in compliance with the Chapter 10 (Erosion and Sedimentation Control) of the Hawai‘i County Code. Measures to control erosion during the site development period will include:

- Minimizing the time of construction;
- Retaining existing ground cover as long as possible;
- Constructing drainage control features early;
- Using temporary area sprinklers in non-active construction areas when ground cover is removed;
- Providing a water truck on-site during the construction period to provide for immediate sprinkling, as needed;
- Using temporary berms and cut-off ditches, where needed, for control of erosion;
- Watering graded areas when construction activity for each day has ceased;

- Grassing or planting all cut and fill slopes immediately after grading work has been completed; and
- Installing silt screens, where appropriate.

To the extent practicable, the project civil engineer will design the proposed fire station site to reduce post-development loadings of total suspended solids (TSS) so that the average annual TSS loadings are no greater than predevelopment loadings.

3.4 HYDROLOGY

The project site is located within the Hilo Watershed, which measures 470 square miles and encompasses seven sub-watershed areas including two large (Wailuku, Wailoa), one medium (Honoli‘i), and four small (Mali‘i, Pauka, Pukihae, Wainaku) sub-watersheds. A watershed area captures rainfall and atmospheric moisture from the air and allows the water to drip slowly into underground aquifers or enter stream channels and eventually to the ocean. The Hilo watershed includes the combined eastern slopes of Mauna Kea and Mauna Loa reaching maximum elevations of 13,796 and 13,679 feet, respectively. The saddle between the two mountains drains mostly through Hilo into Hilo Bay.

Surface Water

The project site is located between (but away from) tributaries of the perennial Kaahakini Stream. Please refer to Figure 13. The headwaters of the tributaries of this stream are located to the west of the project site and both tributaries converge east of the project site where most of the southern tributary feeds into a flood channel and the northern tributary ends 0.6 miles away. The nearest reach of Kaahakini Stream is located to the north of the project site, approximately 0.3 miles away.

There are no wetlands or intermittent steams in the property. Waiākea Pond is located approximated 3.0 miles away.

Ground Water

Due to the relatively young and porous geology of Hawai‘i island, most of the rainfall infiltrates to groundwater. Groundwater has been classified under an aquifer coding system to identify and describe these aquifers. The Project Area overlies the Hilo Aquifer System, a subset of the N.E. Mauna Loa Aquifer Sector. The geology of the Hilo Aquifer System is dominated by the Ka‘ū volcanic series of Mauna Loa volcano, and extends from the coast to the inland boundary at the crest of Mauna Loa. Groundwater within this aquifer exists primarily as basal groundwater followed by high level dike and perched water. Cap rock, although thick and extensive, does not play an important role in the coastal regions of the aquifer.

Sustainable yield is the amount of groundwater that can be pumped without depleting the source. The sustainable yield of the Hilo Aquifer System is 349 MGD, and existing water use is 42.228 MGD (Wilson Okamoto Corporation, 2008)

Marine Waters

The Site is approximately 3.5 miles inland from the nearest coastline at Hilo Bay. Near shore marine waters off the coast of Hilo Bay are classified as class "A" by the State Department of Health (2012).

According to DOH Water Quality Standards, "It is the objective of class A waters that their use for recreational purposes and aesthetic enjoyment be permitted as long as it is compatible with the protection and propagation of fish, shellfish, and wildlife, and with recreation in and on these waters" (HAR §11-54-03).

POTENTIAL IMPACTS AND MITIGATION MEASURES

The Project is not anticipated to have any significant adverse impact on groundwater or surface water resources.

Potable water will be supplied by the County Department of Water Supply's (DWS) Water System, which draws water from a series of surface water sources and groundwater wells. Coordination with DWS is ongoing. Section 4.7.1 (Water System) of this EA provides further information regarding anticipated water demands.

Creation of the Project will result in a slight increase in the amount of impermeable surface area. However, the remainder of the Property will remain a permeable, pasture. Direct discharge of storm water runoff into marine waters is not anticipated due to the inland location of the Site. Similarly, due to distance from existing streams, it is highly unlikely that any storm runoff from the proposed fire station will impact either of the Kaahakini Stream tributaries.

All grading operations will be conducted in compliance with dust and erosion control requirements of Chapter 10 (Erosion and Sedimentation Control) of the Hawai'i County Code and applicable provisions of Chapter 11-60.1, HAR, Section 11-60.1-33 regarding Fugitive Dust. A watering program will be implemented during construction to minimize soil loss through fugitive dust emission. Other pollution control measures include cleaning job-site construction equipment and establishing groundcover as quickly as possible after grading. Permanent landscaping will also help to retain soil throughout the project. In addition to construction watering programs and landscaping, other mitigation measures generally associated with best management practices include:

- Early construction of drainage control features;
- Construction of temporary sediment basins to trap silt;

- Use of temporary berms and cut-off ditches where needed; and
- Use of temporary silt fences or straw bale barriers to trap silt.

All NPDES permit requirements will be implemented. In the long-term, to minimize/eliminate the Project's contribution to the region's cumulative nonpoint source pollution, detention basins and grass paved parking will ensure storm water quality/quantity is not increased or degraded.

To the extent practicable, the project will be designed to maintain post-development peak runoff rate and average volume at levels that are similar to pre-development levels. Any net increase of runoff from such impermeable surfaces as roads, driveways, parking lots and rooftops will be addressed by using drywells and/or one or more of the following Low Impact Design (LID) site design measures, such as vegetated filter strips, open vegetated swales, bio-retention and rain gardens, infiltration trenches, and rain harvesting from rooftops. The aforementioned best management practices (BMPs) are intended to accomplish the following: (1) decrease the erosive potential of increased runoff volumes and velocities associated with development-induced changes in hydrology; (2) remove suspended solids and associated pollutants entrained in runoff that result from activities occurring during and after development; and (3) retain hydrological conditions to closely resemble those of the pre-disturbance condition.

3.5 NATURAL HAZARDS

Hawai‘i island is susceptible to potential natural hazards, such as flooding, hurricanes, volcanic hazards, earthquakes, and wildfires. This section provides an analysis of the Site's vulnerability to such hazards.

The State of Hawai‘i Department of Defense, Office of Civil Defense operates a system of civil defense sirens throughout the State to alert the public of emergencies and natural hazards, particularly tsunamis and hurricanes. The closest siren to the Site is Kawailani Street Siren (HA105) located approximately 0.7 miles north of the project area.

Impacts from natural hazards can be further mitigated by adherence to appropriate civil defense measures as determined by the State and County of Hawai‘i civil defense agencies.

Flood

The Federal Emergency Management Agency (FEMA) publishes flood information in the form of Flood Insurance Rate Maps (FIRM) used by government and insurance agencies to determine the relative potential for damage during flood events. During the pre-assessment consultation process, the Department of Land and Natural Resources Engineering Division wrote:

> *Please take note that the project site, according to the Flood Insurance Rate Map (FIRM), is located in Zone X. The National Flood Insurance Program (NFIP) does not regulate developments with Zone X.* (Figure 14)

Tsunami

Twenty-five of the tsunamis recorded in Hawai‘i since 1812 had an adverse impact on the Island of Hawai‘i; seven caused major damage and three were generated locally. The most recent tsunami to impact Hawai‘i Island, which occurred on March 11, 2011, caused property damage at several locations on the Kona coast.

The current tsunami evacuation zone is in the process of being updated by the Hawai‘i County Civil Defense Agency. The property is well outside of the current tsunami evacuation zone (Figure 15).

Hurricane

Since 1980, two hurricanes have had a devastating effect on Hawai‘i. They were Hurricane ‘Iwa in 1982 and Hurricane ‘Iniki in 1992. In 2007, Hurricane Flossie threatened to reach Hawai‘i, putting Hawai‘i on a hurricane watch. The hurricane, however, was downgraded from a hurricane to a tropical storm after passing Hawai‘i island, 95 miles south of South Point (Associated Press, 2007). While it is difficult to predict such natural occurrences, it is reasonable to assume that future incidents are likely, given historical events. Several studies sponsored by the NASA Office of Earth Science have developed new models for estimating the probability of hurricanes in the Pacific. While the island of Hawai‘i has not been in the direct path of a hurricane since recordation began in 1950, the models indicate that the island has a long-term hurricane hazard higher than any of the other islands.

Earthquake

In Hawai‘i, most earthquakes are linked to volcanic activity, unlike other areas where a shift in tectonic plates is the cause of an earthquake. Each year, thousands of earthquakes occur in Hawai‘i, the vast majority of which are so small they are detectable only with highly sensitive instruments. However, moderate and disastrous earthquakes have occurred in the islands.

Since 1868, nine disastrous earthquakes have occurred in Hawai‘i County. The largest earthquake series occurred between March 27 and April 2, 1868 with an epicenter a few miles north of Pāhala in the district of Ka‘ū. It is estimated that the magnitude of these earthquakes were 7.1 and 7.9. These earthquakes resulted in 77 deaths (46 from tsunami and 31 from landslides triggered by the earthquake). In 1929, an earthquake with an epicenter in Hualālai and a magnitude of 6.5 resulted in extensive damage. Another earthquake in 1951, with its epicenter in the Kona area and a magnitude of 6.9 also resulted in extensive damage. A series of earthquakes, with magnitudes of 6.7 and 6.0, occurred at Kīholo Bay on October 15, 2006. These earthquakes resulted in more than $100 million in damages to the northwest area of the island (USGS, 2006).

Volcanic Hazards

Volcanic hazards include lava flows and emission of volcanic gases (vog).

Lava Flows

The volcanic hazard zone map for Hawai‘i Island divides the island into zones ranked from one through nine, with one being the area of greatest hazard and nine being the area of least hazard. The zones are based chiefly on the location of active vents, frequency of past lava coverage, and topography. According to this map, the project area is within Zone 3, meaning only one to five percent of the area has been covered by lava since 1800 and 15-75 percent within the last 750 years (USGS, 1997). The Site is approximately 26 miles from Kīlauea, the nearest active vent.

Vog

Volcanic gases, which are visible as fog called vog, are emitted during all types of eruptions. Halema‘uma‘u, the crater located at the summit of Kīlauea is erupting large amounts of volcanic gas. Any hazard posed by volcanic gases is greatest immediately downwind from active vents; the concentration of the gases quickly diminishes as the gases mix with air and are carried by winds away from the source (USGS, 1997).

The Site is located 26 miles northeast of Kīlauea Volcano. The prevailing northeasterly trade wind flow tends to push vog and any airborne particulates away from the property. However, the amount of vog and other airborne particulates can significantly increase during periods when the winds are from the southwest.

Wildfires

Approximately 70 to 80 wildfires occur annually in Hawai‘i County. Humans are the number one cause of fires in Hawai‘i.

Currently, the vegetation within the property is typically dominated by pasture grasses and has the potential to be the site of a wildfire. The proposed project is a fire station, and once in operation, will provide greater fire protection to the current lessee and his cattle, as well to the surrounding single-family residences.

POTENTIAL IMPACTS AND MITIGATION MEASURES

To mitigate the potential hazard from earthquakes, structural elements in the proposed Haihai Fire Station will be designed in accordance with the latest building code which is the 2006 International Building Code (IBC) as amended by State of Hawai‘i Building Code. The 2006 IBC provides minimum design criteria to address the potential for damage due to seismic disturbances.

Construction of the Haihai Fire Station will not exacerbate any tsunami hazard conditions. The property is not in a designated tsunami evacuation zone and is not expected to be adversely impacted by a tsunami.

In the event of a hurricane, the potential impact of destructive winds and torrential rainfall will be mitigated through compliance with the 2006 International Building Code (IBC).

The project site is approximately 26 miles away from the nearest active volcano. Hazard and risk potential of volcanoes can be localized reasonably well, unlike some other types of natural disasters (earthquakes and hurricanes). The development of methods to predict volcanic eruptions is extremely important to provide for early evacuation of densely populated regions.

The construction of the Haihai Fire Station will mitigate the potential for wildfires through its landscape design and plant palette. But the greatest benefit will be the project itself, a fire station. Once in operation, the Haihai Fire Station will provide greater fire protection to the current lessee and his cattle, as well to the surrounding single-family residences. During the pre-assessment consultation process, the State Civil Defense (SCD) recommended the installation of one omni-directional 121 db(c) siren mounted on a 45-foot high, H2-rated composite pole. SCD also wrote that it will advise on the placement of the pole.

3.6 FLORA AND FAUNA

The property, which includes the proposed Haihai Fire Station site, has been used for pasture use since 1998. In January 2014, Robert Hobdy conducted a flora and fauna survey of the proposed fire station site (Appendix C).

Flora - In summary, Mr. Hobdy found that the vegetation throughout the project area is dominated by non-native grasses, vines, ferns, shrubs and trees. In addition, Mr. Hobdy found that area has been heavily altered by historical land uses and continues to be invaded by aggressive weed species. The only native species found, the indigenous moa fern, is widespread in Hawai‘i and common.

No Federally listed Threatened or Endangered plant species were found in the study area, nor were any found that are candidates for such status. According to Mr. Hobdy, no special native habitats were found here either.

Fauna – According to Mr. Hobdy, the fauna on the study area are almost exclusively made up of non-native species that are accidental or purposeful introductions to Hawai‘i. Just one native insect, the indigenous globe skimmer dragonfly was recorded. The globe skimmer is native throughout the tropics worldwide and is of no conservation concern.

No federally protected animal species were found and no important or critical habitats occur on or near the project area.

POTENTIAL IMPACTS AND MITIGATION MEASURES

Because of the above existing conditions, Mr. Hobdy determined that the future development of the Haihai Street Fire Station site will not have a significant negative impact on the botanical and faunal resources in this part of Hawai‘i Island. According to Mr. Hobdy, no recommendations regarding the botanical resources are deemed appropriate or necessary. As result, no mitigation measures are planned, other than landscaping immediately after the construction phase. To the greatest extent possible, native Hawaiian flora will be used in the selection of plant materials.

4 DESCRIPTION OF THE HUMAN ENVIRONMENT, POTENTIAL IMPACTS, AND MITIGATION MEASURES

This section describes the existing conditions of the human environment, preliminary potential impacts of Haihai Fire Station, and preliminary mitigation measures to minimize any impacts.

4.1 ARCHAEOLOGICAL AND HISTORIC RESOURCES

During the pre-assessment consultation process, the DLNR State Historic Preservation Division (SHPD) requested "…a site inspection by a qualified archaeologist to identify the presence or absence of any undocumented historic properties." Scientific Consultant Services (SCS) conducted an archaeological inventory survey (AIS) for the proposed Haihai Fire Station site. A draft of the AIS was submitted to SHPD and was approved on April 9, 2014. Findings of the AIS are summarized below. Appendix D contains the Final AIS report as well as a copy of a letter from SHPD.

Historic Background

The project area is located in the *ahupua'a* of Waiākea, Hilo Hanakāhi 'Okana, in the *moku-o-loko* (district) of Hilo. The *ahupua'a* of Waiākea is large, consists of roughly 95,000 acres, and according to the AIS was regarded as a region of abundant natural resources and numerous fishponds. Waiākea was also an early important political center, notably under chief Kulukulu'a. Kamehameha lived and often returned to his *'ili kūpono* (independent land division where all tributes were paid to the chief of the *'ili* and not the *ahupua'a*) lands of Pi'opi'o in the *ahupua'a* of Waiākea. The *'ili kūpono* lands and its royal fishpond were passed on to his son Liholiho after his death.

Between 1845 and 1865, traditional land-use and residential patterns underwent a change. In particular, the regular use of Hilo Bay by foreign vessels, the whaling industry, the establishment of missions in the Hilo area, the introduction of the sandalwood trade, the legalization of private land ownership, the introduction of cattle ranching, and the introduction of sugarcane cultivation all brought about changes in settlement patterns and long-established land-use patterns. Hilo became the center of population and traditional settlements along the shoreline in outlying regions declined or disappeared. While food was still grown for consumption, greater areas of land were continually given over to the specialized cultivation and processing of commercial foodstuffs for export. Sugarcane plantations and industrial facilities were established in areas that were once upland agricultural areas and coastal settlements, respectively.

In 1911, the Waiākea Mill Company applied for a title to several portions of its leased land, but was rejected by the Board of Public Lands. Rather than renew the lease with the Waiākea Mill Company, the government decided to sell some of the land as homestead lots and to lease a portion of the land to small cultivators as cane lots. These became known as the Waiākea Homestead and

Cane Lots. By 1919, more than 2,000 acres of land were purchased as house lots and 5,300 acres was leased to private growers for cane production. Sugarcane grown on these lots was, by terms of contract, to be processed by the Waiākea Mill Company for a share of the profits. The current site for the proposed Haihai Fire Station is located within the northeast corner of what was designated as "Lot 907" (of the Waiākea Homestead and Cane Lots).

However, a lack of cooperation and coordination by the mill company, as well as a lack of proficiency on the part of some cultivators to grow cane, created substantial losses for those that entered into the cane lot agreements. In the period between 1920 and 1923, it became apparent that many who had entered into contracts to pay off their cane lot agreements through the sale of cane to the mill company, would not be able to meet their obligation to do so. In 1925, after an investigation, a settlement was reached, whereby homesteaders were given a sixteen year extension to purchase their land.

By 1938, many homesteaders who had paid off their land began to subdivide their property into residential lots. The process only increased after the Waiākea Mill Company ceased operations in 1946. Over the years, many of the cane lots have been subdivided into residential house lots. The property in which the fire station is proposed is currently used to pasture cattle. The land surrounding the current project area is now primarily residential neighborhoods.

Identified Sites

A pedestrian survey and recording and testing of features on the 2.0-acre project area was conducted by SCS on December 30, 2013, and February 3 and 7, 2014. The area surveyed was larger than the proposed fire station boundaries. The pedestrian survey consisted a series of east/west transects spaced 5.0 meters apart across the survey area. The ground surface was grazed grass, and ground visibility was excellent. Two archaeological sites (Site 50-10-35-30039 and Site 50-10-35-30040) consisting of four rock mound features were identified within the area surveyed. The rock mounds are interpreted as sugarcane field clearing mounds based on archival research of previous land use, based on the style of feature construction, and based on excavation results.

Sites identified during this project were assessed in accordance with Rules Governing Procedures for Historic Preservation Review for Governmental Projects Covered under Sections 6E-7 and 6E-8 contained in draft Hawai‘i Administrative Rules 13§13-275. To be assessed as significant a site must possess integrity of location, design, setting, materials, workmanship, feeling, and association and must be characterized by one or more of five criteria. According to the AIS, Site 30039 and Site 30040, recorded during the current AIS study, are significant under Criterion D, as they contain information important to the history of Hawai‘i. Work conducted during AIS provided sufficient data to determine the function and timing of the features at the two sites. The AIS recommends that no further work or mitigation is required at the sites.

POTENTIAL IMPACTS AND MITIGATION MEASURES

Given the findings of the AIS, no archaeological or historical properties are anticipated to be affected. The County of Hawai‘i Department of Public Works and its contractors will comply with all State and County laws and rules regarding the preservation of archaeological and historic sites. The construction documents will include a provision that should historic sites such as walls, platforms, pavements and mounds, or remains such as artifacts, burials, concentrations of shell or charcoal or artifacts be inadvertently encountered during construction activities, work will cease immediately in the immediate vicinity of the find and the find will be protected. The contractor will immediately contact the State Historic Preservation Division, which will assess the significance of the find and recommend appropriate mitigation measures, if necessary.

4.2 CULTURAL RESOURCES

Scientific Consultant Services Inc. prepared a cultural impact assessment (CIA) for the proposed project to identify traditional customary practices within the project site and in the vicinity of the area. The CIA was conducted in accordance with the OEQC Guidelines for Assessing Cultural Impacts and includes archival research of Waiākea and the surrounding area. Findings of the cultural impact assessment and other relevant information are summarized below. Appendix E contains the complete CIA. During the pre-assessment consultation process, the State Department of Hawaiian Home Lands (DHHL) wrote:

> *The Department of Hawaiian Home Lands supports public facilities that provide services to our lands and beneficiaries. We recommend that your office also consult with the homestead communities/associations that include Pana‘ewa Hawaiian Home lands Community Association, President William "Bill" Brown and the Keaukaha-Pana‘ewa Farmers Association, President Patrick L. Hahawaiolaa to ensure the proposed Haihai Fire Station project does not have any impact on either of the Hawaiian homestead’s future projects, plans or programs.*

In the case of the present parcel, letters of inquiry were sent to organizations whose expertise would include the project area. Consultation was sought from Kai Markell, the Director of Native Rights, Land and Culture, Office of Hawaiian Affairs; Robert K. Lindsey, Jr., Office of Hawaiian Affairs Hawai‘i Island Trustee; Kauanoe Hoomanawanui, SHPD Burial Sites Specialist; Kino Lee, Jr. Chairman of the Hawai‘i Island Burial Council; Rick Gmirkin, Ala Kahakai National Historic Trail, NPS Archaeologist; Patrick L. Hahawaiolaa; Keaukaha-Pana‘ewa Farmers Association; William "Bill" Brown, Pana‘ewa Hawaiian Home Lands Community Association; and Mike Tulang, property lessee and cattle rancher. Inquiries were also made to members of the community who are familiar with the project area lands through cultural, professional, or historical work, or are long-time residents of the area. Of the eight contacted, six responded. None of the respondents were aware of past or ongoing cultural activities conducted on the subject parcels.

Public notices were published in the Office of Hawaiian Affairs Ka Wai Ola Newspaper, and were published in the Honolulu Star Advertiser and the Tribune Herald.

Historical and cultural source materials were extensively used and can be found listed in the References Cited portion of the CIA (contained in its entirety in Appendix E of this EA). The works of scholars such as I‘i, Kamakau, Chinen, Kame‘eleihiwa, Fornander, Kuykendall, Kelly, Handy and Handy, Puku‘i and Elbert, Thrum, and Cordy were consulted and incorporated in the CIA where appropriate. Land use document research was supplied by the Waihona ‘Aina 2007 Data Base.

POTENTIAL IMPACTS AND MITIGATION MEASURES

According to the CIA, the project area has not been used for traditional cultural purposes within recent times. Based on historical research and the responses from the above listed contacts, it is reasonable to conclude that Hawaiian rights related to gathering, access or other customary activities within the project area will not be affected and there will be no direct adverse effect upon cultural practices or beliefs.

4.3 ROADWAYS AND TRAFFIC

Fehr & Peers prepared a transportation assessment to evaluate potential circulation or mobility issues immediately adjacent to the project site. Findings of the study are summarized below. Appendix F contains the complete traffic assessment report.

Roadways

Regional access to the project site is provided by Kanoelehua Avenue (Route 11), while local access is provided by both Haihai Street and Laula Road. The following describes the key roadways in the project vicinity:

Kanoelehua Avenue (Route 11) is a four-lane divided highway, also designated as Mamalahoa Highway, which extends through Hilo and is part of a network of roadways that encircles the island of Hawai‘i. This highway is located approximately one mile *makai* of the project site. Access to Mamalahoa Highway from the project site is provided via two un-signalized side-street stop intersections: 1) on Kilauea Avenue south of Haihai Street; and 2) via E Palai Street and Kilauea Avenue (north of Haihai Street). It has a posted speed limit of 55 miles per hour (mph) south of Kilauea Avenue and transitions to a reduced speed of 35 mph approximately half a mile north of Kilauea Avenue.

Haihai Street is a two-lane roadway that extends westerly from Kilauea Avenue to Kupulau Road. Haihai Street provides direct access to the Hilo Municipal Golf Course and surrounding neighborhoods. Most intersections on Haihai Street are un-signalized, side-street stop

intersections; the nearest signalized intersection is a little less than a mile *mauka* of the project site, at Ainaola Drive. In the immediate vicinity of the site, Haihai Street has a posted speed limit of 35 mph and lane widths of approximately 10 feet. This roadway currently does not provide a paved sidewalk in either direction, however an eight- to nine-foot shoulder is provided on the north side of the street along most of the golf course frontage. On either side of the golf course, the shoulder on the north side is three feet or less. A driveway serving the golf course is located approximately 320 feet *mauka* of Laula Road.

Laula Road is a two-lane, undivided, north-south cul-de-sac that forms the eastern boundary of the project site and terminates about 2,215 feet south of Haihai Street. Similar to other streets in the area, this roadway does not include any formal sidewalks or shoulders and it has homes that front on its *makai* and *mauka* side. The northern end of Laula Road intersects Haihai Street opposite the golf course's exit driveway and both the Laula Road and golf course driveway approaches are stop controlled.

Iwalani Street is a north-south street located approximately 450 feet west of the western edge of the site. This street is planned to be extended south of its existing terminus at Haihai Street and then west to connect to Komohana Street (approximately a one-mile extension in total). While this extension will increase neighborhood connectivity and will affect turning movement volumes at the Iwalani Street/Haihai Street intersection, it is not expected to substantially affect volumes and traffic operations on Haihai Street in front of the project site.

POTENTIAL IMPACTS AND MITIGATION MEASURES

The major site access issue for a fire station is the exiting of vehicles from the station during an emergency response. Responses can range from a single paramedic unit or ambulance to multiple engines and trucks departing the site at one time. When fire/emergency vehicles leave the station, it is important that vehicles on the adjacent street (in this case Haihai Street) stop so that emergency response is not impeded. During the pre-assessment consultation process, the Police Department wrote: "Staff, upon reviewing the provided documents, does not anticipate any significant impact to traffic and/or public safety concerns."

Fire stations are typically expected to generate a negligible number of vehicle trips at any one time, which are intermittently distributed throughout the day in response to emergency calls. Vehicle trips are generated by emergency personnel traveling to and from the site in their personal vehicles during shift changes, by emergency vehicles responding to calls, and by visitors to the station. All of these trips do not occur at one time, and the maximum total trip generation during any single hour of the day is estimated to be less than 20 one-way trips for all trip types, and in most cases, only a minimal number of trips would occur during peak commute periods (between 6:00am and 9:00am and 2:30 pm and 5:30pm). Consequently, given the project's substantially low trip

generation, the project is not anticipated to trigger a significant traffic impact at any of the adjacent roadways or intersections. During the pre-assessment consultation period, the State Department of Transportation wrote:

> *"…The nearest road under State jurisdiction, Kanoelehua Avenue (Route 11), is more than a mile from the proposed project.*
>
> *Based on its location, we do not anticipate any significant impacts to the existing or proposed State Highway System from the proposed fire station."*

Based on the traffic assessment, the proposed fire station is not expected to result in any significant traffic impacts to the adjacent roadway system. The planned extension of Iwalani Street will be located approximately 450 feet west of the project site and is not expected to be affected by project implementation. The on-site circulation layout and the low peak hour trip generation indicate that there will be negligible vehicle queuing and delays at the parking lot driveways on both Haihai Street and Laula Road, and no street modifications are recommended.

4.4 NOISE

The project site is located in an existing residential neighborhood near a golf course. Existing background noise sources generally consist of those generated by vehicular traffic, wind, occasional distant aircraft flybys, and activities occurring at residences and golf courses, such as conversations. There are no other atypical noise-producing activities or facilities present (e.g., auto body shops, factories, foundries, etc.). The proposed Haihai Fire Station will be surrounded on two sides by an existing pasture, so is, in some respects, quieter than most residential neighborhoods.

POTENTIAL IMPACTS AND MITIGATION MEASURES

During construction, temporary noise impacts will occur that are unavoidable. During the pre-assessment consultation, the State of Hawai'i Department of Health, District Environmental Health Program Chief wrote that:

> *Construction activities must comply with the provisions of Hawai'i Administrative Rules, Chapter 11-46, "Community Noise Control."*
>
> 1. *The contractor must obtain a noise permit if the noise levels from the construction activities are expected to exceed the allowable levels of the rules.*
> 2. *Construction equipment and on-site vehicles requiring an exhaust of gas or air must be equipped with mufflers.*
> 3. *The contractor must comply with the requirements pertaining to construction activities as specified in the rules and conditions issued with the permit.*

During the operational phase, temporary noise impacts will be generated during the course of responding to fire alarms and other emergencies. The testing of the sirens is done on a daily basis when personnel are assigned to check the working condition of the vehicles. Testing usually consists of short bursts from the siren. Sirens will be used when responding to emergency incidents. Personnel, however, are advised and trained to be prudent in the use of sirens. For example, the use of the sirens may not be necessary at night; in and around light traffic residential areas with good visibility; and during times of light traffic in other areas.

The area of the proposed fire station is lightly trafficked, so the use of the siren when exiting the station may not be necessary in all cases. Nonetheless, sirens are used when deemed essential because they are a necessary warning device for responding to emergencies. These types of noise disturbances are unavoidable but will be intermittent and of short duration. No other mitigation measures are planned.

4.5 AIR QUALITY

Air quality in the Hilo area is believed to be relatively good, except for occasional impacts from localized traffic congestion. The prevailing northeasterly trade wind flow tends to push any human-made or natural pollutants away. However, the amount of particulates and other air pollutants can significantly increase during periods when the winds shift to a southwesterly direction. Air flow from this direction carrying volcanic smog (more commonly referred to as vog), can lead to an increase in pollution and a decrease in visibility.

The State Department of Health (DOH) maintains a limited network of air monitoring stations around the State to gather data on certain regulated pollutants. Currently, no routine ambient air monitoring is conducted by DOH in the Hilo area. Historical monitoring during the 1970's and 1980's indicated very low pollutant levels in Hilo. The entire state has been an attainment area for the last several decades. There is little reason to believe this has changed significantly.

POTENTIAL IMPACTS AND MITIGATION MEASURES

Construction activity will be the principal source of short-term air quality impact. Construction vehicle activity will temporarily increase automotive pollutant concentrations along the existing roadways as well as on the project site. Site preparation, earth moving, and building construction will create particulate emissions during the short term. Movement of construction vehicles on unpaved surfaces can also generate particulate emissions.

Short-term impacts that could result from the project would be the emission of fugitive dust during site preparation and construction. During the pre-assessment consultation, the State of Hawai‘i Department of Health, District Environmental Health Program Chief wrote that: “The applicant would need to meet the requirements of our Department of Health Air Pollution Rules, Chapter 60.1, Title 11, State of Hawai‘i for fugitive dust control.”

Although the potential for fugitive dust is low due to the wet climate and low wind speeds of Hilo, adequate dust control measures will be employed, particularly during construction during low-rainfall periods. Dust control will be accomplished by frequent watering of unpaved roads within the project site and areas of exposed soil surfaces. As soon as it is feasible, landscaping of completed areas will also be employed. Dust control measures will comply with applicable provisions of HAR section 11-60.1-33 and Chapter 10 of the Hawai‘i County Code (“Erosion and Sedimentation Control”). Measures to control dust during construction include:

- Providing an adequate water source at the site prior to start-up construction activities;
- Irrigating the construction site during periods of drought or high winds and all dry conditions;
- Landscaping and rapid covering of bare areas, including slopes, starting from the initial grading phase;
- Disturbing only the areas of construction that are in the immediate zone of construction to limit the amount of time that the areas will be subject to erosion;
- Providing adequate dust control measures during weekends, after hours, and before daily start-up of construction activities; and
- Installing silt screening in the areas of disturbance.

Long-term negative impacts related to air quality are not expected.

4.6 VISUAL RESOURCES

The property is covered with vegetation typical of a pastoral lot in the area, with much of it covered in grasses. Much of the site is visible from Haihai Street, where canopy trees are absent. The only portion of the property visible from passing cars driving along Laula Road is the northeastern portion of the site. Man-made structures include fencing, cattle gates and miscellaneous structures related to ranching.

POTENTIAL IMPACTS AND MITIGATION MEASURES

The proposed fire station buildings will be designed to be compatible with the character of the surrounding area and will be landscaped in keeping with this character and that of Hilo Town. The structure will be approximately 32 feet high.

In addition, the project site is not listed by the County as being in a scenic view plane or as a site of natural beauty, nor is it home to any of the exceptional trees listed in the County of Hawai‘i’s General Plan. Construction of the proposed fire station will not block any identified scenic view planes or impact any areas of natural beauty. During the construction phase, landscaping will include native Hawaiian plants and trees, wherever possible. Other than landscaping no mitigation measures are planned.

4.7 INFRASTRUCTURE AND UTILITIES

4.7.1 Water System

According the County Department of Water Supply (DWS) in its pre-assessment consultation comments, "Water can be made available from the existing 10-inch County waterline within Haihai Street, fronting the proposed project site."

POTENTIAL IMPACTS AND MITIGATION MEASURES

Prior to issuing a water commitment for the proposed Haihai Fire Station, DWS requests estimated maximum daily water usage calculations prepared by a professional engineer licensed in the State of Hawai'i for review and approval. According to the project mechanical engineer, the future staff and visitors are expected to generate a demand of 1,000 to 2,000 gallons per day from the existing water line. Additionally, according to DWS, "…the existing 10-inch waterline fronting the project site is adequate to provide the required 2,000 gallons per minute flow for fire protection, as per the Department's Water System Standards." DWS noted that any meter(s) serving the proposed project will require the installation of a reduced pressure type backflow prevention assembly within five feet of the meter on private property. DWS must inspect and approve the installation before water service can be activated.

4.7.2 Wastewater System

There are no sewer lines within Haihai Street that connects to the project site.

POTENTIAL IMPACTS AND MITIGATION MEASURES

The future staff and visitors are expected to generate a demand of between 1,000 to 2,000 gallons per day of wastewater. Treatment and disposal of wastewater from the proposed fire station will be treated by an on-site septic system and leach field.

4.7.3 Drainage System

The subject site is located in an area described as "outside floodplain/minimal flooding area" on the Flood Insurance Rate Map (FIRM) (Figure 14).

POTENTIAL IMPACTS AND MITIGATION MEASURES

The proposed fire station with its buildings, walkways, and parking area will increase the amount of impervious surfaces.

To the extent practicable, the project will be designed to maintain post-development peak runoff rate and average volume at levels that are similar to pre-development levels. Any net increase of

runoff from such impermeable surfaces as roads, driveways, parking lots and rooftops will be addressed by using drywells and/or one or more of the following Low Impact Design (LID) site design measures, such as vegetated filter strips, open vegetated swales, bio-retention and rain gardens, infiltration trenches, and rain harvesting from rooftops. The aforementioned best management practices (BMPs) are intended to accomplish the following: (1) decrease the erosive potential of increased runoff volumes and velocities associated with development-induced changes in hydrology; (2) remove suspended solids and associated pollutants entrained in runoff that result from activities occurring during and after development; and (3) retain hydrological conditions to closely resemble those of the pre-disturbance condition.

4.7.4 Solid Waste

The County of Hawai‘i Solid Waste Division operates and maintains, either by County personnel or by contracted services, all solid waste collection and disposal facilities on the island. This includes two landfills, twenty-one transfer stations and island wide hauling operations in accordance with local, state and federal guidelines and regulations.

The nearest solid waste facility to the project site is the South Hilo Sanitary Landfill, located approximately 4 miles away.

POTENTIAL IMPACTS AND MITIGATION MEASURES

Waste generated by site preparation will primarily consist of green waste from grading, and solid waste during construction. Soil and rocks displaced from grading and clearing will be used as fill within the site as needed. To reduce waste during construction, recycled materials and locally produced products will be used where possible.

After construction, the Haihai Fire Station will generate solid waste related to daily use and operation. To minimize waste, recycling bins will be provided for at the fire station. Waste that cannot be recycled will be disposed of at the South Hilo Sanitary Landfill.

4.7.5 Utilities

The Hawai‘i Electric Light Company, Inc. (HELCO), a privately-owned utility company regulated by the State Public Utilities Commission, provides electrical power to the island of Hawai‘i. The HELCO network of power plants serving Hilo includes the Kanoelehua Power Plant, Puna Power Plant, Wailuku Hydro Power Plant, Hilo Coast Power Plant, and Shipman Power Plant. Currently, HELCO provides electrical power to the site.

Telecommunication services are provided by Verizon Hawai‘i via overhead lines.

POTENTIAL IMPACTS AND MITIGATION MEASURES

Electrical and telephone services are currently sized, adequate, and available to supply the area and parcel. The Project will include backup generators to maintain operations when grid power goes down temporarily or during disaster events.

4.8 SOCIO-ECONOMIC CHARACTERISTICS

The overall population of Hawai‘i County has exhibited relatively stable growth over the past decade. The County of Hawai‘i Department of Research and Development reported that the population of Hawai‘i County was 186,738 people in 2011, a 25.6 percent increase from the 2000 population of 148,677 people.

The South Hilo district had a population of 48,786 in 2010 which represented approximately 26 percent of the total population for Hawai‘i Island. The City of Hilo contains the main offices of the County government, branch offices of federal and state agencies. 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 Hawai‘i at Hilo and Hawai‘i Community College and affiliated research programs play an important role in Hilo’s economy. In the immediate vicinity of the project site is the Hilo Municipal Golf Course, which not only provides employment, but recreational opportunities as well. The subject property is utilized for ranching, and will remain in such use even when a portion is set aside for a fire station.

As of February 2014, Hawai‘i County’s unemployment rate was 6.1 percent, compared to the State’s overall rate of 4.6 percent, and it was decreased by .9 percent from February 2013 from the Hawai‘i County’s unemployment rate of 7.0 percent (State of Hawai‘i Department of Labor and Industrial Relations, 2014).

POTENTIAL IMPACTS AND MITIGATION MEASURES

During the pre-assessment consultation process, the State Department of Human Services (DHS) noted that: “There are several DHS licensed family child care homes located in the vicinity that may be impacted by the construction of the new fire station.” The proposed Haihai Fire Station project will have a beneficial socioeconomic impact by providing reliable emergency services (fire protection and emergency medical services) to the needs of the surrounding community, including DHS-licensed family child care homes.

Construction of the facility will not require the relocation of residents, as the site is currently vacant.

Short-term employment benefits will be generated throughout the construction period as well as long-term employment benefits for the estimated 18 additional personnel when the fire station is fully staffed. The benefits however will not be significant relative to the overall economy of the island. No changes are expected to the overall economy and no mitigation measures are planned.

The proposed Haihai Fire Station will not affect area population and will not create additional strain on other area facilities. The construction of the proposed fire station will provide greater health and safety protection for residents of the area.

4.8.1 Environmental Justice

On February 11, 1994, President Clinton signed Executive Order (E.O.) 12898. This E.O. directs federal agencies to make achieving environmental justice part of its mission by identifying and addressing, as appropriate, disproportionately high adverse human health or environmental effects of its activities on minority and low-income populations.

Each Federal agency must make achieving environmental justice part of its mission by identifying and addressing, as appropriate, disproportionately high and adverse human health, environmental, economic, and social effects of its programs, policies, and activities on minority and low-income populations. While this EA is not subject to the Federal review process, the notion of environmental justice has been evaluated.

The project site is located in a predominantly mixed-race neighborhood typical of many in the State. No single cultural or ethnic group in the vicinity of the project site is disproportionately impacted relative to the Waiākea community.

POTENTIAL IMPACTS AND MITIGATION MEASURES

The proposed Haihai Fire Station would provide a much needed public safety facility for the South Hilo District. The availability of a fire station in the immediate vicinity of the project site and neighboring properties is a positive and reassuring public service.

Although several sites were initially evaluated, this site was not selected on the basis of the neighborhood's "economic status." The project site was chosen as the preferred site because the land is vacant, publically-owned, and located next to a major thoroughfare.

As such, the notion of environmental justice has been evaluated, and there would be no activity performed that would in any way create discrimination or isolation of any group of people based on the siting or purpose of the Haihai Fire Station.

4.9 PUBLIC SERVICES AND FACILITIES

4.9.1 Schools

The closest State Department of Education (DOE) public schools are: Waiākeawaena Elementary School, Waiākea Elementary School, Waiākea Intermediate School, and Waiākea High School.

POTENTIAL IMPACTS AND MITIGATION MEASURES

The Haihai Fire Station will not generate new residents or introduce new school-aged children to the area. Therefore, no additional demands will be placed on DOE facilities. While the construction of the proposed project will generate noise and may generate dust, the closest public school, Waiākeawaena Elementary School, is located over 0.9 miles away. The distance and the presence of vegetation (from the Hilo Municipal Golf Course) and homes will block construction noise from the proposed fire station site. In addition, the Waiākeawaena Elementary School, is upwind of the proposed fire station site during predominant trade wind conditions, so even if airborne dust was generated, it would be unlikely to impact children attending classes at Waiākeawaena Elementary School.

4.9.2 Police, Fire and Medical Services

Police Protection

The project site is located in South Hilo, Patrol District 1. The district extends from Hakalau in the north, to the mid-point of Kanoelehua Avenue between Hilo and Kea‘au in the south, to the Saddle Road in the west. The district includes the main police station, located at 349 Kapi‘olani Street, approximately 4 miles from the project site.

Fire Protection

The Hawai‘i County Fire Department Kawailani Fire Station provides fire protection and suppression services in Waiākea. The Kawailani Fire Station is an Engine Company with one engine, a tanker and a medic unit. Backup support is provided by 1) Central Fire Station, located 4.1 miles away in Hilo, with an Engine Company and an ALS medic unit; 2) Kaumana Fire Station, located 4.9 miles away, with an Engine Company and HAZMAT Response capabilities; and 3) Waiakea Fire Station, located 4.8 miles away in Keaukaha. Waiakea Fire Station is a Rescue Company providing firefighting response with an Engine, Light and Heavy Rescue, including helicopter response and ocean rescue response capabilities. By November of 2014, Waiakea will be receiving a new 79’ Ladder Truck. At this time, no tanker vehicles are assigned to the Hilo area due to the adequate hydrant system and all of the Engines (also referred to as Pumpers) each carry 1,000 gallons of water. At any one time, there are five to six firefighters on duty at the Kawailani Fire Station.

Medical Services

Hilo Medical Center (HMC) is the primary health care facility serving the South Hilo district. HMC is located approximately 4.9 miles from the project site at 1190 Waiānuenue Avenue. Ambulance service in Hilo is provided by the Hawai‘i Fire Department, which can serve the project site area (during construction) from the current Kawailani Fire Station in two minutes. Once the

proposed Haihai Fire Station is operational, the site will have 24 hour trained Emergency Medical Service personnel on site. As mentioned above, Central Fire Station also provides ALS medic response to the Hilo area.

POTENTIAL IMPACTS AND MITIGATION MEASURES

During the pre-assessment consultation process, the Police Department wrote: "Staff, upon reviewing the provided documents, does not anticipate any significant impact to traffic and/or public safety concerns." There may be an occasional and unavoidable demand for police, and medical services associated with the proposed Haihai Fire Station, however, it is anticipated that existing County services will not be adversely affected by the proposed fire station. No mitigation measures are proposed. During the pre-assessment consultation period, the Department of Land and Natural Resources, Land Division, Hawai'i District Land Agent wrote about the positive impacts of the proposed project on the Fire Department and emergency medical services:

> *The County of Hawai'i is requesting approximately two (2) acres of land be withdrawn from General Lease No. S-5570 to be set aside for the Waiākea Uka fire station as the Hawai'i Fire Department has outgrown the existing station located on Kawailani Street. In addition, emergency services provided by the Hawai'i Fire Department from the Kawailani Street Station now include Emergency Medical Services and the required personnel, vehicles and equipment can no longer be accommodated at the current location. Furthermore, an ongoing Kawailani Street widening project will bring the working area of the station driveway and building closer to the active roadway which may lead to a dangerous situation.*
>
> *The proposed set aside location is most favorable due to it being centrally located and able to serve the same population that the existing Kawailani Street Station serves, inclusive of the area from Panaewa makai up to Waiākea Uka and will provide the additional space required for the Emergency Medical Services personnel.*

4.9.3 Recreational Facilities

The entire South Hilo District contains 54 parks totaling 590 acres. The immediate area of the project site is served by the Hilo Municipal Golf Course, Ainaola Park, Ahualani Park, Lokahi Park, Waiākea Uka Park, and Panaewa Park and Malama Park. Other recreational facilities, parks, and open spaces in the Hilo area include Kūhiō-Kalaniana'ole Park, Honoli'i Beach Park, Lili'uokalani Gardens, Reeds Bay, Onekahakaha Beach Park, Kealoha Beach Park, Carlsmith Beach Park and Richardson Ocean Park.

POTENTIAL IMPACTS AND MITIGATION MEASURES

The project itself is not a direct generator of new residents requiring recreational facilities. Fire stations typically have on-site recreational equipment, as on-duty firemen need to be close to their fire trucks at all times. No significant impacts to recreational facilities are anticipated as a result of the proposed development and therefore no mitigation measures are proposed.

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5 LAND USE CONFORMANCE

State of Hawai‘i and Hawai‘i County land use plans, policies, and ordinances relevant to the proposed Haihai Fire Station are described below.

5.1 STATE OF HAWAI‘I

5.1.1 Chapter 343, Hawai‘i Revised Statutes

Compliance with Chapter 343, HRS is required as described in Section 1.4.

5.1.2 State Land Use Law, Chapter 205, Hawai‘i Revised Statutes

The State Land Use Law (Chapter 205, HRS), establishes the State Land Use Commission (LUC) and authorizes this body to designate all lands in the State into one of four Districts: Urban, Rural, Agricultural, or Conservation.

The proposed Haihai Fire Station site is located within the State Urban District (Figure 5). By Chapter 205, HRS, the County has jurisdiction of zoning for lands designated within the State Urban District.

5.1.3 Coastal Zone Management Act, Chapter 205A, Hawai‘i Revised Statutes

During the pre-assessment consultation, the State Office of Planning noted that: “The entire state is defined to be within the Coastal Zone Management Area, pursuant to Hawai‘i Revised Statutes (HRS) 205A-1, (definition of “coastal zone management area”).” As such, the proposed Haihai Fire Station lies within the Coastal Zone Management Area.

As requested by the State Office of Planning, a discussion of the proposed Haihai Fire Station project’s ability to meet the objectives and policies set forth in HRS 205A-2, is provided below.

Recreational Resources

Objective*: Provide coastal recreational opportunities accessible to the public.*

Policies

- *(A) Improve coordination and funding of coastal recreational planning and management; and*
- *(B) Provide adequate, accessible, and diverse recreational opportunities in the coastal zone management area by:*
  - *(i) Protecting coastal resources uniquely suited for recreational activities that cannot be provided in other areas;*

(ii) Requiring replacement of coastal resources having significant recreational value including, but not limited to surfing sites, fishponds, and sand beaches, when such resources will be unavoidably damaged by development; or requiring reasonable monetary compensation to the State for recreation when replacement is not feasible or desirable;

(iii) Providing and managing adequate public access, consistent with conservation of natural resources, to and along shorelines with recreational value;

(iv) Providing an adequate supply of shoreline parks and other recreational facilities suitable for public recreation;

(v) Ensuring public recreational uses of County, state, and federally owned or controlled shoreline lands and waters having recreational value consistent with public safety standards and conservation of natural resources;

(vi) Adopting water quality standards and regulating point and nonpoint sources of pollution to protect, and where feasible, restore the recreational value of coastal waters;

(vii) Developing new shoreline recreational opportunities, where appropriate, such as artificial lagoons, artificial beaches, and artificial reefs for surfing and fishing; and

(viii) Encouraging reasonable dedication of shoreline areas with recreational value for public use as part of discretionary approvals or permits by the land use commission, board of land and natural resources, and County authorities; and crediting such dedication against the requirements of section 46-6;

Discussion: The proposed Haihai Fire Station is not a coastal development, is not located on the coastline, and is not in the SMA; therefore, policies regarding shoreline recreation resources are not applicable; however to protect marine resources for purposes including recreation, the State of Hawai‘i has adopted water quality standards. Generally, these standards will require the submittal and adherence to a National Pollution Discharge Elimination System (NPDES) permit. This permit requires compliance with best management practices during construction to minimize soil erosion into adjacent waterways. The NPDES permit will also include requirements to maintain water quality during operation. A NPDES permit will be required for the proposed Haihai Fire Station.

Historic Resources

Objective*: Protect, preserve, and, where desirable, restore those natural and manmade historic and prehistoric resources in the coastal zone management area that are significant in Hawaiian and American history and culture.*

Policies

(A) Identify and analyze significant archaeological resources;

(B) Maximize information retention through preservation of remains and artifacts or salvage operations; and

(C) Support state goals for protection, restoration, interpretation, and display of historic resources;

Discussion: Given the findings of the AIS, no archaeological or historical properties are anticipated to be affected. The County of Hawai‘i DPW and its contractors will comply with all State and County laws and rules regarding the preservation of archaeological and historic sites. The construction documents will include a provision that should historic sites such as walls, platforms, pavements and mounds, or remains such as artifacts, burials, concentrations of shell or charcoal or artifacts be inadvertently encountered during construction activities, work will cease immediately in the immediate vicinity of the find and the find will be protected. The contractor will immediately contact the State Historic Preservation Division, which will assess the significance of the find and recommend appropriate mitigation measures, if necessary.

