NEIL ABERCROMBIE
GOVERNOR

BRUCE A. COPPA
COMPTROLLER

RYAN T. OKAHARA
DEPUTY COMPTROLLER

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

APR 21 2011

PM-1025.1

Mr. Gary Hooser
Director
Office of Environmental Quality Control
Department of Health
235 South Beretania Street, Room 702
Honolulu, Hawai'i 96813

Dear Mr. Hooser:

Subject: Draft Environmental Assessment (DEA)
DAGS Kona District Office
Baseyard
D.A.G.S. Job No. 61-10-0634
TMK: [3] 7-8-07:061, North Kona District, Hawai'i

The State of Hawai'i, Department of Accounting and General Services (DAGS), is proposing to construct a Kona District Office Baseyard at a 0.97-acre site on Hawai'i Belt Road (Kuakini Highway), North Kona District, Hawai'i. We have reviewed the enclosed Draft Environmental Assessment which was prepared in accordance with State of Hawai'i HRS Chapter 343, and anticipate a Finding of No Significant Impact (FONSI).

Please publish notice of availability of this Draft Environmental Assessment in the May 8, 2011, *OEQC Environmental Notice*.

We have enclosed a completed OEQC Publication Form, one hard copy of the Draft EA, one PDF copy on CD and the project summary on CD. Please call Ms. Gina Ichiyama at 586-0472 if you have any questions.

Very truly yours,

ERNEST Y.W. LAU
Public Works Administrator

GI/si
Encl.

DAGS

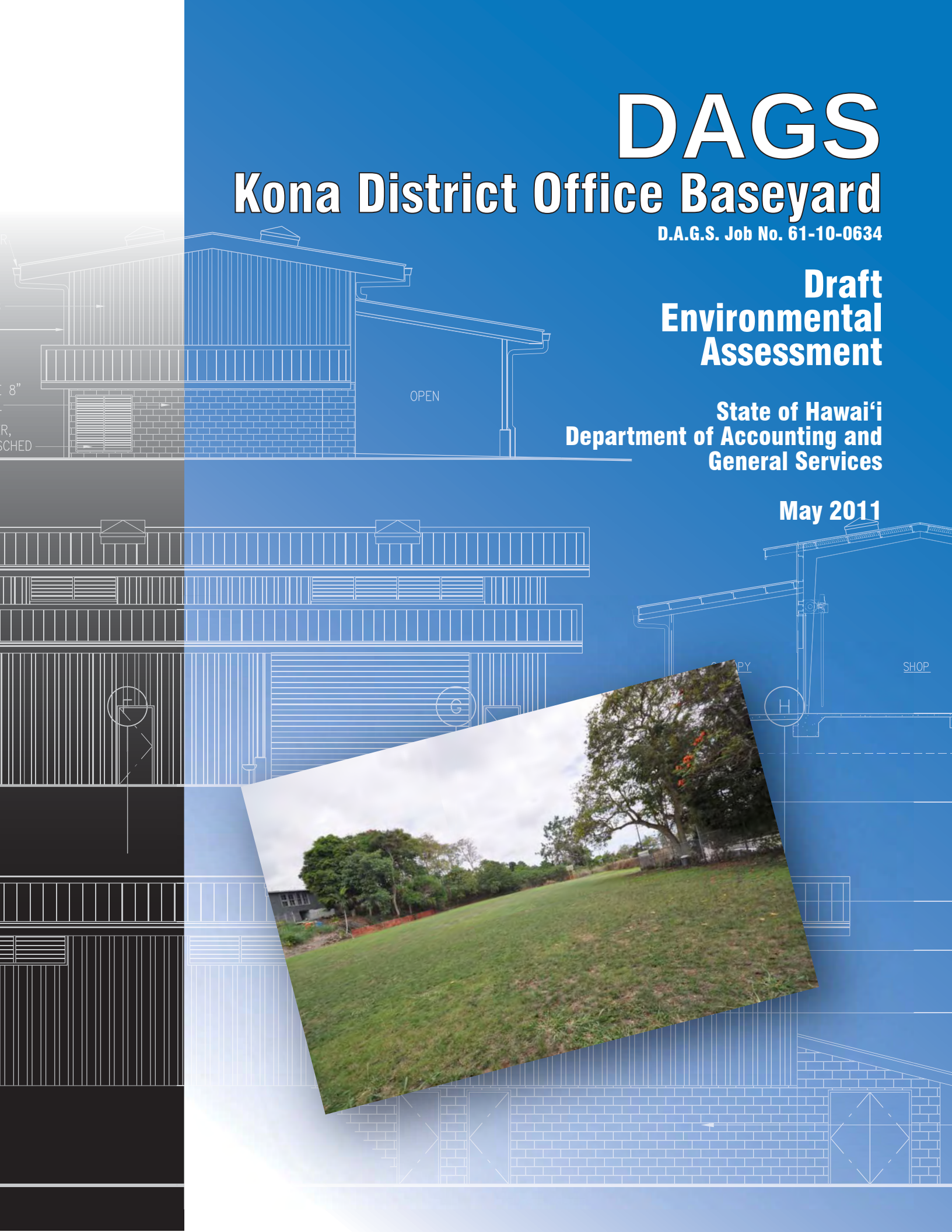
Kona District Office Baseyard

D.A.G.S. Job No. 61-10-0634

Draft Environmental Assessment

State of Hawai'i
Department of Accounting and General Services

May 2011



DAGS

Kona District Office Baseyard

D.A.G.S. Job No. 61-10-0634

Draft Environmental Assessment

State of Hawai'i
Department of Accounting and General Services

Prepared for:

Department of Accounting and General Services (DAGS)

Prepared by:

KIMURA INTERNATIONAL

For:

CDS INTERNATIONAL

May 2011

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B. Draft Archaeological Literature Review and Field Inspection for the Proposed DAGS Kona District Baseyard Project, Keauhou 1st Ahupua'a, North Kona District, Island of Hawai'i, TMK [3] 7-8-007:061, Cultural Surveys Hawai'i, December 2010

C. Letter Report dated February 28, 2011 regarding Evaluation of Traffic Impacts, Julian Ng, Inc.

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LIST OF ACRONYMS

BMP	Best Management Practices
CDP	Community Development Plan
dB	decibels
dBA	A-weighted sound level
DAGS	Department of Accounting and General Services
DLNR	Department of Land & Natural Resources
DOA	Department of Agriculture
DOE	Department of Education
DOH	Department of Health
DP	Development Plan
DWS	Department of Water Supply
EA	Environmental Assessment
EIS	Environmental Impact Statement
EMS	Emergency Medical Services
FEMA	Federal Emergency Management Agency
FIRM	Flood Insurance Rate Map
FONSI	Finding of No Significant Impact
GSF	gross square feet
HAR	Hawai‘i Administrative Rules
HCEOC	Hawai‘i County Economic Opportunity Council
HDOT	State of Hawai‘i Department of Transportation
HELCO	Hawai‘i Electric Light Company
HRS	Hawai‘i Revised Statutes
Leq	Equivalent Sound Level
Ldn	Day-Night Equivalent Sound Level
LUPAG	Land Use Pattern Allocation Guide
mgd	million gallons per day
NAAQS	National Ambient Air Quality Standards
NPDES	National Pollutant Discharge Elimination System
OHA	Office of Hawaiian Affairs
SHPD	State Historic Preservation Division
SMA	Special Management Area
TMK	tax map key

Project Summary

Item	Description
Project Name	**DAGS Kona District Office Baseyard** DAGS Job No. 61-10-0634
Proposing Agency	State of Hawai‘i, Department of Accounting and General Services (DAGS)
Accepting Agency	State of Hawai‘i, Department of Accounting and General Services
Anticipated Determination	Finding of No Significant Impact
Location	Keauhou 1st Ahupua‘a, North Kona District, Island of Hawai‘i
Tax Map Key	TMK [3] 7-8-07:061
Existing Uses	Vacant
Landowner	State of Hawai‘i
Need for Project	A new baseyard is needed for the Kona District to provide repair and maintenance service to State-owned facilities in West Hawai‘i. The existing baseyard, located in Captain Cook, is old and in very poor physical condition, and lacks adequate storage areas.
Project Description	Construct a new baseyard on a vacant, State-owned site on Highway 11, Hawai‘i Belt Road. The new baseyard will include a carpentry shop, paint shop, electrical shop, masonry shop, plumbing shop, and administrative offices. Access to the site will be off Hawai‘i Belt Road
Flood Insurance Rate Map	Unshaded Zone X, areas outside the 500-year/0.2% annual chance flood
State Land Use	Rural District
General Plan Land Use Pattern Allocation Guide (LUPAG)	Rural
Zoning	RA-0.5a, Residential Agricultural District with minimum lot size one-half acre.
Special Management Area (SMA)	Not within SMA

1 PROJECT DESCRIPTION

1.1 INTRODUCTION

The State of Hawai‘i Department of Accounting and General Services (DAGS) is proposing to construct a new Kona District Office Baseyard at a 0.97 acre site on Highway 11, Hawai‘i Belt Road (Kuakini Highway), Kona, Hawai‘i (Figures 1 and 2). The project is referred to as DAGS Job No. 61-10-0634.

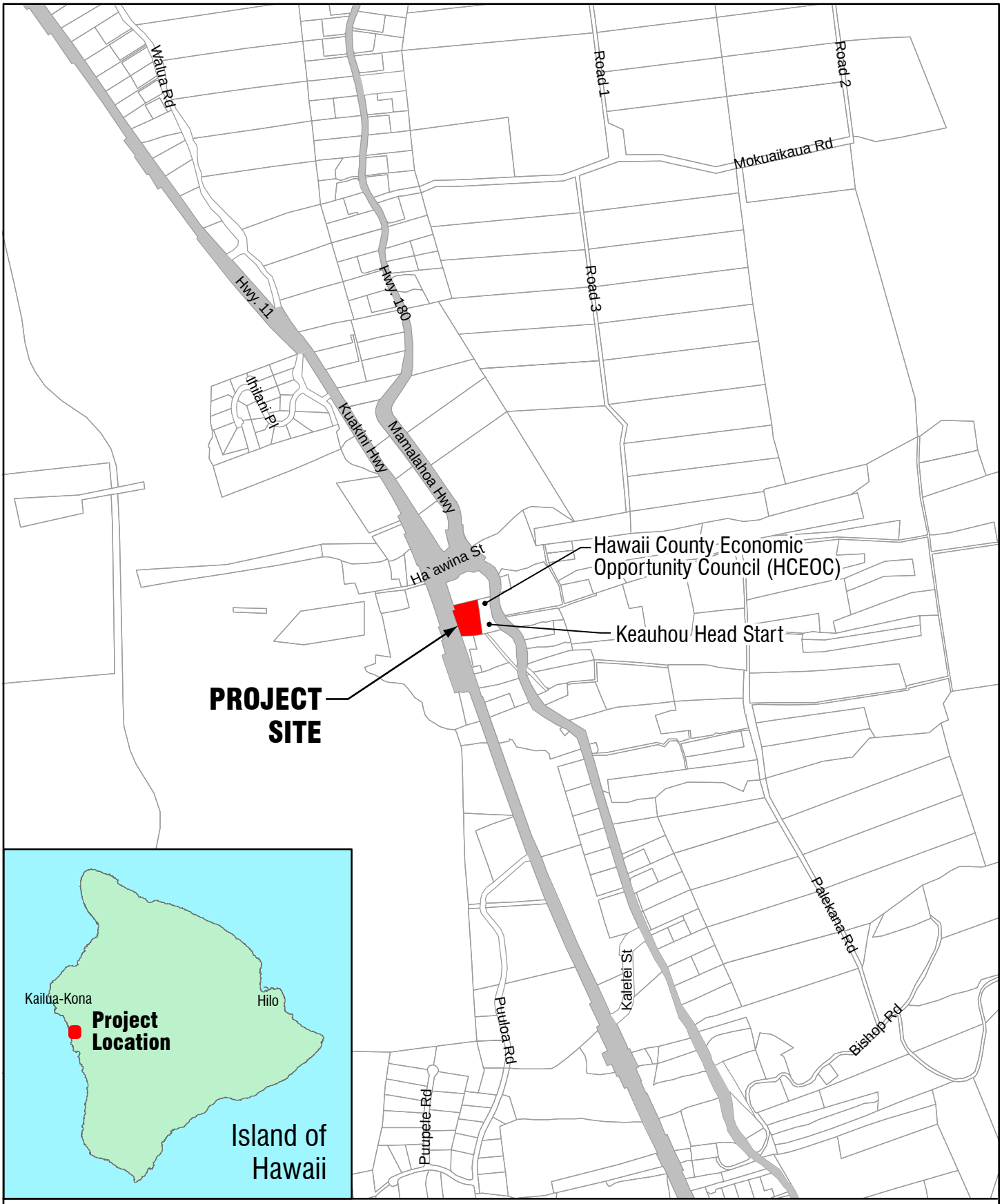
This Draft Environmental Assessment (EA) is being prepared in accordance with State of Hawai‘i (Hawai‘i Revised Statutes Chapter 343) environmental guidelines and requirements. The EA meets the requirements of Chapter 343, Hawai‘i Revised Statutes (HRS), Act 241, Session Laws of Hawai‘i (SLH) 1992, and Chapter 200 of Title 11, Department of Health (DOH) Administrative rules, “Environmental Impact Statement Rules.”

1.2 BACKGROUND AND NEED FOR PROJECT

The Department of Accounting and General Services, headed by the State Comptroller, is responsible for managing and supervising a wide range of State programs and activities. Among the responsibilities of the DAGS Public Works Division are maintenance and repair of State-owned office buildings, schools and libraries. On the Island of Hawai‘i, responsibility for these functions is divided into three geographic areas: the Hilo District Office baseyard, serving east Hawai‘i, the Honokaa-Kohala District Office serving Waimea and the Kohala coast, and the Kona District Office baseyard, serving west Hawai‘i.

The West Hawai‘i service area for the Kona District Office extends from Ho‘okena Elementary School in the south to Kealakehe High School in the north, as shown in Figure 3. The existing Kona baseyard is located at the former Napo‘opo‘o School, approximately 9.5 miles south of the project site, at 83-5775 Napo‘opo‘o Road, in Captain Cook. The baseyard utilizes several remaining buildings at this old school. The main school building is used for the plumbing, carpenter, electrical and paint shops, as well as administrative office space. Two former teacher’s cottages are used to store paint and scaffolding. The wooden buildings are nearly 100 years old, and are in very poor physical condition. The roofs of the structures are leaking, and equipment and materials inside must be covered for protection, and storage areas are inadequate. The buildings present a fire hazard. In addition, the location of the baseyard, down a steep hill off the main highway, raises safety and logistic issues associated with transport and delivery of materials, loading and unloading of supplies, etc. Finally, the baseyard is not centrally located within the West Hawai‘i service area.

The proposed Kona District Office baseyard will be constructed on a vacant, State-owned site on Hawai‘i Belt Road, centrally located within the service area. The property, identified as TMK [3] 7-8-07:61, was once the playing field for the old Keauhou Uka School in Holualoa. The former Keauhou Uka School buildings remain on an adjacent State-owned parcel (TMK [3] 7-8-07-28), located east (*mauka*) of the project site.



Environmental Assessment

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Scale in Feet

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FIGURE 1

LOCATION MAP

DAGS Kona District Baseyard

March 2011

Environmental Assessment

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NOT TO SCALE

FIGURE 2

AERIAL MAP

DAGS Kona District Baseyard

March 2011

Environmental Assessment

0 15,000

Scale in Feet

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FIGURE 3

DAGS WEST HAWAII SERVICE AREA

DAGS Kona District Baseyard

March 2011

One of the former Keauhou Uka School buildings is used as a Head Start child care center and the building on the north side houses the Hawai‘i County Economic Opportunity Council (HCEOC), a non-profit organization which operates a variety of public-funded social service programs. Vehicle access to these buildings is from Māmalahoa Highway, which runs parallel to Kuakini Highway. The buildings are located at a slightly higher elevation than the project site, and are separated from the former playing field by an earthen embankment.

The proposed baseyard site was set aside by the State of Hawai‘i Board of Land and Natural Resources for DAGS use for “Field Offices, Maintenance Baseyard and Related Purposes” pursuant to Executive Order No. 3821 dated August 24, 2000.

1.3 PROJECT OVERVIEW

The project will construct a new baseyard including a carpentry shop, paint shop, electrical shop, masonry shop, plumbing shop, and administrative offices. The baseyard office will be located at the western side of the rectangular-shaped site, fronting Hawai‘i Belt Road, Kuakini Highway. The shop buildings will be set back at the rear of the site, with a paved, service yard and parking area located between the main office and the shops. Access to the site will be through a single driveway on the south side of the parcel, off Hawai‘i Belt Road. The proposed site plan is presented in Figure 4.

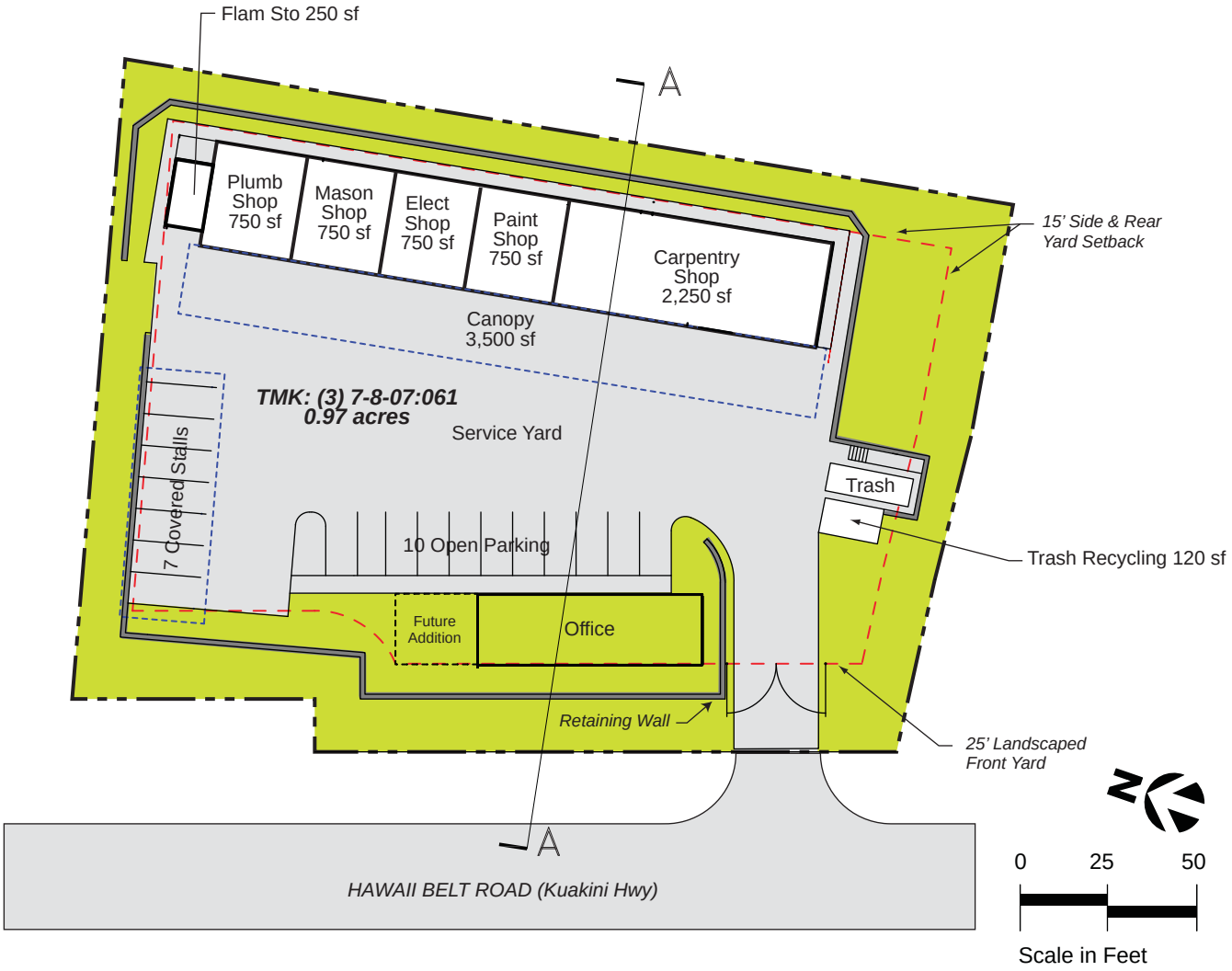
As shown in the site plan, an area on the north side of the office building is reserved for a future building addition, if needed. There is also a possibility that a future storage mezzanine could be added inside the proposed shop.

1.4 POSSIBLE ENVIRONMENTAL PERMITS AND APPROVALS

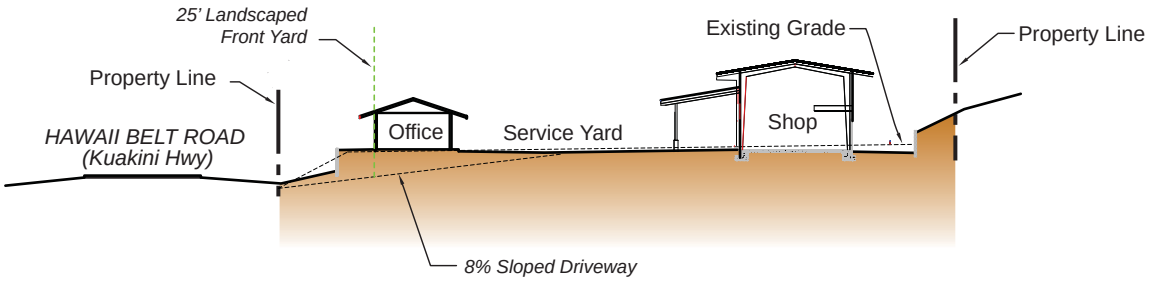
The following is a summary of environmental approvals and consultations that may be required for the proposed action. Chapter 4 includes a more detailed discussion of the project’s consistency with federal, State and local land use plans, policies and controls.

Table 1-1: Possible Environmental Permits and Approvals

Approval/Consultation	Agency
State of Hawai‘i	
Chapter 343 Hawai‘i Revised Statutes (*Environmental Assessment)*	Office of Environmental Quality Control
HRS Chapter 6E review (*Historic*)	Department of Land and Natural Resources, State Historic Preservation Division
Community noise permit and noise variance	Department of Health
Construction plan approval	Department of Health
Use and Occupancy Agreement	Department of Transportation
Construction plans approval	Disability Communication Access Board
County of Hawai‘i	
Construction, grading, and trenching permits	
Construction plan approval	



SITE PLAN



SITE SECTION A

FIGURE 4
SITE PLAN

DAGS Kona District Baseyard
March 2011

2 ALTERNATIVES INCLUDING THE PROPOSED ACTION

2.1 NO-ACTION ALTERNATIVE

The No-Action alternative would not construct a new Kona District baseyard. The existing baseyard at the old Napoʻopoʻo School in Captain Cook would continue to be used to support DAGS maintenance activities in West Hawaiʻi. The existing facilities are old and in very poor physical condition, with leaking roofs and inadequate space, affecting the efficiency of the maintenance operations. The use of the old wooden buildings would continue to present a fire hazard, jeopardizing the safety of workers, material and equipment, and potentially the neighboring landowners. The steep driveway would continue to pose logistical difficulties and contribute to worker safety issues. Under a no action alternative, the baseyard buildings would continue to deteriorate and eventually, become unsafe and unusable.

2.2 REPAIR OR RECONSTRUCT AT EXISTING BASEYARD SITE

This alternative would repair or reconstruct the existing baseyard facility located at 83-5775 Napoʻopoʻo Road in Captain Cook. The baseyard facility is part of the Old Napoʻopoʻo School, and the existing buildings are nearly 100 years old.

At present, the original school building is used for maintenance shops and office space, and two nearby teacher's cottages are used for storage. Given the age and poor physical condition of the existing wooden buildings, renovation would not be a cost effective option.

Existing DAGS Kona District Baseyard, at the former Napoʻopoʻo School in Captain Cook. The main school building is used for workshops and office space.

Demolition of the existing structures and reconstruction at the current site is another option that was considered. However both the site conditions and location are far from ideal. Captain Cook is located near the southern end of the West Hawai‘i service area, and a more central location within the large service area would be preferable. The baseyard’s location on Napo‘opo‘o Road is approximately 2.3 miles from the main road, Māmalahoa Highway, which also requires additional time to reach the main highway. The existing property is relatively steep at approximately 18% (overall) slope, and the driveway is unable to accommodate turn-around space for larger vehicles. Overall, a more level, buildable site at a centralized location with direct access to the highway was preferred.

Former teacher’s cottages used for paint and scaffolding storage.

Right: Carpentry shop

Below: Paint storage area and outdoor lumber storage shed

2.3 ALTERNATE SITES

According to DAGS, several other sites in West Hawai‘i were considered for the new baseyard. A State of Hawai‘i Department of Agriculture (DOA)-owned site near the intersection of Kuakini Hwy and Māmalahoa Highway was considered. DAGS had asked DOA permission to occupy this space since the space was not being used. However, the DOA denied DAGS's request as a food bank was already scheduled to operate there.

Another site near Kealakehe High School was considered, but after further analysis, it was decided that the location was too far north. A more centralized location was sought.

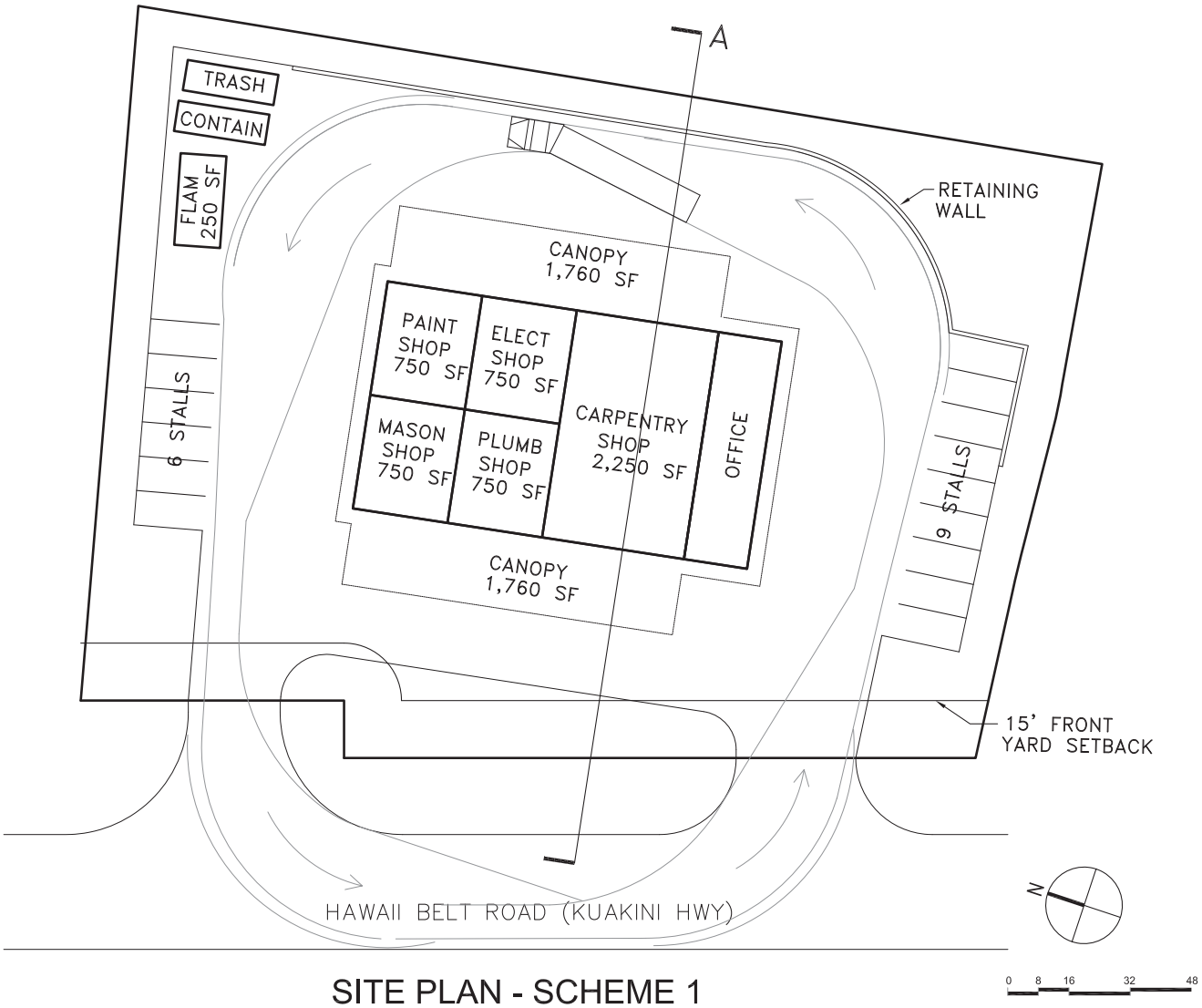
Purchase or lease of other sites was also eliminated, as it would require DAGS to acquire or lease land. The proposed, State-owned site had already been identified for DAGS use as a baseyard, per Executive Order No. 3821 dated August 24, 2000. The site is centrally located within the Kona area, has direct access to the main highway, and is of sufficient size for a baseyard. This made the site preferable to other alternative sites considered.

2.4 ALTERNATE DESIGN SCHEMES

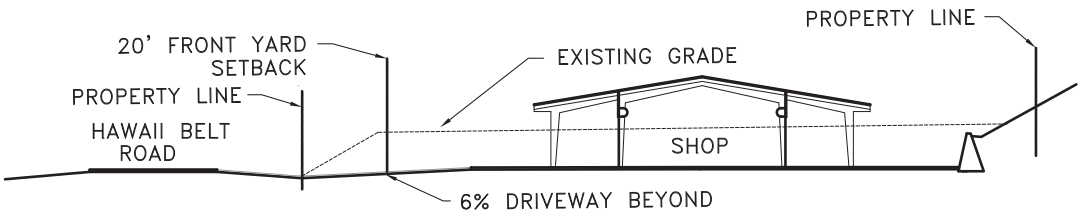
Several alternative design schemes were considered during the concept design process. The design schemes differed in their placement of the shops, office and flammable storage buildings, and proposed circulation pattern. All three design schemes included two driveways into the property. The three alternative schemes that were presented to DAGS are shown in Figures 5, 6 and 7.

Scheme 1 placed the office and maintenance shops in the center of the site, with vehicle circulation around the perimeter of the site. Scheme 2 placed the shops along the back of the site, the office at the front of the site, and an open yard and circulation area. In Scheme 3, the office was placed at the back of the site with the shops, and the circulation pattern remained the same.

DAGS preference was Scheme 2, with the office at the front for easier visitor access. However, during the design process, preliminary feedback from the State of Hawai‘i Department of Transportation (HDOT) indicated they would not approve two driveways within this stretch of Kuakini Highway. As a result, Scheme 2 was modified to eliminate the driveway on the north side of the property, while keeping the building and office locations the same. The vehicle circulation pattern was also modified to allow vehicles to enter and exit through the same driveway, and to ensure that adequate turn around space was provided within the open staging area.



SITE PLAN - SCHEME 1



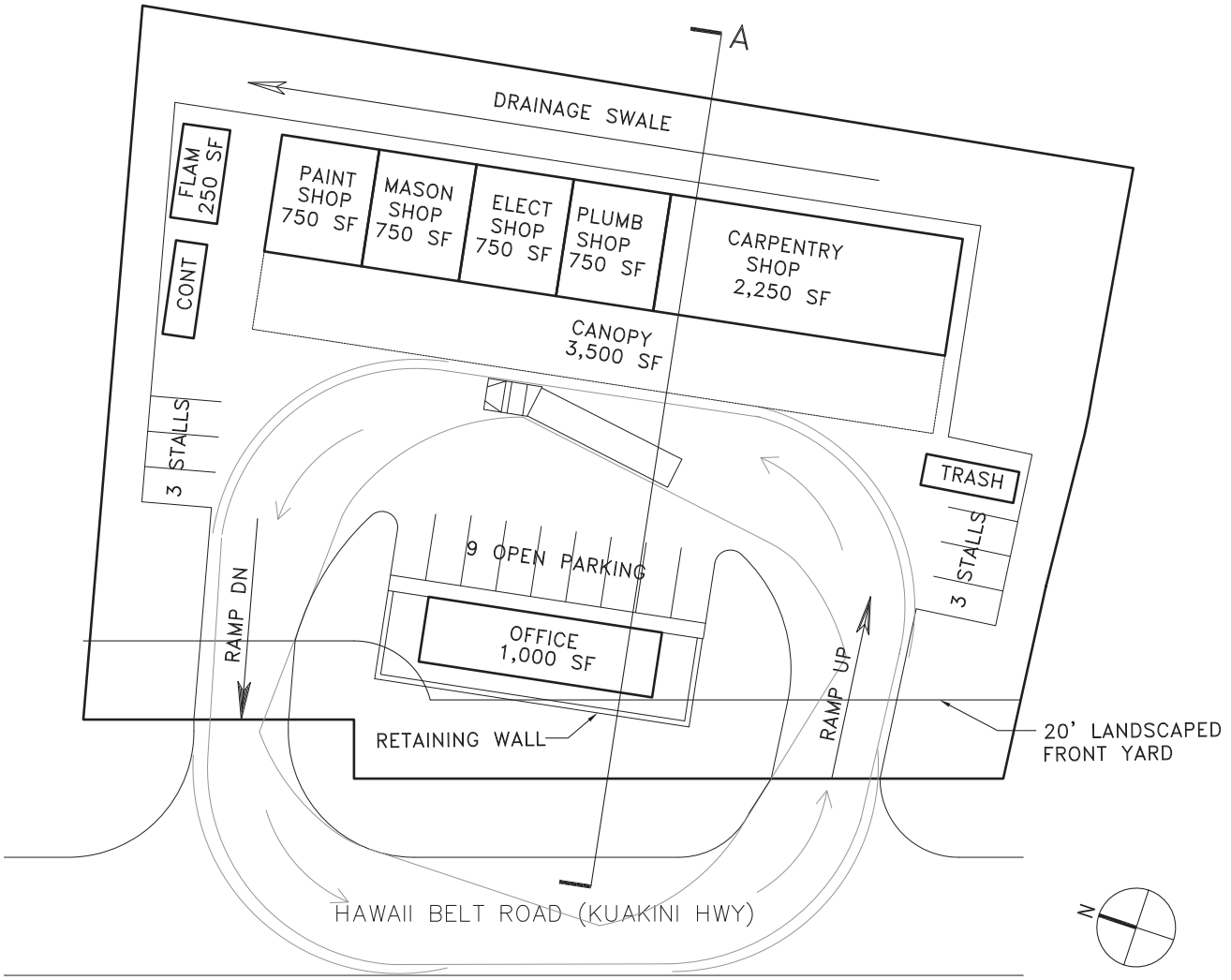
SITE SECTION - A

FIGURE 5

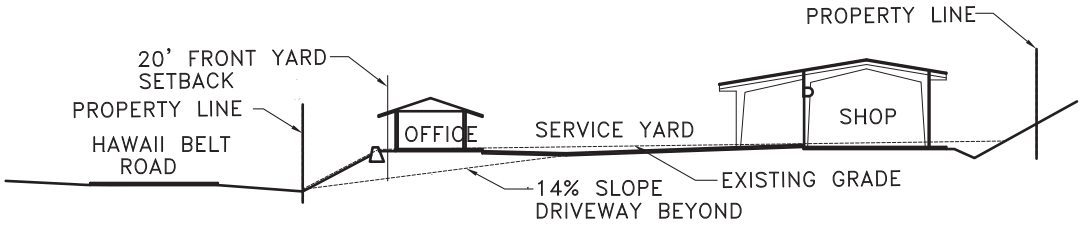
ALTERNATIVE SCHEME 1

DAGS Kona District Baseyard

March 2011



SITE PLAN - SCHEME 2



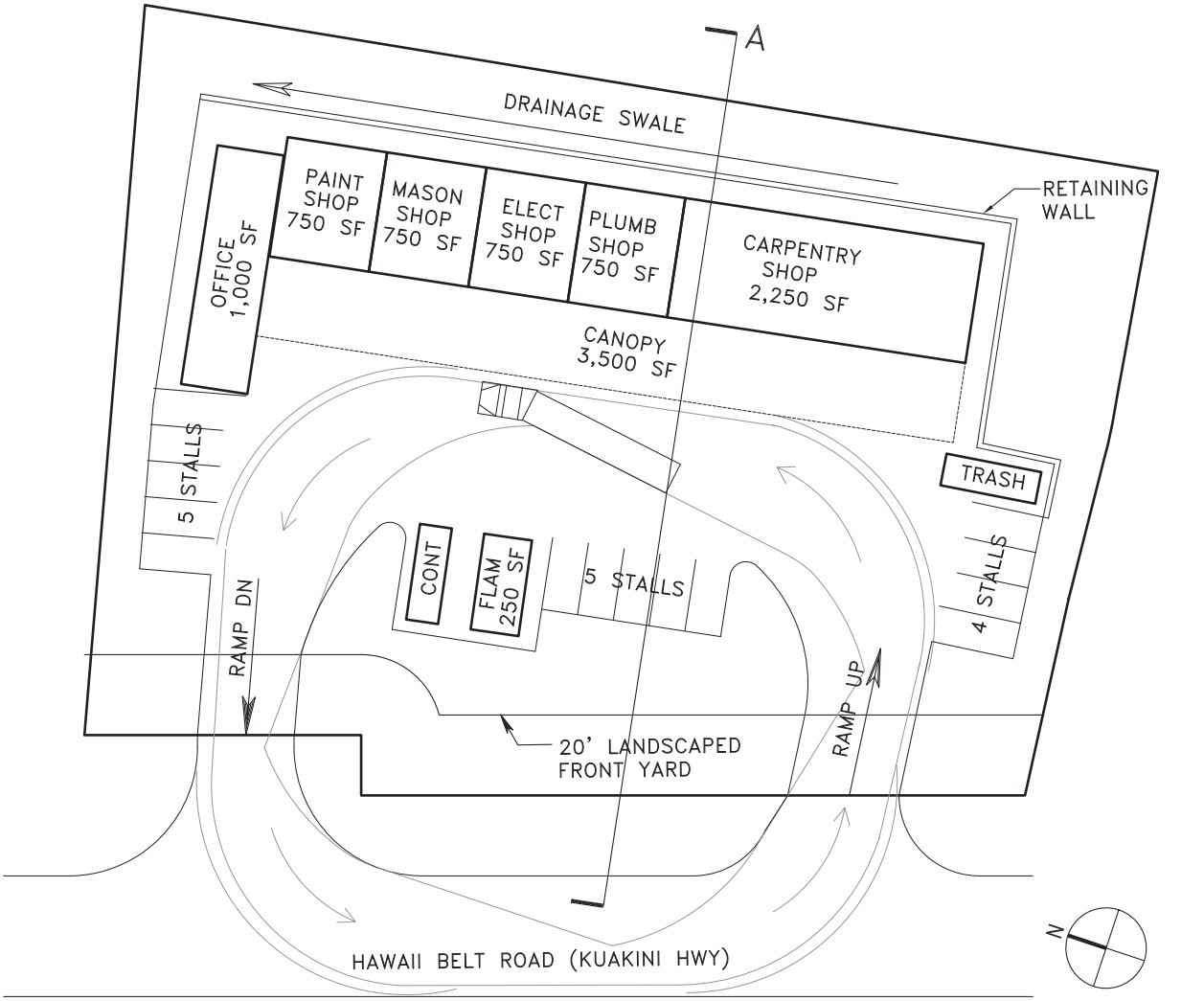
SITE SECTION A

FIGURE 6

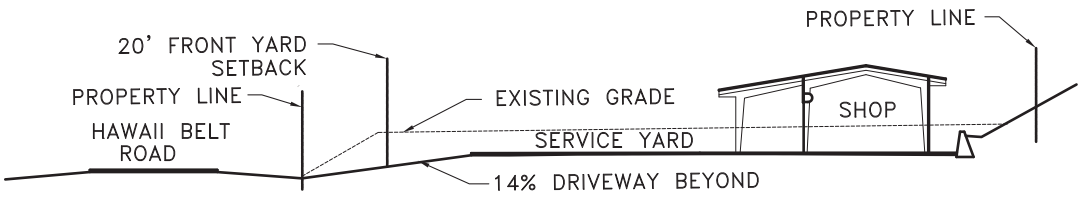
ALTERNATIVE SCHEME 2

DAGS Kona District Baseyard

March 2011



SITE PLAN - SCHEME 3



SITE SECTION A

FIGURE 7

ALTERNATIVE SCHEME 3

DAGS Kona District Baseyard

March 2011

2.5 PROPOSED ACTION

The proposed action is to construct a new Kona District Office baseyard at the 0.97-acre site on Hawai‘i Belt Road. This State-owned site has the advantage of being vacant, available, and accessible to Kuakini Highway. An existing Executive Order from the Hawai‘i Board of Land and Natural Resources has set the property aside for public purposes, specifically for “field offices, maintenance baseyard and related purposes” by the Department of Accounting and General Services.

The site in Keauhou offers a location with direct access to Māmalahoa Hwy, close proximity to utilities, adequate space and a centralized location within the DAGS West Hawai‘i service area.

Project site, looking north. Red-roofed buildings on adjacent State-owned site are occupied by the Hawai‘i County Economic Opportunity Council, Kona District Office.

Project site, looking west (toward Kuakini Highway).

