

LINDA LINGLE  
GOVERNOR OF HAWAII



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

POST OFFICE BOX 621  
HONOLULU, HAWAII 96809

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CHAIRPERSON  
BOARD OF LAND AND NATURAL RESOURCES  
COMMISSION ON WATER RESOURCE MANAGEMENT

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KAHOOLAWE ISLAND RESERVE COMMISSION  
LAND  
STATE PARKS

Ref.:PB:MM

Files: HA-3140 and HA-3141

SEP 23 2003

MEMORANDUM

TO: Genevieve Salmonson, Director  
Office of Environmental Quality Control

FROM: Dierdre S. Mamiya, Acting Administrator  
Office of Conservation and Coastal Lands

OFFICE OF ENVIRONMENTAL  
QUALITY CONTROL

03 SEP 25 08:16

RECEIVED

**SUBJECT: Final Environmental Assessment (FEA)/Finding of No Significant Impact (FONSI) for CDUA HA-3140 and HA-3141 for the Construction of Single Family Residences, Ke'ei 2<sup>nd</sup>, South Kona District, Island of Hawai'i, Hawai'i, TMK: (3) 8-3-06: Parcels 5 and 6 located in the General Subzone of the Conservation District.**

The Department of Land and Natural Resources has reviewed the FEA. We have determined that this project will not have significant environmental effects, and have therefore issued a **FONSI**. Please publish this notice in the October 8, 2003 OEQC Environmental Notice.

We have enclosed four copies of the Final EA for the project. The Department is submitting the OEQC Bulletin Publication Form. Comments on the draft EA were sought from relevant agencies and the public, and were included in the final EA.

It should be noted that acceptance of this EA does not constitute a project approval by the Board of Land and Natural Resources (BLNR). The BLNR has the discretion to approve or deny or modify the project.

Please contact Matthew Myers of our Office of Conservation and Coastal Lands at 587-0382 if you have any questions on this matter.

Enclosures

2003-10-08-HA-FEA **FILE COPY**

OCT 8 2003

**FINAL ENVIRONMENTAL ASSESSMENT**  
**TWIGG-SMITH SINGLE-FAMILY HOMES**  
**IN THE CONSERVATION AND HISTORIC DISTRICTS**

TMKs (3rd) 8-3-6: 5 & 6,  
Ke`ei 2nd, South Kona District, Island of Hawai`i, State of Hawaii

**APPLICANT:**

Desmond Twigg-Smith  
C/o Gregory R. Mooers  
P.O. Box 1101  
Kamuela, Hawai`i 96743

**ACCEPTING  
AUTHORITY:**

Hawai`i State Department of Land and Natural Resources  
Land Division  
P.O. Box 621  
Honolulu, Hawai`i 96809

**CONSULTANT:**

Ron Terry Ph.D.  
HC 2 Box 9575  
Keaau, Hawai`i 96749

**CLASS OF ACTION:**

Action in Conservation District  
Action in Historic District

This document is prepared pursuant to:  
the Hawai`i Environmental Protection Act,  
Chapter 343, Hawai`i Revised Statutes (HRS), and  
Title 11, Chapter 200, Hawai`i Department of Health Administrative Rules (HAR).

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## SUMMARY OF PROJECT, ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

### Project Summary

The owner proposes to build one home on each of two adjacent former kuleana located within the interior of the peninsula of land which terminates in Palemano Point. Neither kuleana has shoreline frontage. Homes were formerly present on both parcels. Both new homes would be two-story structures designed to blend in with the natural and cultural environment of Ke`ei. Individual Wastewater Systems in compliance with State Department of Health regulations would be built. The lots, which now contain mainly alien grasses and shrubs, would be landscaped with native trees and shrubs appropriate to coastal Kona. Importantly, no trees that serve to screen the property from the beach would be removed, and the natural, low-key environment of the beach and shoreline would not be affected. The properties are surrounded by Kamehameha Schools land currently leased by the YMCA and used for camping, and are close to a series of residential houselots. A vegetated area (Kamehameha Schools property) screens the kuleana from Ke`ei Beach. The cost of the improvements is preliminarily estimated at \$400,000, and all funding is private (no public funds are involved). Work would begin as soon as permits are obtained.

### Short Term Impacts

*Construction Impacts:* Landclearing and construction activities will produce short-term impacts to noise, air quality, access and scenery. In order to ensure that construction-related damage to the land and adjacent ocean is avoided or minimized, the following mitigation measure is proposed as a condition to the Conservation District Use Permit:

*1. Construction activities with the potential to produce polluted runoff will be limited to periods of low rainfall; cleared areas will be replanted or otherwise stabilized as soon as possible; and construction materials, petroleum products, wastes, debris, and landscaping substances (herbicides, pesticides, and fertilizers) will be prevented from blowing, falling, flowing, washing or leaching into the ocean. A dust control plan will be developed and implemented. Construction will be limited to daytime hours.*

### Long Term Impacts

In general, no sensitive biological, hydrological, archaeological or other important resources are present and no adverse long-term impacts are expected to result from the project. Cultural resources are present in the area but will not be impacted by the home construction. A data recovery plan will be prepared and data recovery implemented to mitigate effects to historic sites.