Scenic and Open Space Resources

Objective*: Protect, preserve, and, where desirable, restore or improve the quality of coastal scenic and open space resources.*

Policies

(A) Identify valued scenic resources in the coastal zone management area;

(B) Ensure that new developments are compatible with their visual environment by designing and locating such developments to minimize the alteration of natural landforms and existing public views to and along the shoreline;

(C) Preserve, maintain, and, where desirable, improve and restore shoreline open space and scenic resources; and

(D) Encourage those developments that are not coastal dependent to locate in inland areas;

Discussion: The proposed Haihai Fire Station site will be located inland, away from the shoreline; therefore, it is anticipated that there will be no effect on the quality of the coastal scenic resources.

Coastal Ecosystems

Objective: Protect valuable coastal ecosystems, including reefs, from disruption and minimize adverse impacts on all coastal ecosystems.

Policy A: Exercise an overall conservation ethic, and practice stewardship in the protection, use, and development of marine and coastal resources;

Policy B: Improve the technical basis for natural resource management;

Policy C: Preserve valuable coastal ecosystems, including reefs, of significant biological or economic importance;

Policy D: Minimize disruption or degradation of coastal water ecosystems by effective regulation of stream diversions, channelization, and similar land and water uses, recognizing competing water needs; and

Policy E: Promote water quantity and quality planning and management practices that reflect the tolerance of fresh water and marine ecosystems and maintain and enhance water quality through the development and implementation of point and nonpoint source water pollution control measures.

Discussion: The proposed Haihai Fire Station will be located far inland from the coastline. Therefore, it is anticipated that there will be no effect on the quality of the coastal ecosystems.

Economic Uses

Objective: Provide public or private facilities and improvements important to the State's economy in suitable locations.

Policy A: Concentrate coastal dependent development in appropriate areas;

Policy B: Ensure that coastal dependent development such as harbors and ports, and coastal related development such as visitor industry facilities and energy generating facilities, are located, designed, and constructed to minimize adverse social, visual, and environmental impacts in the coastal zone management area; and

Policy C: Direct the location and expansion of coastal dependent developments to areas presently designated and used for such developments and permit reasonable long-term growth at such areas, and permit coastal dependent development outside of presently designated areas when:

(i) Use of presently designated locations is not feasible;

(ii) Adverse environmental effects are minimized; and

(iii) The development is important to the State's economy.

Discussion: The proposed Haihai Fire Station is not a coastal dependent development, is not located on the coastline, and is not in the SMA; therefore, these policies are not applicable.

Coastal Hazards

Objective: Reduce hazard to life and property from tsunami, storm waves, stream flooding, erosion, subsidence, and pollution.

Policy A: Develop and communicate adequate information about storm wave, tsunami, flood, erosion, subsidence, and point and non-point source pollution hazards;

Policy B: Control development in areas subject to storm wave, tsunami, flood, erosion, hurricane, wind, subsidence, and point and non-point source pollution hazards;

Policy C: Ensure that developments comply with requirements of the Federal Flood Insurance Program; and

Policy D: Prevent coastal flooding from inland projects.

Discussion: The proposed Haihai Fire Station site sits far inland from the coastline and will not exacerbate any coastal hazards.

Managing Development

Objective: Improve the development review process, communication, and public participation in the management of coastal resources and hazards.

Policy A: Use, implement, and enforce existing law effectively to the maximum extent possible in managing present and future coastal zone development;

Policy B: Facilitate timely processing of applications for development permits and resolve overlapping or conflicting permit requirements; and

Policy C: Communicate the potential short and long-term impacts of proposed significant coastal developments early in their life cycle and in terms understandable to the public to facilitate public participation in the planning and review process.

Discussion: The proposed Haihai Fire Station is not a coastal development, is not located on the coastline, and is not in the SMA; however, this EA, provides opportunity for public input during the Draft EA Public Comment period.

Pre-consultation comments were obtained and are reproduced in Appendix B. In addition, this EA discusses potential impacts and mitigation measures of the proposed Haihai Fire Station and provides an opportunity for input during the Draft EA Public Comment period.

Public Participation

Objective: Stimulate public awareness, education, and participation in coastal management.

Policy A: Promote public involvement in coastal zone management processes;

Policy B: Disseminate information on coastal management issues by means of educational materials, published reports, staff contact, and public workshops for persons and organizations concerned with coastal issues, developments, and government activities; and

Policy C: Organize workshops, policy dialogues, and site- specific mediations to respond to coastal issues and conflicts.

Discussion: The proposed Haihai Fire Station is not a coastal development, is not located on the coastline, and is not in the SMA; however, this EA, provides opportunity for public input during the Draft EA Public Comment period.

Pre-consultation comments were obtained and are reproduced in Appendix B. In addition, this EA discusses potential impacts and mitigation measures of the proposed Haihai Fire Station and provides an opportunity for input during the Draft EA Public Comment period.

Beach Protection

Objective: Protect beaches for public use and recreation.

Policy A: Locate new structures inland from the shoreline setback to conserve open space, minimize interference with natural shoreline processes, and minimize loss of improvements due to erosion;

Policy B: Prohibit construction of private erosion-protection structures seaward of the shoreline, except when they result in improved aesthetic and engineering solutions to erosion at the sites and do not interfere with existing recreational and waterline activities; and

Policy C: Minimize the construction of public erosion-protection structures seaward of the shoreline.

Discussion: The proposed Haihai Fire Station is not a coastal dependent development, is not located on the coastline, and is not in the SMA; therefore, these policies are not applicable.

Marine Resources

Objective: Promote the protection, use, and development of marine and coastal resources to assure their sustainability.

Policy A: Ensure that the use and development of marine and coastal resources are ecologically and environmentally sound and economically beneficial;

Policy B: Coordinate the management of marine and coastal resources and activities to improve effectiveness and efficiency;

Policy C: Assert and articulate the interests of the State as a partner with Federal agencies in the sound management of ocean resources within the United States exclusive economic zone;

Policy D: Promote research, study, and understanding of ocean processes, marine life, and other ocean resources in order to acquire and inventory information necessary to understand how ocean development activities relate to and impact upon ocean and coastal resources; and

Policy E: Encourage research and development of new, innovative technologies for exploring, using, or protecting marine and coastal resources.

Discussion: The proposed Haihai Fire Station is not a coastal development, is not located on the coastline, and is not in the SMA; therefore, policies regarding shoreline recreation resources are not applicable; however to protect marine water quality the Project will be designed and built in compliance with all applicable Federal, State, and County regulations pertaining to storm water management including Chapter 10 (Erosion and Sedimentation Control) of the Hawai‘i County Code and the DOH NPDES permit program.

5.1.4 Hawai‘i State Plan

The Hawai‘i State Plan (Chapter 226, HRS), establishes a set of goals, objectives and policies that serve as long-range guidelines for the growth and development of the State. Objectives and policies pertinent to the proposed project are as follows:

HRS § 226-26: Objectives and policies for socio-cultural advancement – public safety.

Objectives: *Planning for the State's socio-cultural advancement with regard to public safety shall be directed towards the achievement of the following objectives:*

(1) Assurance of public safety and adequate protection of life and property for all people.
(2) Optimum organizational readiness and capability in all phases of emergency management to maintain the strength, resources, and social and economic well-being of the community in the event of civil disruptions, wars, natural disasters, and other major disturbances.
(3) Promotion of a sense of community responsibility for the welfare and safety of Hawai‘i's people.

Policies related to public safety:

(1) Ensure that public safety programs are effective and responsive to community needs.
(2) Encourage increased community awareness and participation in public safety programs

Policies related to emergency management:

(1) Ensure that responsible organizations are in a proper state of readiness to respond to major war-related, natural, or technological disasters and civil disturbances at all times.

(2) Enhance the coordination between emergency management programs throughout the State.

Discussion: All design and construction will conform to all applicable codes, rules, and regulations to ensure life safety of public uses is not jeopardized. The proposed facility, a fire station, is an integral component of public safety.

5.2 COUNTY OF HAWAI'I

County-specific land use plans and ordinances pertaining to the proposed Haihai Fire Station include the General Plan of the County of Hawai'i, and the Hawai'i County Code.

5.2.1 County of Hawai'i General Plan

The County of Hawai'i General Plan is the policy document for the long-range comprehensive development of the Island of Hawai'i. Among the purposes of the General Plan are to guide the pattern of development in Hawai'i County and to provide the framework for regulatory decisions and capital improvement projects. The General Plan undergoes a comprehensive review every ten years, with the last review being completed in 2005.

The policy land use map, referred to as the Land Use Pattern Allocation Guide (LUPAG) Map, is intended to guide the direction and quality of future developments in a coordinated and rational manner. The site for the proposed Haihai Fire Station is designated as "Open Area" and "Low Density Urban" (Figure 6).

Specific General Plan goals, policies, and courses of action most applicable to the proposed Haihai Fire Station are discussed below.

Flooding and Other Natural Hazards

5.2 GOALS

(a) Protect human life.

(b) Prevent damage to man-made improvements.

5.3 POLICIES

(l) Continue to promote public education programs on tsunami, hurricane, storm surge, and flood hazards.

(q) Consider natural hazards in all land use planning and permitting.

Discussion: The proposed Haihai Fire Station is located outside of the 100-year floodplain. All proposed buildings will be located outside any floodplains.

Historic Sites

6.2 GOALS

(a) Protect, restore, and enhance the sites, buildings, and objects of significant historical and cultural importance to Hawai'i.

6.3 POLICIES

(a) Agencies and organizations, either public or private, pursuing knowledge about historic sites should keep the public apprised of projects.

(c) Require both public and private developers of land to provide historical and archaeological surveys and cultural assessments, where appropriate, prior to the clearing or development of land when there are indications that the land under consideration has historical significance.

(o) Recognize the importance of certain natural features in Hawaiian culture by incorporating the concept of "cultural landscapes" in land use planning.

Discussion: Given the findings of the AIS, no archaeological or historic properties are anticipated to be affected. The County of Hawai'i DPW and its contractors will comply with all State and County laws and rules regarding the preservation of archaeological and historic sites. The construction documents will include a provision that should historic sites such as walls, platforms, pavements and mounds, or remains such as artifacts, burials, concentrations of shell or charcoal or artifacts be inadvertently encountered during construction activities, work will cease immediately in the immediate vicinity of the find and the find will be protected. The contractor will immediately contact the State Historic Preservation Division, which will assess the significance of the find and recommend appropriate mitigation measures, if necessary.

Natural Beauty

7.2 GOALS

(b) Protect scenic vistas and view planes from becoming obstructed.

(c) Maximize opportunities for present and future generations to appreciate and enjoy natural and scenic beauty.

7.3 POLICIES

(a) Increase public pedestrian access opportunities to scenic places and vistas.

(h) Protect the views of areas endowed with natural beauty by carefully considering the effects of proposed construction during all land use reviews.

(i) Do not allow incompatible construction in areas of natural beauty.

Discussion: The proposed Haihai Fire Station will be visible from Haihai Street and Laula Road and will change the appearance of a portion of the existing pasture on the property from open grassland to a new fire station. The placement and height of the fire station buildings will not obstruct any view planes towards any natural landmarks.

Public Facilities

10.1.2 Goal

(a) Encourage the provision of public facilities that effectively service community and visitor needs and seek ways of improving public service through better and more functional facilities in keeping with the environmental and aesthetic concerns of the community.

Discussion: The proposed Haihai Fire Station will replace the Kawailani Fire Station and result in improving the County's response to community's emergency needs.

5.2.2 County of Hawai'i Zoning

Similar to the State Land Use Districts, the Hawai'i County Code regulates the type and location of development permitted on the island. Hawai'i County zoning designations, Chapter 25 HCC, are more specific in terms of describing permitted land uses. The portion of the property proposed for the location of the Haihai Fire Station is zoned Open (Figure 7). According to Section 25-5-160 of the Hawai'i County Code:

> *The O (open) district applies to areas that contribute to the general welfare, the full enjoyment, or the economic well-being of open land type use which has been established, or is proposed. The object of this district is to encourage development around it such as a golf course and park, and to protect investments which have been or shall be made in reliance upon the retention of such open type use, to buffer an otherwise incompatible land use or district, to preserve a valuable scenic vista or an area of special historical significance, or to protect and preserve submerged land, fishing ponds, and lakes (natural or artificial tide lands).*

Uses permitted in the Open District include "Public Uses and Structures", such as the proposed fire station, with a Plan Approval. There is no height limit, minimum building site area, minimum building site average width, nor minimum yards in the Open District (except as specified as a

condition of approval attached to any Use Permit or Plan Approval). A Plan Approval is required for the proposed project.

5.2.3 Special Management Area

The property is not located within the Special Management Area (SMA).

5.3 APPROVALS AND PERMITS

A listing of anticipated permits and approvals required for Haihai Fire Station is presented below:

Table 2: Anticipated Approvals and Permits

Permit/Approval	Responsible Agency
Chapter 343, HRS Compliance	County of Hawai‘i Department of Public Works Office of Environmental Quality Control
Plan Approval	Hawai‘i County Planning Department
National Pollutant Discharge Elimination System (NPDES) Permit	State Department of Health
Subdivision	Hawai‘i County Planning Department
Grading/Building Permits	Hawai‘i Department of Public Works
Noise Permit	State Department of Health

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6 ALTERNATIVES

This section identifies and evaluates a range of alternatives that could meet the purpose and need and possibly avoid, reduce, or minimize adverse environmental effects. The reference point to compare alternatives is the "no action" alternative.

6.1 NO ACTION ALTERNATIVE

The primary purpose for the Haihai Fire Station, as discussed in Section 2.2, is to improve emergency services from Panaewa Makai to Waiākea Uka. Under the "no action" alternative, no fire station would be built and the district population would have to rely on the existing facilities. The area would not benefit from improved emergency services and response times.

The existing Kawailani Fire Station is limited in size and inadequate to meet the space requirements for the Fire Department. The half-acre parcel is surrounded by residential homes, Kawailani Street and the Hilo Municipal Golf Course, and does not allow for future expansion.

The proposed Haihai Fire Station would provide a much needed public safety facility for the South Hilo District. The availability of a fire station in the immediate vicinity of the project site and neighboring properties is a positive and reassuring public service. The proposed Haihai Fire Station will provide more space for the growing needs of the Fire Department.

With the "no action" alternative, the district needs for emergency services and response times would not be met, therefore this alternative has been eliminated.

6.2 ALTERNATIVE SITES

Alternative sites were considered for the relocation of the existing Kawailani Fire Station. Three possible sites were evaluated based on the following criteria: 1) site located outside of the tsunami evacuation zone; and 2) close proximity to the center of Hilo in the primary response area.

1) **Mohouli Street site:** The Mohouli Street site would place the new station between Komohana Street and Kaumana Drive, away from the town center and away from the center of the primary response area.
2) **Lanakila Homes site:** This site would allow the fire station to be located outside the tsunami evacuation zone and situated closer to the community and downtown Hilo than the Mohouli Street site. However, the parcel is subject to easements that would limit the design of the fire station.
3) **Haihai Street site:** The Haihai Street site is located near the existing Kawailani Fire Station, limiting the interruption of emergency services to the area. The site is located outside of the tsunami evacuation zone and within a residential area. While the location is

some distance from downtown Hilo, the site is near a major thoroughfare providing convenient access to town.

Based on the analysis above, the Haihai Street site, the site subject to this environmental assessment, was chosen as the preferred site for the proposed Haihai Fire Station. Reasons to why this site was preferred include:

- Adjacent to residential area.
- Nearby existing Kawailani Fire Station.
- Less site constraints.
- Good parcel configuration and adequate suitable area for future expansion.

6.3 PREFERRED ALTERNATIVE

During the pre-assessment consultation period, the Department of Land and Natural Resources, Land Division, Hawai‘i District Land Agent wrote about the positive impacts of the proposed project on the Fire Department and emergency medical services:

> *The County of Hawai‘i is requesting approximately two (2) acres of land be withdrawn from General Lease No. S-5570 to be set aside for the Waiākea Uka fire station as the Hawai‘i Fire Department has outgrown the existing station located on Kawailani Street. In addition, emergency services provided by the Hawai‘i Fire Department from the Kawailani Street Station now include Emergency Medical Services and the required personnel, vehicles and equipment can no longer be accommodated at the current location. Furthermore, an ongoing Kawailani Street widening project will bring the working area of the station driveway and building closer to the active roadway which may lead to a dangerous situation.*
>
> *The proposed set aside location is most favorable due to it being centrally located and able to serve the same population that the existing Kawailani Street Station serves, inclusive of the area from Panaewa makai up to Waiākea Uka and will provide the additional space required for the Emergency Medical Services personnel.*

For the above reasons, the proposed action (and specific location) is deemed the preferred alternative.

7 FINDINGS AND DETERMINATION

To determine whether the construction of the Haihai Fire Station may have a significant impact on the physical and human environment, all phases and expected consequences of the proposed project have been evaluated, including potential primary, secondary, short-range, long-range, and cumulative impacts. Based on this evaluation, the Proposing Agency (County of Hawai‘i Department of Public Works) anticipates issuing a Finding of No Significant Impact (FONSI). The supporting rationale for this finding is presented in this chapter.

7.1 SIGNIFICANCE CRITERIA

The discussion below evaluates the significance of the Project’s impacts based upon the Significance Criteria set forth in Hawai‘i Administrative Rules section 11-200-12. An action shall be determined to have a significant impact on the environment if it meets any one of the following criteria:

(1) Involves an irrevocable commitment to loss or destruction of any natural or cultural resource;

Discussion: The proposed project is not anticipated to involve any construction activity that may lead to a loss or destruction of any natural or cultural resource. The project site has been the subject of flora/fauna, archaeological and cultural studies conducted in and around the site. All of the studies reveal the absence of any resource potentially subject to irrevocable loss as a result of construction.

(2) Curtails the range of beneficial uses of the environment;

Discussion: The 35.696-acre property has been leased for pasture since 1998. Less than 6% of the leased property will be relinquished by the development of a fire station on this parcel. The current lessee will be able to continue using the remainder of the property for pasture use, even after the fire station is operational.

(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;

Discussion: The proposed project is not in conflict with the long-term environmental policies, goals, and guidelines of the State of Hawai‘i. As presented earlier in this EA, the project’s potential adverse impacts are associated only with the short-term construction-related activities, and such impacts can be mitigated through adherence to standard construction mitigation practices.

(4) Substantially affects the economic or social welfare of the community or State;

Discussion: The proposed project will have no adverse effects on the economy or social welfare of Hilo town or the County of Hawai‘i. The social welfare of the residents of Hilo could possibly benefit from the more efficient operations and siting of the Haihai Fire Station.

(5) Substantially affects public health;

Discussion: There will be temporary impacts to noise and air quality levels during the construction phase of the project; however, these potential impacts will be short-term and are not expected to substantially affect public health. All construction activities will comply with applicable regulations and will implement appropriate mitigation measures. After construction, the development should have minimal impact on ambient noise levels or air and water quality.

The proposed fire station may have a positive impact on public health by reducing mortality and morbidity from fire-related causes in the area.

(6) Involves substantial secondary impacts, such as population changes or effects on public facilities;

Discussion: The proposed fire station development will serve the existing residents of Hilo and its visitors. It will not induce any increases or shifts in population, and will not have a significant effect on any other public facilities.

(7) Involves a substantial degradation of environmental quality;

Discussion: Construction activities associated with the proposed project are anticipated to result in negligible short-term impacts to noise, air-quality, and traffic in the immediate vicinity. With the incorporation of the recommended mitigation measures during the construction period, the project will not result in degradation of environmental quality. No long term negative impacts are expected from project implementation.

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

Discussion: As documented throughout this EA, this project will have no serious negative effects. It is a stand-alone project which does not involve a commitment for larger actions.

(9) Substantially affects a rare, threatened or endangered species or its habitat;

Discussion: There are no known, threatened, or endangered species of flora, fauna, or associated habitats located on the project site that could be adversely affected by the construction and operation of the proposed project.

(10) Detrimentally affects air or water quality or ambient noise levels;

Discussion: Construction activities for development of the proposed fire station could potentially impact noise and air and water quality levels on the project site. However, these impacts will be short-term and are not expected to be detrimental. All construction activities will comply with applicable regulations and will implement appropriate mitigation measures as necessary. After construction, the development is not expected to adversely impact ambient noise levels or water and air quality. There will be a slight increase in impervious surfaces over the site's former pastoral use; however, any increase in runoff will be accommodated by proposed drainage improvements and will not detrimentally affect water quality.

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

Discussion: The development will not affect any environmentally sensitive area. The project is located outside a FIRM-designated flood plain and inland from the coast. The proposed project's facilities will be constructed in compliance with County of Hawai'i building codes, and the drainage improvements will be designed to minimize any potential for localized flooding.

(12) Substantially affects scenic vistas and view planes identified in County or State plans or studies; or,

Discussion: The proposed project will not alter the visual setting of the area, nor will it block any scenic vistas. The area is not listed as a scenic view plane or area of natural beauty by the County.

(13) Requires substantial energy consumption.

Discussion: Construction and operation of the project will not require substantial increases in energy consumption.

7.2 ANTICIPATED DETERMINATION

Pursuant to Chapter 343, HRS, the determining agency, the County of Hawai'i Department of Public Works has anticipates issuing a Finding of No Significant Impact (FONSI) for this environmental assessment. This finding is founded on the basis of impacts and mitigation measures examined in this document, public comments received during the pre-assessment consultation and public comment phases, and analyzed under the above criteria.

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8 CONSULTATION

8.1 PRE-ASSESSMENT CONSULTATION

A pre-assessment consultation was conducted from January 14, 2014 through April 7, 2014 prior to preparation of the Draft EA. The purpose of the pre-assessment consultation was to consult with agencies, organizations and individuals with technical expertise, or an interest or will be affected by the proposed project. This process is part of the scoping process for the Draft EA. Comments and input received during this period were used to identify environmental issues and concerns to be addressed in the Draft EA, which in turn will undergo a 30-day public comment period.

As part of the early consultation process, the following agencies, organizations and individuals were sent pre-assessment consultation letters. Those that provided written comments (either by hardcopy or email) are highlighted in *italics*. Copies of the written comments and responses are reproduced in Appendix B.

State of Hawai‘i

- Department of Agriculture
- *Department of Accounting and General Services*
- Department of Business, Economic Development & Tourism (DBEDT)
- DBEDT – Energy Division
- DBEDT – Hawai‘i Housing Finance and Development Corporation
- *DBEDT – Office of Planning*
- *Department of Defense*
- *Department of Hawaiian Homelands*
- *Department of Health - Environmental Planning Office*
- *Department of Health - Hawai‘i District*
- *Department of Human Services*
- *Department of Labor and Industrial Relations*
- *Department of Land and Natural Resources (DLNR)*
- *DLNR - State Historic Preservation Division*
- *Department of Transportation*
- Office of Environmental Quality Control
- Office of Hawaiian Affairs
- University of Hawai‘i Water Resources Research Center
- State Representative R. Onishi
- State Senator Kauhale

Federal

- U.S. Army Corps of Engineers – Regulatory Branch
- *U.S. Federal Emergency Management Agency*
- U.S. Fish and Wildlife Service
- U.S. Geological Survey – Hawaiian Volcano Observatory

County of Hawai‘i

- *Department of Environmental Management*
- Department of Parks & Recreation
- Department of Research & Development
- *Department of Water Supply*
- Fire Department
- Office of Housing and Community Development
- *Planning Department*
- *Police Department*
- *County Councilmember D. Onishi*

Private Organizations & Individuals

- AJA Veteran’s Council
- *Hawaiian Electric Light Co.*
- Michael Tulang

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State of Hawai'i, Department of Health: h*ttp://Hawai'i.gov/health/environmental/ envplanning/landuse/landuse.html*

State of Hawai'i, Department of Health, Environmental Planning Office: *http://health.Hawai'i.gov/epo/home/landuse-planning-review-program/.*

State of Hawai'i, Office of Planning: *http://files.Hawai'i.gov/dbedt/op/czm/initiative/ nonpoint/HI_Watershed_Guidance_Final.pdf*

State of Hawai'i, Office of Planning: *http://files.Hawai'i.gov/dbedt/op/czm/initiative/ stormwater_impact/final_stormwater_impact_assessments_guidance.pdf*

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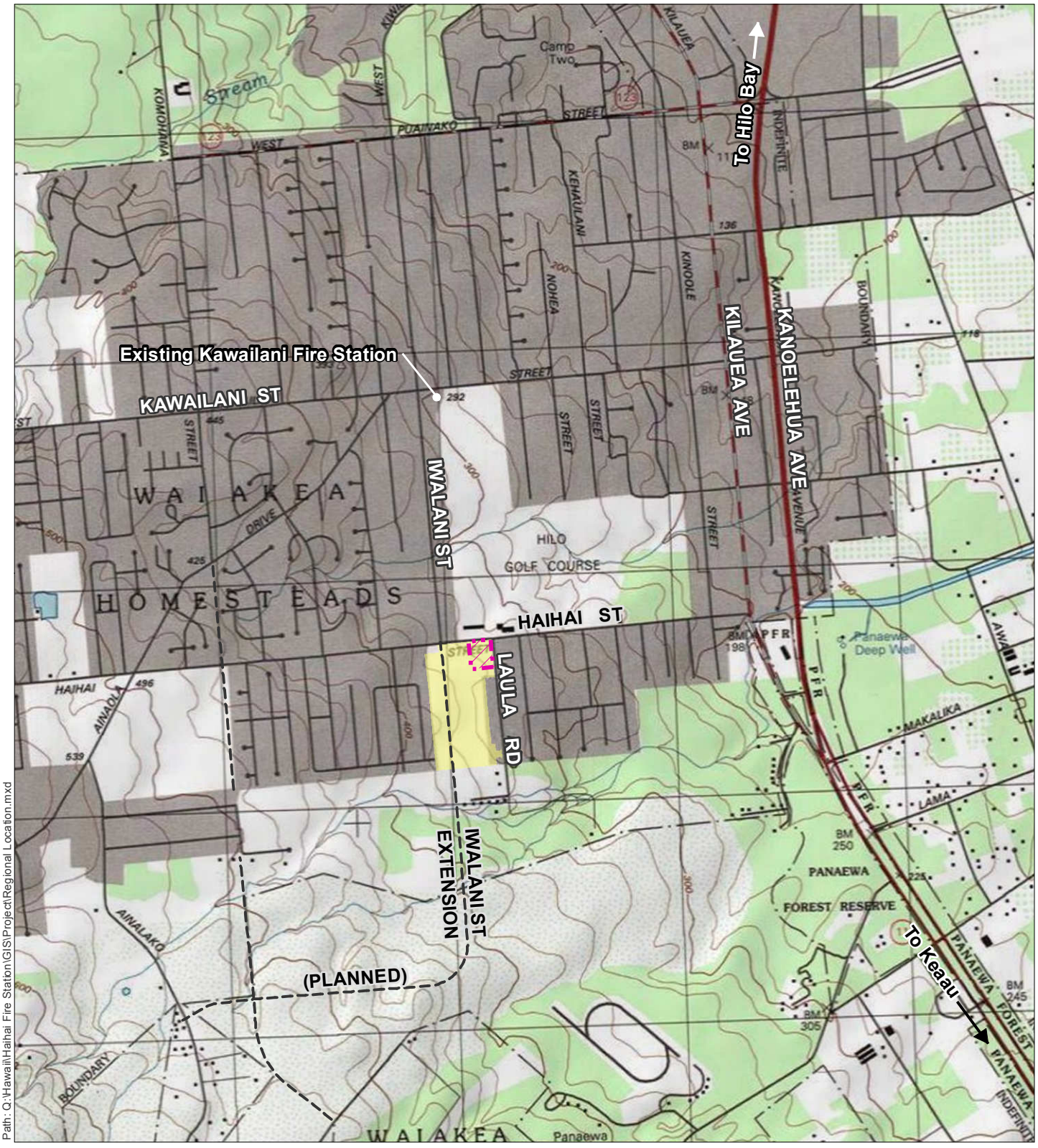
Appendix A

FIGURES



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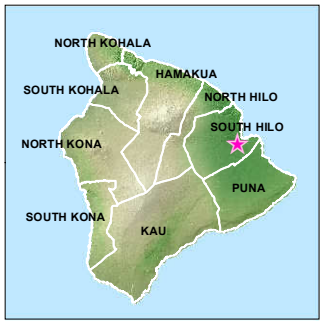
DATE: 4/9/2014

LEGEND

Project Area

TMK (3) 2-4-051:001



Source: U.S. Geological Survey (2013), Hawai'i County TMK 2013

Disclaimer: This Graphic has been prepared for general planning purposes only and should not be used for boundary interpretations or other spatial analysis.

Figure 1
Regional Location

HAIHAI STREET FIRE STATION

County of Hawai'i Department of Public Works — Island of Hawai'i

North

Linear Scale (feet)

0 1,000 2,000

PBR HAWAII & ASSOCIATES, INC.

Path: Q:\Hawaii\Haihai Street Fire Station\Photoshop

DATE: 4/4/2014

LEGEND

Project Area

Figure 2
Tax Map Key

HAIHAI STREET FIRE STATION

County of Hawai'i Fire Department Island of Hawai'i

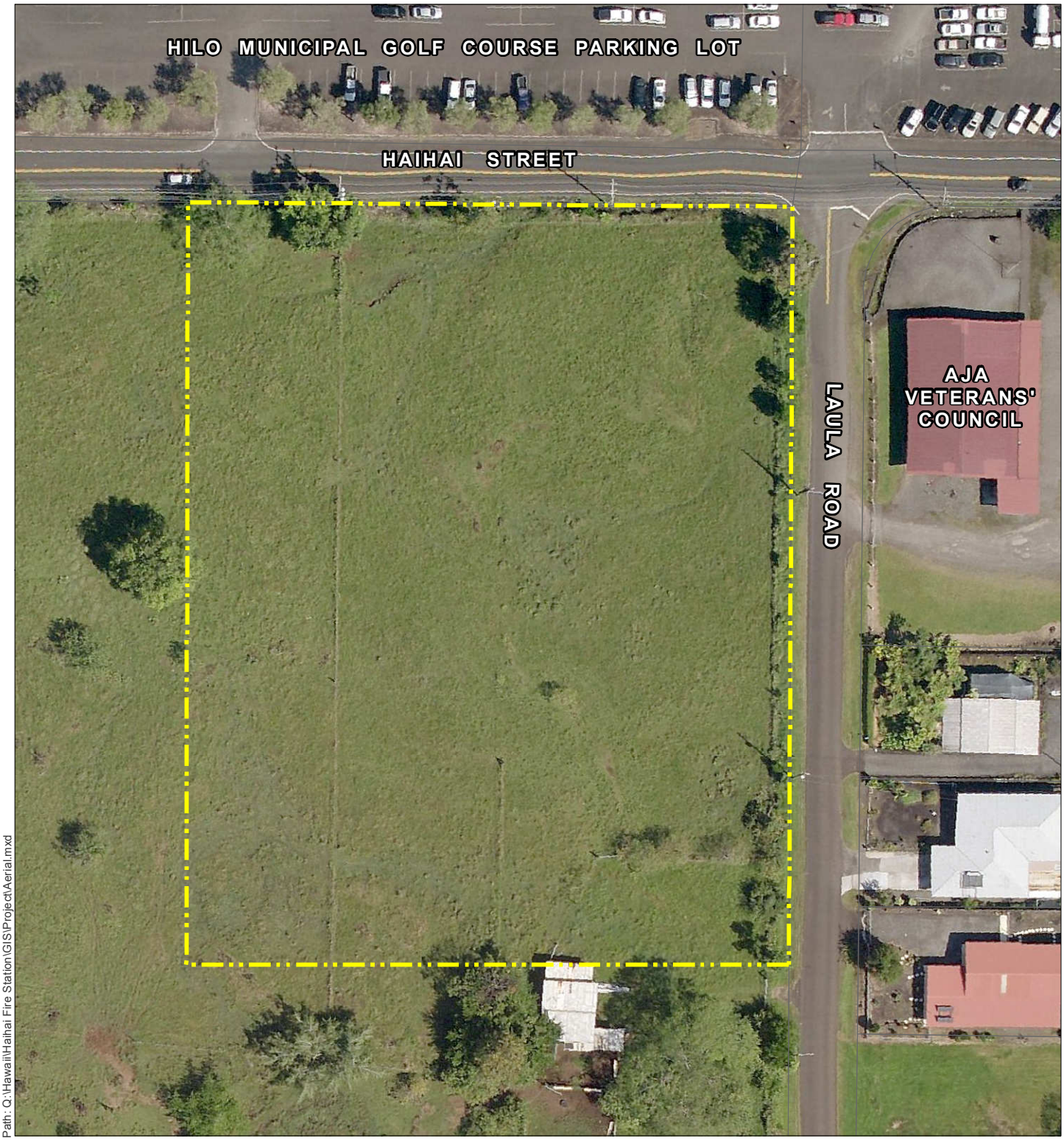
North

Linear Scale (feet)
0 150 300

PBR HAWAII & ASSOCIATES, INC.

Source: County of Hawai'i Tax Map, Zone 2 Section 4 Plat 51

Disclaimer: This Graphic has been prepared for general planning purposes only and should not be used for boundary interpretations or other spatial analysis.



Path: Q:\Hawaii\Haihai Fire Station\GIS\Project\Aerial.mxd

DATE: 4/9/2014

LEGEND

Project Area

Figure 3
Aerial Photo

HAIHAI STREET FIRE STATION

County of Hawai'i Fire Department Island of Hawai'i

North Linear Scale (feet) 0 40 80

PBR HAWAII & ASSOCIATES, INC.

Source: Pictometry Online (2012)

Disclaimer: This Graphic has been prepared for general planning purposes only and should not be used for boundary interpretations or other spatial analysis.

1 Panoramic View of the Project Area from AJA Veterans' Council on Laula Road Showing the Relatively Flat Terrain

2 The Haihai Street Intersection at Laula Road

3 The Project Area from the Haihai Street Intersection Showing the Existing Pasture Use

4 Existing Residences along Laula Road

5 Haihai Street (westbound) near Hilo Municipal Golf Course Parking Entry Showing the Adequate Sight Distance

Source: PBR Hawaii and Associates, Inc. (2014), Google Earth (2013)

Disclaimer: This Graphic has been prepared for general planning purposes only and should not be used for boundary interpretations or other spatial analysis.

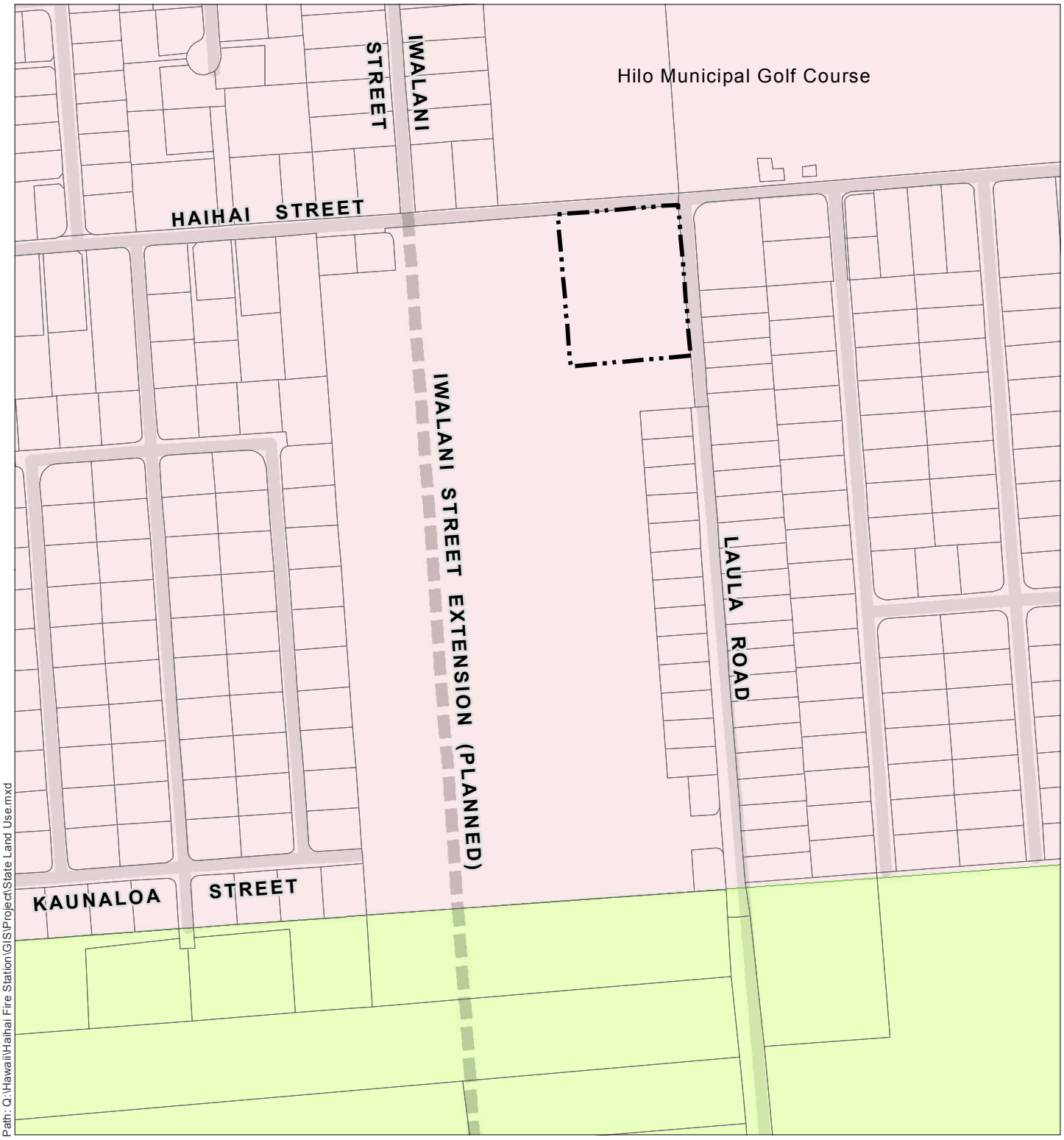
Figure 4
Site Photos

HAIHAI STREET FIRE STATION

County of Hawai'i Fire Department Island of Hawai'i

DATE: 4/17/2014

PBR HAWAII & ASSOCIATES, INC.



Path: Q:\Hawaii\Haihai Fire Station\GIS\Project\State Land Use.mxd

DATE: 4/9/2014

LEGEND

- Project Area
- Agricultural District
- Urban District

Source: State Land Use Commission (2014), County of Hawai'i (2012)

Disclaimer: This Graphic has been prepared for general planning purposes only and should not be used for boundary interpretations or other spatial analysis.

Figure 5
State Land Use Districts

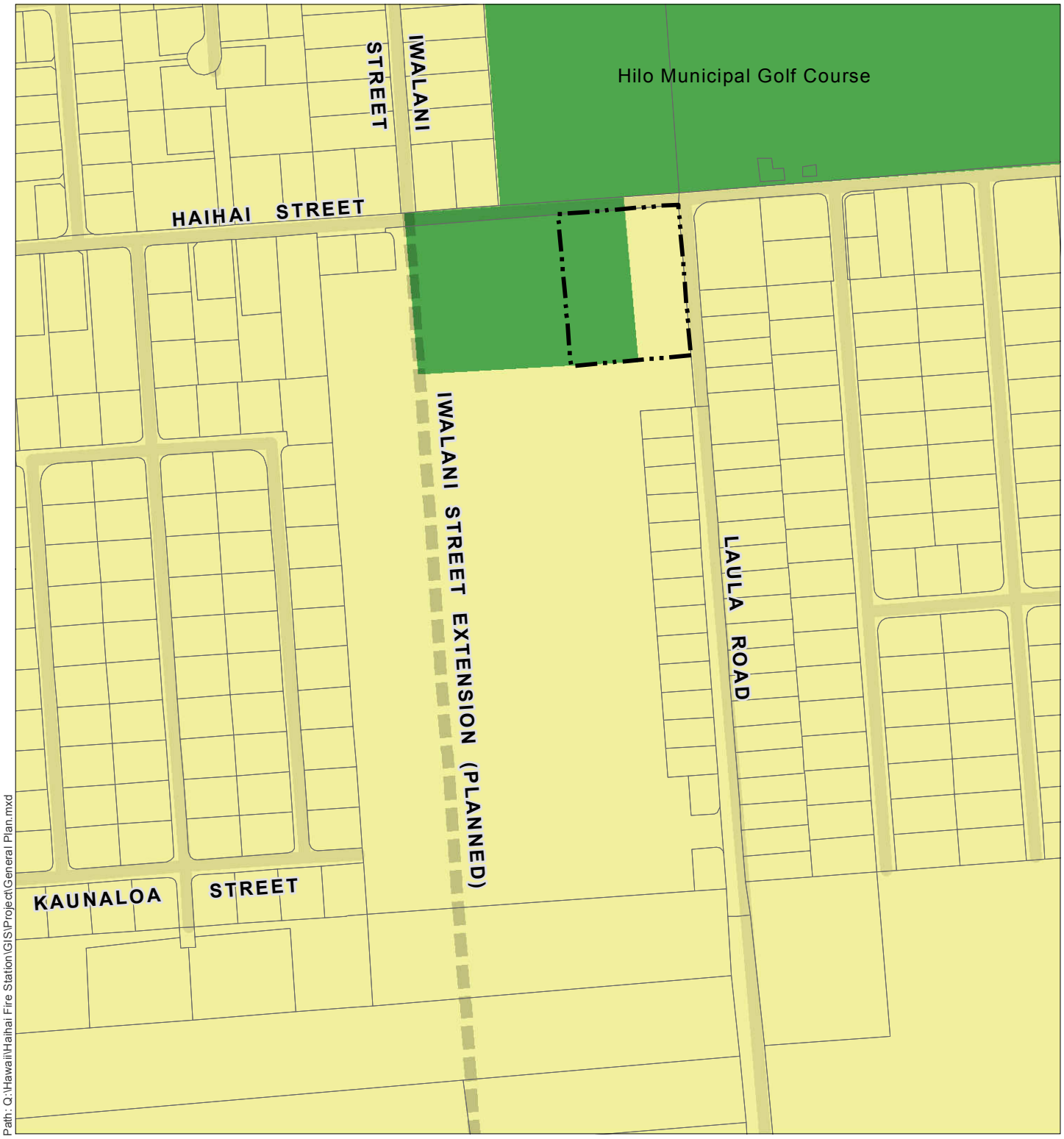
HAIHAI STREET FIRE STATION

County of Hawai'i Fire Department Island of Hawai'i

North Linear Scale (feet)

0 200 400

PBR HAWAII & ASSOCIATES, INC.



Path: Q:\Hawaii\Haihai Fire Station\GIS\Project\General Plan.mxd

DATE: 4/9/2014

LEGEND

- Project Area
- Low Density Urban
- Open Area

Source: County of Hawai'i (2012)

Disclaimer: This Graphic has been prepared for general planning purposes only and should not be used for boundary interpretations or other spatial analysis.

Figure 6
County General Plan LUPAG

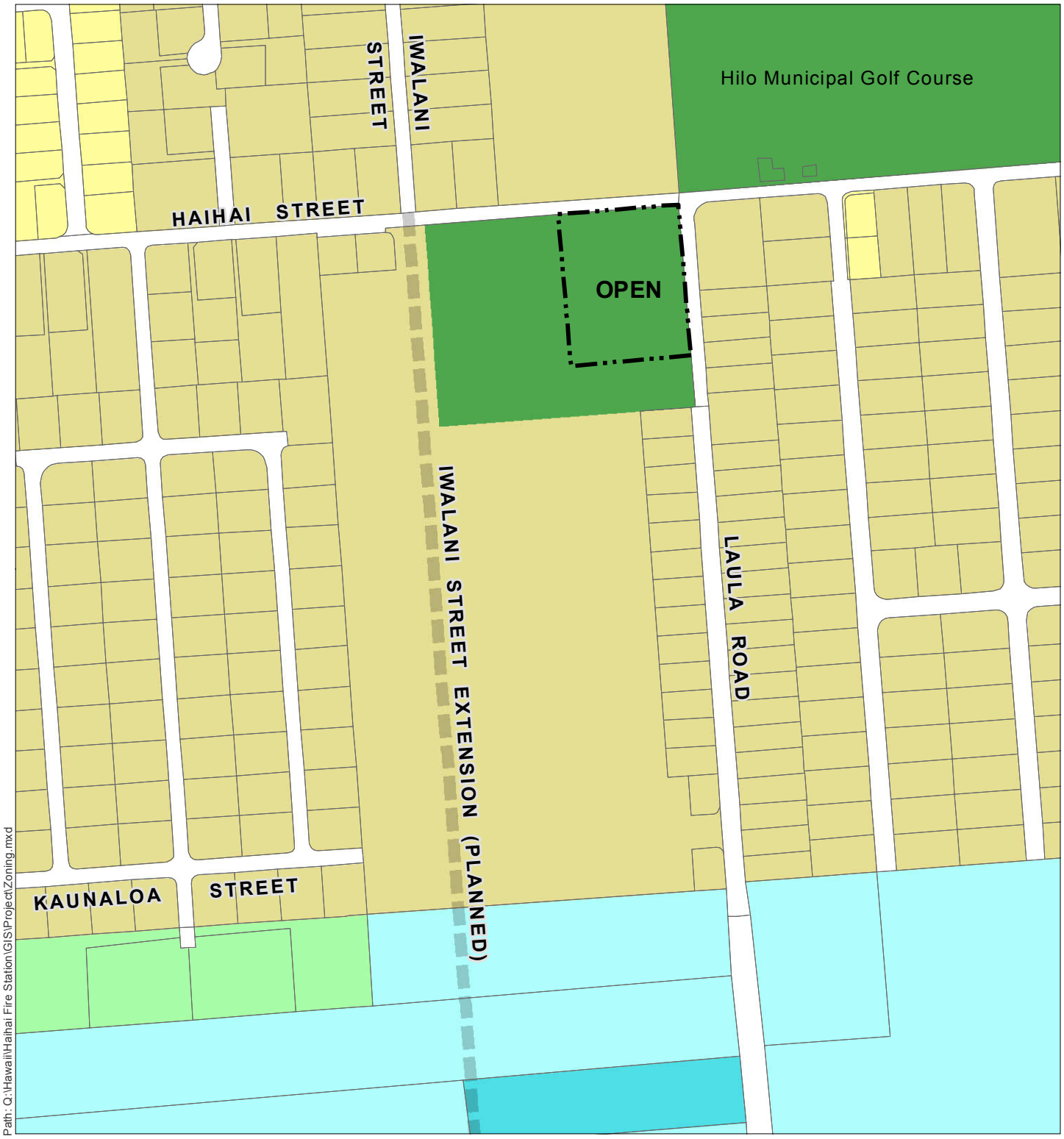
HAIHAI STREET FIRE STATION

County of Hawai'i Fire Department Island of Hawai'i

North

Linear Scale (feet)
0 200 400

PBR HAWAII & ASSOCIATES, INC.



DATE: 4/9/2014

LEGEND

- Project Area
- A-1a Agricultural
- A-3a Agricultural
- FA-1a Agricultural
- OPEN
- RS-10 Residential
- RS-15 Residential

Source: County of Hawai'i (2012)

Disclaimer: This Graphic has been prepared for general planning purposes only and should not be used for boundary interpretations or other spatial analysis.