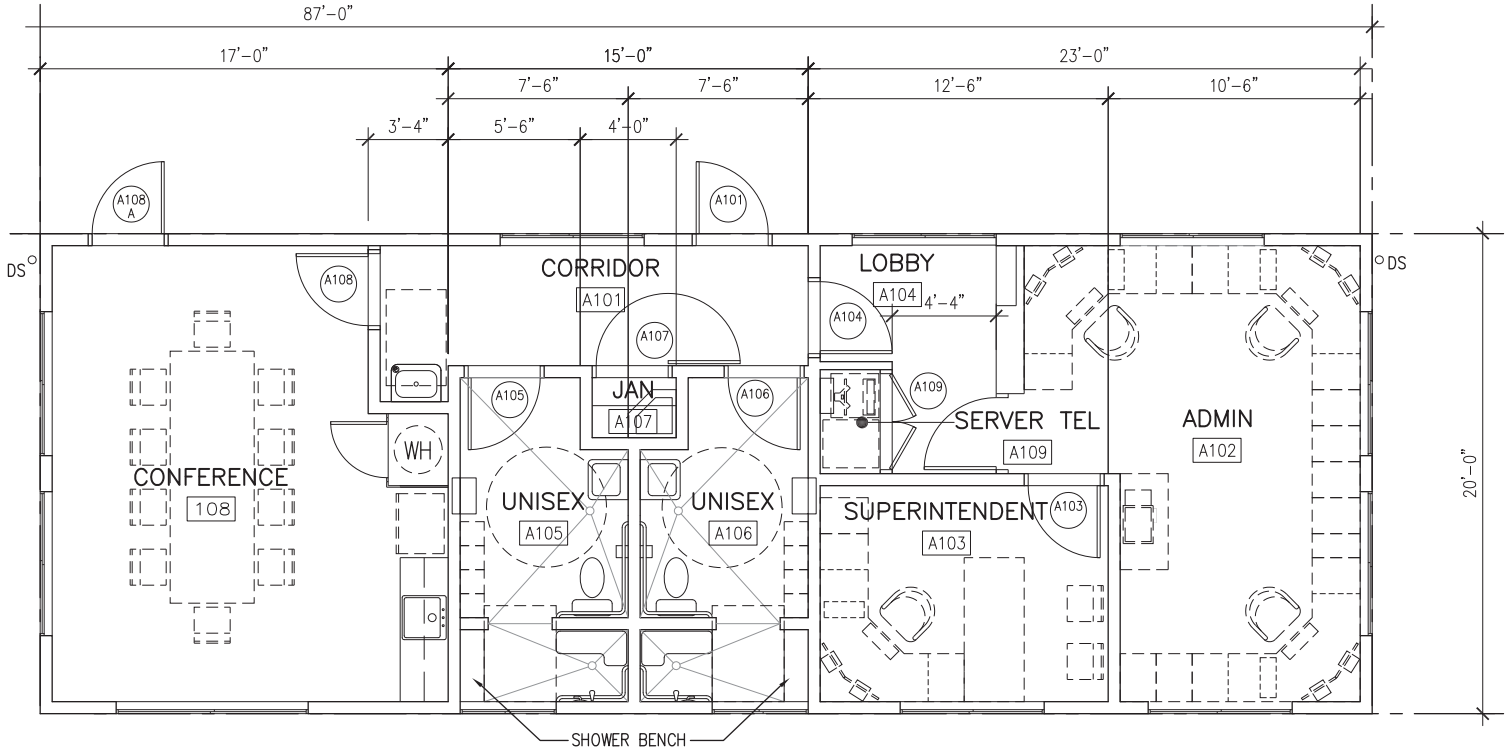
Looking south. Building on adjacent State-owned site to the east (left) is used by the Keauhou Head Start preschool. The school accommodates 39 children, ages 2 to 6.

As noted above, the proposed location of the office and shop buildings was based on design Scheme 2, modified slightly to include only one driveway. The proposed baseyard will include a 1,740-square foot office building at the front of the site, providing administrative office and conference room space. An area to the north has been identified as a possible expansion area, if

additional office space is required in the future. Ten open parking stalls and seven covered parking stalls will be provided. A separate maintenance shop building will be constructed at the back of the site. The rectangular-shaped, metal-sided building will include a masonry shop, plumbing shop, electrical shop, paint shop, carpentry shop, and lumber storage area. In the future, a mezzanine area for additional storage may be constructed within the shop building.

An open service yard and vehicle turn-around area will be located between the office building and maintenance shops. An enclosed trash and recycling area will be provided on the south side of the property. The baseyard will have a single driveway on the southern end of the property, providing access to and from Kuakini Highway.

Figures 8 and 9 show the floor plan and elevations for the proposed office building. Figures 10 and 11 show the floor plan and elevations for the shop building.



OFFICE FLOOR PLAN

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Scale in Feet

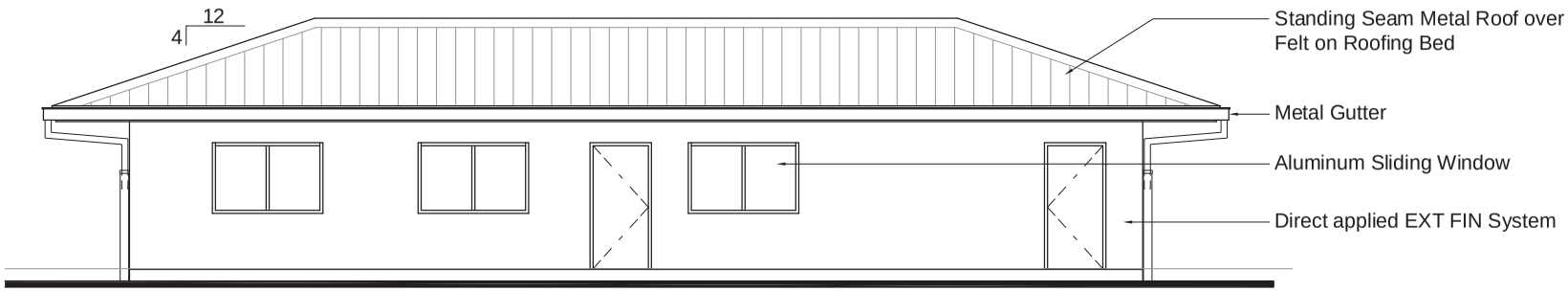
Source: CDS International, 2011

FIGURE 8

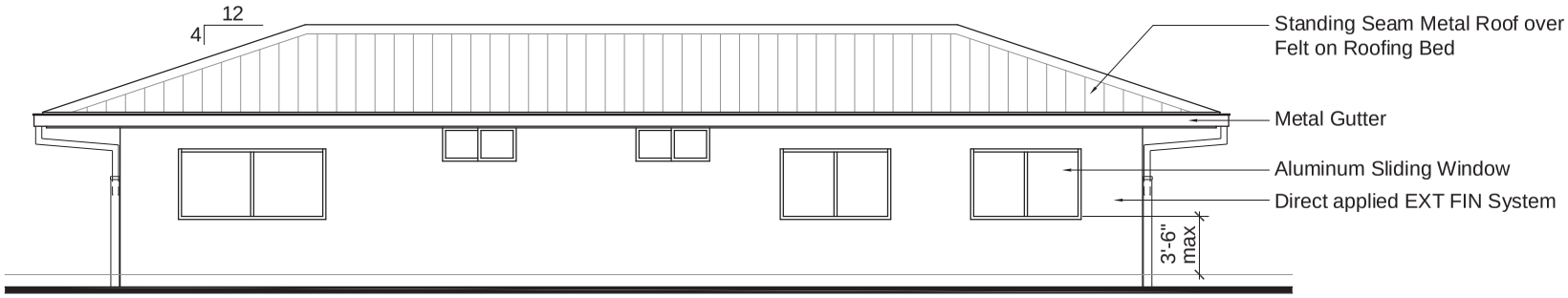
OFFICE FLOOR PLAN

DAGS Kona District Baseyard

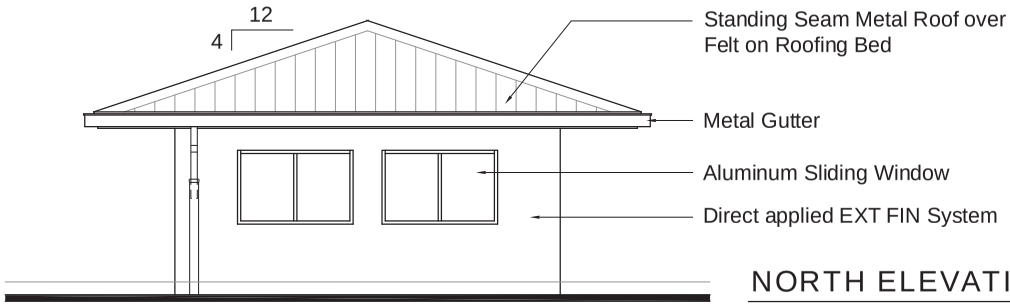
March 2011



EAST ELEVATION–OFFICE



WEST ELEVATION–OFFICE



NORTH ELEVATION–OFFICE, SOUTH ELEV. SIM.

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Scale in Feet

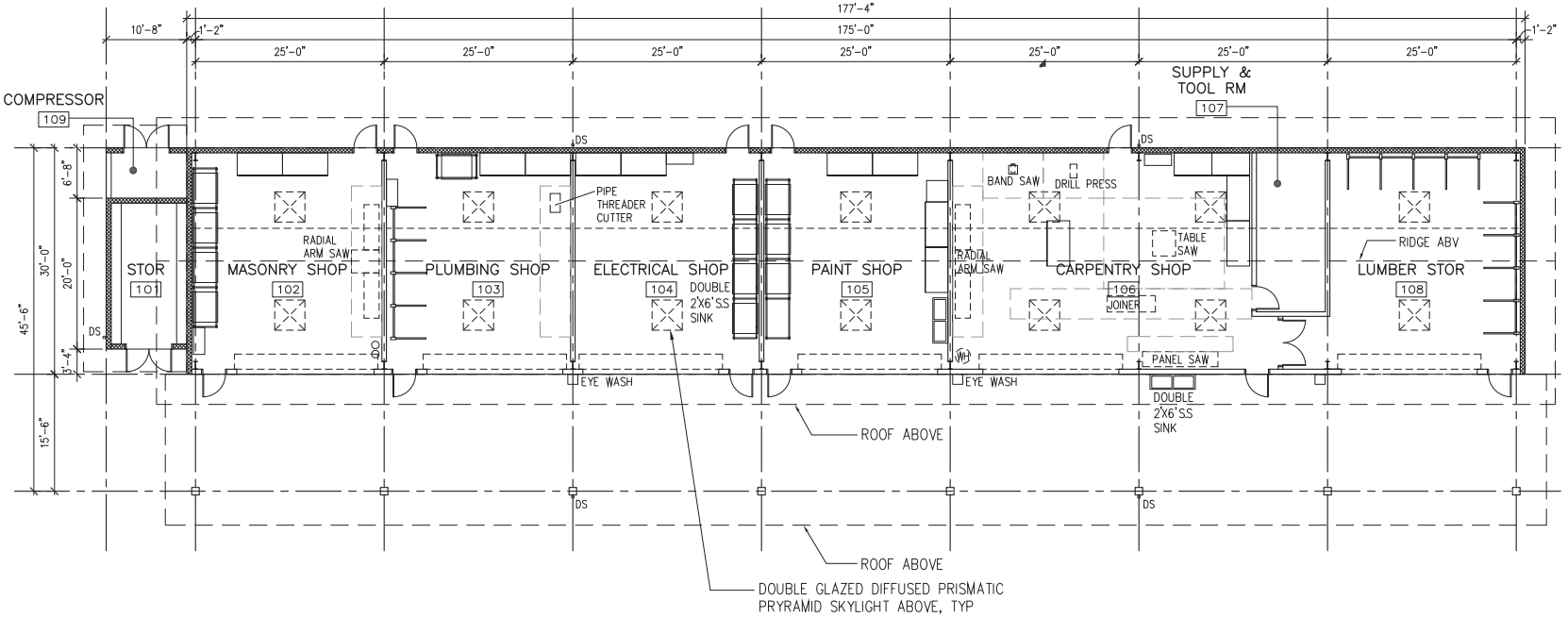
Source: CDS International, 2011

FIGURE 9

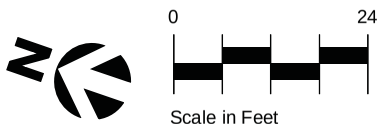
OFFICE–EXTERIOR ELEVATIONS

DAGS Kona District Baseyard

March 2011

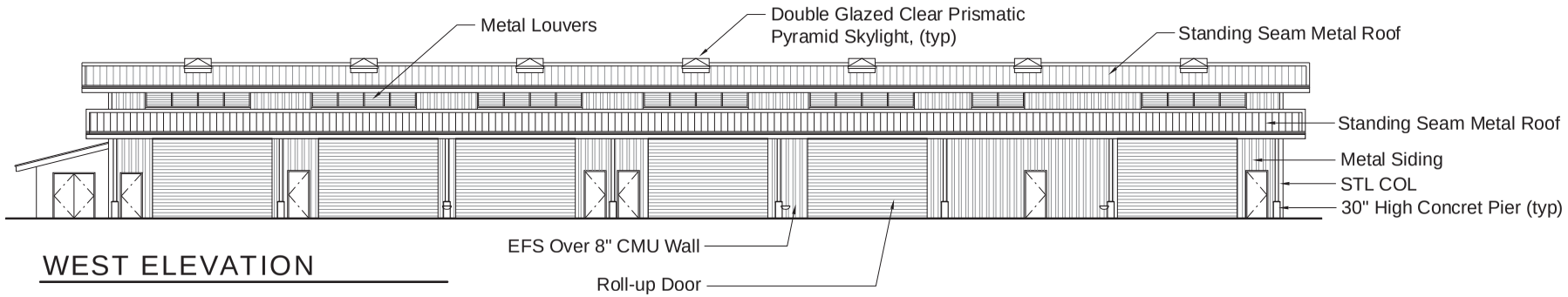


SHOP FLOOR PLAN

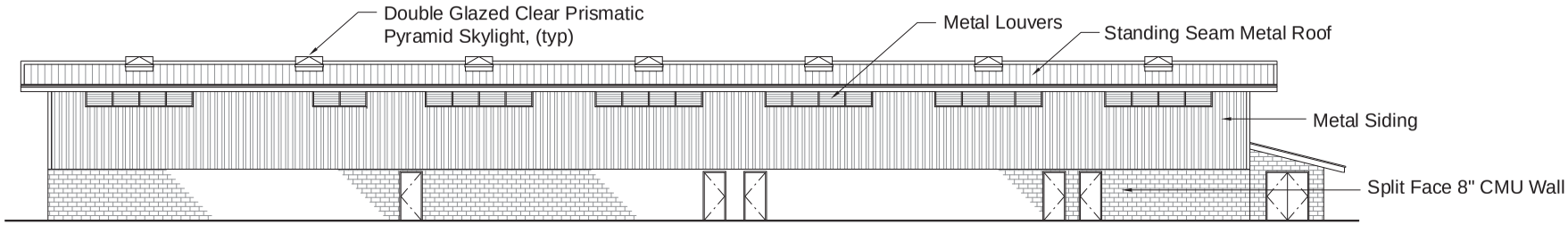


Source: CDS International, 2011

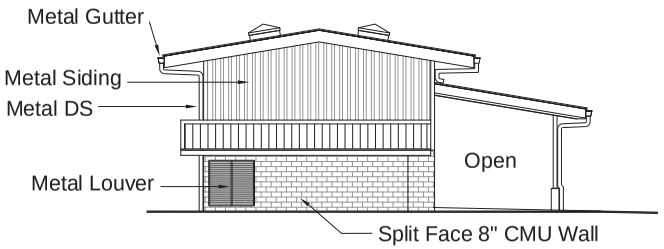
FIGURE 10
SHOP FLOOR PLAN
DAGS Kona District Baseyard
March 2011



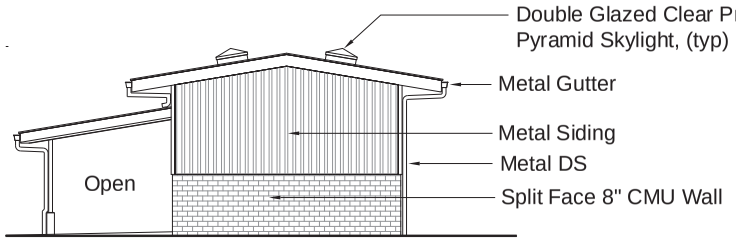
WEST ELEVATION



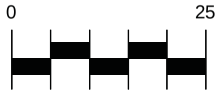
EAST ELEVATION



NORTH ELEVATION



SOUTH ELEVATION



Source: CDS International, 2011

FIGURE 11

SHOP–EXTERIOR ELEVATIONS

DAGS Kona District Baseyard
March 2011

3 AFFECTED ENVIRONMENT, IMPACTS AND MITIGATION

3.1 INTRODUCTION

This chapter describes the existing environment, potential project impacts and proposed mitigation. This chapter is organized by resource area, and is generally divided into: 1) physical environment, 2) biological environment, 3) socio-economic environment, 4) utilities and infrastructure, 5) traffic, and 6) public services and facilities.

The discussion of environmental impacts includes both direct and indirect impacts. Direct impacts are those caused by the action and occur at the same place and time. Indirect effects may occur later in time or farther in distance, but are still reasonably foreseeable. The analysis in this chapter also identifies possible cumulative environmental impacts. Cumulative impacts are defined as the results from the incremental impact of the action when added to other past, present and reasonably foreseeable future actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time.

3.2 PHYSICAL ENVIRONMENT

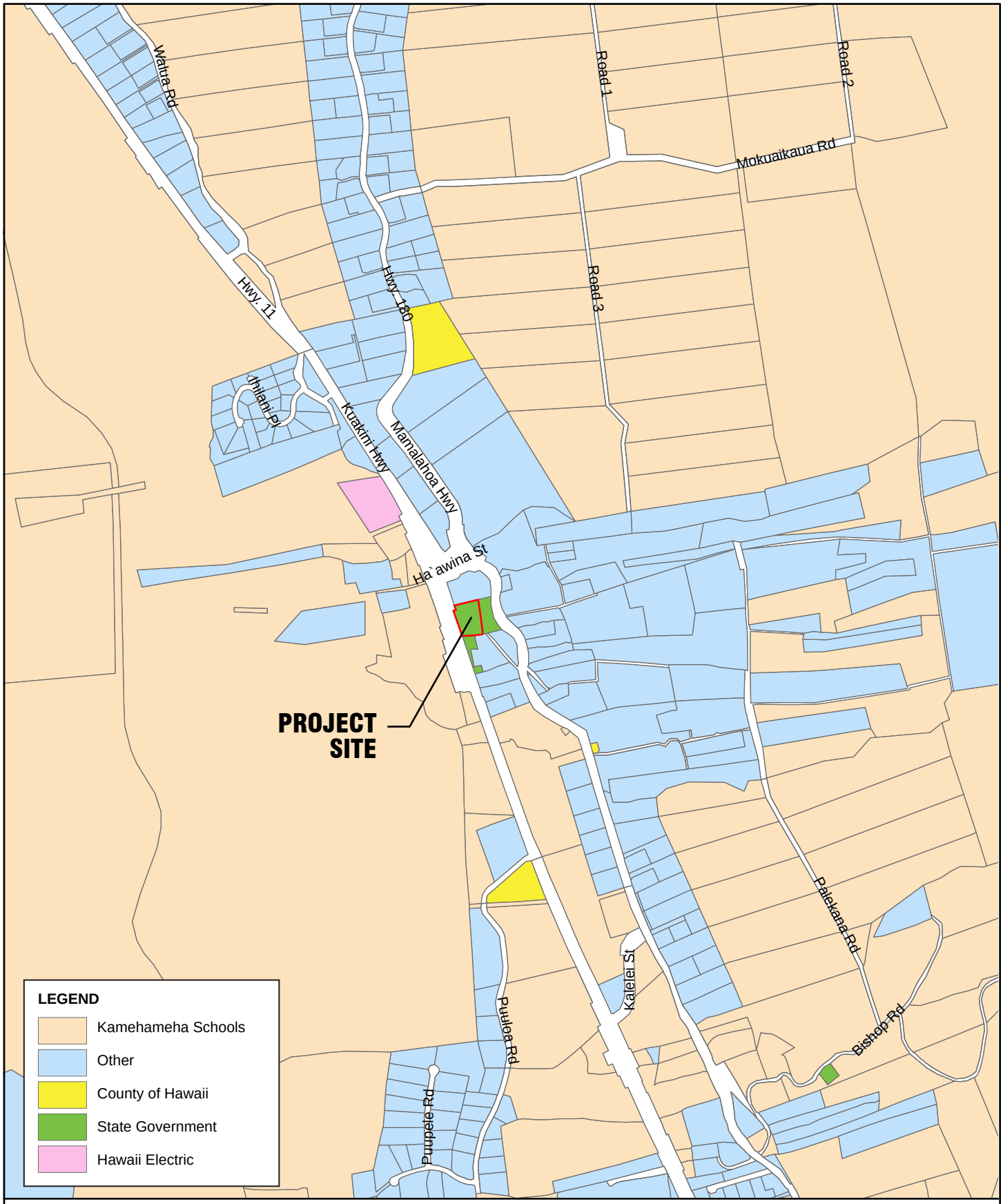
3.2.1 Location and Adjacent Land Uses

The proposed baseyard site is approximately 0.97 acres in size. The site is located in the Keauhou 1st ahupua‘a, between the towns of Holualoa and Honalo. The subject site was the playing field of the former Keauhou Uka School, which is located on the adjacent State-owned parcel *makai* (east) of the site. The former school buildings are currently used as offices by the Hawai‘i County Economic Opportunity Council (HCEOC), and a Head Start pre-school.

As shown in Figure 12, the subject property and adjacent parcels to the west and south along Kuakini Highway are owned by the State of Hawai‘i. The subject property was set aside to the Department of Accounting and General Services (DAGS) for the “Field Offices, Maintenance Baseyard and Related Purposes” pursuant to Executive Order no. 3821 dated August 24, 2000. According to the Department of Land and Natural Resources (DLNR) Land Division in an early consultation letter dated December 22, 2010 (Chapter 7), the proposed project appears to be consistent with the purposes set forth in the executive order.

The site is occasionally used by a dog training group, apparently through an informal agreement with DAGS and DLNR. During the early consultation process, the DLNR Land Division noted that this use is inconsistent with the terms of the Executive Order, and should cease. DAGS is following up on this issue.

Much of the surrounding lands on the *makai* (east) side are in agricultural use, primarily coffee, as well as other crops including banana, taro, cacao, citrus, mangoes, and papaya. Low density residential and commercial uses are located along Kuakini Highway and Māmalahoa Highway. Surrounding lands are owned by various individual landowners and Kamehameha Schools is a major landowner.



Environmental Assessment

0 500 1000
Scale in Feet

N

FIGURE 12
MAJOR LANDOWNERS

DAGS Kona District Baseyard
March 2011

3.2.2 Topography and Soils

Existing Conditions

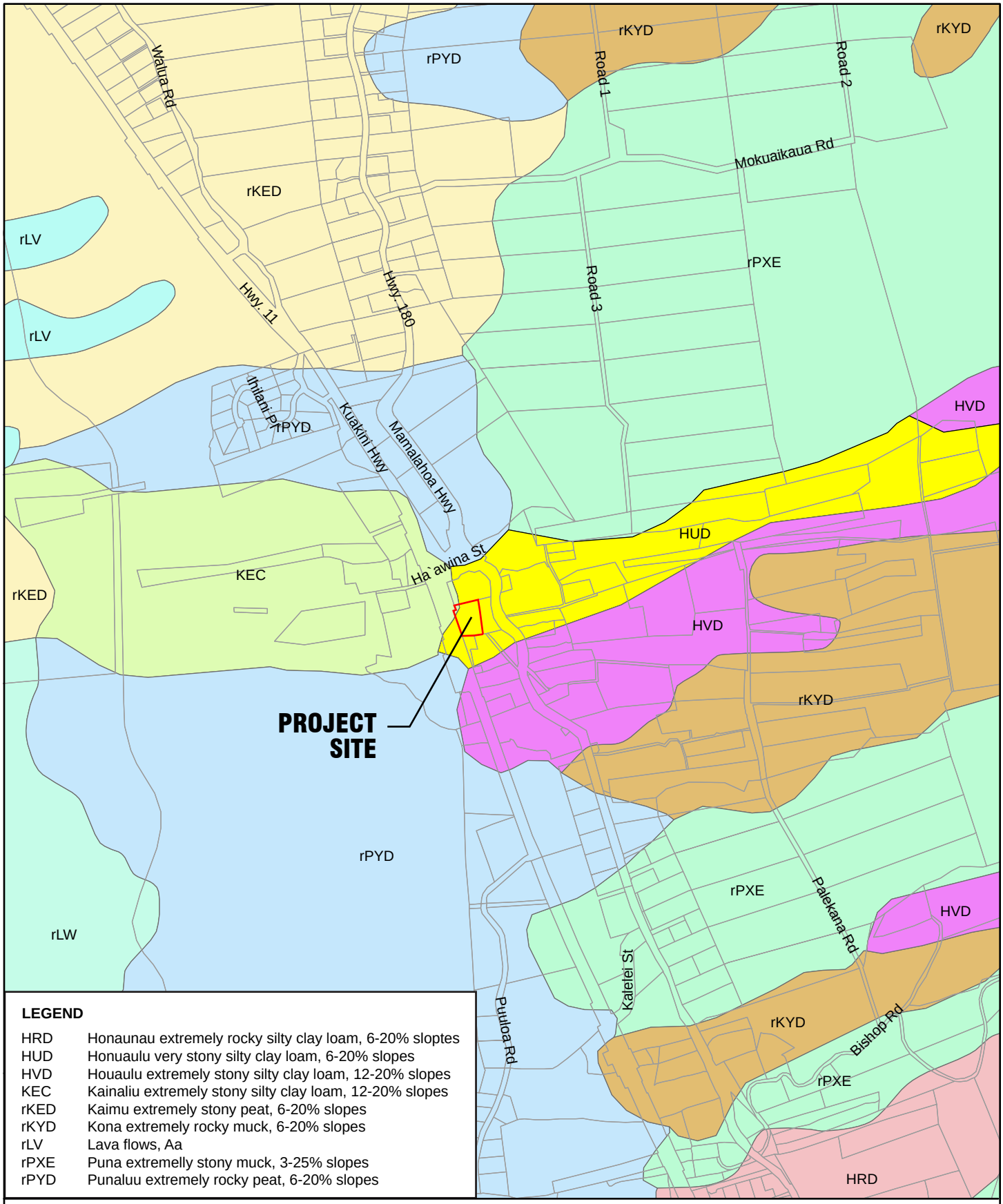
The site topography slopes slightly upward from Kuakini Highway (*makai*) toward Māmalahoa Highway (*makai*), from approximately 1,080 to 1,120 feet in elevation above mean sea level (MSL).

Soils at the project site are shown in Figure 13 and are predominantly Hanuaulu very stony stilty clay loam (HUD), 6 to 20% slopes. This soil series consists of moderately deep, well-drained soils that formed in volcanic ash in *ʻaʻa* lava, at slopes from 2 to 40 percent. They are found on the west and southwest slopes of Mauna Loa and Hualalai volcanoes at elevations from 1,000 to 3,500 feet above mean sea level.

A small portion of the northwestern corner of the site is covered by soils in the Kainaliu series. This series consists of moderately deep, well-drained soils that formed in basic volcanic ash in *ʻaʻa* lava, at slopes from 2 to 40 percent. They are found on the undissected uplands of Mauna Loa and Hualalai at elevations from 1 to 1,000 feet.

The property slopes up gradually in the *makai* to *makai* direction. As shown in the photo below, the western (*makai*) boundary is about four to five above Kuakini Highway. Access to the site from Kuakini Highway is via a short sloping driveway. The property elevation increases from about 1,100 feet at the west (*makai*) side of the property to 1,114 feet at the east (*makai*) side.

Approaching the property on Kuakini Highway from the south, heading north. Project site is on the right behind retaining wall.



LEGEND

HRD	Honaunau extremely rocky silty clay loam, 6-20% sloptes
HUD	Honuaulu very stony silty clay loam, 6-20% slopes
HVD	Houaulu extremely stony silty clay loam, 12-20% slopes
KEC	Kainaliu extremely stony silty clay loam, 12-20% slopes
rKED	Kaimu extremely stony peat, 6-20% slopes
rKYD	Kona extremely rocky muck, 6-20% slopes
rLV	Lava flows, Aa
rPXE	Puna extremelly stony muck, 3-25% slopes
rPYD	Punaluu extremely rocky peat, 6-20% slopes

Environmental Assessment

0 500 1000

Scale in Feet

N

FIGURE 13

SOILS MAP

DAGS Kona District Baseyard

March 2011

The project site is at an elevation about 4 to 7 feet higher than Kuakini Highway. A new retaining wall will be constructed here and the driveway relocated to the southwest end of the site.

Looking north across the site. The property slopes slightly upwards in the *makai* (east) direction. The site will be graded to achieve a fairly level elevation. A new retaining wall will be built between the baseyard and the HCEOC offices.

Looking south across the site. Existing Head Start preschool is located in the former Keauhou Uka School buildings to the east.

Impacts and Mitigation

Construction of the baseyard will require site work and grading to level out the site prior to construction of the office, maintenance shops, and service yard. Currently, there is about a 14 foot difference in elevation between the *makai* and *makai* sides of the property. Upon completion, both the new office building fronting Kuakini Highway and the shop building at the back of the site will be at about 1,109 foot elevation. New retaining walls will be constructed at the *makai* and *makai* sides of the site to achieve the desired site elevation. The existing retaining walls located in the northwest corner of the site fronting Kuakini Highway will be partially removed and replaced.

The proposed retaining wall on the *makai* side will extend along the east side of the lot and will "wrap-around" on both the north and south sides of the lot. This wall will retain between 3 and 6 feet of earth. The retaining wall on the *makai* side of the lot will extend along the majority of the west side and will wrap-around on the north side to accommodate the onsite parking. The *makai* wall will vary in height with a maximum wall face of 9.5 feet near the northwest corner of the property.

3.2.3 Climate and Air Quality

Existing Conditions

Climate

Regional temperatures range from 64 degrees Fahrenheit in the winter months to 85 degrees Fahrenheit in the summer months.

The mean annual rainfall for the project area ranges from 25 to 50 inches, with most of the rainfall from April through October. The overall Kona region receives an average annual rainfall of between 11 and 24 inches, with *mauka* areas typically experiencing larger amounts of rainfall than *makai* areas. The Kona coast is the only region in the islands where summer rainfall exceeds winter rainfall. Summer is also the season with a high frequency of late afternoon or early evening showers. Conditions are somewhat warmer and drier than in windward locations.

The area has a marked diurnal wind regime, with well-developed and reliable land and sea breezes, especially in the summer. The mountains of Hualalai and Mauna Loa further influence the wind direction and speed. In the early morning, the prevailing wind blows from inland areas to the ocean, and in the afternoon, the wind blows from the ocean to inland areas.

Air Quality

National Ambient Air Quality Standards (NAAQS) have been established for seven major air pollutants: carbon monoxide (CO), nitrogen oxides (NO_x), ozone (O_3), particulate matter smaller than 10 microns (PM_{10}), particulate matter smaller than 2.5 microns ($PM_{2.5}$), sulfur oxides (SO_x), and lead. Air pollutant levels are monitored by the State Department of Health (DOH) at a network of sampling stations statewide, although there are no sampling stations in windward O‘ahu. Based on ambient air monitoring data, the U.S. Environmental Protection Agency has classified the entire State of Hawai‘i as being in attainment of the federal standards.

Air quality within the project area is good, and mostly affected by air pollutants from natural, industrial, agricultural and/or vehicular (mobile) sources. Of the natural sources, volcanic emissions (vog) is most significant, and is due to the ongoing eruption of Kilauea Volcano that began in 1983. In March 2008, a second vent on the volcano opened, significantly increasing the emission of sulfur dioxide and resulting vog. Sulfur dioxide emissions are carried to the project area via prevailing winds. The entire West Hawai‘i region is often beset by heavy haze as a result of the volcanic activity.

Despite the volcanic emission (vog) and possible impacts from surrounding agricultural operations and vehicular traffic, regulated air pollutant concentrations are still well within the state and national standards.

Impacts and Mitigation

Operational Impacts

Activities at the baseyard have the potential for air quality impacts on the adjacent Keauhou Head Start Preschool and the Hawai‘i County Economic Opportunity Council (HCEOC) offices located direct behind (*mauka*) of the site.

The proposed maintenance shop building is located along the eastern boundary of the site, a little over 100 feet away from the Keauhou Head Start preschool and HCEOC offices.

The Keauhou Head Start preschool has a capacity of 40 children, ages 3 and 4 years, and is open from 7:30 AM to 3:30 PM. The school has 7 to 8 adult staff members. Head Start preschool personnel have expressed concerns about potential air quality impacts including dust and debris, paint or solvent fumes, and equipment or vehicle exhaust.

Air quality impacts on the adjacent Head Start and HCEOC offices are expected to be minimal. The carpentry, masonry, and paint shops will be designed so that all activities will occur within the enclosed shops. The carpentry shops will be outfitted with sawdust collectors located outside the shop and ducted to work tables where dust is generated. The collected dust goes through 99.9 percent filters, and almost all dust is collected without releasing it to the environment. The masonry shop will also include air cleaners. Air cleaners are central systems which hang in the ceiling without ducts. Air in the shop will be collected through a fan and passed through a 99.9 percent filter, releasing clean air back into the shop. There will be a negligible release of dust outside the shops.

Air quality impacts from vehicles on-site will also be minimal. The existing baseyard has a total of nine vehicles, six trucks and three spare vehicles that generally stay on-site. The six trucks are used by work crews to go to and from the job sites, and will be off-site for most of the day. Diesel-powered equipment at the baseyard is limited to forklifts, used for delivery. Large delivery trucks do not typically come to the baseyard, as employees pick up necessary materials and bring them back to the shop. There will be few visitor vehicles, with the exception of vendors who come to the baseyard about once a month.

Fumes from paints should not be an issue for the adjacent school and offices. The maintenance shop utilizes latex paints, which are safer than the oil-based paints used in the past. All painting activities will be confined to inside the shops, where no spray painting will be performed and only water-based, latex paints will be used. No painting activity will occur outside the shop.

The primary hours of operation for the baseyard will further mitigate potential air quality impacts on the adjacent school and offices. The baseyard hours of operation are 6:30 AM to 3:00 PM. Baseyard personnel arrive on site at 6:30 AM, and at that time, gather their materials and review the day’s work. By 7:00 AM, most employees have left for the job site, and by the time the Head Start preschool starts at 7:30, very little activity will be occurring at the baseyard. During most of the school day, baseyard personnel will be out in the field, and there will be few activities that would generate dust or noise. Maintenance personnel typically return to the baseyard by 2:30 PM

and then prepare for the following day's activities. This is the time when potentially noisy or dusty activities, such as wood cutting, carpentry, or painting might occur, but is not a time when children will be engaged in eating or napping. Children will likely be playing and preparing to go home when the Head Start closes at 3:30 PM.

For the reasons stated above, operation of the baseyard is anticipated to have minimal air quality impacts on the adjacent Head Start preschool and HCEOC offices.

Construction-Period Impacts

Site preparation and construction activities will generate some dust in the immediate area which has the potential to impact the Keauhou Head Start pre-school and HCEOC offices located direct *mauka* of the site.

During construction, the construction contractor will employ fugitive dust emission control measures in compliance with provisions of the State DOH Rules and Regulations (Chapter 43, Section 10) and Hawai‘i Administrative Rules (HAR) Chapter 11-60.1, "Air Pollution Control," Section 11-60.1-33 on Fugitive Dust.

During site preparation, the contractor will sprinkle water, as necessary to control dust. In addition, the following measures will be implemented to minimize dust and air quality impacts:

- Provide an adequate water source at the site prior to start-up of construction activities;
- Pave or revegetate work areas cleared of vegetation as soon as possible to reduce dust;
- Provide adequate dust control measures during weekends, after hours, and prior to daily start-up of construction activities
- Control dust from debris being hauled away from the project site;
- Move construction equipment to and from the work sites during non-peak traffic periods, to the extent possible, in order to minimize disruption to area traffic.
- Air quality impacts during construction will be temporary in duration.

3.2.4 Natural Hazards

Existing Conditions

According to the Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map (FIRM), the project site and surrounding areas are in Unshaded Zone X, an area determined to be outside the 500 year/0.2% annual chance floodplain. No base flood elevations or depths are shown within this zone.

Impacts and Mitigation

The project will not increase the risk of human health or property damage due to natural hazards. All proposed improvements will conform to applicable seismic standards for construction.

3.2.5 Hydrology

Existing Conditions

There are no streams or wetlands within or near the project site.

Impacts and Mitigation

The proposed improvements will have no impact on surface or groundwater resources.

The project site is less than one-acre in size, and is not expected to require a National Pollutant Discharge Elimination System (NPDES) permit for construction-period stormwater discharge. No dewatering is anticipated.

3.2.6 Noise

Existing Conditions

Noise levels in the vicinity of the project site are relatively low, with the primary noise source in being vehicle traffic on Kuakini Highway, and occasional jet aircraft transiting to and from Kona International Airport at Keāhole.

The property is surrounded by undeveloped land on the north and south sides, and is bounded by Kuakini Highway on the west. Nearby noise-sensitive land uses include the Keauhou Head Start and Hawai‘i County Economic Opportunity Council, Kona District Office, located in the former Keauhou Uka School buildings directly to the east (*mauka*) side of the property.

Hawai‘i Administrative Rules Chapter 11-46, adopted in 1996, provides statewide rules on community noise control. The maximum permissible sound levels for various categories of zoning districts are in the table below. The subject property can be categorized as Class C (lands zoned agriculture, country, etc.). As noted in the table, day time and night time noise levels at the property are limited to 70 dBA.

Zoning Districts	Daytime 7:00 AM to 10:00 PM (in dBA)	Nighttime 10:00 PM to 7:00 AM (in dBA)
Class A *(residential, conservation, preservation, public space, open space)*	55	45
Class B *(multi-family, apartment, business, commercial, hotel, etc.)*	60	50
Class C *(agriculture, country, industrial, etc.)*	**70**	**70**

Source: Hawai‘i Administrative Rules, §11-46-4

Impacts and Mitigation

The proposed project has the potential to have both short-term noise impacts during construction, and long-term noise impacts during operation of the baseyard.

Operational Noise

As discussed above in the Air Quality section, potentially noisy activities such as carpentry work will be conducted inside the shop. Vehicle traffic will be limited to six work trucks, and the only diesel equipment at the baseyard is a forklift. There will be no major truck deliveries and few visitors.

Moreover, the baseyard work schedule will minimize noise impacts on the school. Baseyard employees are typically out in the field by 7:30 AM when the school day begins. Potentially noisy industrial activity such as wood cutting would occur inside the shops, and after 2:30 PM, when maintenance personnel prepare for the following day's work. This will not disrupt the preschool's nap time or meal time, and will occur at a time when most children are preparing to go home for the day.

Short-Term Construction Impacts

Construction activities will generate noise that may have short-term impact on the adjacent Head Start pre-school and HCEOC offices. Specifically, site grading, excavation, and construction of the shops which are located at the back of the site, near these uses. A new water line must be constructed through the Head Start/HCEOC property to connect to an existing line on Māmalahoa Highway. It is anticipated that the waterline construction will take about three weeks, including installation of the piping, construction of the large water meter box and connection to the existing water line.

Of greatest concern to the Head Start preschool staff is minimizing noise during the children's nap time, immediately after lunch. Some construction noise impacts are unavoidable but will be temporary. The waterline construction through the Head Start and HCEOC property, will be limited to three weeks. It is anticipated that the entire project construction period, including initial site preparation activity, will extend over approximately 12 months.

All construction activities will comply with the DOH Administrative Rules Chapter 11-46 on Community Noise Control. Noisy construction activities are restricted to hours between 7:00 AM and 6:00 PM, Monday through Friday, excluding certain holidays, and 9:00 AM and 6:00 PM on Saturdays. In cases where construction noise exceeds, or is expected to exceed the DOH's "maximum permissible" noise levels at the property line, a permit will be obtained from the DOH to operate vehicles, construction equipment, power tools, etc. that emit noise levels in excess of "maximum permissible" levels.

To reduce the noise impact of construction activities, the contractor will try to limit high noise level work to before or after school hours. Noise mitigation measures will be included in the

construction specifications. It is strongly recommended that the construction contractor coordinate with the Head Start preschool and avoid noisy construction activities during the children's meal and nap times whenever possible. Advance notification of the proposed construction schedule should also be provided to the adjacent HCEOC office. This will be particularly important during the construction of the waterline, when construction personnel will be physically present on the Head Start/HCEOC property.

3.3 BIOLOGICAL ENVIRONMENT

3.3.1 Existing Conditions

Biological surveys of the project site were conducted by Rana Biological Consulting and AECOS Consultants in March 2011 (Appendix A). The primary purpose of the surveys was to determine if there are any botanical, avian or mammalian species currently listed, or proposed for listing under either federal or State of Hawai‘i endangered species statutes within or adjacent to the study area.

Botanical Resources

The project area supports three basic vegetation types: 1) ruderal species associated with highly disturbed ground; 2) plantings of trees and ornamentals associated with buildings adjacent to the parcel; and 3) a secondary forest. The latter includes various trees and an understory of coffee shrubs, and maybe a planted area. Most or all of the plantings are on the adjacent parcel. No plants of any concern or having protective status were observed. Several of the larger trees located along the slope leading up to the school buildings are avocado and mango, which have some resource value providing shade and edible fruits.

Avian Resources

The findings of the avian survey are consistent with the location of the property and the habitat present on the site. All 11 avian species recorded during the survey are alien species. Although not detected during this survey, it is probable that both the endangered Hawaiian Petrel (*Pterodroma sandwichensis*), and the threatened endemic Newell's Shearwater (*Puffins auriculars newelli*), over-fly the project area in small numbers between April and the middle of December each year. There is no suitable nesting habitat for either of these seabird species on or close to the proposed baseyard.

Hawaiian Hawks (*Buteo solitarius*), an endemic endangered raptor, is regularly recorded in the greater project area with pairs nesting upslope from the site, but some distance away. None were recorded during the course of the survey, but it is likely this species overflies the site on occasion. Currently there are no suitable nesting trees for this species present on the site.

Mammalian Survey

The only terrestrial mammal detected on site during this survey were dogs (*Canis f. familiaris*). No mammalian species currently protected or proposed for protection under either federal or State endangered species programs were detected during the survey.

3.3.2 Impacts and Mitigation

Botanical Resources

No plants of any concern or having protective status were observed, and none is expected on this site.

Seabirds

The principal potential impact that construction and operation of the proposed baseyard poses to protected seabirds is the increased threat that birds will be downed after becoming disoriented by lights associated with the project during the nesting season. Outdoor lighting could pose a threat to these nocturnally flying seabirds if, 1) during construction it is deemed expedient, or necessary to conduct nighttime construction activities, 2) following build-out, streetlights and security lighting are operated during the seabird nesting season.

Hawaiian Hoary Bat

Although not detected during the course of this survey, it is probable that Hawaiian hoary bats use resources within the project site on a seasonal basis, as bats have been documented in the general Kailua Kona area on a seasonal basis (David 1990, 2009c, Jacobs 1994).