*1. If any previously unidentified sites, or remains such as artifacts, shell, bone or charcoal deposits, human burials, rock or coral alignments, pavings, or walls are encountered, work will stop immediately and SHPD will be consulted to determine the appropriate mitigation. Care will be taken during ground preparation to ensure that, in the unlikely event that human burials are present, they are recognized and dealt with appropriately.*

## **PART 1: PROJECT DESCRIPTION**

### **1.1 Project Description and Location**

Desmond Twigg-Smith proposes to build one home on each of two adjacent former kuleana identified by TMKs 8-3-6: 5 & 6. The properties are located within the interior of the peninsula of land which terminates in Palemano Point in Ke`ei, and neither kuleana has shoreline frontage. Homes were formerly present on both parcels. Both new homes would be single-story, elevated structures with rooflines about 25 feet above grade. They would be designed to blend in with the natural and cultural environment of Ke`ei. Individual Wastewater Systems in compliance with State Department of Health regulations would be built. The lots, which now contain mainly alien grasses and shrubs, would be landscaped with native trees and shrubs appropriate to coastal Kona. Importantly, no trees that serve to screen the property from the beach would be removed, and the natural, low-key environment of Kulou (Ke`ei) Beach and shoreline should not be affected. The properties are surrounded by Kamehameha Schools land currently leased by the YMCA and used for camping, and are close to a series of residential houselots. A vegetated area (Kamehameha Schools property) screens the kuleana from Kulou Beach. The cost of the improvements is preliminarily estimated at about \$400,000, and all funding is private (no public funds are involved). Construction is planned for the year 2003. Work would begin as soon as permits are obtained.

### **1.2 Summary of Environmental Assessment Requirements**

This Environmental Assessment (EA) process was conducted in accordance with Chapter 343 of the Hawai`i Revised Statutes (HRS). This law, along with its implementing regulations, Title 11, Chapter 200, of the Hawai`i Administrative Rules (HAR), is the basis for the environmental impact process in the State of Hawai`i. *An EA is necessary because the site is within the State Land Use Conservation District and the Kealakekua Bay Historic District and the project is not considered an exempt activity.*

According to Chapter 343, an EA is prepared to determine impacts associated with an action, to develop mitigation measures for adverse impacts, and to determine whether any of the impacts are significant according to thirteen specific criteria. If a study concludes that no significant impacts would occur from implementation of the proposed action, a Finding of No Significant Impact (FONSI) will be prepared and an action will be permitted to occur. If a study finds that significant impacts are expected to occur as a result of a proposed action, then an Environmental Impact Statement (EIS) is prepared in order to allow wider investigation of impacts and public involvement.

Section 2 considers alternatives to the proposed project, and Section 3 discusses the existing environment and impacts associated with this project. Section 4 issues the determination (anticipated determination in the Draft EA), and Section 5 lists the criteria and the findings made by the applicant in consultation with the State of Hawai`i Department of Land and Natural Resources for this project.

### 1.3 Public Involvement and Agency Coordination

The following agencies, organizations and individuals have been consulted during the Environmental Assessment Process:

County:

Planning Department  
Hawai'i County Council

Department of Water Supply

State:

Department of Land and Natural Resources, Historic Preservation Division  
Department of Land and Natural Resources, Na Ala Hele Program  
Office of Hawaiian Affairs

Private:

Kona Outdoor Circle

Sierra Club

Copies of communications received during preconsultation are contained in Appendix 1A. In addition, a number of individuals were contacted during preparation of the cultural impact assessment and background material. These individuals are identified in Appendix 4.

Notice of the availability of the Draft EA was published by the Hawaii State Office of Environmental Quality Control (OEQC) in the Environmental Notice of 23 July 2003 2001. This initiated a 30-day comment period during which the public was invited to respond to the Draft EA with comments or questions. Six comment letters were received. The letters and the responses to them are included in Appendix 1B. The Final EA has been revised in various sections to incorporate revisions based on issues discussed in these letters. Areas where substantive information has been added to Final EA are denoted by double underlines, as in this paragraph.

## PART 2: ALTERNATIVES

### 2.1 Proposed Project

The proposed project is described in Section 1.1 above and illustrated in Figures 1-4.

### 2.2 No Action

Under the No Action Alternative, no new homes would be built. This EA considers the No Action Alternative as the baseline by which to compare environmental effects from the project. No other alternatives uses for the property are desired by Mr. Twigg-Smith or are addressed in this EA.

**PART 3: ENVIRONMENTAL SETTING, IMPACTS AND  
MITIGATION MEASURES**

**3.1 Basic Geographic Setting**

The project site is a fairly level area consisting of two adjacent parcels (TMKs 8-3-6:5 & 6) with a combined area of 0.67 acres (0.34 and 0.33 acres respectively). (Figs. 2-3). The lots are 5-15 feet above mean sea level. The surface geology consists of lava flows from Mauna Loa erupted approximately 3,000 years ago (Wolfe and Morris 1996). Soil is minimal and the area is classified as Rough Broken Land, a miscellaneous land type characterized by poor soil conditions. The ground is highly permeable, and runoff and soil erosion hazard are minimal. (U.S. Soil Conservation Service 1973). Annual rainfall averages approximately 40 inches (U.H. Hilo-Geography 1998:57).

**3.2 Physical Environment**

**3.2.1 Drainage, Flooding and Hazards**

*Environmental Setting*

Floodplain status for many areas of the island of Hawai'i has been determined by the Federal Emergency Management Agency (FEMA), which produces the National Flood Insurance Program's Flood Insurance Rate Maps (FIRM). The northern edges of both parcels are within a Special Flood Hazard Area, the AE Zone (Fig. 5). Zone AE is defined as areas subject to inundation by the 100-year flood. Base flood elevations derived from detailed hydraulic analyses are shown within these zones. No construction will occur in the AE Zone. The remainder of the project site is designated "X", defined as areas outside the 500 year flood plain, on the FIRM maps. Maps printed by the Hawai'i County Civil Defense Agency locate the parcel in the area that should be evacuated during a tsunami warning.