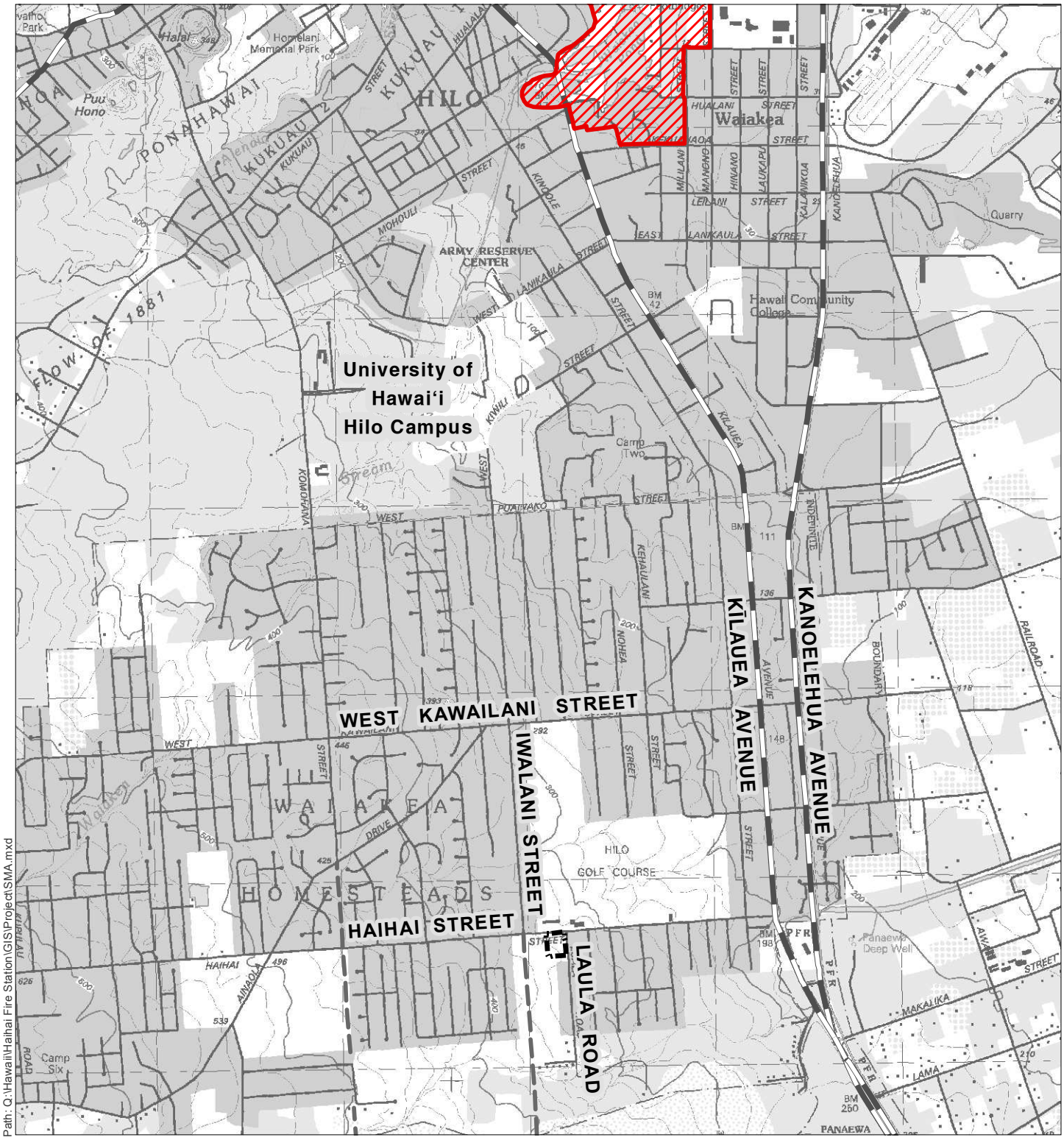
Figure 7
County Zoning

HAIHAI STREET FIRE STATION

County of Hawai'i Fire Department Island of Hawai'i

North Linear Scale (feet) 0 200 400

PBR HAWAII & ASSOCIATES, INC.



DATE: 4/9/2014

LEGEND

Project Area

Special Management Areas

Figure 8
Special Management Area

HAIHAI STREET FIRE STATION

County of Hawai'i Fire Department Island of Hawai'i

North

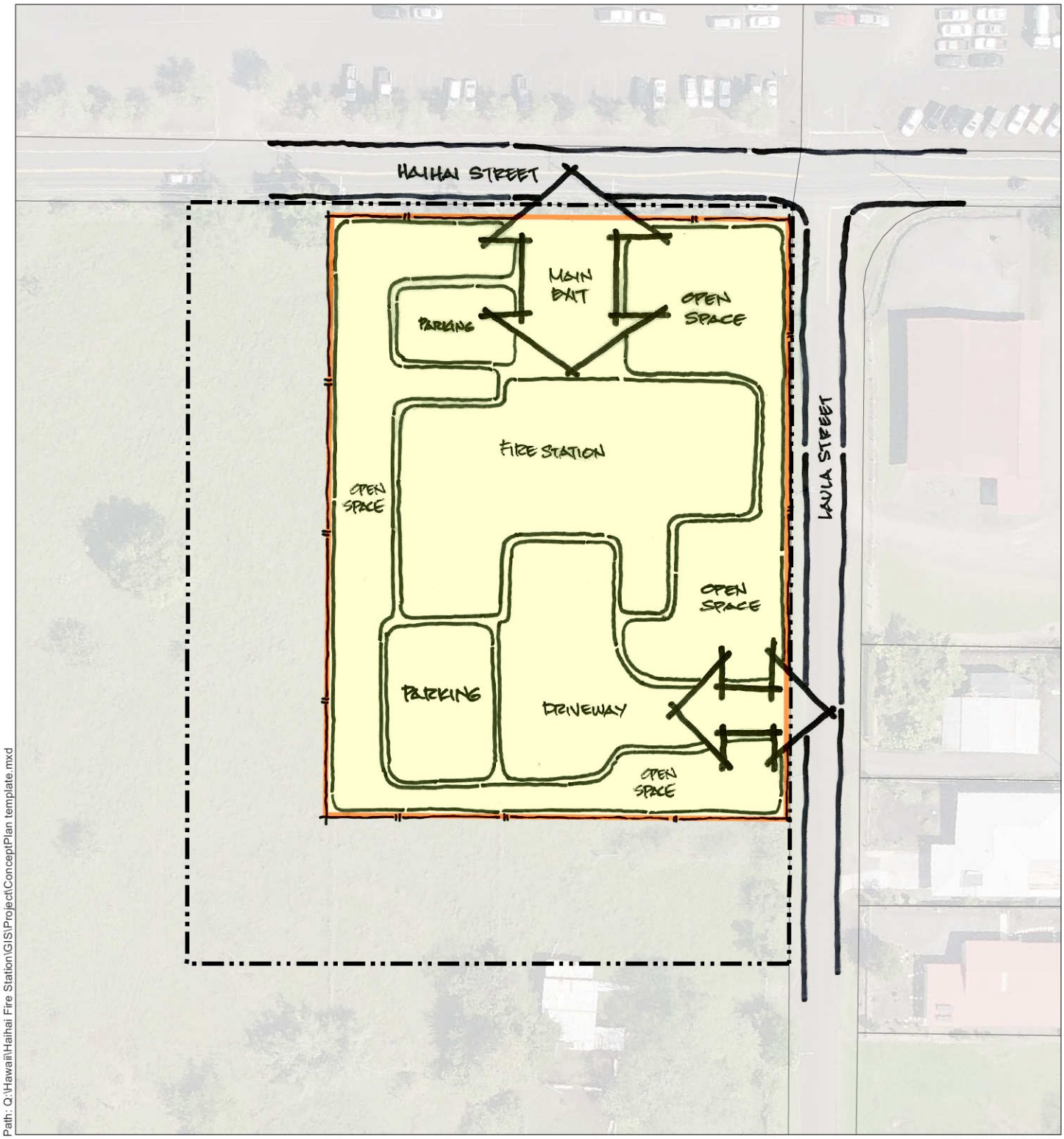
Linear Scale (miles)

0 0.25 0.5

Source: County of Hawai'i (2013)

Disclaimer: This Graphic has been prepared for general planning purposes only and should not be used for boundary interpretations or other spatial analysis.

PBR HAWAII & ASSOCIATES, INC.



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DATE: 4/9/2014

LEGEND

Project Area

Conceptual Master Plan Area

Figure 9
Conceptual Master Plan

HAIHAI STREET FIRE STATION

County of Hawai'i Fire Department Island of Hawai'i

North

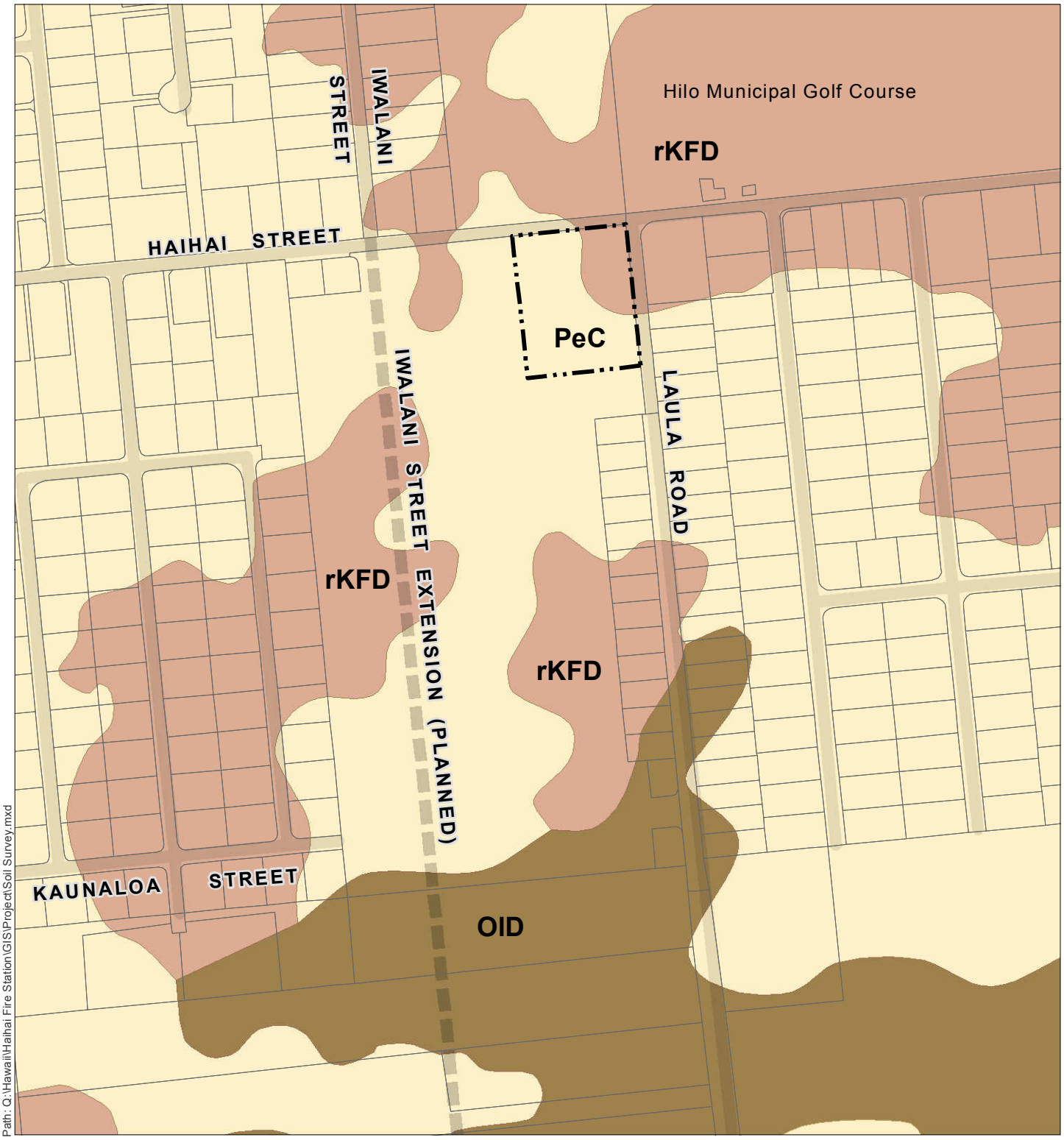
Linear Scale (feet)

0 40 80

PBR HAWAII & ASSOCIATES, INC.

Source: KYA Design Group (2014)

Disclaimer: This Graphic has been prepared for general planning purposes only and should not be used for boundary interpretations or other spatial analysis.



Path: Q:\Hawaii\Haihai Fire Station\GIS\Project\Soil Survey.mxd

DATE: 4/9/2014

LEGEND

- Project Area
- PeC: Panaewa very rocky silty clay loam, 0-10% slopes
- rKFD: Keaukaha extremely rocky muck, 6-20% slopes
- OID: Olaa extremely stony silty clay loam, 0-20% slopes

Source: U.S. Department of Agriculture Natural Resources Conservation Service (1995)

Disclaimer: This Graphic has been prepared for general planning purposes only and should not be used for boundary interpretations or other spatial analysis.

Figure 10
Soil Survey

HAIHAI STREET FIRE STATION

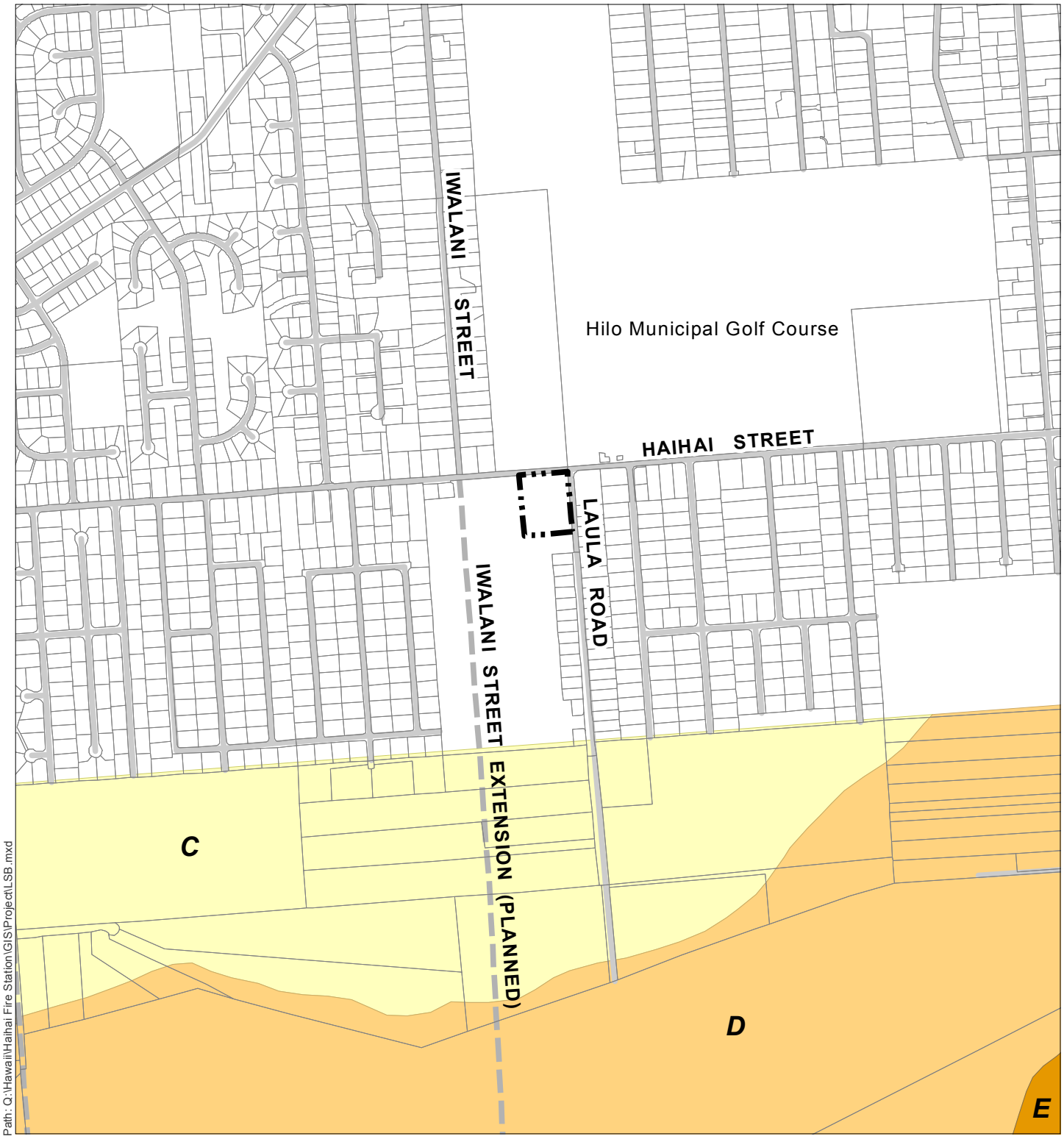
County of Hawai'i Fire Department — Island of Hawai'i

North

Linear Scale (feet)

0 200 400

PBR HAWAII & ASSOCIATES, INC.



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DATE: 4/9/2014

LEGEND

Project Area

A: Excellent
B: Good
C: Fair
D: Poor
E: Very Poor

Source: Land Study Bureau (1965)

Disclaimer: This Graphic has been prepared for general planning purposes only and should not be used for boundary interpretations or other spatial analysis.

Figure 11
Detailed Land Classification

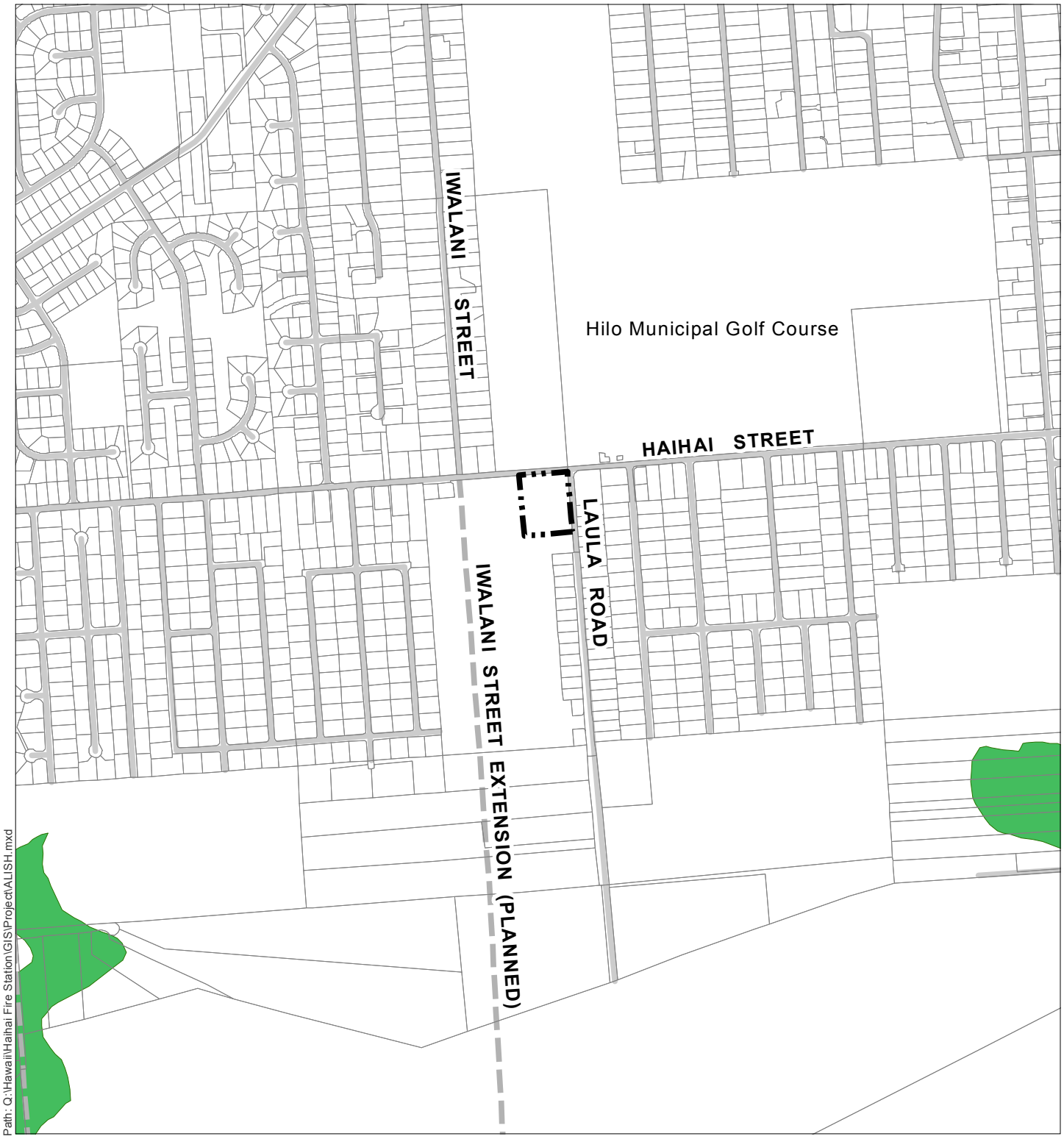
HAIHAI STREET FIRE STATION

County of Hawai'i Fire Department — Island of Hawai'i

North

Linear Scale (feet)
0 500 1,000

PBR HAWAII & ASSOCIATES, INC.



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DATE: 4/9/2014

LEGEND

- Project Area
- Prime ALISH
- Unique ALISH
- Other ALISH

Source: State Department of Agriculture (1977)

Disclaimer: This Graphic has been prepared for general planning purposes only and should not be used for boundary interpretations or other spatial analysis.

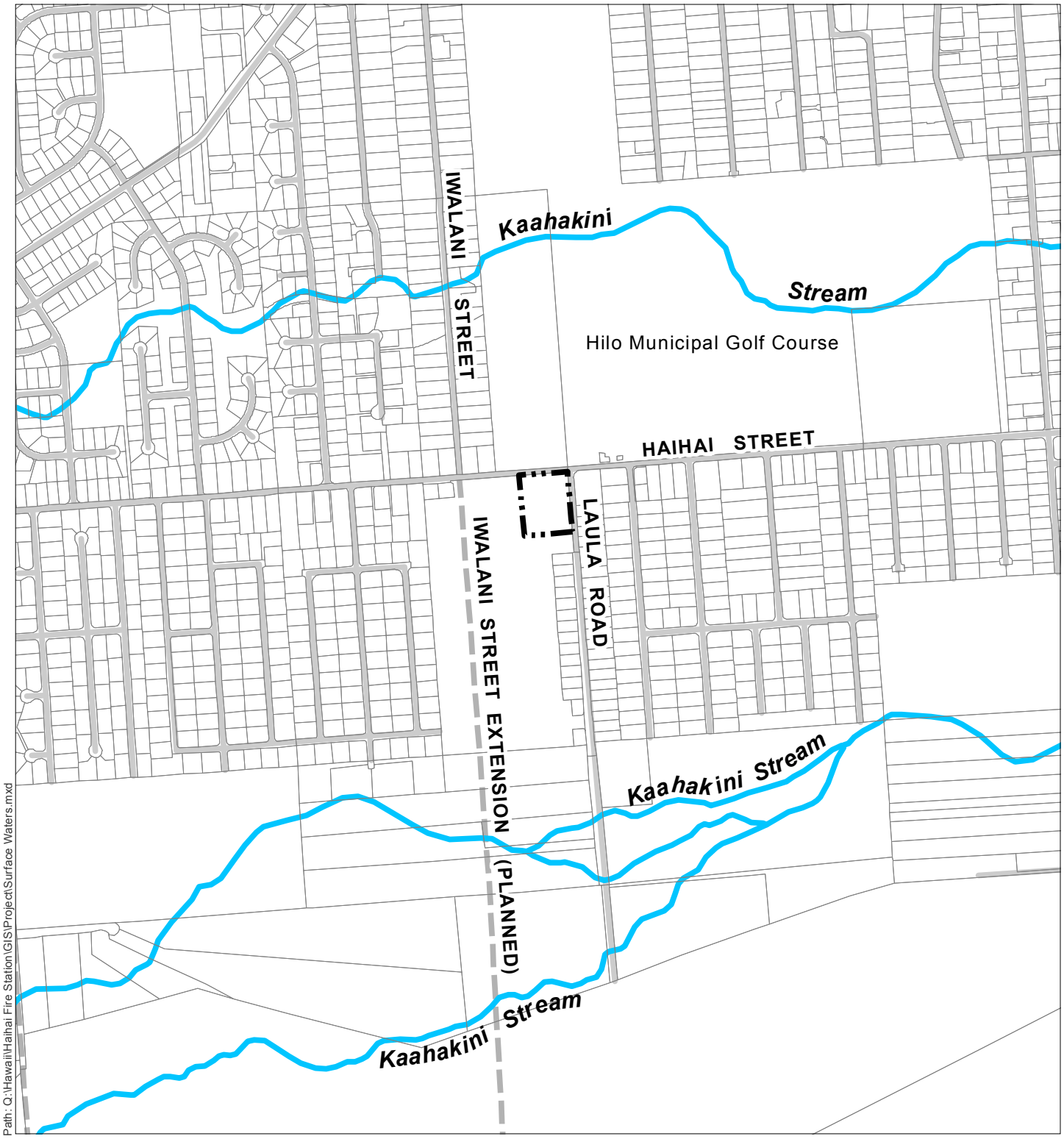
Figure 12
Agricultural Lands of Importance to the State of Hawai'i

HAIHAI STREET FIRE STATION

County of Hawai'i Fire Department Island of Hawai'i

North Linear Scale (feet) 0 500 1,000

PBR HAWAII & ASSOCIATES, INC.



DATE: 4/9/2014

LEGEND

Project Area

Streams

Figure 13
Surface Waters

HAIHAI STREET FIRE STATION

County of Hawai'i Fire Department Island of Hawai'i

North

Linear Scale (feet)

0 500 1,000

PBR HAWAII & ASSOCIATES, INC.

Source: Hawai'i Division of Aquatic Resources (2008)

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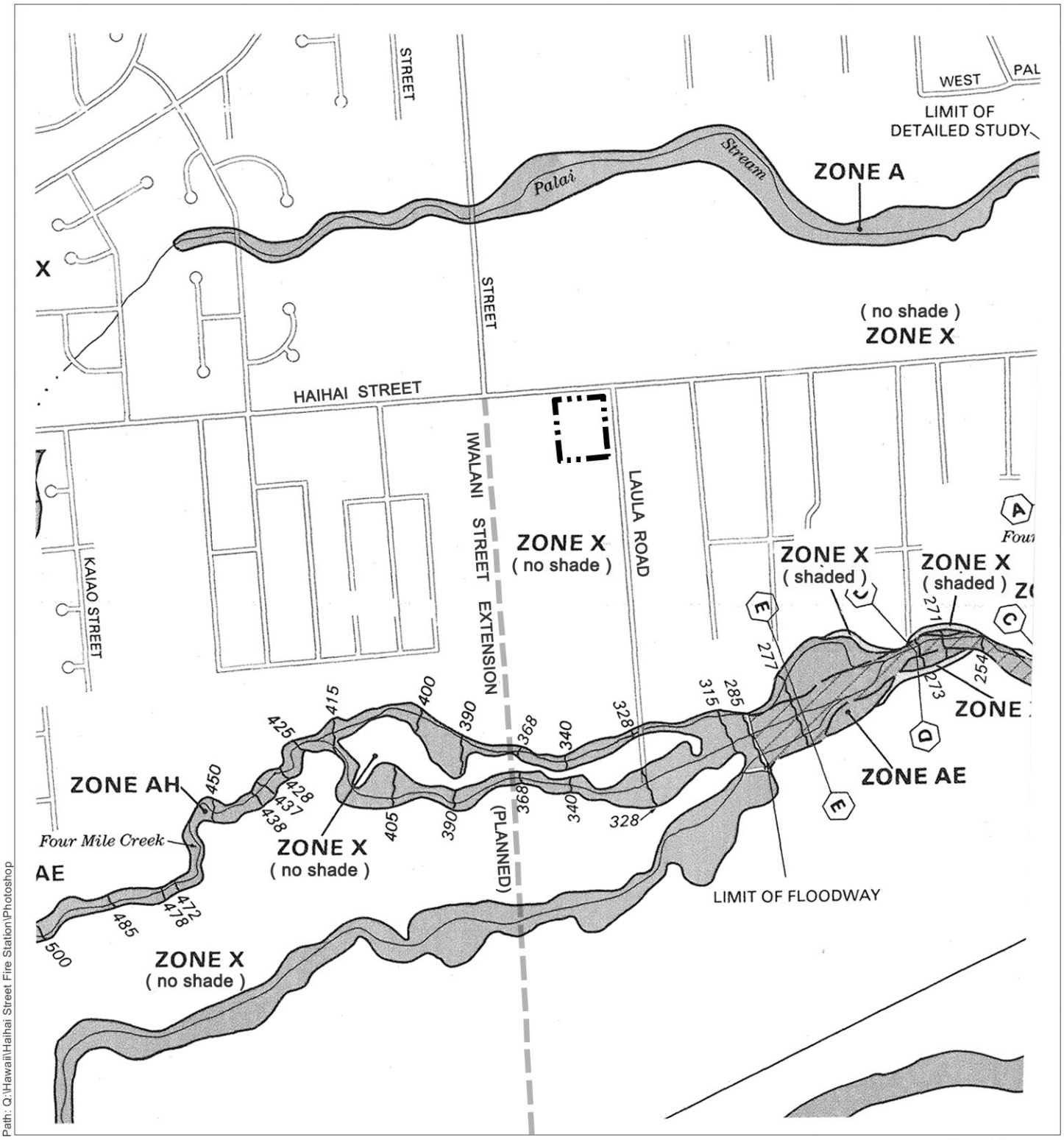


Path: Q:\Hawaii\Haihai Street Fire Station\Photoshop

DATE: 1/10/2014

LEGEND

- Project Area
- Zone X (no shade): Outside 500-year Flood Plains
- Zone X (shaded): 500-year Flood Plains
- Zone A, AE, AH: 100-year Flood Plains
- Floodway Areas in Zone AE

Source: Federal Emegency Management Agency
Flood Insurance Rate Map Panel 890 of 1900 (1988)
LOMR (1999-2013)

Disclaimer: This Graphic has been prepared for general planning purposes only and should not be used for boundary interpretations or other spatial analysis.

Figure 14
Flood Insurance Rate Map

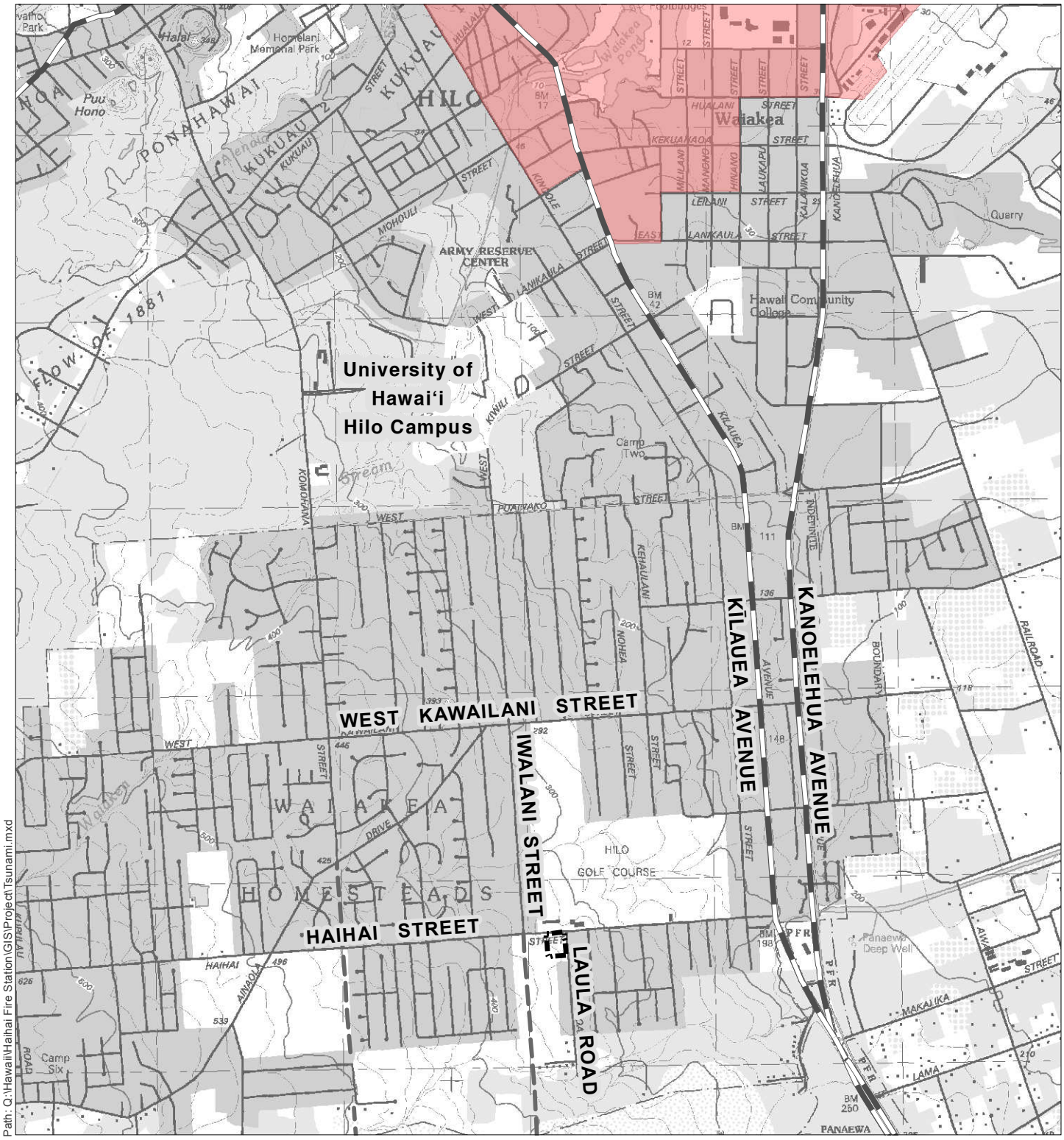
HAIHAI STREET FIRE STATION

County of Hawai'i Fire Department Island of Hawai'i

North

Linear Scale (feet)
0 500 1,000

PBR HAWAII & ASSOCIATES, INC.



DATE: 4/9/2014

LEGEND

Project Area

Tsunami Evacuation Zone

Figure 15
Tsunami Evacuation Zone

HAIHAI STREET FIRE STATION

County of Hawai'i Fire Department Island of Hawai'i

North Linear Scale (miles) 0 0.25 0.5

Source: Pacific Disaster Center (1998)

Disclaimer: This Graphic has been prepared for general planning purposes only and should not be used for boundary interpretations or other spatial analysis.

PBR HAWAII & ASSOCIATES, INC.

Appendix B

PRE-ASSESSMENT CONSULTATION

NEIL ABERCROMBIE
GOVERNOR

Dean H. Seki
Comptroller

Maria E. Zielinski
Deputy Comptroller

STATE OF HAWAII
DEPARTMENT OF ACCOUNTING AND GENERAL SERVICES
P.O. BOX 119, HONOLULU, HAWAII 96810-0119

(P)1072.4

FEB 26 2014

Mr. Vincent Shigekuni
PBR Hawaii & Associates, Inc.
1001 Bishop Street, ASB Tower, Suite 650
Honolulu, HI 96813-3484

Dear Mr. Shigekuni:

Subject: Pre-Assessment Consultation
Proposed Haihai Fire Station
Waiakea Homesteads, South Hilo District, Island of Hawaii
TMK: (3) 2-4-051:001 (portion)

This is in response to your letter, dated January 14, 2014 regarding the subject project. The proposed project does not impact any of the Department of Accounting and General Services' projects or existing facilities, and we have no comments to offer at this time.

If you have any questions, your staff may call Mr. David DePonte of the Planning Branch at 586-0492.

Sincerely,

JAMES K. KURATA
Public Works Administrator

DD:mo
c: Mr. Jerry Watanabe, DAGS Hawaii District

PBR HAWAII
& ASSOCIATES, INC.

HONOLULU OFFICE
1001 Bishop Street, Suite 650
Honolulu, Hawai'i 96813-3484
Tel: (808) 521-5631
Fax: (808) 523-1402
E-mail: sysadmin@pbrhawaii.com

KAPOLEI OFFICE
1001 Kamokila Boulevard
Kapolei Building, Suite 313
Kapolei, Hawai'i 96707-2005
Tel: (808) 521-5631
Fax: (808) 535-3163

HILO OFFICE
1719 Haleloke Street
Hilo, Hawai'i 96720-1553
Tel/Cel: (808) 315-6878

June 16, 2014

Mr. James K. Kurata, Public Works Administrator
State of Hawai'i
Department of Accounting and General Services
P.O. Box 119
Honolulu, Hawai'i 96810-0119

Attn: Mr. David DePonte, Planning Branch

SUBJECT: PRE-CONSULTATION FOR THE PROPOSED HAIHAI FIRE STATION, WAIĀKEA HOMESTEADS, SOUTH HILO DISTRICT, HAWAI'I ISLAND TMK: 2-4-051:002 (POR)

Dear Mr. Kurata,

Thank you for your letter dated February 26, 2014 regarding the pre-consultation for the Haihai Fire Station. As the planning consultant for the County of Hawai'i Department of Public Works, we are responding to your comments.

We acknowledge that proposed Haihai Fire Station does not impact any of the Department of Accounting and General Services' (DAGS) projects or existing facilities and that DAGS has no comments to offer at this time.

Thank you for participating in the environmental review process. Your letter will be included in the Draft EA.

Sincerely,

PBR HAWAII

Vincent Shigekuni
Vice President

cc: David Yamamoto, County of Hawai'i Department of Public Works
Glenn Yokotake, KYA Design Group

O:\Job30\3056.01 Haihai St. Fire Station EA\EA\Pre-Assessment Consultation\Responses\DAGS.docx

OFFICE OF PLANNING
STATE OF HAWAII

235 South Beretania Street, 6th Floor, Honolulu, Hawaii 96813
Mailing Address: P.O. Box 2359, Honolulu, Hawaii 96804

NEIL ABERCROMBIE
GOVERNOR

JESSE K. SOUKI
DIRECTOR
OFFICE OF PLANNING

Telephone: (808) 587-2846
Fax: (808) 587-2824
Web: http:/planning.hawaii.gov/

Ref. No. P-14262

January 24, 2014

Mr. Vincent Shigekuni, Vice President
PBR HAWAII
1001 Bishop Street, Suite 650
Honolulu, Hawaii 96813

Dear Mr. Shigekuni:

Subject: Pre-Assessment Consultation for the Proposed Haihai Street Fire Station at Waiakea Homesteads, South Hilo District, Hawaii Island. TMK: (3) 2-4-051:001 (portion)

Thank you for the opportunity to provide comments on the Pre-Assessment Consultation for the proposed Haihai Street Fire Station, South Hilo. We have reviewed the documents you submitted by letter dated January 14, 2014, and have the following comments to offer:

1. The entire state is defined to be within the Coastal Zone Management Area, pursuant to Hawaii Revised Statutes (HRS) §205A-1 (definition of "coastal zone management area"). The Draft Environmental Assessment (Draft EA) should include a discussion of the proposed project's ability to meet the objectives and policies set forth in HRS §205A-2.

2. The Draft EA should include the Coastal Zone Management Act, HRS Chapter 205A, in a list of the proposed projects "relationship to land use plans, policies, and controls."

3. Because of the frequent rainy weather patterns in East Hawaii County and the close proximity of nearby streambeds (south of the parcel), this project may have nonpoint pollution impacts on coastal waters. Please review the Hawaii Watershed Guidance, which provides a summary and links to management measures that may be implemented to minimize coastal nonpoint pollution impact. Specifically, please examine page 120 (management measure for new development). The Watershed Guidance can be viewed or downloaded from the Office of Planning website at http://files.hawaii.gov/dbedt/op/czm/initiative/nonpoint/HI Watershed Guidance Final.pdf.

4. In the development of the main structure and basic infrastructure of the proposed fire station, please consider utilizing the Office of Planning's Stormwater Impact Assessment, to identify and evaluate Best Management Practices that can be employed to manage stormwater; please see pages 13 - 20 of the Stormwater Impact Assessment. This guidance document will assist in integrating stormwater impact assessment within your review process. The Appendices include a list of Data Resources, Best Management Practice Techniques, and a Reviewer's Checklist. The Stormwater Impact Assessment guidance document can be found at http://files.hawaii.gov/dbedt/op/czm/initiative/stomwater_imapct/final_stormwater_impact_assessments_guidance.pdf.

If you have any questions regarding this comment letter, please contact Josh Hekekia of our Hawaii CZM Program at 587-2845.

Sincerely,

Jesse K. Souki
Director

PBR HAWAII
& ASSOCIATES, INC.

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June 16, 2014

Mr. Leo Asuncion, Acting Director
State of Hawai'i
Office of Planning
P.O. Box 2359
Honolulu, Hawai'i 96804

Attn: Mr. Josh Hekekia, Hawaii CZM Program

SUBJECT: PRE-CONSULTATION FOR THE PROPOSED HAIHAI FIRE STATION, WAIĀKEA HOMESTEADS, SOUTH HILO DISTRICT, HAWAI'I ISLAND TMK: 2-4-051:002 (PORTION)

Dear Mr. Asuncion,

Thank you for your department's letter dated January 24, 2014 regarding the pre-consultation for the Haihai Fire Station. As the planning consultant for the County of Hawai'i Department of Public Works, we are responding to your comments.

1. We acknowledge that the entire State of Hawai'i is located within the Coastal Zone Management Area. As such, the Draft Environmental Assessment (EA) will include a discussion of the proposed project's ability to meet the Coastal Zone Management objectives and policies found in Hawai'i Revised Statutes (HRS) §205A-2.

2. The Draft EA will include a section on the Coastal Zone Management Act, HRS §205A which discusses the proposed project's "relationship to land use plans, policies, and controls."

3. We reviewed the *Hawaii Watershed Guidance* document and management measures to minimize coastal nonpoint source pollution. The Haihai Fire Station will incorporate the following measures regarding urban runoff:

    - Maintain post-development peak runoff rate and average volume at levels that are similar to pre-development levels.
    - During site development, disturb only the smallest area necessary to perform current activities to reduce erosion and off-site transport of sediment.
    - Avoid disturbances of unstable soils or soils particularly susceptible to erosion and sediment loss.
    - Revegetate the site as soon as possible after disturbance, preferably with native vegetation.
    - Minimize imperviousness to the extent practicable.
    - Use pervious pavements for areas of infrequent use.
    - Limit land disturbance of natural drainage features and vegetation.

4. We reviewed the Office of Planning's *Stormwater Impact Assessment* to help provide a thorough assessment of the area's hydrology, stressors, sensitivity of resources, and management considerations in the Draft EA. The Low Impact Development measures

described previously will mitigate for primary, secondary, and cumulative storm water impacts.

We appreciate your participation in the environmental review process. Your letter will be included in the Draft EA. We will send you a copy of the Draft EA when it is available.

Sincerely,

PBR HAWAII

Vincent Shigekuni
Vice President

cc: David Yamamoto, County of Hawai'i Department of Public Works
Glenn Yokotake, KYA Design Group

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GOVERNOR

MAJOR GENERAL DARRYLL D. M. WONG
DIRECTOR OF CIVIL DEFENSE

DOUG MAYNE
VICE DIRECTOR OF CIVIL DEFENSE

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

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

February 3, 2014

Mr. Vincent Shigekuni
PBR Hawaii and Associates, Inc.
1001 Bishop Street, Suite 650
Honolulu, Hawaii 96813-3484

Dear Mr. Shigekuni:

Pre-Assessment Consultation for the Proposed Haihai Fire Station
Located at Waiakea Homesteads, South Hilo District, Hawaii Island
TMK: (3) 2-4-051: 001 (portion)

Thank you for the opportunity to comment on this project. State Civil Defense (SCD) recommends one (1) omni-directional 121 db(c) siren mounted on a 45 foot H2 rated composite pole. SCD will advise the developer on the placement of the pole.

We defer to the appropriate State and federal agencies as to the protection of any cultural, historical, and archeological elements of the property.

If you have any questions, please call Mr. Ian Duncan, State Hazard Mitigation Officer, at 733-4300, extension 555.

Sincerely,

DOUG MAYNE
Vice Director of Civil Defense

PBR HAWAII
& ASSOCIATES, INC.

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June 16, 2014

Mr. Doug Mayne, Vice Director
State of Hawai'i
Department of Defense
Office of the Director of Civil Defense
3949 Diamond Head Road
Honolulu, Hawai'i 96816-4495

Attn: Mr. Ian Duncan, State Hazard Mitigation Officer

SUBJECT: PRE-CONSULTATION FOR THE PROPOSED HAIHAI FIRE STATION, WAIĀKEA HOMESTEADS, SOUTH HILO DISTRICT, HAWAI'I ISLAND TMK: 2-4-051:002 (POR)

Dear Mr. Mayne,

Thank you for your letter dated February 3, 2014 regarding the pre-consultation for the Haihai Fire Station. As the planning consultant for the County of Hawai'i Department of Public Works, we are responding to your comments.

Our research indicates that the closest siren to the proposed fire station site is Kawailani Street Siren (HA105) located approximately 0.7 miles north of the site. We acknowledge the State Civil Defense's recommendation that a new omni-directional siren mounted on a 45-foot pole be installed at the proposed Haihai Fire Station site. We also acknowledge that the State of Hawai'i Department of Defense, Office of Civil Defense, will advise the County Department of Public Works on the placement of the pole for a new siren.

In regards to your comments, please be advised that an archaeological inventory survey (addressing any cultural, historical and archaeological elements) was prepared and submitted to the State Historic Preservation Division for its review and approval.

Thank you for participating in the environmental review process. Your letter will be included in the Draft EA.

Sincerely,

PBR HAWAII

Vincent Shigekuni
Vice President

cc: David Yamamoto, County of Hawai'i Department of Public Works
Glenn Yokotake, KYA Design Group

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GOVERNOR
STATE OF HAWAII

JOBIE M. K. MASAGATANI
CHAIRMAN
HAWAIIAN HOMES COMMISSION

DARRELL T. YOUNG
DEPUTY TO THE CHAIRMAN

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

January 21, 2014

PBR HAWAII & ASSOCIATES, INC.
Attn: Mr. Vincent Shigekuni, Vice President
Honolulu Office
1001 Bishop Street, Suite 650
Honolulu, Hawaii 96813-3484

Dear Mr. Shigekuni:

SUBJECT: PRE-ASSESSMENT CONSULTATION FOR THE PROPOSED HAIHAI FIRE STATION LOCATED AT WAIAKEA HOMESTEADS, SOUTH HILO DISTRICT, HAWAI'I ISLAND
TMK: (3) 2-4-051:001 (portion)

Thank you for the opportunity to review the subject Pre-Assessment Consultation.

The Department of Hawaiian Home Lands supports public facilities that provide services to our lands and beneficiaries. We recommend that your office also consult with the homestead communities/associations that include Pana'ewa Hawaiian Home Lands Community Association, President William "Bill Brown and the Keaukaha Pana`ewa Farmers Association, President Patrick L. Kahawaiola`a to ensure the proposed Haihai Fire Station project does not have any impact on either of the Hawaiian homestead's future projects, plans or programs.

If you have any questions, please contact our Planning Office at (808) 620-9480.

Aloha,

Marvin Kaleo Manuel
Acting Planning Program Office

Attachment

Attachment

Keaukaha Pana`ewa Farmers Association
Mr. Patrick L. Kahawaiola`a, President
c/o Department of Hawaii Home Lands
Hilo District Office
160 Baker Avenue
Hilo, Hawaii 96720

Pana'ewa Hawaiian Home Lands Community Association
Mr. William "Bill" Brown, President
c/o Department of Hawaii Home Lands
Hilo District Office
160 Baker Avenue
Hilo, Hawaii 96720

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June 16, 2014

Mr. Marvin Kaleo Manuel
State of Hawai'i
Department of Hawaiian Homelands
P.O. Box 1879
Honolulu, Hawai'i 96805

SUBJECT: PRE-CONSULTATION FOR THE PROPOSED HAIHAI FIRE STATION, WAIĀKEA HOMESTEADS, SOUTH HILO DISTRICT, HAWAI'I ISLAND TMK: 2-4-051:002 (POR)

Dear Mr. Manuel,

Thank you for your letter dated January 21, 2014 regarding the pre-consultation for the Haihai Fire Station. As the planning consultant for the County of Hawai'i Department of Public Works, we are responding to your comments.

As requested, we sent pre-consultation letters to the Pana'ewa Hawaiian Home Lands Community Association and Keaukaha Pana'ewa Farmers Association to review programs that may be directly affected by the proposed fire station. We have not received a response to date. We will send copies of the Draft EA to these organizations with a request for comments.

Thank you for participating in the environmental review process. Your letter will be included in the Draft EA.

Sincerely,

PBR HAWAII

Vincent Shigekuni
Vice President

cc: David Yamamoto, County of Hawai'i Department of Public Works
Glenn Yokotake, KYA Design Group

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GOVERNOR OF HAWAII

GARY L. GILL
ACTING DIRECTOR OF HEALTH

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

In reply, please refer to:
File:
14-013
Haihai Fire Station

January 30.2014

PBR HAWAII & Associates, Inc.
Attn: Vincent Shigekuni
1001 Bishop Street, Suite 650
Honolulu, Hawaii 96813-3484

Dear Mr. Shigekuni:

SUBJECT: Pre-Assessmenet Consultation for the Proposed Haihai Fire Station Located at Waiakea Homesteads, South Hilo, Hawaii, TMK: (1) 2-4-051: 001 (portion)

The Department of Health (DOH), Environmental Planning Office (EPO), acknowledges receipt of your letter dated January 14, 2014. Thank you for allowing us to review and comment on the subject document. The document was routed to our District Health Office on the island of Hawaii. They will provide specific comments to you if necessary. EPO recommends that you review the standard comments at: http://health.hawaii.gov/epo/home/landuse-planning-review-program/.
You are required to adhere to all standard comments specifically applicable to this application.