The principal potential impact that the development of the proposed project poses to bats is during the clearing and grubbing phases of construction when vegetation is removed. The removal of vegetation within the project site may temporarily displace individual bats, which may use the vegetation as a roosting location. Because bats use multiple roosts within their home territories. the potential disturbance resulting from the removal of the vegetation is likely to be minimal. During the pupping season, female carrying their pups may be less able to rapidly vacate a roost site as the vegetation is cleared. Additionally, adult female bats sometimes leave their pups in the roost tree while they forage, and very small pups may be unable to flee a tree that is being felled. Potential adverse effects can be avoided or minimized by not clearing woody vegetation taller than 4.6 meters (15-feet), between April 15 and August 15, the period in which bats are potentially at risk from vegetation clearing.

Mitigation

If nighttime construction activity or equipment maintenance is proposed during the construction phases of the project, all associated lights should be shielded, and when large flood/work lights

are used, they should be placed on poles that are high enough to allow the lights to be pointed directly at the ground.

Following build-out, it is recommended that any streetlights that may be required for public safety reasons or site security be shielded (Reed et al. 1985, Telfer et al. 1987). This minimization measure would serve the dual purpose of minimizing the threat of disorientation and downing of Hawaiian Petrels and Newell's Shearwaters, while at the same time complying with the Hawai'i County Code §14 – 50 *et seq.* which requires the shielding of exterior lights so as to lower the ambient glare caused by unshielded lighting to the astronomical observatories located on Mauna Kea.

To minimize potential impacts to Hawaiian hoary bats, it is recommended that woody vegetation taller than 4.6 meters (15-feet) high not be cleared between April 15 and August 15 each year.

Where appropriate and practicable, it is recommended that native plant species be used in landscaping efforts. Not only is this ecologically prudent, but if the appropriate plants are used, it will also likely save maintenance and water costs over the long term.

Critical Habitat

There is no federally delineated Critical Habitat present on or adjacent to the property. Thus the development and operation of the Kona District Baseyard facility will not result in impacts to federally designated Critical Habitat. There is no equivalent statute under State law.

3.4 SOCIO-ECONOMIC ENVIRONMENT

3.4.1 Demographic Characteristics

Existing Conditions

The project is located in the North Kona District of Hawai'i Island. According to the 2000 U.S. Census, the population of Hawai'i County numbered 148,677 individuals, with 28,543 residing in the North Kona district. The racial composition of the North Kona district is shown in the table below.

Table 3-1: Demographic Characteristics of North Kona

	North Kona District		Hawai'i County	
	Number of Individuals	Percent of Population	Number of Individuals	Percent of Population
Population	28,543		148,677	
Race				
White alone	*13,455*	*47.1%*	*46,904*	*31.5%*
Black/African American	126	*0.4%*	*698*	*0.5%*
Amer Indian/Alaskan Native	*133*	*0.5%*	*666*	*0.4%*
Asian alone	*4,655*	*16.3%*	*39,702*	*26.7%*
Nat Hawn/Other Pac Islander	3,057	*10.7%*	*16,724*	*11.2%*

Other race	*403*	*1.4%*	*1,695*	*1.1%*
Two or more Races	6,714	*23.5%*	*42,288*	*28.4%*
Median household income		$47,610	$39,805	

Median household income for the County as a whole in 1999 was $39,805 with 15.7 percent of the population below the poverty level. The median household income for the North Kona District was $47,610, with 9.7 percent of the population below the poverty level.

Impacts and Mitigation

The proposed project will not affect area population or demographics. The project is intended to provide a new baseyard for an existing maintenance operation. It will not generate an increase in population or traffic, because maintenance vehicle are already operating within the West Hawai‘i service area.

3.4.2 Archaeological, Historic, and Cultural Resources

An Archaeological Literature Review and Field Inspection for the project was prepared by Cultural Surveys Hawai‘i (December 2010) (Appendix B). No historic properties were observed within the project area, although there are features related to coffee cultivation outside the project area along the southern boundary of the lot. Based on the results of the archaeological literature review and field inspection, Cultural Surveys Hawai‘i recommends no further archaeological work for the proposed project.

Existing Conditions

The survey included a complete pedestrian inspection of the project area. The project area is a cleared, graded but not paved area surrounded by woodland. There are scattered homes nearby, but no dense residential subdivisions.

The Cultural Surveys Hawai‘i study described the traditional settlement pattern for the Keauhou *ahupua‘a* as consisting of an intensively utilized coastal zone, an intermediate or transitional zone, an upland agricultural and habitation zone, and a saddle region. The project site is located in the upland agricultural and habitation zone, or *‘apa‘a*, which is located at elevation 1,000 to 2,500 feet above mean sea level. This upland zone was used intensively and extensively for agricultural crop production, due to rainfall levels, and was also used for permanent habitation during the pre-contact and early post-contact periods. According to historic state documents, the subject property was “cleared” as early as 1906, when the eastern portion of the lot was set aside as part of the Keauhou Uka School lot.

In the later part of the nineteenth century, permanent habitations switched from the coast to the upper belt road, the Māmalahoa Highway, which is located *mauka* of the project site, on the other side of the former school buildings. The Māmalahoa Highway was a transportation route for coffee growers, sugar cane cultivators, and ranchers to transport crops to the large ports such

as Kailua-Kona and Keauhou Bay. The project area was adjacent to important areas for agriculture, habitation, transportation and education.

The 2010 archaeological field inspection found no surface features, although features related to coffee cultivation were found adjacent to the southern boundary. The archaeological surveyors noted that large portions of the project area have exposed *pahoehoe* outcrops.

Impacts and Mitigation

The proposed baseyard will not have an adverse impact on archaeological or cultural resources. Cultural Surveys Hawai‘i noted that the project area is graded and has no surface historic properties. It is unlikely to have deep subsurface deposits, as indicated by the exposed *pahoehoe* lava. No further archaeological work was recommended.

The Archaeological Literature Review and Field Inspection has been submitted to the SHPD for review in accordance with HRS Chapter 6E, Hawai‘i’s Historic Preservation Law. The SHPD review is pending.

Cultural Impact

The proposed development of the DAGS Kona District Office baseyard will not have an adverse impact on cultural resources. The project will not impact the cultural setting, *wahi pana* (storied places), burials, archaeological sites, gathering practices or trails in the vicinity. The project will not have a significant adverse effect on traditional and customary practices and properties of Native Hawaiians or any other ethnic group.

Cultural Setting

The proposed Kona District Baseyard project area is located in the *‘āpa‘a,* or Upland Agricultural Zone of the Kona Field System, an area of intense agricultural and permanent habitation in the pre-Contact and early post-Contact periods. Several parcels near the project area were awarded as Land Commission Awards (LCA) in the mid-nineteenth century, and a school was built adjacent to the project area around 1906. In the latter part of the nineteenth century, many Hawaiians moved their permanent habitations from the coast to the upper belt road.

Wahi Pana (Storied Places)

No *heiau* (pre-Christian place of worship), *hōlua* (sled courses) or other major pre-Contact Hawaiian sites are reported from the project vicinity. The nearest place of note was the Keauhou Uka School, which was located directly *mauka* of the project site. The school closed sometime in the late 1960s, and today the remaining buildings are used by the Hawai‘i County Economic Opportunity Council (HCEOC) and a Head Start preschool. The development of the proposed project is anticipated to have no effect on *wahi pana.*

Traditional Uses

There are five LCA parcels (within four LCA claims) adjacent or near the project area on the *makai* side of Māmalahoa Highway. Land use included house lots and agricultural claims including plantings of coconut and orange trees, *moʻo* (long strips of land), *kīhāpai* (small garden areas, smaller than *moʻo*)and *paukū*, usually used for dry land crops such as sweet potatoes. It is difficult from the description to determine the agricultural use with certainty.

Burials

No burials were documented in the project area and vicinity in the Cultural Surveys Hawaiʻi (O'Hare et al., 2010) archaeological study. No burials are believed to be present in the project area or immediate vicinity.

Archaeological Sites

As noted above, there are no surface historic properties, and the lot is unlikely to have deep subsurface deposits, as indicated by the exposed *pāhoehoe* on the lot. The archaeological study did note the presence of a terrace, walls, and coffee planting areas just south (outside) of the project area but similar features are common in the vicinity. Development of this small parcel is anticipated to have no effect on any archaeological resources.

Gathering

The vast majority of the project area has been previously graded and has no plants or other resources that would have been subject to traditional gathering practices. The plants present on the site are all species are common at this elevation of Keauhou and no gathering practices are believed to be associated with these resources.

Trails

The Māmalahoa Highway may well have begun as a pre-contact Hawaiian trail and in the latter part of the nineteenth century, was a major transportation route for coffee growers, sugar cane cultivators, and ranchers transporting crops to the large ports, such as Kailua-Kona and Keauhou Bay. Māmalahoa Highway is located *mauka* of the proposed project area. There were also several inland trails that led directly from the coast to the upper road; one of these was the Keauhou Trail, built around or before 1909. This trail ended at the *makai* side at the Māmalahoa Highway, approximately 165 feet north of the project area. Neither of these two major trails are adjacent to the proposed project site, and the development of the baseyard will have no effect on any former or existing trail systems or access.

3.5 UTILITIES AND INFRASTRUCTURE

3.5.1 Potable Water

Water service to the project area is provided by the County of Hawai‘i Department of Water Supply. The project site does not currently have any type of water connection to provide for domestic consumption or fire prevention for the proposed baseyard.

In their early consultation letter dated January 27, 2011, the Department of Water Supply (DWS) indicated that water is available from an existing 12-inch waterline within Māmalahoa Highway. However, the project engineers have subsequently confirmed that there are actually two (2) eight-inch water mains in the Old Māmalahoa Highway to the east of the property fronting TMK 7-8-007:028. Subsequent follow up with DWS also clarified that the existing water meters referenced in their January 27, 2011 letter appear to be used by the Keauhou Head Start and the Hawai‘i County Economic Opportunity Council (HCEOC), located on the adjacent site. Therefore, installation of a new meter will be required for the proposed baseyard project.

The proposed project will connect to the nearest 8-inch waterline in the Old Māmalahoa Highway to provide both domestic and fire protection to the site. The first tap with a small diameter service lateral will be to provide domestic use. The second connection will likely be a size on size connection to provide adequate flow to the single fire hydrant on the site. The single hydrant is located so that it can cover both the office and shop buildings during a fire.

In order to connect to the existing water system, water lines must be installed through the adjacent 0.664 acre parcel which currently occupied by the Keauhou Head Start program and the HCEOC. It is anticipated that a utility easement will be created through the adjacent State-owned parcel allowing the waterlines through. The meters and backflow prevention devices will need to be located within that easement near the Old Māmalahoa Highway.

With the proposed improvements, water service is expected to be adequate for the project.

3.5.2 Sanitary Sewer

The project is located in an area that is not currently served by the County of Hawai‘i’s sewer system. Therefore an appropriately sized septic tank and leach field will be designed to treat and dispose of any sewage generated at the site. The location of the septic tank and leach field will be to the northeast of the office building. The septic tank will likely be pre-cast concrete to withstand traffic loads.

3.5.3 Electrical, Telephone, Cable

There is sufficient electrical capacity to service the project. There are existing overhead electrical and telephone lines along both sides of Kuakini Highway (Hawai‘i Belt Road) past the project site. In front of the project site, there is an existing utility pole #9 on the highway. Underground conduits will be utilized to connect power, telephone and CATV services from utility pole #9 to the to the electric meter and telephone/CATV panel installed on an exterior wall of the Office

Building. From this point the project's power and communication wiring will be distributed via underground conduits to the shop building, parking structure and freestanding electrical fixtures via underground conduits. There are no overhead wires proposed for this project.

Compliance with Hawai'i County Code

At night, some of the outdoor lights under the canopy (shed roof) attached to the shop building will remain on for security purposes. All outdoor lighting will comply with applicable portions of Article 9 Outdoor Lighting from Chapter 14 General Welfare of the Hawai'i County Code 1983 (2005 edition). These sections of the County Code restrict the use of certain types of light source, control the hours of operation, and require shielding of exterior lights in order to mitigate adverse impacts, particularly to the observatories on Mauna Kea. Shielded lighting also minimizes the threat of disorientation and downing of Hawaiian Petrels and Newell's Shearwaters, as discussed previously in Section 3.3.2.

Exterior lighting design will also follow the Illuminating Engineering Society of North America (IESNA) recommendation to use "full-cutoff" light fixtures for exterior lighting design to minimize "light pollution" and "light trespass" for this project.

3.5.4 Drainage

The existing site has no existing drainage system; all stormwater at the site is currently allowed to drain towards the Hawai'i Belt Road to the west. After a drainage report is prepared a drainage system will be designed to mitigate any increased runoff due to the development of the site. The new drainage system will use shallow drywells (drywells that are wider than they are deep), interconnected with perforated pipes to dispose of the increased amount of stormwater.

Additionally, grading of the site, grated inlets, trench drains and downspouts connected to the new drainlines will all aid in directing flow to the new drywells. With the new drainage system in place, runoff that is allowed to leave the site should be reduced in volume (compared to the existing conditions).

3.5.5 Solid Waste

The County of Hawai'i solid waste disposal facilities includes two land fills and twenty-one (21) transfer stations throughout the island. West Hawai'i is served by the landfill at Waikoloa, which is owned by the County and operated by Waste Management of Hawai'i, Inc. Solid waste materials from the existing DAGS West Hawai'i baseyard is stored in a large, 25-foot roll-off container on site and disposed by commercial contractor as needed, typically on a seven month cycle. Solid waste disposal will continue in the same manner with the proposed baseyard. The new baseyard will have a partially fenced area on the southern side of the site designated for a roll-off trash bin and a recycling area. The quantity and types of solid waste generated during baseyard operations will be unchanged. During project construction, all construction debris and waste will be disposed at an approved solid waste disposal or recycling facility.

3.6 TRAFFIC

An evaluation of project vehicular access to the project site was conducted by Julian Ng, Inc. (Appendix C). Findings are discussed below.

3.6.1 Existing Conditions

Site Access

The 0.97-acre project site is bounded on its north, east, and south sides by private properties; its only access is along its west boundary, which is shared with the State highway right-of-way for Kuakini Highway (State Route 11).

Kuakini Highway is a part of the main belt highway on the island of Hawai‘i. In the area fronting the project site, it is a two-lane highway with a posted speed limit of 55 miles per hour. A second southbound lane on the highway ends approximately 0.5 mile to the north.

The project site is located near the intersection of the highway with Ha‘awina Street, a short, two-lane local street that connects to Māmalahoa Highway (Route 180), a winding two-lane highway that provides access to properties east of Kuakini Highway.

Currently, access to the site is via a steep driveway from the highway leading to the property, which is about seven feet higher in elevation than the highway. The proposed site plan proposes to replace the existing driveway with a new driveway near the south end of the property frontage. This location maximizes the distance between the baseyard driveway and the intersection with Ha‘awina Street.

Existing Traffic

The State of Hawai‘i Department of Transportation (HDOT) has published data from a one-day machine count of highway traffic taken on June 3, 2008 (Tuesday) very near the project site. Table 3-2 below summarizes the daily totals and the peak hour counts.

Table 3-2 – Highway Traffic (June 2008)

	total	southbound	northbound
24-hour total volume (June 3, 2008)	18,698	9,211	9,487
AM Peak Hour (7:00 AM – 8:00 AM)	1,564	601	963
PM Peak Hour (3:00 PM – 4:00 PM)	1,485	784	701

Source: State of Hawai‘i, Department of Transportation, Highways Division. *Hawai‘i DOT Traffic Station Maps 2008* (CD)

The existing driveway is normally chained and locked. Currently, there is no regular use of the site, and existing traffic generated by the site is negligible.

3.6.2 Impacts and Mitigation

Long-Term Impacts

The proposed project will construct several buildings to provide office and shop space for operations and maintenance services for State facilities managed by DAGS in West Hawai‘i. Estimates of traffic generated by the site after completion of the project are shown in Table 3-3 below.

Projected peak hour driveway volumes are much less than the 100 vehicles per hour suggested by the Institute of Transportation Engineers (ITE) as a threshold for conducting a traffic study (from *Transportation Impact Analyses for Site Development*, 2005).

Table 3-3 – Site Traffic Estimates[4]

	Average	AM Peak Hour		PM Peak Hour	
Trip rates* (per 1,000 SF)	weekday	rate	%enter	rate	%enter
General Light Industrial	6.97	0.92	88%	0.97	12%
Single Tenant Office	11.57	1.80	89%	1.73	15%
Trip Generation	Two-way	enter	exit	enter	exit
8.75 GSF shops	61	7	1	1	7
2.50 GSF office	29	4	0	1	4
Driveway volumes	90	11	1	2	11

* from Institute of Transportation Engineers, *Trip Generation, 8th Edition.*

Traffic impact to Kuakini Highway would actually be less than the total driveway volumes due to two factors: 1) driveway traffic will be distributed north and south of the site, and 2) some of

[4] The trip rates and %enter are from the Institute of Transportation Engineers, *Trip Generation, 8th Edition.* For average weekday, %enter is 50% (entries=exits) and are vehicle trips per 1,000 square feet of building area. The peak hour rates are shown in the third and fifth columns (0.92 and 1.80 for AM, 0.97 and 1.73 for PM).

Estimated floor areas are based on site plan. Trip generation derived by applying the trip rate and %enter to the floor area: (8.75 x 6.97 = 61, 8.75 x 0.92 x 88% = 7, etc.). Driveway volumes are the sums of the trips computed for the two uses (e.g. 61 + 29 = 90).

the project traffic is already on the highway, since the project relocates an existing activity from another site in Kona.

Due to the high speed of through traffic on the highway, a separate left turn lane would be desirable. However, the addition of a left turn lane would present logistical problems, as it would require an approach taper (striping to relocate the through lanes) that would extend past the intersection with Haʻawina Street, about 400 feet to the north. Further, there is no existing left turn lane at Haʻawina Street, which would continue to have larger volumes of traffic than the baseyard driveway. Restricting left turns in or out of the baseyard driveway would require circuitous routes using Haʻawina Street, Māmalahoa Highway, and Kalelei Street (local street to the south) with left turns from or to the highway at other locations.

The evaluation by Julian Ng, Inc. concluded that the impact of the proposed project on traffic will not be significant. In order to mitigate adverse impacts to Kuakini Highway, the driveway should be designed with adequate sight distance, appropriate horizontal and vertical alignments, and adequate drainage.

Construction Period Impacts

During construction, there is the potential for traffic impacts due to movement of construction workers, equipment, and material hauling. It is anticipated that these impacts will be less than the traffic impact at completion (10 vehicles per hour in the peak direction, considerably less in the off-peak direction). The impacts of large construction vehicles may be mitigated with a traffic control plan that includes use of a special duty police officer. In addition, deliveries (e.g., building trusses, concrete) could be scheduled to avoid peak traffic, although this may be difficult given the time distribution of traffic on the highway and the desire to pour concrete early in the day. All construction staging and storage of material and equipment should be off the highway right-of-way to maintain sight lines and clear zones.

Required permits will be obtained from the State Department of Transportation (DOT) for construction within the highway right-of-way.

3.7 PUBLIC SERVICES AND FACILITIES

3.7.1 Police, Fire and Emergency Services

Existing Conditions

Police, fire and emergency services are provided through the County of Hawaiʻi. The project is within the Kona Police District, with a police station located at Kealakehe above Queen Kaʻahumanu Highway.

The Hawaiʻi County Fire Department employs 350 paid fire fighters and 225 volunteer fire fighters at 20 stations across the island. The North Kona fire station is located in Kailua Kona.

Impacts and Mitigation

In an early consultation letter dated January 11, 2011, the County Police Department indicated that it had no comments or objections to offer on the impact of police services. However, the Police Department recommended that a left turn lane off Kuakini Highway into the baseyard (southbound lane) be considered, as this area of the highway consist of double lanes in the southbound direction and is heavily traveled. This would allow for safe ingress into the baseyard from the southbound direction.

3.7.2 Other Public Facilities

Existing Conditions

The DAGS West Hawai‘i service encompasses a 25-mile long corridor from Ho‘okena Elementary School in the south to Kealakehe High School in the north. Currently, the Kona Baseyard provides maintenance service to State-owned schools, libraries, government buildings, and other public facilities within this service area.

Impacts and Mitigation

The project would have a positive impact on State-owned public facilities in the West Hawai‘i area, as it would provide a new, more centrally located maintenance baseyard for DAGS. There will not be any impact to other (e.g., County) public facilities. The project will not impact population or the demand for public facilities.

4 CONSISTENCY WITH EXISTING PLANS, POLICIES AND CONTROLS

4.1 STATE OF HAWAIʻI

4.1.1 Hawaiʻi State Plan

The 1996 Hawaiʻi State Plan (Chapter 226, HRS) is the umbrella document in the statewide planning system. It serves as a written guide for the future long-range development of the state by describing a desired future for the residents of Hawaiʻi and providing a set of goals, objectives, and policies that are intended to shape the general direction of public and private development.

The project, to construct a new baseyard to support the Department of Accounting and General Services (DAGS) maintenance functions in West Hawaiʻi. Maintenance and repair services are provided to a variety of State-owned facilities, including schools, office buildings, and health centers. As such, the new baseyard is consistent with and supports all the State plan objectives for "facility systems," discussed in HRS Sections 226-14 through 226-27. Among the objectives listed is the importance of adequate physical facilities to support these functions.

4.1.2 State Land Use Classification

The State Land Use Commission, pursuant to Chapter 205 and 205A, HRS and Chapter 15-15, Hawaiʻi Administrative rules, is empowered to classify all lands in the State into one of four land use districts: urban, rural, agricultural and conservation. The entire site is within the State's Rural District (Figure 14). Rural Districts are composed primarily of small farms intermixed with low-density residential lots with a minimum size of one-half acre. Surrounding lands on the *mauka* side of Kuakini Highway are largely in the Agricultural and Rural Districts. Lands *mauka* of Kuakini Highway are in the Urban District.

Jurisdiction over Rural Districts is shared by the State Land Use Commission and county governments. Uses in the Rural District include those relating or compatible to agricultural use and low-density residential lots.

For sites less than 15 acres in size, like the subject property, the Land Use Commission has relegated decision making to the County. The County will review the proposed baseyard use during their plan review process.

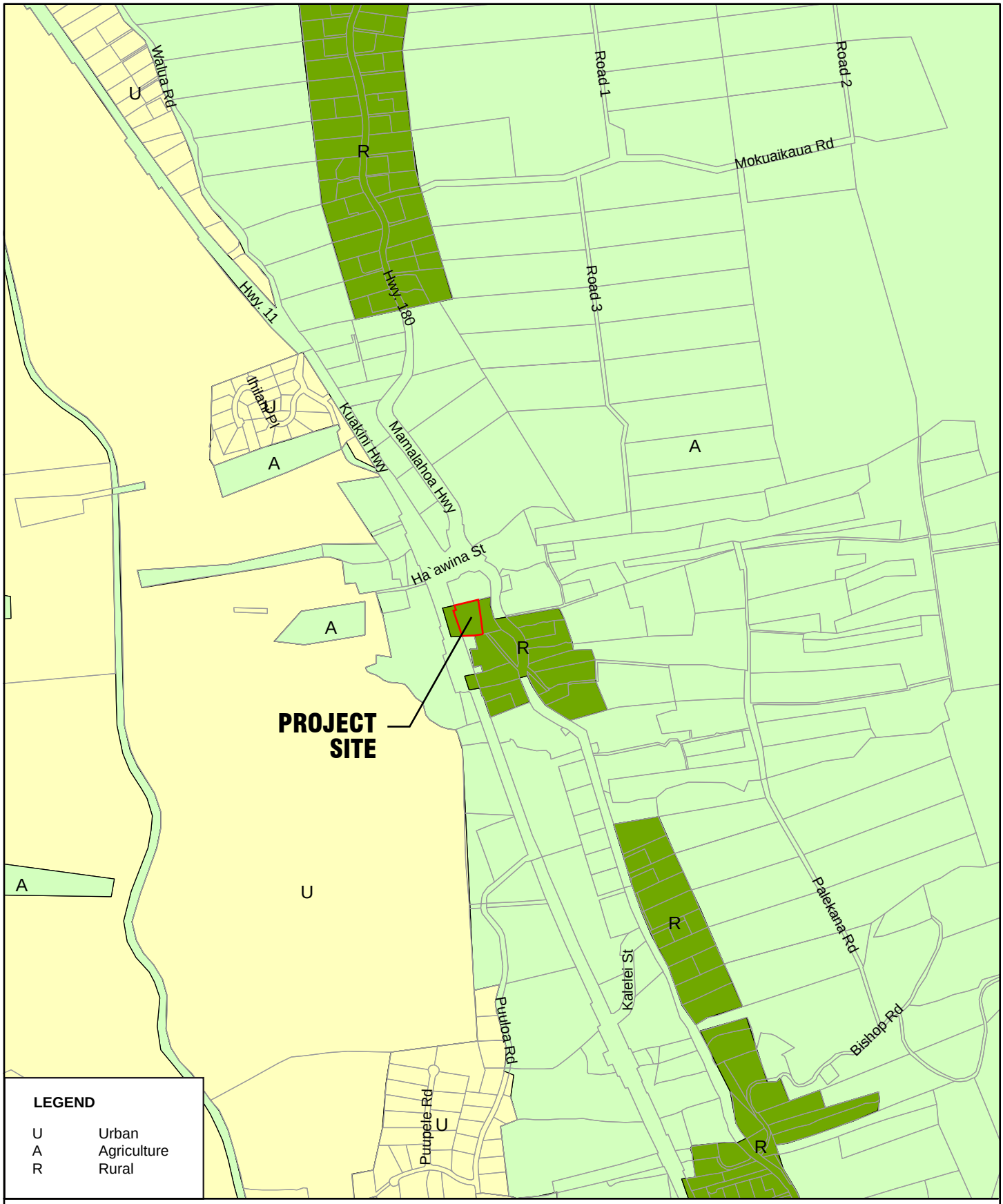


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FIGURE 14
STATE LAND USE DISTRICTS (SLUD) MAP

DAGS Kona District Baseyard
March 2011

4.2 COUNTY OF HAWAI'I

4.2.1 County General Plan

General Plan Objectives and Policies

The Hawai'i County General Plan, February 2005, is a long range comprehensive policy document whose purpose is to guide the future development of the County. The General Plan is organized into 13 subject areas including Economics, Energy, Environmental Quality, Flooding and other Natural Hazards, Historic Sites, Natural Beauty, Natural Resources and Shoreline, Housing, Public Facilities, Public Utilities, Recreation, Transportation, and Land Use.

Maintenance baseyards are covered under Chapter 10, Public Facilities, and specifically, Section 10.4, Government Operations. This section states that *"Baseyards are the operational, storage and maintenance centers for public works services such as those provided by the road and water departments. These baseyards also serve as agency field offices."*

The existing DAGS baseyard is not specifically addressed in the General Plan. However, despite the fact that DAGS has continued to provide adequate maintenance services from the existing baseyard, it is clearly in poor and deteriorating physical condition, and a new facility is needed. Without a new baseyard, it is uncertain how much longer the existing facility could support operations without jeopardizing the quality of service.

The General Plan's Land Use Pattern Allocation Guide (LUPAG) map indicates the general location of various land uses in relation to each other. Major categories of land use include urban, rural, and agriculture designations, as well as others such as University, open, and conservation. The subject property is designated Rural by the current LUPAG map (Figure 15). This category includes existing subdivisions in the State Land Use Agricultural and Rural districts that have a significant residential component. Typical lot sizes vary from 9,000 square feet to two acres, and may contain small farms, wooded areas, and open fields as well as residences. Commercial and community and public facilities, such as a baseyard, are allowed in these rural areas. No changes to the site designation is proposed in the County's ongoing General Plan Revision Program.

4.2.2 Kona Community Development Plan

The Kona Community Development Plan (CDP) (September 2008) was prepared in compliance with the County of Hawai'i General Plan Section 15.1, which calls for the preparation of community development plans *"to translate the broad General Plan statements into specific actions as they apply to specific geographical areas."* The Kona CDP was adopted by County Council Ordinance 08 131, effective September 25, 2008.

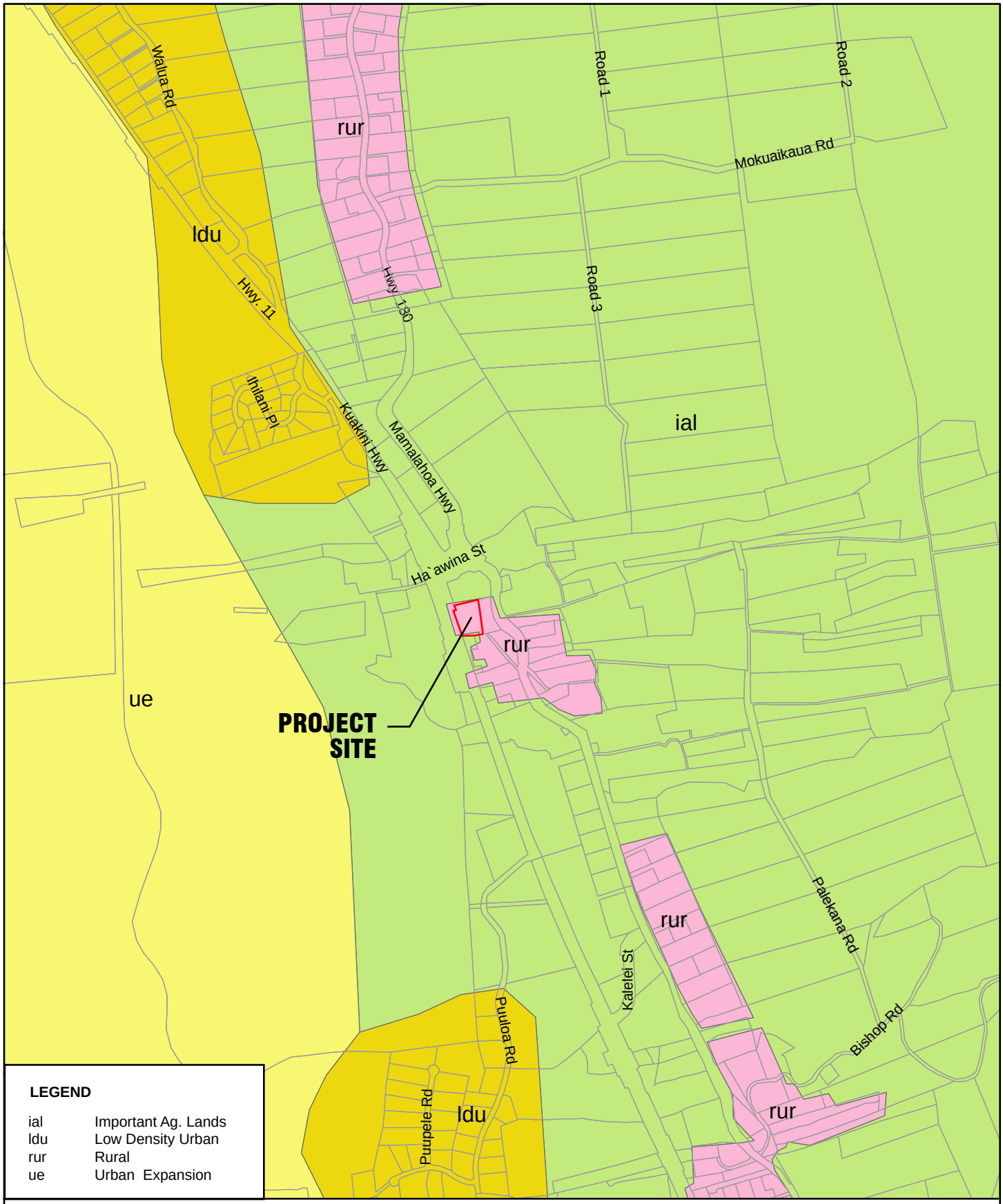

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FIGURE 15

LAND USE PATTERN ALLOCATION GUIDE (LUPAG) MAP

DAGS Kona District Baseyard
March 2011

The Kona CDP area encompasses 800 square miles, and includes the judicial districts of North and South Kona. The purposes of the Kona CDP are:

- Articulate Kona's residents' vision for the planning area
- Guide regional development in accordance with that vision, accommodating future growth while preserving valued assets;
- Provide a feasible infrastructure financing plan to improve existing deficiencies and proactively support the needs of future growth;
- Direct growth to appropriate areas;
- Create a plan of action where government and the people work in partnership to improve the quality of life in Kona for those who live, work and visit;
- Provide a framework for monitoring the progress and effectiveness of the plan and to *mauka* changes and update it, if necessary.

Vision Statement and Guiding Principles

Chapter 3 of the Kona CDP provides a vision statement and guiding principles in order to achieve the vision. The proposed master plan is consistent with the Kona CDP's vision statement and guiding principle 6, "provide infrastructure and essential facilities concurrent with growth." This principle requires that "these facilities should be maintained at a level that will enhance the quality of life for Kona residents." (Kona CDP, p. 3-2).

Goals, Objectives and Policies

The Kona CDP identifies goals, objectives, policies and actions in eight areas, including transportation; land use; environmental resources; cultural resources; housing; public facilities, infrastructure and services; energy; and economic development. The area most applicable to the proposed project is:

Public Facilities, Infrastructure and Services
County public facilities, infrastructure and services are those that are provided, staffed and maintained by government or quasi public entity to directly serve residents. These include all the State-owned facilities in West Hawai‘i that are maintained by the DAGS Kona baseyard. The project would directly support the stated guiding principle calling for a "standard of excellence" pertaining to the "construction, operation and maintenance of all public facilities and the supportive role of the community to promote civic pride." (Kona CDP, p. 4-99).

4.2.3 County Zoning

As shown in Figure 16, the County of Hawai‘i zoning is Residential and Agricultural (RA-.5a). Hawai‘i County zoning Code, 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.”

4.2.4 Special Management Area

Coastal Zone Management objectives and policies (Section 205A-2, HRS) have been developed to preserve, protect, and where possible, to restore the natural resources of the coastal zone of Hawai‘i. The project site is outside the County’s Special Management Area.

4.3 OTHER CONSIDERATIONS

4.3.1 Unavoidable Adverse Effects

All potential environmental impacts discussed in Chapter 3 can either be avoided or mitigated to an extent that they would not be significant.

4.3.2 Energy Requirements and Conservation Potential of Various Alternatives and Mitigation Measures

The proposed baseyard has the potential to have a positive long term impact on energy efficiency compared to remaining at the current baseyard. The existing baseyard is in old and deteriorating buildings, and requires make-shift repairs and accommodations. For example, material must be covered within the shops, due to the severely leaking roof. The existing baseyard is within a less than ideal location within the service area, and dispatching to job sites, particularly in the central and northern parts of the service area, requires additional travel time. By comparison, the proposed site is centrally located within the service area. The various site layouts that were considered during the design process would have similar energy requirements to the proposed action.

4.3.3 Relationship of Short-Term Uses and Long-Term Productivity

In the short-term, the project will have temporary construction-related impacts such as noise, dust, and traffic congestion on the surrounding areas. The improvements will require a commitment of public construction funds. However, in the long term, the provision of a new centrally located baseyard to support DAGS West Hawai‘i maintenance activities will enhance long-term productivity.

4.3.4 Irretrievable and Irreversible Resource Commitments

Resources that are committed irreversibly or irretrievably are those that cannot be recovered if the project is implemented. The proposed project will involve the commitment of land, capital, labor, fuels and equipment. The site will be committed to a baseyard use, and cannot be used for

another function. However, the site is presently vacant and underutilized, and use as a baseyard is consistent with the terms of Executive Order No. 3821 dated August 24, 2000, in which DLNR set aside the property for DAGS for "Field Offices, Maintenance Baseyard and Related Purposes."

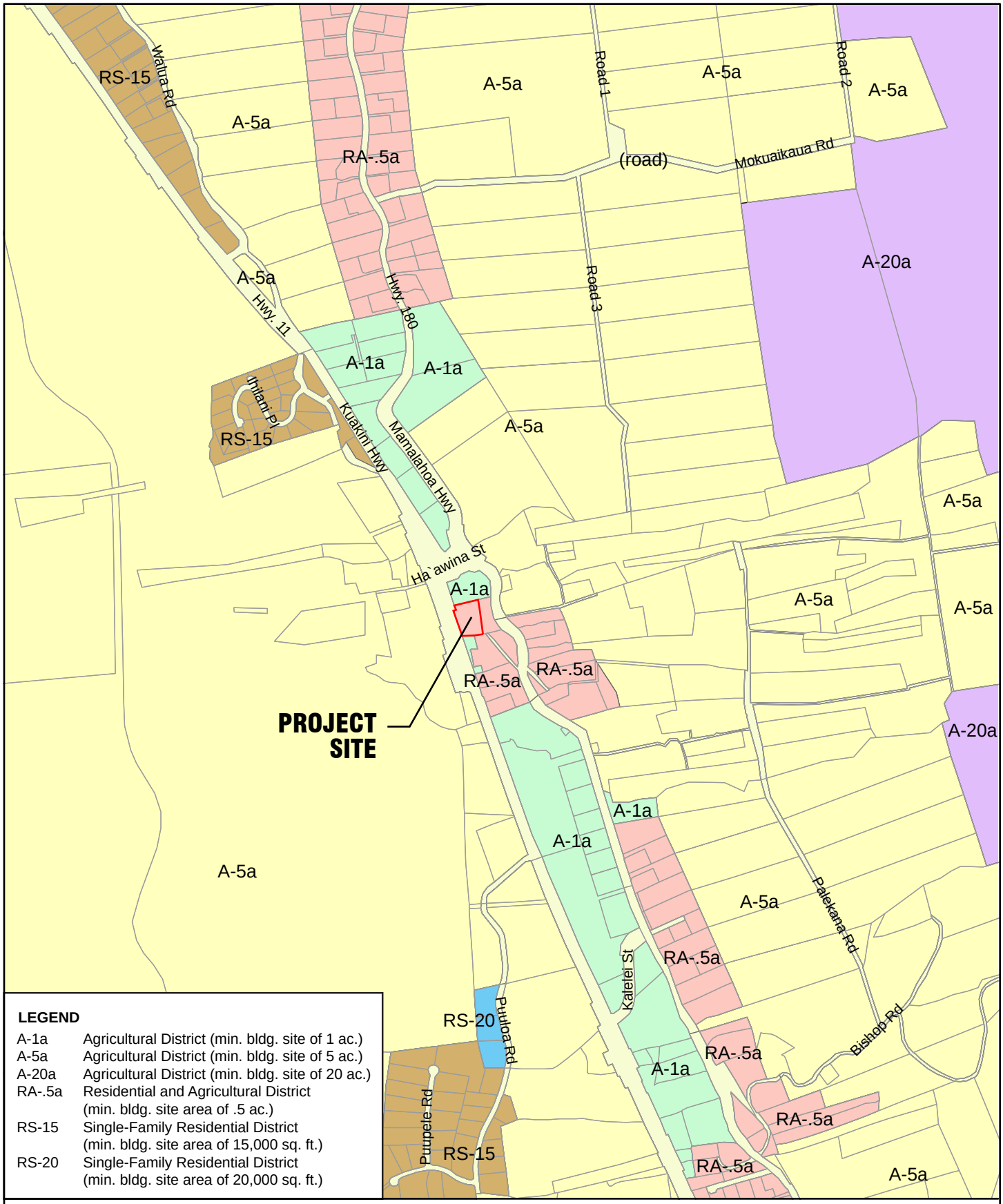

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FIGURE 16
ZONING MAP

DAGS Kona District Baseyard
March 2011

5 ANTICIPATED DETERMINATION, FINDINGS AND REASONS SUPPORTING THE DETERMINATION

5.1 ANTICIPATED CHAPTER 343 HRS DETERMINATION

Based on the information and analysis in this Environmental Assessment, the State of Hawai‘i Department of Accounting and General Services anticipates a determination that the project will not result in a significant impact on the environment. It expects to issue a Finding of No Significant Impact (FONSI), pursuant to the State of Hawai‘i HRS Chapter 343, and conclude that an Environmental Impact Statement (EIS) is not required.

5.2 CHAPTER 343 HAWAI‘I REVISED STATUTES (HRS) SIGNIFICANCE CRITERIA

In determining whether an action may have significant impact on the environment, the applicant or agency must consider all phases of the project, its expected consequences both primary and secondary, its cumulative impact with other projects, and its short and long-term effects. The State of Hawai‘i Department of Health Rules Section 11-200-12 (Hawai‘i Administrative Rules, revised 1996) establish 13 “Significance Criteria” to be used as a basis for identifying whether significant environmental impact will occur.

An agency will determine an action may have a significant impact on the environment if it meets any of the following criteria:

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

The project will not result in an irrevocable commitment to loss of destruction of any natural or cultural resources. The project site is previously disturbed and does not contain any significant biological or cultural resources.

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

The proposed project does not curtail the range of beneficial uses of the environment. The project improvements will occur within a vacant site that has been identified via Executive Order for future maintenance baseyard use.

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

The primary purpose of the project is to provide a more modern, efficient and appropriately located baseyard to support DAGS West Hawai‘i maintenance activities. The proposed project is consistent with the environmental policies in Chapter 344, HRS, which establishes a state policy to encourage productive and enjoyable harmony between people and their environment promotes efforts to prevent or eliminate damage to the environment and stimulate community health and welfare.

The project does not conflict with any of the Chapter 344 guidelines which address the areas of population; natural resources; flora and fauna; parks and recreation; economic development; transportation; energy, community life and housing; education and culture; and citizen participation.

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

The proposed project will not substantially affect the economic or social welfare of the community or State. Construction of the baseyard will have minor, short-term air, noise and traffic impacts. Other potential impacts such as traffic can be adequately mitigated. The project will have beneficial long-term impacts to the state by improving its ability to carry out its facility maintenance functions.

5. Substantially affects public health;

The operation of the baseyard will not adversely affect public health of surrounding residents or of students or staff in the adjacent Head Start preschool or HCEOC offices nearby. Temporary construction-period noise and dust impacts will be minor and short-term. The design of the maintenance shops and inclusion of air filtering equipment will mitigate potential dust and fumes from inside the shops. There will be little activity at the site during most of the school day. Activities such as carpentry and painting will be limited to inside the shops, and will occur primarily in the late afternoon, toward the end of the school day. There will not be adverse effects on public health.

6. Involves secondary impacts such as population changes or effects on public facilities;

The proposed project will not result in a population increase, generate additional vehicle traffic, or affect demand for public facilities or utilities. The new baseyard will support ongoing DAGS maintenance operations. These activities will continue whether or not the new baseyard is constructed.