The entire Big Island is subject to geologic hazards, especially lava flows and earthquakes. The project site is located in Lava Flow Hazard Zone 3 (on a scale of ascending risk 9 to 1). Zone 3 consists of areas on both sides of the northeast and southwest rift zones (Heliker 1990). On Mauna Loa, about 15-20 percent of Zone 3 areas have been covered by lava flows in the last 750 years. The nearest lava flow is the northern branch of the 1950 lava flow, about 7 miles south. As such, there is some risk of lava inundation over relatively short time scales.

In terms of seismic risk, the entire Island of Hawai'i is rated Zone 4 Seismic Probability Rating (Uniform Building Code, Appendix Chapter 25, Section 2518). Zone 4 areas are at risk from major earthquake damage, especially to structures that are poorly designed or built.

### *Impacts and Mitigation Measures*

In general, geologic and drainage conditions impose no substantial constraints on the project. No construction is proposed with the AE Flood Zone. All structures associated with the proposed home would conform to the Uniform Building Code. Although the project is located in an area exposed to a certain amount of hazard from lava flows and earthquake, the project presents no additional hazard to the public. Landowners and residents of high-hazard lava inundation areas have been made aware of the potential and accept the risk when they purchase and/or inhabit such areas.

### **3.2.2 Flora and Fauna, Wetlands, and Threatened and Endangered Species**

#### *Flora and Fauna*

The site was inspected for biological resources in November 2001. Most of the vegetation is typical weedy scrub found in coastal Kona, dominated by the aliens opiuma (*Pithecellobium dulce*), koa haole (*Leucaena leucocephala*), and various vines and herbs. Three naturally occurring indigenous and/or Polynesian introduced shoreline species are present: coconut (*Cocos nucifera*), milo (*Thespesia populnea*) and hau (*Hibiscus tiliaceus*). Various escaped ornamentals are also present. Animals observed on the site were introduced species and included mongoose (*Herpestes auropunctatus*) and Japanese White-eye (*Zosterops japonicus*), Mynah (*Acridotheres tristis*), Spotted dove (*Streptopelia chinensis*), and Zebra dove (*Geopelia striata*).

No listed, candidate or proposed endangered animal or plant species were found or would be expected in the area. In terms of conservation value, no botanical or zoological resources requiring special protection are present. No streams, wetlands or special aquatic sites (e.g., anchialine ponds) are present.

Kealakekua Bay is celebrated for its excellent marine biota, including healthy coral-based ecosystems. Special protection to aquatic resources is provided in the Kealakekua Bay Marine Life Conservation District (MLCD), in which marine organisms and their habitat are protected, while still allowing the public the opportunity to view them in their natural setting. The nearest boundary of the MLCD is located about 4,000 feet north of the subject parcels.

**Table 1.  
List of Indigenous (I) and Alien (A) Plant Species**

<b>Scientific Name</b>	<b>Family</b>	<b>Common Name</b>	<b>Life Form</b>	<b>Status</b>
Asystasia gangetica	Acanthaceae	Chinese violet	Herb	A
Barleria cristata	Acanthaceae	Philippine violet	Herb	A
Coccinea grandis	Cucurbitaceae	Ivy gourd	Vine	A
Cocos nucifera	Arecaceae	Coconut	Tree	A
Ficus microcarpa	Moraceae	Chinese banyan	Tree	A
Hibiscus tiliaceus	Malvaceae	Hau	Tree	I
Hylocereus undatus	Cactaceae	Night blooming cereus	Shrub	A
Leucaena leucocephala	Fabaceae	Haole koa	Tree	A
Panicum maximum	Poaceae	Guinea grass	Grass	A
Pithecellobium dulce	Fabaceae	Opiuma	Tree	A
Rivina humilis	Phytolaccaceae	Coral berry	Shrub	A
Samanea saman	Fabaceae	Monkeypod	Tree	A
Tamarindus indica	Fabaceae	Tamarind	Tree	A
Thespesia populnea	Malvaceae	Milo	Tree	I
Tournefortia argentia	Boraginaceae	Tree Heliotrope	Tree	A

*Impacts and Mitigation Measures*

Because of the lack of native terrestrial ecosystems and threatened or endangered plant species, no adverse impacts would occur as a result of clearing and construction. The applicant is planning to landscape the property, retaining some existing vegetation and bringing in native plants that are adapted to the dry, warm climate of the area and do not require excessive watering or maintenance. The precautions for preventing any effects to water quality during construction listed below in Section 3.2.4 should prevent any adverse impact on aquatic biological resources in Kealakekua Bay.

**3.2.3 Air Quality, Noise, and Scenic Resources**

*Environmental Setting*

Air pollution in the Kona area is mainly derived from volcanic emissions of sulfur dioxide, which convert into particulate sulfate and produce a volcanic haze (vog) that persistently blankets the district. Drier areas experience blowing dust, especially during construction in high wind episodes.

Noise on the site is very low because no airports, industrial or commercial facilities, farms or highways are located nearby. Natural sources and adjacent residences account for most sound on the site.