EPO suggests that you examine the many sources available on strategies to support the sustainable and healthy design of communities and buildings, including the:
State of Hawaii, Office of Planning: www.planning.hawaii.gov and the new 2013 ORMP;
U.H., School of Ocean and Earth Science and Technology: www.soest.hawaii.edu;
U.S. Health and Human Services: www.hhs.gov/about/sustainability;
U.S. Environmental Protection Agency's sustainability programs: www.epa.gov/sustainability;
U.S. Green Building Council's LEED program: www.usgbc.org/leed; and
International Well Building Standard: http://delosliving.com

The DOH encourages everyone to apply these sustainability strategies and principles early in the planning and review of projects. We also request that for future projects you consider conducting a Health Impact Assessment (HIA). More information is available at:
www.cdc.gov/healthyplaces/hia.htm. We request you share all of this information with others to increase community awareness on sustainable, innovative, inspirational, and healthy community design.

We request electronic response confirming receipt of this letter and any other letters you receive from DOH in regards to this project. Please email: epo@doh.hawaii.gov. We anticipate that our letter(s) and your electronic response(s) will be included in the final document. If you have any questions, please contact me at (808) 586-4337 or laura.mcintyre@doh.hawaii.gov

Mahalo,

FOR Laura Leialoha Phillips McIntyre, AICP
Program Manager, Environmental Planning Office

PBR HAWAII
& ASSOCIATES, INC.

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June 16, 2014

Ms. Laura Leialoha Phillips McIntyre, Program Manager
State of Hawai'i
Department of Health
Environmental Planning Office
P.O. Box 3378
Honolulu, HI 96801-3378

SUBJECT: PRE-CONSULTATION FOR THE PROPOSED HAIHAI FIRE STATION, WAIĀKEA HOMESTEADS, SOUTH HILO DISTRICT, HAWAI'I ISLAND TMK: 2-4-051:002 (POR)

Dear Ms. McIntyre,

Thank you for your letter (your reference no. 14-013 Haihai Fire Station) dated January 30, 2014 regarding the pre-consultation for the Haihai Fire Station. As the planning consultant for the County of Hawai'i Department of Public Works, we are responding to your comments.

We reviewed the Environmental Planning Office's (EPO) standard comments relating to Environmental Health programs. We understand that all standard comments specifically applicable to Haihai Fire Station must be adhered to. The organization of this letter follows the list of standard comments on your website.

Clean Air Branch
We acknowledge that there is a significant potential for fugitive dust emissions during all phases of construction and operations. The Draft EA will address construction-related impacts related to fugitive dust. All construction activities will comply with the provisions of Section 11-60.1-33, Hawaii Administrative Rules (HAR) related to Fugitive Dust. Adequate measures to control dust during various phases of construction will be required to be implemented by whatever contractor is employed by the County to effect the fire station's development.

Clean Water Branch
We reviewed and understand the standard comments provided by the Clean Water Branch (CWB).

1. **Potential Impacts to State Waters.** The Draft EA identifies the type and class of State waters off the coast of Hilo as "A". Any potential impacts to these waters caused by the construction and/or operation of the fire station will meet the provisions of the: a) antidegradation policy (Chapter 11-54-1.1, HAR); b) designated uses (Chapter 11-54-3, HAR); and c) water quality criteria (Chapter 11.54-4 through 11-54-8, HAR). However, direct discharges of stormwater runoff into marine waters are not expected to occur due to the fire station's distance to the coast and high permeability of lavas in the vicinity of the site.

2. **National Pollutant Discharge Elimination System permit coverage.** A National Pollutant Discharge Elimination System (NPDES) permit for discharges of wastewater, including storm water runoff, into State surface waters (Chapter 11-55, HAR) will be obtained. All NPDES permit requirements will be implemented.

3. **Clean Water Act.** Pursuant to the "Clean Water Act," a Section 401 Water Quality Certification from the State Department of Health, Clean Water Branch will be obtained if it is determined that the project may result in any discharge into navigable waters or as otherwise triggered.

4. **State Water Quality Standards (Chapter 11-54 and 11-55, HAR).** All discharges related to the construction and operation of the fire station will comply with the State's Water Quality requirements contained in Chapters 11-54 and 11-55, HAR.

Hazard Evaluation and Emergency Response Office
We understand that the Hazard Evaluation and Emergency Response (HEER) Office provides leadership, support, and partnership in preventing, planning for, responding to, and enforcing environmental laws relating to releases or threats of releases of hazardous substances. We do not expect hazardous substances, pollutants, or contaminants to be present at the park site. However, if any of these are found at the project site, HEER will be contacted to determine the appropriate actions to comply with the relevant environmental laws.

Noise, Radiation, & Indoor Air Quality Branch
Fire Station activities will comply with the following Hawaii Administrative Rules:

- Chapter 11-39 Air conditioning and Ventilation
- Chapter 11-45 Radiation Control
- Chapter 11-46 Community Noise Control

In addition, Fire Station operations will comply with HAR Chapters 11-501 through 11-504 regarding asbestos. However, since there are no existing structures or buildings within the project area, the presence of asbestos is not expected.

Safe Drinking Water Branch
We note that the Safe Drinking Water Branch administers programs to protect drinking water sources from contamination.

1. **Public Water System.** A public water system will not be developed as part of the fire station. Potable water will be supplied by the County Department of Water Supply, which draws water from a series of surface water sources and groundwater wells.

2. **Underground Injection Control.** Wastewater generated by the fire station will be collected by the County wastewater system.

Solid and Hazardous Waste Branch
Solid waste that cannot be recycled will be disposed of at the Hilo Transfer Station. Waste contractors will be asked to submit disposal receipts and invoices to ensure proper disposal of waste. The Fire Station will also comply with the provisions of Section 11-260 to 11-280, Hawaii Administrative Rules, relating to hazardous waste.

Wastewater Branch
The fire station will connect to the County wastewater system. Wastewater generated onsite will be collected by the County wastewater system. No cesspool is being proposed.

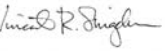
Sustainable and Healthy Design
We have examined the available resources on strategies to support the sustainable and healthy design of communities and buildings. As such, the following concepts will be incorporated into the development of Haihai Fire Station.

- Implement best management practices to reduce pollutant loads (ORMP)
- Incorporate green building specifications into all new construction and major renovation projects (US HHS)
- Develop and deploy operational controls for leak detection including a distribution system audit, leak detection, and repair programs. (US HHS)
- Design, install, and maintain landscape to reduce water use (US HHS).

Thank you for participating in the environmental review process. Your letter will be included in the Draft EA.

Sincerely,

PBR HAWAII



Vincent Shigekuni
Vice President

cc: David Yamamoto, County of Hawai'i Department of Public Works
Glenn Yokotake, KYA Design Group

NEIL ABERCROMBIE
GOVERNOR

Gary L. Gill
ACTING DIRECTOR OF HEALTH

STATE OF HAWAII
DEPARTMENT OF HEALTH
P.O. BOX 916
HILO, HAWAII 96721-0916

MEMORANDUM

DATE: February 4, 2014

TO: Vincent Shigekumi
PBR HAWAII & Asociates, Inc.

FROM: Newton Inouye
District Environmental Health Program Chief

SUBJECT: PRE-ASSESSMENT CONSULTATION FOR THE PROPOSED HAIHAI FIRE STATION LOCATED AT WAIAKEA HOMESTEADS, SOUTH HILO DISTRICT, HAWAI'I ISLAND
TMK: (3) 2-4-051:001 (portion)

The use of individual wastewater systems is allowed. The type and number of individual wastewater systems to be used on each lot will be determined by the wastewater rules in effect at the time of building permit application.

The applicant would need to meet the requirements of our Department of Health Air Pollution Rules, Chapter 60.1, Title 11, State of Hawaii for fugitive dust control. If there is need to discuss these requirements, please contact our Clean Air Branch staff at Ph. 933-0401.

Construction activities must comply with the provisions of Hawaii Administrative Rules, Chapter 11-46, "Community Noise Control."

1. The contractor must obtain a noise permit if the noise levels from the construction activities are expected to exceed the allowable levels of the rules.

2. Construction equipment and on-site vehicles requiring an exhaust of gas or air must be equipped with mufflers.

3. The contractor must comply with the requirements pertaining to construction activities as specified in the rules and the conditions issued with the permit.

Should there be any questions on this matter, please contact the Department of Health at 933-0917.

We recommend that you review all of the Standard Comments on our website: http://hawaii.gov/health/environmental/env-planning/landuse/landuse.html. Any comments specifically applicable to this project should be adhered to.

The same website also features a Healthy Community Design Smart Growth Checklist (Checklist) created by Built Environment Working Group (BEWG) of the Hawaii State Department of Health. The BEWG recommends that state and county planning departments, developers, planners, engineers and other interested parties apply the healthy built environment principles in the Checklist whenever they plan or review new developments or redevelopments projects. We also ask you to share this list with others to increase community awareness on healthy community design.

WORD: PRE-ASSESSMENT HAIHAI FIRE STATION.ni

PBR HAWAII
& ASSOCIATES, INC.

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printed on recycled paper

June 16, 2014

Mr. Newton Inouye, Chief
District Environmental Health Program
State of Hawaii
Department of Health
P.O. Box 916
Hilo, Hawaii 96721-0916

SUBJECT: PRE-CONSULTATION FOR THE PROPOSED HAIHAI FIRE STATION, WAIĀKEA HOMESTEADS, SOUTH HILO DISTRICT, HAWAI'I ISLAND TMK: 2-4-051:002 (POR)

Dear Mr. Inouye,

Thank you for your memo dated February 4, 2014 regarding the pre-consultation for the Haihai Fire Station. As the planning consultant for the County of Hawai'i Department of Public Works, we are responding to your comments.

We reviewed the Environmental Planning Office's standard comments relating to Environmental Health programs. We understand that all standard comments specifically applicable to Haihai Fire Station must be adhered to. In addition we have addressed your specific comments below.

Individual Wastewater System

Thank you for confirming that individual wastewater systems are allowed. The Department of Public Works will refer to the wastewater rules in effect at the time of building permit application to determine the type and number of individual wastewater systems to be used.

Air Quality

We acknowledge that there is a potential for fugitive dust emissions during all phases of construction and operations. The soil at the project site is classified by the U.S. Department of Agriculture Natural Resources Conservation Service (NRCS) as Panaewa very rocky silty clay loam and Keaukaha Extremely Rocky Muck. According to the NRCS, the erosion hazard of both soil types is "slight." The Draft EA will address the potential for construction-related impacts related to fugitive dust. All construction activities will comply with the provisions of Section 11-60.1-33, Hawaii Administrative Rules (HAR) related to Fugitive Dust. Adequate measures to control dust during various phases of construction will be required to be implemented by whatever contractor is employed by the County to effect the fire station's development.

Community Noise Control
Construction activities will comply with the provisions of Chapter 11-46, "Community Noise Control," Hawaii Administrative Rules.

Thank you for participating in the environmental review process. Your letter will be included in the Draft EA.

Sincerely,

PBR HAWAII

Vincent Shigekuni
Vice President

cc: David Yamamoto, County of Hawai'i Department of Public Works
Glenn Yokotake, KYA Design Group

O:\Job30\3056.01 Haihai St. Fire Station EA\EA\Pre-Assessment Consultation\Responses\DOH Hawaii District.docx

NEIL ABERCROMBIE
GOVERNOR

PATRICIA McMANAMAN
DIRECTOR

BARBARA A. YAMASHITA
DEPUTY DIRECTOR

STATE OF HAWAII
DEPARTMENT OF HUMAN SERVICES
Benefit, Employment & Support Services Division
820 Mililani Street, Suite 606
Honolulu, Hawaii 96813

January 28, 2014

Refer to 14-0042

PBR HAWAII & Associates, Inc.
Attn: Vincent Shigekuni
1001 Bishop Street, Suite 650
Honolulu, Hawaii 96813-3484

Dear Mr. Shigekuni:

Subject: Pre-Assessment Consultation for the Proposed Haihai Fire Station located at Waiakea Homesteads, South Hilo District, Hawaii Island
TMK: (3) 2-4-051:001 (portion)

Thank you for your letter dated January 14, 2014 that requests the Department of Human Services (DHS) comment on the proposed project which is the construction of a new fire station to be located on Haihai Street, across from the Hilo Municipal Golf Course.

The DHS has reviewed the location map and new site plan of the proposed project. There are several DHS licensed family child care homes located in the vicinity that may be impacted by the construction of the new fire station.

If you have any questions or need further information, please contact Ms. Jill Arizumi, Child Care Program Specialist, at (808) 586-5240.

Sincerely,

Scott Nakasone
Assistant Division Administrator

c: Patricia McManaman, Director

PBR HAWAII
& ASSOCIATES, INC.

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1001 Bishop Street, Suite 650
Honolulu, Hawai'i 96813-3484
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Fax: (808) 523-1402
E-mail: sysadmin@pbrhawaii.com

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Tel: (808) 521-5631
Fax: (808) 535-3163

HILO OFFICE
1719 Haleloke Street
Hilo, Hawai'i 96720-1553
Tel/Cel: (808) 315-6878

June 16, 2014

Mr. Scott Nakasone, Assistant Division Administrator
State of Hawai'i
Department of Human Services
Benefit, Employment & Support Services Division
820 Mililani Street, Suite 606
Honolulu, Hawai'i 96813

Attn: Ms. Jill Arizumi, Child Care Program Specialist

SUBJECT: PRE-CONSULTATION FOR THE PROPOSED HAIHAI FIRE STATION, WAIĀKEA HOMESTEADS, SOUTH HILO DISTRICT, HAWAI'I ISLAND TMK: 2-4-051:002 (POR)

Dear Mr. Nakasone,

Thank you for your letter (your reference number 14-0042) dated January 28, 2014 regarding the pre-consultation for the Haihai Fire Station. As the planning consultant for the County of Hawai'i Department of Public Works, we are responding to the Department of Human Services (DHS) comments.

We appreciate the information provided in your letter that there are several DHS licensed family child care homes located in the vicinity of the proposed fire station that may be impacted by construction. We acknowledge that while there will be temporary construction-related impacts to air quality, noise, solid waste generation, and storm water quality/quantity, the fire station as a permanent public safety facility provides a significant beneficial impact for public health and social welfare, to area residents, not only for fire protection, but also first response in medical emergencies. The project will address any short-term, construction-related impacts through compliance with County, State and Federal rules, regulations, permit and variance requirements regarding fugitive dust, community noise control, and non-point source discharges. In addition, best management practices that include structural and non-structural controls designed to inhibit run-off, erosion, fugitive dust will be implemented.

Thank you for participating in the environmental review process. Your letter will be included in the Draft EA.

Sincerely,

PBR HAWAII

Vincent Shigekuni
Vice President

cc: David Yamamoto, County of Hawai'i Department of Public Works
Glenn Yokotake, KYA Design Group

O:\Job30\3056.01 Haihai St. Fire Station EA\EA\Pre-Assessment Consultation\Responses\DHS.docx

NEIL ABERCROMBIE
GOVERNOR

DWIGHT TAKAMINE
DIRECTOR

JADE T. BUTAY
DEPUTY DIRECTOR

STATE OF HAWAII
DEPARTMENT OF LABOR AND INDUSTRIAL RELATIONS
830 PUNCHBOWL STREET, ROOM 321
HONOLULU, HAWAII 96813
www.hawaii.gov/labor
Phone: (808) 586-8844/Fax: (808) 586-9099

January 29, 2013

Mr. Vincent Shigekuni
Vice President
PBR Hawaii & Associates, Inc.
1001 Bishop Street, Suite 650
Honolulu, Hawaii 96813-3484

Dear Mr. Vincent Shigekuni:

This is in response to your request for comments dated January 14, 2014 on the Pre-assessment consultation for the proposed Haihai Fire Station located at Waiakea Homesteads in the South Hilo District on Hawaii island.

The Department of Labor and Industrial Relations has no comments, and we foresee no impact on our existing or proposed programs. Should you have any questions, please call me at (808) 586-8844.

Sincerely,

DWIGHT TAKAMINE
Director

PBR HAWAII
& ASSOCIATES, INC.

HONOLULU OFFICE
1001 Bishop Street, Suite 650
Honolulu, Hawai'i 96813-3484
Tel: (808) 521-5631
Fax: (808) 523-1402
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Fax: (808) 535-3163

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1719 Haleloke Street
Hilo, Hawai'i 96720-1553
Tel/Cel: (808) 315-6878

June 16, 2014

Mr. Dwight Takamine, Director
State of Hawai'i
Department of Labor and Industrial Relations
830 Punchbowl Street, Room 321
Honolulu, Hawai'i 96813

SUBJECT: PRE-CONSULTATION FOR THE PROPOSED HAIHAI FIRE STATION, WAIĀKEA HOMESTEADS, SOUTH HILO DISTRICT, HAWAI'I ISLAND TMK: 2-4-051:002 (POR)

Dear Mr. Takamine,

Thank you for your letter dated January 29, 2014 regarding the pre-consultation for the Haihai Fire Station. As the planning consultant for the County of Hawai'i Department of Public Works, we are responding to your comments.

We acknowledge that the Haihai Fire Station will not impact any of the Department of Labor and Industrial Relations' existing or proposed programs and that the department has no comments to offer at this time.

Thank you for participating in the environmental review process. Your letter will be included in the Draft EA.

Sincerely,

PBR HAWAII

Vincent Shigekuni
Vice President

cc: David Yamamoto, County of Hawai'i Department of Public Works
Glenn Yokotake, KYA Design Group

O:\Job30\3056.01 Haihai St. Fire Station EA\EA\Pre-Assessment Consultation\Responses\DLIR.docx

NEIL ABERCROMBIE
GOVERNOR OF HAWAII

WILLIAM J. AILA, JR.
CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
LAND DIVISION

POST OFFICE BOX 621
HONOLULU, HAWAII 96809

February 18, 2014

PBR Hawaii & Associates, Inc.
Attn: Vincent Shigekuni
1001 Bishop Street, Suite 650
Honolulu, HI 96813-3484

via email: vshigekuni@pbrhawaii.com

Dear Mr. Shigekuni:

SUBJECT: Pre-Assessment Consultation for the Proposed Haihai Fire Station, PBR Hawaii & Associates, Inc. for County of Hawaii Department of Public Works, Applicant, Waiakea Homesteads, South Hilo, Hawaii; TMK: (3) 2-4-051:001

Thank you for the opportunity to review and comment on the subject matter. The Department of Land and Natural Resources' (DLNR) Land Division distributed or made available a copy of your report pertaining to the subject matter to DLNR Divisions for their review and comments.

At this time, enclosed are comments from the (i) Engineering Division; and (ii) Hawaii District Land Office on the subject matter. Should you have any questions, please feel free to call Kevin Moore at 587-0426. Thank you.

Sincerely,

Russell Y. Tsuji
Land Administrator

Enclosure(s)

NEIL ABERCROMBIE
GOVERNOR OF HAWAII

WILLIAM J. AILA, JR.
CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
LAND DIVISION

POST OFFICE BOX 621
HONOLULU, HAWAII 96809

14 JAN 24 PM 2:46 ENGINEERING

January 24, 2014

2014 JAN 29 AM 10:52 DEPT. OF LAND & NATURAL RESOURCES STATE OF HAWAII RECEIVED LAND DIVISION

MEMORANDUM

TO: ~~PR~~ TO:

DLNR Agencies:
__Div. of Aquatic Resources
__Div. of Boating & Ocean Recreation
X Engineering Division
__Div. of Forestry & Wildlife
__Div. of State Parks
__Commission on Water Resource Management
__Office of Conservation & Coastal Lands
X Land Division – Hawaii District
X Historic Preservation

FROM: Russell Y. Tsuji, Land Administrator
SUBJECT: Pre-Assessment Consultation for the Proposed Haihai Fire Station
LOCATION: Waiakea Homesteads, South Hilo, Hawaii; TMK: (3) 2-4-051:001
APPLICANT: PBR Hawaii & Associates, Inc. for County of Hawaii Department of Public Works

Transmitted for your review and comment is information on the above-referenced project. We would appreciate your comments on this project. Please submit any comments by February 7, 2014.

If no response is received by this date, we will assume your agency has no comments. If you have any questions about this request, please contact Kevin Moore at 587-0426. Thank you.

( ) We have no objections.
( ) We have no comments.
(✓) Comments are attached.

Signed: _____

Print name: Carty S. Chang, Chief Engineer
Date: 1/28/14

cc: Central Files

DEPARTMENT OF LAND AND NATURAL RESOURCES
ENGINEERING DIVISION

LD/ Russell Y. Tsuji
Ref.: Pre-Assessment Consultation for the Proposed Haihai Fire Station, Waiakea Homesteads, South Hilo District
Hawaii.003

COMMENTS

( ) We confirm that the project site, according to the Flood Insurance Rate Map (FIRM), is located in Flood Zone ___.

(X) Please take note that the project site, according to the Flood Insurance Rate Map (FIRM), is located in Zone X. The National Flood Insurance Program (NFIP) does not regulate developments within Zone X.

( ) Please note that the correct Flood Zone Designation for the project site according to the Flood Insurance Rate Map (FIRM) is ___.

( ) Please note that the project site must comply with the rules and regulations of the National Flood Insurance Program (NFIP) presented in Title 44 of the Code of Federal Regulations (44CFR), whenever development within a Special Flood Hazard Area is undertaken. If there are any questions, please contact the State NFIP Coordinator, Ms. Carol Tyau-Beam, of the Department of Land and Natural Resources, Engineering Division at (808) 587-0267.

Please be advised that 44CFR indicates the minimum standards set forth by the NFIP. Your Community's local flood ordinance may prove to be more restrictive and thus take precedence over the minimum NFIP standards. If there are questions regarding the local flood ordinances, please contact the applicable County NFIP Coordinators below:

( ) Mr. Mario Siu Li at (808) 768-8098 or Ms. Ardis Shaw-Kim at (808) 768-8296 of the City and County of Honolulu, Department of Planning and Permitting.
( ) Mr. Frank DeMarco at (808) 961-8042 of the County of Hawaii, Department of Public Works.
( ) Mr. Carolyn Cortez at (808) 270-7813 of the County of Maui, Department of Planning.
( ) Mr. Stanford Iwamoto at (808) 241-4884 of the County of Kauai, Department of Public Works.

( ) The applicant should include project water demands and infrastructure required to meet water demands. Please note that the implementation of any State-sponsored projects requiring water service from the Honolulu Board of Water Supply system must first obtain water allocation credits from the Engineering Division before it can receive a building permit and/or water meter.

( ) The applicant should provide the water demands and calculations to the Engineering Division so it can be included in the State Water Projects Plan Update.

( ) Additional Comments: _____

_____

( ) Other: _____

Should you have any questions, please call Mr. Dennis Imada of the Planning Branch at 587-0257.

Signed: _____
CARTY S. CHANG, CHIEF ENGINEER

Date: 1/28/14

NEIL ABERCROMBIE
GOVERNOR OF HAWAII

WILLIAM J. AILA, JR.
CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
LAND DIVISION

POST OFFICE BOX 621
HONOLULU, HAWAII 96809

2014 JAN 27 P 2:13

RECEIVED
LAND DIVISION
HILO, HAWAII

January 24, 2014

MEMORANDUM

2014 FEB -3 AM 10:15
DEPT OF LAND & NATURAL RESOURCES STATE OF HAWAII
RECEIVED LAND DIVISION

TO: **DLNR Agencies:**
___Div. of Aquatic Resources
___Div. of Boating & Ocean Recreation
X Engineering Division
___Div. of Forestry & Wildlife
___Div. of State Parks
___Commission on Water Resource Management
___Office of Conservation & Coastal Lands
X Land Division – Hawaii District
X Historic Preservation

FROM: Russell Y. Tsuji, Land Administrator
SUBJECT: Pre-Assessment Consultation for the Proposed Haihai Fire Station
LOCATION: Waiakea Homesteads, South Hilo, Hawaii; TMK: (3) 2-4-051:001
APPLICANT: PBR Hawaii & Associates, Inc. for County of Hawaii Department of Public Works

Transmitted for your review and comment is information on the above-referenced project. We would appreciate your comments on this project. Please submit any comments by February 7, 2014.

If no response is received by this date, we will assume your agency has no comments. If you have any questions about this request, please contact Kevin Moore at 587-0426. Thank you.

( ) We have no objections.
( ) We have no comments.
(✓) Comments are attached.

Signed: _____

Print name: GORDON C. HOT
Date: 1/31/14

cc: Central Files

NEIL ABERCROMBIE
GOVERNOR OF HAWAII

WILLIAM J. AILA, JR.
CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
LAND DIVISION

75 Aupuni Street, Room 204
Hilo, Hawaii 96720
PHONE: (808) 961-9590
FAX: (808) 961-9599

January 31, 2014

MEMORANDUM

TO: Russell Y. Tsuji, Administrator

FROM: Gordon C. Heit, Hawaii District Land Agent

SUBJECT: Draft Environmental Assessment, Pre-Assessment Consultation for the Proposed Haihai Fire Station

LOCATION: Waiakea Homesteads, South Hilo, Hawaii, TMK: (3) 2-4-051:001 (portion)

APPLICANT: PBR Hawaii & Associates, Inc. on behalf of County of Hawaii, department of Public Works

Pursuant to your request for comments on the above matter, we offer the following:

The County of Hawaii is requesting approximately two (2) acres of land be withdrawn from General Lease No. S-5570 to be set aside for the Waiakea Uka fire station as the Hawaii Fire Department has outgrown the existing station located on Kawailani Street. In addition, emergency services provided by the Hawaii Fire Department from the Kawailani Street Station now include Emergency Medical Services and the required personnel, vehicles and equipment can no longer be accommodated at the current location. Furthermore, an ongoing Kawailani Street widening project will bring the working area of the station driveway and building closer to the active roadway which may lead to a dangerous situation.

The proposed set aside location is most favorable due to it being centrally located and able to serve the same population that the existing Kawailani Street Station serves, inclusive of the area from Panaewa makai up to Waiakea Uka and will provide the additional space required for the Emergency Medical Services personnel.

Please contact me should you have any questions.

PBR HAWAII
& ASSOCIATES, INC.

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1001 Bishop Street, Suite 650
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Fax: (808) 535-3163

HILO OFFICE
1719 Haleloke Street
Hilo, Hawai'i 96720-1553
Tel/Cel: (808) 315-6878

June 16, 2014

Mr. Russell Y. Tsuji, Land Administrator
State of Hawai'i
Department of Land and Natural Resources
Land Division
P.O. Box 621
Honolulu, Hawai'i 96809

Attn: Mr. Kevin Moore

SUBJECT: PRE-CONSULTATION FOR THE PROPOSED HAIHAI FIRE STATION, WAIĀKEA HOMESTEADS, SOUTH HILO DISTRICT, HAWAI'I ISLAND TMK: 2-4-051:002 (POR)

Dear Mr. Tsuji,

Thank you for your letter dated February 18, 2014 regarding the pre-consultation for the Haihai Fire Station. As the planning consultant for the County of Hawai'i Department of Public Works, we are responding to the comments from the Engineering Division and the Hawaii District Land Office of the Department of Land and Natural Resources.

1. We acknowledge, as stated by the Engineering Division, that the site, located in Zone X, is not regulated by the National Flood Insurance Program (NFIP).

2. The Draft EA will include a section that addresses that the proposed set aside location is most favorable due to it being centrally located and able to serve the same population that the existing Kawailani Street Station serves. Also, according to the Hawaii District Land Office, the future Haihai Street Fire Station site will provide the additional space required for Emergency Medical Services personnel.

Thank you for participating in the environmental review process. Your letter will be included in the Draft EA.

Sincerely,

PBR HAWAII

Vincent Shigekuni
Vice President

cc: David Yamamoto, County of Hawai'i Department of Public Works
Glenn Yokotake, KYA Design Group

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NEIL ABERCROMBIE
GOVERNOR OF HAWAII

WILLIAM J. AILA, JR.
CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT

ESTHER KIA'AINA
FIRST DEPUTY

WILLIAM M. TAM
DEPUTY DIRECTOR - WATER

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

HISTORIC PRESERVATION DIVISION
DEPARTMENT OF LAND AND NATURAL RESOURCES

601 Kamokila Boulevard, Suite 555
Kapolei, HI 96806

February 10, 2014

Mr. Vincent Shigekuni
PBR HAWAII & Associates, Inc.
1001 Bishop Street, Suite 650
Honolulu, Hawai'i 96813-3484

LOG NO: 2014.00189
DOC NO: 1401SN18
Archaeology

Dear Mr. Bell:

SUBJECT: **Chapter 6E-42 Historic Preservation Review –**
Pre-Assessment Consultation for the Proposed Haihai Fire Station at Waiākea Homesteads
Waiākea Ahupua'a, South Hilo District, Island of Hawai'i
TMK: (3) 2-4-051:001 (portion)

Thank you for the letter requesting our comments regarding the proposed new facility to be constructed on State land under a direct lease agreement, that was received in our office on January 15, 2014. An environmental assessment is being prepared for the facility, which will consist of a new fire station on a portion of a 35.6-acre parcel. Although the facility will be located on 2-acres of the parcel, the area of potential effect (APE) for the environmental assessment (EA) has been determined to be 12-acres.

We have no records indicating that an archaeological inventory survey (AIS) was conducted of the project area. The area has been identified as a part of the Waiakea Mill Company lands. A 1922 Waiakea Mill Company map indicates the current project area is in a portion of field 907 which was probably cultivated in sugarcane. According to the map two small gauge railroad lines ran east/west in the northern and southern portions of the parcel.

Based on our current information, **SHPD requests a site inspection by a qualified archaeologist to identify the presence or absence of any undocumented historic properties**. If undocumented historic properties are identified, we recommend that an archaeological inventory survey be conducted of the project area as part of the EA for the project. We request that a report of findings and recommendations be submitted to our office for review, pursuant to Hawaii Administrative Rule 13-276. Following approval of the report, we will be able to provide recommendations for appropriate mitigation measures as needed. We look forward to the opportunity to review the results of the identification process.

Please contact Sean Nāleimaile at (808) 933-7651 or Sean.P.Naleimaile@Hawaii.gov if you have any questions or concerns regarding this letter.

Aloha,

Theresa K. Donham
Archaeology Branch Chief

PBR HAWAII
& ASSOCIATES, INC.

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1001 Bishop Street, Suite 650
Honolulu, Hawai'i 96813-3484
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HILO OFFICE
1719 Haleloke Street
Hilo, Hawai'i 96720-1553
Tel/Cel: (808) 315-6878

June 16, 2014

Ms. Theresa K. Donham, Archaeology Branch Chief
State of Hawai'i Department of Land and Natural Resources
Historic Preservation Division
601 Kamokila Boulevard, Suite 555
Kapolei, HI 96806

Attn: Mr. Sean Naleimaile

SUBJECT: PRE-CONSULTATION FOR THE PROPOSED HAIHAI FIRE STATION, WAIĀKEA HOMESTEADS, SOUTH HILO DISTRICT, HAWAI'I ISLAND TMK: 2-4-051:002 (POR)

Dear Ms. Donham,

Thank you for your letter dated February 10, 2014 (your reference number LOG NO: 2014.00189; DOC NO: 1401SN18 Archaeology) regarding the pre-consultation for the Haihai Fire Station. As the planning consultant for the County of Hawai'i Department of Public Works, we are responding to your comments.

We note that the project area has been identified as a part of the Waiākea Mill Company lands. We understand that according to a 1922 Waiākea Mill Company map, two small gauge railroad lines used to run east/west in the vicinity of the project area. Scientific Consultant Services Inc. (SCS) conducted an Archaeological Inventory Survey for the project area. No evidence or remains of the railroad tracks were identified within the project area. SCS concludes that the tracks would have been located to the west, outside of the project area. In addition, the railroad tracks were likely portable tracks laid in the fields during times of cane harvest.

SCS located two archaeological sites (Site 50-10-35-30039, and Site 50-10-35-30040) within the project area consisting of four rock mounds. The rock mounds are sugarcane field clearing mounds associated with the Waiākea Sugar Mill company cane lots. There were no remnants of pre-contact era sites. No other archaeological sites or features were present within the project area. The complete report of findings and recommendations will be/has been submitted to your office for review, pursuant to Hawaii Administrative Rule 13-276.

Thank you for participating in the environmental review process. Your letter will be included in the Draft EA.

Sincerely,

PBR HAWAII

Vincent Shigekuni
Vice President

cc: David Yamamoto, County of Hawai'i Department of Public Works
Glenn Yokotake, KYA Design Group

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NEIL ABERCROMBIE
GOVERNOR

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

GLENN M. OKIMOTO
DIRECTOR

Deputy Directors
AUDREY HIDANO
FORD N. FUCHIGAMI
RANDY GRUNE
JADINE URASAKI

IN REPLY REFER TO:
DIR 0091
HWY-PS 2.6526

February 12, 2014

Mr. Vincent Shigekuni
Vice President
PBR Hawaii & Associates, Inc.
1001 Bishop Street, Suite 650
Honolulu, Hawaii 96813-3484

Dear Mr. Shigekuni:

Subject: Pre-Assessment Consultation for the Proposed Haihai Fire Station Located at Waiakea Homesteads, Hilo, South Hilo District, Hawaii, TMK: (3) 2-4-051:001 por.

We received your request for comments as to whether the subject proposed fire station may have an impact on any of our existing or proposed projects, plans, policies or programs that should be considered during preparation of an Environmental Assessment. The proposed project would be located on approximately two acres of land bordered by two streets under the County of Hawaii jurisdiction, i.e., Haihai Street to the north and Laula Road to the east. The nearest road under State jurisdiction, Kanoelehua Avenue (Route 11), is more than a mile from the proposed project.

Based on its location, we do not anticipate any significant impacts to the existing or proposed State Highway System from the proposed fire station. We recommend one correction to the Regional Location map, which mistakenly identifies State Route 11 as Hawaii Belt Road. The official name of Route 11 between Kamehameha Avenue (Route 19) and Makalika Street is Kanoelehua Avenue. Route 11 from Makalika Street to the Volcanoes National Park access road is named Volcano Road.

If you have any questions, please contact Gary Ashikawa, Systems Planning Engineer, Highways Division, Planning Branch, at 587-6336.

Very truly yours,

GLENN M. OKIMOTO, Ph.D.
Director of Transportation

PBR HAWAII
& ASSOCIATES, INC.

HONOLULU OFFICE
1001 Bishop Street, Suite 650
Honolulu, Hawai'i 96813-3484
Tel: (808) 521-5631
Fax: (808) 523-1402
E-mail: sysadmin@pbrhawaii.com

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Fax: (808) 535-3163

HILO OFFICE
1719 Haleloke Street
Hilo, Hawai'i 96720-1553
Tel/Cel: (808) 315-6878

June 16, 2014

Mr. Glenn M. Okimoto, Ph.D.
Director of Transportation
State of Hawai'i
Department of Transportation
869 Punchbowl Street
Honolulu, Hawai'i 96813-5097

Attn: Mr. Gary Ashikawa, Systems Planning Engineer

SUBJECT: PRE-CONSULTATION FOR THE PROPOSED HAIHAI FIRE STATION, WAIĀKEA HOMESTEADS, SOUTH HILO DISTRICT, HAWAI'I ISLAND TMK: 2-4-051:002 (POR)

Dear Mr. Okimoto,

Thank you for your letter dated February 12, 2014 (DIR 0091 HWY-PS 2.6526) regarding the pre-consultation for the Haihai Fire Station. As the planning consultant for the County of Hawai'i Department of Public Works, we are responding to your comments.

We acknowledge that the Department of Transportation does not anticipate any significant impacts to the existing or proposed State Highway System from the proposed fire station.

We note that the nearest road under State jurisdiction is Kanoelua Avenue (Route 11) which is more than a mile away from the project area. The Draft EA will include a revised Regional Location Map identifying Route 11 as Kanoelehua Avenue. We future note that Route 11 from Makalika Street to the Volcanoes National Park access road is named Volcano Road.

Thank you for participating in the environmental review process. Your letter will be included in the Draft EA.

Sincerely,

PBR HAWAII

Vincent Shigekuni
Vice President

cc: David Yamamoto, County of Hawai'i Department of Public Works
Glenn Yokotake, KYA Design Group

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U.S. Department of Homeland Security
FEMA Region IX
1111 Broadway, Suite 1200
Oakland, CA. 94607-4052

FEMA

January 28, 2014

Vincent Shigekuni
PBR Hawaii and Associates, Inc.
1001 Bishop Street, Suite 650
Honolulu, Hawaii 96813-3484

Dear Mr. Shigekuni:

This is in response to your request for comments regarding the Pre-Assessment Consultation for the Proposed Haihai Fire Station located at Waiakea Homesteads, South Hilo District, Hawai'I Island TMK (3) 2-4-051:001 (portion).

Please review the current effective countywide Flood Insurance Rate Maps (FIRMs) for the County of Hawaii (Community Number 155166), Maps revised April 2, 2004. Please note that the County of Hawaii, State of Hawaii is a participant in the National Flood Insurance Program (NFIP). The minimum, basic NFIP floodplain management building requirements are described in Vol. 44 Code of Federal Regulations (44 CFR), Sections 59 through 65.

A summary of these NFIP floodplain management building requirements are as follows:

- All buildings constructed within a riverine floodplain, (i.e., Flood Zones A, AO, AH, AE, and A1 through A30 as delineated on the FIRM), must be elevated so that the lowest floor is at or above the Base Flood Elevation level in accordance with the effective Flood Insurance Rate Map.

- If the area of construction is located within a Regulatory Floodway as delineated on the FIRM, any ***development*** must not increase base flood elevation levels. **The term *development* means any man-made change to improved or unimproved real estate, including but not limited to buildings, other structures, mining, dredging, filling, grading, paving, excavation or drilling operations, and storage of equipment or materials.** A hydrologic and hydraulic analysis must be performed *prior* to the start of development, and must demonstrate that the development would not cause any rise in base flood levels. No rise is permitted within regulatory floodways.

- All buildings constructed within a coastal high hazard area, (any of the "V" Flood Zones as delineated on the FIRM), must be elevated on pilings and columns, so that the lowest horizontal structural member, (excluding the pilings and columns), is elevated to or above the base flood elevation level. In addition, the posts and pilings foundation and the structure attached thereto, is anchored to resist flotation, collapse and lateral movement due to the effects of wind and water loads acting simultaneously on all building components.

- Upon completion of any development that changes existing Special Flood Hazard Areas, the NFIP directs all participating communities to submit the appropriate hydrologic and hydraulic data to FEMA for a FIRM revision. In accordance with 44 CFR, Section 65.3, as soon as practicable, but not later than six months after such data becomes available, a community shall notify FEMA of the changes by submitting technical data for a flood map revision. To obtain copies of FEMA's Flood Map Revision Application Packages, please refer to the FEMA website at http://www.fema.gov/business/nfip/forms.shtm.

Please Note:

Many NFIP participating communities have adopted floodplain management building requirements which are more restrictive than the minimum federal standards described in 44 CFR. Please contact the local community's floodplain manager for more information on local floodplain management building requirements. The Hawaii County floodplain manager can be reached by calling Carter Romero, Director and Floodplain Administrator, Department of Public Works, at (808) 961-8943.

If you have any questions or concerns, please do not hesitate to call Sarah Owen of the Mitigation staff at (510) 627-7050.

Sincerely,

Gregor Blackburn, CFM, Branch Chief
Floodplain Management and Insurance Branch

cc:
Carter Romero, Director and Floodplain Administrator, County of Hawaii, Hawaii
Carol Tyau-Beam, Hawaii Department of Land and Natural Resources
Sarah Owen, NFIP Planner, DHS/FEMA Region IX
Alessandro Amaglio, Environmental Officer, DHS/FEMA Region IX

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& ASSOCIATES, INC.

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June 16, 2014

Mr. Gregor Blackburn, CFM, Branch Chief
U.S. Department of Homeland Security
FEMA Region IX
Floodplain Management and Insurance Branch
1111 Broadway, Suite 1200
Oakland, CA 94607-4052

Attn: Ms. Sarah Owen, NFIP Planner

SUBJECT: PRE-CONSULTATION FOR THE PROPOSED HAIHAI FIRE STATION, WAIĀKEA HOMESTEADS, SOUTH HILO DISTRICT, HAWAI'I ISLAND TMK: 2-4-051:002 (POR)

Dear Mr. Blackburn,

Thank you for your letter dated January 28, 2014 regarding the pre-consultation for the Haihai Fire Station. As a planning consultant for the County of Hawai'i Department of Public Works, we are responding to your comments.

We have reviewed the current effective countywide Flood Insurance Rate Maps (FIRMs) for the County of Hawai'i (Community Number 155166). The proposed Haihai Fire Station is located within Flood Zone X, or an area determined to be located outside of the 500-year flood plain. The project will comply with all requirements as described in Vol. 44 Code of Federal Regulations (44 CFR), Sections 59 through 65.

Thank you for participating in the environmental review process. Your letter will be included in the Draft EA.

Sincerely,

PBR HAWAII

Vincent Shigekuni
Vice President

cc: David Yamamoto, County of Hawai'i Department of Public Works
Glenn Yokotake, KYA Design Group

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William P. Kenoi
Mayor

BJ Leithead Todd
Director

John A. Medeiros
Deputy Director

County of Hawai'i
DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
345 Kekūanaō'a St., Suite 41• Hilo, Hawai'i 96720
(808) 961-8083 · Fax (808) 961-8086
http://www.hawaiicounty.gov/environmental-management/

January 23, 2014

PBR Hawai`i & Associates
1001 Bishop Street
ASB Tower, Suite 650
Honolulu, HI 96813

Attention: Mr. Vincent Shigekuni

RE: Pre-Assessment Consultation for the Proposed Haihai Fire Station located at Waiākea Homesteads, South Hilo District, Hawai`i Island
TMK: 2-4-051:002 (portion)

We have no comments to offer on the subject project.

Thank you for allowing us to review and comment.

Sincerely,

BJ Leithead Todd
DIRECTOR

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& ASSOCIATES, INC.

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June 16, 2014

Ms. BJ Leithead Todd, Director
County of Hawai'i
Department of Environmental Management
345 Kekūanaō'a Street, Suite 41
Hilo, Hawai'i 96720

SUBJECT: PRE-CONSULTATION FOR THE PROPOSED HAIHAI FIRE STATION, WAIĀKEA HOMESTEADS, SOUTH HILO DISTRICT, HAWAI'I ISLAND TMK: 2-4-051:002 (POR)

Dear Ms. Leithead Todd,

Thank you for your letter dated January 23, 2014 regarding the pre-consultation for the Haihai Fire Station. As the planning consultant for the County of Hawai'i Department of Public Works, we acknowledge that the Department of Environmental Management has no comments to offer.

Thank you for participating in the environmental review process. Your letter will be included in the Draft EA.

Sincerely,

PBR HAWAII

Vincent Shigekuni
Vice President

cc: David Yamamoto, County of Hawai'i Department of Public Works
Glenn Yokotake, KYA Design Group

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

February 19, 2014

Vincent Shigekuni
PBR Hawai'i & Associates, Inc.
1001 Bishop Street, Suite 650
Honolulu, HI 96813-3484

PRE-ENVIRONMENTAL ASSESSMENT CONSULTATION
PROPOSED HAIHAI FIRE STATION
TAX MAP KEY 2-4-051:001(PORTION)

This is in response to your Pre-Environmental Assessment letter dated January 14, 2014.

Water can be made available from the existing 10-inch waterline within Haihai Street, fronting the proposed project site.

Prior to issuing a water commitment for the proposed project, the Department requests estimated maximum daily water usage calculations prepared by a professional engineer licensed in the State of Hawai'i for review and approval. After review of the calculations, the Department will determine if water is available, a water commitment deposit amount, facilities charges due, and any water system improvements required for final approval.

Please be informed that the existing 10-inch waterline fronting the project site is adequate to provide the required 2,000 gallons per minute flow for fire protection, as per the Department's Water System Standards.

Please also be informed that any meter(s) serving the proposed project will require the installation of a reduced pressure type backflow prevention assembly within five feet of the meter on private property. The Department must inspect and approve the installation before water service can be activated.

Should there be any questions, please contact Mr. Ryan Quitoriano of our Water Resources and Planning Branch at 961-8070, extension 256.

Sincerely yours,

Quirino Antonio, Jr., P.E.
Manager-Chief Engineer

RQ:dfg

copy – County of Hawai'i, Department of Public Works
County of Hawai'i, Fire Department

. . .Water, Our Most Precious Resource . . . Ka Wai A Kāne . . .

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June 16, 2014

Mr. Quirino Antonio, Jr., P.E.
Manager-Chief Engineer
County of Hawai'i
Department of Water Supply
345 Kekūanaō'a Street, Suite 20
Hilo, HI 96720

Attn: Mr. Ryan Quitoriano

SUBJECT: PRE-CONSULTATION FOR THE PROPOSED HAIHAI FIRE STATION, WAIĀKEA HOMESTEADS, SOUTH HILO DISTRICT, HAWAI'I ISLAND TMK: 2-4-051:002 (POR)

Dear Mr. Antonio,

Thank you for your letter dated February 19, 2014 regarding the pre-consultation for the Haihai Fire Station. As the planning consultant for the County of Hawai'i Department of Public Works, we are responding to your comments.

Thank you for confirming that water can be made available to the proposed fire station via the existing 10-inch waterline within Haihai Street. We understand that the existing 10-inch waterline is adequate to provide the required 2,000 gallons per minute flow for fire protection, as per the Department of Water System Standards.

Estimated maximum daily water usage calculations for the fire station will be submitted to the Department of Water Supply (DWS) for review and approval prior to receiving a water commitment. Before activating water service, a reduced pressure type backflow prevention assembly will be installed within five feet of the meter for inspection and approval by DWS.

Thank you for participating in the environmental review process. Your letter will be included in the Draft EA.

Sincerely,

PBR HAWAII

Vincent Shigekuni
Vice President

cc: David Yamamoto, County of Hawai'i Department of Public Works
Glenn Yokotake, KYA Design Group

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William P. Kenoi
Mayor

West Hawai'i Office
74-5044 Ane Keohokalole Hwy
Kailua-Kona, Hawai'i 96740
Phone (808) 323-4770
Fax (808) 327-3563

County of Hawai'i
PLANNING DEPARTMENT

Duane Kanuha
Director

Bobby Command
Deputy Director

East Hawai'i Office
101 Pauahi Street, Suite 3
Hilo, Hawai'i 96720
Phone (808) 961-8288
Fax (808) 961-8742

February 6, 2014

Mr. Vincent Shigekuni
PBR Hawai'i & Associates, Inc.
1001 Bishop Street, Suite 650
Honolulu, HI 96813-3484

Dear Mr. Shigekuni:

Subject:	**Pre-Environmental Assessment Consultation**
Applicant:	**County of Hawai'i, Department of Public Works**
Land Owner:	**State of Hawai'i**
Project:	**Haihai Fire Station**
TMK:	**2-4-051:Por. of 001, South Hilo, Hawai'i**

This is in response to your request for comments on the above-referenced project.

According to your submittal, the County of Hawai'i Department of Public Works is proposing to replace the existing fire station on Kawailani Street with a new station at Haihai Street.

We have the following to offer for the entire parcel:

1. The subject parcel consists of 35.696 acres. The project area is approximately 2.0 acres.

2. The State Land Use designation is Urban.

3. The General Plan designation is Low Density Urban and Open. Low Density Urban is characterized as *"Residential, with ancillary community and public uses, and neighborhood and convenience-type commercial uses; overall residential density may be up to six units per acre"*. Open is characterized as *"Parks and other recreational areas, historic sites, and open shoreline areas"*.

4. The County zoning is Single-Family Residential (RS-15) and Open (O). According to Chapter 25, Zoning Code, Section 25-5-3(a),(12) and 25-5-162(a)(12), *"Public uses and structures, as permitted under section 25-4-1"* are permitted uses in both the RS and O districts, respectively. Section 25-4-11(c) states that *"Public uses, structures and buildings and community buildings are permitted uses in any district, provided that the director has issued plan approval for such use"*.

5. The project area is not located within the County's Special Management Area.

6. Although the project area is approximately 2 acres, the area subject to environmental review will encompass approximately 12 acres. Please disclose all proposed and future activities (i.e. classroom training, outdoor hands-on training, recreational area, building expansion, helipad, etc.) for the project area and any subsequent expansion area.

7. According to the City of Hilo, Road Alignments, Rights-of-Way and Zoning Map, there is a proposed secondary arterial, noted as 80' wide, through this parcel. It appears to be along the west side of the project area, a continuance of 'Iwalani Street. The location of this future road should be included on all site plans.