7. Involves a substantial degradation of environmental quality;

Potential construction period impacts to the adjacent Head Start preschool and offices are related to noise and air quality, and will be temporary and short-term in duration. A waterline connection to Māmalahoa Highway will be needed through the adjacent Head Start school site, and there will be noise and dust during excavation. Short-term impacts will be mitigated through equipment noise attenuation, and use of best management practices to control erosion and runoff.

8. Is individually limited but cumulatively has considerable effect upon the environment or involves a commitment for larger actions;

The proposed project does not involve a commitment for larger action.

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

No rare, threatened or endangered species or its habitat is located on or near the site, and none will be impacted by the project.

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

The project will result in short-term construction period increases in fugitive dust and noise that will inconvenience students and staff at the adjacent Head Start preschool. These impacts will be mitigated to the extent possible by scheduling noisiest construction before and after school hours. There will be no long term impacts to air or water quality or noise.

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;

The areas where the improvements are proposed are not environmentally sensitive, subject to flood, or near any fresh or coastal waters. Best management practices will be utilized during construction to minimize erosion and runoff.

12. Substantially affects scenic vistas and viewplanes identified in county or state plans or studies; or

The project will not impact scenic vistas or viewplanes identified in county or state plans or studies.

13. Requires substantial energy consumption.

The project will not require substantial energy consumption. Energy resources will be consumed during project construction. The baseyard will replace an existing facility with a similar function. In the long-term, the new baseyard will increase energy efficiency by eliminating an outdated, deteriorating facility which is inadequate, poorly located and involves unnecessary travel time within the service area.

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7 PERSONS AND AGENCIES INVOLVED IN THE PREPARATION OF THE ENVIRONMENTAL ASSESSMENT

7.1 AGENCIES AND ORGANIZATIONS CONSULTED

The following agencies and organizations were contacted during the early consultation for the Draft EA. The comments received during the early consultation are summarized in Section 7.2 and copies of the letters are included at the end of this chapter.

Federal

U.S. Army Engineer Division
- Civil Works Technical Branch
- Regulatory Branch

U.S. Fish and Wildlife Service

State

Department of Accounting and General Services
Department of Agriculture
Department of Business, Economic Development & Tourism, Office of Planning
Department of Hawaiian Home Lands
Department of Land and Natural Resources
- Land Division
- State Historic Preservation Division

Department of Education
- Planning Section

Department of Health
- Environmental Planning Office
- Office of Environmental Quality Control

Office of Hawaiian Affairs

County of Hawai‘i

Department of Environmental Management
Department of Public Works
Fire Department
Planning Department
Police Department
Department of Water Supply

Other Organizations

Hawai‘i Electric Light Company
Hawaiian TelCom

Elected Officials

Representative Denny Coffman, District 6
Senator Josh Green, District 3
County Councilmember Brenda Ford, District 7

7.2 COMMENTS RECEIVED DURING PRE-ASSESSMENT CONSULTATION

Letters soliciting comments were sent to the agencies and organizations listed above in December 2010, and a total of 10 letter and one e-mail responses were received. A summary of the comments is included in the table below, and copies of the letters are included at the end of this chapter.

Table 7-1: Summary of Comments Received During Pre-Assessment Consultation

Agency or Individual	Format/Date/ Reference	Comments	Action/Response
Federal			
Department of the Army, U.S. Army Engineer District, Regulatory Branch	Letter dtd December 16, 2010	Based on info submitted, review area appears to consist entirely of uplands and is absent waters of the U.S. including adjacent wetlands subject to Corps jurisdiction. DA permit not required.	Acknowledged
Department of the Army, U.S. Army Corps of Engineers, Civil Works Technical Branch	Ltr dated January 18, 2011	According to FIRM revised September 16, 1988, property located in Unshaded Zone X, areas outside the 500-year/0.2% annual chance flood.	Acknowledged.
State of Hawai‘i			
Department of Land and Natural Resources, Land Division	Ltr dtd January 5, 2011		
• *Division of Aquatic Resources*		No comments	N/A
• *Land Division*		Subject land set aside to the DAGS for “Field Offices, Maintenance Baseyard and Related Purposes” pursuant to Executive Order No. 3821 dated August 24, 2000. Project appears consistent with purpose. Cover letter reference to land “currently being	Comment forwarded to DAGS for follow up.

Agency or Individual	Format/Date/ Reference	Comments	Action/Response
		used as a dog park" is inconsistent with purpose of EO. Not clear from letter who is operating dog park or whether the park was established with DAGs knowledge or consent. Any use of land that is inconsistent with purposes of EO should cease.	
• *Division of Forestry and Wildlife*		No comments	N/A
Office of Hawaiian Affairs	Ltr dtd December 22, 2010	OHA seeks clarification on whether the operations of Head Start child care center in old Keauhou School immediately adjacent to parcel will be adversely affected by activities and daily operation.	Discussion to be provided in Draft EA.
Department of Transportation Services	Ltr dtd January 10, 2011	Given location of project, State's Kuakini Highway will be impacted. Recommend DEA discuss and evaluate project and traffic impacts to Kuakini Highway, e.g., access and driveway improvements, inconvenience to public during construction, types of construction vehicles and equipment used, construction hours. Applicant should work with DOT Highways Division regarding permits for construction equipment and submit construction plans for work within and adjacent to State highway ROW. DOT requests 4 copies of Draft EA.	Forwarded to traffic engineer for consideration.
County of Hawai'i			
Department of Environmental Management	Ltr dtd December 10, 2010	No comments	N/A
Fire Department	Ltr dtd December 21, 2010	Fire apparatus access road to be provided and maintained as required in accordance with provisions addressing location, width, surface, design, etc. Water supply capable of supplying required fire flow for fire protection to be provided.	Project will comply with provisions cited.
Planning Department	Ltr dtd January 6, 2011	State Land Use designation is Rural. Designated Rural by General Plan LUPAG map. Zoning is Residential and Agricultural (RA-.5a) Zoning Code states that "public uses, structures and buildings and community buildings are permitted…provided that the	Information to be included in Draft EA.

Agency or Individual	Format/Date/ Reference	Comments	Action/Response
		director has issued plan approval…" Not within SMA. EA should include discussion of conformance to Kona Community Development Plan.	
Police Department	Ltr dtd December 16, 2010	No comments	N/A
Department of Water Supply	Ltr dtd January 27, 2011	Water available from existing 12-inch waterline on Māmalahoa	Engineer followed up with DWS and clarified that there are two 8-inch water lines and that new water meter will be requird.
Other			
John M. Sevick	Email dated January 8, 2011	Site used by dog agility/training group one day a week; not aware of site in general use by dog owners. Have not heard of this site being designated for dog park use. Any entrance off Hawai'i Belt Road would be dangerous and disruptive to traffic flow. Entrance/exit should be on the *makai* side. Intersection of Hawai'i Belt Road and Māmalahoa Highway needs to be equipped with turning lanes to facilitate safer traffic flow. County might consider acquisition and/or land swap for old quarry site north on Māmalahoa Highway; site is currently for sale.	Comment forwarded to DAGS and traffic engineer.

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

REPLY TO
ATTENTION OF:

December 16, 2010

Regulatory Branch

File Number POH-2010-00340

Kimura International, Inc.
Attention: Leslie Kurisaki
1600 Kapiolani Boulevard, Suite 1610
Honolulu, Hawaii 96814

RECEIVED DEC 20 2010

Dear Ms. Kurisaki:

We have received your Early Consultation in Preparation of a Draft Environmental Assessment (DEA) request dated December 7, 2010 for the Department of the Army (DA) to review and comment on the proposed Kona District Office Baseyard at TMK (3) 7-8-001:061, Keauhou, Kona District, Island of Hawaii, Hawaii. We have assigned the project the reference number **POH-2010-00340**. Please cite the reference number in any future correspondence concerning this project. We completed our review of the submitted document pursuant to Section 10 of the Rivers and Harbors Act of 1899 (Section 10) and Section 404 of the Clean Water Act (Section 404).

Section 10 requires that a DA permit be obtained from the U.S. Army Corps of Engineers (Corps) prior to undertaking any construction, dredging and other activities occurring in, over, or under navigable waters of the U.S., including the upper limit of adjacent wetlands. The line of jurisdiction extends to the Mean High Water Mark for tidal waters. Section 404 requires that a DA permit be obtained for the discharge (placement) of dredge and/or fill material into waters of the U.S., including wetlands. The line of jurisdiction extends to the Mean Higher High Water Mark for tidally influenced waters, the Ordinary High Water Mark for non-tidal waters and the approved delineated boundary for wetlands.

Based on the information you submitted, it appears the review area consists entirely of uplands and is absent of waters of the U.S., including adjacent wetlands, subject to Corps jurisdiction. We anticipate any proposed development activities will not involve the placement or discharge of dredged and/or fill material into waters of the U.S.; therefore, it appears a **DA permit will not be required**. This determination does not relieve you of the responsibility to obtain any other permits, licenses, or approvals that may be required under County, State, or Federal law for your proposed work. Please refrain from submitting the Draft and Final EA to this office for review, as it is not required.

Thank you for contacting us regarding this project and providing us with the opportunity to comment. Should you have any questions, please contact Ms. Jessie Pa'ahana at *808.438.0391* or via e-mail at *Jessie.K.Paahana@usace.army.mil*. You are encouraged to provide comments on your experience with the Honolulu District Regulatory Branch by accessing our web-based customer survey form at *http://per2.nwp.usace.army.mil/survey.html*.

Sincerely,

for George P. Young, P.E.
Chief, Regulatory Branch

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

REPLY TO
ATTENTION OF: CEPOH-EC-T/Dobinchick

January 18, 2011

Civil Works Technical Branch

RECEIVED JAN 20 2011

Mr. Glenn T. Kimura, President
Kimura International
1600 Kapiloani Boulevard, Suite 1610
Honolulu, Hawaii 96814

Dear Mr. Kimura:

Thank you for the opportunity to comment on the DAGS Kona District Office Baseyard Project, Kona, Hawaii (Tax Map Key 7-8-7: 61).

According to the Flood Insurance Rate Map (FIRM), Panel #1551660929C revised September 16, 1988, the property is located in Unshaded Zone X. These are areas determined to be outside of the 500-year/0.2% annual chance flood.

The documents have been forward to Mr. George Young, Chief, Regulatory Branch for Department of the Army permitting requirements. They will reply to you under separate cover (telephone: 438-9258).

Should you require additional information, please contact Ms. Jessie Dobinchick of my staff at (808) 438-8876.

Sincerely,

Michael F. Wong, P.E.
Chief, Civil Works Technical Branch

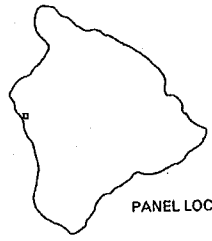
Enclosures

NATIONAL FLOOD INSURANCE PROGRAM

FIRM
FLOOD INSURANCE RATE MAP

HAWAII COUNTY, HAWAII

PANEL 929 OF 1900
(SEE MAP INDEX FOR PANELS NOT PRINTED)



COMMUNITY-PANEL NUMBER
155166 0929 C

MAP REVISED:
SEPTEMBER 16, 1988

Federal Emergency Management Agency

LEGEND

SPECIAL FLOOD HAZARD AREAS INUNDATED BY 100-YEAR FLOOD

ZONE A No base flood elevations determined.

ZONE AE Base flood elevations determined.

ZONE AH Flood depths of 1 to 3 feet (usually areas of ponding); base flood elevations determined.

ZONE AO Flood depths of 1 to 3 feet (usually sheet flow on sloping terrain); average depths determined. For areas of alluvial fan flooding, velocities also determined.

ZONE A99 To be protected from 100-year flood by Federal flood protection system under construction; no base elevations determined.

ZONE V Coastal flood with velocity hazard (wave action); no base flood elevations determined.

ZONE VE Coastal flood with velocity hazard (wave action); base flood elevations determined.

FLOODWAY AREAS IN ZONE AE

OTHER FLOOD AREAS

ZONE X Areas of 500-year flood; areas of 100-year flood with average depths of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees from 100-year flood.

OTHER AREAS

ZONE X Areas determined to be outside 500-year flood plain.

ZONE D Areas in which flood hazards are undetermined.

Flood Boundary

Floodway Boundary

Zone D Boundary

Boundary Dividing Special Flood Hazard Zones, and Boundary Dividing Areas of Different Coastal Base Flood Elevations Within Special Flood Hazard Zones.

513 Base Flood Elevation Line; Elevation in Feet*

D D Cross Section Line

(EL 987) Base Flood Elevation in Feet Where Uniform Within Zone*

$RM7_X$ Elevation Reference Mark

•M20 Coastline Mile

*Referenced to the National Geodetic Vertical Datum of 1929

NOTES

This map is for use in administering the National Flood Insurance Program; it does not necessarily identify all areas subject to flooding particularly from local drainage sources of small size, or all planimetric features outside special flood hazard areas.

Certain areas not in Special Flood Hazard Areas may be protected by flood control structures.

Boundaries of the floodways were computed at cross sections and interpolated between cross sections. The floodways were based on hydraulic considerations with regard to requirements of the Federal Emergency Management Agency.

Floodway widths in some areas may be too narrow to show to scale. Floodway widths are provided in the Flood Insurance Study Report.

Coastal base flood elevations apply only landward of the shoreline.

Elevations reference marks are described in the Flood Insurance Study Report.

For adjoining map panels see separately printed Map Index.

MAP REPOSITORY

County of Hawaii Public Works Department
25 Aupuui St. Hilo, Hawaii 96720 (Maps available for reference only, not for distribution.)

INITIAL IDENTIFICATION:

JUNE 6, 1970

FLOOD HAZARD BOUNDARY MAP REVISIONS:

JUNE 4, 1971
JULY 1, 1974

FLOOD INSURANCE RATE MAP EFFECTIVE:

JUNE 5, 1970

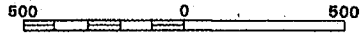
FLOOD INSURANCE RATE MAP REVISIONS:

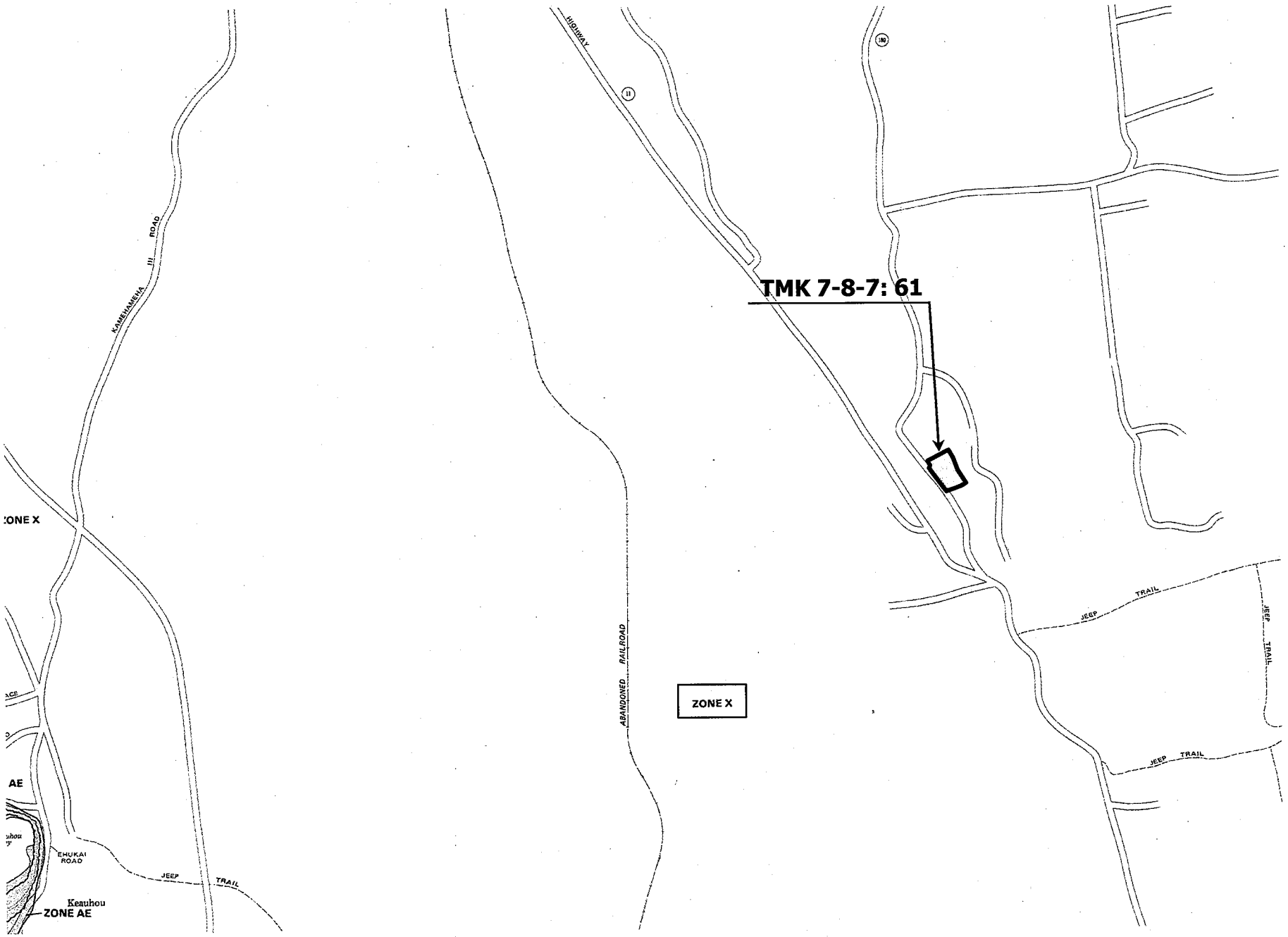
May 3, 1982 - to change and add special flood hazard areas, to change and add base flood elevations.

Map revised SEPTEMBER 16, 1988 to add base flood elevations, to add and change special flood hazard areas, and to update map format.

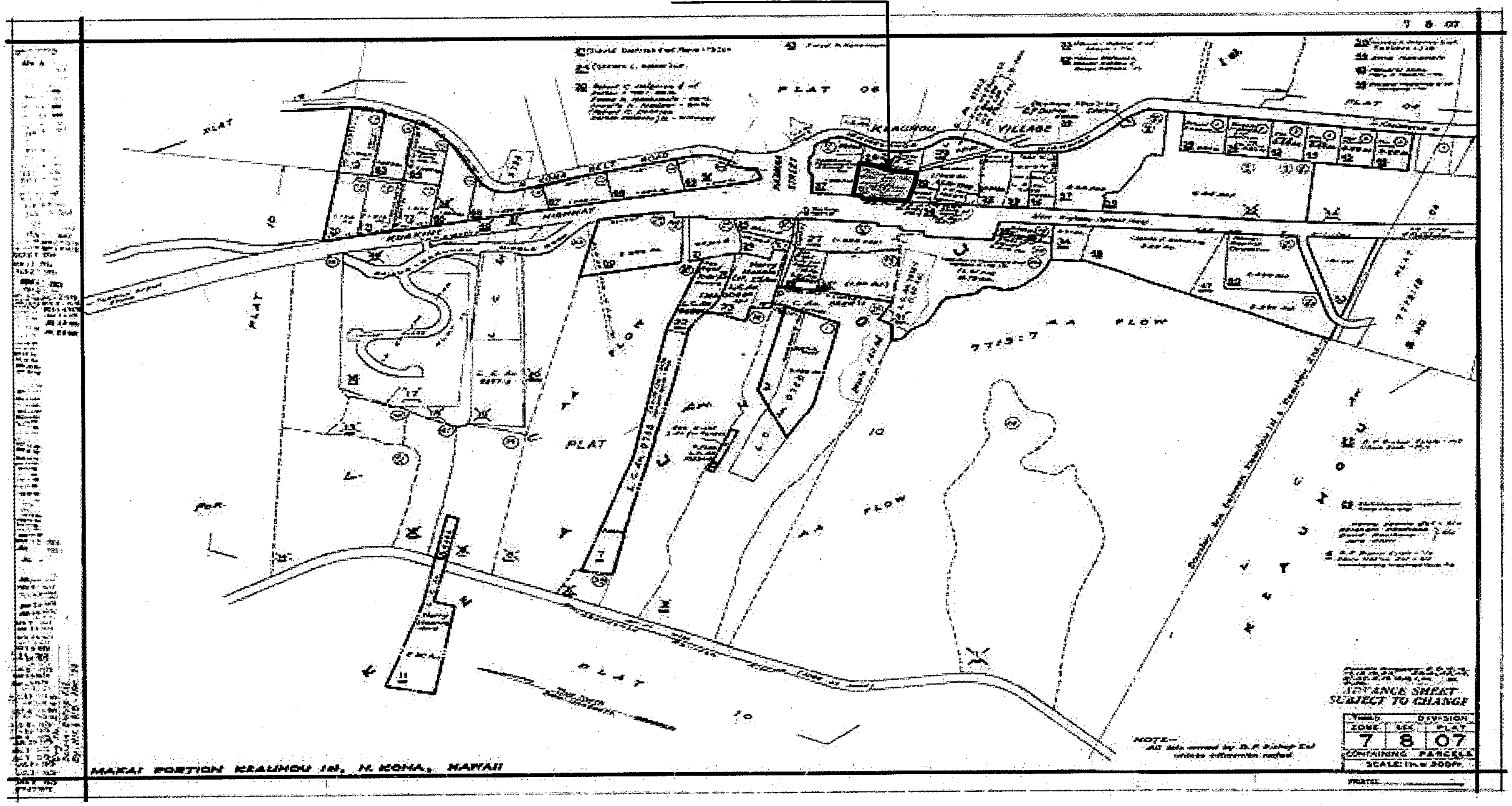
To determine if flood insurance is available, contact an insurance agent or call the National Flood Insurance Program at (800) 638-6620.

APPROXIMATE SCALE IN FEET




TMK 7-8-7: 61
KAMEHAMEHA III ROAD
HIGHWAY
11
ABANDONED RAILROAD
ZONE X
ZONE X
AE
EHUKAI ROAD
JEEP TRAIL
Keauhou
ZONE AE
JEEP TRAIL
JEEP TRAIL
JEEP TRAIL

TMK 7-8-7: 61



KEAUHOU VILLAGE
HIGHWAY
BELT ROAD
PLAT
FLOW
ADVANCE SHEET
SUBJECT TO CHANGE
ZONE 7
SEC. 8
PLAT 07
MAKAI PORTION KEAUHOU 1st, N. KONA, HAWAII

NEIL ABERCROMBIE
GOVERNOR

KATHRYN S. MATAYOSHI
SUPERINTENDENT

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

OFFICE OF THE SUPERINTENDENT

RECEIVED DEC 21 2010

December 15, 2010

Mr. Glenn T. Kimura, President
Kimura International Inc.
1600 Kapiolani Boulevard, Suite 1610
Honolulu, Hawaii 96814

Dear Mr. Kimura:

Subject: Early consultation on Department of Accounting and General Services
Kona District Office Baseyard

The Department of Education (DOE) would like to raise one concern which we would like to have included in a draft environmental assessment (DEA) for the proposed new office and baseyard for the Department of Accounting and General Services. Your letter states the current baseyard is located in former DOE facilities in South Kona, and the new proposed location is the site of another DOE facility in North Kona. It would be useful if the DEA made clear exactly which state agencies have any ongoing responsibilities for either the current or proposed baseyard sites or adjacent parcels. We have no other comment or concern about the new baseyard location at this time.

If you have any questions, please call Heidi Meeker of the Facilities Development Branch at 377-8301.

Very truly yours,

Kathryn S. Matayoshi
Superintendent

KSM:jmb

c: Randolph Moore, Assistant Superintendent, OSFSS
Art Souza, CAS, Honokaa/Kealakehe/Kohala/Konawaena Complex Areas

Neil Abercrombie
GOVERNOR OF HAWAII

Keith R. Ridley
Acting Director of Health

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

In reply, please refer to:
File:
EPO-I-3474

December 13, 2010

RECEIVED DEC 15 2010

Mr. Glenn T. Kimura, President
1600 Kapiolani Blvd., Suite 1610
Honolulu, Hawaii 96814

Dear Mr. Kimura:

SUBJECT: Environmental Assessment – Early Consultation for DAGS Kona District Office Baseyard; DAGS Job No. 61-10-0634; Kona, Hawai`i TMK: (3) 7-8-07:061

Thank you for allowing us to review and comment on the subject document. The document was routed to the various branches of the Environmental Health Administration. We have no comments at this time, but reserve the right to future comments. We strongly recommend that you review all of the Standard Comments on our website: www.hawaii.gov/health/environmental/env-planning/landuse/landuse.html. Any comments specifically applicable to this application should be adhered to.

The same website also features a Healthy Community Design Smart Growth Checklist (Checklist). The Hawaii State Department of Health, Built Environment Working Group, 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.

If there are any questions about these comments please contact the Environmental Planning Office at 586-4337.

Sincerely,

Genevieve Salmonson

GENEVIEVE SALMONSON, Acting Manager
Environmental Planning Office

NEIL ABERCROMBIE
GOVERNOR OF HAWAII

WILLIAM J. AILA, JR.
INTERIM 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

January 5, 2011

RECEIVED JAN 11 2011

Mr. Glenn T. Kimura, President
Kimura International, Inc.
1600 Kapiolani Blvd Suite 1610
Honolulu, Hawaii 96814

Dear Mr. Kimura:

Subject: Early Consultation for Environmental Assessment for DAGS Kona District Office Baseyard, DAGS Job No. 61-10-0634

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 comment.

Other than the comments from Division of Aquatic Resources, Land Division-Hawaii District, Division of Forestry & Wildlife, the Department of Land and Natural Resources has no other comments to offer on the subject matter. Should you have any questions, please feel free to call our office at 587-0414. Thank you.

Sincerely,

Russell Y. Tsuji
Administrator

NEIL ABERCROMBIE
GOVERNOR OF HAWAII

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

RECEIVED
LAND DIVISION
2010 JAN -4 P 3:05
DEPT. OF LAND & NATURAL RESOURCES
STATE OF HAWAII

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
LAND DIVISION

POST OFFICE BOX 621
HONOLULU, HAWAII 96809
Phone: (808) 587-0433
Fax: (808) 587-0455

DAR 3547

AM ✓
WW

December 9, 2010

RECEIVED JAN 11 2011

MEMORANDUM

RECEIVED
DEC 13 2010
AQUATIC RESOURCES

TO: **DLNR Agencies:**
x Div. of Aquatic Resources
~~Div. of Boating & Ocean Recreation~~
x Engineering Division
x Div. of Forestry & Wildlife
Div. of State Parks
x Commission on Water Resource Management
Office of Conservation & Coastal Lands
x Land Division –Hawaii District
x Historic Preservation

FROM: Charlene Unoki, Assistant Administrator
SUBJECT: Early Consultation for Environmental Assessment for DAGS Kona District Office Baseyard
LOCATION: Island of Hawaii
APPLICANT: Kimura International on behalf of the Department of Accounting & General Services

Transmitted for your review and comment on the above referenced document. We would appreciate your comments on this document. Please submit any comments by January 4, 2011.

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 my office at 587-0433. Thank you.

Attachments

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

Signed: _____
Date: 12-29-10

TMK: 3rd/7-8-07: 61

NEIL ABERCROMBIE
GOVERNOR OF HAWAII

WILLIAM J. AILA, JR.
INTERIM 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
Phone: (808) 587-0433
Fax: (808) 587-0455

RECEIVED JAN 11 2011

RECEIVED
LAND DIVISION
2010 DEC 27 A 11:42
DEPT. OF LAND & NATURAL RESOURCES
STATE OF HAWAII

December 9, 2010

MEMORANDUM

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

Charlene

FROM: Charlene Unoki, Assistant Administrator
SUBJECT: Early Consultation for Environmental Assessment for DAGS Kona District Office Baseyard
LOCATION: Island of Hawaii
APPLICANT: Kimura International on behalf of the Department of Accounting & General Services

Transmitted for your review and comment on the above referenced document. We would appreciate your comments on this document. Please submit any comments by January 4, 2011.

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 my office at 587-0433. Thank you.

Attachments

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

Signed:
Date: 12.22.10

NEIL ABERCROMBIE
GOVERNOR OF HAWAII

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

RECEIVED JAN 11 2011

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
LAND DIVISION

75 Aupuni Street, Room 204
Hilo, Hawaii 96720
PHONE: (808) 974-6203
FAX: (808) 974-6222

December 22, 2010

MEMORANDUM

TO: Charlene Unoki, Assistant Administrator
Land Division

FROM: Kevin E. Moore, Hawaii District Land Agent

SUBJECT: Early Consultation for Environmental Assessment for DAGS Kona District Office Baseyard

LOCATION: Keauhou 1st, North Kona, Hawaii, TMK: (3) 7-8-01:61

APPLICANT: Kimura International on behalf of the Department of Accounting & General Services

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

The subject land was set aside to the Department of Accounting and General Services for "Field Offices, Maintenance Baseyard and Related Purposes" pursuant to Executive Order No. 3821 dated August 24, 2000. The proposed project appears to be consistent with the purposes set forth in the executive order. However, the cover letter dated December 7, 2010 from Kimura International, Inc. states that the land is "currently being used as a dog park." Such a use is inconsistent with the purpose of the executive order. It is not clear from the letter who is operating the dog park, or whether the park was established with DAGS' knowledge or consent. Any use of the land that is inconsistent with the purposes of the executive order should cease.

Please contact me at 974-6203 should you have any questions.

NEIL ABERCROMBIE
GOVERNOR OF HAWAII

WILLIAM J. AILA, JR.
INTERIM 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
Phone: (808) 587-0433
Fax: (808) 587-0455

RECEIVED JAN 11 2011

December 9, 2010

MEMORANDUM

RECEIVED
LAND DIVISION
2010 DEC 15 P 3:05
DEPT. OF LAND & NATURAL RESOURCES
STATE OF HAWAII

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

FROM: Charlene Unoki, Assistant Administrator
SUBJECT: Early Consultation for Environmental Assessment for DAGS Kona District Office Baseyard
LOCATION: Island of Hawaii
APPLICANT: Kimura International on behalf of the Department of Accounting & General Services

Transmitted for your review and comment on the above referenced document. We would appreciate your comments on this document. Please submit any comments by January 4, 2011.

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 my office at 587-0433. Thank you.

Attachments

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

Signed: Randy Ohnuma
Date: 12-15-10

Drg. No. 2645
Source: Bishop Est.
By: H.N. & R.B. - Mar. '36

21 (David Dietrick & wf. Marie - T/E) Le

24 (Steven L. Raiser) Le.

30 Robert C. Delaries & wf. Esther - T/E - 25%
Emma K. Hashimoto - 25%
Annette K. Madawi - 50%
(Robert C. Delaries
Esther Delaries) le. - W/F0041

43 Floyd K. Kahalioumi

33 Harumi Nakano & wf. Asayo - T/E

62 Naomi Matsuoka,
Harumi Nakano &
Asayo Nakano - J/T

38 (Harvey K. Delaries & wf. Suzanne L.) Le

44 Anna Kawamoto

45 Margaret Wong
Mary A. Kawelo - T/C

46 Edward Medeiros & wf. Christine - T/E

22 B. P. Bishop Estate - M/C
Chun Fook - M/C

26 Kamehameha Investment Corp. - 2/5 etal

Harry Haanio Est. - 8/15
Abraham Kauihana }
David Kauihana } 2/5
Julia Aken

4 B. P. Bishop Estate - 1/5
Harry Haanio Est - 2/5
Kamehameha Investment Corp. - 2/5

Parcels Dropped: 2, 9, 12, 16, 17, 18, 19, 20, 40, 41, 42, 49, 51, 52, 8, 13, 14, 10, 1, 54, 55, 31, 35,

ADVANCE SHEET
SUBJECT TO CHANGE

NOTE:-
All lots owned by B. P. Bishop Est. unless otherwise noted.

MAKAI PORTION KEAUHOU 1st, N. KONA, HAWAII

THIRD DIVISION		
ZONE	SEC.	PLAT
7	8	07
CONTAINING PARCELS		
SCALE: 1 in. = 200 ft.		

PRINTED........................

LAND COURT SYSTEM) REGULAR SYSTEM

Return by Mail ( ) Pickup ( ) To:

Total Number of Pages:

Tax Map Key No. (3)7-8-07:61

FROM: STATE OF HAWAII
BOARD OF LAND AND NATURAL RESOURCES

TO: DEPARTMENT OF ACCOUNTING AND GENERAL SERVICES
1151 Punchbowl Street
Honolulu, Hawaii 96813

EXECUTIVE ORDER NO. 3821

SETTING ASIDE LAND FOR PUBLIC PURPOSES

BY THIS EXECUTIVE ORDER, I, the undersigned, Governor of the State of Hawaii, by virtue of the authority in me vested by Section 171-11, Hawaii Revised Statutes, and every other authority me hereunto enabling, do hereby order that the public land hereinafter described be, and the same is, hereby set aside for the following public purposes:

FOR FIELD OFFICES, MAINTENANCE BASEYARD AND RELATED PURPOSES, to be under the control and management of the Department of Accounting and General Services, being that parcel of land situate at Keauhou 1, North Kona, Island of Hawaii, Hawaii, and identified as follows:

"Department of Accounting and General Services Site for Field Offices, Maintenance Baseyard and Related Purposes," containing an area of 0.973 acre, more particularly described in Exhibit "A" and delineated on Exhibit "B," both of which are attached hereto and made parts hereof, said exhibits being respectively, a survey description and survey map prepared by the Survey Division, Department of Accounting and General Services, State of Hawaii, both being designated C.S.F. No. 22,876 and dated June 18, 1999.

SUBJECT, HOWEVER, that upon cancellation of this executive order and/or in the event of non-use or abandonment of the premises or any portion thereof for a continuous period of one (1) year, or for any reason whatsoever, the Department of Accounting and General Services ("DAGS") shall, within a reasonable time, restore the premises to a condition satisfactory and acceptable to the Department of Land and Natural Resources, State of Hawaii.

SUBJECT, FURTHER, to disapproval by the Legislature by two-thirds vote of either the Senate or the House of Representatives or by majority vote of both, in any regular or special session next following the date of this Executive Order.

SUBJECT, FURTHER, to the condition that DAGS shall be responsible for any required compliance with Chapter 343, Hawaii Revised Statutes, in connection with its development of the property.

DEPARTMENT OF LAND AND NATURAL RESOURCES
LAND DIVISION
P.O. BOX 621
HONOLULU, HAWAII 96809

IN WITNESS WHEREOF, I have hereunto set my hand and caused the Great Seal of the State of Hawaii to be affixed. Done at the Capitol at Honolulu this 24 day of August, 2000.

Benjamin J. Cayetano
Governor of the State of Hawaii

APPROVED AS TO FORM:

Sonia Faust
Deputy Attorney General

Dated: July 18, 2000

eosa\dags\tmk(3)7-8-07:61keauhou1.ds1

DEPARTMENT OF LAND AND NATURAL RESOURCES
LAND DIVISION
P.O. BOX 621
HONOLULU, HAWAII 96809

STATE OF HAWAII

Office of the Lieutenant Governor

THIS IS TO CERTIFY That the within is a true copy of Executive Order No. 3821 setting aside land for public purposes, the original of which is on file in this office.

IN TESTIMONY WHEREOF, the Lieutenant Governor of the State of Hawaii, has hereunto subscribed her name and caused the Great Seal of the State to be affixed.

Mazie K Hirono

DONE in Honolulu, this 29th day of August, A.D. 2000

DEPARTMENT OF LAND AND NATURAL RESOURCES
LAND DIVISION
P.O. BOX 621
HONOLULU, HAWAII 96809

STATE OF HAWAII
SURVEY DIVISION
DEPT. OF ACCOUNTING AND GENERAL SERVICES
HONOLULU

C.S.F. No. 22,876

June 18, 1999

DEPARTMENT OF ACCOUNTING AND GENERAL SERVICES SITE
FOR FIELD OFFICES, MAINTENANCE BASEYARD AND RELATED PURPOSES

Keauhou 1, North Kona, Island of Hawaii, Hawaii

Being portions of Royal Patent 4475, Land Commission Award 7713, Apana 7 to V. Kamamalu conveyed to the Department of Public Instruction and the Territory of Hawaii, respectively as follows:

1. Trustees under the Will and of the Estate of B. P. Bishop, deceased to the Department of Public Instruction by Deed dated July 7, 1906 and recorded in Liber 280, Page 388 (Land Office Deed 3830).

2. Trustees under the Will and of the Estate of B. P. Bishop, deceased to the Territory of Hawaii by Deed dated December 8, 1930 and recorded in Liber 1057, Page 322 (Land Office Deed 4009).

Beginning at the northwest corner of this parcel of land and on the east side of Hawaii Belt Road, Federal Aid Project F-011-1(6), (Kainaliu to Keauhou Section), the coordinates of said point of beginning referred to Government Survey Triangulation Station "KEAUHOU COAST" being 4670.79 feet North and 8534.18 feet East, thence running by azimuths measured clockwise from True South:-

1.	256° 24' 30"	182.07 feet along the remainder of R.P. 4475, L.C.Aw. 7713, Apana 7 to V. Kamamalu;
2.	350° 59'	255.17 feet along the remainder of R.P. 4475, L.C.Aw. 7713, Apana 7 to V. Kamamalu;
3.	81° 56' 30"	66.60 feet along L.C.Aw. 7363 to Kupaka and along the remainder of R.P. 4475, L.C.Aw. 7713, Apana 7 to V. Kamamalu;

EXHIBIT "A"

4.	85°	53'	30"	42.00 feet along the remainder of R.P. 4475, L.C.Aw. 7713, Apana 7 to V. Kamamalu;
5.	84°	12'		50.09 feet along the remainder of R.P. 4475, L.C.Aw. 7713, Apana 7 to V. Kamamalu;
6.	161°	40'		124.99 feet along the east side of Hawaii Belt Road, Federal Aid Project F-011-1(6), (Kainaliu to Keauhou Section);
7.	161°	40'		40.00 feet along the east side of Hawaii Belt Road, Federal Aid Project F-011-1(6), (Kainaliu to Keauhou Section);
8.	251°	40'		15.00 feet along a jog on the east side of Hawaii Belt Road, Federal Aid Project F-011-1(6), (Kainaliu to Keauhou Section);
9.	161°	40'		68.78 feet along the east side of Hawaii Belt Road, Federal Aid Project F-011-1(6), (Kainaliu to Keauhou Section), to the point of beginning and containing an AREA OF 0.973 ACRE.

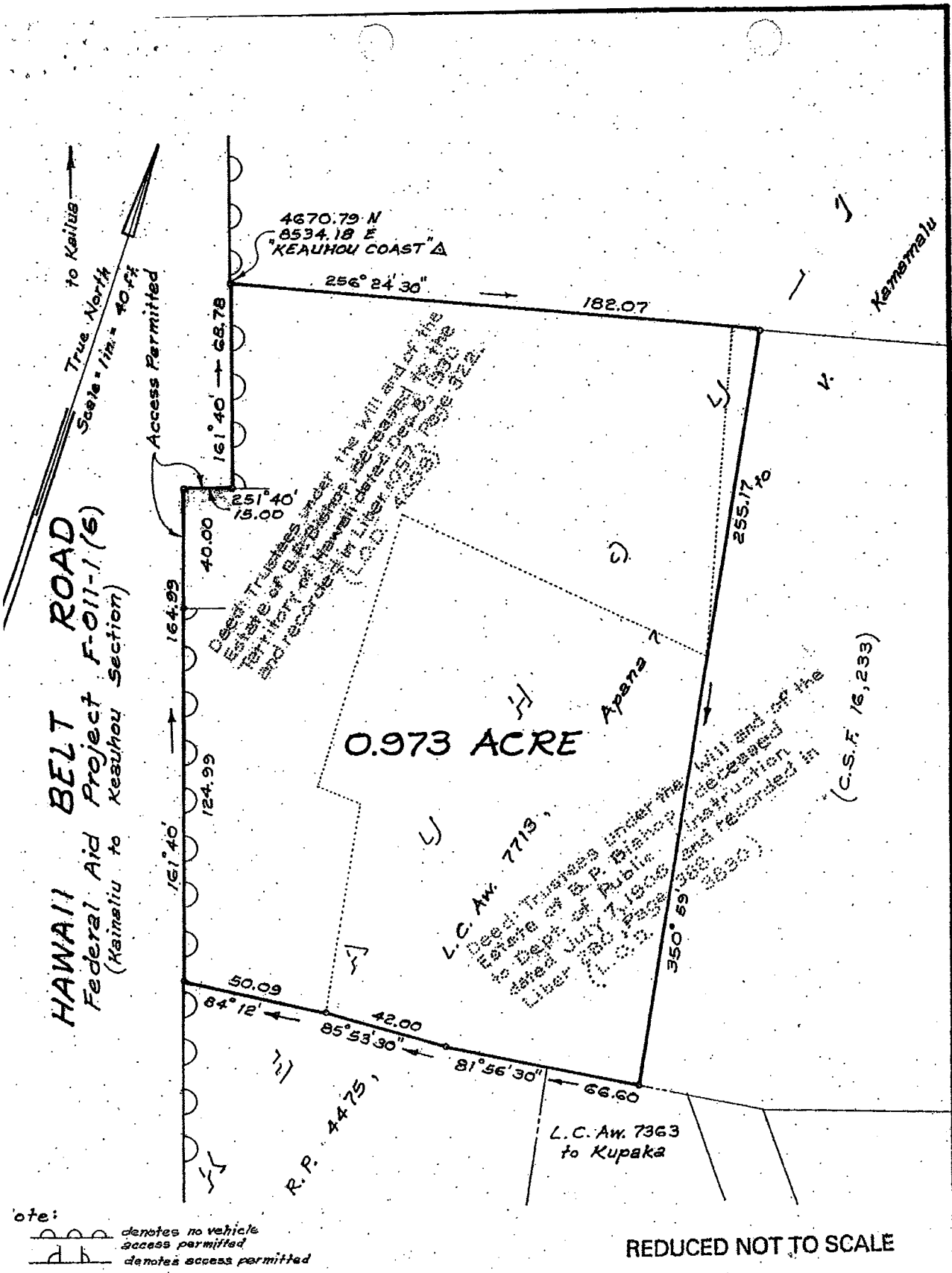
Vehicle access into and from Hawaii Belt Road, Federal Aid Project F-011-1(6), (Kainaliu to Keauhou Section) shall not be permitted over and across Courses 6 and 9 of the above-described Department of Accounting and General Services Site for Field Offices, Maintenance Baseyard and Related Purposes.