The area shares the quality of scenic beauty along with most of the Kona coastline. The Hawai'i County General Plan contains Goals, Policies and Standards intended to preserve areas of natural beauty and scenic vistas from encroachment. The Plan refers to the

importance of preserving views of Kealakekua Bay and Palemano Point from various roads and viewpoints.

Figure 6 presents photographs of Ke`ei and Palemano Point taken from two viewpoints along Napo`opo`o Road. Although a viewer can ascertain the presence of homes in the area, no individual homes protrude on the horizon or detract from views of Kealakekua Bay or Palemano Point, mostly because of surrounding tall vegetation of kiawe, monkeypod, opiuma and coconut trees.

#### *Impacts and Mitigation Measures*

The project would not affect air quality or noise levels, except for very minor and brief effects during construction. For construction noise mitigation, construction will be limited to daytime hours; in response to concerns from the Department of Health (see Appendix 1B), it is recommended that a dust control management plan be developed as a condition of County of Hawai`i Plan Approval.

As long as the homes are restricted, as planned, to rooflines less than 35 feet in height, and vegetation surrounding the lot is left uncleared, no substantial impact to scenery would occur. This is because the property is in the center of the peninsula, where tall vegetation screens the area from both the distant viewpoints along Mamalahoa Highway and Napo`opo`o Road and the closer viewpoints along Kulou (Ke`ei) Beach and any point in the ocean. The homes will be difficult to see from any roads, scenic lookouts, or other likely public viewpoints. It will not interfere with views of Kealakekua Bay or Palemano Point or detract in any way from the scenic beauty of the area.

#### **3.2.4 Hazardous Substances, Toxic Waste and Hazardous Conditions**

Based on onsite inspection and information on file, it appears that the site contains no hazardous or toxic substances and exhibits no other hazardous conditions. In order to ensure that construction-related damage is avoided or minimized, the following will be implemented:

*Mitigation Measure: Construction activities with the potential to produce polluted runoff will be limited to periods of low rainfall; cleared areas will be replanted or otherwise stabilized as soon as possible; and construction materials, petroleum products, wastes, debris, and landscaping substances (herbicides, pesticides, and fertilizers) will be prevented from blowing, falling, flowing, washing or leaching into the ocean.*

### 3.3 Socioeconomic and Cultural

#### 3.3.1 Land Ownership and Land Use, Designations and Controls

##### *Existing Environment*

The properties are owned by Desmond Twigg-Smith. They are surrounded by Kamehameha Schools land currently leased by the YMCA and used for camping. A vegetated area (Kamehameha Schools property) screens the kuleana from Kulou (Ke'ei) Beach. To the north along Kulou Beach lies a line of residential houselots with homes (Fig. 3).

County zoning is Open. The State Land Use District is Conservation, and the Subzone is General. The Land Use Pattern Allocation Guide Maps identify the area as Open. The site is within the Special Management Area.

Construction of a single-family home within such designation is permitted if a Conservation District Use Permit and a Special Management Area Use Permit (or exemption) are obtained. This Environmental Assessment is part of the process for obtaining the permits. The consistency of the project with the regulations and policies of the Conservation District and Special Management Area are discussed in Section 3.7.

#### 3.3.2 Socioeconomic Characteristics

##### *Existing Environment: Social Characteristics and Recreation*

The project site is within the ahupua'a of Ke'ei 2<sup>nd</sup> in the South Kona District of the island of Hawai'i. Although Kona was an important district in pre-Contact Hawai'i, by 1900 it had become a sleepy rural district of scattered coffee farms and cattle ranches, with more traditional fishing villages such as Ke'ei and Napo'opo'o still present on the coast. Many parts of Kona have experienced high rates of growth associated with the booming visitor industry in West Hawai'i. Since 1970, population has grown rapidly in all of West Hawai'i and particularly in North Kona, where the number of inhabitants increased from 4,832 in 1970 to 28,543 in 1990 (U.S. Census of Population 2000). South Kona has experienced lower rates of growth, and had 8,589 residents in 2000 (Ibid).

Population in the Ke'ei area is not measured as a discrete unit in census data, but 2000 Census data show that there were 121 residents on the makai side of the Napo'opo'o-Honaunau Road from Napo'opo'o to Ke'ei. The ethnic makeup of this neighborhood is typical of South Kona, with 34.7% white, 16.5 % Native Hawaiian or other Pacific Islander, and 38.0% of two or more races. Residents enjoy spectacular views of the coastline, pleasant weather and good ocean conditions for swimming, diving and boating. Land uses include residential, agricultural, and conservation.

Public accesses to the shoreline in the general area include Napo'opo'o County Beach Park, the Napo'opo'o Boat Ramp, and along the shoreline in Ke'ei (see Fig. 1).

#### *Impacts and Mitigation Measures*

No adverse socioeconomic impacts are expected to result from the project.

#### **3.3.3 Cultural Setting**

The material in this section is based upon a Cultural Impact Assessment (CIA) performed by Rechtman Consulting. The CIA is attached to this EA as Appendix 4, and is excerpted and paraphrased below.

The property is located near the southern end of Kealakekua Bay, an area celebrated in traditions and in modern history, which has resulted in the area's inclusion in the Kealakekua Bay Historic District (Fig. 1). This district is listed in both the National Register of Historic Places (NRHP) and Hawaii Register of Historic Places (HRHP). Four significant aspects were recognized in the 1971 district nomination form: good preservation of prehistoric and early historic material remains; extensive documentation of local prehistoric culture by the earliest Western visitors; continuity of cultural tradition through time; and occurrence of significant cultural and historical events.