8. Provide details on the traffic impacts (assessment of existing traffic conditions, anticipated increase in traffic and traffic impacts from proposed use). Haihai Street is 40' wide within a 60' right-of-way. The existing roadway width and site distance issues during ingress/egress of emergency vehicles must be addressed.

9. Will there be a subdivision to separate the project area from the existing parcel?

We appreciate the opportunity to provide these comments. If you have questions, please feel free to contact Esther Imamura at (808) 961-8139.

Sincerely,

for DUANE KANUHA
Planning Department

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& ASSOCIATES, INC.

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June 16, 2014

Duane Kanuha, Director
County of Hawai'i
Planning Department
101 Pauahi Street, Suite 3
Hilo, Hawai'i 96720

Attn: Ms. Esther Imamura

SUBJECT: PRE-CONSULTATION FOR THE PROPOSED HAIHAI FIRE STATION, WAIĀKEA HOMESTEADS, SOUTH HILO DISTRICT, HAWAI'I ISLAND TMK: 2-4-051:002 (POR)

Dear Mr. Kanuha,

Thank you for your letter dated February 6, 2014 regarding the pre-consultation for the Haihai Fire Station. As the planning consultant for the County of Hawai'i Department of Public Works, we are responding to your comments.

Thank you for confirming the various zoning and land use designations for the entire parcel. The proposed fire station will encompass approximately 2 acres. Please note that the project area under review and assessment will encompass approximately 3 acres to allow for flexibility in terms of additional siting and layout options should any site constraints be identified during the various site surveys. The project area will be used for a typical fire station and not a training center (i.e. classrooms training, outdoor training, building expansion, helipad, etc.).

A traffic assessment has been prepared to assess the existing traffic conditions and any anticipated future traffic conditions as a result of the proposed fire station. The existing roadway width and any site distance issues during ingress/egress of emergency vehicles on Haihai Street will be addressed in the Draft EA. We acknowledge that an 80-foot wide secondary arterial is proposed to be located along the western border of the parcel, a continuance of 'Iwalani Street. The location of this future road will be referenced in the traffic assessment and included in the regional location map in the Draft EA.

A subdivision is necessary to separate the proposed fire station from the existing parcel. As a result, subdivision approval will be sought following the EA process.

Thank you for participating in the environmental review process. Your letter will be included in the Draft EA.

Sincerely,

PBR HAWAII

Vincent Shigekuni
Vice President

cc: David Yamamoto, County of Hawai'i Department of Public Works
Glenn Yokotake, KYA Design Group

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William P. Kenoi
Mayor

Harry S. Kubojiri
Police Chief

Paul K. Ferreira
Deputy Police Chief

County of Hawai`i
POLICE DEPARTMENT
349 Kapi'olani Street • Hilo, Hawai'i 96720-3998
(808) 935-3311 • Fax (808) 961-2389

January 22, 2014

Mr. Vincent Shigekuni
Vice President
PBR Hawaii & Associates, Inc.
1001 Bishop Street
ASB Tower, Suite 650
Honolulu, HI 96813-3184

Dear Mr. Shigekuni:

SUBJECT: PRE-ASSESSMENT CONSULTATION FOR THE PROPOSED HAIHAI FIRE STATION LOCATED AT WAIAKEA HOMESTEADS, SOUTH HILO DISTRICT, HAWAII ISLAND; TMK: (3) 2-4-051:001(PORTION)

Staff, upon reviewing the provided documents, does not anticipate any significant impact to traffic and/or public safety concerns.

Thank you for allowing us the opportunity to comment.

If you have any questions, please contact Captain Richard Sherlock, Commander of the S. Hilo District, at 961-2214.

Sincerely,

HENRY J. TAVARES, JR.
ASSISTANT POLICE CHIEF
AREA I OPERATIONS BUREAU

RS:lli
140039

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PBR HAWAII
& ASSOCIATES, INC.

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June 16, 2014

Henry J. Tavares, Jr., Assistant Police Chief
County of Hawai'i
Police Department
349 Kapi'olani Street
Hilo, Hawai'i 96720-3998

Attn: Captain Richard Sherlock

SUBJECT: PRE-CONSULTATION FOR THE PROPOSED HAIHAI FIRE STATION, WAIĀKEA HOMESTEADS, SOUTH HILO DISTRICT, HAWAI'I ISLAND TMK: 2-4-051:002 (POR)

Dear Chief Tavares,

Thank you for your letter dated January 22, 2014 regarding the pre-consultation for the Haihai Fire Station. As the planning consultant for the County of Hawai'i Department of Public Works, we are responding to your comments.

We acknowledge that the Police Department does not anticipate any significant impact to traffic and/or public safety concerns.

Thank you for participating in the environmental review process. Your letter will be included in the Draft EA.

Sincerely,

PBR HAWAII

Vincent Shigekuni
Vice President

cc: David Yamamoto, County of Hawai'i Department of Public Works
Glenn Yokotake, KYA Design Group

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DENNIS "FRESH" ONISHI
Council Member
District 3

PHONE: (808) 961-8396
FAX: (808) 961-8912
EMAIL: *donishi@co.hawaii.hi.us*

HAWAI'I COUNTY COUNCIL
25 Aupuni Street, Hilo, Hawai'i 96720

January 28, 2014

PBR Hawai'i & Associates, Inc.
Attn: Vincent Shigekuni
1001 Bishop Street, Suite 650
Honolulu, HI 96813-3484

Re: Proposed Haihai Fire Station located at Waiākea Homesteads, South Hilo District, Hawai'i Island, TMK:(3) 2-4-051:001 (portion)

Dear Mr. Shigekuni,

As the council member for this district, I would like to express my total support for this proposed fire station.

I have been involved in relocating the Kawailani Fire Station for more than 4 years and I am very happy to see this project moving forward.

Thank you for the opportunity to provide my comments. Should you have any questions, please do not hesitate to contact me.

Sincerely,

Dennis "Fresh" Onishi
Council Member, District 3

DO/de

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& ASSOCIATES, INC.

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June 16, 2014

Councilmember Dennis "Fresh" Onishi
Hawai'i County Council
25 Aupuni Street
Hilo, Hawai'i 96720

SUBJECT: PRE-CONSULTATION FOR THE PROPOSED HAIHAI FIRE STATION, WAIĀKEA HOMESTEADS, SOUTH HILO DISTRICT, HAWAI'I ISLAND TMK: 2-4-051:002 (POR)

Dear Councilmember Onishi,

Thank you for your letter dated January 28, 2014 regarding the pre-consultation for the Haihai Fire Station. PBR Hawaii and the County of Hawai'i Department of Public Works appreciate your supportive comments. We look forward to your continued support.

Thank you for participating in the environmental review process. Your letter will be included in the Draft EA.

Sincerely,

PBR HAWAII

Vincent Shigekuni
Vice President

cc: David Yamamoto, County of Hawai'i Department of Public Works
Glenn Yokotake, KYA Design Group

O:\Job30\3056.01 Haihai St. Fire Station EA\EA\Pre-Assessment Consultation\Responses\Council Onishi.docx

From: Liu, Rouen
Sent: Friday, January 31, 2014 3:30 PM
To: sysadmin
Cc: Elders, Barney
Subject: Pre-Assessment consultation for the proposed Haihai Fire Stn, Waiakea Homesteads, south Hilo District

PBR Hawaii & Associates, Inc.
1001 Bishop Street , Suite 650
Honolulu, HI 96813-3484

Attention: Vincent Shigekuni

Thank you for the opportunity to comment on the subject project. Hawaiian Electric Light Company has no objections to the project. Should HELCO have existing easements and facilities on the subject property, we will need continued access for maintenance of our facilities.

We appreciate your efforts to keep us apprised of the subject project in the planning process. As the Haihai Fire Station project come to fruition, please continue to keep us informed. Further along in the design, we will be better able to evaluate the effects on our system facilities.

If you have any questions, please call me at 543-7245.

Rouen Liu
Permits Engineer
Hawaiian Electric Company

PBR HAWAII
& ASSOCIATES, INC.

HONOLULU OFFICE
1001 Bishop Street, Suite 650
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Tel: (808) 521-5631
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KAPOLEI OFFICE
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HILO OFFICE
1719 Haleloke Street
Hilo, Hawai'i 96720-1553
Tel/Cel: (808) 315-6878

June 16, 2014

Sent via e-mail: rouen.liu@heco.com

Mr. Rouen Liu, Permits Engineer
Hawaiian Electric Company
820 Ward Ave
Honolulu, HI 96814

SUBJECT: PRE-CONSULTATION FOR THE PROPOSED HAIHAI FIRE STATION, WAIĀKEA HOMESTEADS, SOUTH HILO DISTRICT, HAWAI'I ISLAND TMK: 2-4-051:002 (POR)

Dear Mr. Liu,

Thank you for your email sent on January 31, 2014 regarding the pre-consultation for the Haihai Fire Station. As the planning consultant for the County of Hawai'i Department of Public Works, we are responding to your comments.

We acknowledge that Hawaiian Electric Light Company (HELCO) has no objections to the project. We acknowledge that HELCO will need continued access to the property should any HELCO easements or facilities be located on the property. To our knowledge, there are no HELCO access easements or facilities currently onsite. A copy of the Draft Environmental Assessment will be sent to you as soon as it is available.

Thank you for participating in the environmental review process. Your letter will be included in the Draft EA.

Sincerely,

PBR HAWAII

Vincent Shigekuni
Vice President

cc: David Yamamoto, County of Hawai'i Department of Public Works
Glenn Yokotake, KYA Design Group

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Appendix C

FLORA AND FAUNA SURVEY AND ASSESSMENT

FLORA AND FAUNA SURVEY AND ASSESSMENT

FOR THE

HAIHAI STREET FIRE STATION

WAIAKEA, SOUTH HILO, HAWAII

by

ROBERT W. HOBDY
ENVIRONMENTAL CONSULTANT
Kokomo, Maui
February 2014

Prepared for:
KYA DESIGN GROUP

INTRODUCTION

The Haihai Street Fire Station lies on 2.029 acres of undeveloped land in Hilo, Hawaii. The northern boundary is adjacent to Haihai Street. The eastern boundary is adjacent to Laula Street. The southern and western boundaries are pasture lands (see Figures 1 and 2) TMK (3) 2-4-51:1 portion. An 80 foot buffer area was included in the survey along the southern and western boundaries. This biological survey and assessment was initiated in fulfillment of environmental requirements of the planning process.

SITE DESCRIPTION

The project area is currently being used as a pasture for grazing livestock. Vegetation consists primarily of a variety of low-cropped grasses with a scattering of shrubs and trees. Soils are moist to wet loam to clay loams over a substrate of pahoehoe lavas which occasionally come to the surface as low outcrops. Annual rainfall averages 160 – 170 inches, and is well distributed throughout the year (Armstrong, 1983).

BIOLOGICAL HISTORY

The relatively recent lava flows of the Hilo area were once covered with dense native tropical rainforest consisting primarily of ʻōhiʻa (*Metrosideros polymorpha*), ʻōkupukupu (*Nephrolepis exaltata*), hāpuʻu (*Cibotium* spp.) and ʻieʻie (*Freycinetia arborea*). This native species composition began to change in the early 1900s as the project area was cleared for sugar cane production. When sugar cane production declined, the fields were converted to pastures and later to some rural housing. Native plant species have been nearly eliminated and replaced by non-native grasses and weeds.

SURVEY OBJECTIVES

This report summarizes the findings of a flora and fauna survey of the Haihai Street Fire Station project which was conducted on February 2014. The objectives of the survey were to:

1. Document what plant, and animal species occur on the property or may likely occur in the existing habitat.

2. Document the status and abundance of each species.

3. Determine the presence or likely occurrence of any native flora and fauna, particularly any that are Federally listed as Threatened or Endangered. If such occur, identify what features of the habitat may be essential for these species.

4. Determine if the project area contains any special habitats which if lost or altered might result in a significant negative impact on the flora and fauna in this part of the island.

BOTANICAL SURVEY REPORT

SURVEY METHODS

A walk-through botanical survey method was used following routes to ensure that all parts of this large property were covered. Areas most likely to harbor native or rare plants such as the rocky outcrops and gullies were more intensively examined. Notes were made on plant species, distribution and abundance as well as on terrain and substrate.

DESCRIPTION OF THE VEGETATION

The vegetation in the project area is dominated by non-native grasses and a few vines, ferns, shrubs and trees. A total of 47 plant species were recorded during two site visits. Seven species were common throughout the area: narrow-leaved carpet grass (*Axonopus fissifolius*), Hilo grass (*Paspalum conjugatum*), (*Rhynchospora caduca*) no common name, (*Christella parasitica*) no common name, maile pilau (*Paederia foetida*), Spanish clover (*Desmodium incanum*) and hilahila (*Mimosa pudica*). Just one native plant species the indigenous native, fern moa (*Psilotum nudum*), was found growing on a lava outcrop. The remaining 46 species were all non-native in Hawaii.

DISCUSSION AND RECOMMENDATIONS

The vegetation throughout the project area is dominated by non-native grasses, vines, ferns, shrubs and trees. The area has been heavily altered by historical land uses and continues to be invaded by aggressive weed species. The only native species found the indigenous moa fern is widespread in Hawaii and common.

No Federally listed Threatened or Endangered plant species (USFWS, 2014) were found on the property, nor were any found that are candidates for such status. No special native habitats were found here either.

Because of the above existing conditions, it is determined that the future development of this 2 acre parcel will not have a significant negative impact on the botanical resources in this part of Hawaii island. No recommendations regarding the botanical resources are deemed appropriate or necessary.

PLANT SPECIES LIST

Following is a checklist of all those vascular plant species inventoried during the field studies. Plant families are arranged alphabetically within three groups: Ferns, Monocots and Dicots. Taxonomy and nomenclature of the ferns follow Palmer (2003), while the Monocots and Dicots are in accordance with Wagner et al. (1999) and Staples and Herbst (2005).

For each species, the following information is provided:

1. Scientific name with author citation

2. Common English or Hawaiian name.

3. Bio-geographical status. The following symbols are used:

   endemic = native only to the Hawaiian Islands; not naturally occurring anywhere else in the world.
   indigenous = native to the Hawaiian Islands and also to one or more other geographic area(s).
   Polynesian = all those plants brought to Hawaii during the course of Polynesian migrations.
   non-native = all those plants brought to the islands intentionally or accidentally after western contact.

4. Abundance of each species within the project area:

   abundant = forming a major part of the vegetation within the project area.
   common = widely scattered throughout the area or locally abundant within a portion of it.
   uncommon = scattered sparsely throughout the area or occurring in a few small patches.
   rare = only a few isolated individuals within the project area.

SCIENTIFIC NAME	COMMON NAME	STATUS	ABUNDANCE
FERNS			
CYATHEACEAE (Tree Fern Family)			
Sphaeropteris cooperi (Hook. ex F. Mueller) Tryon	Australian tree fern	non-native	rare
NEPHROLEPIDACEAE (Sword Fern Family)			
Nephrolepis brownii (Desv.) Hovencamp & Miyamoto	Asian sword fern	non-native	rare
POLYPODIACEAE (Polypody Fern Family)			
Phlebodium aureum (L.) J. Sm.	rabbit's foot fern	non-native	rare
PSILOTACEAE (Whisk Fern Family)			
Psilotum nudum (L.) P. Beauv.	moa	indigenous	rare
LYGODIACEAE (Climbing Fern Family)			
Lygodium japonicum (Thunb.) Sw.	Japanese climbing fern	non-native	rare
THELYPTERIDACEAE (Marsh Fern Family)			
Christella dentata (Forssk.) Brownlie & Jermy	----------	non-native	rare
Christella parasitica (L.) H. Lev.	----------	non-native	common
MONOCOTS			
ARACEAE (Aroid Family)			
Dieffenbachia maculata (Loddiges) G.Don	spotted dumb cane	non-native	rare
COMMELINACEAE (Spiderwort Family)			
Commelina diffusa N.L. Burm.	honohono	non-native	rare
CYPERACEAE (Sedge Family)			
Cyperus haspan L.	----------	non-native	uncommon
Rhyncospora caduca Elliott	----------	non-native	common
POACEAE (Grass Family)			
Andropogan viginicus L.	broomsedge	non-native	rare
Axonopus compressus (Sw.) P. Beauv.	broad-leaved carpet grass	non-native	uncommon
Axonopus fissifolius (Raddi) Kuhlm	narrow leaved carpet grass	non-native	common
Cynodon dactylon (L.) Pers.	Bermuda grass	non-native	uncommon
Digitaria eriantha Steud.	pangola grass	non-native	uncommon
Panicum repens L.	torpedo grass	non-native	rare
Paspalum conjugatum Bergius	Hilo grass	non-native	common
Paspalum paniculatum L.	arrocillo	non-native	uncommon
Sacciolepis indica (L.) Chase	Glenwood grass	non-native	rare
Sporobolus indicus (L.) R. Br.	West Indian dropseed	non-native	uncommon
DICOTS			
ANACARDIACEAE (Mango Family)			
Mangifera indica L.	mango	non-native	rare
Schinus terebinthifolius Raddi	Christmas berry	non-native	rare
ARALIACEE (Ginseng Family)			
Schefflera actinophylla (Endl.) Harms	octopus tree	non-native	rare
ASTERACEAE (Sunflower Family)			
Emilia fosbergii Nicolson	red pualele	non-native	rare
BIGNONIACEAE (Bignonia Family)			
Spathodea campanulata P. Beauv.	African tulip tree	non-native	uncommon

SCIENTIFIC NAME	COMMON NAME	STATUS	ABUNDANCE
Tabebuia heterophylla (A.P. de Candolle) Britton	pink tecoma	non-native	rare
CAMPANULACEAE (Bellflower Family)			
Hippobroma longiflora (L.) G. Don	star-of-Bethlehem	non-native	uncommon
CANNABACEAE (Hemp Family)			
Trema orientalis (L.) Blume	gunpowder tree	non-native	uncommon
CLUSIACEAE (Mangosteen Family)			
Clusia rosea Jacq.	autograph tree	non-native	uncommon
FABACEAE (Pea Family)			
Desmodium incanum DC.	Spanish clover	non-native	common
Mimosa pudica L.	hilahila	non-native	common
LAMIACEAE (Mint Family)			
Hyptis pectinata (L.) Poit.	comb hyptis	non-native	rare
LYTHRACEAE (Loosestrife Family)			
Cuphea carthagenensis (Jacq.) Macbr.	tar weed	non-native	rare
MELASTOMATACEAE (Melastoma Family)			
Clidemia hirta (L.) D. Don	Koster's curse	non-native	uncommon
Melastoma candidum D. Don	melastoma	non-native	uncommon
MORACEAE (Fig Family)			
Ficus microcarpa L.f.	Chinese banyan	non-native	uncommon
MYRTACEAE (Myrtle Family)			
Psidium cattleianum Sabine	strawberry guava	non-native	rare
Psidium guajava L.	common guava	non-native	uncommon
Syzygium cumini (L.) Skeels	Java plum	non-native	uncommon
PLANTAGINACEAE (Plantain Family)			
Torenia asiatica L.	Ola'a beauty	non-native	uncommon
POLYGALACEAE (Milkwort Family)			
Polygala paniculata L.	polygala	non-native	rare
ROSACEAE (Rose Family)			
Rubus rosifolius Sm.	thimbleberry	non-native	rare
RUBIACEAE (Coffee Family)			
Paederia foetida L.	maile pilau	non-native	common
SAPINDACEAE (Soapberry Family)			
Filicum decipiens (Wight & Arnott) Thwaites ex J.D.Hook	fern tree	non-native	rare
VERBENACEAE (Verbena Family)			
Citharexylum caudatum L.	fiddlewood	non-native	uncommon
Stachytarpheta australis Moldenke	ōwī	non-native	uncommon

FAUNA SURVEY REPORT

SURVEY METHODS

A walk-through fauna survey method was conducted in conjunction with the botanical survey. All parts of the project area including all habitat types were covered. Field observations were made with the aid of binoculars and by listening to vocalizations. Notes were made on species, abundance, activities and location as well as observations of trails, tracks, scat and signs of feeding. In addition an evening visit was made to the area to record crepuscular activities and vocalizations and to see if there was any evidence of occurrence of the Hawaiian hoary bat (*Lasiurus cinereus semotus*) in the area.

RESULTS

MAMMALS

Just one mammal species, domestic cattle (*Bos Taurus*) was recorded in the project area during two site visits. Taxonomy and nomenclature follow Tomich (1986).

An evening survey was conducted at two locations in the project area in order to ascertain the presence of the endemic and Endangered 'ōpe'ape'a or Hawaiian hoary bat. A bat detecting device (Batbox IIID) was employed, set to the frequency of 27,000 Hertz which these bats are known to use for echolocation. No bats were detected at either location with the device.

Other non-native mammals would be expected to be present in this habitat. These include mice (*Mus domesticus*), rats (*Rattus* spp.), mongoose (*Herpestes auropunctatus*) and cats (*Felis catus*). Mice and rats feed on seeds, fruits and herbaceous vegetation, while the mongoose and cats would prey on these rodents and birds.

BIRDS

Birdlife was moderate both in species diversity and in total numbers seen. Nine species of non-native birds were observed during two site visits to the project area. Taxonomy and nomenclature follow American Ornithologists' Union (2011). One bird species was common: The zebra dove (*Geopelia striata*). Less common were nutmeg mannikin (*Lonchura punctulata*), northern cardinal (*Cardinalis cardinalis*) and Java sparrow (*Padda oryzivora*). Five other species were of rare occurrence (see Animal Species List).

A few other non-native birds would be occasional users of this site, but the habitat is unsuitable for Hawaii's native forest birds which presently occupy native forest uplands beyond the elevational range of mosquitoes and the avian diseases they carry and transmit. This open pasture also does not provide habitat for the other native Endangered birds like the ae'o or Hawaiian stilt (*Himantopus mexicanus knudseni*), the alae ke'oke'o or Hawaiia coot (*Fulica alai*) and the nēnē or Hawaiian goose (*Branta sandvicensis*). None of these native birds were seen.

INSECTS

There were moderate amounts of insect life observed in the project area. Six insect species were recorded during two site visits. Taxonomy and nomenclature follow Nishida (1992). Just one species was common, the dung fly (*Musca sorbens*). One indigenous dragonfly, the globe skimmer (*Pantala falvescens*) was seen.

AMPHIBIANS

Just one non-native amphibian was found during the survey, the Puerto Rican coqui frog (*Eleutherodactylus coqui*). This frog was found to be common across the entire property, and indeed has become widespread across the entire wet windward side of the Big Island. It is considered to be a pest because of its extremely loud nocturnal calls.

DISCUSSION AND RECOMMENDATIONS

The fauna on this property are almost exclusively made up of non-native species that are accidental or purposeful introductions to Hawaii. Just one native insect, the indigenous globe skimmer dragonfly was recorded. The globe skimmer is native throughout the tropics worldwide and is of no conservation concern.

No federally protected animal species were found and no important or critical habitats occur on or near the project area.

The development of this Fire Station project here will not have a significant negative impact on the fauna resources in this part of the Big island.

ANIMAL SPECIES LIST

Following is a checklist of the animal species inventoried during the field work. Animal species are arranged in descending abundance within four groups: Mammals, Birds, Insects and Amphibians. For each species the following information is provided:

1. Common name

2. Scientific name

3. Bio-geographical status. The following symbols are used:
   - endemic = native only to Hawaii; not naturally occurring anywhere else in the world.
   - indigenous = native to the Hawaiian Islands and also to one or more other geographic area(s).
   - non-native = all those animals brought to Hawaii intentionally or accidentally after western contact.
   - migratory = spending a portion of the year in Hawaii and a portion elsewhere. In Hawaii the migratory birds are usually in the overwintering/non-breeding phase of their life cycle.

4. Abundance of each species within the project area:
   - abundant = many flocks or individuals seen throughout the area at all times of day.
   - common = a few flocks or well scattered individuals throughout the area.
   - uncommon = only one flock or several individuals seen within the project area.
   - rare = only one or two seen within the project area.

SCIENTIFIC NAME	COMMON NAME	STATUS	ABUNDANCE
MAMMALS			
Bos taurus L.	cattle	non-native	common
BIRDS			
Geopelia striata L.	zebra dove	non-native	common
Lonchura punctulata L.	nutmeg mannikin	non-native	uncommon
Cardinalis cardinalis L.	northern cardinal	non-native	uncommon
Padda oryzivora L.	Java sparrow	non-native	uncommon
Zosterops japonicus Temmink & Schlegel	Japanese white-eye	non-native	rare
Streptopelia chinensis Scopoli	spotted dove	non-native	rare
Acridotheres tristis L.	common myna	non-native	rare
Carpodacus mexicanus Muller	house finch	non-native	rare
Sicalis flaveola L.	Saffron finch	non-native	rare
AMPHIBIANS			
Eleutherodactylus coqui Dummer's & Bibron	coqui frog	non-native	common

SCIENTIFIC NAME	COMMON NAME	STATUS	ABUNDANCE
INSECTS			
Order DIPTERA - flies			
MUSCIDAE (Housefly Family)			
Musca sorbens Wiedemann	dung fly	non-native	common
Order LEPIDOPTERA - butterflies & moths			
CRAMBIDAE (Grass Moth Family)			
Spoladea recurvalis Fabricius	beet webworm moth	non-native	rare
LYCAENIDAE (Gossamer-winged Butterfly Family)			
Lampides boeticus L.	long-tailed blue	non-native	uncommon
NYMPHALIDAE (Brush-footed Butterfly Family)			
Vanessa agraulis L.	Passion flower butterfly	non-native	common
Order ODONATA - dragonflies & damselflies			
LIBELLULIDAE (Skimmer Dragonfly Family)			
Pantala flavescens Fabricius	globe skimmer	indigenous	rare
Order ORTHOPTERA - grasshoppers & crickets			
ACRIDIDAE (Grasshopper Family)			
Oxya japonica Thunberg	small rice grasshopper	non-native	uncommon

Figure 1 Project Map

Figure 2 - Survey Area

Literature Cited

American Ornithologists' Union 2011. Check-list of North American Birds. 7th edition. American Ornithologists' Union. Washington D.C.

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Staples, G.W. and D.R. Herbst. 2005. A Tropical Garden Flora – Plants Cultivated in the Hawaiian Islands and Other Tropical Places. Bishop Museum Press, Honolulu.

Tomich, P.Q. 1986. Mammals in Hawaii. Bishop Museum Press, Honolulu.

U.S. Fish and Wildlife Service. 2014. Endangered and threatened wildlife and Plants. Listings and Occurrences for Hawaii. www.fws.gov/endangered.

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Appendix D

ARCHAEOLOGICAL INVENTORY SURVEY AND STATE HISTORIC PRESERVATION DIVISION APPROVAL LETTER

NEIL ABERCROMBIE
GOVERNOR OF HAWAII

WILLIAM J. AILA, JR.
CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT

JESSE K. SOUKI
FIRST DEPUTY

WILLIAM M. TAM
DEPUTY DIRECTOR - WATER

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

HISTORIC PRESERVATION DIVISION
DEPARTMENT OF LAND AND NATURAL RESOURCES

601 Kamokila Boulevard, Suite 555
Kapolei, HI 96806

April 9, 2014

Glenn Escott c/o Robert Spear
Scientific Consulting Services
711 Kapiolani Blvd. Suite 975
Honolulu, Hawai'i 96813

LOG NO: 2014.00662
DOC NO: 1404SN15
Archaeology

Dear Mr. Escott:

SUBJECT: **Chapter 6E-8 Historic Preservation Review –**
Archaeological Inventory Survey for the Proposed Haihai Street Fire Station
Waiākea Ahupua'a, South Hilo District, Island of Hawai'i
TMK: (3) 2-4-051:001 (portion)

Thank you for submitting the report titled *An Archaeological Inventory Survey of Approximately 2.0-Acres of Land for a Proposed Fire Station on Haihai Street, Waiākea Ahupua'a, South Hilo District, Island of Hawai'i TMK (3)2-4-051:001 POR.* (G. Escott, September, 2013). We received your submittal on February 25, 2014.

The survey area described in the report is consists of two-acres of a 35.696-acre parcel. The fieldwork portion of this survey included a 100% pedestrian survey. Two historic properties were identified (SIHP 50-10-35-30039 and 30040) as a result of this survey work. The sites consisted of four rock mounds determined to be rock clearing mounds associated with sugarcane field clearing within the Waiākea Sugar Mill Company's cane lots. SHPD agrees with the significance assessments (criterion "d") and treatment recommendations (no further work) for these sites.

With a few minor editorial revisions, this report meets the requirements of HAR13-276 and is accepted by SHPD. Please send one hardcopy of the document, clearly marked FINAL, along with a copy of this review letter and a text-searchable PDF version on CD to the Kapolei SHPD office, attention SHPD Library.

Please make the following revisions to the final document:

1. Page 17; please include Kelly and Athens 1982 in the reference section.
2. Page 23, paragraph 5; please revise the sentence, "CSH conducted as archaeological on a 163-acre…"
3. Figure 10 on page 25 is duplicated on page 27. Please revise.

Please contact Sean Nāleimaile at (808) 933-7651or Sean.P.Naleimaile@Hawaii.gov if you have any questions or concerns regarding this letter.

Aloha,

Theresa Donham,
Archaeology Branch Chief

AN ARCHAEOLOGICAL INVENTORY SURVEY OF APPROXIMATELY 3.0 ACRES OF LAND FOR A PROPOSED FIRE STATION ON HAIHAI STREET, WAIĀKEA AHUPUA'A, SOUTH HILO DISTRICT, ISLAND OF HAWAI'I, HAWAI'I [TMK: (3) 2-4-051:001 (POR.)]

Prepared by:
Glenn Escott, M.A.

April 2014
FINAL

Prepared for:
KYA Design Group
934 Pumehana Street
Honolulu, Hawai'i 96826

SCIENTIFIC CONSULTANT SERVICES Inc.
1347 Kapi'olani Boulevard, Suite 408 Honolulu, HI 96814
Hawai'i Island Office: PO Box 155 Kea'au, HI 96749

ABSTRACT

At the request of KYA Design Group, Scientific Consultant Services (SCS), Inc. conducted an Archaeological Inventory Survey (AIS) of 3.0 acres [TMK: (3) 2-4-051:001 (por.)] located on Haihai Street, in the *ahupua'a* of Waiākea, South Hilo District, Island of Hawai'i. The project area is located approximately 5.0 kilometers south of Hilo Bay and is bounded by Haihai Street to the north, Laula Street to the east, by agricultural land to the south, and by a residential subdivision to the west. The State of Hawai'i is considering an option to use a 2.0-acre portion of the parcel, currently leased as cattle pasture by the State of Hawai'i Department of Land and Natural Resources (DLNR), for the proposed construction of a fire station. Two archaeological sites (Site 50-10-35-30039 and Site 50-10-35-30040) were located in the project area. The two archaeological consist of a total of four rock mounds. The rock mounds are sugarcane field clearing mounds associated with the Waiākea Sugar Mill company cane lots.

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INTRODUCTION

PROJECT AREA DESCRIPTION

At the request of KYA Design Group, Inc., Scientific Consultant Services (SCS), Inc. conducted an Archaeological Inventory Survey (AIS) of 3.0 acres [TMK: (3) 2-4-051:001 por.] located on Haihai Street, in the *ahupua'a* of Waiākea, South Hilo District, Island of Hawai'i (Figures 1, 2, 3, and 4). The project area is located approximately 5.0 kilometers south of Hilo Bay and is bounded by Haihai Street to the north, Laula Street to the east, by agricultural land to the south, and by a residential subdivision to the west. The State of Hawai'i is considering an option to use a 2.0-acre portion of the parcel, currently leased as cattle pasture by the State of Hawai'i Department of Land and Natural Resources (DLNR), for the proposed construction of a fire station.

SCOPE OF WORK

The Archaeological Assessment was undertaken in accordance with Hawai'i Administrative Rules 13§13-284 and 13§13-275, and was performed in compliance with the Rules Governing Standards for Archaeological Inventory Surveys and Reports contained in Hawai'i Administrative Rules 13§13-276. The investigation included the following procedures:

1. Historical and archaeological archival research was conducted including a search of historic maps, aerial photos, written records, Land Commission Award documents, and State and County Planning Division documents, and previous archaeological reports. The research was aimed at determining past land-use in the project area parcel.

2. An oral interview was conducted with Mr. Mike Tulang, the current property lessee. <r. Tulang has been pasturing cattle on the property for the last 15 years.

3. A 100 percent pedestrian survey of the project area. All sites and features were located, mapped (GIS), described, drawn at appropriate scales, and photographed. Sites were assigned temporary numbers pending State Historic Preservation Division (SHPD) assignment of SIHP site numbers.

4. Limited subsurface testing was conducted at sites, where warranted, to determine depth, quantity, and context of cultural materials and to obtain samples for radiocarbon dating.

METHODS

Prior to fieldwork, a search of geological maps, aerial photos, historical maps, historical documents, and previous archaeological reports was conducted. The project area was found to exist entirely within Lot 907 of the former Waiākea Sugar Mill Cane Lots. Documents and maps were studied to determine if pre-Contact or Historic era sites or features were ever present on the project area or in the surrounding area.

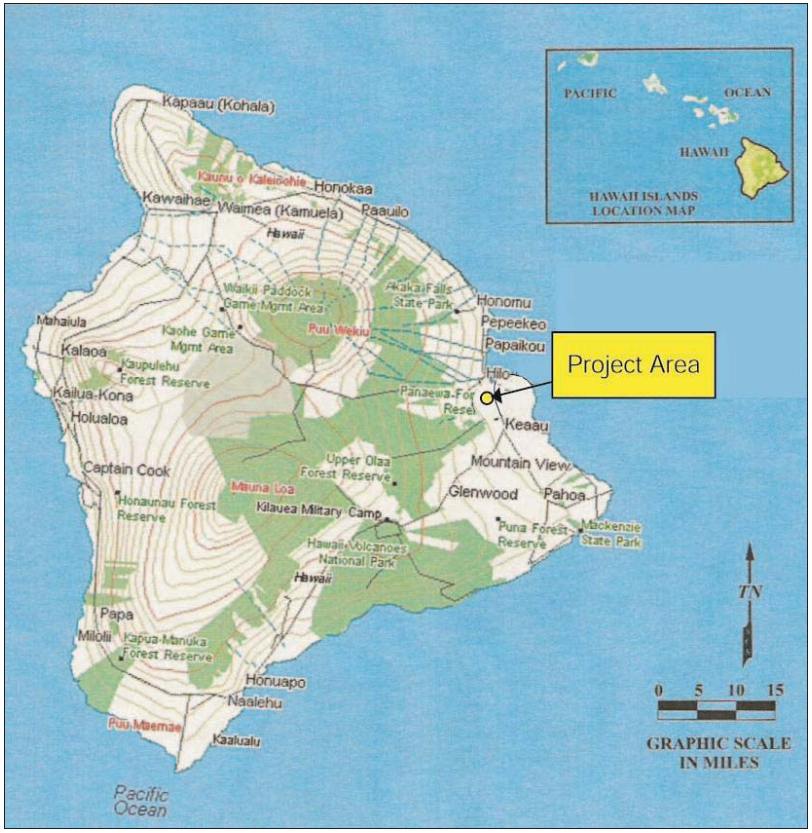

Figure 1: Map of Hawai'i Island Showing Project Location.

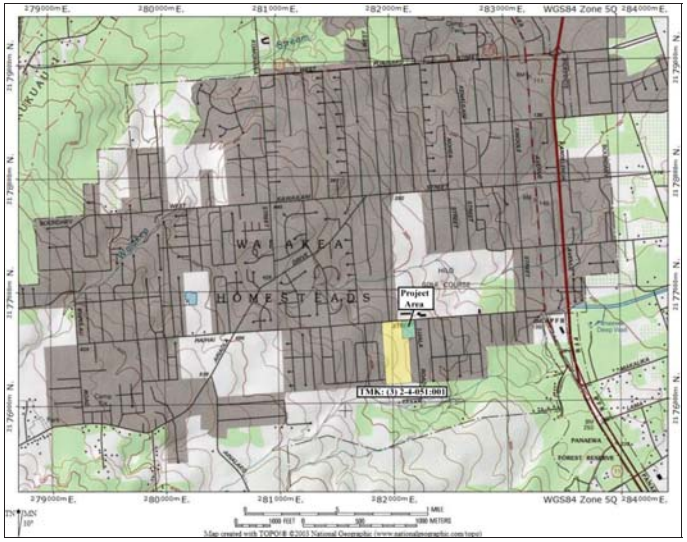

Figure 2: 7.5-Minute Series USGS Topographic Map Showing Location of Parcel 051 (Yellow) and Proposed Fire Station Project Area (Blue) (Hilo, Quad, National Geographic Topo, 2003).

Figure 3: TMK: (3) 2-4-051 Map Showing Location of Project Area (Hawai‘i County Planning Department 2013).

Figure 4: Aerial Photograph Showing Proposed Fire Station Project Area Location (Red) on TMK: (3) 2-4-051:001 (ESRI, 2012).

A search of the surrounding area was made for historic properties listed on the National Register of Historic Places or on the Hawai‘i Register of Historic Places. There are no historic properties on either list close to the project area.

A pedestrian survey and recording and testing of features on the 3.0-acre project area was conducted by Glenn Escott, M.A. on December 30, 2013, and February 3 and 7, 2014. The field effort totaled 20 man-hours. The surveyed 3.0-acre project area is larger than the proposed fire station facilities. The pedestrian survey consisted a series of east/west transects spaced 5.0 meters apart across the entire 3.0 acre project area. The ground surface was grazed grass, and ground visibility was excellent. Glenn Escott is the principal investigator for the project.

The integrity of archaeological sites was assessed during the current study by observing alterations to the original construction of the features. During the current study, the primary impact to archaeological features was noted to be slight alterations caused by cattle, weathering, and vegetation.

Determination of Site Boundaries

Site boundaries were determined by grouping features that are in close proximity into sites. The primary features are rock mounds created while clearing sugarcane fields. The site boundaries do not represent the entirety of the sugarcane fields for which the rock mounds were created. They are a small portion of the rock mounds present throughout the Waiākea Sugar Mill Cane Lots. The actual sugarcane field boundaries are documented in numerous maps reproduced in numerous studies (Escott 2004, Escott 2014, Maly 1996, and Maly et al. 1994).

Stratigraphic Trenches

A single stratigraphic trench (ST) was excavated within one rock mound feature. The ST was excavated by hand to bedrock. Soil and sediment removed from the ST was not screened. Artifacts (modern bottle glass fragments) identified within the ST were removed and photographed. The base of excavation and all profiles were photographed. The west profile of the ST was drawn to scale and layers were labeled using Munsell soil color designations and the U.S. Department of Agriculture Soil Survey Manual.

This report contains background information outlining the environmental and cultural contexts of the project area, a section on methods, a presentation of previous archaeological work within the study area and in the immediate vicinity, current survey expectations based on that previous work, and the results of the survey.

ENVIRONMENTAL SETTING

LAVA FLOWS

The project area consists of a portion of an undeveloped parcel [TMK: (3) 2-4-051:001] situated on gently sloping to level land between 100 m (330 feet) to 116 m (380 feet) above mean sea level (amsl). The project area substrate is a single Mauna Loa lava flow dated to between 5,000 and 10,000 years before present (ybp) (Wolfe and Morris 1996). Soils in the project area belong to the Pana'ewa very rocky silty clay loam (Sato 1973:45). Sugarcane was cultivated in the area of the current project. The property is currently used as cattle pasture.

RAINFALL AND DRAINAGE

Rainfall in the project area is high, ranging between 330 and 440 centimeters (150 and 200 inches) per year (Kelly *et al*. 1981). Natural drainage in the area runs from southwest to northeast and from west to east. There are no seasonal gulches or drainage spillways in the immediate area. The Haihai Street side of the project area is low and holds standing water during the rainy season. Rainwater runoff is high along the boundary between Haihai Street and the northern edge of parcel 051.

VEGETATION

Plant communities in the project area are dominated by a small range of grasses. The grasses are cropped low by cattle grazing. There are a small number of bushes and trees along the edges of the project area, including *waivi* (*Psidium cattleianum*) and common guava (*Psidium guajava*), and African tulip trees (Spathodea *campanulata*) (Starr Environmental 2013).

MODERN STRUCTURES

There is a modern shed within the southern portion of the property (see Figure 4). The shed is less than 50 years old. It was constructed by the last property lessee and has been improved by the current lessee (Mike Tulang interview). The shed is constructed of four by four posts and has a corrugated fiberglass roof.

The shed is used for storage of ranching supplies, storage of building material, and has a squeeze chute for restraining cattle during veterinary procedures and during artificial insemination. Galvanized metal feed and watering basins are located in a small pen built onto the south side of the shed.

HISTORICAL AND CULTURAL CONTEXTS

Hilo was, by most estimates, one of the first settlements on the Island of Hawai'i and was settled between A.D. 300 and 600. The rich marine resources of Hilo Bay and the gently sloping forests of Mauna Loa and Mauna Kea provided abundant resources. Fresh water was available from the Wailoa and Wailuku rivers and smaller streams such as Waiākea, Waiolama, Pukihae, and 'Alenaio.

The project area is located in the *ahupua'a* of Waiākea, Hilo Hanakāhi 'Okana, in the *moku-o-loko* (district) of Hilo (Maly 1996:4–5) (Figure 5). The *ahupua'a* of Waiākea is large, consists of roughly 95,000 acres, and was regarded as a region of abundant natural resources and numerous fishponds. Waiākea was also an early important political center, notably under chief Kulukulu'a (Kelly *et al*. 1981:3). Kamehameha lived and often returned to his *'ili kūpono* (independent land division where all tributes were paid to the chief of the *'ili* and not the *ahupua'a*) lands of Pi'opi'o in the *ahupua'a* of Waiākea (Figure 6). The *'ili kūpono* lands and its royal fishpond were passed on to his son Liholiho after his death.

TRADITIONAL SETTLEMENT PATTERNS, SUBSISTENCE, AND LAND-USE

Historical accounts and archaeological/cultural studies pertaining to the *ahupua'a* of Waiākea (Ellis 1963; Bingham 1969; Handy and Handy 1972; Bird 1974; McEldowney 1979; Kelly *et al*. 1981; and Maly 1996) provide a wealth of information on traditional settlement patterns, land-use, and subsistence horticulture of the area. These are synthesized below as they allude to the types of sites that may be encountered in the project area.

Historical accounts of residence patterns, land-use, and subsistence horticulture are believed to be indicative of traditional practices developed long before contact with Europeans (McEldowney 1979). Early accounts describe several distinct environmental regions in Waiākea.

From the coast inland five or six miles, scattered subsistence agriculture was evident, followed by a region of tall fern and bracken, flanked at higher elevations by a forest region between 10 and 20 miles wide, beyond which was an expanse of grass and lava (Ellis 1969:403). The American Missionary C.S. Stewart wrote, "the first four miles of the country is open and uneven, and beautifully sprinkled with clumps, groves, and single trees of the bread-fruit, pandanus, and candle tree" (Stewart 1970:361–363).

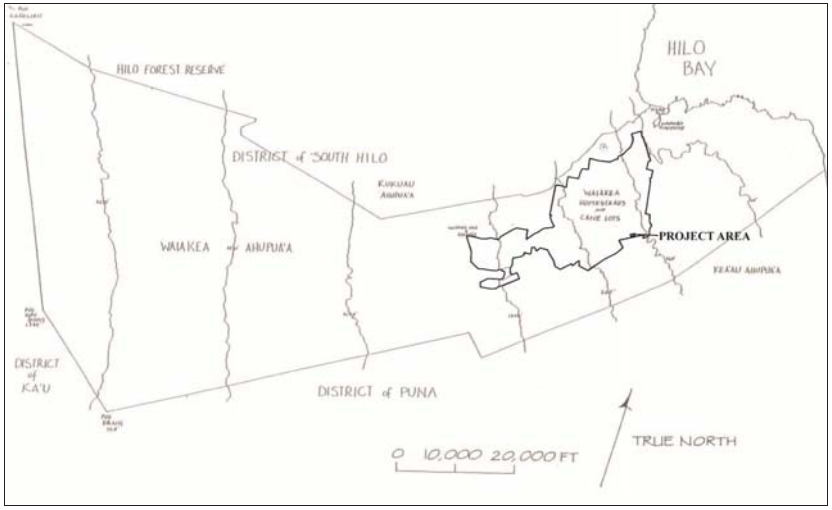

Figure 5: Map of Waiākea Ahupua‘a Showing Project Area and Waiākea Cane and Homestead Lots (adapted from Bush *et al*. 2000).

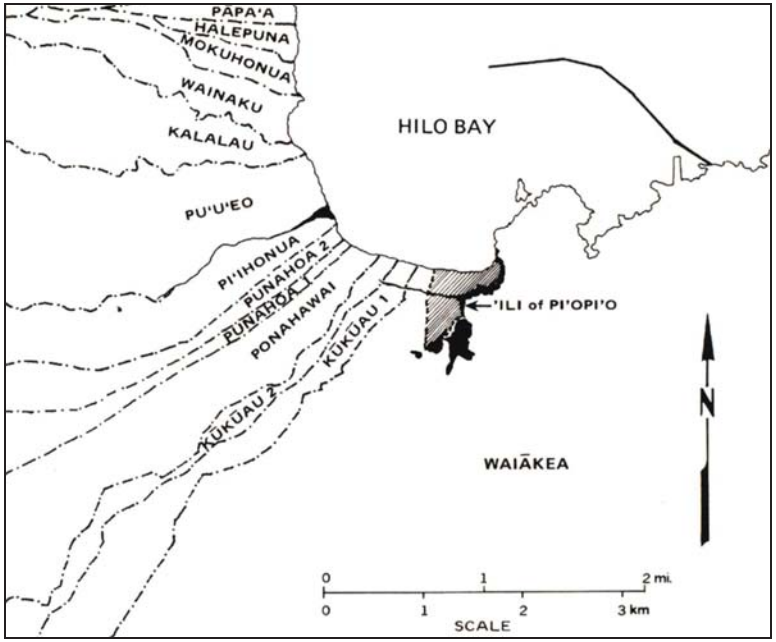

Figure 6: **‘***Ili Kūpono* Lands of Pi‘opi‘o (Kelly *et al*. 1981).

The majority of Waiākea‘s estimated 2,000 inhabitants (in 1825) lived within this coastal region (Ellis 1969:253). Taro, plantains, bananas, coconuts, sweet potatoes, and breadfruit were grown individually or in small garden plots. Fish, pig, dog, and birds were also raised and captured for consumption.

The present study area is located along the upper reaches of the open coastal region and the lower reaches of the tall fern and bracken zone. It is located in McEldowney‘s “upland agricultural zone” (see Previous Archaeology section) consisting of “scattered huts” amidst “garden plots” created through “shifting agriculture” (McEldowney 1979:18–19).

Wood, such as *ohi'a* and *koa* for house construction, canoe building, and fires was obtained from this upland agricultural zone, and from the dense forests above (Ellis 1963:236). *Hala* for thatching was also known to be plentiful along the lava flows of eastern Waiākea (Ellis 1917, cited in Kelly *et al*. 1981:20). Of particular interest is a description of bird snaring and mention of banana growing in upland areas similar to the present study (Maly 1996:6–8).

THE *MĀHELE* OF 1848 AND LAND COMMISSION AWARDS

The *ahupua'a* of Waiākea became Crown Lands during the *Māhele* of 1848 and in the following years, twenty-five Land Claims were awarded within the *ahupua'a* of Waiākea (Table 2). The awards were small in area, 24 of which went to native claimants. No Land Commission awards were made near the project area, and all but two were located near the coast.

Table 1: Land Commission Awards in Waiākea Ahupua'a.

Grantee	LCA	Acreage
Barenaba	2327	12.25
Halai, L.K.	1279	0.60
Hale	40004	4.25
Kahue	2663	3.75
Kaiana, J.B.	2281	10.25
Kaihenui	11050-B	5.19
Kalolo	1333	2.25
Kalua	8854	3.40
Kaluhikaua	1738	2.98
Kamamalu, V.	7713	*'Ili 'aina*
Kamanuhaka	8803	1.02
Kapu	1-F	1.60
Kealiko	11174	1.00
Keaniho	2402	5.00
Keawe	5018	0.24
	10505	—
Kuaio	4344	1.22
Leoi	9982	0.80
Lolo	4738-B	1.27
Mahoe	1-E	4.46
Moealoha	4737	1.03
Nakai	4785	1.05
Napeahi	2603	1.30
Wahine	4737-B	1.01
Wahinealua	11173	2.50
Wahinenohoihilo	10004	1.69

CHANGING RESIDENTIAL AND LAND-USE PATTERNS (1845–1865)

Between 1845 and 1865, traditional land-use and residential patterns underwent a change. In particular, the regular use of Hilo Bay by foreign vessels, the whaling industry, the establishment of missions in the Hilo area, the introduction of the sandalwood trade, the legalization of private land ownership, the introduction of cattle ranching, and the introduction of sugarcane cultivation all brought about changes in settlement patterns and long-established land-use patterns (Kelly *et al*. 1981). Hilo became the center of population and traditional settlements along the shoreline in outlying regions declined or disappeared. While food was still grown for consumption, greater areas of land were continually given over to the specialized cultivation and processing of commercial foodstuffs for export. Sugarcane plantations and industrial facilities were established in areas that were once upland agricultural areas and coastal settlements, respectively.