SURVEY DIVISION
DEPARTMENT OF ACCOUNTING AND GENERAL SERVICES
STATE OF HAWAII

By: Glenn J. Kodani
Glenn J. Kodani
Land Surveyor

gm

Compiled from CSFs 5536, 5848, 13841, 14779, 14780, 16233 and Govt. Survey Records.
TMK: (3) 7-8-07:61



DEPARTMENT OF ACCOUNTING AND GENERAL SERVICES SITE FOR FIELD OFFICES, MAINTENANCE BASEYARD AND RELATED PURPOSES

Keauhou 1, North Kona, Island of Hawaii, Hawaii

Scale: 1 inch = 40 feet

DB H-37(99)

BK.

EXHIBIT "B"

X MAP 7-8-07:61

SURVEY DIVISION
DEPARTMENT OF ACCOUNTING AND GENERAL SERVICES
STATE OF HAWAII

S.F. NO. 22,876

M.T. JUNE 18, 1999

PHONE (808) 594-1888

FAX (808) 594-1865

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

HRD10/5440

December 22, 2010

Glenn T. Kimura, President
Kimura International
1600 Kapi'olani Boulevard, Suite 1610
Honolulu, Hawai'i 96814

RE: Pre- Draft Environmental Assessment Consultation
Department of Accounting and General Services Kona District Baseyard
Island of Hawai'i

Aloha e Glenn Kimura,

The Office of Hawaiian Affairs (OHA) is in receipt of your December 7, 2010 letter seeking comments ahead of a draft environmental assessment (DEA) being prepared for the State of Hawai'i-Department of Accounting and General Services (DAGS) to support the proposed construction of a new base yard for their Kona District Office (project) on a 0.97 acre parcel (parcel) on the Island of Hawai'i.

The parcel is vacant and was once used as a playfield for the old Keauhou School. The project includes construction of multiple shops, administrative offices and parking areas. OHA seeks clarification on whether the operations of "Head Start" child care center, which are situated in old Keauhou School buildings immediately adjacent to the parcel will be adversely affected by project activities and the eventual daily operations of the Kona District Office once the project is completed. Thank you for initiating consultation at this early stage. We look forward to the opportunity to review the completed DEA and provide additional comments at that time. Should you have any questions, please contact Keola Lindsey at 594-0244 or keolal@oha.org.

'O wau iho nō me ka 'oia'i'o,

Clyde W. Nāmu'o
Chief Executive Officer

C: OHA-West Hawai'i Community Outreach Coordinator

NEIL ABERCROMBIE
GOVERNOR

GLENN M. OKIMOTO
INTERIM DIRECTOR

Deputy Directors
Ford N. Fuchigami
Jan S. Gouveia
Randy Grune
Jadine Urasaki

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

IN REPLY REFER TO:

STP 8.0318

January 10, 2011

RECEIVED JAN 2 0 2011

Mr. Glenn T. Kimura, President
Kimura International, Inc.
1600 Kapiolani Boulevard, Suite 1610
Honolulu, Hawaii 96814

Dear Mr. Kimura:

Subject: DAGS Kona District Office Baseyard
Early Consultation for Draft Environmental Assessment (DEA)

Thank you for the Early Consultation for the State Department of Transportation's (DOT) review and comments. DOT understands that the State Department of Accounting and General Services (DAGS) is proposing to construct a Kona District Office Baseyard at a 0.97 acre site on Kuakini Highway (Route 11). The project will include a carpentry shop, paint shop, electrical shop, masonry shop, plumber shop, and administrative offices. Access to the project will be off Kuakini Highway.

Given the location of the subject project, the State's Kuakini Highway will be impacted. DOT offers the following comments:

1. DOT recommends that the DEA discuss and evaluate project and traffic impacts to the State highway (Kuakini Highway) facilities, such as, but not limited to: access and driveway improvements, inconvenience to the public during construction; types of construction vehicles and equipment used at the job site; and construction hours.

2. The applicant should work with the DOT Highways Division, Hawaii District Office regarding permits for oversized equipment/overweight loads and submission of construction plans for any work done within and adjacent to the State highway right-of-way, which must conform to national and state design standards and completed at no cost to DOT.

DOT appreciates the opportunity to provide initial comments on the subject project. When a Draft EIS of the project is completed, DOT requests four (4) copies of the document be provided for staff review and any necessary approvals. If there are any questions or the need to meet,

please contact Mr. David Shimokawa of the DOT Statewide Transportation Planning Office at telephone number (808) 831-7976.

Very truly yours,

GLENN T. OKIMOTO, Ph.D.
Interim Director of Transportation

William P. Kenoi
Mayor

William T. Takaba
Managing Director

Frank J. DeMarco, P.E.
Director

Ivan M. Torigoe
Deputy Director

County of Hawai'i

DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

25 Aupuni Street • Hilo, Hawai'i 96720
(808) 961-8083 · Fax (808) 961-8086
http://co.hawaii.hi.us/directory/dir_envmng.htm

RECEIVED DEC 14 2010

December 10, 2010

Mr. Glenn T. Kimura
President
KIMURA INTERNATIONAL, INC.
1600 Kapi'olani Blvd, Suite 1610
Honolulu, HI 96814

RE: DAGS Kona District Office Baseyard
DAGS Job NO. 61-10-0634
TMK: 7-8-07:061, Kona, Hawai'i
EA – Early Consultation

Dear Mr. Kimura,

We have no comments to offer on the subject project.

Thank you for allowing us to review and comment on this project.

Sincerely,

Frank DeMarco

Frank J. DeMarco, P.E.
DIRECTOR

William P. Kenoi
Mayor

Darryl J. Oliveira
Fire Chief

Glen P. I. Honda
Deputy Fire Chief

County of Hawai'i
HAWAI'I FIRE DEPARTMENT
25 Aupuni Street • Suite 2501 • Hilo, Hawai'i 96720
(808) 932-2900 • Fax (808) 932-2928

RECEIVED DEC 29 2010

December 21, 2010

Mr. Glenn T. Kimura
Kimura International Inc.
1600 Kapiolani Blvd., Suite 1610
Honolulu, Hawai'i 96814

SUBJECT: DAGS KONA DISTRICT OFFICE BASEYARD
DAGS JOB NO. 61-10-0634
TMK: (3) 7-8-07:061, KONA, HAWAI'I
ENVIRONMENTAL ASSESSMENT – EARLY CONSULT

In regards to the above-mentioned early consult environmental assessment, the following shall be in accordance:

Fire apparatus access roads shall be in accordance with UFC Section 10.207:

"**Fire Apparatus Access Roads**

"**Sec. 10.207.** (a) **General.** Fire apparatus access roads shall be provided and maintained in accordance with the provisions of this section.

"(b) **Where Required.** Fire apparatus access roads shall be required for every building hereafter constructed when any portion of an exterior wall of the first story is located more than 150 feet from fire department vehicle access as measured by an unobstructed route around the exterior of the building.

"**EXCEPTIONS:** 1. When buildings are completely protected with an approved automatic fire sprinkler system, the provisions of this section may be modified.

"2. When access roadways cannot be installed due to topography, waterways, nonnegotiable grades or other similar conditions, the chief may require additional fire protection as specified in Section 10.301 (b).

> "3. When there are not more than two Group R, Division 3 or Group M Occupancies, the requirements of this section may be modified, provided, in the opinion of the chief, fire-fighting or rescue operations would not be impaired.

"More than one fire apparatus road may be required when it is determined by the chief that access by a single road may be impaired by vehicle congestion, condition of terrain, climatic conditions or other factors that could limit access.

"For high-piled combustible storage, see Section 81.109.

"(c) **Width.** The unobstructed width of a fire apparatus access road shall meet the requirements of the appropriate county jurisdiction.

"(d) **Vertical Clearance.** Fire apparatus access roads shall have an unobstructed vertical clearance of not less than 13 feet 6 inches.

> "**EXCEPTION:** Upon approval vertical clearance may be reduced, provided such reduction does not impair access by fire apparatus and approved signs are installed and maintained indicating the established vertical clearance.

"(e) **Permissible Modifications.** Vertical clearances or widths required by this section may be increased when, in the opinion of the chief, vertical clearances or widths are not adequate to provide fire apparatus access.

"(f) **Surface.** Fire apparatus access roads shall be designed and maintained to support the imposed loads of fire apparatus and shall be provided with a surface so as to provide all-weather driving capabilities." (20 tons)

"(g) **Turning Radius.** The turning radius of a fire apparatus access road shall be as approved by the chief." (45 feet)

"(h) **Turnarounds.** All dead-end fire apparatus access roads in excess of 150 feet in length shall be provided with approved provisions for the turning around of fire apparatus.

"(i) **Bridges.** When a bridge is required to be used as access under this section, it shall be constructed and maintained in accordance with the applicable sections of the Building Code and using designed live loading sufficient to carry the imposed loads of fire apparatus.

"(j) **Grade.** The gradient for a fire apparatus access road shall not exceed the maximum approved by the chief." (15%)

"(k) **Obstruction.** The required width of any fire apparatus access road shall not be obstructed in any manner, including parking of vehicles. Minimum required widths and clearances established under this section shall be maintained at all times.

"(l) **Signs.** When required by the fire chief, approved signs or other approved notices shall be provided and maintained for fire apparatus access roads to identify such roads and prohibit the obstruction thereof or both."

Water supply shall be in accordance with UFC Section 10.301(c):

"(c) **Water Supply.** An approved water supply capable of supplying required fire flow for fire protection shall be provided to all premises upon which buildings or portions of buildings are hereafter constructed, in accordance with the respective county water requirements. There shall be provided, when required by the chief, on-site fire hydrants and mains capable of supplying the required fire flow.

"Water supply may consist of reservoirs, pressure tanks, elevated tanks, water mains or other fixed systems capable of providing the required fire flow.

"The location, number and type of fire hydrants connected to a water supply capable of delivering the required fire flow shall be protected as set forth by the respective county water requirements. All hydrants shall be accessible to the fire department apparatus by roadways meeting the requirements of Section 10.207.

DARRYL OLIVEIRA
Fire Chief

RP:lpc

William P. Kenoi
Mayor

BJ Leithead Todd
Director

Margaret K. Masunaga
Deputy

County of Hawai'i

PLANNING DEPARTMENT
Aupuni Center • 101 Pauahi Street, Suite 3 • Hilo, Hawai'i 96720
Phone (808) 961-8288 • Fax (808) 961-8742

January 6, 2011

RECEIVED JAN 11 2011

Mr. Glenn T. Kimura
Kimura International, Inc.
1600 Kapi'olani Blvd., Suite 1610
Honolulu, HI 96814

Dear Mr. Kimura:

Subject: Environmental Assessment Consultation
Applicant: State of Hawai'i, Department of Accounting and General Services
Project: Kona District Office Base yard
Tax Map Key: 7-8-7:61, North Kona, Hawai'i

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

According to your submittal, the base yard would provide repair and maintenance services to all State-owned facilities in West Hawai'i. It will include a carpentry shop, paint shop, electrical shop, masonry shop, plumber shop, and administrative offices.

We note the following for this .973 acre parcel:

1. The State Land Use designation is Rural.
2. It is designated Rural by the General Plan's Land Use Pattern Allocation Guide (LUPAG) Map.
3. Hawai'i County zoning is Residential and Agricultural (RA-.5a).
4. Hawaii County Zoning Code, 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. It is not located within the County's Special Management Area.
6. The Kona Community Development Plan was adopted by the County of Hawaii as Ordinance No. 08-131, effective September 25, 2008. A discussion of the proposed improvement as it relates to this plan should be included in the Environmental Assessment.

If you have questions, please feel free to contact Esther Imamura of this office at 961-8139.

Sincerely,

for BJ LEITHEAD TODD
Planning Director

ETI:cs
P:\Public\Wpwin60\ETI\Eadraftpre-Consul\Kimura DAGS Baseyard 7-8-7-61.Rtf

cc: Planning Department – Kona

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

December 16, 2010

RECEIVED DEC 20 2010

Mr. Glenn T. Kimura, President
Kimura International Inc.
1600 Kapiolani Boulevard, Suite 1610
Honolulu, Hawaii 96814

Dear Mr. Kimura:

SUBJECT: DAGS Kona District Office Baseyard
DAGS Job No. 61-10-0634
TMK: (3) 7-8-07:061, Kona, Hawaii
Environmental Assessment – Early Consultation

This responds to your letter dated December 7, 2010, requesting comments on the above-referenced project.

The Environmental Assessment has been reviewed, and we have no comments or objections to offer at this time.

Should you have any questions, please contact Major Randy Apele of our Area II Operations at (808)326-4646, ext. 270.

Sincerely,

HARRY S. KUBOJIIRI
POLICE CHIEF

HENRY J. TAVARES JR.
ASSISTANT POLICE CHIEF

RKA
RS100888

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

RECEIVED JAN 26 2011

January 11, 2011

Mr. Glenn T. Kimura, President
Kimura International Inc.
1600 Kapiolani Boulevard, Suite 1610
Honolulu, Hawaii 96814

Dear Mr. Kimura:

SUBJECT: DAGS Kona District Office Baseyard
DAGS Job No. 61-10-0634
TMK: (3) 7-8-07:061, Kona, Hawaii
Environmental Assessment – Early Consultation

This is an amendment to our prior response dated December 16, 2010, regarding our comments or concerns on the above-referenced project.

Although we have no comments or objections to offer on the impact of police services, we recommend that a left turn lane off Kuakini Highway into the baseyard (southbound lane) be considered as this area of the highway consists of double lanes in the southbound direction and is highly traveled. This would allow for safe ingress into the baseyard from the southbound direction.

Thank you for the opportunity to comment. Should you have any questions, please contact Captain Samuel Kawamoto Jr., Commander of the Kona District, at 326-4646, ext. 299.

Sincerely,

HARRY S. KUBOJIRI
POLICE CHIEF

HENRY J. TAVARES JR.
ASSISTANT POLICE CHIEF
AREA II OPERATIONS

SHK:dmv
RS100959

c: Bobby Command, Exec. Asst., Mayor's Office

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

January 26, 2011

RECEIVED JAN 28 2011

Mr. Glenn T. Kimura
Kimura International, Inc.
1600 Kapi'olani Boulevard, Suite 1610
Honolulu, HI 96814

PRE-ENVIRONMENTAL ASSESSMENT CONSULTATION
STATE OF HAWAI'I, DEPARTMENT OF ACCOUNTING AND GENERAL SERVICES KONA DISTRICT BASEYARD
TAX MAP KEY 7-8-007:061

We have reviewed the subject Pre-Environmental Assessment Consultation and have the following comments.

Water is available from an existing 12-inch waterline within Māmalahoa Highway fronting Tax Map Key 7-8-007:028. There are two (2) existing 5/8-inch meters serving the subject parcel, each capable of supporting an average daily demand of 400 gallons.

Prior to effecting a water commitment for the project, the Department will require that the applicant submit estimated maximum daily water usage calculations for the project, prepared by a professional engineer licensed in the State of Hawai'i, for review and approval. Based on the water usage calculations provided, the Department will determine if the existing meters are adequate to support the estimated water demand. If the estimated demand exceeds the capacity of the meters, a larger meter will need to be installed and payment of the applicable facilities charges will be required.

If one is not already installed, the proposed land use will require the installation of a reduced pressure type backflow prevention assembly within five (5) feet of the meter(s) serving the project, on private property. The installation of the backflow prevention assembly must be inspected and approved by the Department before water service can be activated.

Should there be any questions, you may contact Mr. Finn McCall of our Water Resources and Planning Branch at 961-8070, extension 255.

Sincerely yours,

Milton D. Pavao, P.E.
Manager-Chief Engineer

FM:dld

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

January 27, 2011

RECEIVED JAN 28 2011

Mr. Glenn T. Kimura
Kimura International, Inc.
1600 Kapi'olani Boulevard, Suite 1610
Honolulu, HI 96814

PRE-ENVIRONMENTAL ASSESSMENT CONSULTATION
STATE OF HAWAI'I, DEPARTMENT OF ACCOUNTING AND GENERAL SERVICES KONA DISTRICT BASEYARD
TAX MAP KEY 7-8-007:061

We have reviewed the subject Pre-Environmental Assessment Consultation and have the following comments.

Water is available from an existing 12-inch waterline within Māmalahoa Highway fronting Tax Map Key 7-8-007:028. There are two (2) existing 5/8-inch meters serving the subject parcel, each capable of supporting an average daily demand of 400 gallons.

Prior to effecting a water commitment for the project, the Department will require that the applicant submit estimated maximum daily water usage calculations for the project, prepared by a professional engineer licensed in the State of Hawai'i, for review and approval. Based on the water usage calculations provided, the Department will determine if the existing meters are adequate to support the estimated water demand. If the estimated demand exceeds the capacity of the meters, a larger meter will need to be installed and payment of the applicable facilities charges will be required.

If one is not already installed, the proposed land use will require the installation of a reduced pressure type backflow prevention assembly within five (5) feet of the meter(s) serving the project, on private property. The installation of the backflow prevention assembly must be inspected and approved by the Department before water service can be activated.

Should there be any questions, you may contact Mr. Finn McCall of our Water Resources and Planning Branch at 961-8070, extension 255.

Sincerely yours,

Milton D. Pavao, P.E.
Manager-Chief Engineer

FM:dfg

Leslie Kurisaki

From: Lucy Kimura [lkimura@kimurainternational.com]
Sent: Wednesday, January 26, 2011 2:45 PM
To: 'Leslie Kurisaki'; 'Glenn Kimura'
Subject: FW: Hawaii County Baseyard EIS

This message came through the Projects mailbox.

From: sosidejohn [mailto:sosidejohn@hotmail.com]
Sent: Saturday, January 08, 2011 1:23 PM
To: projects@kimurainternational.com; bford@co.hawaii.hi.us; zoom@kona.net
Subject: Hawaii County Baseyard EIS

Aloha! I have just read about the proposed Hawaii County Baseyard on Hawaii Belt Road and its EIS being prepared by Kimura International. I am copying this e-mail to Mrs. Brenda Ford, Member of the Hawaii County Council, as well as to Paul Maddox, President of the Holualoa Village Association. I wish to make two points:

First – although I have been aware of the proposed site being used by a dog agility/training group one day a week, I'm not aware that this site is in general use by dog owners. I have never been able to use it myself. There have been efforts to establish a "dog park" in the Kailua-Kona area, but I've never heard this site being designated for that use. If the County of Hawaii would allow such use and publicize it, there would be a lot of interest and use. However, the current gate and driveway are problematic. That leads to my other point.

Second – whatever the use -- I think any entrance off of the Hawaii Belt Road would be dangerous and disruptive to the flow of traffic. The Belt Road speed limit at that point is 55 m.p.h. and the road has only one lane in each direction. Many dangerous situations are created already by traffic slowing down and stopping on the roadway to turn *mauka* on to the beginning of Mamalahoa Highway, which forms the north boundary of the proposed baseyard site. Southbound Belt Road traffic will often pass any vehicle stopped in the roadway to turn left on to Mamalahoa; they do this on the shoulder at speed. Northbound Belt Road vehicles wishing to turn right on to Mamalahoa will sometimes do so from the traffic lane and other times will pull on to the shoulder of the Belt Road first. Either of those actions would be just where the proposed baseyard driveway would join the Belt Road. The thought of cars and trucks trying to enter and exit the baseyard from the Belt Road **only a few yards** south of the junction with Mamalahoa Hwy is rather terrifying.

However the land is used, the entrance/exit should be on the *mauka* side. The intersection of the Hawaii Belt Road and Mamalahoa Highway needs to be equipped with turning lanes to facilitate safer traffic flow.

The County might consider acquisition and/or land swap for the old quarry site [which also has been a *bonsai* nursery] just north on Mamalahoa Highway. That sire is currently for sale. It has buildings which could be used for offices and other purposes.

Mahalo nui loa! John M. Sevick; 76-6008 Mamalahoa Highway; Holualoa, HI 96725; 808-938-1004 cell; sosidejohn@gmail.com

Appendix A

Draft Biological Surveys for the Proposed DAGS
District Office Baseyard

Rana Biological Consulting, Inc. and
AECOS Consultants

March 30, 2011

Biological Surveys Conducted for the DAGS Kona District Baseyard Project, South Kona District, Island of Hawai‘i

Prepared by:

Reginald E. David
Rana Biological Consulting, Inc.
P.O. Box 1371
Kailua-Kona, Hawai‘i 96745

&

Eric Guinther
AECOS Consultants
45-309 Akimala Pl.
Kāne‘ohe, Hawai‘i 96744

Prepared for:

Kimura International Inc.
1600 Kapiolani Boulevard, Suite 1610
Honolulu, Hawaii 96814

March 30, 2011

Table of Contents

Introduction and Background

The Hawai‘i State Department of Accounting and General Service (DAGS), is proposing to construct a new Kona District Baseyard on an approximately .97-acre site located along the Hawaii Belt Road (SR-11), in Hōlualoa, South Kona District, Island of Hawai‘i (Figure 1). The proposed baseyard will be constructed on a vacant, State-owned site, identified as TMK [3] 7-8-07:061.

The DAGS Kona District Office provides repair and maintenance service to State-owned facilities in West Hawai‘i, from Ho‘okena Elementary School in the south to Kealakehe High School in the north. An existing baseyard is located at the old Nāpō‘opo‘o School in Captain Cook. The old school buildings at the existing baseyard are nearly 100 years old and in very poor physical condition, with leaking roofs and inadequate storage areas. In addition, the baseyard location makes it difficult to provide quick and efficient service to west side customers.

The proposed project includes a 1,740-square foot administrative office building at the front of the site and maintenance shops at the back of the site, with a paved service yard in between. The maintenance shop will be a rectangular-shaped, metal-sided building and include plumbing, masonry, electrical, paint and carpentry shops, and a lumber storage area. Ten open parking stalls and seven covered parking stalls will be provided. Access to the site will be off a single driveway on Hawai‘i Belt Road (Figure 2).

This report describes the methods used and the results of, botanical, avian and mammalian surveys conducted on the subject property as part of the environmental disclosure process associated with the proposed project.

The primary purpose of the surveys was to determine if there are any botanical, avian or mammalian species currently listed, or proposed for listing under either federal or State of Hawai‘i endangered species statutes within or adjacent to the study area.

The federal and State of Hawai‘i listed species status follows species identified in the following referenced documents, (Department of Land and Natural Resources (DLNR) 1998; U. S. Fish & Wildlife Service (USFWS) 2005a, 2005b, 2011). Fieldwork was conducted on March 18 and 26, 2011.

Hawaiian and scientific names are italicized in the text. A glossary of technical terms and acronyms used in the document, which may be unfamiliar to the reader, are included at the end of the narrative text.

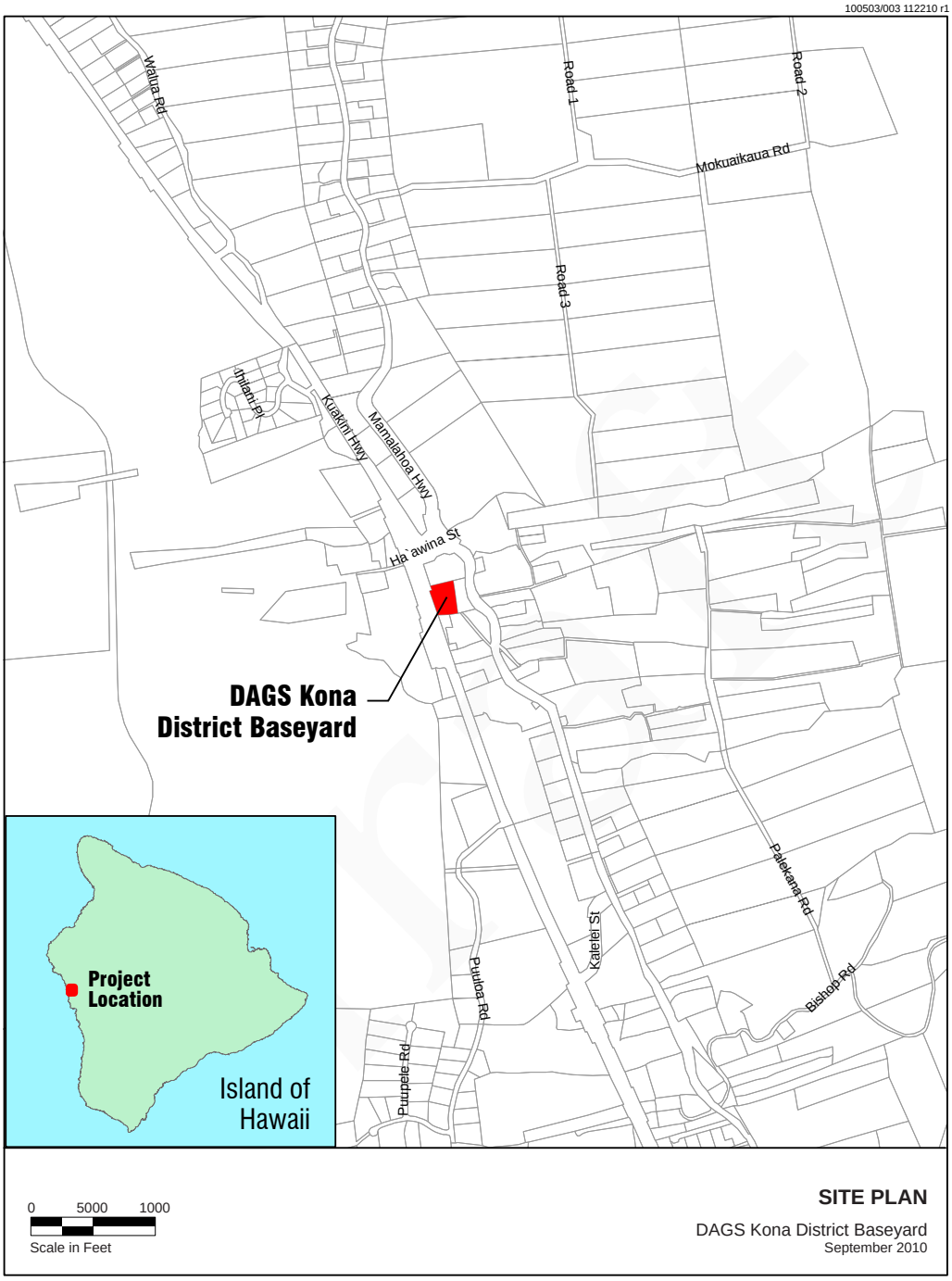
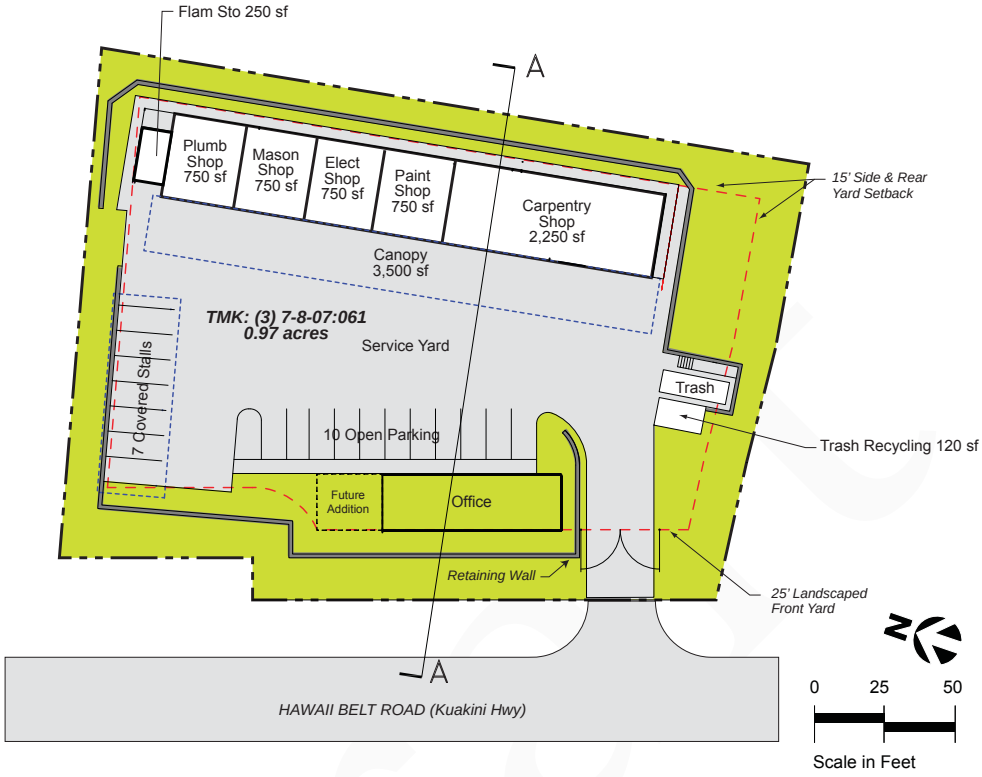
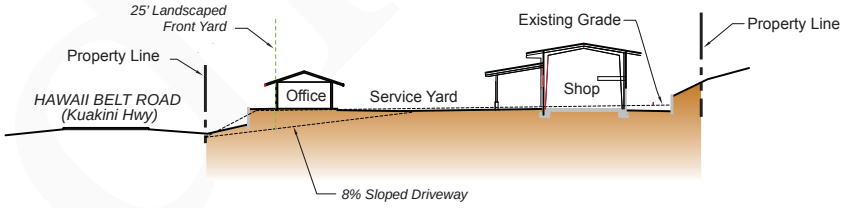


Figure 1 – DAGS Kona District Baseyard Location



SITE PLAN



SITE SECTION A

Figure 2
Site Layout

General Site Description

The approximately .97-acre site is located immediately abutting the Hawaii Belt Road, (SR – 11) at an elevation of approximately 335 meters above sea level. The property is the site of the former Keauhou School. The site was once the playing field for the old Keauhou School in Hōlualoa. The former Keauhou school buildings are located on an adjacent parcel behind the project site, and are occupied by a Head Start preschool and the Hawaii County Economic Opportunity Council offices Figures 3, 4 and 5).

Figure 3 – Baseyard site looking northwest

Most of the site is a mowed field (Figures 3 and 4), regularly maintained by the users of the site under informal agreements. Forested slopes lie to the north and south. On the west, the site drops to the highway verge, and on the east a rocky slope with trees and some ornamental plantings rises to the old school buildings (Figure. 4).

Figure 4 – Baseyard site looking northeast – showing old Keauhou school, now home of the Hawai'i County Economic Opportunity Council offices

Figure 5– Hawai'i County Economic Opportunity Council offices

Methods

Plant names follow *Manual of the Flowering Plants of Hawai'i* (Wagner *et al*., 1990, 1999) for native and naturalized flowering plants, Palmer (2003) for ferns, and *A Tropical Garden Flora* (Staples and Herbst, 2005) for crop and ornamental plants. Place names follow *Place Names of Hawaii* (Pukui *et al.,* 1974). The avian phylogenetic order and nomenclature used in this report follows the *AOU Check-List of North American Birds* (American Ornithologists' Union, 1998), and the 42nd through the 51st supplements to the Check-List (American Ornithologists' Union, 2000; Banks et al., 2002, 2003, 2004, 2005, 2006, 2007, 2008; Chesser *et al*., 2009, 2010). Mammal scientific names follow (Tomich, 1986). Place names follow (Pukui *et al.*, 1974).

Botanical Survey Methods

The botanical survey was undertaken on March 18, 2011 utilizing a wandering transect that traversed all parts of the subject parcel, including the approximate pathway of a new water line from Mamalahoa Hwy. The survey was conducted in the wet season and plants typical of this site, including annuals, were readily observed and identified. For a few species not immediately recognized in the field, photographs were taken and/or material collected for identification in the laboratory.

Avian Survey Methods

The avian survey was conducted on March 28, 2011. One avian count stations were sited within the project site. A single 8-minute avian point count was made at this count station. Field observations were made with the aid of Leica 10 X 42 binoculars and by listening for vocalizations. The count and subsequent search of the remainder of the site was conducted between 8:30 am and 10:00 am. Time not spent counting the point count station was used to search the rest of the site for species and habitats not detected during the point count. Weather conditions were ideal, with no rain, unlimited visibility on the site and winds of between 1 and 5 kilometers an hour.

Mammalian Survey Methods

With the exception of the endangered Hawaiian hoary bat (*Lasiurus cinereus semotus*), or *'ōpe'ape'a* as it is known locally, all terrestrial mammals currently found on the Island of Hawai'i are alien species, and most are ubiquitous. The survey of mammals was limited to visual and auditory detection, coupled with visual observation of scat, tracks, and other animal sign. A running tally was kept of all terrestrial vertebrate mammalian species detected within the project area. The mammalian survey was conducted concurrently with the avian survey conducted on March 28, 2011.

Results

Botanical Survey

A plant checklist (Table 1) was compiled from field observations, with entries arranged alphabetically under plant family names (standard practice). Included in the list are scientific name, common name, and status (whether native or non-native) for each species observed on the property. Species status given in **bold** indicates a plant of some interest to the Hawaiian Islands flora (indigenous, endemic, or Polynesian introduction). In addition to identifying the plants present within the study site, qualitative estimates of plant abundance were made. These are coded in the table as explained in the Legend to Table 1 and apply to observations made during the present survey. For some species, a two-level system of abundance is used: the letter-number codes indicating species that have a clustered distribution (that is, for example, a species infrequently encountered, but numerous where located). For example, an abundance rating of "R" indicates a plant encountered only once or twice during the entire survey. An "R2" indicates a plant encountered in just one or two places, but with several to many individuals present where encountered. An "R3" would be a plant seldom encountered (i.e., rare), but locally abundant in one or two of the locations where it was encountered.

The project area supports three basic vegetation types: 1) ruderal species associated with highly disturbed ground, and 2) plantings of trees and ornamentals associated with buildings adjacent to the parcel, and 3) a secondary forest. The latter includes various trees and an understory of coffee shrubs, and may be a planted area. Most or all of the plantings are on the adjacent parcels.

Because of extensive use of the entire site over a long period of time, a variety of non-native species are present, particularly grasses and weeds associated with the former playing field (Note <2> in Table 1). A somewhat different set of ruderal weeds are associate with the highway verge (Note <1> in Table 1), also a maintained area. Even the forested areas surrounding the site are dominated by formerly planted trees and shrubs. Thus nearly all of the 78 species recorded are non-native species. The only native— observed in the highway verge—is an indigenous sedge (*Cyperus polystachyos*). Three early Polynesian introductions (*'ihi'ai* [*Oxalis corniculata*], *ki* or ti [*Cordyline fruticosa*], and *pōpolo* [*Solanum americanum*] are present, but are common in the Islands. This number of natives gives a ratio of 1.2 percent of the species on the property being native; 5.1% being either native or aboriginal introduction. Other than the yellow wood sorrel (*'ihi 'ai*), all were rare or uncommon at this location.

Table 1 – Flora for DAGS Kona District Baseyard Site, Island of Hawai'i				
Species	***Common name***	***Status***	***Abundance***	***Notes***
	FERNS and FERN ALLIES			
PTERIDACEAE				
Pityrogramma calomelanos (L.) Link	silver fern	Nat	R2	<1>
	CONIFERS AND CYCADS			
PODOCARPACEAE				
Podocarpus *sp.*	podocarpus	Orn	R	
	FLOWERING PLANTS			
	DICOTYLEDONE			
ACANTHACEAE				
Justicia betonica L.	shrimp plant	Nat	O	
Thunbergia fragrans Roxb.	sweet clockvine	Nat	R	
AMARANTHACEAE				
Amaranthus sp.	amaranth	Nat	R	<3>
ANACARDIACEAE				
Mangifera indica L.	mango	Nat	R	
Schinus terebinthifolius Raddi	Christmas berry	Nat	R	
ARALIACEAE				
Schefflera actinophylla (Endl.) Harms	octopus or umbrella tree	Nat	U	
ASTERACEAE (COMPOSITAE)				
Ageratum conyzoides L.	*maile hohono*	Nat	R2	
Bidens pilosa L.	*ki*	Nat	U	
Calyptocarpus vialis Less.	---	Nat	C	<2>
Crassocephalum crepidiodes (Benth.) S. Moore	---	Nat	R	
Emilia fosbergii Nicolson	Flora's paintbrush	Nat	U	<1>
Sigesbeckia orientalis L.	sm. yellow crownbeard	Nat	O	
Sonchus oleraceus L.	sow thistle	Nat	R	
Sphagneticola triloba (L.) Pruski	wedelia	Nat	O1	
BEGONIACEAE				
Begonia hirtella Link	---	Nat	R1	
BIGNONIACEAE				
Spathodea campanulata P. Beauv.	African-tulip tree	Nat	O	
BUDDLEIACEAE				
Buddleia asiatica Lour.	dog tail	Nat	R	
CONVOLVULACEAE				
Ipomoea obscura (L.) Ker-Gawl.	---	Nat	U	
Ipomoea triloba L.	little bell	Nat	U	

Table 1- continued.

Species	***Common name***	***Status***	***Abundance***	***Notes***
CUCURBITACEAE				
Momordica charantia L.	balsam pear	Nat	U	
EUPHORBIACEAE				
Chamaesyce hirta (L.) Millsp.	garden spurge	Nat	U	
Codiaeum variegatum (L.) Blume	croton	Orn	R	
Euphorbia heterophylla L.	*kaliko*	Nat	O1	
Phyllanthus debilis Klein ex Willd.	*niuri*	Nat	U	
FABACEAE				
Chamaecrista nictitans (L.) Moench	partridge pea	Nat	O	
Desmodium incanum DC	Spanish clover	Nat	C	<2>
Desmodium tortuosum (Sw.) DC	Florida beggarweed	Nat	R	
Desmodium triflorum (L.) DC	---	Nat	R	<2>
Indigofera suffruticosa Mill.	indigo	Nat	R	
Macroptilium lathyroides (L.) Urb.	---	Nat	R	
Mimosa pudica L.	sensitive plant	Nat	R1	<2>
Indet. vine		Orn ?	U1	
LAMIACEAE				
Hyptis pectinata (L.) Poit.	comb hyptis	Nat	O	
LAURACEAE				
Persea americana Mill.	avocado	Nat	R1	
MALVACEAE				
Abutilon grandifolium (Willd.) Sweet	hairy abutilon	Nat	R	
Malvastrum coromandelianum (L.) Garcke	false mallow	Nat	R	
Sida rhombifolia L.	Cuba jute	Nat	O	
Sida spinosa L.	prickly sida	Nat	O	
MORACEAE				
Ficus microcarpa L. fil.	Chinese banyan	Nat	U	
MYRTACEAE				
Eugenia uniflora L.	Surinam cherry	Nat	R	
OXALIDACEAE				
Oxalis corniculata L.	yellow wood sorrel, *'ihi 'ai*	**Pol**	C	
Oxalis corymbosa DC	pink wood sorrel	Nat	R1	
PASSIFLORACEAE				
Passiflora suberosa L.	---	Nat	R	
PHYTOLACCACEAE				
Rivina humilis L.	coral berry	Nat	U1	
PROTEACEAE				
Macadamia integrifolia Maiden & Betche	macadamia nut tree	Orn	R1	<3>

Table 1- continued.

Species	*Common name*	*Status*	*Abundance*	*Notes*
RUBIACEAE				
Coffea arabica L.	coffee	Nat	O2	
SOLANACEAE				
Solanum americanum P. Miller	*pōpolo*	**Pol**	R	
TILIACEAE				
Heliocarpus popayanensis Kunth	*moho*	Nat	O2	
Triumfetta rhomboidea Jacq.	---	Nat	R	<1>
VERBINACEAE				
Lantana camara L.	lantana	Nat	R	
MONOCOTYLEDONES				
AGAVACEAE				
Cordyline fruticosa (L.) A. Chev.	*ki*	Pol	U1	
Cordyline fruticosa varieties	ti cultivars	Orn	R	
Sansevieria trifasciata Prain	bowstring-hemp	Orn	R	
ARACEAE				
Syngonium sp.	nephthytis	Orn	O2	<3>
Xanthosoma roseum Schott	*‘ape*	Nat	R	
ARECACEAE				
Ptychosperma macarthurii (Veitch) J. D. Hook.	Macarthur palm	Orn	R	
BROMELIACEAE				
Ananas comosus (L.) Merr.	pineapple	*Orn*	*R*	
COMMELINACEAE				
Commelina diffusa N. L. Burm.	dayflower	Nat	O	
Tradescantia spathacea Swartz	Moses-in-the-cradle	Orn	R3	
CYPERACEAE				
Cyperus polystachyos Rotb.	---	**Ind**	R	<1>
Kyllinga nemoralis (J.R. Forster & G. Forster) Dandy ex Hutchinson & Dalziel	*kili‘o‘opu*	Nat	O2	<2>
LILIACEAE				
Chlorophytum comosum (Thunb.) Jacq.	spider plant	Orn	R1	
POACEAE (GRAMINEAE)				
Axonopus compressus (Sw.) P.Beauv.	brd-lvd. carpetgrass	Nat	AA	<2>
Cenchrus echinatus L.	sandbur	Nat	U	<1>
Chloris barbata (L.) Sw.	swollen fingergrass	Nat	U1	
Chloris virgata Sw.	feather fingergrass	Nat	R	
Cynodon dactylon (L.) Pers.	Bermuda grass	Nat	O1	<2>
Digitaria ciliaris (Retz.) Koeler	Henry’s crabgrass	Nat	C	
Eleusine indica (L.) Gaertn.	wiregrass	Nat	A	<2>
Eragrostis pectinacea (Michx.) Nees	Carolina lovegrass	Nat	U2	<1>
Melinus repens (Willd.) Zizka	Natal redtop	Nat	U2	<1>

Table 1- continued.

Species	*Common name*	*Status*	*Abundance*	*Notes*
Oplismenus hirtellus (L.) P. Beauv.	basket grass	Nat	R2	
Panicum maximum Jacq.	Guinea grass	Nat	A	
Panicum sp.	---	--	R	<1>
Sporobolis cf. *africanus* (Poir.) Robyns &Tournay	smutgrass	Nat	A	<2>

Legend to Table 1

Status = distributional status

E**nd** = endemic; native to Hawai'i and found naturally nowhere else. **End*** = species is listed as threatened or endangered (USFWS, 2010).

I**nd** = indigenous; native to Hawai'i, but not unique to the Hawaiian Islands.

Nat = naturalized, exotic, plant introduced to the Hawaiian Islands since the arrival of Cook Expedition in 1778, and well-established outside of cultivation.

Orn = exotic, ornamental or cultivated crop; plant not naturalized (not well-established outside of cultivation).

Pol = Polynesian introduction; brought to the Hawaiian Islands before 1778.

Abundance = occurrence ratings for plants on property in August 2010

R – Rare - only one or two plants seen.