Kealakekua Bay was an important seaport during the early Historic Period, having been the site of numerous Western visitors, perhaps the most famous of which was Captain James Cook. It was at Kealakekua Bay that Cook was welcomed as a Lono incarnate and later killed. The pivotal battle of Moku'ohai, from which Kamehameha emerged victorious and began his unification conquest, was fought in the Kealakekua vicinity (Kamakau 1992). Culturally significant places within the district include the *heiau* of Puhina o Lono, Kamaiko, and Hikiau, the Moku'ohai battlefield and burial location, Pali Kapu o Keoua, Pali o Maunahi, and several former indigenous villages. At the time of Cook's visit in 1779, six coastal villages were described from north to south around the bay (Beaglehole 1967): Ka'awaloa, Kealakekua, Waipunaula, Kalama, Kahauloa, and Ke'ei.

At the time of its NRHP nomination this region not only contained excellent examples of coastal habitation and religious features, it also possessed well-preserved portions of the agricultural Kona Field System in its inland areas. The logs and journals of explorers, traders, and missionaries contain detailed descriptions of the agricultural fields in the Kona area during contact times (e.g., Ellis 1963, Ledyard 1963, Menzies 1920). The intactness of archaeological features associated with these field systems is inversely related to the extent of subsequent farming and ranching and varies greatly by *ahupua'a*. Kelly (1983) documents substantial agricultural and cattle related enterprises in the region during the latter half of the nineteenth century and early 1900s.

The current project area is located in Ke`ei, one of the most interesting and scenic areas of the Historic District.

### 3.3.3.1 Ke`ei 2<sup>nd</sup> Ahupua`a

Over the generations, ancient Hawaiians developed a sophisticated system of land and resources management. By the time `Umi-a-Liloa rose to rule the island of Hawai`i ca. 1525, the island (*moku-puni*) was divided into six districts or *moku-o-loko* (cf. Fornander 1973-Vol. II:100-102). On Hawai`i, the district of Kona is one of the major *moku-o-loko*. The district of Kona itself extends from the shore across the entire volcanic mountain of Hualalai, and continues to the summit of Mauna Loa, where Kona is joined by the districts of Ka`u, Hilo, and Hamakua.

Kona, like other large districts on Hawai`i, was subdivided into *okana* or *kalana* (regions of land smaller than the *moku-o-loko*, yet comprising a number of smaller units of land). The lands of Ke`ei 2<sup>nd</sup>, situated in an area now known as Kona Hema (South Kona), are part of an ancient subregion.

The *moku-o-loko* and *okana* or *kalana* were further divided into manageable units of land, and were tended to by the *maka`ainana* (people of the land) (Malo 1951). Of all the land divisions, perhaps the most significant management unit was the *ahupua`a*. *Ahupua`a* are subdivisions of land that were usually marked by an altar with an image or representation of a pig placed upon it (thus the name *ahu-pua`a* or pig altar). In their configuration, the *ahupua`a* may be compared to wedge-shaped pieces of land that radiate out from the center of the island, extending to the ocean fisheries fronting the land unit. Their boundaries are generally defined by topography and geological features such as *pu`u* (hills), ridges, gullies, valleys, craters, or areas of a particular vegetation growth.

The *ahupua`a* were also divided into smaller individual parcels of land (such as the *ili*, *ko`ele*, *mala*, and *kihapai*, etc.), generally oriented in a *mauka-makai* direction, and often marked by stone alignments. In these smaller land parcels the native tenants tended fields and cultivated crops necessary to sustain their families, and the chiefly communities with which they were associated. As long as sufficient tribute was offered and *kapu* (restrictions) were observed, the common people living in a given *ahupua`a* had access to most of the resources from mountain slopes to the ocean. These access rights were almost uniformly tied to residency on a particular land, and earned as a result of taking responsibility for stewardship of the natural environment, and supplying the needs of the *ali`i* (Kamakau 1961; Malo 1951).

Entire *ahupua`a*, or portions of the land were generally under the jurisdiction of appointed *konohiki* or lesser chief-landlords, who answered to an *ali`i-`ai-ahupua`a* (chief who controlled the *ahupua`a* resources). The *ali`i-`ai-ahupua`a* in turn answered to an *ali`i`ai*

*moku* (chief who claimed the abundance of the entire district). Thus, *ahupua'a* resources supported not only the *maka'ainana* and *'ohana* who lived on the land, but also contributed to the support of the royal community of regional and/or island kingdoms. This form of district subdividing was integral to Hawaiian life and was the product of strictly adhered to resources management planning. In this system, the land provided fruits and vegetables and some meat in the diet, and the ocean provided a wealth of protein resources. Also, in communities with long-term royal residents (like Kealakekua), divisions of labor (with specialists in various occupations on land and in procurement of marine resources) came to be strictly adhered to. Different areas of the *ahupua'a* were utilized by the people living on the land for diverse types of resource procurement. It is in this general cultural setting, that we find the *ahupua'a* of Ke'ei II.

The Lands of Ke'ei consists of two *ahupua'a*, Ke'ei Iki (1st) and Ke'ei Nui (2nd). Ke'ei 1st, located north of the current project area, comprises approximately 1,106 acres extending from the shore to 2,750 feet elevation, where Kahauloa *Ahupua'a* cuts it off. Ke'ei 2nd, which includes the current project area, comprises approximately 5,478 acres extending from the shore to 5,500 feet elevation. Traditionally, both *ahupua'a* also included protected fisheries extending out into the sea (Maly and Maly 2002)..