WAIĀKEA MILL COMPANY

On July 15, 1861, S. Kipi leased the Crown Land of Waiākea from Kamehameha IV to be used as pastureland for an annual amount of $600 (Kelly *et al.* 1981:89). In 1874, Rufus A. Lyman was granted a 25-year property lease (General Lease 124-A) within Waiākea, encompassing the government pastureland (Maly 1996:26). The lease granted him all privileges of land use including the cutting of firewood and the use of fishponds. The newly established Waiākea Mill Company, founded by Alexander Young and Theo H. Davies, acquired Rufus A. Lyman's General Lease 124-A in 1879 (with an extension of terms until June 1, 1918 [Maly 1996:27]). By the early 1900s, Waiākea plantation was cultivating sugarcane on over 6,000 acres of government land in Hilo (Kelly *et al*. 1981:89,120).

In 1911, the Waiākea Mill Company applied for a title to several portions of its leased land, but was rejected by the Board of Public Lands. Rather than renew the lease with the Waiākea Mill Company, the government decided to sell some of the land as homestead lots and to lease a portion of the land to small cultivators as cane lots. These became known as the Waiākea Homestead and Cane Lots (see Figure 5 and Figure 7). By 1919, more than 2000 acres of land were purchased as house lots and 5,300 acres was leased to private growers for cane production (Maly 1996:27–28). Sugarcane grown on these lots was, by terms of contract, to be processed by the Waiākea Mill Company for a share of the profits. The current project area is located within the northeast corner of Lot 907 (see Figure 7 and Figure 8).

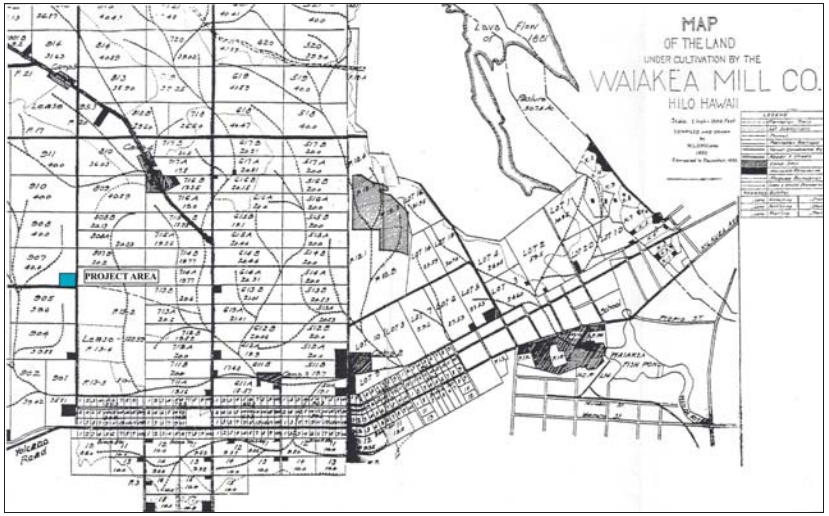

Figure 7: Waiākea Mill Company Cane and Homestead Lots Map Showing Location of Project Area (Blue) (Williams 1933).

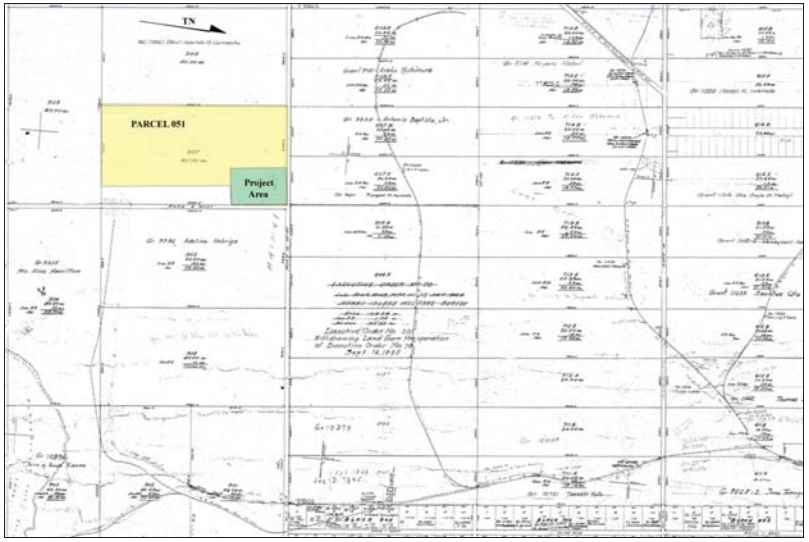

Figure 8: Portion of Waiākea Cane Lots Map Showing Lot 907 (Parcel 051 Shaded Yellow) and Proposed fire Station (Blue) (Cook and Arioli 1918).

The Waiākea Homestead house lots were surveyed as one-acre parcels. The majority of the lots are along Kīlauea and Kinoʻolo Street. The cane lot parcels were surveyed *mauka* (west) of the house lots, and were approximately twenty to forty acres in area. Rainfall in the area was ample for sugarcane cultivation, and the soils were deep and fertile enough for good yields.

However, a lack of cooperation and coordination by the mill company, as well as a lack of proficiency on the part of some cultivators to grow cane, created substantial losses for those that entered into the cane lot agreements (*ibid*:28). In period between 1920 and 12923, it became apparent that many who had entered into contracts to pay off their cane lot agreements through the sale of cane to the mill company, would not be able to meet their obligation. In 1925, after an investigation, a settlement was reached, whereby homesteaders were given a sixteen year extension to purchase their land.

The current project area is in the northeast corner of Cane Lot 907, a 40.0 acre parcel of land. A 1918 map of the area shows a Waiākea Mill company railroad track extending just south of Lot 907 (see Figure 8). A 1933 shows spurs of the railroad track passing through the southern and central portions of the project area. It is possible these are temporary portable tracks. There is no railroad bed or track remains within the project area.

By 1938, many homesteaders who had paid off their land began to subdivide their property into residential lots (*ibid*:29). They built roads to connect the lots and brought in water, gas, and electricity to each lot. The process only increased after the Waiākea Mill Company ceased operations in 1946. Over the years, many of the cane lots have been subdivided into residential house lots. The project area is currently used to pasture cattle. The land surrounding the current project area is now primarily residential neighborhoods. The property across Haihai Street from the project area is the Municipal Golf Course. The property across Luala Road from the project area is AJA Veterans Council.

PREVIOUS ARCHAEOLOGICAL INVESTIGATIONS

Numerous archaeological investigations have been carried out within Waiākea Ahupuaʻa, in both the Hilo Bay Front area and within the former Waiākea Mill Company Cane Lots (see Figure 7) southwest of Hilo Town. Many of the previous archaeology projects are located in the vicinity of the University of Hawaiʻi at Hilo, at an elevation both above and below Komohana Street. Only one project has been conducted in the Waiākea Cane Lots, further south, near the current project area. Table 2 below summarizes major findings and Figure 9 shows the location

of archaeological investigations conducted in the former sugarcane fields of western Waiākea Ahupuaʻa that are relevant to the current project area.

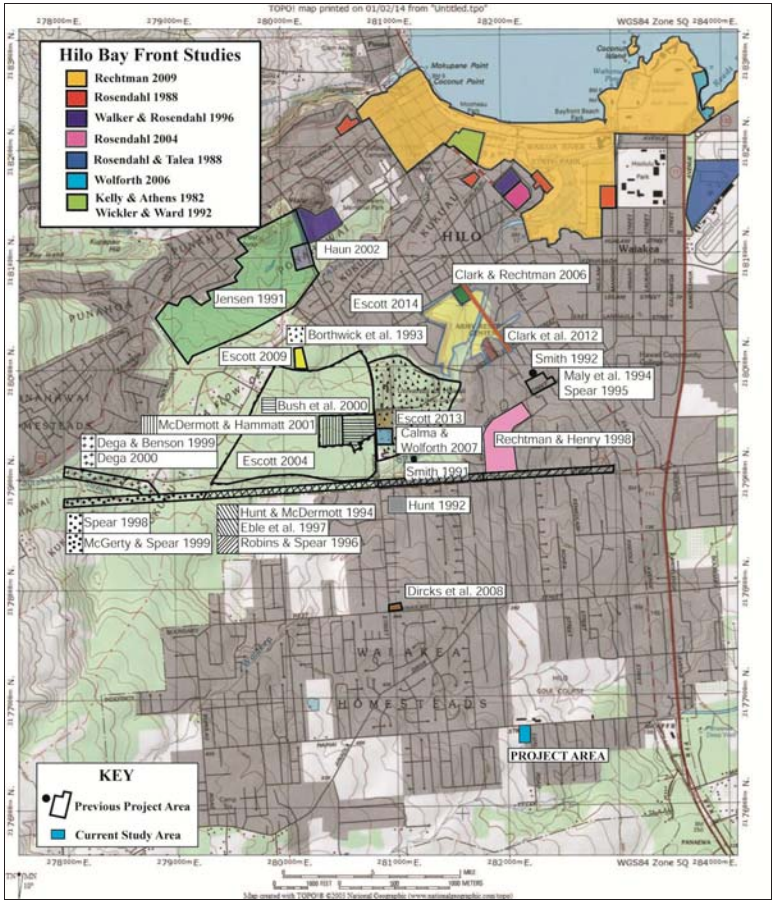

Figure 9: 7.5-Minute Series USGS Topographic Map Showing Location of Previous Archaeological Studies (Hilo, Quad, National Geographic Topo, 2003).

Table 2: Previous Archaeological Research in Waiākea Ahupua‘a.

Reference	Location	Description & Results
Thrum 1907	Waiākea *Ahupua‘a heiau* sites	List of *heiau* in Waiākea —none located near present project area.
Thrum 1908	Waiākea *Ahupua‘a*	List and description of *heiau* in Waiākea —none located near present project area.
Hudson 1932	East Hawai‘i Island	Detailed description of various sites in the Hilo area.
McEldowney 1979	Hilo Bay area	Zonal Characteristics—Land – use study
Kelly, Nakamura, and Barrère 1981	Hilo Bay area	History of Hilo Bay
Kelly & Athens 1982	Cultural Resources Reconnaissance at Wailoa River	No Archaeological Sites at Wailoa River
Rosendahl & Talea 1988	Archaeological Reconnaissance Survey at Hilo Airport	No Archaeological Sites
Rosendahl 1988	Archaeological Reconnaissance Survey at Four Locations in Hilo	No Archaeological Sites
Smith & Tourtellotte 1988	Burial Discovery at Mouth of Wailoa River	Single Burial. Location not shown on previous archaeology map figure.
Jensen 1991	AIS in Ponahawai *Ahupua‘a* TMK: (3) 2-3-044:09	Site 50-10-35-14946, an early historic house and sugar cane site. Site 50-10-35-14947, the Hilo Boarding School and Old Mission Ditch
Smith 1991	Waiākea *Ahupua‘a*, South Hilo, Hawai‘i Island TMK: 3-2-4-01:7	List and description of sites on the 4000+BP and 1500-750BP lava flows. Inventory survey recommended.
Stokes and Dye 1991	Hawaii Island	List and description of *heiau* of Hawaii Island
Smith 1992	Waiākea Cane Lots, Waiākea *Ahupua‘a*, South Hilo, Hawai‘i Island TMK: 3-2-4-56:1	Numerous cane field features including walls, clearing mounds, a large rectangular enclosure, and c-shaped enclosures.
Moniz 1992	Waiākea *Ahupua‘a*, Hilo Hawai‘i	A listing of 1979-1992 inventory survey results within Waiākea *Ahupua‘a* that document walls, mounds, platforms, and faced terraces.
Hunt	Lands of Waiākea, Kūkūau 1 &	Interim inventory survey report

Reference	Location	Description & Results
1992	2, and Ponahawai *ahupua‘a*, South Hilo District, Hawai‘i (Puainako Street Extension Project)	listing 31 cane field features including walls, clearing mounds, platforms, and faced terraces.
Wickler & Ward 1992	Archaeological Investigation at ‘Alenaio Stream at Bay Front	Historic Artifacts Only, No Sites
Borthwick, Collins, Folk, and Hammatt 1993	Waiākea *Ahupua‘a* TMK: 2-4-01:7 and 41	Inventory survey of 163 acres of UH property along and east of Komohana Street. Documents four historic sites associated with sugar cane agriculture. No further work recommended.
Hunt and McDermott 1994	Lands of Waiākea, Kūkūau 1 & 2, and Ponahawai *ahupua‘a*, South Hilo District, Hawai‘i (Puainako Street Extension Project)	Inventory survey final report (completion of Hunt 1992) documenting 13 historical sites associated with sugar cane agriculture.
Maly, Walker, and Rosendahl 1994	Lands of Waiākea, South Hilo TMK: 2-4-57:01	Inventory survey of 4.5 acres in the Waiākea Cane Lots documenting four sites associated with historical sugar cane agriculture. Forty-seven features were recorded including walls, clearing mounds, and terraces. One radiocarbon date and recovered artifacts suggest prehistoric land-use in the project area. Data recovery recommended.
Spear 1995	Lands of Waiākea, South Hilo TMK: 2-4-57:01	Data recovery report of Maly *et al.* (1994) parcel documenting historic sugar cane agricultural features and a few temporary habitations. No further archaeological work recommended.
Maly 1996	Waiākea Cane Lots (12, 13, 17, 18, 19, 20 & 20-A, District of South Hilo, Island of Hawai‘i	Oral interviews and archival research pertaining to Waiākea Cane Lots. Provides background of pre-Contact land-uses in the area and description of sugar cane agricultural features, their construction, and uses.

Reference	Location	Description & Results
Robins and Spear 1996	Lands of Waiākea, Kūkūau 1 & 2, and Ponahawai, South Hilo District, Island of Hawai‘i (Puainako Street Realignment/Extension Project)	Inventory survey of proposed realignment of Puainako Street Extension Corridor documenting 30 new features at 3 sites (Hunt and McDermott 1994), and one new site containing 16 features. Sites and features are associated with historic sugar cane agriculture.
Walker & Rosendahl 1996	Archaeological Assessment at Hilo Judicial Complex	Five Historic Sites
Eblé, Denham, and Pantaleo 1997	Lands of Waiākea, Kūkūau 1 & 2, and Ponahawai Ahupua‘a, South Hilo District, Hawai‘i (Puainako Street Extension Project)	Supplemental testing of features (six sites) documented in Hunt and McDermott (1994). Features associated with historic sugar cane agriculture. Recommended preservation of several sites within the project area.
Rechtman & Henry 1998	Archaeological Inventory Survey on 40 acres at UH-Hilo	117 sugarcane era agricultural rock mounds, walls, and enclosures.
Spear 1998	Lands of Waiākea, Kūkūau 1 & 2, and Ponahawai, South Hilo District, Island of Hawai‘i (Puainako Street Realignment/Extension Project)	Reconnaissance-level survey of proposed realignment of Puainako Street Extension Corridor documenting 27 new features associated with historical sugar cane agriculture.
McGerty and Spear 1999	Lands of Waiākea, Kūkūau 1 & 2, and Ponahawai, South Hilo District, Island of Hawai‘i (Puainako Street Realignment/Extension Project)	Inventory survey of Spear (1998) parcel documenting 17 features: 15 historic sugar cane agriculture features and two features associated with a modern pig farm. All features were added to site 50-10-35-18921. Data Recovery recommended.
Dega and Benson 1999	Lands of Waiākea, Kūkūau 1 & 2, and Ponahawai, South Hilo District, Island of Hawai‘i (Puainako Street Realignment/Extension Project)	Reconnaissance-level survey of proposed realignment of Puainako Street Extension Corridor documenting eight sites containing 18 features including 12 clearing mounds, two platforms, two walls, a rock alignment, and an *‘auwai*. All but the *‘auwai* were associated with historic sugar cane cultivation. The *‘auwai* was described as a pre-Contact feature likely also utilized in historic cane field agriculture.

Reference	Location	Description & Results
Dega 2000	Lands of Waiākea, Kūkūau 1 & 2, and Ponahawai, South Hilo District, Island of Hawai‘i (Puainako Street Realignment/Extension Project)	Inventory survey of Dega and Benson (1999) parcel documenting eight new features (at Site 50-10-35-18921) associated with sugar cane agriculture.
Dega and Spear 2000	Lands of Waiākea, Kūkūau 1 & 2, and Ponahawai, South Hilo District, Island of Hawai‘i (Puainako Street Realignment/Extension Project)	Preservation plan for sites 50-10-35-18914, 18915, 18917 and a boulder path/alignment recorded by Eblé *et al.* (1997). See Eblé *et al.* (1997) project area location on previous archaeology map figure.
Bush, McDermott, and Hammatt 2000	Lands of Waiākea, South Hilo TMK: 2-4-01: 122, South Hilo, Hawai‘i Island (USDA Pacific Basin Agricultural Center Project)	Inventory survey of 20 acres along western edge of Komohana Street, and adjacent to east-central portion of current project area. Documents one skylight (site 50-10-35-22080) containing a single human femur. Preservation recommended.
McDermott and Hammatt 2001	Lands of Waiākea, South Hilo TMK: 2-4-01: 122, South Hilo, Hawai‘i Island (USDA Pacific Basin Agricultural Center Project)	Inventory survey of 10 acres adjacent (west) to Bush *et al.* (2000) documenting two historic sites (one feature each), including a modified outcrop and a stone causeway. No further work recommended.
Haun 2002	Archaeological Field Inspection of eight acres in Ponahawai Ahupua‘a TMK: (3) 2-3-037:001	Historic sugar cane agricultural features and house site.
Rosendahl 2004	Archaeological Assessment at Hilo Judicial Complex	No Archaeological Sites
Escott 2004	AIS of 258 Acres, Waiākea Ahupua‘a [TMK: 3-2-4-01:122].	Sixteen sites associated with sugar cane agriculture, ranching, and WWII training.
Wolforth 2006	AIS at Reed's Bay Beach Park	Two Pre-Contact and Three Historic Sites
Clark & Rechtmen 2006	Section 106 Mohouli St	One Historic Era Rock Mound
Calma & Wolforth 2007	AIS of 5.22 Acres Waiākea Ahupua‘a [TMK: 3-2-4-01:1007	Six sugar cane rock clearing mounds identified. No further

Reference	Location	Description & Results
	por.]	work recommended.
Rechtman 2009	Archaeological Assessment - Hilo Bay Front to Reed's Bay	No archaeological sites present.
Escott 2009	AA of 5.0 acres Waiākea Ahupua‘a [TMK: (3)-2-4-01:176]	No archaeological sites present.
Escott 2013	AIS of 4.4 Acres Waiākea Ahupua‘a [TMK: (3)-2-4-001:007]	A rock wall and rock clearing mound associated with sugarcane agriculture.
Clark *et al*. 2012	AIS of 9.4 Acres Waiākea Ahupua‘a [Kapi‘olani St. Extension]	Four Historic era sites including two drainage ditches, a rock mound, and the Hilo Dairy structure foundations.
Escott 2014 (Draft)	AIS of 42.6 Acres at UHH	Eighteen sugarcane agriculture and Hilo Diary sites recorded.

The above listed archaeological and historical investigations are instrumental to understanding broad patterns of land-use in the Hilo area (see McEldowney 1977, Kelly *et al.* 1981, Maly 1996), general trends in the distribution of formal archaeological features in the Hilo area (see Thrum 1907 and 1908, Hudson 1930, Smith 1991, Moniz 1992, Spear 1993), and for formulating archaeological expectations at the present project area (see Jensen 1991, Borthwick *et al.* 1993, Hunt and McDermott 1994, Spear 1995, Robins and Spear 1996, McGerty and Spear 1999, Dega 2000, Bush *et al*. 2000, McDermott and Hammatt 2001, Haun 2002, and Escott 2004).

REGIONAL ARCHAEOLOGICAL STUDIES

McEldowney (1979)

McEldowney (1979) provides an overview of changing land-use patterns in the Hilo area based on early historic accounts. She proposes that Hawaiians utilized land in accordance to five elevation zones (1979:14). Land-use zones are classified as (I) coastal, (II) upland agricultural, (III) lower forest, (IV) rainforest, and (V) sub alpine, or montane. The inhabitants of Waiākea *Ahupua‘a* had access to resources in all five of McEldowney’s zones.

The present project is situated in the upland agricultural zone (50 to 1,500 feet) described as unwooded grasslands and extensive dryland cultivation plots. McEldowney suggests this region was likely deforested prior to European contact through shifting agricultural practices such as swiddening. Site types consist of scattered houses adjacent to garden and arboreal plots on older *pāhoehoe* and *‘a‘ā* flows with well-developed soils. Modified lava tubes and tubes used for cultural practices are also common in the upland agricultural zone.

Smith (1991)

Smith (1991) also comments on site distribution in the *ahupua‘a* of Waiākea based on Mauna Loa lava flows, including a portion of the 1880-1881 *pāhoehoe* flow, a *pāhoehoe* flow dating to 750-1,500 ybp, and a *pāhoehoe* flow dating to 5,000-10,000 ybp. He notes that the majority of sites are located on the older lava flow, which has deeper, more developed soils.

Kelly *et al.* (1991)

Kelly *et al*. (1991) also contributes to an historical understanding of changing land-use patterns following European involvement in the economy of Hawai‘i. In particular, the regular use of Hilo Bay by foreign vessels, the whaling industry, the establishment of missions in the Hilo area, the introduction of the sandalwood trade, the legalization of private land ownership, the introduction of cattle ranching, and the introduction of sugarcane cultivation all brought about changes in settlement patterns and long-established land-use patterns. Hilo became a population center and settlements in outlying regions declined. While food was still grown for consumption, greater areas of land were continually given over to the specialized cultivation and processing of commercial foodstuffs for export. Sugarcane plantations and industrial facilities were established in areas that were once upland agricultural areas and coastal settlements.

Thrum (1907 and 1908), Hudson (1932), and Stokes and Dye (1991)

Thrum (1907 and 1908), Hudson (1932), and Stokes and Dye (1991) represent early archaeological efforts to document site distribution pertinent to the greater Hilo area. Hudson notes there were already no archaeological sites remaining in the city of Hilo by the early 1930s (Hudson 1932:236). All three authors note the dismantling of well-known *heiau* in the Hilo area (Thrum 1908:240, Hudson 1932:236, Stokes and Dye 1991:152).

INVESTIGATIONS SPECIFIC TO SUGARCANE AGRICULTURE

Several recent archaeological and historical investigations completed in the former Waiākea sugarcane lots that have direct bearing on the types and distribution of expected sites and features. The majority of these reports document historic-era sites on well-developed ash and organic soils overlaying a Mauna Loa *pāhoehoe* flow dating to 5,000-10,000 ybp. Sites are primarily the remains of sugarcane field clearing and in-field collection and processing architecture. The reports provide insight into predicting the types of sites located on former sugarcane lots.

Jensen 1991

PHRI conducted an archaeological inventory survey north of the present project area and identified only two sites. Only one of the two sites, SIHP 50-10-35-14947, the Hilo Boarding School and Old Mission Ditch, was recommended for further documentation and preservation. The second site, SIHP 50-10-35-14946, is an historic-era house site associated with sugarcane agriculture.

Haun 2002

Haun conducted a field inspection north of the present project and identified 15 sites with 25 component features. There were 19 rock mounds, a road, a low wall, a retaining wall, a terrace, and two platforms. The features all appear to be historic and related to sugarcane agriculture.

Hunt and McDermott (1994)

The initial archaeological investigations south and southeast of the present project area was an Archaeological Inventory Survey of the Puʻainako Street Extension within Waiākea, Kūkūau 1 and 2, and Ponahawai *ahupuaʻa* conducted by Hunt and McDermott (1994) in 1992 and 1993. The study entailed historical background research, pedestrian survey, and limited subsurface testing.

The inventory survey report documents 13 sites (SIHP Sites 50-10-35-18911 to -18923) comprised of 88 individual features. All features were interpreted as dating from A.D. 1880 to 1950, and were interpreted as features associated with the cultivation and processing of sugarcane. Five test-units were excavated within several features and it was concluded that the lack of prehistoric artifacts and traditional subsurface features within them supported the interpretation that the features were historic in origin (Hunt and McDermott 1994:104). The inventory survey report recommended that data recovery be carried out at site complexes as additional excavation work "could potentially yield isolated traces of prehistoric use of the area, presumably for dryland agriculture" (Hunt and McDermott 1994:109-113). The report also recommended extensive archival research, a task later undertaken by Maly (1996).

Borthwick, Collins, Folk, and Hammatt (1993)

Cultural Surveys Hawaii conducted an archaeological on a 163-acre UH Hilo parcel adjacent to and southeast of the present study area. The report documents four historic sugarcane cultivation sites (SIHP Sites 50-10-35-18667 through 18670) comprised of seven features (one feature contains 25 clearing mounds), including walls, clearing mounds, enclosures, and a

remnant sugarcane field (Figure 10). Test-units contained no cultural material confirming their association with more recent sugarcane cultivation. No further work was recommended.

Maly (1996)

Kepa Maly's report combines the results of McEldowney (1979) with traditional Hawaiian history, early European accounts, previous archaeological work, and oral histories to document cultural and agricultural practices in Hilo and the *ahupuaʻa* of Waiākea. The report focuses on Hawaiian settlement and population expansion in the region of the present study area. Of particular interest is the description of bird snaring and mention of banana growing in the area of the present study (Maly 1996:6-8). Maly also documents the effect of sugarcane cultivation (Waiākea Mill Company operations from the 1870s to 1940s) on pre-Contact archaeological remains within the present project area. While some components of early Hawaiian sites might be incorporated in more modern archaeological features, the clearing of fields and the construction of collection and processing facilities have dismantled or obscured older archaeological sites (Kenneth Bell in Maly 1996:57). Informants who remembered the Waiākea sugarcane plantation fields stated that features such as stone mounds, ramped platforms, terraces, walls, enclosures, and berms (railway berms) were built in order to facilitate sugarcane cultivation and ranching.

Robins and Spear (1996)

Following Maly's (1996) work, SCS (Robins and Spear 1996) conducted an inventory survey on a narrow parcel of land south of the present study area. The project area covered four proposed road alignments for the Puʻainako Street Extension project and reflected both an elongation and a lateral expansion of the original road alignment study (Hunt and McDermott 1994) from a 120 to 300-foot wide corridor.

The Robins and Spear survey documented the 30 architectural features associated with sites previously reported by Hunt and McDermott (SIHP Sites 50-10-35-18912, 18914, and 18919) as well as 16 additional features that were combined, with features taken by SHPD from SIHP Site 18919, to form a new site (SIHP Site 20681). Robins and Spear (1996:49-52) concluded that all 46 features, representing four sites, were associated with historic sugarcane activities based on the fact that all of the sites are located within or adjacent to known sugarcane fields, all features are representative of formal sugarcane field features, site structure is comparable to other known plantation sites and is atypical of traditional Hawaiian structures, and the documented sites contain historic-era artifacts that are specific to sugar plantation or ranching activities.

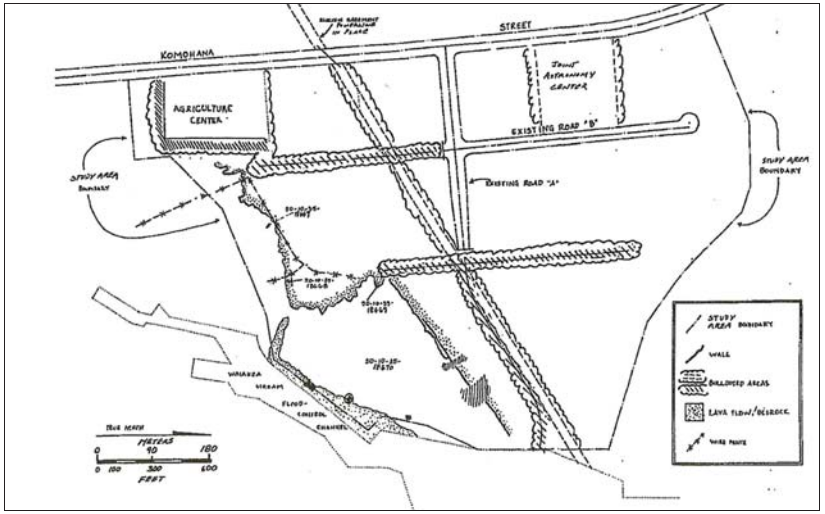

Figure 10: Location of CSH, Inc. Archaeological Sites (Borthwick *et al.* 1993).

No traditional Hawaiian components of modern features or pre-Contact artifacts were discovered during the inventory survey work. Robins and Spear (1996:53-56) recommended data recovery for eight sites within the corridor and concurred with SHPD in the preservation of several other sites.

Eblé, Denham, and Pantaleo (1997)

At the request of the Ho' oikaika Hawaiian Club (HHC), Garcia and Associates (Ganda) conducted supplemental archaeological excavations (reported in Eblé *et al.* 1997) at sites previously identified by Hunt and McDermott (1994). The purpose of the additional work was "to aid in the interpretation of site function and chronology, and to ensure that all cultural remains in the area have been sufficiently identified" (Eblé *et al.* 1997:1). The Hunt and McDermott survey had excavated only five units within 88 features and the sponsoring Ho‘ oikaika group deemed additional excavations necessary to support or refute the report’s site age and function determinations. The supplemental archaeological work performed by Ganda was not considered an official stage in the State of Hawai'i historic preservation process but was deemed a supplemental aid to the previous study.

Seven test-units (typically 1.0 m by 1.0 m) were excavated within six sites previously mapped and recorded by Hunt and McDermott (1994). The sites included SIHP Site 50-10-35-18916, 18911, 18912, 18914, 18915, and 18917. The excavation units yielded historic artifacts such as metal and midden. Three samples of wood charcoal were submitted for radiocarbon testing and were dated to pre-Contact (traditional) and early historic times. The samples were considered problematic since they did not precisely date the architectural structures themselves but were taken from the soil matrix below features and were not associated with any subsurface features such as *'imu* or discrete hearths, for example. The report further concluded that all "intact evidence of pre-Contact occupation and/or activity in the project area has been disturbed or destroyed as a result of post-Contact period activity" (Eblé *et al.* 1997:53). The archaeological features examined as part of this supplemental project were interpreted as associated with sugarcane cultivation and processing, and reinforced the interpretations offered by Hunt and McDermott (1994), Maly (1996), and Robins and Spear (1996). The supplemental testing report recommended preservation for several sites (discussed below) (Eblé *et al.* 1997:56).

Rechtman and Henry (1998)

Paul . Rosendahl, PhD., Inc. (PHRI) conducted an archaeological inventory survey of 40.0 acres at the University of Hawai‘i at Hilo campus location. A total of 117 sugarcane era

features were recorded during the survey (Figure 11). Features included 102 rock mounds, seven single walls, five sets of parallel walls, and three enclosures. The features were assigned to Site 50-10-35-21461 and were interpreted as the remains of Historic era sugarcane agriculture.

Spear (1998)

An archaeological reconnaissance-level investigation was carried out by SCS along the western (*mauka*) portion of the Puʻainako Street Extension. Twenty-seven features were recorded during the reconnaissance survey and were associated with SIHP Site 50-10-35-18921 previously recorded by Hunt and McDermott (1994). Spear (1998) recommended that an inventory survey be conducted.

McGerty and Spear (1999)

The inventory survey work (McGerty and Spear 1999) generated as a result of the previous reconnaissance survey (Spear 1998) was listed as an addendum to the inventory survey report completed by Robins and Spear (1996). McGerty and Spear (1999) re-identified the features documented by Spear (1998) and recorded a total of 17 features. The number of features was reduced from 27 to 17 because several of the features documented during the reconnaissance survey were combined into more discrete feature designations or were assessed as not being archaeological features. All 17 features were assigned to SIHP Site 18921 and 15 of them were interpreted as features associated with historic sugarcane activities cultivation and processing. The inventory survey report notes that SIHP Site 18921 is located on former Waiākea Sugar Company cane fields (Conde and Best 1973:120, as cited in McGerty and Spear 1999:23).

Based on information provided in an interview, two features (Feature 1 and Feature 11) were interpreted as remnants of a modern pasture or piggery (Robins and Spear 1996:42, McGerty and Spear 1999:5). The inventory survey report (McGerty and Spear 1999:25) concurred with Hunt and McDermott (1994:112) that the site was significant under Criterion D and recommended a data recovery investigation.

Dega and Benson (1999)

In August 1999, SCS conducted a reconnaissance-level survey (Dega and Benson 1999) along the proposed Puainako Street Extension corridor. The survey was performed within a short, expanded section of the highway (western end) occurring just to the south, and partially overlapping the reconnaissance survey area documented in Spear (1998), and the inventory survey work reported in McGerty and Spear (1999). The project area was approximately 1.0

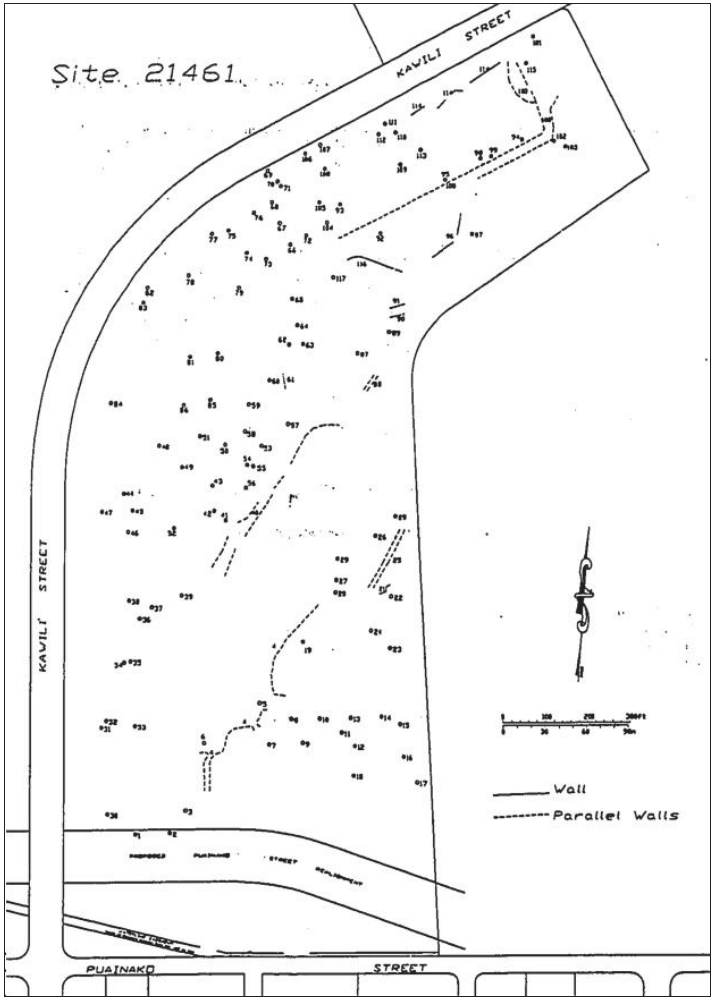

Figure 11: Distribution of Archaeological Features Identified in Rechtman and Henry 1998.

mile long (east-west) and 300 feet wide (north-south) and was situated from 0.40 km to 2.5 km south of Kaumana Drive at the study corridor's western and eastern termini.

Eight archaeological sites were identified within the western border of the project area. Eighteen features were documented including 12 rock mounds, two platforms, two walls, one alignment, and one stone-lined *'auwai*, or water channel. Seventeen features were interpreted as related to historic sugarcane cultivation and processing, a similar interpretation to that presented previously (Hunt and McDermott 1994, Robins and Spear 1996, McGerty and Spear 1999).

One feature, a rock-lined *'auwai* or water channel, was interpreted as traditional (pre-Contact). The *'auwai* is situated parallel to and between several rock mounds associated with sugarcane cultivation but is suggestive of a traditional water channel because its width (0.80 m) is much smaller than channels typically used for sugarcane field irrigation. Secondly, the gravity-fed system was lined with small cobbles and not metal, as is commonly used in the construction of sugarcane water channels. Thirdly, the channel itself was not deep (average 0.10 m below rock surface) and had not been maintained for some time. Finally, the channel emptied onto a small alluvial plain that would have been well suited to small-scale irrigated taro cultivation. The Dega and Benson (1999) reconnaissance survey report recommended inventory survey work be carried out, including test-excavations within and near the *'auwai* feature.

Dega (2000)

SCS conducted an inventory survey to complete the reconnaissance-level survey reported by Dega and Benson (1999) at SIHP Site 50-10-35-18921. Eight features were documented, two previously recorded by Spear (1998) or during the Dega and Benson (1999) reconnaissance survey. Features included walls, clearing mounds, rock alignments, a platform, and a stone-lined *'auwai*. Four stratigraphic trenches were mechanically excavated in and around the *'auwai* feature. Trenches were typical 1.80 meters wide and totaled 17 meters in length. The *'auwai* was reinterpreted as an historical sugarcane field irrigation ditch due to a lack of stones lining its bottom as is common in traditional Hawaiian *'auwai*. No evidence was found to substantiate the presence of a *lo'i* associated with the irrigation ditch.

Bush, McDermott, and Hammatt (2000)

Cultural Surveys Hawaii carried out an inventory survey of a 20-acre parcel for the proposed USDA Pacific Basin Research Center. A single human femur was located in an overhang within a collapsed lava blister or lava tube. The site (SIHP Site 50-10-35-22080) was designated a burial and recommended for preservation.

McDermott and Hammatt (2001)

Cultural Surveys Hawaii carried out an additional inventory survey of a 10-acre parcel (adjacent to and west of the 2000 study area) for the proposed USDA Pacific Basin Research Center. Two post-Contact sites comprised of two features were documented. SIHP Site 50-10-35-22734 consisted of a modified outcrop and SIHP Site 50-10-35-22735 consisted of a stacked stone causeway. No further work was recommended at both sites.

Escott (2004)

Sixteen new sites (80 features) and three previously recorded sites were recorded during inventory survey work conducted on lands along the west side of Komohana Street. Eleven of the sites on the project area were associated with Historic-era sugarcane agriculture, three were associated with WWII military training activities, one was associated with Historic-era ranching, and four were associated with Historic-era dirt roads. None of the sites were recommended for preservation, two of the military sites were recommended for data recovery, and the seventeen remaining sites required no further work.

Calma and Wolforth (2007)

Scientific Consulting Services, Inc. conducted an archaeological inventory survey on 5.22 acres of UH-Hilo for the College of Pharmacy. The project area is immediately south of the current project area, and is within the Borthwick *et al*. 1993 project area. A single site consisting of six rock clearing mounds associated with sugarcane agriculture were identified within the project area. No further work was recommended for the rock mounds.

Escott (2009)

SCS, Inc. conducted and archaeological assessment of a five-acre parcel of land along Mohouli Extension. No archaeological sites or features were located on the current project area parcel. The entire 5.0-acre parcel is completely covered by pahoehoe lava from the 1880 to 1881 flow. The recent lava flow also prevented modern sugarcane or other agricultural pursuits. No cultural resources, modern structures, or modern disturbance were identified on the study parcel.

Escott (2013)

SCS, Inc. conducted an archaeological inventory survey of 4.8 acres located at the University of Hawai'i at Hilo, just north of the are surveyed by Wolforth and Calma (2007). A sugarcane era rock clearing mound (Site 50-10-35-28818) and historic era wall (Site 50-10-35-28817) were documented during the inventory survey work.

Escott (2014, Draft)

SCS, Inc. conducted an archaeological inventory survey on 42.6 acres of land next to the University of Hawai‘i at Hilo Campus [TMK: (3) 2-4-001:024 and (3) 2-4-056:014]. Eighteen new sites and a previously recorded site (Site 50-10-35-29373) comprising 68 features were recorded during the course of the current archaeological inventory survey. The vast majority of sites within the study area were associated with historic era sugarcane cultivation, ranching, or the Hilo Dairy facilities. None of the sites were interpreted as pre-Contact.

All of the archaeological features (n=68) identified during the study were remains of historic era sugarcane, ranching, and a dairy operation. The majority of features were modified outcrops (n=27) created by piling and stacking cobbles and small boulders onto exposed bedrock outcrops. The remaining features were field clearing rock mounds (n=25) associated with sugarcane agriculture, concrete foundations and structural remains associated with the Hilo Dairy (n=10), rock walls (n=3), fence posts (n=2), and a rock alignment (n=1).

INVESTIGATIONS CLOSE TO THE STUDY AREA

Dircks *et al*. 2008

Rechtman Consulting, LLC conducted an archaeological inventory survey on approximately four acres [TMK: (3) 2-4-012: 016 and 017] located 1.5 km northwest of the current project area (see Figure 9). Four Historic Period sites were recorded during the study, including a clearing mound (Site 50-10-35-26470), an enclosure/workshop (Site 26471), and two rock walls (Site 26472 and Site 26473) (Dircks *et al*. 2008:10-17). The sites were interpreted as the result of sugarcane agriculture. No further work was recommended at the four sites.

EXPECTED ARCHAEOLOGICAL PATTERNS

Based on previous archaeological studies, historical research, land-use records, site type can be predicted to consist primarily of sugarcane era agricultural sites. Though, it is possible that traditional Hawaiian pre-Contact era sites might have existed in this area of Waiākea Ahupua‘a, previous archaeological investigations have shown that the predominant site type in this area is associated with Waiākea Mill Company plantation fields.

This is likely because sugarcane agriculture in the area involved mechanical clearing of fields and removal of loose rock, likely including pre-Contact rock features, from the fields. These activities would have removed pre-contact era sites and features.

RESULTS OF FIELDWORK

Two archaeological sites (Site 50-10-35-30039 and Site 50-10-35-30040) consisting of four rock mound features were identified within the current 3.0 acre project area (Figures 12 and 13). The rock mounds are interpreted as sugarcane field clearing mounds based on archival research of previous land-use, based on the style of feature construction, and based on excavation results.

SITE 30039	**ROCK MOUNDS**
FUNCTION:	Agricultural
AGE:	Historic
DIMENSIONS:	Length: 13.0 m E/W; Width, 4.0 m; Height, 0.6 m Max.
CONDITION:	Good
INTEGRITY:	Slightly Impacted by Cattle
SURFACE ARTIFACTS:	None
EXCAVATION:	Stratigraphic Trench 1
DESCRIPTION:	Site 30039 consists of three rock mounds (Features 1, 2, and 3)

recorded along the western portion of the project area (see Figures 12 and 13). The rock mounds are located on the level grassy ground surface roughly 2.3 to 3.5 meters apart from each other (Figure 14). The site is located at UTM Zone 5 North, 282118 East, 2176642 North (WGS84 Datum).

Feature 1 is a linear rock mound located on the west side of the site. The rock mound is approximately 3.2 m long (NE/SW) by 1.5 m wide, and is 60 cm in maximum height. Feature 1 is constructed of angular and subangular cobbles and small boulders piled on the ground surface (Figure 15). There is no stacking or facing evident in the feature construction. Feature 1 is in good condition, and has been slightly altered by cattle ranching. A few rocks appear to have fallen off the rock mound.

Feature 2 is an oval rock mound located 2.3 m east of Feature 1. The rock mound is approximately 3.6 m long (E/S) by 2.5 m wide, and is 55 cm in maximum height. Feature 2 is constructed of angular and subangular cobbles and small boulders piled on the ground surface (Figure 16). There is no stacking or facing evident in the feature construction. Feature 2 is in good condition, and has been slightly altered by cattle ranching. A few rocks appear to have fallen off the rock mound.

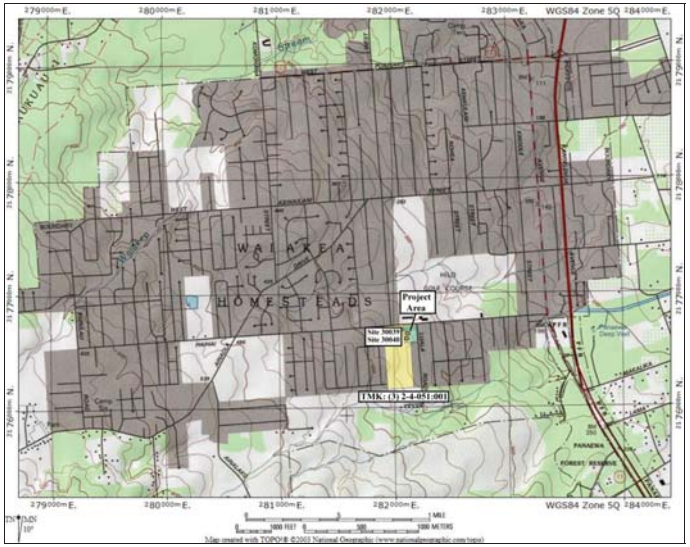

Figure 12: 7.5-Minute Series USGS Topographic Map Showing Location of Archaeological Sites (Hilo, Quad, National Geographic Topo, 2003).

Figure 13: TMK: (3) 2-4-051 Map Showing Location of Archaeological sites (Hawai'i County Planning Department 2013).

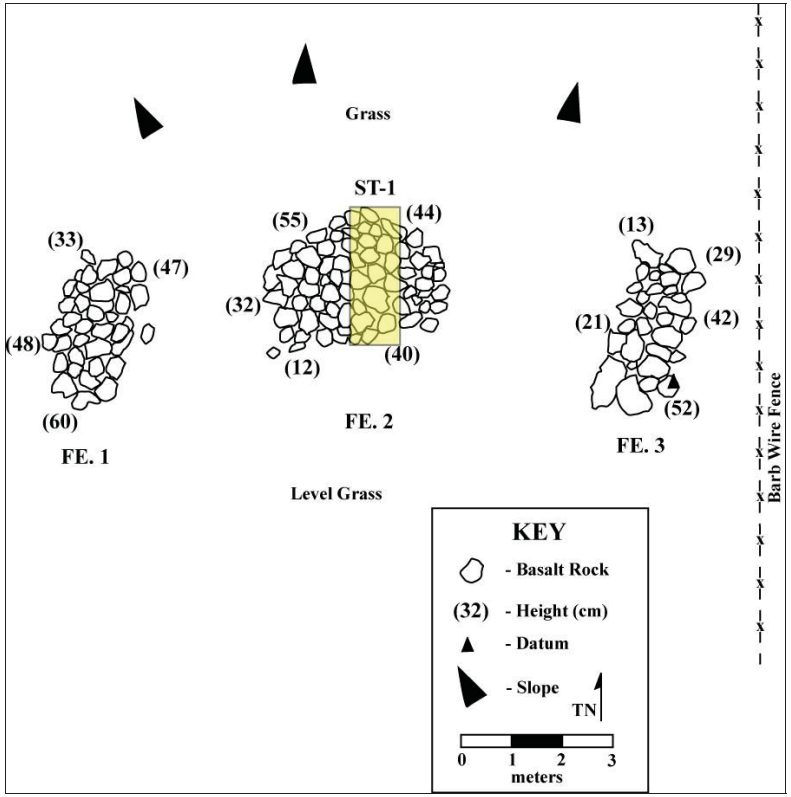

Figure 14: Site 30039 Plan View.

Figure 15: Photograph of Site 30039 Feature 1 Rock Mound Looking West.

Figure 16: Photograph of Site 30039 Feature 2 Rock Mound Looking West.

Stratigraphic Trench 1

Stratigraphic Trench 1 (ST-1) was excavated through the center of Feature 2 to record feature construction, recover diagnostic artifacts, and to locate the base of the feature. ST-1 was 2.75 m long (N/S) by 1.0 wide, contained an architectural layer and two natural stratigraphic layers, and terminated on bedrock at a maximum depth of 55 cm below the ground surface (Figure 17 and Figure 18).

The architectural Layer (0-50 cm above ground surface) consisted of angular and subangular cobbles and small boulders piled on the ground surface. The base of the architectural layer contained organic detritus and some "A" Horizon soil. The architectural layer continued into Layer I below. Several fragments of modern bottle glass were recovered from the architectural layer (Figure 19).

Layer I (0-27 cm below ground surface) consisted of 10YR 2/2 very dark brown fine sandy silt loam with blocky peds. Layer I matrix contained approximately 10% cobbles and small boulders and less than 1% small roots. The base of the architectural layer was located within Layer I at 20 to 25 cm below the modern ground surface. Layer I did not contain cultural material. The base of Layer I was clear and linear and terminated on Layer II sediment.