U - Uncommon - several to a dozen plants observed.

O - Occasional - found regularly, but not abundant anywhere.

C - Common - considered an important part of the vegetation and observed numerous times.

A - Abundant - found in large numbers; may be locally dominant.

AA - Abundant - very abundant and dominant; defining vegetation type.

Numbers (as in R3) offset occurrence ratings (1 – several plants; 2 – many plants; 3 – abundant in a limited area) in cases where distribution across the survey area may be limited, but individuals seen are more than indicated by the occurrence rating alone.

Notes:

<1> Found only along highway verge fronting site.

<2> Associated particularly with mowed (lawn) area.

<3> Plant lacking flowers or fruit; identification uncertain.

Avian Survey

A total of 58 individual birds of 11 species, representing nine separate families, were recorded during the station count, no additional species were detected during the remainder of the time spent on the site (Table 2). One species detected, Chicken (Red Junglefowl) [*Gallus gallus*] is a domesticated species that is not considered to be established in the wild on the Island of Hawai'i. The remaining 10 species recorded are all considered to be alien to the Hawaiian Islands.

No avian species currently protected or proposed for protection under either the federal or State of Hawai'i endangered species programs were detected during the course of this survey (DLNR, 1998; USFWS, 2005a, 2005b, 2011).

Avian diversity and densities were in keeping with the habitat present on the site. Two species, Japanese White-eye (*Zosterops japonicus*), and House Finch (*Carpodacus mexicanus*) accounted for 53 percent of all birds recorded during the station count.

Table 2 – Avian Species Detected Within the Proposed DAGS Kona District Baseyard Site

Common Name	*Scientific Name*	*ST*	*RA*
	GALLIFORMES		
	PHASIANIDAE - Pheasants & Partridges		
	Phasianinae - Pheasants & Allies		
Red Junglefowl	*Gallus gallus*	D	3
	COLUMBIFORMES		
	COLUMBIDAE - Pigeons & Doves		
Spotted Dove	*Streptopelia chinensis*	A	1
Zebra Dove	*Geopelia striata*	A	2
	PASSERIFORMES		
	ZOSTEROPIDAE - White-eyes		
Japanese White-eye	*Zosterops japonicus*	A	17
	TIMALIIDAE - Babblers		
Hwamei	*Garrulax canorus*		1
	STURNIDAE - Starlings		
Common Myna	*Acridotheres tristis*	A	8
	EMBERIZIDAE - Emberizids		
Saffron Finch	*Sicalis flaveola*	A	3
	CARDINALIDAE - Cardinals Saltators & Allies		
Northern Cardinal	*Cardinalis cardinalis*	A	2
	FRINGILLIDAE - Fringilline and Carduleline Finches & Allies		
	Carduelinae - Carduline Finches		
House Finch	*Carpodacus mexicanus*	A	13
Yellow-fronted Canary	*Serinus mozambicus*		
	PASSERIDAE - Old World Sparrows		
House Sparrow	*Passer domesticus*	A	3

Key to table 2

ST Status

D Domesticated species – not considered to be established in the wild on the Island of Hawai'i

A Alien – Introduced to the Hawaiian Islands by humans

RA Relative Abundance - Number of birds detected divided by the number of count stations (1)

Mammalian Survey

The only terrestrial mammalian species detected on site during the course of this survey were dogs (*Canis f. familiaris*). Tracks of this near ubiquitous species were encountered at several locations within the site, as was scat and sign.

No mammalian species currently protected or proposed for protection under either the federal or State of Hawai'i endangered species programs were detected during the course of this survey (DLNR, 1998; USFWS; 2005a, 2005b, 2011).

Discussion

Botanical Resources

The vegetation present on the site is almost completely alien as demonstrated by the fact that only one native plant species, a common sedge, was recorded during the course of this survey. No plant species currently listed, or proposed for listing under either the federal or the State of Hawai'i endangered species programs were detected during the course of this survey. Several of the larger trees located along the slope leading up to the school buildings are avocado and mango, which have some resource value providing shade and edible fruits.

Avian Resources

The findings of the avian survey are consistent with the location of the property, and the habitat present on the site. All 11 avian species recorded during the course of this survey are alien species.

Although no seabirds were detected during this survey, it is probable that both the endangered Hawaiian Petrel (*Pterodroma sandwichensis*), and the threatened endemic sub-species of the Newell's Shearwater (*Puffinus auricularis newelli*), over-fly the project area in small numbers between April and the middle of December each year. Both species have been recorded flying to and from their nesting colonies over the greater Keauhou, Hōlualoa, Kona area (Day et al., 2003; David 2011). Both of these pelagic seabird species nest high in the mountains in burrows excavated under thick vegetation, especially *uluhe* (*Dicranopteris linearis*) fern. There is no suitable nesting habitat for either of these seabird species on, or close to the proposed new baseyard.

The primary cause of mortality in the two aforementioned seabird species is thought to be predation by alien mammalian species at the nesting colonies (USFWS 1983; Simons and Hodges 1998; Ainley *et al.,* 2001). Collision with man-made structures is considered to be the second most significant cause of mortality of these seabird species in Hawai'i. Nocturnally flying seabirds, especially fledglings on their way to sea in the summer and fall, can become disoriented by exterior lighting. When disoriented, seabirds often collide with manmade structures, and if they are not killed outright, the dazed or injured birds are easy

targets of opportunity for feral mammals (Hadley 1961; Telfer 1979; Sincock 1981; Reed *et al.*, 1985; Telfer *et al.*, 1987; Cooper and Day, 1998; Podolsky *et al*. 1998; Ainley *et al.,* 2001; Hue *et al.,* 2001; Day *et al* 2003).

Additionally Hawaiian Hawks (*Buteo solitarius*) an endemic endangered raptor is regularly recorded in the greater project area, with pairs nesting upslope from the site, but some distance away from the site (David 2011). None were recorded during the course of this survey, but it is likely that this species overflies the site on occasion. Currently there are no suitable nesting trees present on the site for this species.

Mammalian Resources

The findings of the mammalian survey are consistent with the location of the property and the habitat currently present on the site. Although no rodents were detected during the course of this survey, it is likely that the four established alien *muridae* fund on Hawai'i, roof rat (*Rattus r. rattus*), Norway rat (*Rattus norvegicus*), European house mouse (*Mus musculus domesticus*) and possibly Polynesian rats (*Rattus exulans hawaiiensis*) use various resources found within the general project area on a seasonal basis. All of these introduced rodents are deleterious to native ecosystems and the native faunal species dependant on them.

No Hawaiian hoary bats were detected during the course of this survey. Hawaiian hoary bats are widely distributed along the Kona coast and are present in most areas that still have tree and dense shrubs, (USFWS, 1998; Bonaccorso *et al.,* 2005, 2007; David, 2011). It is probable that this species forages for insects over the site on a seasonal basis and it is within reason to assume that a bat may occasionally use vegetation on the site as a roost site.

Potential Impacts to Protected Species

Botanical Resources

No plants of any concern or having protective status were observed - and none is to be expected - on this site.

Seabirds

The principal potential impact that construction and operation of the proposed baseyard poses to protected seabirds is the increased threat that birds will be downed after becoming disoriented by lights associated with the project during the nesting season. The two main areas that outdoor lighting could pose a threat to these nocturnally flying seabirds is if, 1) during construction it is deemed expedient, or necessary to conduct nighttime construction activities, 2) following build-out, the potential operation of streetlights and security lighting during the seabird nesting season.

Hawaiian hoary bat

The principal potential impact that the development of the proposed project poses to bats is during the clearing and grubbing phases of construction as vegetation is removed. The

removal of vegetation within the project site may temporarily displace individual bats, which may use the vegetation as a roosting location. As bats use multiple roosts within their home territories the potential disturbance resulting from the removal of the vegetation is likely to be minimal. During the pupping season female carrying their pups may be less able to rapidly vacate a roost site as the vegetation is cleared, additionally adult female bats sometimes leave their pups in the roost tree while they themselves forage, very small pups may be unable to flee a tree that is being felled. Potential adverse effects from such disturbance can be avoided or minimized by not clearing woody vegetation taller than 4.6 meters (15-feet), between April 15 and August 15, the period in which bats are potentially at risk from vegetation clearing.

Recommendations

If nighttime construction activity or equipment maintenance is proposed during the construction phases of the project, all associated lights should be shielded, and when large flood/work lights are used, they should be placed on poles that are high enough to allow the lights to be pointed directly at the ground.

Following build-out it is recommended that any streetlights that may be required for public safety reasons or site security be shielded (Reed et al. 1985, Telfer et al. 1987). This minimization measure would serve the dual purpose of minimizing the threat of disorientation and downing of Hawaiian Petrels and Newell's Shearwaters, while at the same time complying with the Hawaii County Code § 14 – 50 *et seq.* which requires the shielding of exterior lights so as to lower the ambient glare caused by unshielded lighting to the astronomical observatories located on Mauna Kea.

It is recommended that to minimize potential impacts to Hawaiian hoary bats, woody vegetation taller than 4.6 meters (15-feet) high not be cleared between April 15 and August 15 each year.

It is recommended that, where appropriate and practicable, native plant species be used in landscaping efforts. Not only is this ecologically prudent, but if the appropriate plants are used, it will also likely save maintenance and water costs over the long term.

Critical Habitat

There is no federally delineated Critical Habitat present on or adjacent to the property. Thus the development and operation of the Kona District Baseyard facility will not result in impacts to federally designated Critical Habitat. There is no equivalent statute under State law.

Glossary

Alien – Introduced to Hawai‘i by humans
Commensal – Animals that share human food and lodgings, such as rats, mice cats and dogs.
Endangered – Listed and protected under the Endangered Species Act of 1973, as amended (ESA) as an endangered species
Endemic – Native to the Hawaiian Islands and unique to Hawai‘i
Indigenous – Native to the Hawaiian Islands, but also found elsewhere naturally
Mauka – Upslope, towards the mountains
Muridae – Rodents, including rats, mice and voles, one of the most diverse family of mammals
Nocturnal – Night-time, after dark
‘Ōpe‘ape‘a – Endemic endangered Hawaiian hoary bat (*Lasiurus cinereus semotus*)
Pelagic – An animal that spends its life at sea – in this case seabirds that only return to land to nest and rear their young
Phylogenetic – The evolutionary order that organisms are arranged by
Sign – Biological term referring tracks, scat, rubbing, odor, marks, nests, and other signs created by animals by which their presence may be detected
Taxa – a taxonomic group of any rank, such as a species, family, or class
Threatened – Listed and protected under the ESA as a threatened species

DLNR – Hawai‘i State Department of Land & Natural Resources
DOFAW – Division of Forestry and Wildlife
ESA – Endangered Species Act of 1973, as amended
TMK – Tax Map Key
USFWS – United State Fish & Wildlife Service

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Appendix B

Archaeological Literature Review and Field Inspection for the Proposed DAGS Kona District Baseyard Project

Cultural Surveys Hawai‘i
December 2010

DRAFT:

Archaeological Literature Review and Field Inspection for the Proposed DAGS Kona District Baseyard Project, Keauhou 1st Ahupua‘a, North Kona District, Island of Hawai‘i

TMK: [3] 7-8-007:061

Prepared for

Kimura International, Inc.

Prepared by

Constance R. O’Hare, B.A.,

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(Job Code: KEAUHOU 12)

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Management Summary

Reference	Archaeological Literature Review and Field Inspection for the Proposed DAGS Kona District Baseyard Project, Keauhou 1st Ahupua‘a, North Kona District, Island of Hawai‘i TMK: [3] 7-8-007:061 (O’Hare, Shideler, and Hammatt 2010)
Date	December 2010
Project Number (s)	Cultural Surveys Hawai‘i (CSH) Job Code: KEAUHOU 12
Investigation Permit Number	Fieldwork for this investigation was performed under archaeological fieldwork permit number 10-10, issued by the Hawai‘i Department of Land and Natural Resources / State Historic Preservation Division (DLNR / SHPD).
Project Location	The project area is depicted on the 1996 USGS 7.5-Minute Series Topographic Map, Kealakekua Quadrangle.
Project Acreage	0.97 acres
Land Jurisdiction	State of Hawai‘i, Department of Transportation
Agencies	SHPD
Project Description	Plans for the new Kona District Baseyard include paving of the area, development of covered and open parking stalls, and the construction of an office and shops for plumbing, masonry, electrical, painting, and carpentry.
Document Purpose	This archaeological literature review and field inspection study was completed for use as a planning document. The proposed project is subject to Hawai‘i State environmental and historic preservation review legislation [Hawai‘i Revised Statutes (HRS) Chapter 343 and HRS 6E-8/Hawai‘i Administrative Rules (HAR) Chapter 13-275, respectively]. While this investigation does not fulfill the requirements of an archaeological inventory survey investigation (per HAR Chapter 13-276), it serves as a document to facilitate the proposed project’s planning.
Fieldwork Effort	The fieldwork component of the archaeological literature review and field inspection was conducted on December 29, 1010 by Aulii Mitchell, B.A. and Sarah Wilkinson, B. A., under the general supervision of Hallet H. Hammat, Ph.D., Principal Investigator.
Results Summary	A complete pedestrian inspection of the project area was conducted. No historic properties were observed within the project area; however, there are features related to coffee cultivation outside the project area along the southern boundary of the lot.
Recommendations	Based on the results of the archaeological literature review and field inspection, Cultural Surveys Hawai‘i recommends no further archaeological work for the proposed project.

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Section 1 Introduction

1.1 Project Background

At the request of Kimura International, Inc. (1600 Kapi‘olani Blvd., Suite 1610, Honolulu, HI 96814), Cultural Surveys Hawai‘i, Inc. (CSH) conducted a archaeological literature review and field inspection for the approximately 0.97-acre State of Hawai‘i Department of Accounting and General Services (DAGS) Kona District Baseyard Project, North Kona District, Keauhou 1st Ahupua‘a, Island of Hawai‘i, TMK: [3] 7-8-007:061. The project area and survey area are depicted on the 1996 U.S. Geological Survey 7.5-Minute Series Topographic Map, Kealakekua Quadrangle (Figure 1), a client map (Figure 2), an aerial photograph (Figure 3), and a tax map (Figure 4). The project area is bound by Māmalahoa Highway on the east and *mauka* (inland) side and by the Kuakini Highway on the west and *makai* (seaward side). It is surrounded by undeveloped land on the north and south; the nearest road is Ha‘awina Street to the north, which extends between the two highways. Plans for the new Kona District Baseyard include the paving of the area, the development of covered and open parking stalls, and the construction of an office and shops for plumbing, masonry, electrical, painting, and carpentry work (Figure 5).

1.2 Document Purpose

This archaeological literature review and field inspection study was completed for use as a planning document. The proposed project is subject to Hawai‘i State environmental and historic preservation review legislation [Hawai‘i Revised Statutes (HRS) Chapter 343 and HRS 6E-8/Hawai‘i Administrative Rules (HAR) Chapter 13-275, respectively]. While this investigation does not fulfill the requirements of an archaeological inventory survey investigation (per HAR Chapter 13-276), it serves as a document to facilitate the proposed project’s planning and supports historic preservation review compliance by assessing if there are any archaeological concerns within the study area and to develop data on the general nature, density and distribution of archaeological resources.

1.3 Scope of Work

The scope of work for this archaeological literature review and field inspection study was as follows:

1. Historical research to include study of archival sources, historic maps, Land Commission Awards and previous archaeological reports to construct a history of land use and to determine if historic properties have been recorded in or near this property.
2. Limited field inspection of the project area to identify any surface archaeological features and to investigate and assess the potential for impact to such sites. This assessment will identify sensitive areas that may require further investigation or mitigation before the project proceeds.

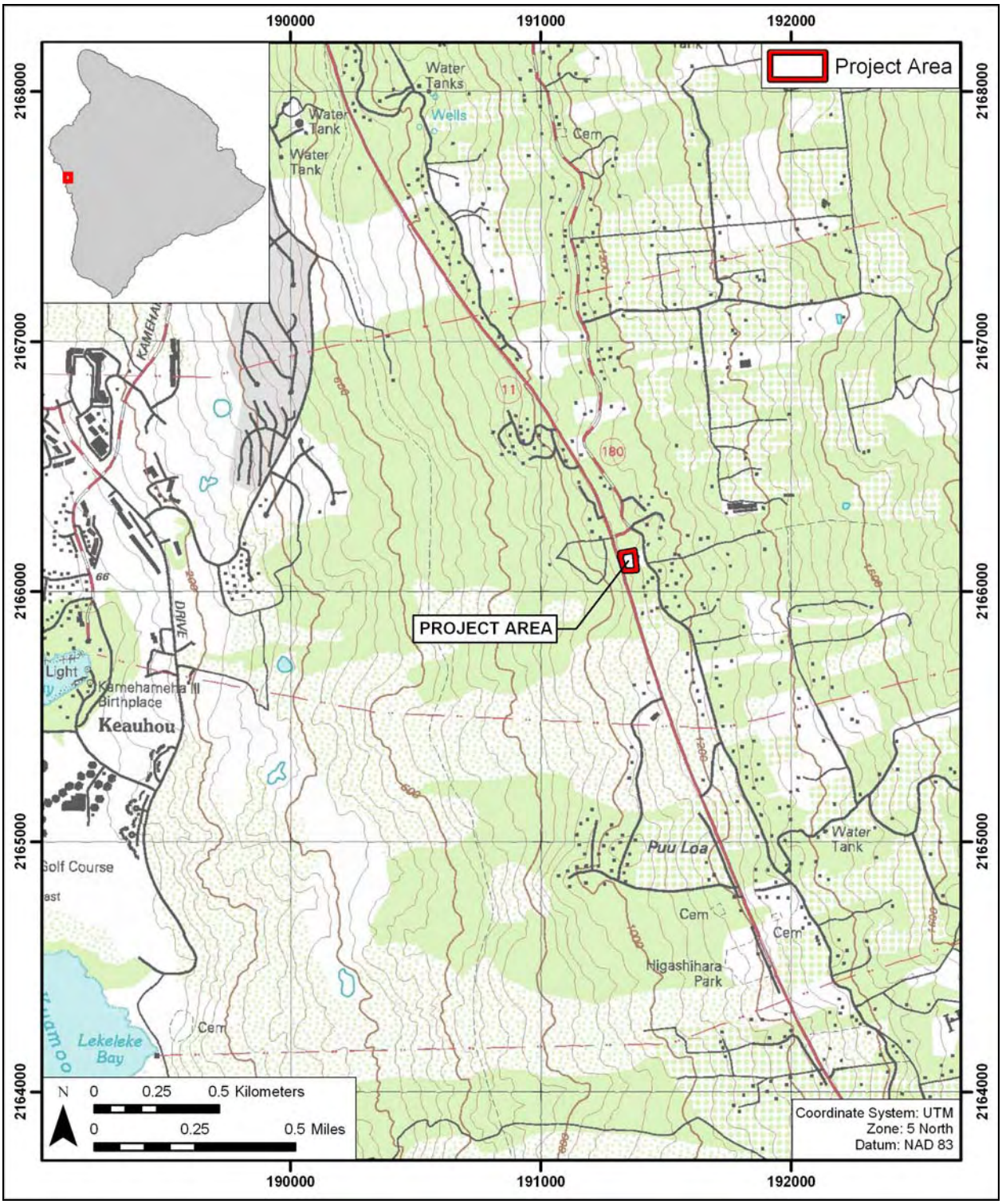

Figure 1. 1996 U.S. Geological Survey 7.5-Minute Series Topographic Map, Kealakekua Quadrangle, showing the location of the project area

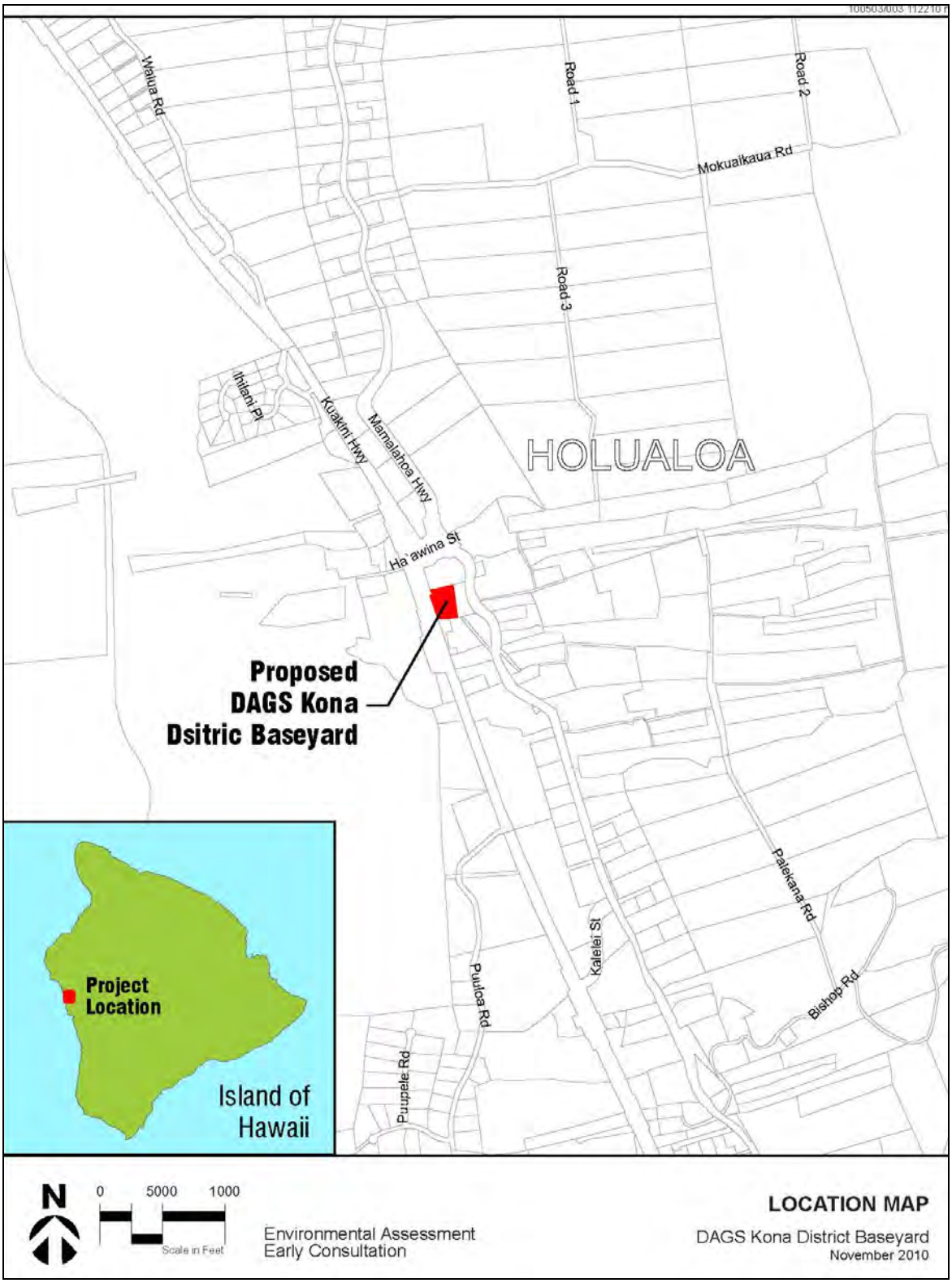

Figure 2, Location of Proposed DAGS Kona District Baseyard (map provided by client)

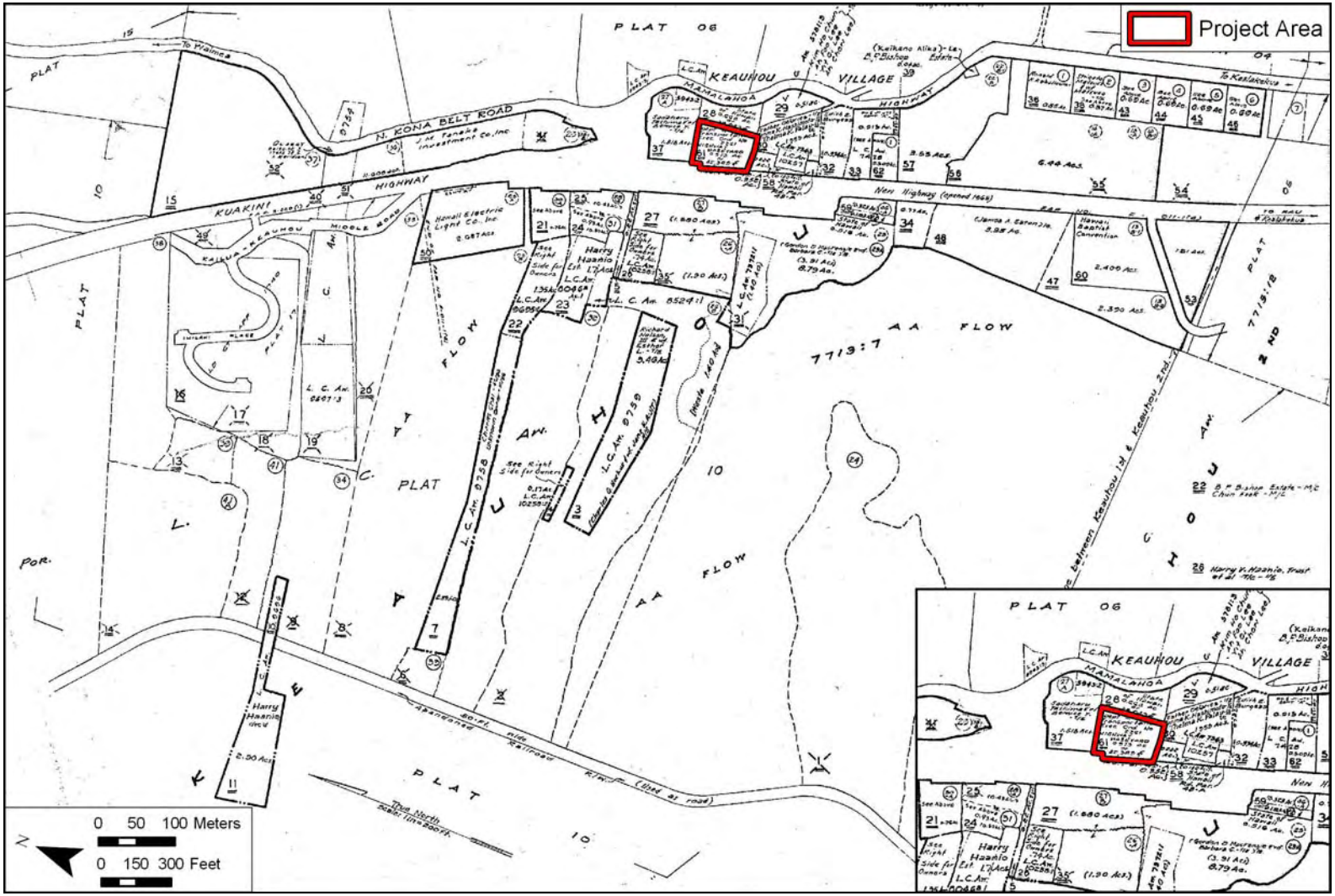

Figure 3. Tax Map Key (TMK) [3] 7-8-007 showing the location of the project area (parcel 61)

Figure 4. Aerial photograph (Google Earth 2010), showing the location of the project area between the Māmalahoa Highway (right) and the Kuakini Highway (left)

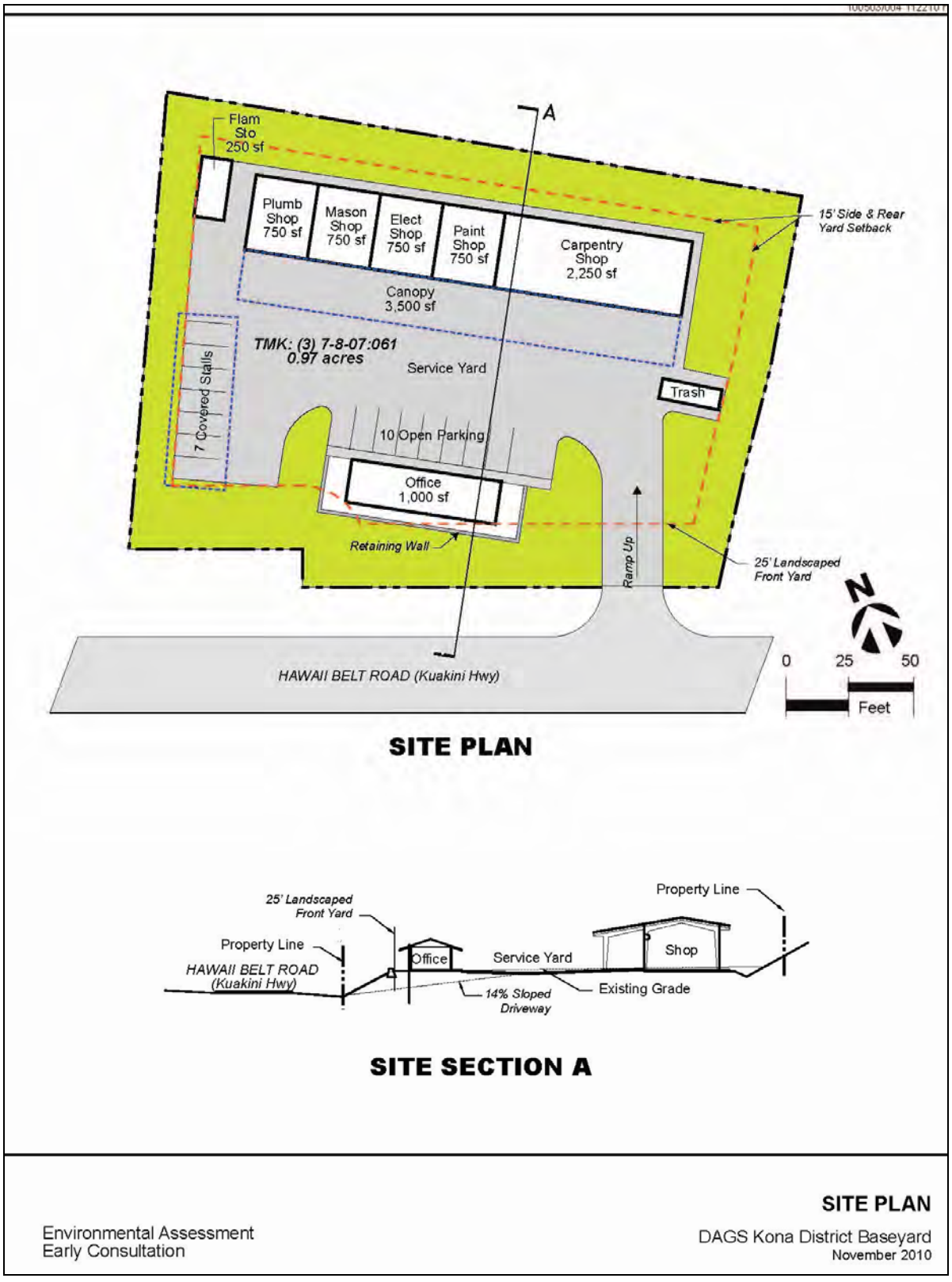

Figure 5. Proposed Construction for the DAGS Kona District Baseyard (map from client)

3. Preparation of a report to include the results of the historical research and the limited fieldwork with an assessment of archaeological potential based on that research, with recommendations for further archaeological work. It will also provide mitigation recommendations if there are archaeologically sensitive areas that need to be taken into consideration.

1.4 Environmental Setting

1.4.1 Natural Environment

The approximately 0.97-acre DAGS Kona District Baseyard Project area extends from approximately 330-340 m (meters), or 1080-1120 ft (feet) in elevation above mean sea level (AMSL), between Kuakini Highway and Māmalahoa Highway. The survey area traverses *‘a‘ā* (stony lava) lava flows derived from the Hualālai volcano.

Sediment types within the survey area, described by Sato et al. (1973), are shown on Figure 6. Most of the project area is covered by soils of the Honuaulu Series. This series consists of moderately deep, well-drained soils that formed in volcanic ash in *‘a‘ā* lava, at slopes from 2 to 40 percent. They are found on the west and southwest slopes of Mauna Loa and Hualālai volcanoes at elevations from 305-1067 m (meters), or 1000-3500 ft (feet) AMSL (Above Mean Sea Level). The mean annual rainfall ranges from 50-80 in (inches), or 1270-2030 mm (millimeters), with most of the rainfall occurring from April through October. Common modern vegetation consists of christmasberry (*Schinus terebinthifolius*), guava (*Psidium guajava*), *hapu‘u* or treefern (*Cibotium chammisoi*), *uluhe* or false staghorn fern (*Gleichenia linearis*), *‘ōhi‘a lehua* (*Metrosideros polymorpha*), guineagrass (*Panicum maximum*), and strawberry guava (*Psidium cattleianum*).

A small portion of the northwestern *makai* corner is covered by soils of the Kainaliu series. This series consists of moderately deep, well drained soils that formed in basic volcanic ash in *‘a‘ā* lava, at slopes from 2 to 40 percent. They are found on the undissected uplands of Mauna Loa and Hualālai at elevations from 0-305 m (0-1000 ft). The mean annual rainfall ranges from 25-50 in (640-1270 mm), with most of the rainfall from April through October. Modern vegetation consists of guineagrass, *koa haole* (*Leucaena glauca*), Natal redtop (*Rynchelytrum repens*), morning glory (*Ipomoea*), and lantana (*Lantana camara*).

1.4.2 Built Environment

The project area is a cleared, graded, but not paved area surrounded by woodland. There are scattered homes nearby, but no dense residential subdivisions.

Figure 6. Soil type distribution within and surrounding the survey area; soil survey data from Sato et al. 1973 (base map: 1996 U.S.G.S Kealakekua Quadrangle)

Section 2 Methods

2.1 Document Review

Historic and archival research was obtained from the University of Hawai‘i at Mānoa’s Hamilton Library, the State Historic Preservation Division Library, the Hawai‘i State Archives, the State Land Survey Division, and the Archives of the Bishop Museum. Previous archaeological reports for the area were reviewed, as were historic maps and primary and secondary historical sources. Information on Land Commission Awards was accessed through Waihona ‘Āina Corporation’s Māhele Data Base (www.waihona.com).

This research provided the environmental, cultural, historic, and archaeological background for the project area. The sources studied were used to formulate a predictive model regarding the expected types and locations of historic properties in the project area.

2.2 Field Methods

The fieldwork component of the archaeological literature review and field inspection was conducted on December 29, 1010 by two CSH archaeologists, Aulii Mitchell, B.A. and Sarah Wilkinson, B. A., under the general supervision of Hallet H. Hammat, Ph.D., Principal Investigator. The fieldwork was carried out under archaeological permit number 10-10 issued by the Hawai‘i State Historic Preservation Division/Department of Land and Natural Resources (SHPD/DLNR), per Hawai‘i Administrative Rules (HAR) Chapter 13-282. The field inspection of the project area consisted of a complete pedestrian inspection of the project.

Section 3 Historical Background

3.1 Overview of the Cultural History of Keauhou

The history of Keauhou (1st and 2nd) Ahupua‘a has been covered in detail in several studies including, Crozier (1971a), Emory et al. (1971), Hammatt and Folk (1980), Kelly and Barrere (1980), Sterling (1960) and Tomonari-Tuggle (1985). These *ahupua‘a* have typically been thought of together, both in traditional Hawaiian times and by subsequent researchers. The reader is referred to these studies for more detailed accounts. Only a brief overview is attempted here, drawing heavily upon the work of Silva (1985), Sterling (1960), and Tomonari-Tuggle (1985).

3.2 Early Pre-Contact History

3.2.1 The Beginning of Settlement: Pre-AD 1000 to the 1300s

Based on dates derived almost exclusively from hydration rind analysis, Tomonari-Tuggle (1985) postulates that Keauhou was initially settled sometime after A.D. 1000. Early settlement is suggested to be marine resource-oriented, with habitation probably focused around Keauhou Bay. Kin-based social and economic ties linked coastal areas in the vicinities of the bay. By A.D. 1300, upland areas at least 4,000 ft inland were cultivated. This is suggested to be the origin of the Kona Field System, which developed from lower elevations farther inland after this time.

The general settlement pattern associated with the Kona Field System, based on ethnographic, ethno-historic, and archaeological sources, includes three main zones: coastal, intermediate, and upland. However, Keauhou 2nd includes a fourth zone of occupation and exploitation, referred to here as the saddle region.

The Kona Field System (Soehren and Newman 1968 – SIHP # 50-10-27-6601) has been further broken down into four sub-zones that are based on agricultural production. The four sub-zones and their correlations to the coastal, intermediate and upland zones (Kelly 1983) are:

(1) Kula	0 - 500 ft. AMSL	Coastal and portion of Intermediate
(2) Kalu‘ulu	500 - 1000 ft. AMSL	Intermediate
(3) ‘Āpa‘a	1000 - 2500 ft. AMSL	Upland
(4) ‘Ama‘u	2500 - 4000 ft. AMSL	portion of Upland

The Coastal Zone can be characterized as a relatively narrow strip of land along the coast that had the highest concentrations of habitation and religious sites. The Intermediate Zone had agricultural features, temporary habitation sites, and some dispersed permanent habitation sites. The Upland Zone, like the Intermediate Zone, contained widespread evidence of agriculture and temporary and permanent habitations, but at the upper end, there existed the *wao* or upland forest. Beyond the upland forest was the Saddle Region where habitation, mostly temporary, is focused in lava tubes, with the main human activity being bird hunting. The current survey area would be within the lower portion of the Upland Zone, the prime inland habitation and agricultural zone. Settlement Expansion: the 14th to 16th Centuries

Initial development of the complex chiefdoms and social organization recorded at Western contact began in this period. Settlements and the Kona Field System expanded inland. Due to increased population and developing chiefdoms, intensification of zonal utilization occurred (Tomonari-Tuggle 1985:15-24). Evidence of the intensification includes the construction of large *heiau* (ceremonial site) complexes along the coast. Although it was built within the saddle region, one example of such a complex is Ahua ‘Umi, which was built around A.D. 1550. Additionally, expansion and intensification of agriculture into higher elevations and more formal fields was also taking place in response to population growth and a shift of political power to the Kona Region (Tomonari-Tuggle 1985:15-24).

3.2.2 The Time of ‘Umi and Lono or the Late Traditional Period: Late 16th to 18th Centuries

This period marks the time of the first specific legendary information concerning Keauhou. Tradition holds that the ruling chief, ‘Umi-a-Līloa, moved his court to Kona, stopping for a time at the Ahu-o-‘Umi in the uplands of Keauhou 2 (Baker 1917:63; see also Fornander 1917:Vol. IV, Part II: 232). While ‘Umi’s place of residence in Kona is usually tied to the Kailua area, the *heiau* Pa-o-‘Umi (SIHP –3823) is attributed to this chief. The ruling chief, Lono-i-ka-makahiki, a grandson of ‘Umi-a-Līloa, is said to have resided in coastal Kahalu‘u Ahupua‘a (Fornander 1917: Vol. IV, Part II: 356), at an impressive high-walled complex. Tomonari-Tuggle (1985) suggests the creation of refuge-type openings at major lava tubes like ‘Ōhi‘a Cave was undertaken for purposes of concealment during the wars and political instability of this period. Habitation, particularly high status habitation, appears to have focused on the lands back of Kahalu‘u Bay, where they could take advantage of the amenities of extensive inshore reefs and the proximity of brackish or freshwater ponds. Other habitation areas extended to the south, to He‘eia and Keauhou Bays, and were scattered among the agricultural fields.

3.3 The Late Pre-Contact and Early Contact Period

3.3.1 The Time of Kalani‘ōpu‘u and Kamehameha: 18th Century to the Early 1800s

When Captain Cook died in 1779, it is said that the ruling chief Kalani‘ōpu‘u resided for some time around Kahalu‘u and Keauhou, occupying his time with *hula* (Kamakau 1961:228). Kalani‘ōpu‘u moved to Keauhou “where he could surf in the waves of Kahalu‘u and Hōlualoa” (Kamakau 1961:105). Both Kalani‘ōpu‘u and Kamehameha attempted to gain the support of the deities by constructing or rededicating the many *heiau* of Kahalu‘u. It is said that after his defeat by the Maui chief Kahekili c. 1775, Kalani‘ōpu‘u built (or rededicated) the *heiau* of ‘Ōhi‘amukumuku at Kahalu‘u and Keikipu‘ipu‘i at Kailua as *heiau* against sedition and for vengeance (Kamakau 1961:180). Kamehameha I is also said to have built (or rededicated) Kamaike‘eku and ‘Ōhi‘amukumuku *heiau*. ‘Ōhi‘amukumuku in particular appears to have been regarded as particularly auspicious, for upon Kamehameha’s return to Kona in 1813, “his first object was to pray to the gods and for this purpose he made *kapu* the *heiau* of Hikiau and then that of ‘Ōhi‘amukumuku at Kahalu‘u (Kamakau 1961:200). Kamehameha and his court are said to have resided at Kahalu‘u for about a year following his return (‘Ī‘ī 1959:113).

3.3.2 High-Ranking Chiefs at Kahalu‘u

Several high-ranking chiefs were born at Kahalu‘u and Keauhou. Tomonari-Tuggle (1985) suggests that the association of these *ali‘i* births with Keauhou was not one of any particular auspiciousness (as in an *ali‘i* birthing place such as at Kūkaniloko, O‘ahu and Pōhaku Ho‘ohānau, Kaua‘i), but rather was the association of these lands with the ruling chief Ke‘eaumoku who was kin to these chiefs. This ruthless and independent “Kona Uncle” of Kamehameha the Great appears to have been awarded the *ahupua‘a* of Keauhou for his services. Archibald Menzies (1920:149), surgeon with the Vancouver expedition of the 1790s, described Keauhou as “a small cove belonging to Ke‘eaumoku.”

3.3.3 Western Contact at Kahalu‘u/Keauhou: 1794 to 1819

By 1794, there was a foreigner in residence at Keauhou engaged in the manufacture of charcoal to supply visiting western ships (Menzies 1920:149). It seems probable that the population of Keauhou declined rapidly in the early historic period, due not only to introduced diseases but also to demographic shifts to Kailua and Ka‘awaloa. Kahalu‘u must have prospered from traffic with the devout including a learned *kahuna* (priests or other experts) class. With its many *heiau* suddenly abandoned, people no longer visited Keauhou with their hogs and other offerings (Mann et al. 2003:9).