The *Mahele* (division) defined the land interests of Kamehameha III (the King), the high-ranking chiefs, and the *konohiki*. As a result of the *Mahele*, all land in the Kingdom of Hawai'i was placed in one of three categories: (1) Crown Lands (for the occupant of the throne); (2) Government Lands; and (3) *Konohiki* Lands (Chinen 1958; 1961). The "Enabling" or "Kuleana Act" (December 21, 1849) laid out the framework by which native tenants could apply for, and be granted fee-simple interest in "*kuleana*" lands, and their rights to access and collection of resources necessary to their life upon the land in their given *ahupua'a*.

The lands awarded to the *hoa'aina* (native tenants) became known as *kuleana*. All of the claims and awards (the Land Commission Awards or LCA) were numbered, and the LCA numbers remain in use today to identify the original owners of lands in Hawai'i. It is reported that the Kingdom-wide total amount of land awarded to *hoa'aina* equaled approximately 28,658 acres (Kame'eleihiwa 1992).

Land Commission Awards in Ke'ei (LCAw.) were given to separate native claimants during the *Mahele*; the western parcel (TMK: 3-8-3-06:5), LCAw. 6940, went to Kekuhaupio and the eastern parcel (TMK: 3-8-3-06:6), LCAw. 9652 C, went to Makaiahai (Appendix A). Homes were present on this site. An award to L. Konia (LCAw. 5524:5), encompassing all of Ke'ei 2<sup>nd</sup> *Ahupua'a*, surrounds the entire study area. In addition to this, several small Land Commission Awards are located to the north and south of the current project area.

The shoreline fronting Ke'ei were integral to life upon the land. Some resources related to physically sustaining activities such as fishing and gathering; others were tied to beliefs that manifested the essential kinship Hawaiians had with their environment, such as areas sacred to *aumakua* or deities. On the *kula kahakai* or shoreward flats, were found potable water sources (caves, wells and springs), several village clusters and many residents, groves of coconut trees, and low land agricultural fields. The *kula uka* or upland plains, extending up to an area above the *mauka alaloa*, Keala'ehu (near present day Mamalahoa Highway) was highly valued for its fertile lands which were extensively cultivated. The lands extending from around the 2,000 to 5,000 foot elevation were cultivated in areas and were a significant resource of woods, fibers, birds, and other materials of value and importance to native life. The traditional accounts, claims for *kuleana* to the Land Commission (ca. 1848-1855), Boundary Commission Testimonies (ca. 1873-1878), survey records, and oral historical descriptions of the landscape of Ke'ei, describe a wide range of knowledge of, and uses of resources the *ahupua'a* of Ke'ei (Maly and Maly 2002:6).

### 3.3.3.2 Oral-Historical Research

In addition to documentary sources, a variety of oral-historical sources were consulted to gain personal information and insight on the history and traditional associations of the specific project area (Maly and Maly 2002).

The shoreline area of Ke'ei 2<sup>nd</sup> near Palemano Point has played a well-documented and significant role in the history of the Hawaiian Islands. Kealakekua Bay is the former home of some of Hawai'i's most powerful *Ali'i* and feared warriors. One such warrior, named Kekuhaupi'o, was born at Ke'ei of royal blood (his father was Kohapi'olani, a Ke'ei chief, and his mother was from Napo'opo'o). An article published in *Ka Hoku Hawai'i* on September 10, 1908 (translated by K. Maly) tells of Kekuhaupi'o's loyalty to Kamehameha and his role at the battle of Moku'ohai, just south of Ke'ei, against the chief's cousin, Kiwalao. Although a lower chief, Kekuhaupi'o fought so well in this battle that he came to be known as "*Ko Kamehameha koa a waele makaihe*" (Kamehameha's warrior who weeds through men with a spear) and he became the most cherished companion of Kamehameha, outside of his own uncles. Kekuhaupi'o continued to live at Ke'ei and serve Kamehameha for the remainder of his life, which he lost not in battle, but at the sport of spear fighting. A Kekuhaupi'o descendant of the same name received LCAw. 6940 at Ke'ei, the eastern parcel of the current study area (Maly and Maly 2002).

Ke'ei is also famous as the spot where, according to some evidence, a Spanish galleon was shipwrecked and the survivors of here crew came ashore. One historical account documents the origin of the naming of Kulou, the white sandy beach on the north side of Palemano Point. While historical references to the specifics of the shipwreck are limited, the story is still told by elder native *kama'aina*, who say that Kulou means to kneel down. According to oral history, a boy and a girl survived the shipwreck, and upon dragging themselves to the

sandy shore, they kneeled down in prayer. Witnessing this event, the natives called the place "Kulou."

### 3.3.3.3 Identification of Cultural Resources, Practices, and Beliefs

A cultural impact assessment should identify "cultural resources, practices and beliefs" of a particular ethnic group. This implies that the resources, practices, and beliefs are "traditional" in the sense that they are part of an ethnic group's identity. In the Hawai'i Revised Statutes—Chapter 6E, and in the draft Hawai'i Administrative Rules (draft HAR 13§13-275-2) that would govern the State Historic Preservation Division, a definition of Traditional Cultural Property is provided.