Layer II (27-55 cm below ground surface) consisted of 5YR 3/3 dark reddish brown fine sandy silt with blocky peds. Layer II matrix contained less than 1% small cobbles. Layer II did not contain cultural material. Layer I terminated on bedrock.

Feature 3 is a linear rock mound located 3.5 m east of Feature 2. The rock mound is approximately 3.2 m long (NE/SW) by 1.2 m wide, and is 52 cm in maximum height. Feature 3 is constructed of angular and subangular cobbles and small boulders piled on the ground surface. There is no stacking or facing evident in the feature construction (Figure 20). Feature 3 is in good condition, and has been slightly altered by cattle ranching. A few rocks appear to have fallen off the rock mound.

Based on the style of construction of the three rock mounds, and based on artifacts recovered from ST-1, the site is interpreted as three Historic era sugarcane field clearing mounds. The site has been slightly altered by cattle and is in good condition. No further work is recommended at the site.

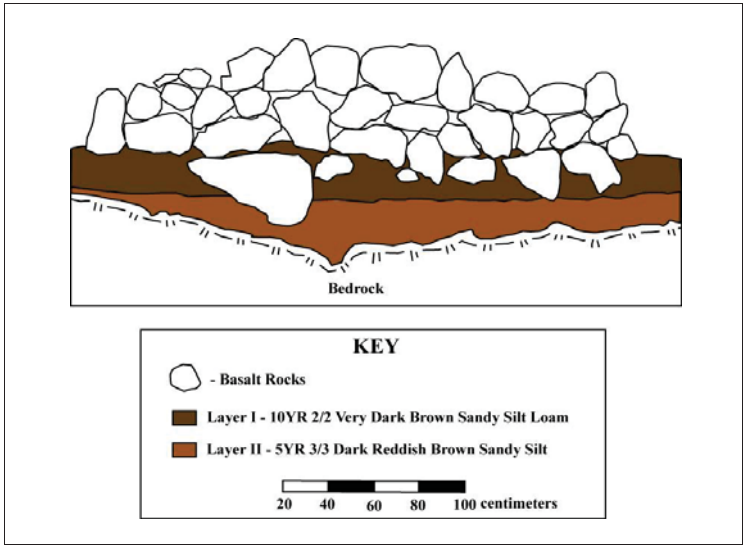

Figure 17: ST-1 West Profile.

Figure 18: Photograph of ST-1 East Profile Showing Stratigraphy.

Figure 19: Photograph of Modern Bottle Glass Recovered from ST-1 Architectural Layer.

Figure 20: Photograph of Site 30039 Feature 3 Rock Mound Looking Northeast.

SITE 30040	**ROCK MOUND**
FUNCTION:	Agricultural
AGE:	Historic
DIMENSIONS:	Length: 1.5 m E/W; Width, 1.2 m; Height, 0.6 m Max.
CONDITION:	Good
INTEGRITY:	Slightly Impacted by Cattle
SURFACE ARTIFACTS:	None
EXCAVATION:	None
DESCRIPTION:	Site 30040 consists of a single rock mound (Feature 1) recorded in the southwest quadrant of the project area (see Figures 12 and 13). The rock mounds are located on the west end of a linear bedrock outcrop (Figure 21). The site is located at UTM Zone 5 North, 282106 East, 2176598 North (WGS84 Datum).

Feature 1 is a rectangular rock mound approximately 1.5 m long (E/W) by 1.2 m wide, and is 60 cm in maximum height. Feature 1 is constructed of angular and subangular cobbles and small boulders piled on the ground surface (Figure 22). The rock mound is piled and stacked two to three courses high on the bedrock outcrop There is no facing evident in the feature construction. Feature 1 is in good condition, and has been slightly altered by cattle ranching. A few rocks appear to have fallen off the rock mound. Based on the style of construction of the rock mound, the site is interpreted as an Historic era sugarcane field clearing mound. No further work is recommended at the site.

CONCLUSION

Based on historic documentation and archaeological data collected in this AIS report, Site 30039 and Site 30040 area are Historic era rock clearing mounds associated with sugarcane fields known to have existed here. An oral interview conducted with Mike Tulang, the property lessee, indicated that there are a number of rock clearing mounds on the larger Parcel 001 property. Mr. Tulang also stated that there are no remains of the railroad tracks, nor is there evidence of a railroad grade in the area tracks are shown on the Waiākea Mill Company Cane and Homestead Lots Map (Williams 1933) (see Figure 7). It is likely they were portable tracks laid in the fields during times of cane harvest. The Williams (1933) map shows the tracks to the west, outside of the current project area. There were no remnants of pre-Contact era sites recorded on the project area. No other archaeological sites or features were present on the subject property

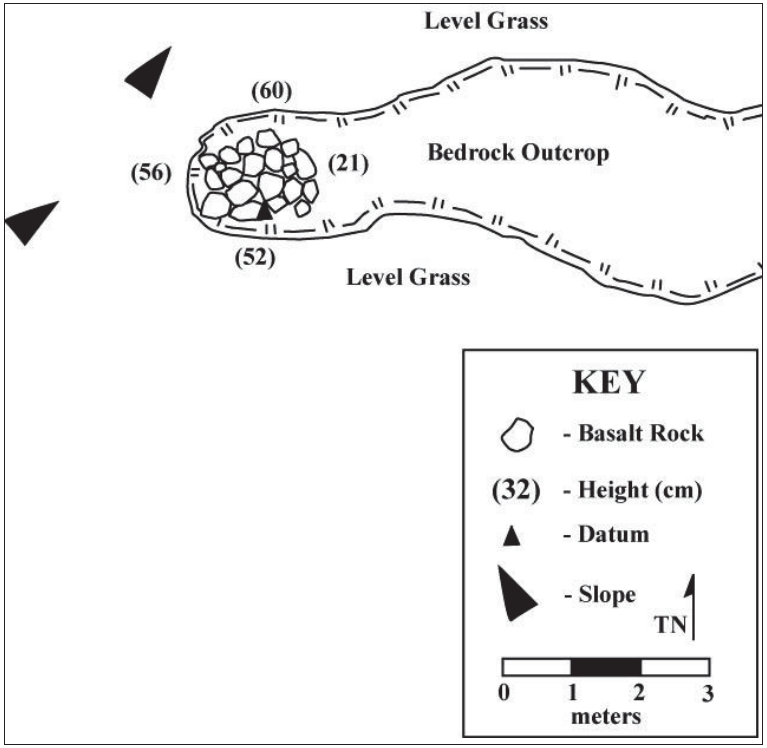

Figure 21: Site 30040 Plan View.

Figure 22: Photograph of Site 30040 Looking Northeast.

SIGNIFICANCE ASSESSMENTS AND RECOMMENDED TREATMENTS

Sites identified during this project were assessed in accordance with Rules Governing Procedures for Historic Preservation Review for Governmental Projects Covered Under Sections 6E-7 and 6E-8 contained in draft Hawai‘i Administrative Rules 13§13-275 (Table 5). To be assessed as significant a site must possess integrity of location, design, setting, materials, workmanship, feeling, and association and must be characterized by one or more of the following five criteria:

(A) It must be associated with events that have made an important contribution to the broad patterns of history.

(B) It must be associated with the lives of persons important in the past.

(C) It must embody distinctive characteristics of a type, period, or method of construction, or represent the work of a master, or possess high artistic value.

(D) It must yield or may be likely to yield, information important in prehistory or history.

(E) It must have an important value to the native Hawaiian people or to another ethnic group of the State due to associations with cultural practices once carried out, or still carried out, at the property or due to associations with traditional beliefs, events or oral accounts—these associations being important to the group’s history and cultural identity.

Site 30039 and Site 30040, recorded during the current AIS study, are significant under Criterion D, as they contain information important to the history of Hawai‘i. Work conducted during this AIS study has provided sufficient data to determine the function and timing of the features at the two sites. No further work or mitigation is recommended at the sites.

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Appendix E

CULTURAL IMPACT ASSESSMENT

A CULTURAL IMPACT ASSESSMENT OF LANDS FOR THE PROPOSED HAIHAI STREET FIRE STATION, WAIĀKEA AHUPUA‘A, SOUTH HILO DISTRICT, ISLAND OF HAWAI‘I [TMK: (3) 2-4-051:001]

Prepared By:
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DRAFT Report
March 2014

Prepared For:
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INTRODUCTION

At the request of KYA Design Group, Inc., Scientific Consultant Services, Inc. (SCS) conducted a Cultural Impact Assessment (CIA) of 35.696 acres [TMK: (3) 2-4-051:001] located in the *ahupua‘a* of Waiākea, South Hilo District, Island of Hawai‘i (Figures 1, 2, and 3). The project area is located approximately 5.0 kilometers south of Hilo Bay and is bounded by Haihai Street to the north, Laula Street to the east, by agricultural land to the south, and by a residential subdivision to the west. The State of Hawai‘i is considering an option to use a 2.0-acre portion of the parcel, currently leased as cattle pasture by the State of Hawai‘i Department of Land and Natural Resources (DLNR), for the proposed construction of a fire station.

Figure 1: Hawai‘i Island Map Showing Project Area Location.

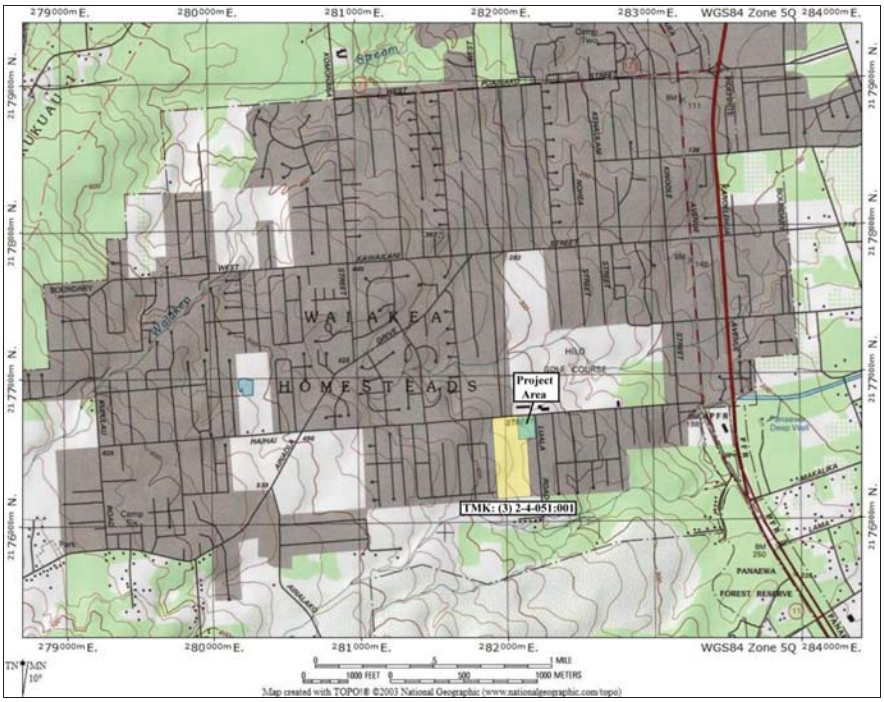

Figure 2: 7.5-Minute Series USGS Topographic Map Showing Location of Parcel 051 (Yellow) and Proposed Fire Station Project Area (Blue) (Hilo, Quad, National Geographic Topo, 2003).

Figure 3: TMK: (3) 2-4-051 Map Showing Location of Project Area (Hawai‘i County Planning Department 2013).

Figure 4: Aerial Photograph Showing Proposed Fire Station Project Area Location (Red) on TMK: (3) 2-4-051:001 (ESRI, 2012).

The Constitution of the State of Hawai‘i clearly states the duty of the State and its agencies is to preserve, protect, and prevent interference with the traditional and customary rights of native Hawaiians. Article XII, Section 7 requires the State to “protect all rights, customarily and traditionally exercised for subsistence, cultural and religious purposes and possessed by *ahupua‘a* tenants who are descendants of native Hawaiians who inhabited the Hawaiian Islands prior to 1778” (2000). In spite of the establishment of the foreign concept of private ownership and western-style government, Kamehameha III (Kauikeaouli) preserved the people's traditional right to subsistence. As a result in 1850, the Hawaiian Government confirmed the traditional access rights to native Hawaiian *ahupua‘a* tenants to gather specific natural resources for customary uses from undeveloped private property and waterways under the Hawai‘i Revised Statutes (HRS) 7-1. In 1992, the State of Hawai‘i Supreme Court, reaffirmed HRS 7-1 and expanded it to include, “native Hawaiian rights…may extend beyond the *ahupua‘a* in which a native Hawaiian resides where such rights have been customarily and traditionally exercised in this manner” (Pele Defense Fund v. Paty, 73 Haw.578, 1992).

Act 50, enacted by the Legislature of the State of Hawaii (2000) with House Bill 2895, relating to Environmental Impact Statements, proposes that:

> …there is a need to clarify that the preparation of environmental assessments or environmental impact statements should identify and address effects on Hawai‘i’s culture, and traditional and customary rights… [H.B. NO. 2895].

Act 50 requires state agencies and other developers to assess the effects of proposed land use or shoreline developments on the “cultural practices of the community and State” as part of the HRS Chapter 343 environmental review process (2001).

Its purpose has broadened, “to promote and protect cultural beliefs, practices and resources of native Hawaiians [and] other ethnic groups, and it also amends the definition of ‘significant effect’ to be re-defined as “the sum of effects on the quality of the environment including actions that are…contrary to the State’s environmental policies…or adversely affect the economic welfare, social welfare, or cultural practices of the community and State” (H.B. 2895, Act 50, 2000).

Thus, Act 50 requires an assessment of cultural practices to be included in the Environmental Assessments and the Environmental Impact Statements, and to be taken into consideration during the planning process. The concept of geographical expansion is recognized

by using, as an example, "the broad geographical area, e.g. district or *ahupua'a*" (OEQC 1997). It was decided that the process should identify 'anthropological' cultural practices, rather than 'social' cultural practices. For example, *limu* (edible seaweed) gathering would be considered an anthropological cultural practice, while a modern-day marathon would be considered a social cultural practice.

> According to the Guidelines for Assessing Cultural Impacts established by the Hawaii State Office of Environmental Quality Control (OEQC 1997): 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 manmade and natural, which support such cultural beliefs.

This Cultural Impact Assessment involves evaluating the probability of impacts on identified cultural resources, including values, rights, beliefs, objects, records, properties, and stories occurring within the project area and its vicinity (H.B. 2895, Act 50, 2000).

METHODOLOGY

This Cultural Impact Assessment was prepared in accordance with the methodology and content protocol provided in the Guidelines for Assessing Cultural Impacts (OEQC 1997). In outlining the "Cultural Impact Assessment Methodology", the OEQC states: …information may be obtained through scoping, community meetings, ethnographic interviews and oral histories… (1997).

The report contains archival and documentary research, as well as communication with organizations having knowledge of the project area, its cultural resources, and its practices and beliefs. This Cultural Impact Assessment was prepared in accordance with the methodology and content protocol provided in the Guidelines for Assessing Cultural Impacts (OEQC 1997). The assessment concerning cultural impacts should address, but not 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 of limitations with 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, as well as the particular perspective of the authors, if appropriate, any opposing views, and any other relevant constraints, limitations or biases;

(6) a discussion concerning the cultural resources, practices and beliefs identified, and for the 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, and;

(11) the inclusion of bibliography of references, and attached records of interviews, which were allowed to be disclosed.

Based on the inclusion of the above information, assessments of the potential effects on cultural resources in the project area and recommendations for mitigation of these effects can be proposed.

ARCHIVAL RESEARCH

Archival research focused on a historical documentary study involving both published and unpublished sources. These included legendary accounts of native and early foreign writers; early historical journals and narratives; historic maps and land records such as Land Commission Awards, Royal Patent Grants, and Boundary Commission records; historic accounts, and previous archaeological project reports.

INTERVIEW METHODOLOGY

Interviews are conducted in accordance with Federal and State laws and guidelines. Individuals and/or groups who have knowledge of traditional practices and beliefs associated with a project area or who know of historical properties within a project area are sought for consultation. Individuals who have particular knowledge of traditions passed down from preceding generations and a personal familiarity with the project area are invited to share their relevant information. Often people are recommended for their expertise, and indeed, organizations, such as Hawaiian Civic Clubs, the Island Branch of Office of Hawaiian Affairs, historical societies, Island Trail clubs, and Planning Commissions are depended upon for their recommendations of suitable informants. These groups are invited to contribute their input, and suggest further avenues of inquiry, as well as specific individuals to interview.

If knowledgeable individuals are identified, personal interviews are sometimes taped and then transcribed. These draft transcripts are returned to each of the participants for their review and comments. After corrections are made, each individual signs a release form, making the information available for this study. When telephone interviews occur, a summary of the information is often sent for correction and approval, or dictated by the informant and then incorporated into the document. Key topics discussed with the interviewees vary from project to project, but usually include: personal association to the *ahupua'a*, land use in the project's vicinity; knowledge of traditional trails, gathering areas, water sources, religious sites; place names and their meanings; stories that were handed down concerning special places or events in the vicinity of the project area; evidence of previous activities identified while in the project vicinity.

In this case, letters briefly outlining the development plans along with maps of the project area were sent to individuals and organizations whose jurisdiction includes knowledge of the area with an invitation for consultation. Consultation was sought from Kai Markell, the Director of Native Rights, Land and Culture, Office of Hawaiian Affairs; Robert K. Lindsey, Jr., Office of Hawaiian Affairs Hawai'i Island Trustee; Kauanoe Hoomanawanui, SHPD Burial Sites Specialist; Kino Lee, Jr. Chairman of the Hawai'i Island Burial Council; Rick Gmirkin, Ala Kahakai National Historic Trail, NPS Archaeologist; Patrick L. Hahawaiolaa; Keaukaha-Pana'ewa Farmers Association; William "Bill" Brown, Pana'ewa Hawaiian Homelands Community Association; and Mike Tulang, the property lessee and cattle rancher. If cultural resources are identified based on the information received from these organizations and/or additional informants, an assessment of the potential effects on the identified cultural resources in the project area and recommendations for mitigation of these effects can be proposed. Public Notices were placed in the Office of Hawaiian Affairs (OHA) Ka Wai Ola Newspaper, the Honolulu Star Advertiser, and the West Hawai'i Today.

PROJECT AREA AND VICINITY

The proposed Haiahai Street fire station project area consists of a portion of an undeveloped parcel [TMK: (3) 2-4-051:001] situated on gently rolling to level land between 100 m (330 feet) to 116 m (380 feet) above mean sea level (amsl). The project area substrate is a single Mauna Loa lava flow dated to between 5,000 and 10,000 years before present (ybp) (Wolfe and Morris 1996). Soils in the project area belong to the Pana'ewa very rocky silty clay loam (Sato 1973:45). Sugarcane was cultivated in the area of the current project. The property is currently used as cattle pasture.

RAINFALL, DRAINAGE, AND VEGETATION

Rainfall in the project area is high, ranging between 330 and 440 centimeters (150 and 200 inches) per year (Kelly *et al*. 1981). Natural drainage in the area runs from southwest to northeast and from west to east. There are no seasonal gulches or drainage spillways in the immediate area. The Haihai Street side of the project area is low and holds standing water during the rainy season. Rainwater runoff is high along the boundary between Haihai Street and the northern edge of parcel 051. Plant communities in the project area are dominated by a small range of grasses. The grasses are cropped low by cattle grazing. There are a small number of bushes and trees along the edges of the project area, including *waivi* (*Psidium cattleianum*) and common guava (*Psidium guajava*), and African tulip trees (Spathodea *campanulata*) (Starr Environmental 2013).

HISTORICAL AND CULTURAL CONTEXTS

Archaeological evidence suggests Hawai‘i Island was first settled sometime around A.D. 700 by people sailing from the Marquesas (Cordy 2000:104-109). Early settlers established settlements on the windward shores in likely places such as Waipi‘o, Waimanu, and Hilo Bay. The rich marine resources of Hilo Bay and the gently sloping forests of Mauna Loa and Mauna Kea provided abundant resources. Fresh water was available from the Wailoa and Wailuku rivers and smaller streams such as Waiākea, Waiolama, Pukihae, and ‘Alenaio.

The project area lands are in the *ahupua‘a* of Waiākea, Hilo, in the *moku-o-loko* (district) of Hilo (Maly 1996:4–5) (Figure 5). The *ahupua‘a* of Waiākea is large, consists of roughly 95,000 acres, and was regarded as a region of abundant natural resources and numerous fishponds. Waiākea was also an early important political center, notably under chief Kulukulu‘a (Kelly *et al*. 1981:3). Kamehameha lived and often returned to his *‘ili kūpono* (independent land division where all tributes were paid to the chief of the *‘ili* and not the *ahupua‘a*) lands of Pi‘opi‘o in the *ahupua‘a* of Waiākea (Figure 6). The *‘ili kūpono* lands and its royal fishpond were passed on to his son Liholiho after his death.

TRADITIONAL SETTLEMENT PATTERNS, SUBSISTENCE, AND LAND-USE

Historical accounts and archaeological/cultural studies pertaining to the *ahupua‘a* of Waiākea (Ellis 1963; Bingham 1969; Handy and Handy 1972; Bird 1974; McEldowney 1979; Kelly *et al*. 1981; and Maly 1996) provide a wealth of information on traditional settlement patterns, land-use, and subsistence horticulture of the area. These are synthesized below as they allude to the types of sites that may be encountered in the project area.

Historical accounts of residence patterns, land-use, and subsistence horticulture are believed to be indicative of traditional practices developed long before contact with Europeans (McEldowney 1979). Early accounts describe several distinct environmental regions in Waiākea. From the coast inland five or six miles, scattered subsistence agriculture was evident, followed by a region of tall fern and bracken, flanked at higher elevations by a forest region between 10 and 20 miles wide, beyond which was an expanse of grass and lava (Ellis 1969:403).

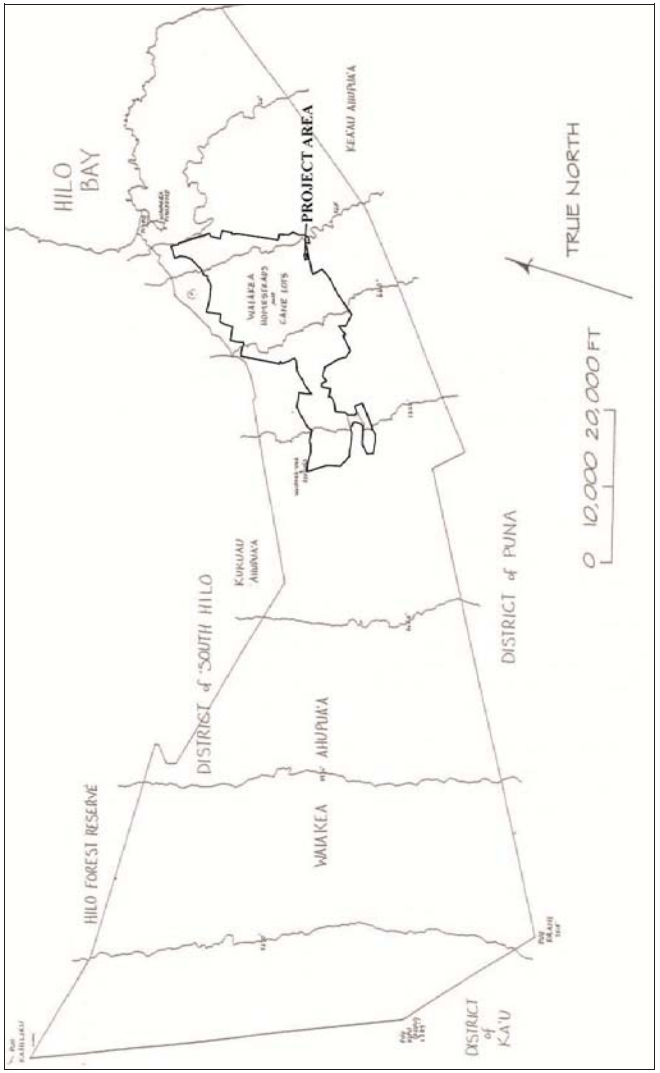

Figure 5: Map of Waiākea Ahupua‘a (adapted from Bush *et al*. 2000).

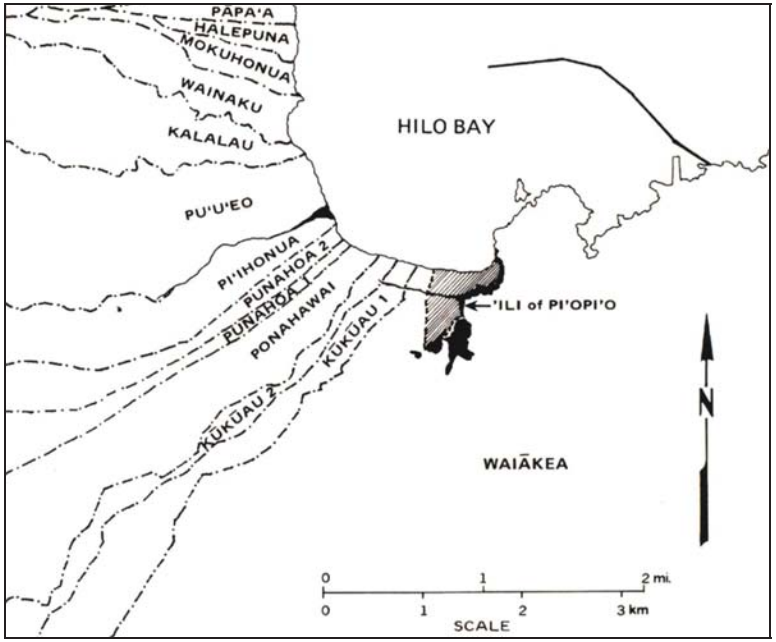

Figure 6: *'Ili Kūpono* Lands of Pi'opi'o (Kelly *et al*. 1981).

The American Missionary C.S. Stewart wrote, "the first four miles of the country is open and uneven, and beautifully sprinkled with clumps, groves, and single trees of the bread-fruit, pandanus, and candle tree" (Stewart 1970:361–363). The majority of Waiākea's estimated 2,000 inhabitants (in 1825) lived within this coastal region (Ellis 1969:253). Taro, plantains, bananas, coconuts, sweet potatoes, and breadfruit were grown individually or in small garden plots. Fish, pig, dog, and birds were also raised and captured for consumption.

The present study area is located along the upper reaches of the open coastal region and the lower reaches of the tall fern and bracken zone. It is located in McEldowney's "upland agricultural zone" (see Previous Archaeology section) consisting of "scattered huts" amidst "garden plots" created through "shifting agriculture" (McEldowney 1979:18–19).

Wood, such as *ohi'a* and *koa* for house construction, canoe building, and fires was obtained from this upland agricultural zone, and from the dense forests above (Ellis 1963:236). *Hala* for thatching was also known to be plentiful along the lava flows of eastern Waiākea (Ellis 1917, cited in Kelly *et al*. 1981:20). Of particular interest is a description of bird snaring and mention of banana growing in the area of the present study (Maly 1996:6–8).

THE *MĀHELE* OF 1848 AND LAND COMMISSION AWARDS

The *ahupua'a* of Waiākea became Crown Lands during the *Māhele* of 1848 and in the following years, twenty-five Land Claims were awarded within the *ahupua'a* of Waiākea (Table 1). The awards were small in area, 24 of which went to native claimants. No Land Commission awards were made within the project area, and all but two were located near the coast.

Table 1: Land Commission Awards in Waiākea Ahupua'a.

Grantee	LCA	Acreage
Barenaba	2327	12.25
Halai, L.K.	1279	0.60
Hale	40004	4.25
Kahue	2663	3.75
Kaiana, J.B.	2281	10.25
Kaihenui	11050-B	5.19
Kalolo	1333	2.25
Kalua	8854	3.40
Kaluhikaua	1738	2.98
Kamamalu, V.	7713	*'Ili 'aina*
Kamanuhaka	8803	1.02
Kapu	1-F	1.60
Kealiko	11174	1.00
Keaniho	2402	5.00
Keawe	5018	0.24
	10505	—
Kuaio	4344	1.22
Leoi	9982	0.80
Lolo	4738-B	1.27
Mahoe	1-E	4.46
Moealoha	4737	1.03
Nakai	4785	1.05
Napeahi	2603	1.30
Wahine	4737-B	1.01
Wahinealua	11173	2.50
Wahinenohoihilo	10004	1.69

CHANGING RESIDENTIAL AND LAND-USE PATTERNS (1845–1865)

Between 1845 and 1865, traditional land-use and residential patterns underwent a change. In particular, the regular use of Hilo Bay by foreign vessels, the whaling industry, the establishment of missions in the Hilo area, the introduction of the sandalwood trade, the legalization of private land ownership, the introduction of cattle ranching, and the introduction of sugar cane cultivation all brought about changes in settlement patterns and long-established land-use patterns (Kelly *et al*. 1981). Hilo became the center of population and settlements in outlying regions declined or disappeared. While food was still grown for consumption, greater areas of land were continually given over to the specialized cultivation and processing of commercial foodstuffs for export. Sugar cane plantations and industrial facilities were established in areas that were once upland agricultural areas and coastal settlements, respectively.

WAIĀKEA MILL COMPANY

On July 15, 1861, S. Kipi leased the Crown Land of Waiākea from Kamehameha IV to be used as pastureland for an annual amount of $600 (Kelly *et al.* 1981:89). In 1874, Rufus A. Lyman was granted a 25-year property lease (General Lease 124-A) within Waiākea, encompassing the government pastureland (Maly 1996:26). The lease granted him all privileges of land use including the cutting of firewood and the use of fishponds. The newly established Waiākea Mill Company, founded by Alexander Young and Theo H. Davies, acquired Rufus A. Lyman's General Lease 124-A in 1879 (with an extension of terms until June 1, 1918 [Maly 1996:27]). By the early 1900s, Waiākea plantation was cultivating sugarcane on over 6,000 acres of government land in Hilo (Kelly *et al*. 1981:89,120).

In 1911, the Waiākea Mill Company applied for a title to several portions of its leased land, but was rejected by the Board of Public Lands. Rather than renew the lease with the Waiākea Mill Company, the government decided to sell some of the land as homestead lots and to lease a portion of the land to small cultivators as cane lots. These became known as the Waiākea Homestead and Cane Lots (see Figure 5 and Figure 7). By 1919, more than 2000 acres of land were purchased as house lots and 5,300 acres was leased to private growers for cane production (Maly 1996:27–28). Sugarcane grown on these lots was, by terms of contract, to be processed by the Waiākea Mill Company for a share of the profits. The current project area is located within the northeast corner of Lot 907 (see Figure 7 and Figure 8).

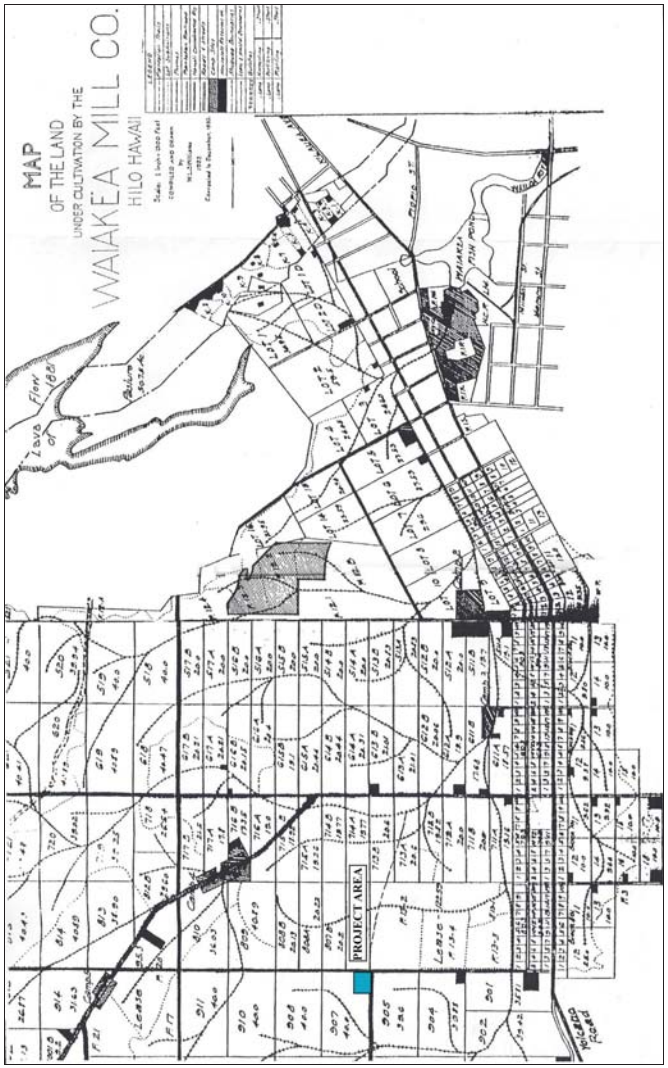

Figure 7: Waiākea Mill Company Cane and Homestead Lots Map Showing Location of Project Area (Blue) (Williams 1933).

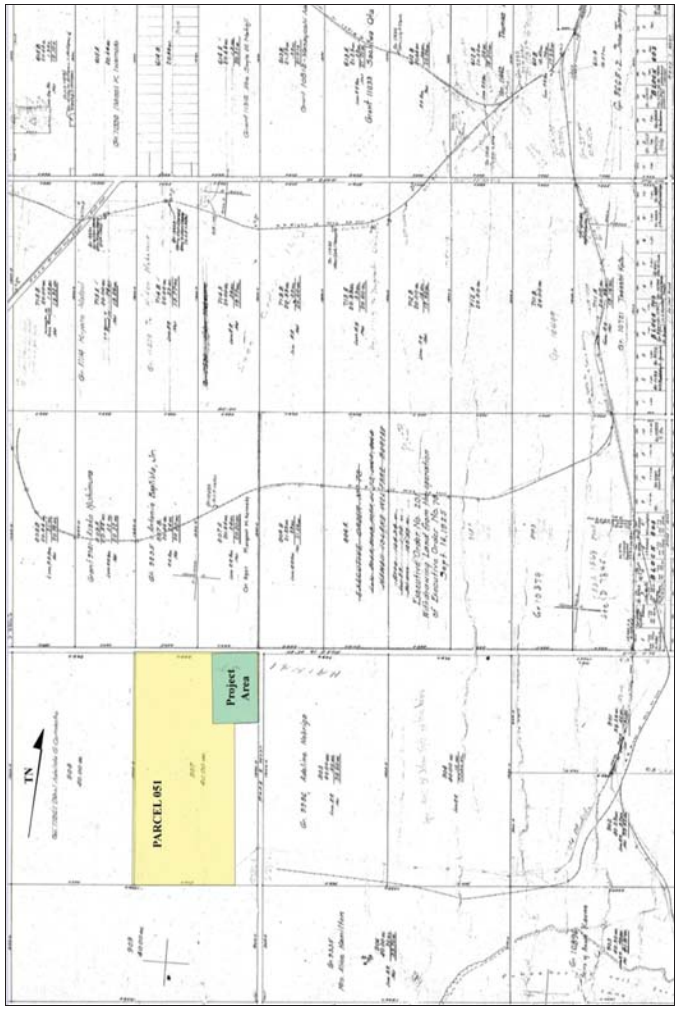

Figure 8: Portion of Waiākea Cane Lots Map Showing Lot 907 (Parcel 051 Shaded Yellow) and Proposed fire Station (Blue) (Cook and Arioli 1918).

The Waiākea Homestead house lots were surveyed as one-acre parcels. The majority of the lots are along Kīlauea and Kinoʻolo Street. The cane lot parcels were surveyed *mauka* (west) of the house lots, and were approximately twenty to forty acres in area. Rainfall in the area was ample for sugarcane cultivation, and the soils were deep and fertile enough for good yields.

However, a lack of cooperation and coordination by the mill company, as well as a lack of proficiency on the part of some cultivators to grow cane, created substantial losses for those that entered into the cane lot agreements (*ibid*:28). In period between 1920 and 12923, it became apparent that many who had entered into contracts to pay off their cane lot agreements through the sale of cane to the mill company, would not be able to meet their obligation. In 1925, after an investigation, a settlement was reached, whereby homesteaders were given a sixteen year extension to purchase their land.

The current project area is in the northeast corner of Cane Lot 907, a 40.0 acre parcel of land. A 1918 map of the area shows a Waiākea Mill company railroad track extending just south of Lot 907 (see Figure 8). A 1933 map shows spurs of the railroad track passing through the southern and central portions of the project area. It is possible these are temporary portable tracks. There is no railroad bed or track remains within the project area.

By 1938, many homesteaders who had paid off their land began to subdivide their property into residential lots (*ibid*:29). They built roads to connect the lots and brought in water, gas, and electricity to each lot. The process only increased after the Waiākea Mill Company ceased operations in 1946. Over the years, many of the cane lots have been subdivided into residential house lots. The project area is currently used to pasture cattle. The land surrounding the current project area is now primarily residential neighborhoods. The property across Haihai Street from the project area is the Municipal Golf Course. The property across Luala Road from the project area is AJA Veterans Council.

PREVIOUS ARCHAEOLOGICAL INVESTIGATIONS

Numerous archaeological investigations have been carried out within Waiākea Ahupuaʻa, in both the Hilo Bay Front area and within the former Waiākea Mill Company Cane Lots (see Figure 7) southwest of Hilo Town. Many of the previous archaeology projects are located in the vicinity of the University of Hawaiʻi at Hilo, at an elevation both above and below Komohana Street. Only one project has been conducted in the Waiākea Cane Lots, further south, near the current project area. Table 2 below summarizes major findings and Figure 9 shows the location of archaeological investigations conducted in the former sugarcane fields of western Waiākea Ahupuaʻa that are relevant to the current project area.

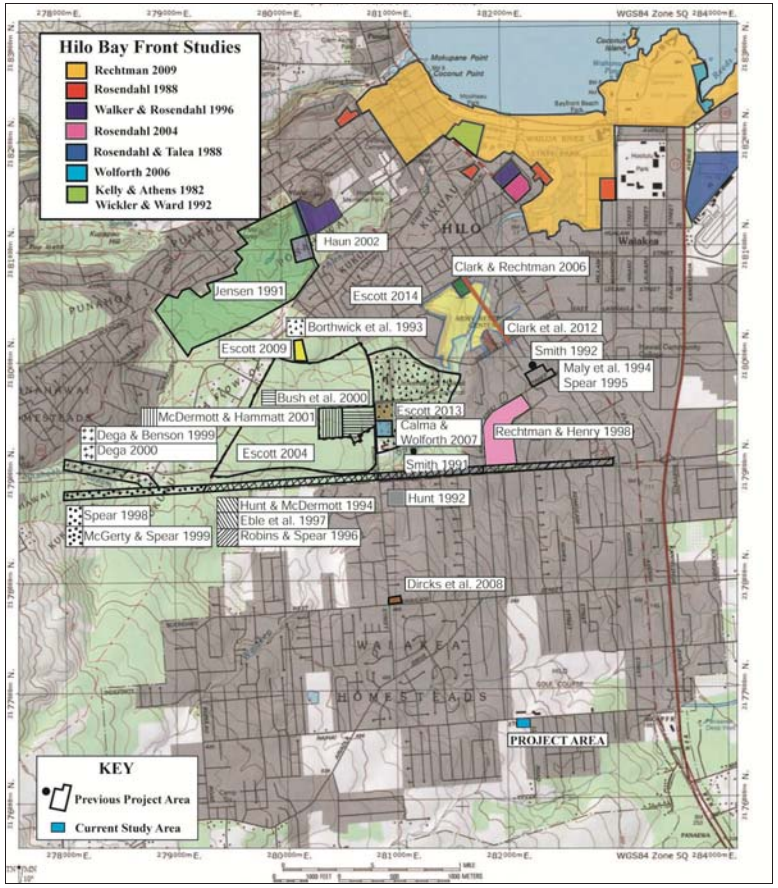

Figure 9: Previous Archaeological Studies Located on USGS Map (Hilo USGS Quad, 1995).

Table 2: Previous Archaeological Research in Waiākea Ahupuaʻa.

Reference	Location	Description & Results
Thrum 1907	Waiākea *Ahupuaʻa heiau* sites	List of *heiau* in Waiākea —none located near present project area.
Thrum 1908	Waiākea *Ahupuaʻa*	List and description of *heiau* in Waiākea —none located near present project area.
Hudson 1932	East Hawaiʻi Island	Detailed description of various sites in the Hilo area.
McEldowney 1979	Hilo Bay area	Zonal Characteristics—Land – use study
Kelly, Nakamura, and Barrère 1981	Hilo Bay area	History of Hilo Bay
Kelly & Athens 1982	Cultural Resources Reconnaissance at Wailoa River	No Archaeological Sites at Wailoa River
Rosendahl & Talea 1988	Archaeological Reconnaissance Survey at Hilo Airport	No Archaeological Sites
Rosendahl 1988	Archaeological Reconnaissance Survey at Four Locations in Hilo	No Archaeological Sites
Smith & Tourtellotte 1988	Burial Discovery at Mouth of Wailoa River	Single Burial. Location not shown on previous archaeology map figure.
Jensen 1991	AIS in Ponahawai *Ahupuaʻa* TMK: (3) 2-3-044:09	Site 50-10-35-14946, an early historic house and sugar cane site. Site 50-10-35-14947, the Hilo Boarding School and Old Mission Ditch
Smith 1991	Waiākea *Ahupuaʻa*, South Hilo, Hawaiʻi Island TMK: 3-2-4-01:7	List and description of sites on the 4000+BP and 1500-750BP lava flows. Inventory survey recommended.
Stokes and Dye 1991	Hawaii Island	List and description of *heiau* of Hawaii Island
Smith 1992	Waiākea Cane Lots, Waiākea *Ahupuaʻa*, South Hilo, Hawaiʻi Island TMK: 3-2-4-56:1	Numerous cane field features including walls, clearing mounds, a large rectangular enclosure, and c-shaped enclosures.
Moniz 1992	Waiākea *Ahupuaʻa*, Hilo Hawaiʻi	A listing of 1979-1992 inventory survey results within Waiākea *Ahupuaʻa* that document walls, mounds, platforms, and faced terraces.
Hunt	Lands of Waiākea, Kūkūau 1 &	Interim inventory survey report

Reference	Location	Description & Results
1992	2, and Ponahawai *ahupua'a*, South Hilo District, Hawai'i (Puainako Street Extension Project)	listing 31 cane field features including walls, clearing mounds, platforms, and faced terraces.
Wickler & Ward 1992	Archaeological Investigation at ʻAlenaio Stream at Bay Front	Historic Artifacts Only, No Sites
Borthwick, Collins, Folk, and Hammatt 1993	Waiākea *Ahupua'a* TMK: 2-4-01:7 and 41	Inventory survey of 163 acres of UH property along and east of Komohana Street. Documents four historic sites associated with sugar cane agriculture. No further work recommended.
Hunt and McDermott 1994	Lands of Waiākea, Kūkūau 1 & 2, and Ponahawai *ahupua'a*, South Hilo District, Hawai'i (Puainako Street Extension Project)	Inventory survey final report (completion of Hunt 1992) documenting 13 historical sites associated with sugar cane agriculture.
Maly, Walker, and Rosendahl 1994	Lands of Waiākea, South Hilo TMK: 2-4-57:01	Inventory survey of 4.5 acres in the Waiākea Cane Lots documenting four sites associated with historical sugar cane agriculture. Forty-seven features were recorded including walls, clearing mounds, and terraces. One radiocarbon date and recovered artifacts suggest prehistoric land-use in the project area. Data recovery recommended.
Spear 1995	Lands of Waiākea, South Hilo TMK: 2-4-57:01	Data recovery report of Maly *et al.* (1994) parcel documenting historic sugar cane agricultural features and a few temporary habitations. No further archaeological work recommended.
Maly 1996	Waiākea Cane Lots (12, 13, 17, 18, 19, 20 & 20-A, District of South Hilo, Island of Hawai'i	Oral interviews and archival research pertaining to Waiākea Cane Lots. Provides background of pre-Contact land-uses in the area and description of sugar cane agricultural features, their construction, and uses.

Reference	Location	Description & Results
Robins and Spear 1996	Lands of Waiākea, Kūkūau 1 & 2, and Ponahawai, South Hilo District, Island of Hawai'i (Puainako Street Realignment/Extension Project)	Inventory survey of proposed realignment of Puainako Street Extension Corridor documenting 30 new features at 3 sites (Hunt and McDermott 1994), and one new site containing 16 features. Sites and features are associated with historic sugar cane agriculture.
Walker & Rosendahl 1996	Archaeological Assessment at Hilo Judicial Complex	Five Historic Sites
Eblé, Denham, and Pantaleo 1997	Lands of Waiākea, Kūkūau 1 & 2, and Ponahawai Ahupua'a, South Hilo District, Hawai'i (Puainako Street Extension Project)	Supplemental testing of features (six sites) documented in Hunt and McDermott (1994). Features associated with historic sugar cane agriculture. Recommended preservation of several sites within the project area.
Rechtman & Henry 1998	Archaeological Inventory Survey on 40 acres at UH-Hilo	117 sugarcane era agricultural rock mounds, walls, and enclosures.
Spear 1998	Lands of Waiākea, Kūkūau 1 & 2, and Ponahawai, South Hilo District, Island of Hawai'i (Puainako Street Realignment/Extension Project)	Reconnaissance-level survey of proposed realignment of Puainako Street Extension Corridor documenting 27 new features associated with historical sugar cane agriculture.
McGerty and Spear 1999	Lands of Waiākea, Kūkūau 1 & 2, and Ponahawai, South Hilo District, Island of Hawai'i (Puainako Street Realignment/Extension Project)	Inventory survey of Spear (1998) parcel documenting 17 features: 15 historic sugar cane agriculture features and two features associated with a modern pig farm. All features were added to site 50-10-35-18921. Data Recovery recommended.
Dega and Benson 1999	Lands of Waiākea, Kūkūau 1 & 2, and Ponahawai, South Hilo District, Island of Hawai'i (Puainako Street Realignment/Extension Project)	Reconnaissance-level survey of proposed realignment of Puainako Street Extension Corridor documenting eight sites containing 18 features including 12 clearing mounds, two platforms, two walls, a rock alignment, and an *'auwai*. All but the *'auwai* were associated with historic sugar cane cultivation. The *'auwai* was described as a pre-Contact feature likely also utilized in historic cane field agriculture.

Reference	Location	Description & Results
Dega 2000	Lands of Waiākea, Kūkūau 1 & 2, and Ponahawai, South Hilo District, Island of Hawai‘i (Puainako Street Realignment/Extension Project)	Inventory survey of Dega and Benson (1999) parcel documenting eight new features (at Site 50-10-35-18921) associated with sugar cane agriculture.
Dega and Spear 2000	Lands of Waiākea, Kūkūau 1 & 2, and Ponahawai, South Hilo District, Island of Hawai‘i (Puainako Street Realignment/Extension Project)	Preservation plan for sites 50-10-35-18914, 18915, 18917 and a boulder path/alignment recorded by Eblé *et al.* (1997). See Eblé *et al.* (1997) project area location on previous archaeology map figure.
Bush, McDermott, and Hammatt 2000	Lands of Waiākea, South Hilo TMK: 2-4-01: 122, South Hilo, Hawai‘i Island (USDA Pacific Basin Agricultural Center Project)	Inventory survey of 20 acres along western edge of Komohana Street, and adjacent to east-central portion of current project area. Documents one skylight (site 50-10-35-22080) containing a single human femur. Preservation recommended.
McDermott and Hammatt 2001	Lands of Waiākea, South Hilo TMK: 2-4-01: 122, South Hilo, Hawai‘i Island (USDA Pacific Basin Agricultural Center Project)	Inventory survey of 10 acres adjacent (west) to Bush *et al.* (2000) documenting two historic sites (one feature each), including a modified outcrop and a stone causeway. No further work recommended.
Haun 2002	Archaeological Field Inspection of eight acres in Ponahawai Ahupua‘a TMK: (3) 2-3-037:001	Historic sugar cane agricultural features and house site.
Rosendahl 2004	Archaeological Assessment at Hilo Judicial Complex	No Archaeological Sites
Escott 2004	AIS of 258 Acres, Waiākea Ahupua‘a [TMK: 3-2-4-01:122].	Sixteen sites associated with sugar cane agriculture, ranching, and WWII training.
Wolforth 2006	AIS at Reed's Bay Beach Park	Two Pre-Contact and Three Historic Sites
Clark & Rechtmen 2006	Section 106 Mohouli St	One Historic Era Rock Mound
Calma & Wolforth 2007	AIS of 5.22 Acres Waiākea Ahupua‘a [TMK: 3-2-4-01:1007	Six sugar cane rock clearing mounds identified. No further

Reference	Location	Description & Results
	por.]	work recommended.
Rechtman 2009	Archaeological Assessment - Hilo Bay Front to Reed's Bay	No archaeological sites present.
Escott 2009	AA of 5.0 acres Waiākea Ahupua‘a [TMK: (3)-2-4-01:176]	No archaeological sites present.
Escott 2013	AIS of 4.4 Acres Waiākea Ahupua‘a [TMK: (3)-2-4-001:007]	A rock wall and rock clearing mound associated with sugarcane agriculture.
Clark *et al*. 2012	AIS of 9.4 Acres Waiākea Ahupua‘a [Kapi‘olani St. Extension]	Four Historic era sites including two drainage ditches, a rock mound, and the Hilo Dairy structure foundations.
Escott 2014 (Draft)	AIS of 42.6 Acres at UHH	Eighteen sugarcane agriculture and Hilo Diary sites recorded.