3.4 Western Contact: 1820 to present

3.4.1 Merchants and Missionaries: 1820 to 1850

The departure of the center of the Hawaiian Kingdom’s government from Kona, Hawai‘i to Honolulu, O‘ahu in 1820 was a demographic catastrophe to places like Keauhou, which must have relied at least in part on royal patronage. This loss would have been partially off-set by the continuing victualing trade to visiting foreign ships and the trade in sandalwood. Mackintosh (1838:2) wrote that the anchorage at Keauhou Bay “is resorted to by vessels for cargoes of firewood, sandalwood and other commodities of produce.” Keauhou was well-suited to funnel the bounty of the Kona Field System - which quickly included new cultigens such as coffee, melons, maize, Irish potatoes, beans and citrus - to supply shipping. Keauhou may have always been particularly well-suited geographically for the transportation of forest resources to the coast and the sandalwood of a vast interior could have been transported down through Keauhou to the waiting ship holds at Keauhou Bay.

Our first detailed glimpse of Keauhou is with the London Missionary Society missionary William Ellis in 1823. Probably walking an alignment much like modern Ali‘i Drive, Ellis reported nineteen *heiau* and 610 houses between Kailua and Keauhou, and eight *heiau* and 443 (1969:121) houses between Keauhou and Ka‘awaloa. At Keauhou, Ellis noted 135 houses, and about 150 people assembled to hear him and his companions preach. Ellis remarked on the stepping stone trail across a mile-wide stretch of *‘a‘ā* between the Kahalu‘u and Keauhou villages. Ellis (1969:121) noted the houses of “those who live among the plantations on the sides of the hills.” Keauhou was an outlier for the Kailua Mission Station. Missionaries from the American Board of Commissioners for Foreign Missions (ABCFM) would periodically take sermonizing trips down the coast, often on their way to the Ka‘awaloa Mission. Artemis Bishop

(1892:18) noted (ca. 1825) that the Hawaiian communities at Hōlualoa, Kahalu‘u, Keauhou, and Kainaliu routinely marshaled 500 or more people to meet him.

3.4.2 Māhele: 1848 to 1850s

In the great division of lands, or Māhele, of 1848, Victoria Kamāmalu received the *ahupua‘a* of Kahalu‘u and the northern portion of Keauhou, known as Keauhou 1st, as part of LCA 7713. Her brother, Lot Kapuāiwa (later Kamehameha V) received the southern portion of coastal Keauhou and a vast interior area known as Keauhou 2nd, as Land Commission Award (LCA) 7715 9. That these lands were retained by the Kamehameha dynasty reflects their perceived value. Tomonari-Tuggle (1985:27) suggests that the division of Keauhou into these two parts dates from this time (ca. 1848). She notes that the Keauhou 1st/Keauhou 2nd division cuts through many commoner *kuleana* awards, which suggests the division post-dates the Māhele occupation of those areas.

There were a total of 69 land claims made in Keauhou, with 50 LCAs awarded in Keauhou 1st and 19 awarded in Keauhou 2nd (one award in Keauhou could not be located specifically to Keauhou 1st or 2nd). LCA *kuleana* included from one to three discrete parcels (*‘āpana*). As is typically the case, the sizes of the *kuleana* LCA parcels were relatively modest, ranging from 0.14 to 6.66 acres in Keauhou 1st and 2nd (Figure 7).

In Keauhou, 28 of the houselot claims are clustered along the north edge of Kahalu‘u Bay, with the other 15 houselot claims scattered on the point south of the bay. Notably, all of the house lot claims lie *makai* of the Kuakini Wall, which was probably built under the supervision of John Adams Kuakini, governor of Hawai‘i Island. It was constructed to keep wild cattle and their depredations *mauka* of this coastal habitation zone. Most of the houselots included from one to five houses, which were enclosed by stone walls (*pā*). A number of useful plants are mentioned within these houselots, including *kou* (*Cordia subcordata*), *hala* (*Pandanus odoratissimus*), *hau* (*Hibiscus tiliaceus*), papaya (*Carica papaya*), *loulu* palm (*Prichardia* sp.), pineapples (*Ananas comosus*), *noni (Morinda citrifolia*), and coconut trees (*Cocos nucifera*).

At Keauhou Bay, houselots were focused primarily on the north promontory, south of He‘eia Bay, with seven houselots situated on the south side of the bay and one lot on the southern coast of Keauhou 2nd. A second cluster in Keauhou 2nd was located along the Belt Road, as can be seen on a map of the LCA parcels *mauka* and *makai* of the project area (Figure 7).

An interesting feature of the land claims is that many of the awardees did not claim possession of the land over a long period of time, and in fact were up-front about the occupying families having moved onto vacant or idle land (Tomonari-Tuggle 1985:30). Archaeological evidence clearly indicates that a wide belt of permanent habitation had contracted to a narrow coastal strip in the early historic period. By 1850, many of the families that had resided at Keauhou had died out or moved away. Depopulation, the collapse of the religious center, the focus of trade on Kailua and Ka‘awaloa, and the depredations of cattle, horses and goats inland of the Kuakini wall would all have been factors underlying this demographic change (Tomonari-Tuggle 1985:30).

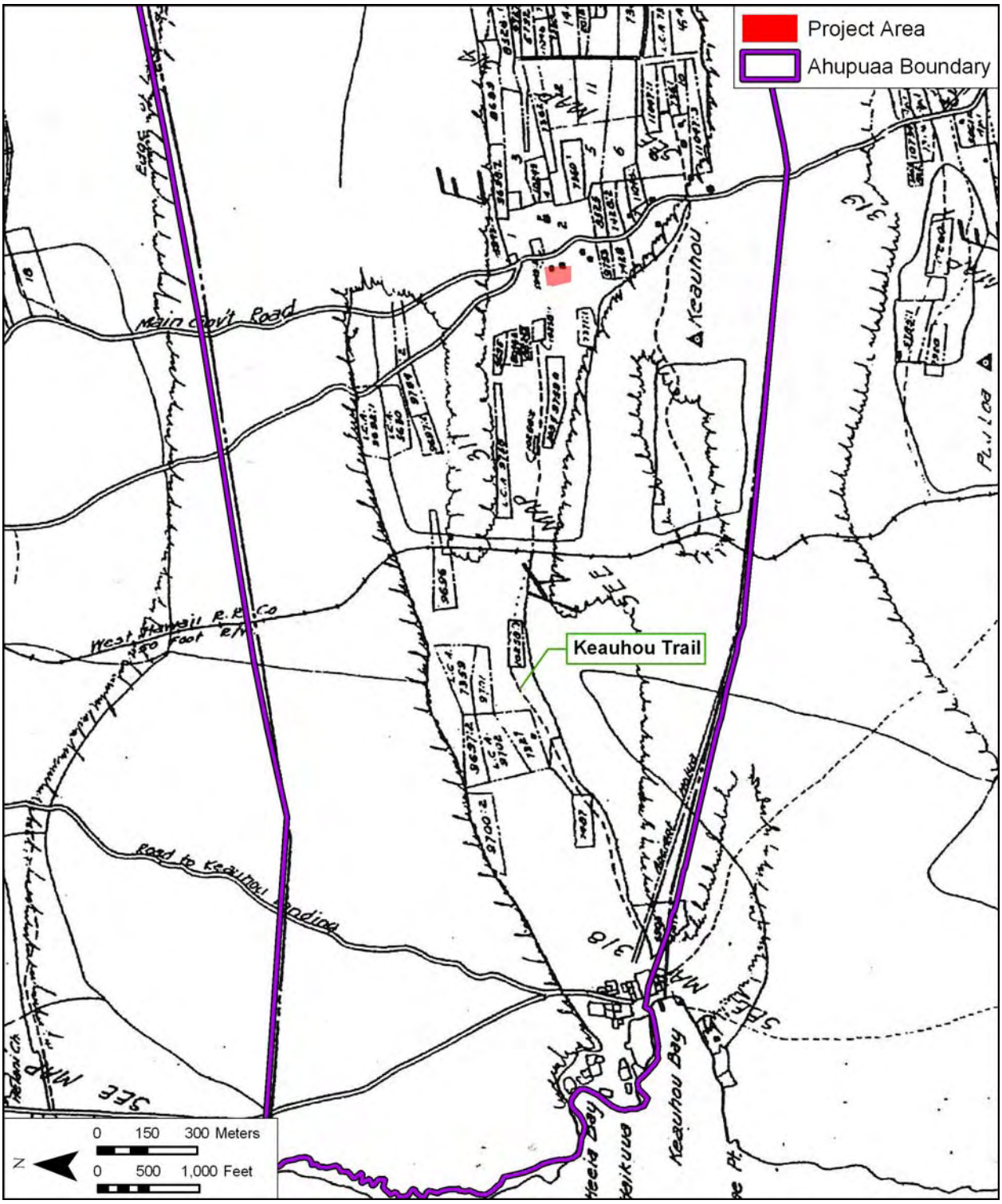

Figure 7. 1930 U. S. Territorial Tax Map (portion), showing Land Commission Awards (LCA) in Keauhou 1st Ahupua‘a (north and south boundaries outlined); on this map the Keauhou Trail (dashed line) terminates *makai* of the project area and the Māmalahoa Highway

In 1862, the Boundary Commission (1864-1935) was formed to determine the precise boundaries of LCA parcels that had not been surveyed. The Boundary Commission testimonies, like the LCA testimonies, offer a wealth of interesting information. Beyond place names, the Boundary Commission testimonies indicate where people used to live, the existence of well-defined roads, changes in vegetation, traditional references to chronology, as well as resources in the region.

Surprisingly, the LCA and the Boundary Commission testimonies reveal striking changes in the vegetation in the nineteenth century. Informants stated that the forest zone was expanding. References include, “When I was young there were no trees there. But now the trees have grown up” (Boundary Commission testimony of Waiau 1875); "At that time (i.e. going with his father) this place was above the woods and you could see from Kiha to Waio, now the trees are all grown up" (Boundary Commission testimony of Kahulialo in 1873); and “The woods extend there now. In olden times there were hardly any trees there” (Boundary Commission testimony of Keakaukawai in 1873).

Chronological references in the Boundary Commission testimonies are in terms of major events, not to specific dates. For example, informants related their births to “the death of Kamehameha I" (Keakaukawai), "The time of Kuewai o la lae" (Palea). Chronologically, this represents informants testifying in 1873, who were born in the early 1800s.

Based on the testimonies, two of the major resources in the saddle region and upland forest included birds and timber. The most often mentioned resource was birds, especially “geese and uwao” (dark-rumped petrel). Timber resources mentioned included mainly sandalwood though references to “canoe makers” and “where canoe makers lived” indicates koa wood logging and roughing out the canoe before being taken to the coast for finishing. There were also a number of references to disputes between “bird catchers” from different *ahupua‘a*. Disputes went as far as killings or attempted killings indicating the importance of the avian resources.

There are five LCA parcels (within four LCA claims) adjacent or near the project area on the *makai* side of Māmalahoa Highway, summarized in Table 1. The full text of these awards is presented in Appendix A.

Pahu (LCA 5943) was awarded three lots, one in the ‘*ili* (small land division) of Kamuku in Keauhou 2nd, near the coast, and two *mauka* parcels in Keauhou 1st in the ‘*ili* of Waipi‘o, both near the project area. The parcel in Keauhou 2nd had a house and a *kīhapai* (garden) area with several coconut trees. One of the *mauka* parcels had an orange tree. Land in Kionalua is also mentioned, but the location of this place is unclear.

LCA 7363 was awarded to Kupaka (or Kuupaka). The award divides the land into two ‘*āpana* (lots), but by the description, his award consisted of a number of *lele* (jump) lands in Keauhou 1st and Keauhou 2nd. These small parcels were scattered from the forest, in the upland agricultural zone, in the *kula* zone (grazing/dryland zone), in the taro zone, and at the seashore. He mentions gardens areas such as *mo‘o* (long strips of land), *paukū* (a garden smaller than a *mo‘o*, usually irrigated taro lands), and *kīhāpai* (small garden areas, smaller than *mo‘o* and *paukū*, usually used for dryland crops such as sweet potatoes). It is difficult from the description to determine the use of the small lot near the project area, but his houselot was in Keauhou 2nd near the shore. The lots

Table 1. Land Commission Awards near the Project Area

LCA	Awardee	*‘Ili*	Ac.	No. of *‘āp.*	Description
5943:2 5943:3	Pahu	Waipi‘o 2 Kamuku Kionalua	1.5	3	House lot and coconut trees near the coast in Keauhou 2nd (LCA 5943:1); two *mauka* parcels in Keauhou 1st (LCA 5943:2, 3), one orange tree
7363	Kupaka	Paki 2, Kaohia	3.52	2	One *mauka mo‘o* with 8 *kīhāpai*, one *mo‘o* with 2 *kīhāpai*, and one *mo‘o* with *kīhāpai* in 4 *paukū*; *lele* from the coast to the forest with sweet potato and taro gardens; house on the shore in Keauhou 2nd
7428	Kaihe, J. H.	Haleape, Kaulu-kauheana, Opuokaha, Kaohia	1.47	3	12 *kīhāpai*, at least two orange trees
10257	Manohili	Papalanui	0.2	1	One *paukū* land in the taro cultivation area and two *paukū* elsewhere

were in the *‘ili* of Paki 1 (Keauhou 1st) and in Kaohia, which may be an *‘ili* of Keauhou 1st or Keauhou 2nd or with portions in both.

For some reason, J. H. Kaihe was granted two separate LCA claims within Keauhou, LCA 5792 and 7428. LCA 7428 had two *‘āpana*, with 12 *kīhāpai* in *lele* lands, scattered from the coast to the uplands where the *ama‘uma‘u* ferns grew. Lands are mentioned in Keauhou 1st in the *‘ili* of Haleape, Kaulukauheana, and Opuokaha, and also in Kaohia. Several of the Keauhou 1st *kīhāpai* have orange trees.

LCA 10257 to Manohili was awarded two *‘āpana* in the *‘ili* of Papalanui in Keauhou 1st. He claimed one *paukū* in the *mauka* taro cultivation zone, and two *paukū* in “one place.”

Later, in 1889, the Ahupua‘a of Keauhou 1st and 2nd became part of the Bernice Pauahi Bishop Estate as inherited lands from Ruth Ke‘elikōlani who had inherited them after the deaths of Victoria Kamāmalu (Keauhou 1) and Lot Kapuāiwa (Keauhou 2).

3.4.3 Late Nineteenth Century

Lacking sufficient water and easily convertible land, the Kona Coast of Hawai‘i was largely spared the changes associated with plantation agriculture that affected so much of Hawai‘i. Economic opportunities created by this commercial agriculture elsewhere was another pull for relocation away from Keauhou. Tomonari-Tuggle (1985) notes that according to Kingdom of Hawai‘i tax ledgers, the population of this area dropped from 72 in 1857 to 24 in 1881. While the

overall importance of the Kona Coast diminished, the relative importance of Keauhou on that coast may have increased, as Kealakekua Bay (Ka‘awaloa and Napō‘opo‘o) became less important as an entry point.

The impetus of market-oriented produce on the declining population would have been manifested in the shift of the remaining population to port centers like Keauhou, Kailua, and Kealakekua. This is evident by the relatively large number of LCAs, with nineteen (19) in Keauhou 2nd and fifty (50) in Keauhou 1st. Additionally, at Keauhou Bay there were a few stores, a church and a school house. Based on the government license ledger for retail outlets between 1855 and 1870, “Keauhou may have been one of the more active areas along the coast” (Tomonari-Tuggle 1985:31-32). In her survey of Government license ledgers between 1855 and 1870, Tomonari-Tuggle (1985:32) notes eleven applications (by five individuals) for enterprises at Keauhou in comparison with 25 applications at Kailua, 10 for Kealakekua, seven for Napō‘opo‘o, four for Ka‘awaloa, and three each for Hōlualoa and Hōnaunau. Curiously, fishing appears to have been a minor enterprise during this period.

The uplands of Keauhou became more important as the century drew to a close with the growth of the ranching operations and small plantations used to grow coffee. The uplands from approximately 1500 to 4500 ft in elevation were at first used for grazing cattle, goats, and other livestock. Uplands from approximately 600 to 1500 feet in elevations, such as the current project area, were used for the cultivation of small plantations growing oranges and coffee. The trustees of Victoria Kamāmalu leased large portions of her award in Keauhou for grazing land and for coffee cultivation (Maly and Maly 2004:98-100).

Coffee in Keauhou, as evidenced by the LCA information, was grown as an early commercial enterprise in small individual plots. The coffee industry went through a number of booms and depressions through the late 1800s, due to introduced diseases and price fluctuations. In Keauhou, coffee cultivation eventually took over the area formerly occupied by the *kuleana* agricultural plots. By this process, the prime agricultural lands between 1000 and 2200 ft, by the turn of the 20th century, were almost all given over to coffee cultivation.

Chinese and Japanese immigrants that had fulfilled their labor contracts to sugar plantations eventually became the dominant coffee growers. The coffee farmers for the most part lived on the farms in the upland agricultural zone, with no corresponding coastal habitation. Keauhou Bay still contained a church, a school house, post office, and by 1920, a single store. The focus of settlement was the *mauka* government road (i.e. Māmalahoa or Belt Highway).

3.4.4 Keauhou in the Twentieth Century

It appears that there were a few attempts at growing sugar in Keauhou during the late 19th century, though the attempts were not very successful. However, the early twentieth century saw a boom in the coffee industry in the Kona uplands. Habitation along the coast was generally abandoned, as coffee growers moved to one of the many small towns that sprang up along the upland Māmalahoa Highway to be near their coffee farms and to a convenient transportation route to the landing at Kailua-Kona. Schenck (1931:80) provided an insightful account of Keauhou Bay as “miles off the beaten path... a place where people used to live in numbers and now live no more.” During this time in Keauhou, many houses and shops were clustered around Keauhou Village, adjacent to Māmalahoa Highway in the uplands, including the Keauhou Uka

School, which according to a 1906 plan map (Figure 8) was east and adjacent to the current project area on the *makai* side of the Māmalahoa Highway. This map shows a schoolroom and one residential "cottage" for the teachers. The 1899 report of the Hawai‘i Minister of Public Instruction (1900:155) noted that the one-room Keauhou School was shortly to be opened. The 1900 Report of the Hawai‘i Territorial Survey, states:

> Keauhou-uka School Lot. This lot is situated in Keauhou 1, on the government road to Kailua, and contains 0.961 of an acre.
>
> Keauhou-kai School Lot. This lot, area 0.253 of an acre, is the original school grant and is situated in the makai part of Keauhou 1, near the sea. It is not used for school purposes, a church occupying the lot at the present time. (Hawaii. Department of Survey 1901:9)

Keauhou School is still shown on a 1960 U.S. Geological Survey map (Figure 9), but it closed sometime in the late 1960s. In 1969, the DLNR voted to cancel the executive order which established the Department of Public Instruction's encumbrance (claim or lien) on the property "for the reason that the Keauhou School and grounds were no longer being utilized for school purposes." In 1973, a use permit was issued to the Hawaii County Economic Opportunity Council (HCEOC) for Day Care purposes for the property. This permit was transferred to the Community Development Institute Head Start, Inc. (CDI HS) in 2009, which now operates the Keauhou Head Start Keauhou School for children aged 0-5 years old (Hawaii. DLNR 2009).

The Kona Sugar Company had a short life, having begun business in 1898 and going out of business by 1903. In 1906, the property was bought and redeveloped by James B. Castle, who founded the Kona Development Company, which harvested sugar on the lands for the next twenty years. During this time eleven miles of railroad were installed, with a station at the Kona mill. The West Hawaii Railway Co. developed with the intent of further connecting the railway to North and South Kona (thirty miles of track) with access to bays along the coast. This idea lost steam and the original eleven miles remained the extent of the railroad though North Kona. Burtchard et al. (1996) described the construction of the railroad:

> The rail route was built as a cut and fill feature across Hualālai's western slope. Rock outcrops and ridges were removed to create a level railbed. At least some of this rock was reused to span ravines and other depressions in the irregular lava flow surface. Additional rock was quarried from nearby flows. (Burtchard et al. 1996:294)

Tourism grew almost exponentially in the decades after World War II, and the boom starting in the 1970s radically changed the face of Keauhou. Coffee and cattle dominated the economy in Keauhou until the late 1960s and early 1970s, when tourism began to flourish. The patchwork of small fields and the cluster of habitations around the upper roads is shown in a 1978 aerial photograph (Figure 10). In the 1960s, a golf course was built. After the completion of the golf course, hotel condos and single family residences sprang along the edges of the golf course, thus returning residential occupation of significant numbers to the coastal zone. Some of the prime agricultural lands of Keauhou are still under coffee cultivation and the Belt Highway is still a focus of the local community.

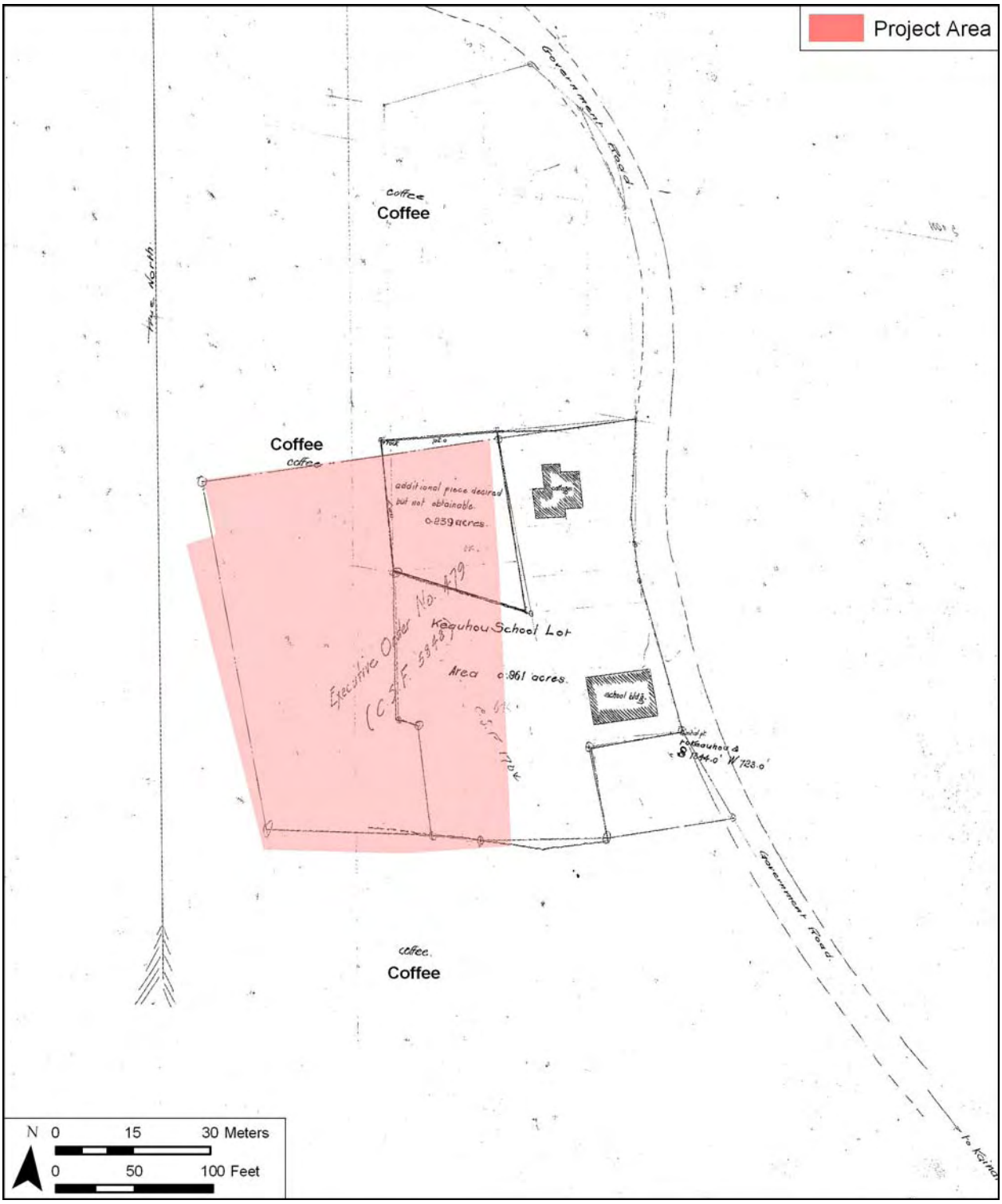

Figure 8. 1906 map of Keauhou Uka School lot, by Geo. F. Wright; note that the project area is in land planted with coffee trees (Hawai‘i Land Survey Division, Registered Map No. 2350)

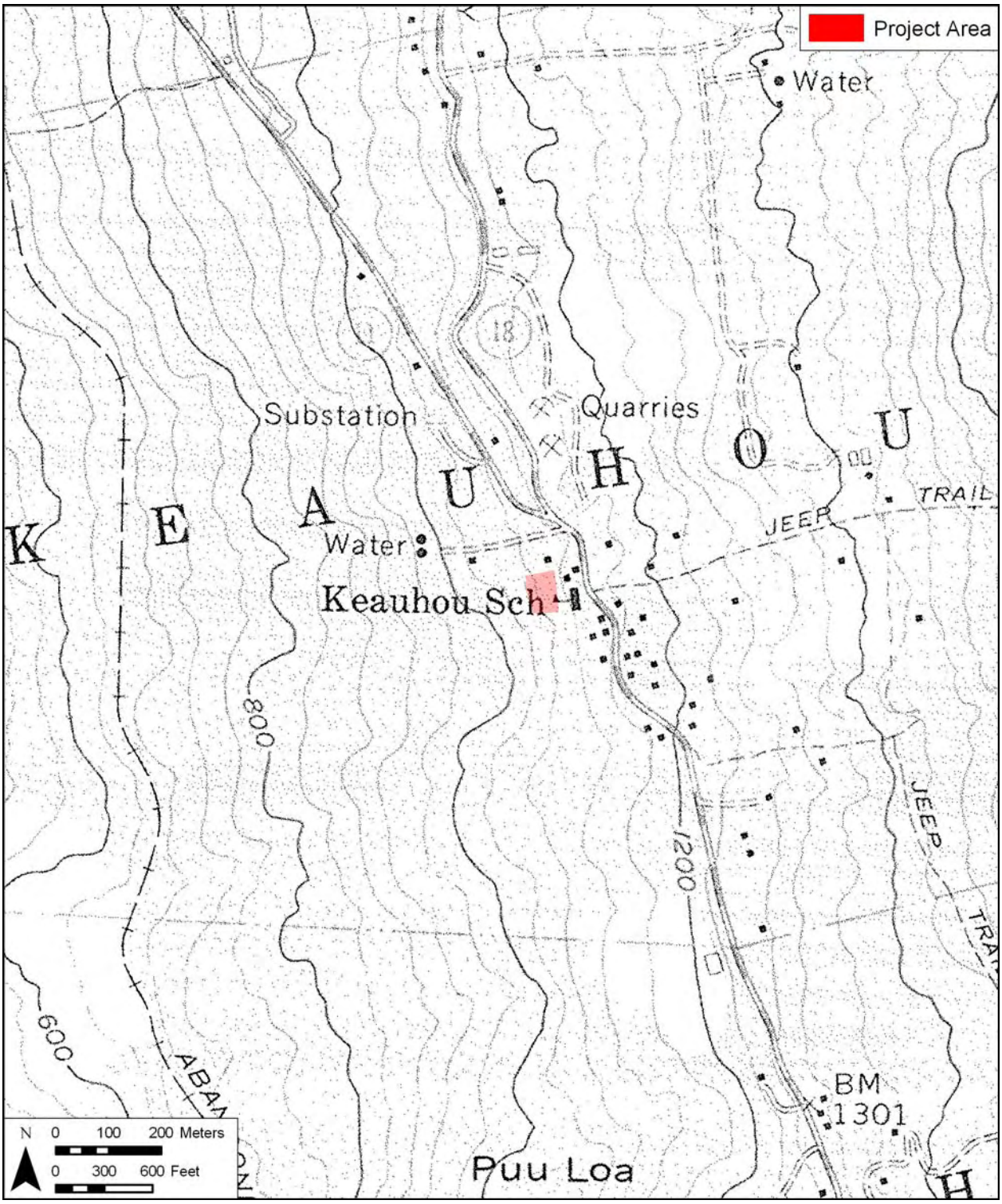

Figure 9. 1960 U.S. Geological Survey map (Kealakekua Quadrangle), showing the project area in relation to Keauhou School on the *makai* side of Māmalahoa Highway; note remnant of Keauhou Trail (road to water tanks) north of the project area

Figure 10. 1978 Aerial photograph of the Kona Coast, depicting the project area surrounded by the small coffee fields *mauka* of the Māmalahoa Highway (U.S. Geological Survey Orthophoto)

Section 4 Previous Archaeological Research

4.1 Kona Field System

The current project area is located within the Kona Field System District (SIHP # 50-10-27-6601). Henry et al. (1998) provides an overview of the Kona Field System. Information particularly relevant to the current study is presented below:

> Many of the projects conducted within Kona deal with archaeological components of the Kona Field System (Cordy 1995; Newman 1970; Schilt 1984). This area extends north at least to Ka‘ū Ahupua‘a and south to Hōnaunau, west from the coastline and east to the forested slopes of Hualālai (Cordy 1995). A large portion of this area is designated in the Hawai‘i SIHP (State Inventory of Historic Places) as Site 50-10-37-6601 and has been determined eligible for inclusion in the NRHP. The basic characteristics and general locations of the zones within the system as presented in Newman (1970) have been confirmed and elaborated on by more intensive and extensive ethnohistorical investigations (Kelly 1983). Schilt (1984) used information gathered from a transect across the Kona Field System to propose a chronology of development for the system. The basic archaeological spatio-temporal characteristics of the system include the following zones and chronology.
>
> The *kula* zone is the area from sea level to 150 m above mean sea level (AMSL). Annual rainfall in the *kula* zone is 75 to 125 cm. This lower elevation zone is traditionally associated with habitation and the cultivation of sweet potatoes (*‘uala*), paper mulberry (*wauke*), and gourds (*ipu*). Agricultural features, such as clearing mounds, planting mounds, planting depressions, modified outcrops, and planting terraces, are common throughout much of this zone (Hammatt and Clark 1980; Hammatt and Folk 1980; Haun et al. 1998; Schilt 1984). Dwellings can be scattered throughout the agricultural portion of the *kula*, but they are commonly concentrated along the shoreline subdivision of the *kula* zone (Cordy 1981; Hammatt and Folk 1980). The shoreline zone, extending inland approximately 200 m, was used primarily for permanent habitation and other non-agricultural activities, such as canoe storage, ceremonial and burial practices, recreation, and fishing-related activity…
>
> The *kaluulu* zone is at 150 to 300 m AMSL, with an annual rainfall of 100 to 140 cm. This is a zone of cultivation of sweet potatoes, paper mulberry, and especially breadfruit (*‘ulu*)…
>
> The *‘āpa‘a* zone is between 300 to 750 m AMSL, with an annual rainfall of 140 to 200 cm. This zone was associated with the dry land cultivation of taro, sweet potato, ti, and sugar cane….*Kuaiwi* [rock walls, alignments] are a prominent feature of the landscape within the *‘āpa‘a*, neighboring *‘ama‘u*, and probably the *kaluulu* zones (Cordy 1995; Newman 1970). These are low, broad, long piles of rocks that serve several functions in the system. The piles are a by-product of land clearing — removing rocks from the planting soil in the fields. *Kuaiwi* are

> oriented upslope-downslope with shorter, connecting segments oriented perpendicular. Specific fields are thus marked by the rectangular pattern created by the *kuaiwi*. The short, perpendicular segments serve to trap soils moving downslope, creating terrace-like areas to enhance planting (Burtchard 1995; Hammatt et al. 1997; Wolforth 1998). The presence of *kuaiwi* is indicative of "formal walled fields," as opposed to the scattered planting mounds and terraces, or "informal fields."
>
> The *‘ama‘u* zone is at 750 to 1,200 m AMSL, where annual rainfall is over 200 cm. This zone was associated with the cultivation of bananas and plantains (both called *mai‘a*)…
>
> In general, the zones can be thought of as bands oriented north-south, parallel to the ocean… (Henry et al. 1998:4-6)

The current survey area is located within the *‘āpa‘a* zone between 300 to 750 m AMSL. This zone was associated with the dry land cultivation of taro, sweet potato, ti, and sugar cane in the pre-Contact and early post-Contact Period. In the late nineteenth and twentieth centuries it was used mainly for coffee and sugar cane cultivation. Archaeological Research

Clearly, there was a wide belt of permanent habitation back from the coast in traditional Hawaiian times, with scattered permanent habitations extending on the slopes up at least as far as Kuakini Highway. While it is generally understood that the optimal area for agriculture lies above 300 m (1,000 feet) in elevation, there are widespread indications of fairly intensive agriculture at lower elevations as well.

4.2 Previous Archaeological Research in Keauhou Ahupua‘a

Keauhou is one of the most studied areas in Polynesia (Mann et al. 2003:11), although rather notably, all but a few identified studies (Dougherty and Rechtman 2002; Tulchin et al. 2009) lies seaward of Kuakini Highway (Belt Highway 11). Virtually all of the archaeological studies documented not only evidence of human occupation, but also evidence of permanent habitation and agricultural development in areas that have not been previously disturbed. All archaeological projects conducted in Keauhou are listed in Table 2. A large number of these studies were conducted for the Kamehameha Investment Corporation (KIC), in an area originally called the Keauhou-Kona Resort, but now referred to as KIC Development Parcels. Projects listed in Table 2 for this large resort are identified by development parcel number, as shown in Figure 11.

Table 2. Archaeological Work Conducted in Keauhou 1st and 2nd Ahupua‘a

Source	Location of Study	Nature of Study
Thrum 1908a,b 1938	Kahalu‘u and Keauhou	Survey of *Heiau*: Survey of *heiau* sites throughout the islands of Hawai‘i.
Baker 1915	Between Kailua & Kealakekua Bays	Narrative: Discusses *heiau* of Kahalu‘u & Keauhou
Baker 1917	Ahu-a-‘Umi Heiau, Keauhou 2nd	Description: Description of the Ahu-a-‘Umi Heiau
Stokes 1919	Island-wide	Survey of *Heiau*: Discusses 13 *heiau* in Kahalu‘u, 1 on border, & 2 in Keauhou 1
Reinecke 1930	Shoreward sections of Keauhou 1st & 2nd	Survey: Identifies 95 historic properties in 3 concentrations, 1 at the village of Keauhou & 1 having the same boundaries as Kahalu‘u
Kekahuna 1954	He‘eia Bay Area, Keauhou 1st	Notes: on Mapping of Sites in Keauhou Village and He‘eia Bay Area
Apple 1965	Coastal Kahalu‘u & Keauhou	Trail Study: Documents a stepping-stone trail between Keauhou and Kahalu‘u. He classified this trail as a pre-Contact to 1819 form
Soehren 1966	Royal Hōlua Slide, Keauhou 1st and 2nd	Study of Hōlua Slide: Documents known sources of information on the Royal Hōlua Slide
Emory 1970	West Hawai‘i	Record Inventory: Based on Stokes 1906, Reinecke 1929/1930 & Kekahuna and Kelsey 1952-1956
Barrera 1971	Areas 4, 7, 11, 12, 13b, 17 and 18, Kahalu‘u & Keauhou 1st and 2nd	Survey and Excavations: Test excavations at 7 historic properties, brief descriptions of 16 historic properties
Crozier 1971a	Kamehameha III Road, Kahalu‘u & Keauhou	Archaeological Survey: 6 discrete historic properties with 366 features were recorded. One excavated unit contained late 19th century ceramics.
Crozier 1971b	Kamehameha III Road, Kahalu‘u & Keauhou	Archaeological Excavations: 13 pits were excavated in 3 feature areas. Several hydration rinds dated the site to A.D. 1110-1150 and A.D.1670-1710.
Emory et al. 1971	Kahalu‘u & Keauhou	Archaeological Survey: 47 historic properties described in 4 areas
Ching et al. 1973	Ali‘i Highway Corridor Kahalu‘u & Keauhou 1st	Archaeological Investigation of previously surveyed areas and alternate routes for Ali‘i Drive. A total of 139 historic properties with 298 component features were recorded.
Connolly 1974	KIC Parcel 22C Golf Course Keauhou 2nd	Reconnaissance Survey: Ten historic properties, including Keahiolo Heiau, were briefly described.
Neller 1974	Ali‘i Highway Corridor Kahalu‘u & Keauhou 1st	Comments for the Ali‘i Highway Project.

Source	Location of Study	Nature of Study
Emory 1975	Land Area 16	Reconnaissance Survey: Land Area 16: Notes petroglyphs, old trail, and possible habitation floor.
Rosendahl, P. 1975	Ali‘i Highway Extension, Keauhou	Reconnaissance Survey of Extension Area.
Rogers-Jourdane 1978	Roadway Extension & Area 19, Keauhou 2nd	Reconnaissance Survey of a roadway Extension & Area 19
Connolly 1979	Keauhou Gardens, Keauhou 1st	Intensive Area Survey: Describes 28 historic properties and test excavations at 5 - mostly temporary habitation sites. They also relocated Kauali‘ili‘i Heiau.
Hammatt 1979	Kona Surf Hotel, Keauhou 2nd	Reconnaissance Survey: Describes a complex with an enclosure, platform, & canoe shed. A stone bowl was also found in the project area.
Rosendahl, P. 1979	Keauhou Gardens, Keauhou 1st	Reconnaissance Survey: Recorded two habitation/agricultural clusters.
Soehren 1979	Near Keauhou Bay, Keauhou 1st	Reconnaissance Survey: Mostly bulldozed but remnant structures and considerable midden were observed
Ching 1980	Hōlua Slide, Keauhou 1st & 2nd	Reconnaissance Survey: Recommendations for further documentation, stabilization, & interpretation of Royal Hōlua Slide.
Hammatt 1980a	Keauhou 2nd Subdivision	Reconnaissance Survey: No historic properties were found.
Hammatt 1980b	Area 1, Keauhou	Re-evaluation of the Emory et al. 1971 survey: Notes several historic properties had been destroyed or disturbed
Hammatt & Folk 1980	751 acres in Keauhou & Kahalu‘u	Archaeological Survey: Describes 320 historic properties and site complexes
Rosendahl, P. 1980a	Kanaloa-at-Keauhou Keauhou 1st	Buffer Zone Flagging: Discusses flagging at 3 historic properties including Kumahaula Heiau
Rosendahl, P. 1980b	Kanaloa-at-Keauhou Keauhou 1st	Preservation Plan Proposal: Three historic properties at He‘eia Bay
Goldstein 1981	Keauhou 1st	Reconnaissance Survey: 2 historic properties, one historic and one of unknown age were recorded.
Hammatt 1981	Lower Portion *Hōlua* Slide, Keauhou 1st and 2nd	Reconnaissance Survey: Outlines recommendations for stabilization, restoration & landscaping
Hammatt et al. 1981	Keauhou & Kahalu‘u	Plan for Archaeological Salvage Research: Excavations carried out on 26 features in historic properties first identified by Hammatt & Folk (1980)
Rosendahl P. 1982	Heiau SIHP # 50-10-37-4673, Keauhou 1	Archaeological Services for an SMA Application: Re-evaluation of site work by Hammatt and Folk 1980 and inspection of a *heiau*.

Source	Location of Study	Nature of Study
Allen 1983	KIC Parcels 10, 22, 25, Kahalu‘u & Keauhou 1st	Inventory Survey in a portion of the lands originally surveyed by Hammatt and Folk (1980).
Hommon & Rosendahl 1983	Ali‘i Drive Realignment Corridors, Kahalu1u & Keauhou 1st	Archaeological Investigation of previously surveyed areas and alternate routes for Ali‘i Drive. A total of 139 historic properties with 298 component features were recorded.
Rosendahl, M. 1983	KIC Parcel 8, Kahalu‘u & Keauhou 1st	Inventory Survey & Test Excavation: 9 historic properties were recorded and 6 were tested.
Rosendahl, P. 1983	Kamehameha III Birth Site, Keauhou 2nd	Reconnaissance Survey and Test Excavations: Site D3-44, midden concentration, was tested. Charcoal from the base of the deposit was dated to A.D. 1245-1425. A search was made for any remnant of Kaleiopapa Heiau; nothing definite could be found.
Tomonari-Tuggle 1983a	Kahalu‘u &Keauhou 1st and 2nd	Management & Data Recovery Plan for the entire Keauhou-Kona Resort
Tomonari-Tuggle 1983b	Kamehameha III Birth Site, Keauhou 2nd	Management Plan for Kamehameha Birth Site
Tomonari-Tuggle & Allen 1983	Keauhou Kona Resort, Kahalu‘u and Keauhou 1st and 2nd	Data Recovery Plan for the entire Keauhou-Kona Resort
Allen 1984a	KIC Parcel 14B and 14C, Kahalu‘u and Keauhou 1st	Reconnaissance Survey & Evaluation: 37 historic properties previously identified by Hammatt and Folk were relocated; 10 additional new historic properties were recorded.
Allen 1984b	KIC Parcel 22c, Kahalu‘u & Keauhou 1st	Reconnaissance Survey & Evaluation: 48 historic properties previously identified by Hammatt & Folk (1980) were relocated; 4 new historic properties were recorded.
Hammatt & Shideler 1984a	KIC Parcel 22B, Keauhou 1st	Survey & Salvage: Five historic properties were recorded. One platform contained a child burial.
Hammatt & Shideler 1984b	KIC Parcel 22B, *Mauka* Extension, Keauhou 1st	Survey & Salvage Addendum: Seven historic properties were recorded. A lava tube with human remains was also found just outside the project area.
Rosendahl P. 1984	Mauka of Ali‘i Drive, Kahalu‘u & Keauhou 1st and 2nd	Field Inspection: Concluded lot line would not affect archaeological features directly
Schilt 1984	Kuakini Hwy. Realignment Corridor	Inventory Survey and Testing: Large study in North Kona

Source	Location of Study	Nature of Study
Shun 1984a	KIC Parcel 22-B, Keauhou 1st	Reconnaissance Survey: 8 historic properties were recorded; four were interpreted as possible burial platforms or terraces.
Shun 1984b	KIC Parcels 10, 22-25 Kahalu‘u & Keauhou 1st	Archaeological Salvage in a portion of the lands originally surveyed by Hammatt and Folk (1980).
Hammatt & Borthwick 1985	Between Kamehameha III Road and Kuakini Hwy., Keauhou 1st	Reconnaissance Survey: Identified 10 historic properties including agricultural features, walls, a massive habitation enclosure & a walled platform
Hammatt et al. 1985a	Halekai, N. Keauhou Bay, Keauhou 1st	Archaeological & Ethnohistorical Investigations: Three habitation sites and an early historic burial crypt were recorded. The crypt contains the remains of Kanehoa, the brother of Namokuelua, the first wife of John Young.
Hammatt et al. 1985b	KIC Parcel 22 C, Keauhou 2nd	Archaeological Survey and Testing: A total of 63 historic properties were recorded. 11 burials were found, eight in one lava tube. Charcoal collected near one burial was dated to c. A.D. 1520-1720.
Tomonari-Tuggle 1985	Kahalu‘u and Keauhou 1st and 2nd	Cultural Resource Management Plan for the entire Keauhou-Kona Resort
Toenjes 1985	Coastal Parcel, Keauhou 2nd	Reconnaissance Survey: Relocated 17 of the 33 historic properties previously identified by Reinecke (Sites 6, 11-43) in the project area.
Cordy 1987	KIC Parcel 10, *Mauka* of Kamehameha III road, Kahalu‘u & Keauhou	Comments on Development: Discusses cart road, agricultural complex, enclosure, and housing complex.
Haun 1987	Kona Surf Wedding Chapel Keauhou 2nd	Reconnaissance Survey: Identified 5 features including *papamū* (playing board), platform, terrace, & enclosure
Rosendahl, M. & Rosendahl 1987	KIC Parcel 23, Keauhou 1st	Interim Report: Survey, Testing & Data Recovery Excavations: Investigates 6 historic properties including a cupboard, modified outcrop, enclosure wall, & burial complex.
Rosendahl P. 1987	Kona Country Club Keauhou	Field Inspection of Kona Country Club Property.
Walker & Haun 1987	Kona Surf Hotel Wedding Chapel, Keauhou 2nd	Interim Report: Intensive Survey and Test Excavations: Reports on 13 test units
Rosendahl, M & Rosendahl 1988	South side of Keauhou Bay, Keauhou 2nd	Reconnaissance Survey: Relocates two or three historic properties in a 38-acre parcel for the Holua Assoc. Project Site
Cordy 1989	Keauhou Trail, Keauhou 1st	Trail Study: Focuses on “Keauhou Trail” between Ali‘i Hwy & Kuakini Hwy.