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

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

However, this definition of "Property" contains an inherent contradiction that complicates identification and evaluation, because it is precisely the concept of boundaries that runs counter to the traditional Hawaiian belief system. The sacredness of a particular landscape feature is often times cosmologically tied to the rest of the landscape as well as to other features on it. To limit a property to a specifically defined area may actually partition it from what makes it significant in the first place. However problematic the concept of boundaries may be, it is nonetheless the regulatory benchmark for defining Traditional Cultural Properties and assessing their validity. As the OEQC guidelines do not contain criteria for assessing the significance for Traditional Cultural Properties, the CIA adopted the State criteria for evaluating the significance of Historic Properties. To be significant, the potential Traditional Cultural Property must possess integrity of location, design, setting, materials, workmanship, feeling, and association and meet one or more of the following criteria:

- A Be associated with events that have made an important contribution to the broad patterns of our history;
- B Be associated with the lives of persons important in our past;
- C Embody the distinctive characteristics of a type, period, or method of construction; represent the work of a master; or possess high artistic value;
- D Have yielded, or be likely to yield, information important for research on prehistory or history;
- E Have an important value to the native Hawaiian people or to another ethnic group of the state due to associations with cultural practices once carried out, or still carried out, at the property or due to associations with traditional beliefs, events or oral accounts—these associations being important to the group's history and cultural identity.

Clearly, Traditional Cultural Properties are significant under Criteria E, and may be significant under multiple criteria.

Numerous traditions are associated with cultural and natural features in the Kealahou Bay area. Of particular relevance are the cultural practices and beliefs and associated with sites in and around the study parcels. Based on consultation with knowledgeable informants, the CIA identified the following significant sites (see Figure 7 for location):

1. Awa pae wa'a (canoe landing)
2. Umu and 'Upena Ku'u Fishery
3. Limu Koko (limu grounds and fishery)
4. Ko'a 'Opelu ('opelu fishery)
5. Papa o Kanukuokamanu
6. Papa o Pohakainalu
7. Palemano (shark shelter/cave)
8. Kamaiko Heiau
9. Pa Ilina
10. Moku'ohai Battlefield
11. Kulou Beach

In the judgement of the cultural impact assessment preparer, none of these archaeological sites or Traditional Cultural Properties will be adversely affected by the construction or use of the home and associated facilities, given adherence to Hawai'i State land use regulations and the Hawai'i County planning and building codes. As Mahele records indicate, this area was used for residences from at least the early 1800s. Oral information indicates that at least one of the parcels (Parcel 6) had a functioning residence into the 1940s. The restoration of residences in these two parcels is part of a traditional settlement pattern that is ongoing in Ke'ei.

Aside from Kulou Beach, which is separated from the subject parcels by a buffer of vegetation owned and maintained by Kamehameha Schools, the sites listed above are at some distance from the actual property. They are visited by residents from the nearby homes as well as visitors using the beach, surfing breaks and campgrounds of the area. Because of this context, none of the sites would be degraded by clashing visual, auditory or other impacts from the proposed homes. It is important to note that, as discussed in the next section, although there are also archaeological sites on the property itself, they are significant for information content only and do not require preservation.

### 3.3.4 Archaeology and Historic Sites

#### *Environmental Setting*

As discussed above, the project site is located within the Kealakekua Bay Historic District. This district was established to protect the archaeological and historic values of the area by providing an extra level of review for projects that occur within its boundaries. A number of historic sites are present in both the coastal areas, which were densely populated and exploited during prehistory and early history, as well as in the moist mauka areas, where productive systems of terraced fields are to some extent still present. These associations with Hawaiian history are reinforced by the tradition of diversified small-scale agriculture, which has left a landscape rich in fruit trees, flowers and scenic vistas of unspoiled coastline.

In 2002, Robert Rechtman, Ph.D., performed an inventory survey of the two properties. The two parcels, located just back from Ke'ei beach, were granted as Land Commission Awards (LCAw.) to a separate native claimants during the *Mahele*; the western parcel (TMK: 3-8-3-06:5), LCAw. 6940, went to Kekuhaupio and the eastern parcel (TMK: 3-8-3-06:6), LCAw. 9652 C, went to Makaiahai (Appendix A). An award to L. Konia (LCAw. 5524:5), encompassing all of Ke'ei 2<sup>nd</sup> Ahupua'a, surrounds the entire study area. In addition to this, several small Land Commission Awards are located to the north and south of the current project area.

The parcels are bounded on all sides by core-filled stonewalls. A dirt access road runs along the eastern edge of the property and sandy Ke'ei Beach fronts the northern edge. A functioning wooden outhouse is located in the southeast corner of the western parcel.

Soils within the study area consist of shallow pockets of sand and decomposing organic material overlying a roughly 3,000-year old Mauna Loa *pahoehoe* flow (Wolfe and Morris 1996). Portions of both parcels have been altered by mechanical land clearing activities. As a result of this past land use, vegetation has been substantially thinned, allowing for fair to excellent ground visibility throughout most of the project area.

A number of archaeological surveys for surrounding areas were consulted to gain context on the site. Then, archaeologists intensively surveyed the entire project area utilizing walking transects. All identified archaeological features were then cleared of vegetation and their locations were recorded on a map of the project area using the property pins as primary reference points. The sites were then recorded in detail. Site documentation included: site area and environmental descriptions, site and feature dimensions, presence and type of cultural material, site condition and level of disturbance, detailed plan maps, limited subsurface testing at selected features, and photographs.