The above listed archaeological and historical investigations are instrumental to understanding broad patterns of land-use in the Hilo area (see McEldowney 1977, Kelly *et al.* 1981, Maly 1996), general trends in the distribution of formal archaeological features in the Hilo area (see Thrum 1907 and 1908, Hudson 1930, Smith 1991, Moniz 1992, Spear 1993), and for formulating archaeological expectations at the present project area (see Jensen 1991, Borthwick *et al.* 1993, Hunt and McDermott 1994, Spear 1995, Robins and Spear 1996, McGerty and Spear 1999, Dega 2000, Bush *et al.* 2000, McDermott and Hammatt 2001, Haun 2002, and Escott 2004).

REGIONAL ARCHAEOLOGICAL STUDIES

McEldowney (1979)

McEldowney (1979) provides an overview of changing land-use patterns in the Hilo area based on early historic accounts. She proposes that Hawaiians utilized land in accordance to five elevation zones (1979:14). Land-use zones are classified as (I) coastal, (II) upland agricultural, (III) lower forest, (IV) rainforest, and (V) sub alpine, or montane. The inhabitants of Waiākea *Ahupua‘a* had access to resources in all five of McEldowney’s zones.

The present project is situated in the upland agricultural zone (50 to 1,500 feet) described as unwooded grasslands and extensive dryland cultivation plots. McEldowney suggests this region was likely deforested prior to European contact through shifting agricultural practices such as swiddening. Site types consist of scattered houses adjacent to garden and arboreal plots on older *pāhoehoe* and *‘a‘ā* flows with well-developed soils. Modified lava tubes and tubes used for cultural practices are also common in the upland agricultural zone.

Smith (1991)

Smith (1991) also comments on site distribution in the *ahupua'a* of Waiākea based on Mauna Loa lava flows, including a portion of the 1880-1881 *pāhoehoe* flow, a *pāhoehoe* flow dating to 750-1,500 ybp, and a *pāhoehoe* flow dating to 5,000-10,000 ybp. He notes that the majority of sites are located on the older lava flow, which has deeper, more developed soils.

Kelly *et al*. (1991)

Kelly *et al*. (1991) also contributes to an historical understanding of changing land-use patterns following European involvement in the economy of Hawai'i. In particular, the regular use of Hilo Bay by foreign vessels, the whaling industry, the establishment of missions in the Hilo area, the introduction of the sandalwood trade, the legalization of private land ownership, the introduction of cattle ranching, and the introduction of sugarcane cultivation all brought about changes in settlement patterns and long-established land-use patterns. Hilo became a population center and settlements in outlying regions declined. While food was still grown for consumption, greater areas of land were continually given over to the specialized cultivation and processing of commercial foodstuffs for export. Sugarcane plantations and industrial facilities were established in areas that were once upland agricultural areas and coastal settlements.

Thrum (1907 and 1908), Hudson (1932), and Stokes and Dye (1991)

Thrum (1907 and 1908), Hudson (1932), and Stokes and Dye (1991) represent early archaeological efforts to document site distribution pertinent to the greater Hilo area. Hudson notes there were already no archaeological sites remaining in the city of Hilo by the early 1930s (Hudson 1932:236). All three authors note the dismantling of well-known *heiau* in the Hilo area (Thrum 1908:240, Hudson 1932:236, Stokes and Dye 1991:152).

INVESTIGATIONS SPECIFIC TO SUGARCANE AGRICULTURE

Several recent archaeological and historical investigations completed in the former Waiākea sugarcane lots that have direct bearing on the types and distribution of expected sites and features. The majority of these reports document historic-era sites on well-developed ash and organic soils overlaying a Mauna Loa *pāhoehoe* flow dating to 5,000-10,000 ybp. Sites are primarily the remains of sugarcane field clearing and in-field collection and processing architecture. The reports provide insight into predicting the types of sites located on former sugarcane lots.

Jensen 1991

PHRI conducted an archaeological inventory survey north of the present project area and identified only two sites. Only one of the two sites, SIHP 50-10-35-14947, the Hilo Boarding School and Old Mission Ditch, was recommended for further documentation and preservation. The second site, SIHP 50-10-35-14946, is an historic-era house site associated with sugarcane agriculture.

Haun 2002

Haun conducted a field inspection north of the present project and identified 15 sites with 25 component features. There were 19 rock mounds, a road, a low wall, a retaining wall, a terrace, and two platforms. The features all appear to be historic and related to sugarcane agriculture.

Hunt and McDermott (1994)

The initial archaeological investigations south and southeast of the present project area was an Archaeological Inventory Survey of the Pu'ainako Street Extension within Waiākea, Kūkūau 1 and 2, and Ponahawai *ahupua'a* conducted by Hunt and McDermott (1994) in 1992 and 1993. The study entailed historical background research, pedestrian survey, and limited subsurface testing.

The inventory survey report documents 13 sites (SIHP Sites 50-10-35-18911 to -18923) comprised of 88 individual features. All features were interpreted as dating from A.D. 1880 to 1950, and were interpreted as features associated with the cultivation and processing of sugarcane. Five test-units were excavated within several features and it was concluded that the lack of prehistoric artifacts and traditional subsurface features within them supported the interpretation that the features were historic in origin (Hunt and McDermott 1994:104). The inventory survey report recommended that data recovery be carried out at site complexes as additional excavation work "could potentially yield isolated traces of prehistoric use of the area, presumably for dryland agriculture" (Hunt and McDermott 1994:109-113). The report also recommended extensive archival research, a task later undertaken by Maly (1996).

Borthwick, Collins, Folk, and Hammatt (1993)

Cultural Surveys Hawaii conducted an archaeological on a 163-acre UH Hilo parcel adjacent to and southeast of the present study area. The report documents four historic sugarcane cultivation sites (SIHP Sites 50-10-35-18667 through 18670) comprised of seven features (one feature contains 25 clearing mounds), including walls, clearing mounds, enclosures, and a

remnant sugarcane field (Figure 10). Test-units contained no cultural material confirming their association with more recent sugarcane cultivation. No further work was recommended.

Maly (1996)

Kepa Maly's report combines the results of McEldowney (1979) with traditional Hawaiian history, early European accounts, previous archaeological work, and oral histories to document cultural and agricultural practices in Hilo and the *ahupua'a* of Waiākea. The report focuses on Hawaiian settlement and population expansion in the region of the present study area. Of particular interest is the description of bird snaring and mention of banana growing in the area of the present study (Maly 1996:6-8). Maly also documents the effect of sugarcane cultivation (Waiākea Mill Company operations from the 1870s to 1940s) on pre-Contact archaeological remains within the present project area. While some components of early Hawaiian sites might be incorporated in more modern archaeological features, the clearing of fields and the construction of collection and processing facilities have dismantled or obscured older archaeological sites (Kenneth Bell in Maly 1996:57). Informants who remembered the Waiākea sugarcane plantation fields stated that features such as stone mounds, ramped platforms, terraces, walls, enclosures, and berms (railway berms) were built in order to facilitate sugarcane cultivation and ranching.

Robins and Spear (1996)

Following Maly's (1996) work, SCS (Robins and Spear 1996) conducted an inventory survey on a narrow parcel of land south of the present study area. The project area covered four proposed road alignments for the Pu'ainako Street Extension project and reflected both an elongation and a lateral expansion of the original road alignment study (Hunt and McDermott 1994) from a 120 to 300-foot wide corridor.

The Robins and Spear survey documented the 30 architectural features associated with sites previously reported by Hunt and McDermott (SIHP Sites 50-10-35-18912, 18914, and 18919) as well as 16 additional features that were combined, with features taken by SHPD from SIHP Site 18919, to form a new site (SIHP Site 20681). Robins and Spear (1996:49-52) concluded that all 46 features, representing four sites, were associated with historic sugarcane activities based on the fact that all of the sites are located within or adjacent to known sugarcane fields, all features are representative of formal sugarcane field features, site structure is comparable to other known plantation sites and is atypical of traditional Hawaiian structures, and the documented sites contain historic-era artifacts that are specific to sugar plantation or ranching activities.

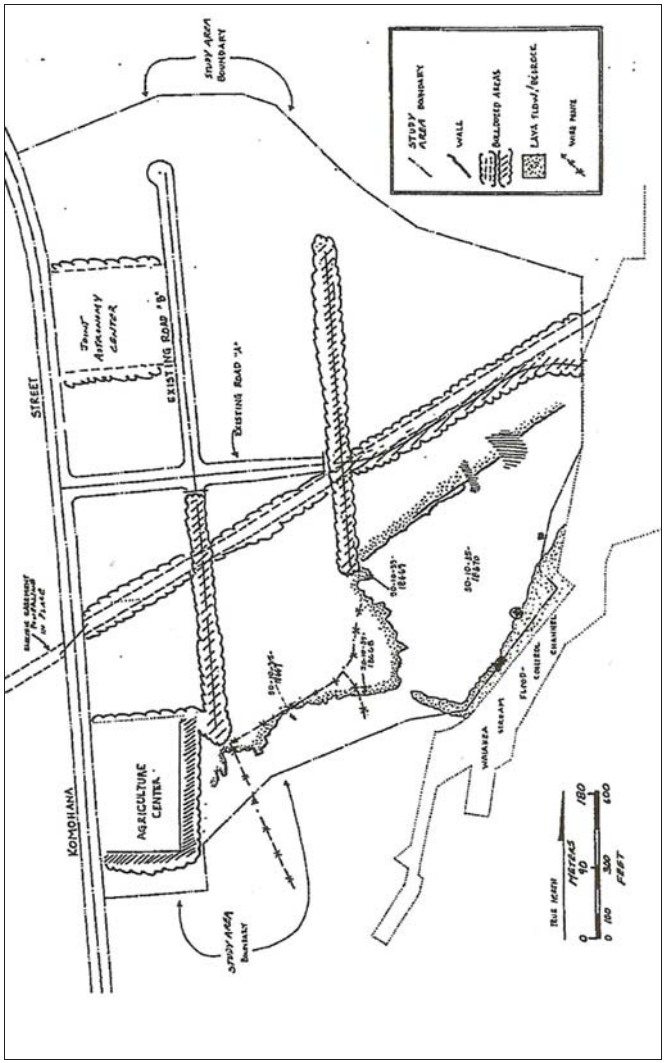

Figure 10: Location of CSH, Inc. Archaeological Sites (Borthwick *et al.* 1993).

No traditional Hawaiian components of modern features or pre-Contact artifacts were discovered during the inventory survey work. Robins and Spear (1996:53-56) recommended data recovery for eight sites within the corridor and concurred with SHPD in the preservation of several other sites.

Eblé, Denham, and Pantaleo (1997)

At the request of the Ho'oikaika Hawaiian Club (HHC), Garcia and Associates (Ganda) conducted supplemental archaeological excavations (reported in Eblé *et al.* 1997) at sites previously identified by Hunt and McDermott (1994). The purpose of the additional work was "to aid in the interpretation of site function and chronology, and to ensure that all cultural remains in the area have been sufficiently identified" (Eblé *et al.* 1997:1). The Hunt and McDermott survey had excavated only five units within 88 features and the sponsoring Hoʻ oikaika group deemed additional excavations necessary to support or refute the report's site age and function determinations. The supplemental archaeological work performed by Ganda was not considered an official stage in the State of Hawai'i historic preservation process but was deemed a supplemental aid to the previous study.

Seven test-units (typically 1.0 m by 1.0 m) were excavated within six sites previously mapped and recorded by Hunt and McDermott (1994). The sites included SIHP Site 50-10-35-18916, 18911, 18912, 18914, 18915, and 18917. The excavation units yielded historic artifacts such as metal and midden. Three samples of wood charcoal were submitted for radiocarbon testing and were dated to pre-Contact (traditional) and early historic times. The samples were considered problematic since they did not precisely date the architectural structures themselves but were taken from the soil matrix below features and were not associated with any subsurface features such as *'imu* or discrete hearths, for example. The report further concluded that all "intact evidence of pre-Contact occupation and/or activity in the project area has been disturbed or destroyed as a result of post-Contact period activity" (Eblé *et al.* 1997:53). The archaeological features examined as part of this supplemental project were interpreted as associated with sugarcane cultivation and processing, and reinforced the interpretations offered by Hunt and McDermott (1994), Maly (1996), and Robins and Spear (1996). The supplemental testing report recommended preservation for several sites (discussed below) (Eblé *et al.* 1997:56).

Rechtman and Henry (1998)

Paul H. Rosendahl, PhD., Inc. (PHRI) conducted an archaeological inventory survey of 40.0 acres at the University of Hawaiʻi at Hilo campus location. A total of 117 sugarcane era

features were recorded during the survey (Figure 11). Features included 102 rock mounds, seven single walls, five sets of parallel walls, and three enclosures. The features were assigned to Site 50-10-35-21461 and were interpreted as the remains of Historic era sugarcane agriculture.

Spear (1998)

An archaeological reconnaissance-level investigation was carried out by SCS along the western (*mauka*) portion of the Puʻainako Street Extension. Twenty-seven features were recorded during the reconnaissance survey and were associated with SIHP Site 50-10-35-18921 previously recorded by Hunt and McDermott (1994). Spear (1998) recommended that an inventory survey be conducted.

McGerty and Spear (1999)

The inventory survey work (McGerty and Spear 1999) generated as a result of the previous reconnaissance survey (Spear 1998) was listed as an addendum to the inventory survey report completed by Robins and Spear (1996). McGerty and Spear (1999) re-identified the features documented by Spear (1998) and recorded a total of 17 features. The number of features was reduced from 27 to 17 because several of the features documented during the reconnaissance survey were combined into more discrete feature designations or were assessed as not being archaeological features. All 17 features were assigned to SIHP Site 18921 and 15 of them were interpreted as features associated with historic sugarcane activities cultivation and processing. The inventory survey report notes that SIHP Site 18921 is located on former Waiākea Sugar Company cane fields (Conde and Best 1973:120, as cited in McGerty and Spear 1999:23).

Based on information provided in an interview, two features (Feature 1 and Feature 11) were interpreted as remnants of a modern pasture or piggery (Robins and Spear 1996:42, McGerty and Spear 1999:5). The inventory survey report (McGerty and Spear 1999:25) concurred with Hunt and McDermott (1994:112) that the site was significant under Criterion D and recommended a data recovery investigation.

Dega and Benson (1999)

In August 1999, SCS conducted a reconnaissance-level survey (Dega and Benson 1999) along the proposed Puainako Street Extension corridor. The survey was performed within a short, expanded section of the highway (western end) occurring just to the south, and partially overlapping the reconnaissance survey area documented in Spear (1998), and the inventory survey work reported in McGerty and Spear (1999). The project area was approximately 1.0

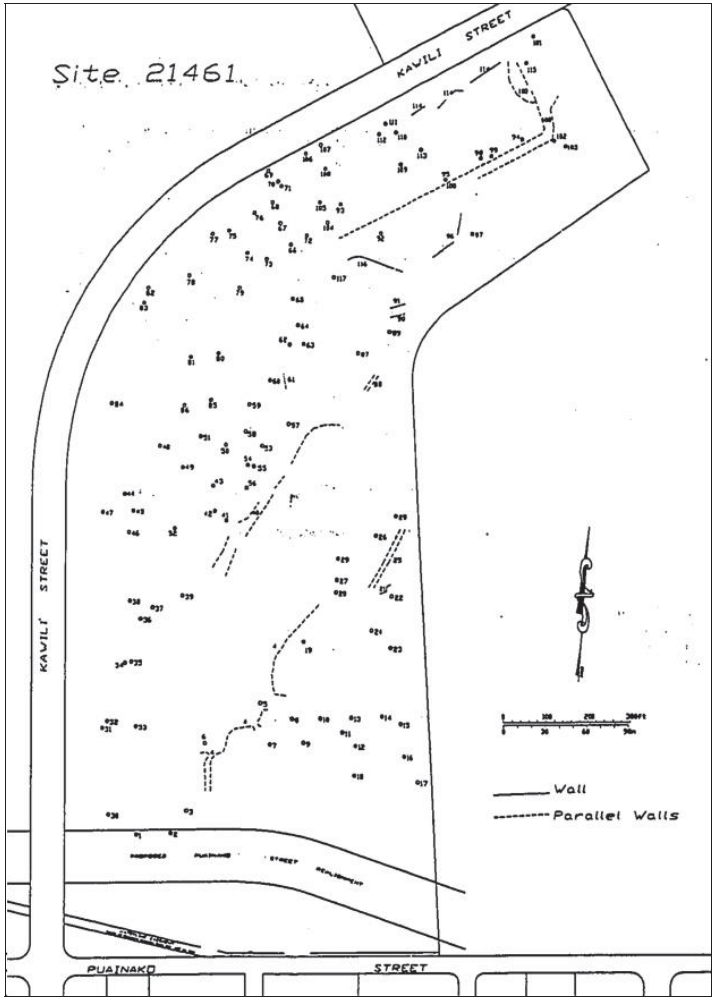

Figure 11: Distribution of Archaeological Features Identified in Rechtman and Henry 1998.

mile long (east-west) and 300 feet wide (north-south) and was situated from 0.40 km to 2.5 km south of Kaumana Drive at the study corridor's western and eastern termini.

Eight archaeological sites were identified within the western border of the project area. Eighteen features were documented including 12 rock mounds, two platforms, two walls, one alignment, and one stone-lined *'auwai*, or water channel. Seventeen features were interpreted as related to historic sugarcane cultivation and processing, a similar interpretation to that presented previously (Hunt and McDermott 1994, Robins and Spear 1996, McGerty and Spear 1999).

One feature, a rock-lined *'auwai* or water channel, was interpreted as traditional (pre-Contact). The *'auwai* is situated parallel to and between several rock mounds associated with sugarcane cultivation but is suggestive of a traditional water channel because its width (0.80 m) is much smaller than channels typically used for sugarcane field irrigation. Secondly, the gravity-fed system was lined with small cobbles and not metal, as is commonly used in the construction of sugarcane water channels. Thirdly, the channel itself was not deep (average 0.10 m below rock surface) and had not been maintained for some time. Finally, the channel emptied onto a small alluvial plain that would have been well suited to small-scale irrigated taro cultivation. The Dega and Benson (1999) reconnaissance survey report recommended inventory survey work be carried out, including test-excavations within and near the *'auwai* feature.

Dega (2000)

SCS conducted an inventory survey to complete the reconnaissance-level survey reported by Dega and Benson (1999) at SIHP Site 50-10-35-18921. Eight features were documented, two previously recorded by Spear (1998) or during the Dega and Benson (1999) reconnaissance survey. Features included walls, clearing mounds, rock alignments, a platform, and a stone-lined *'auwai*. Four stratigraphic trenches were mechanically excavated in and around the *'auwai* feature. Trenches were typical 1.80 meters wide and totaled 17 meters in length. The *'auwai* was reinterpreted as an historical sugarcane field irrigation ditch due to a lack of stones lining its bottom as is common in traditional Hawaiian *'auwai*. No evidence was found to substantiate the presence of a *lo'i* associated with the irrigation ditch.

Bush, McDermott, and Hammatt (2000)

Cultural Surveys Hawaii carried out an inventory survey of a 20-acre parcel for the proposed USDA Pacific Basin Research Center. A single human femur was located in an overhang within a collapsed lava blister or lava tube. The site (SIHP Site 50-10-35-22080) was designated a burial and recommended for preservation.

McDermott and Hammatt (2001)

Cultural Surveys Hawaii carried out an additional inventory survey of a 10-acre parcel (adjacent to and west of the 2000 study area) for the proposed USDA Pacific Basin Research Center. Two post-Contact sites comprised of two features were documented. SIHP Site 50-10-35-22734 consisted of a modified outcrop and SIHP Site 50-10-35-22735 consisted of a stacked stone causeway. No further work was recommended at both sites.

Escott (2004)

Sixteen new sites (80 features) and three previously recorded sites were recorded during inventory survey work conducted on lands along the west side of Komohana Street. Eleven of the sites on the project area were associated with Historic-era sugarcane agriculture, three were associated with WWII military training activities, one was associated with Historic-era ranching, and four were associated with Historic-era dirt roads. None of the sites were recommended for preservation, two of the military sites were recommended for data recovery, and the seventeen remaining sites required no further work.

Calma and Wolforth (2007)

Scientific Consulting Services, Inc. conducted an archaeological inventory survey on 5.22 acres of UH-Hilo for the College of Pharmacy. The project area is immediately south of the current project area, and is within the Borthwick *et al*. 1993 project area. A single site consisting of six rock clearing mounds associated with sugarcane agriculture were identified within the project area. No further work was recommended for the rock mounds.

Escott (2009)

SCS, Inc. conducted and archaeological assessment of a five-acre parcel of land along Mohouli Extension. No archaeological sites or features were located on the current project area parcel. The entire 5.0-acre parcel is completely covered by pahoehoe lava from the 1880 to 1881 flow. The recent lava flow also prevented modern sugarcane or other agricultural pursuits. No cultural resources, modern structures, or modern disturbance were identified on the study parcel.

Escott (2013)

SCS, Inc. conducted an archaeological inventory survey of 4.8 acres located at the University of Hawai‘i at Hilo, just north of the are surveyed by Wolforth and Calma (2007). A sugarcane era rock clearing mound (Site 50-10-35-28818) and historic era wall (Site 50-10-35-28817) were documented during the inventory survey work.

Escott (2014a)

SCS, Inc. conducted an archaeological inventory survey on 42.6 acres of land next to the University of Hawai‘i at Hilo Campus [TMK: (3) 2-4-001:024 and (3) 2-4-056:014]. Eighteen new sites and a previously recorded site (Site 50-10-35-29373) comprising 68 features were recorded during the course of the current archaeological inventory survey. The vast majority of sites within the study area were associated with historic era sugarcane cultivation, ranching, or the Hilo Dairy facilities. None of the sites were interpreted as pre-Contact.

All of the archaeological features (n=68) identified during the study were remains of historic era sugarcane, ranching, and a dairy operation. The majority of features were modified outcrops (n=27) created by piling and stacking cobbles and small boulders onto exposed bedrock outcrops. The remaining features were field clearing rock mounds (n=25) associated with sugarcane agriculture, concrete foundations and structural remains associated with the Hilo Dairy (n=10), rock walls (n=3), fence posts (n=2), and a rock alignment (n=1).

INVESTIGATIONS CLOSE TO THE STUDY AREA

Dircks *et al*. 2008

Rechtman Consulting, LLC conducted an archaeological inventory survey on approximately four acres [TMK: (3) 2-4-012: 016 and 017] located 1.5 km northwest of the current project area (see Figure 9). Four Historic Period sites were recorded during the study, including a clearing mound (Site 50-10-35-26470), an enclosure/workshop (Site 26471), and two rock walls (Site 26472 and Site 26473) (Dircks *et al*. 2008:10-17). The sites were interpreted as the result of sugarcane agriculture. No further work was recommended at the four sites.

Escott (2014b)

SCS, Inc. conducted an archaeological inventory survey (AIS) of the 2.0-acre proposed fire station project area. Two archaeological sites (Site 50-10-35-30039 and Site 50-10-35-30040) consisting of four rock mound features were identified within the current 2.0 acre project area (Figures 12 through 15). The rock mounds were constructed of rocks piled loosely on the ground surface and on an exposed bedrock outcrop. Modern glass bottle fragments were recovered from a stratigraphic trench excavated through the center of a rock mound. The rock mounds are interpreted as sugarcane field clearing mounds based on archival research of previous land-use, based on the style of feature construction, and based on excavation results.

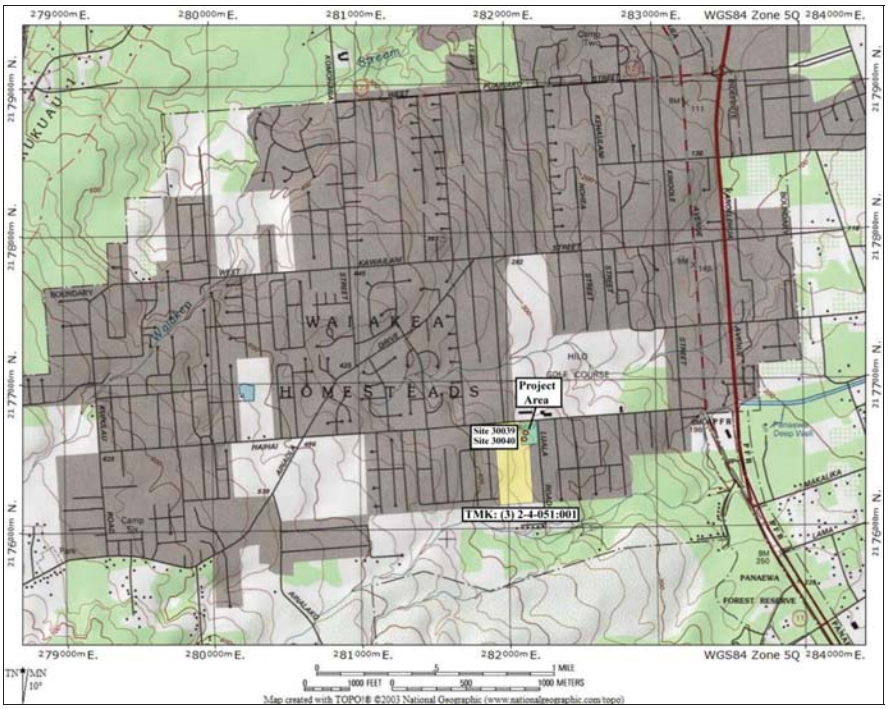

Figure 12: 7.5-Minute Series USGS Topographic Map Showing Location of Archaeological Sites (Hilo, Quad, National Geographic Topo, 2003).

Figure 13: TMK: (3) 2-4-051 Map Showing Location of Archaeological sites (Hawai‘i County Planning Department 2013).

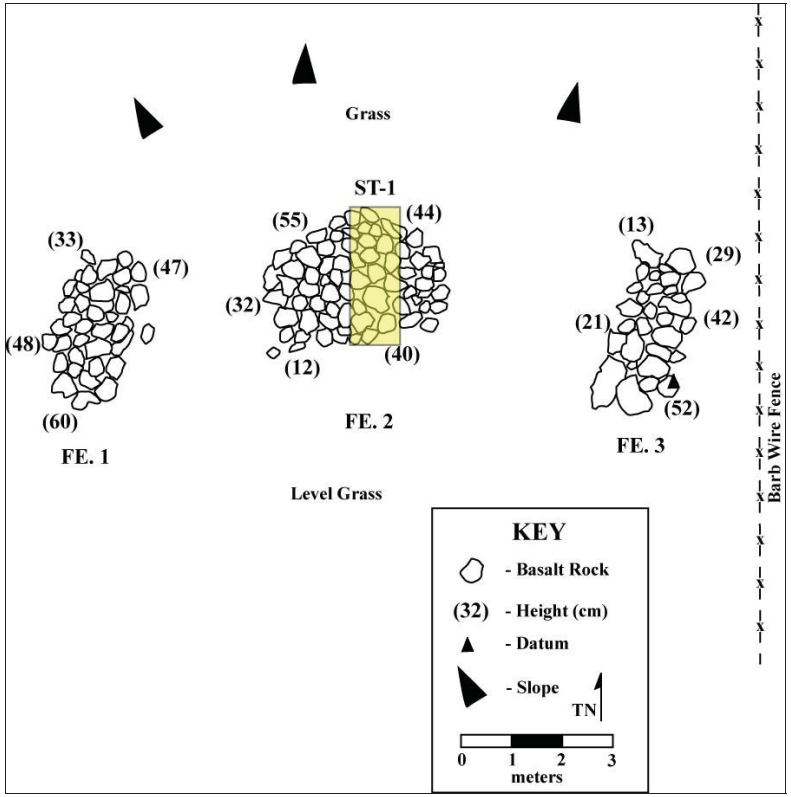

Figure 14: Site 30039 Plan View.

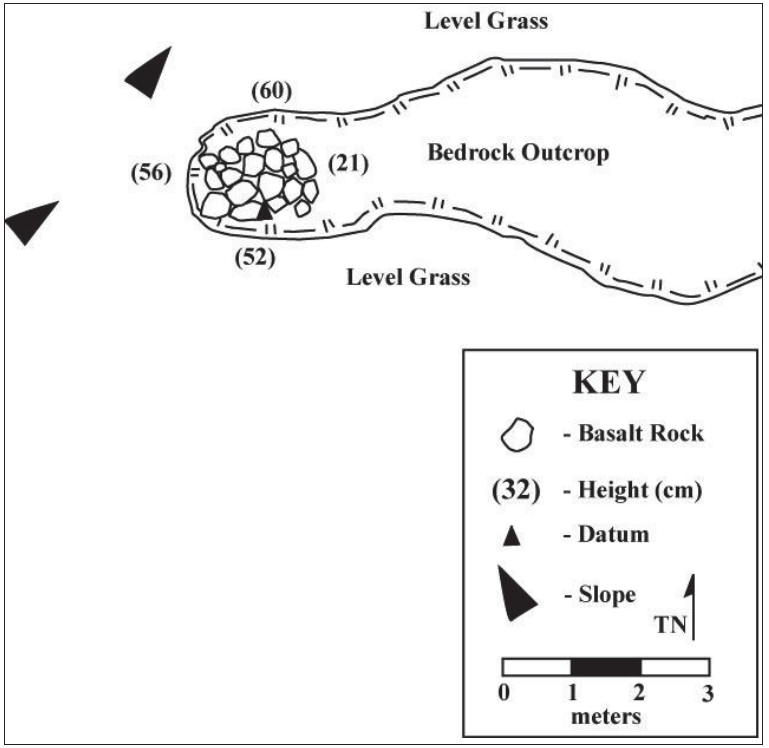

Figure 15: Site 30040 Plan View.

CULTURAL INFORMANT INTERVIEWS

SCS, Inc contacted eight individuals who either work for the Office of Hawaiian Affairs, are the SHPD Burial Sites Specialist (HIBC), are familiar with the project area lands through cultural, professional, or historical work, or are long-time residents of the area (Table 3). None of the individuals were aware of past or ongoing cultural activities conducted on the subject parcels.

Table 3: Individuals Responding to CIA.

Name	Affiliation	Responded	Has Knowledge	Cultural Practices
Kai Markell	Office of Hawaiian Affairs	No	-	-
Robert K. Lindsey, Jr.	Office of Hawaiian Affairs	Yes	Yes	No
Kauanoe Hoomanawanui	SHPD Burial Sites Program	No	-	-
Kimo Lee Jr.	Chairman, HIBC	No	-	-
Rick Gmirkin	Ala Kahakai NHT, NPS	Yes	Yes	No
William Brown	Pana'ewa Hawaiian Homelands Community Association	Yes	Yes	No
Patrick L. Kahawaiola'a	Keaukaha-Pana'ewa Farmers Association	Yes	Yes	No
Mike Tulang	Property Lessee	Yes	Yes	No

SUMMARY

The "level of effort undertaken" to identify potential effect by a project to cultural resources, places or beliefs (OEQC 1997) has not been officially defined and is left up to the investigator. A good faith effort can mean contacting agencies by letter, interviewing people who may be affected by the project or who know its history, research identifying sensitive areas and previous land use, holding meetings in which the public is invited to testify, notifying the community through the media, and other appropriate strategies based on the type of project being proposed and its impact potential.

In the case of the present parcel, letters of inquiry were sent to organizations whose expertise would include the project area. Consultation was sought from Kai Markell, the Director of Native Rights, Land and Culture, Office of Hawaiian Affairs; Robert K. Lindsey, Jr., Office of Hawaiian Affairs Hawai'i Island Trustee; Kauanoe Hoomanawanui, SHPD Burial Sites Specialist; Kino Lee, Jr. Chairman of the Hawai'i Island Burial Council; Rick Gmirkin, Ala Kahakai National Historic Trail, NPS Archaeologist; Patrick L. Hahawaiolaa; Keaukaha-

Pana'ewa Farmers Association; William "Bill" Brown, Pana'ewa Hawaiian Homelands Community Association; and Mike Tulang, property lessee and cattle rancher. Inquiries were also made to members of the community who are familiar with the project area lands through cultural, professional, or historical work, or are long-time residents of the area.

Public notices were published in the Office of Hawaiian Affairs Ka Wai Ola Newspaper, and were published in the Honolulu Star Advertiser and the Tribune Herald.

Historical and cultural source materials were extensively used and can be found listed in the References Cited portion of the report. Such scholars as I'i, Kamakau, Chinen, Kame'eleihiwa, Fornander, Kuykendall, Kelly, Handy and Handy, Puku'i and Elbert, Thrum, and Cordy have contributed, and continue to contribute to our knowledge and understanding of Hawai'i, past and present. The works of these and other authors were consulted and incorporated in the report where appropriate. Land use document research was supplied by the Waihona 'Aina 2007 Data Base.

CIA INQUIRY RESPONSE

As suggested in the "Guidelines for Accessing Cultural Impacts" (OEQC 1997), CIAs incorporating personal interviews should include ethnographic and oral history interview procedures, circumstances attending the interviews, as well as the results of this consultation. It is also permissible to include organizations with individuals familiar with cultural practices and features associated with the project area.

As stated above, consultation was sought from Kai Markell, the Director of Native Rights, Land and Culture, Office of Hawaiian Affairs; Robert K. Lindsey, Jr., Office of Hawaiian Affairs Hawai'i Island Trustee; Kauanoe Hoomanawanui, SHPD Burial Sites Specialist; Kino Lee, Jr. Chairman of the Hawai'i Island Burial Council; Rick Gmirkin, Ala Kahakai National Historic Trail, NPS Archaeologist; Patrick L. Hahawaiolaa; Keaukaha-Pana'ewa Farmers Association; William "Bill" Brown, Pana'ewa Hawaiian Homelands Community Association; and Mike Tulang, property lessee and cattle rancher. None of the organizations or individuals that responded were aware of ongoing or past cultural resources or practices associated with lands of the project area. Those individuals who had knowledge of the project area lands responded that they were not aware of any cultural resources or ongoing cultural practices or beliefs associated with those lands.

Analysis of the potential effect of the project on cultural resources, practices or beliefs, its potential to isolate cultural resources, practices or beliefs from their setting, and the potential of the project to introduce elements which may alter the setting in which cultural practices take place is a requirement of the OEQC (No. 10, 1997). To our knowledge, the project area has not been used for traditional cultural purposes within recent times. Based on historical research and the responses from the above listed contacts, it is reasonable to conclude that Hawaiian rights related to gathering, access or other customary activities within the project area will not be affected and there will be no direct adverse effect upon cultural practices or beliefs. There will be no visual impact of the project from surrounding vantage points.

CULTURAL ASSESSMEMNT

Based on the results of a pedestrian survey of the project area, the results of previous archaeological studies, as well as organizational response, individual cultural informant responses, and archival research, it is reasonable to conclude that, pursuant to Act 50, the exercise of native Hawaiian rights, or any ethnic group, related to gathering, access or other customary activities will not be affected by development activities on this parcel. No cultural activities were identified within the project area, and the proposed undertaking will not produce adverse effects to any native Hawaiian cultural practices.

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Appendix F

TRAFFIC ASSESSMENT REPORT

FEHR PEERS

March 10, 2014

Mr. Glenn Yokotake
Sustainable Design Leader
KYA Design Group
934 Pumehana Street
Honolulu, Hawaii 96815

Subject: ***Transportation Assessment for the Proposed Fire Station on Haihai Street in Hilo***

Dear Mr. Yokotake,

Fehr & Peers has completed a transportation assessment for the proposed fire station to be located on Haihai Street in Hilo on the island of Hawaii. Our transportation assessment for the proposed project site includes a review of site access and on-site circulation to ensure that safe and efficient access is provided in and around the site without creating potential vehicle conflicts. County of Hawaii staff indicated that a comprehensive transportation impact analysis report (TIAR) is not required due to the anticipated low vehicle trip generation. This letter presents a description of the project followed by the assessment.

Project Description and Background

Proposed Project

The proposed project is a new fire station to be located on an approximate two-acre site on Haihai Street in Hilo. The existing site is vacant and bounded by Haihai Street on the north, Laula Road on the east side, and will be bound by additional vacant land on the south and west sides. It will be located directly across from the Hilo Municipal Golf Course parking lot at the southwest corner of the Haihai Street/Laula Street intersection. The fire station will serve the community of central Hilo and is expected to enhance service and reduce emergency response times. The project's January 26, 2014 site plan was prepared by PBR Hawaii & Associates and is illustrated on Figure 1.

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Existing Roadway Network

Regional access to the project site is provided by Kanoelehua Avenue (Route 11), while local access is provided by both Haihai Street and Laula Street. The following describes the key roadways in the project vicinity:

Kanoelehua Avenue (Route 11) is a four-lane divided highway, also designated as Mamalahoa Highway, which extends through Hilo and is part of a network of roadways that encircles the island of Hawaii. This highway is located approximately one mile makai of the project site. Access to Mamalahoa Highway from the project site is provided via two un-signalized side-street stop intersections: 1) on Kilauea Avenue south of Haihai Street and 2) via E Palai Street and Kilauea Avenue (north of Haihai Street). It has a posted speed limit of 55 mph south of Kilauea Avenue and transitions to a reduced speed of 35 mph approximately half a mile north of Kilauea Avenue.

Haihai Street is a two-lane roadway that extends westerly from Kilauea Avenue to Kupulau Road. Haihai Street provides direct access to the Hilo Municipal Golf Course and surrounding neighborhoods. Most intersections on Haihai Street are un-signalized side-street stop intersections; the nearest signalized intersection is a little less than a mile mauka of the project site, at Ainaola Drive. In the immediate vicinity of the site, Haihai Street has a posted speed limit of 35 miles per hour (mph) and lane widths of approximately 10 feet. This roadway currently does not provide a paved sidewalk in either direction, however an eight- to nine-foot shoulder is provided on the north side of the street along most of the golf course frontage. On either side of the golf course, the shoulder on the north side is three feet or less. A driveway serving the golf course is located approximately 320 feet mauka of Laula Street.

Laula Road is a two-lane undivided north-south cul-de-sac street that forms the eastern boundary of the project site and terminates about 2,215 feet south of Haihai Street. Similar to other streets in the area, this roadway does not include any formal sidewalks or shoulders and it has homes that front on its makai and mauka side. The northern end of Laula Street intersects Haihai Street opposite the golf course's exit driveway and both the Laula Street and golf course driveway approaches are stop controlled.

Planned Roadway Improvements

Iwalani Street is a north-south street located approximately 450 west of the western edge of the site. This street is planned to be extended south of its existing terminus at Haihai Street and then

west to connect to Komohana Street (approximately a one-mile extension in total). While this extension will increase neighborhood connectivity and will affect turning movement volumes at the Iwalani Street/Haihai Street intersection, it is not expected to substantially affect volumes and traffic operations on Haihai Street in front of the project site.

Trip Generation and Transportation Assessment Requirements

Fire stations are typically expected to generate a negligible number of vehicle trips at any one time that are intermittently distributed throughout the day in response to emergency calls. Vehicle trips are generated by emergency personnel traveling to and from the site in their personal vehicles during shift changes, by emergency vehicles responding to calls, and by visitors to the station. All of these trips do not occur at one time, and the maximum total trip generation during any single hour of the day is estimated to be less than 20 one-way trips for all trip types, and in most cases, only a minimal number of trips would occur during peak commute periods (between 6:00am and 9:00am and 2:30 pm and 5:30pm). Consequently, given the project's substantially low trip generation, the project is not anticipated to trigger a significant traffic impact at any of the adjacent roadways or intersections.

The County of Hawaii Department of Public Works-Traffic Division uses a 50-trip peak hour threshold as the minimum volume to establish the need for a comprehensive transportation impact analysis report (TIAR). For volumes below this threshold, County staff typically requires an assessment of traffic and other modes to ensure appropriate access and circulation. As such, this approach was applied to the proposed fire station.

Site Access and Vehicle Circulation

Based on the site plan provided by PBR Hawaii & Associates, the proposed project includes six visitor parking stalls in the northwest corner of the site, and 17 staff parking stalls behind the fire station in the southwest corner; resulting in a total of 23 parking stalls on site.

The proposed site plan includes two access points: one north driveway on Haihai Street and one east driveway on Laula Street. Emergency service vehicles will enter the project site from Laula Street and exit via Haihai Street. The Haihai Street project driveway will be located in between the two Hilo Municipal Golf Course driveways, and will be centered approximately 130 feet mauka of Laula Street. This driveway will provide full access to visitors and exiting emergency service vehicles. The Laula Road driveway will be located approximately 280 feet south of Haihai Street

and will provide full access to staff members and entering emergency service vehicles. This proposed layout is preferred as there will be no conflict of emergency vehicles entering or exiting the same driveway at the same time, and emergency vehicles will be able to pull into the station without having to back up on any public street.

The major site access issue for a fire station is the exiting of vehicles from the station during an emergency response. Responses can range from a single paramedic unit or ambulance to multiple engines and trucks departing the site at one time. When fire/emergency vehicles leave the station, it is important that vehicles on the adjacent street (in this case Haihai Street) stop so that emergency response is not impeded.

To facilitate this movement and to properly notify drivers on Haihai Street, we recommend installation of a set of beacons and signs warning drivers of exiting traffic from the station and requiring them to stop on Haihai Street in both directions. Various types of installations are possible from side mounted signs and beacons to an overhead mounted system. The beacons would activate from within the fire station during an emergency response and could be solar powered to minimize the need for electric infrastructure to the installed lights. In addition, a "Keep Clear" designation with stop bars should be striped on the street. The bars should be striped a minimum of 20 feet beyond the edges of the driveway on Haihai Street.

Sight Distance Evaluation

The proposed project will include a project driveway on Haihai Street which will serve visitors and exiting emergency vehicles. With access points on public streets, it is important to determine if the visibility will be adequate for drivers of vehicles turning out of the site and viewing approaching traffic. This determination is accomplished by reviewing the minimum stopping sight distance for vehicles turning onto Haihai Street. Stopping sight distance is defined as the distance required by the driver of a vehicle, traveling at a given speed, to bring the vehicle to a stop after an object on the road becomes visible.

The posted speed limit on Haihai Street is 35 miles per hour. The design speed of a roadway is typically five miles per hour higher than the posted speed, resulting in an estimated design speed of 40 miles per hour for this facility.

According to the *A Policy on Geometric Design of highways and Streets* (American Association of State Highway and Transportation Officials), the minimum stopping sight distance for a design

speed of 40 miles per hour is 305 feet. The sight line from the Haihai Street project driveway is presented in Figure 2 and depicts the line of sight from a driver's view (15 feet behind the edge of the traveled way) to the point where a westbound or eastbound vehicle on Haihai Street would enter their view. To maintain adequate sight distance, all obstructions within the colored sight triangle on Figure 2 must be less than 2.5 feet above grade to ensure that a vehicle traveling westbound or eastbound on Haihai Street is visible by a driver exiting the site driveway.

Elimination of all visual obstructions includes tree trunks and other natural vegetation that could impede vision. Given that the eye height of drivers of fire engines is substantially higher (assumed to be 7.5 feet) than that of a driver in a passenger vehicle (assumed to be 3.5 feet), all branches of trees within the sight distance triangle should be pruned to no less than 10 feet above the ground.

Stopping sight distance is the minimum viewing distance required in urbanized areas and is often the minimum distance that can reasonably be achieved without requiring the removal of structures, major landscaping features, etc. The AAHSTO publication also describes intersection sight distance, which is a greater desired distance that allows vehicles turning out of a side street or driveway approach to make their maneuver without significantly impeding the flow of traffic on the adjacent street. However, these distances are substantially longer and would result in much greater vegetation removal. For this study, the intersection sight distance is 560 feet for vehicles turning left and 500 feet for right turns, where left-turning vehicles must cross the opposing traffic lane as part of the turn. These distances are based on the single-unit truck time gap values which are intended to reflect the size of the station's fire engines. County of Hawaii Department of Public Works staff will make the final determination on the need for providing intersection sight distance beyond the minimum stopping sight distance.

Summary of Findings

Based on this evaluation, the proposed fire station is not expected to result in any significant traffic impacts to the adjacent roadway system. The planned extension of Iwalani Street will be located approximately 450 feet west of the project site and is not expected to be affected by project implementation. The on-site circulation layout and the low peak hour trip generation indicate that there will be negligible vehicle queuing and delays at the parking lot driveways on both Haihai Street and Laula Road, and no street modifications are recommended.

As stated previously, objects within the sight line of drivers exiting onto Haihai Street must be less than 2.5 feet or greater than 10 feet above grade to maintain adequate stopping sight distance. We recommend that a "Keep Clear" designation be striped on Haihai Street along the frontage of the project driveway to define an area for emergency vehicles to exit the facility efficiently during emergency responses. This will help emergency vehicles exit the building without having to drive around queued vehicles.

Additionally, we recommend implementing a visible and audible warning feature on Haihai Street for approaching traffic. The warning installation could include either an overhead or side mounted beacon in each direction that would be activated when an emergency service vehicle exits the driveway and warns drivers traveling on Haihai Street to slow down and stop during a response to an emergency call.

We appreciate the opportunity to assist the project team with this study. Please let us know if you have any questions on the information in this letter.

Sincerely,

FEHR & PEERS

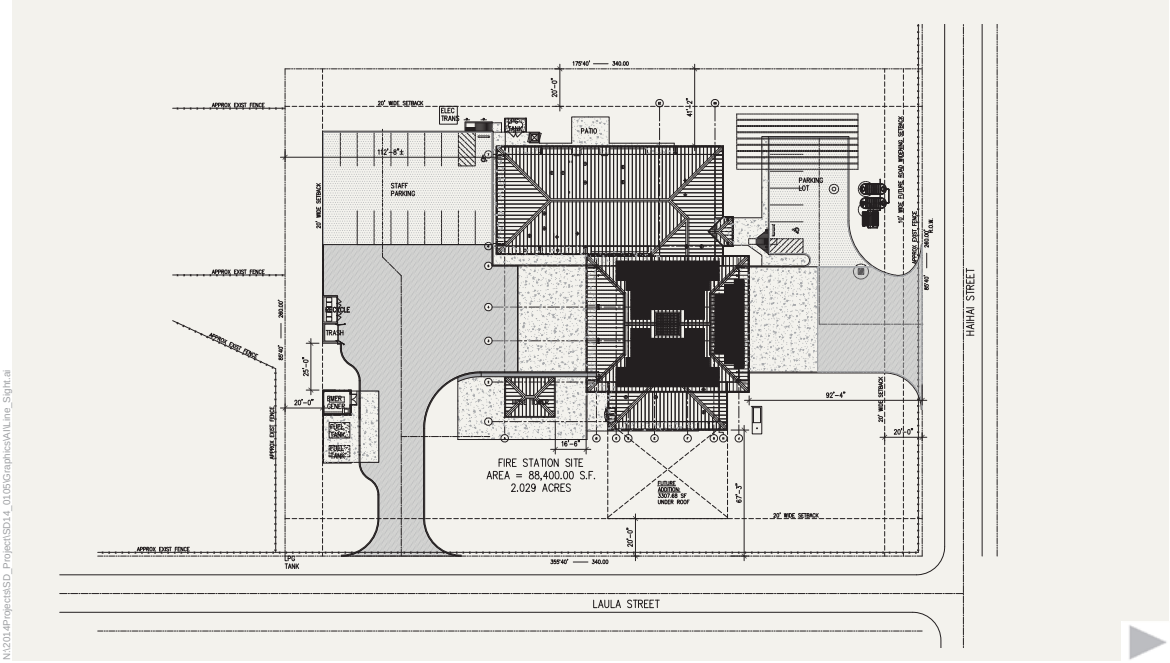
Sohrab Rashid, T.E.
Principal

Daleingrid Domingo
Transportation Engineer

Attachments:

Figure 1 – Site Plan

Figure 2 – Stopping Sight Distance



Source: PBR Hawaii & Associates, 2014

Figure 1
Site Plan

Figure 2
Stopping Sight Distance