Source	Location of Study	Nature of Study
Rosendahl, P. 1989	Keauhou Bay Parcel Keauhou 2nd	Field Inspection of TMK: 8-12:98
Walker & Haun 1989	Kona Surf Hotel Wedding Chapel, Keauhou 2nd	Intensive Survey and Test Excavations: 5 historic properties identified including papamū, subsurface cultural deposit, platform, terrace, U-shape wall, & enclosure.
Hammatt & Chiogioji 1990	South of Keauhou Bay Coastal Keauhou 2nd	Archaeological Inventory Survey: 59 historic properties were recorded; 2 contained burial platforms. This study was completed by Perzinski et al. 2001
Pearson 1990	KIC Parcel 34, Keauhou 1st	Archaeological Reconnaissance: Reviews data for parcel, concludes a relatively low density of features
Pearson & Ladefoged 1990	KIC Parcel 34, Keauhou 1st	Intensive Archaeological Survey: Identifies 20 historic properties, mostly agricultural or ranching with a couple of shelters.
Rosendahl, P 1990	Keauhou Gardens (Area 4) Keauhou 1st	Preservation Plan: for Kauali‘ili‘i Heiau
Rosendahl, P., & Walker 1990	Sanki Keauhou Resort Keauhou 2nd	Site Flagging in TMK: 8-10:65
Tomonari-Tuggle 1990	KIC Parcel 26, Kahalu‘u & Keauhou 1st	Inventory Survey: 34 of 35 historic properties originally recorded by Hammatt and Folk (1980) in this portion of their project area were relocated.
Athens 1991	Keauhou *Mauka* Lands, KIC Parcel 52, Kahalu‘u & Keauhou 1st and 2nd	Archaeological Inventory Survey: 126 historic properties were initially recorded.
Dunn & Rosendahl 1991a,b	Ali‘i Highway Corridor Kahalu‘u & Keauhou 1st	Archaeological Intensive Survey: Phase I - Site Identification. Phase 1 (d) Data Collection: Massive study documenting numerous historic properties.
Burtchard 1992	KIC Parcel 34 Keauhou 1st	Mitigation Plans: for significant historic properties in Parcel 34
Kornbacher 1992	KIC Parcel 34, Keauhou 1st	Intensive Survey: Identifies 20 historic properties, mostly agricultural or ranching with a couple of shelters. A deposit in an inhabited lava tube was dated to A.D. 1436-1653.
Rosendahl, P. & Walker 1992	South side Keauhou Bay, Keauhou 2nd	Archaeological Field Inspection: No historic properties were identified.
Jones et al. 1993	Frazier Parcel, between Ali‘i Drive & Kuakini Hwy., Keauhou 1st	Archaeological Reconnaissance Survey: 15 features identified incl. Keauhou Trail, enclosure, midden deposits, walled enclosures & terrace platforms.

Source	Location of Study	Nature of Study
Borthwick et al. 1994	Kona Country Club Estates, Keauhou 2nd	Archaeological Inventory Survey: 20 historic properties were recorded and 3 were tested. A C14 sample was dated to A.D. 1645-1950.
Liston & Burtchard 1994	KIC Parcel 34, Keauhou 1st	Archaeological Data Recovery: Mapping & excavation at 4 historic properties
Sweeney & Burtchard 1995	Frazier Parcel, between Ali‘i Drive & Kuakini Hwy., Keauhou 1st	Archaeological Inventory Survey: Identifies 4 historic properties including historic wall, Keauhou Trail, enclosures, platform terraces, & modified outcrops
Barrera 1996	North of Keauhou Bay, Keauhou 1st	Archaeological Investigations: Entire lot had been graded; one cultural deposit was tested. This lot was LCA 9946:1 to K. Lono.
Burtchard 1996 Burtchard et al. 1996	Keauhou *Mauka* Lands, KIC Parcel 52 Kahalu‘u & Keauhou 1st and 2nd	Archaeological Inventory Survey-Narrative (Vol. 1) Site Data (Vol. 2): 126 historic properties were regrouped into 76 large complexes
Jimenez 1996	Ali‘i Highway Corridor Kahalu‘u & Keauhou 1st	Intensive Archaeological Survey: Preliminary Report: Recording of 535 features at 136 historic properties across 7 *ahupua‘a*
McGerty et al. 1996	*Makai* of Kuakini Hwy. Keauhou 1st	Archaeological Inventory Survey: No historic properties were recorded.
Haun et al. 1998	Ali‘i Highway Corridor Kahalu‘u & Keauhou 1st	Intensive Archaeological Survey: Final Report: Recording of 535 features at 136 historic properties across 7 *ahupua‘a*
Robins et al. 1999	Māmalahoa Bypass Road Corridor extending from Ali‘i Drive to Kealekekua	Archaeological Inventory Survey: corridor realigned and re-surveyed repeatedly and now contains 47 sites across 17 *ahupua‘a*
Dougherty & Rechtman 2002a,b	Kona Gold Coffee Plantation, Kahalu‘u & Keauhou 1st	Archaeological Reconnaissance Survey and subsequent Inventory Survey: Identified 3 historic properties: trail segment, agricultural complex, enclosure complex in a parcel at elevations between 1600-2000 feet
Elmore & Kennedy 2000	Between Ali‘i Hwy & Kuakini Hwy, Keauhou 1st	Archaeological Inventory Survey with Subsurface Testing: Documents 2 historic properties: a historic house and an agricultural complex
Elmore & Kennedy 2001	Between Ali‘i Hwy & Kuakini Hwy, Keauhou 1st	Archaeological Inventory Survey with Subsurface Testing: Identifies an agricultural complex and an adjacent burial site

Source	Location of Study	Nature of Study
Perzinski et al. 2002	0.8 km south of Keauhou Bay, Coastal Keauhou 2nd	Archaeological Inventory Survey with Limited Subsurface Testing: 47 historic properties are located and described including permanent habitations, agricultural sites, & probable burials.
Tulchin et al. 2003	Kona Surf Hotel Parcel, Keauhou 2nd	Archaeological Assessment: Four previously recorded historic properties were relocated in the project area. Five previously recorded historic properties could not be located and are presumed to have been destroyed. One located site is the remnant of Kaukula‘ela‘e Heiau.
Haun and Henry 2004	KIC Parcel 51	Archaeological Inventory Survey: 30 historic properties were recorded, 24 of which were previously recorded, and 6 were tested.
Jones and Hammatt 2005	Kona Surf Hotel Parcel, Keauhou 2nd	Monitoring Report: Monitoring revealed no natural soil deposits and no new significant cultural remains.
Dougherty and Moniz-Nakamura 2006	North Kona Fencing project, Keauhou 2nd	Features were seen during an aerial reconnaissance in the Keauhou 2nd lands from 5000-7,000 ft in elevation, including ranches walls, corrals, enclosures, and walled waterholes
Tulchin and Hammatt 2008	Edge of Kamehameha III Road adjacent to the Keauhou Shopping center, KIC Parcel 31a.	Archaeological Inventory Survey: Documents 2 historic properties, a prehistoric foot trail remnant and agricultural feature remnants
Tulchin et al. 2009	Keauhou 2nd North Kona Protective Fencing, at elevations between 5,000-5,120 feet	Archaeological Inventory Survey; Two archaeological features, consisting of a post-contact trail (SIHP #50-10-38-26837) and a post-contact rock wall (SIHP #50-10-38-26837), were identified.
Pammer et al. 2010	Kona Country Club Project, Keauhou 1st and 2nd	Archaeological Inventory Survey:

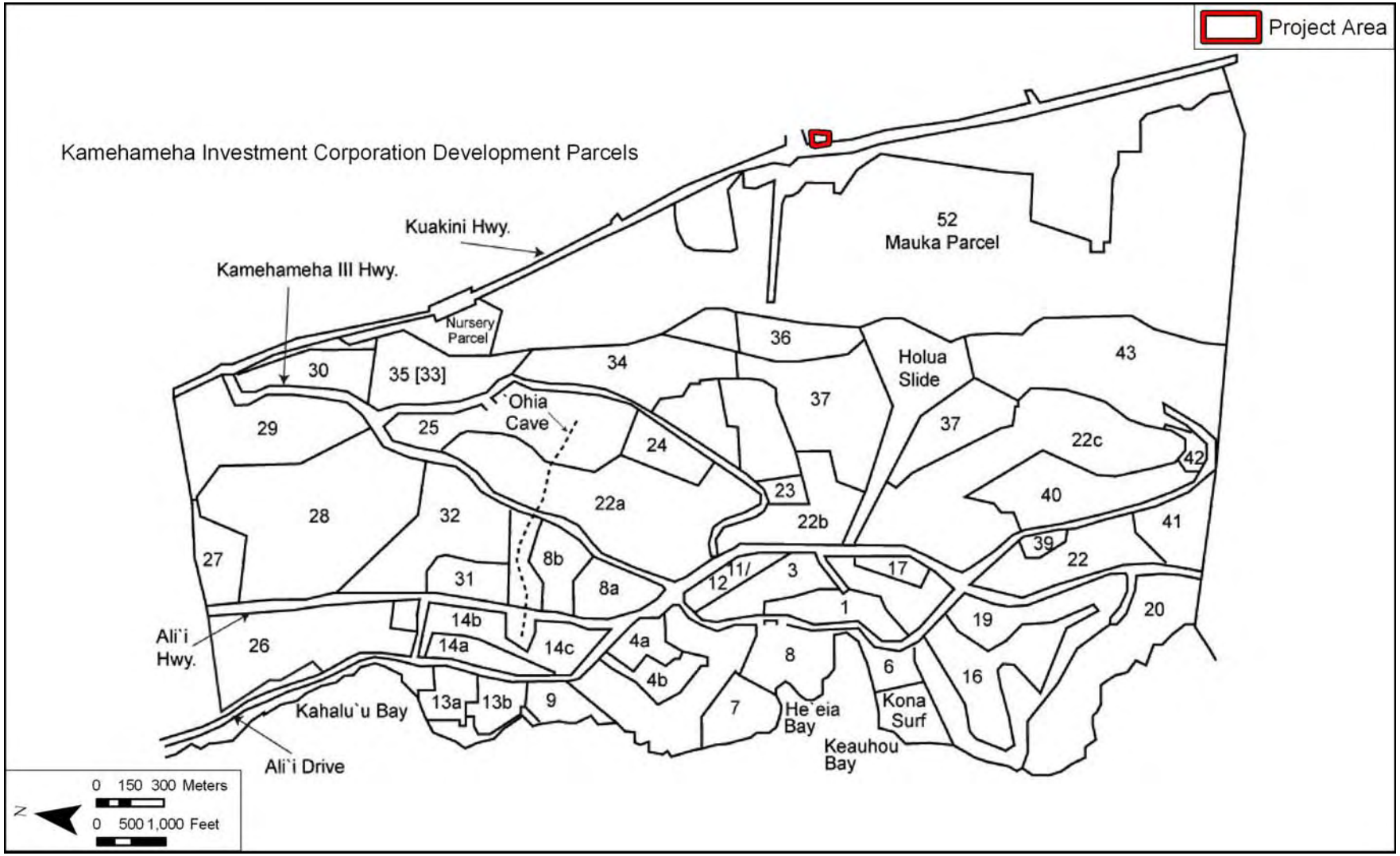

Figure 11. Kamehameha Investment Corporation (KIC) Development Parcels (Tracing of KIC map)

4.3 Previous Archaeological Research in Keauhou 1st Near the Current Project Area

Because so many studies have been conducted in Keauhou, the text portion of this report section will focus on work near the present project area in Keauhou 1st, as shown in Figure 12).

The earliest surveys in Keauhou 1st were conducted on Kamehameha Schools parcels along the coast. Archaeologists from the Bishop Museum (Emory et al. 1971) made a “walk-through” survey of four areas of Bishop Estate (Kamehameha Schools) lands between Kahalu‘u Bay and Keauhou Bay, of which three (KIC parcels 13b, 9, 7, and 1) were within or partially within Keauhou 1st. Forty-seven historic properties were described in the four parcels, including 3 *heiau*, 2 *ko‘a* (fishermens’ shrines), possible platform graves, rockshelters, traditional Hawaiian house sites, modified ponds, petroglyphs, and trails. William Barrera (1971) conducted a more extensive survey of Parcels 13B and 7, with some subsurface testing, and also conducted a preliminary walk-through of Parcels 4, 11, 12, 17, and 18. In the new areas, he recorded 17 sites in Parcel 4, including platforms, walls, enclosures, and terraces. He also found several features in the remaining parcels, but he did not designate them as sites or describe them in detail.

The largest archaeological study with specific reference to the project area was conducted in 1980 by Archaeological Research Center Hawai‘i, Inc. (Hammatt and Folk 1980). The overall study area included 751 acres within the Keauhou-Kona Resort Area and was conducted in support of proposed golf course expansion and additional residential development in the *makai* section of the proposed resort. Over 300 historic properties were observed as a result of the survey, which included *heiau*, temporary and permanent habitation sites, burials, agricultural complexes, stepping stone trails, cart roads, and caves containing evidence of human habitation, The fieldwork conducted in 1980 was completed at what is now considered a reconnaissance level; though over 300 sites were observed, not all of them were fully documented. Hammatt and Folk recommended salvage excavation and preservation for sites that would be potentially affected by proposed development activities.

The *mauka* portion of the Keauhou-Kona Resort Area, designated KIC Development Parcel 52, was first surveyed in 1990 by archaeologists from International Archaeological Research Institute, Inc. (IARII) in 1990 (Athens 1991). The crew initially identified 126 sites. The second phase of this inventory survey was conducted by IARII in 1991, and the 126 sites were regrouped in 76 sites (Burtchard et al. 1996). A total of 627 shovel tests were excavated around the features and eight surface mounds were dismantled to check for the presence of burials. No burials were found in these rock mounds, but burials were located in several lava tube shelters and caves.

The *mauka* boundary of this project is approximately 150 west and *makai* of the current project area. The only sites recorded near the project area were two trails. Site 50-10-37-15,221 is a complex of the remnants of an enclosure wall and a wagon or motor vehicle road parallel to the western wall. It may be an extension of Site 15,218, which is an historic period wagon road that extends from the West Hawai‘i Railroad berm in the *kula* zone up to ranching landholdings in the *mauka* area (Burtchard et al. 1996:201, 211). These road segments are approximately 150-300 m (500-1000 ft.) from the more well-known Keauhou Trail (SIHP #50-10-37-15243), shown on several early twentieth century maps as early as 1909 (Burtchard et al. 1996:308), including

the 1930 Hawaii Territory tax map (see Figure 7). This trail terminated on the *mauka* end at the Māmalahoa Highway, approximately 50 m (165 ft) north of the current project area, as shown on a 1960 U.S. Geological Survey map (see Figure 9).

A number of projects have been conducted in the 85-acre Kona Country Club project area, which consists of KIC Development Parcels 22, 22b, 22c, 37, 39, 40-, 41, and 42, extending from approximately 110-420 ft in elevation. The most recent is an archaeological inventory survey of the 86.5 acre area, in which 50 sites were identified, of which 24 had been previously identified (Hammatt and Folk 1980, Hammatt et al. 1985b; and Borthwick et al. 1994). Features type recorded during the 2010 survey included crudely constructed mounds, modified outcrops, terraces interpreted to have an agricultural function, and more formally constructed terraces and enclosures interpreted to have a temporary habitation function. The style of construction is consistent with components of the Kona Field System District (SIHP #50-10-27-6601) found in the *kula* zone.

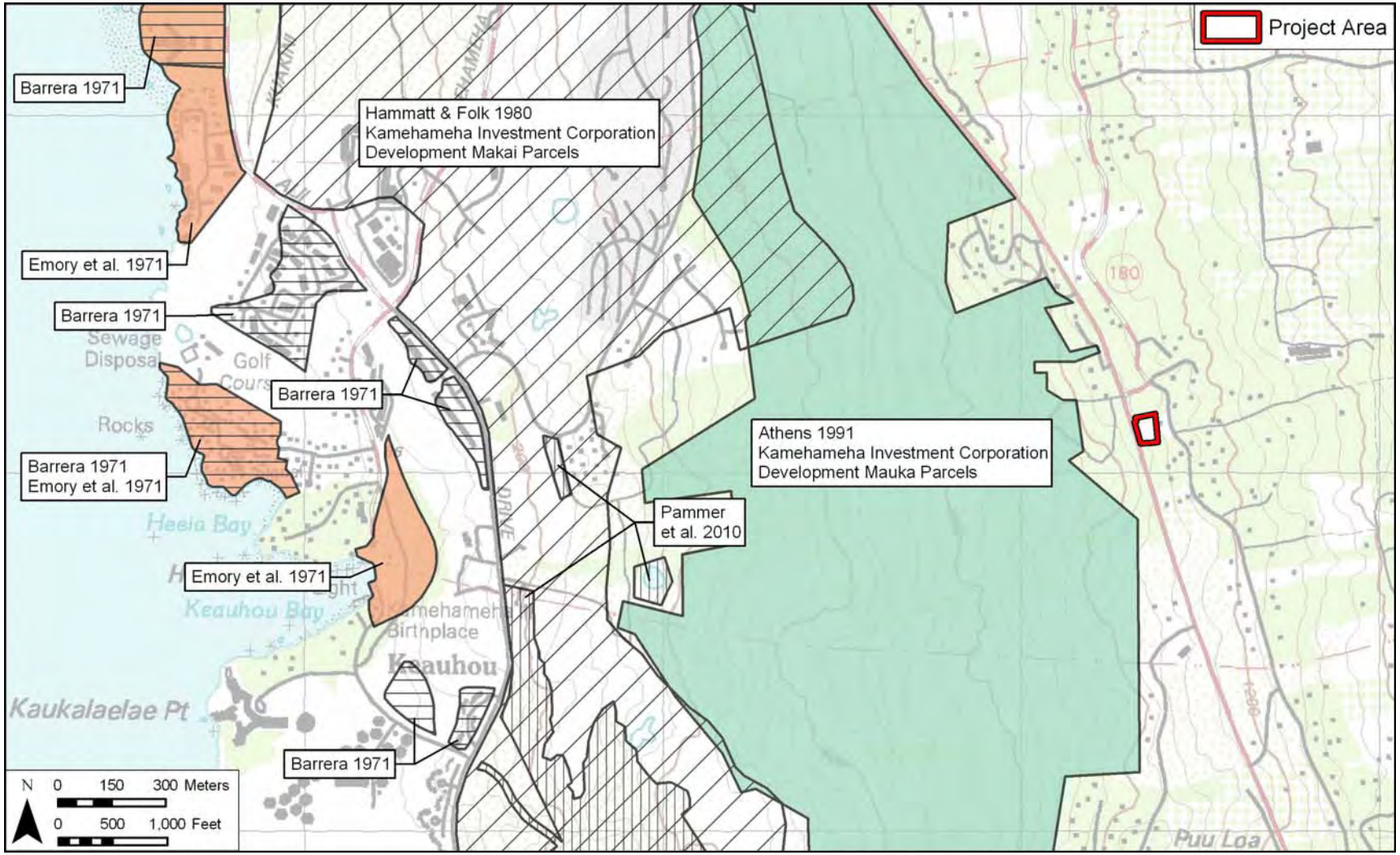

Figure 12. Map of previous archaeological studies near the current project area (base map: 1996 U.S. Geological Survey map, Kealakekua Quadrangle)

Section 5 Field Inspection Results

A complete field inspection of the project area was conducted on December 29, 1010 by two CSH archaeologists, Aulii Mitchell, B.A. and Sarah Wilkinson, B. A., under the general supervision of Hallet H. Hammat, Ph.D., Principal Investigator (Figure 13). From Māmalahoa Highway on the east, an access driveway extends between the Community Development Institute Head Start building and the Hawai‘i County Economic Opportunity Council (HCEOC) office buildings. From Kuakini Highway, access is through a gate in a chain-link fence. This fence extends around the entire northern and western boundary of the project area. The central area is covered with grass, with bare areas of an exposed pahoehoe outcrop. Some areas have asphalt paving, especially around a basketball court at the south end. The northern section of the project area has been recently used for dog training, and equipment for this business is stored on the grounds. Dense vegetation, including large trees are found along the northern and southern boundaries. (Figure 14 to Figure 17).

Along the borders of the property, especially along the southern boundary are two native Hawaiian plants (Polynesian Introductions), the *kī* (*Cordyline terminalis)* and *wauke* (*Broussonetia papyrifera*), and a number of non-native plants, including African Tulip Tree (*Spathodea campanulata*), Avocado (*Persea americana*), Christmasbery (*Schinus terebinthifolius*), Coffee (*Coffea arabica*), Mango (*Mangifera indica*), and Macadamia Nut (*Macadamia integrifolia).*

Outside the southern boundary of the project area, there are several agricultural features related to coffee cultivation, including terraces, old rock walls, and planting areas with coffee shrubs (Figure 18 to Figure 19). At the southeast corner of the project area, on a pahoehoe outcrop, are two loosely stacked walls, approximately 50 cm high, which extend south alongside a dilapidated shed. At the southwest corner, there is a level terrace with soil and plants. The terrace, which contains pieces of coral, is approximately 75 cm high above the level ground. Southwest of the terrace, there are additional terraces with coffee planning areas. All of these features are outside the project area, along the southern boundary. No surface features were recorded inside the project area.

Figure 13. Field Sketch of features within and outside the project area over an aerial photograph (Google Earth 2010); surface features are not drawn to scale

Figure 14. North end of project parcel, showing dog training equipment adjacent to northern chain link fence, and pahoehoe outcrops near southern end of parcel, view to the northwest (CSH Photo)

Figure 15. South end of project parcel, showing paved basketball court, view to the east (CSH photo)

Figure 16. East side of project parcel, showing steps to the parking lot for the Head Start School and EOC office buildings, view to the east (CSH photo)

Figure 17. Southeast corner of the project parcel, showing chain link fence on west side, view to the southwest (CSH photo)

Figure 18. Rock wall outside project parcel, near southern boundary, view to the southeast (CSH photo)

Figure 19. Terraces with coffee plants outside the project parcel, near the southwestern corner, view to the south (CSH photo)

Section 6 Settlement Model and Recommendations

6.1 Settlement Model

The traditional settlement pattern for the *ahupua‘a* of Keauhou consisted of an intensively utilized coastal zone, an intermediate or transitional zone, the upland agricultural and habitation zone, forest zone and saddle region.

The coastal zone (*kula* zone) at 0-150 m, or 0-500 ft, AMSL (above mean sea level) was initially occupied by at least A.D. 1100 and this zone became the focus of permanent habitation, religious sites, and burials. Associated with the habitations were garden-like agricultural activities. Habitation was concentrated around Keauhou Bay and Kahoe‘e Village south of the bay. Scattered residential sites stretched out along the coast between Keauhou Bay and Kahoe‘e, as well as behind or *mauka* of the densely populated shoreline.

Religious sites include the *heiau*(s) of Kaokulaelae and Kamohoali‘i along the southern shore of Keauhou Bay. A complex of early historic (ca. 1820) burials, associated with the last traditional battle in Hawai‘i (SIHP # 50-10-37-1745). is located within this southern coastal zone adjacent to Keauhou 2 and the south boundary at Lekeleke. Additionally, from the Boundary Commission testimonies of 1873, Lekeleke appears to have been known as a place of burials. In reference to Keauhou's southern shoreline boundary, Kahilo, an informant, testified “Honalu bounds it on the south side, an *awana* and then a *kupapau* (a crack in the rock where the natives used to put their dead) called Lekeleke is the boundary” (Boundary Commission of Kahilo on August 5, 1873). Individual burial sites have also been recorded in association with shoreline habitation complexes (Hammatt and Chiogioji 1990:66).

The intermediate or transitional zone (*kalulu* zone; 150-300 m, or 500-1000 ft AMSL) refers to the area between the densely populated coastal zone and the upland agricultural and habitation zone. The intermediate zone is characterized by a relatively low site density, especially in terms of permanent habitation sites. In the *ahupua‘a* of Keauhou (1 and 2), the intermediate zone is exaggerated due to the large *‘a‘ā* flow.

Beyond the low site density intermediate zone is the upland agricultural and habitation zone (*‘āpa‘a* zone; 300-750 m, or 1000 to 2500 ft AMSL). The upland zone, mainly because of increased rainfall, was utilized intensively and extensively for agricultural crop production. Habitation sites, including presumably clustered permanent habitation sites, were located within the upland zone. The pattern of agricultural productivity with associated habitation within the upland zone is evidenced by the Land Commission Awards (LCA) testimonies for Keauhou, where except for a few shoreline awards, the bulk of awards were specific to the upland zone. The current project area (330-340 m, or 1080-1120 ft AMSL) is within the *‘āpa‘a* or Upland Agricultural and Habitation Zone.

The forest zone (*‘ama‘u* zone; 750-1200 m, or 2500 4000 ft AMSL) of Keauhou was probably a very integral part of the traditional life style. In the Boundary Commission testimonies of 1873, there were references to "Bird hunting for feathers, logging, including references to places where canoe builders lived, road building, and traditions such as specific references to ‘Umi and his enjoyment of the forest. Based on the testimonies it would appear as

if habitation within the forest zone was, for the most part, associated with large lava tube caves and in some cases long-term recurrent occupation of these favored locales is indicated.

The saddle region, like the forest zone, was an area where naturally existing resources were exploited. The main resource exploited was birds: geese (*nene*) and dark-rumped petrel (*uwao*). As in the forest zone, lava tubes were utilized for habitation. The existence of Heiau Ahu-a-‘Umi, ‘Umi's Road, and the bird catchers’ road through the *‘a‘ā* is indicative of the importance placed on the saddle region and its integral part in the overall settlement pattern of Keauhou.

Historically, the settlement pattern shifts from the focus on the coastal villages to the upland zone as the location of “village” life. The shift was gradual, especially for port areas like Keauhou Bay. Based on the mid-1800s LCA information, it would appear that the settlement pattern was still similar to the traditional pattern. However, economically, market-oriented agricultural production for supplying foreign ships and the sale and barter for western items begins to supersede subsistence-oriented agriculture. By the late 1800s, the effects of depopulation, use of larger vessels (which generally excluded the use of Keauhou Bay), importation of foreign laborers, the agricultural pursuit of commercial coffee and the beef/cattle industries caused a virtually complete shift to the upland area. The upland area was accessed by the predecessor of the Māmalahoa Highway, which then became the focus of small urban centers that eventually include shops, churches and schools, such as the Keauhou Uka school, adjacent to the current project area.

The proposed Kona District Baseyard project area is located in the *‘āpa‘a,* or Upland Agricultural Zone of the Kona Field System, an area of intense agricultural and permanent habitation in the pre-Contact and early post-Contact periods. Several parcels near the project area were awarded as Land Commission Awards in the mid-nineteenth century, and a school was built adjacent to the project area around 1906. In the latter part of the nineteenth century, permanent habitations switched from the coast to the upper belt road, the Māmalahoa Highway, which was a transportation route for coffee growers, sugar cane cultivators, and ranchers to transport their crops to the large ports, such as Kailua-Kona and at Keauhou Bay. There were also several inland trails that led directly from the coast to the upper road; one of these was the Keauhou Trail, built around or before 1909. This trail ended at the *mauka* side at the Māmalahoa Highway, only 50 m (165 ft) north of the current project area. The project area was adjacent to important areas for agriculture, habitation, transportation, and education.

6.2 Recommendations

According to state documents, the parcel was “cleared” as early as 1906, when a portion of the lot was set aside (the eastern side) as part of the Keauhou Uka School lot (see Figure 8). No surface features were recorded within the project area during the recent 2010 CSH field inspection, although features related to coffee cultivation were found adjacent to the southern boundary. The archaeological surveyors also noted that large portions of the project area have exposed pahoehoe outcrops.

The project area is graded, there are no surface historic properties, and the lot is unlikely to have deep subsurface deposits, as indicated by the exposed pahoehoe on the lot. Based on the results of this archaeological literature review and field inspection, Cultural Surveys Hawai‘i recommends no further archaeological work for the proposed project.

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Appendix A Land Commission Awards

No. 5943, Pahu, Keauhou, Hawaii, January 27, 1848

N.R. 404-405v8

Greetings to you, the Ministers of Interior: I am again petitioning you for the lihi /edge/ of my former land. At this time the petition is for the kihapais. The coconut land is the tenth of my kihapais. I formerly petitioned you for 10 kihapais - this is the 12th, of the coconut trees, an ancient lihi /edge/ from the /time of the battle of/ Mokuohai. At this time it has been taken by the konohikis and I think you should return the coconuts to me, the 12th of my kihapais. That is my petition to you.

PAHU

N.T. 646-647v4

No. 5943, Pahu, February 20, 1849

Keamohuli, sworn, He has seen in the ili land in Waipio 2 of Keauhou ahupuaa, 1 section; in Kamuku 2 is 1 section; Kamuku 1 is 1 house lot. The boundaries are not known to Keamohuli but the surveyor will establish the true boundaries upon his arrival here. This land has been partially cultivated, Pahu has enclosed the house and there is one house for Pahu. There are 2 coconut trees outside of the fence and 14 coconut trees within the enclosure with other plants also. Kamuku 2 was from Malulu at the time of Kuakini; Kamuku 1 from Haawinui and the land in Waipio was from Naheana in 1841, no one has objected to him. An orange tree is at Kionalua ili land Popoki, Keokokupuli's wife had planted it. This orange tree was given to Kaili by Luhi in 1848 probably, no one had objected.

Lono, sworn, Both he and Keamohuli had known in the same way.

[Award 5943; Land Patent 8151; Keauhou Kona; 3 ap.; 1.5 Acs; See also No. 5900 for Native Register document]

No. 7363, Kupaka, January 21, 1848

N.R. 431v8

Greetings to the Land Commissioners: I hereby describe my three mo`o in Keauhou. In one mo`o are 8 kihapai -- it is mauka only. The kihapai sizes are: 12 by 7, 19 by 12, 22 by 17, 22 by 7, 23 by 12, 11 by 5, 24 by 6, 9 by 9. This land claim is finished.

In the second mo`o I have 2 kihapai, 30 by 22 and 16 by 12. This land claim is finished.

In the third mo`o, my kihapais are in 4 pauku -- one in the kula, one in Kaulu*, one in the taro area, and one in the forest. The one in the kula has a circumference of 518. The one in Kaulu has a circumference of 328. The one in the taro area is 258. This is finished. Further, the land in the forest has 3 pauku, named Malaiula 1, Malaiula 2, and Mokuaikaua. One of them is 120 by 25,

some sides were not measured, another is 80 by 35, and another is 202 by 86. It is explained to you that these lands are not all in one place but jump here and there. Furthermore, my house lot is at the seashore and has a circumference of 108.

KUPAKA

N.T. 660v4

No. 7363, Kupaka, February 21, 1849

No. 4053

Kaleo, sworn, He has seen in the ili land at Paki 2, 1 section; in Kaohia, 1 section and 1 house lot. The boundaries of the kihapais are not known to Kaleo, Kupaka will identify correctly with the surveyors.

The house lot boundaries are:

Mauka by Keone and Lono's lot

Ka`u by konohiki

Makai by school house

Kohala by road leading to uplands.

Kupaka has enclosed the lot, 5 houses for him and his people, they live there. 2 coconut trees are in Keauhou 2 ahupuaa.

People are very old residents of the land since Kamehameha I, to the present, no one has objected to Kupaka.

Keohuhu, sworn, Both he and Kaleo have known in the same way.

[Award 7363; Keauhou N. Kona; 1 ap.; .82 Ac.; R.P. 8096; Keauhou 1 N. Kona; 1 ap.; 1.7 Acs; See also 4053]

No. 7428, Kaihe, [John H.], January 20, 1848

N.R. 435v8

Hear ye, ye Land Commissioners: I hereby state that I have 12 kihapai, extending from the kula to the upland where the ama`uma`u [fern] is; however, not all in one place - they jump in various places. The length is 569 fathoms and the width is 162 fathoms. Also, I have an orange tree, however it is in another ili, not in my own ili, however, it is mine.

KAIHE

N.T. 655v4

No. 7428, Kaihe, February 21, 1849

Kaleo, sworn, He has seen in the ili land at Haleape 3 sections; in Kaohia ili land 1 section; in Kaulukauheana ili land, 1 orange tree; in Opuokaha 2 ili land 1 orange tree, All in Keauhou ahupuaa.

The boundares are not known to Kaleo, but Kaihe will talk to the surveyor later. The land has been cultivated partially. Kaihe had planted some of the orange trees. Kuakini has given some orange trees to Kaihe as payment for his separation from the land. Kanehoa had given Kaihe his interest at the time of Kuakini, no one has objected.

Aoao, sworn, Both he and Kaleo have known similarly.

[Award 7428; R.P. 4333 Keauhou N. Kona; 2 ap.; 1.47 Acs; R.P. 4330 Keauhou N. Kona; 1 ap.; 2.4 Acs]

No. 10257, Manohili, Keauhou, January 21, 1848

N.R. 475v8

Greetings to the Land Commissioners: I hereby describe my land. Two pauku are together in one place, another pauku is on the kula. Its size is 520 /?/. At Kaulu is 1 kihapai, 4 by 3. The mauka pauku is in the taro cultivation area, and its circumference is 400.

MANOHILI

N.T. 658-659v4

No. 10257, Manohili, February 21, 1849

Kaleo, sworn, He has seen in the ili land at Papalanui 1 of Keauhou ahupuaa, 3 sections. The boundaries are not known to Kaleo. The land has been partially cultivated and it had been from Kuakini during the time of Kamehameha II, and since that time to the present, no one has objected.

Kaihe, sworn, Both he and Kaleo have known in the same way.

[Award 10257; Keauhou 1 N. Kona; 1 ap.; .2 Ac.]

Appendix C

Letter Report regarding Evaluation of Traffic Impacts

Julian Ng, Inc.
February 28, 2011

Julian Ng Incorporated
Transportation Engineering Consultant
P. O. Box 816
Kaneohe, Hawaii 96744-0816
email: jnghi@hawaii.rr.com
phone: (808) 236-4325
fax: (808) 235-8869

February 28, 2011

Ms. Leslie Kurisaki
Kimura International, Inc.
1600 Kapiolani Boulevard, Suite 1610
Honolulu, Hawaii 96814

Subject: DAGS Kona District Office Baseyard
(DAGS Job No. 61-10-0634)
TMK: (3) 7-8-07:061
Kona, Hawai`i

Dear Leslie:

The proposed baseyard for the State of Hawai`i Department of Accounting and General Services (DAGS) will not have a significant impact to traffic conditions in the area. The proposed use is estimated to generate less than 100 vehicle trips on an average weekday, with peak hour driveway movements totaling less than 15 vehicles per hour, considerably less than the 100 vehicles per hour that is considered a threshold for conducting a traffic study to determine if traffic impacts are significant.

This letter provides the details of our evaluation of the project vehicular access to the adjacent Kuakini Highway.

Site Access

The 0.97-acre site is bounded on its north, east, and south sides by private properties; its only access is along its west boundary, which is shared with the State highway right-of-way for Kuakini Highway (State Route 11).

Kuakini Highway is a part of the main belt highway on the island of Hawaii; fronting the project site, it is a two-lane highway with a posted speed limit of 55 miles per hour. The project site is located near the intersection of the highway with Ha`awina Street, a short, two-lane local street that connects to Mamalahoa Highway (Route 180), an winding two-lane highway that provides access to properties east of Kuakini Highway. The proposed site plan locates a driveway to the site near the south end of the property frontage, maximizing the distance between the driveway and the intersection with Ha`awina Street. Copies of the project location and the proposed site plan from your early consultation letter for the preparation of the Draft Environmental Assessment are shown in Figure 1.

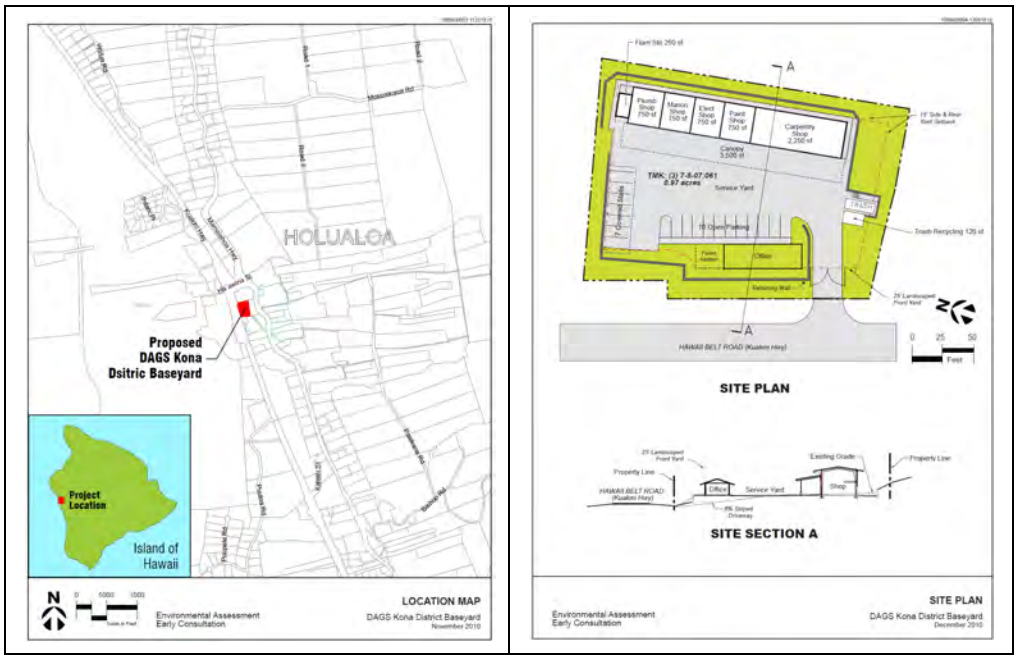

Figure 1 – Project Location and Proposed Site Plan

Existing Traffic

The State of Hawai`i Department of Transportation has published data from a one-day machine count of highway traffic taken on June 3, 2008 (Tuesday) very near the project site. Table 1 summarizes the daily totals and the peak hour counts.

Table 1 – Highway Traffic (June 2008)

	total	southbound	northbound
24-hour total volume (June 3, 2008)	18,698	9,211	9,487
AM Peak Hour (7:00 AM – 8:00 AM)	1,564	601	963
PM Peak Hour (3:00 PM – 4:00 PM)	1,485	784	701
Source: State of Hawaii, Department of Transportation, Highways Division. *Hawai`i DOT Traffic Station Maps 2008* (CD)			

The project site currently has a driveway access (normally chained) to the highway near the north end of its frontage. Because the existing use of the property is not regular, existing traffic generated by the site is negligible.

Project Traffic

The proposed project will construct several buildings to provide office and shop space for operations and maintenance services for State facilities managed by DAGS on west Hawai`i. Estimates of traffic generated by the site after completion of the project are shown in Table 2.

Table 2 – Site Traffic Estimates

	Average	AM Peak Hour		PM Peak Hour	
Trip rates* (per 1,000 SF)	weekday	rate	%enter	rate	%enter
General Light Industrial	6.97	0.92	88%	0.97	12%
Single Tenant Office	11.57	1.80	89%	1.73	15%
Trip Generation	Two-way	enter	exit	enter	exit
8.75 GSF shops	61	7	1	1	7
2.50 GSF office	29	4	0	1	4
Driveway volumes	90	11	1	2	11

* from Institute of Transportation Engineers, *Trip Generation, 8th Edition.*

Peak hour driveway volumes are much less than the 100 vehicles per hour suggested by the Institute of Transportation Engineers as a threshold for conducting a traffic study (from *Transportation Impact Analyses for Site Development,* 2005). Traffic impact to the highway would be less than the total driveway volumes due to two factors: driveway traffic will be distributed north and south of the site, and some of the project traffic is already on the highway, since the project relocates an existing activity from another site in Kona.

Due to the high speed of through traffic on the highway, a separate left turn lane would be desirable. However, placement of such a lane would require an approach taper (striping to relocate the through lanes) that would extend past the intersection with Ha`awina Street. Further, there is no existing left turn lane at Ha`awina Street, which would have larger volumes of traffic. Any restriction of left turns in or out of the driveway would require circuitous routes using Ha`awina Street, Mamalahoa Highway, and Kalelei Street (local street to the south) with left turns from or to the highway at other locations.

Conclusion

The impact of the proposed project on traffic will not be significant. The driveway should be designed with adequate sight distance, appropriate horizontal and vertical alignments, and adequate drainage. Should you have any questions, please contact me.

Sincerely,

JULIAN NG INCORPORATED

Julian Ng, P.E., P.T.O.E.
President