A total of three archaeological sites were recorded during the current survey (see Appendix 3 for maps and photographs). One site number was assigned to the historic boundary walls enclosing both parcels (SIHP Site 23427). The walls are constructed of stacked pahoehoe cobbles with larger cobbles and boulders forming the outer edge and smaller cobbles filling the core. The walls measure approximately 1.0 meter in width and 0.9 meters in height. The route of the walls carries them across level ground and up on to exposed bedrock outcrops. The site is mostly intact and in good condition, but one breach occurs in the extreme northeast corner of the western parcel, and the easternmost wall is obscured by dense vegetation. The walls' corners are generally curvilinear rather than forming distinct 90° angles. The walls were erected during a single construction episode and could not be confidently placed with either kuleana, so they received a single site number.

Each of the two LCAw residential parcels received an individual site number (SIHP Site 23428 [eastern parcel] and SIHP Site 23429 [western parcel]). Site 23428 consists of the eastern parcel of the project area (LCAw 9652:C) and contains of a light surface concentration of historic debris and two architectural features: a cistern (Feature A) and a remnant house platform (Feature B). Site 23429 consists of the western parcel of the study area (LCAw 6940) and contains three archaeological features; a house platform (Feature A), a rubbish dump area (Feature B), and a privy area (Feature C). According to the Mahele records, these features most likely date to sometime post-1819.

All archaeological features present within the current study area were described, mapped, and photographed. Recorded features included two house platforms, two historic debris concentrations, a rock and mortar cistern, a privy with a modern wooden outhouse, and multiple core-filled boundary wall segments. Several of the features have been impacted to one degree or another by prior land clearing activities on the property. Three of the features received subsurface testing in the form of 1 x 1 or 0.5 x 0.5 meter test units. All of the recorded sites retain sufficient integrity to facilitate an assessment of their significance.

#### *Significance Evaluations*

SIHP Site 23427 is assessed as significant under Criterion D as having yielded data relative to the nineteenth century transition from traditional Hawaiian land tenure practices to a Western system of land ownership. Precisely marking property boundaries was an important

element in the latter system. Dr. Rechtman concluded that the data potential of these sites has been realized as a result of the current study and recommended no further work.

SIHP Site 23428 is a complex of residential features that was used throughout the early nineteenth to mid-twentieth centuries. Despite the diminished site integrity due to grading activities, the site remains significant under Criterion D for the information it has yielded relative to coastal habitation during the late Historic Period. Dr. Rechtman concluded that the documentation presented in this report has been adequate to mitigate any potential impacts to the site; therefore, no further work was recommended.

SIHP Site 23429 is a complex of residential features that was used throughout the early nineteenth to mid-twentieth centuries. This complex is similar to SIHP Site 23428 in both setting and in its diminished integrity. Dr. Rechtman concluded that the current inventory survey, including test excavations, had realized the data potential of this site, thus no further work was recommended prior to development of the parcels.

#### *Impacts and Mitigation Measures*

It was Dr. Rechtman's conclusion that, as the sites were significant under Criterion D only and the data potential of these sites had been realized as a result of the current study and no further work was recommended, there would be no adverse effect to significant historic sites. Dr. Rechtman submitted his report on October 31, 2002, to the State Historic Preservation Division (SHPD). which is currently reviewing the survey. Upon review of the archaeological inventory survey, SHPD agreed with most findings of the survey but disagreed with the significance assessments and concluded that both sites were still significant for information content, and recommended preparation of a data recovery plan and data recovery (see Appendix 1B for text of letter).

*Mitigation Measure: Prior to construction, a data recovery plan will be developed and data recovery accomplished to the satisfaction of SHPD.*

As a precaution against inadvertent archaeological or burial finds, the following additional mitigation measure will be implemented:

*Mitigation Measure: If any previously unidentified sites, or remains such as artifacts, shell, bone or charcoal deposits, human burials, rock or coral alignments, pavings, or walls are encountered, work will stop immediately and SHPD will be consulted to determine the appropriate mitigation. Care will be taken during ground preparation to ensure that, in the unlikely event that human burials are present, they are recognized and dealt with appropriately.*

### 3.4 Public Facilities and Utilities

#### *Environmental Setting*

Access to the lot is provided by a private road for which Mr. Twigg-Smith has an easement (see Fig. 2). The site is serviced by electrical and telephone lines. Water in the area is provided via lines originating in the Manini Beach area.

No public parks or other public facilities are present in the area.

#### *Impacts and Mitigation Measures*

Road access is adequate, and no improvements are planned or necessary. Wastewater treatment will occur via a septic system in conformance with Hawai'i State Department of Health rules and regulations. Water will be provided via a meter in the Manini Beach area. No adverse impact to public facilities or utilities will occur.

### 3.5 Secondary and Cumulative Impacts

The small scale of the proposed project will not produce any secondary impacts, such as population changes or effects on public facilities.

Cumulative impacts result when implementation of several projects that individually have limited impacts combine to produce more severe impacts or conflicts in mitigation measures. Various single-family homes are in construction along the two miles of coastline between Napo'opo'o and Ke'ei. The adverse effects of the Twigg-Smith project – very minor and temporary disturbance to air quality, noise, and visual quality during construction – are negligible. Other than the precautions for preventing any effects to water quality during construction listed above in Section 3.2.4, no special mitigation measures should be required to counteract the small adverse cumulative effect. It is particularly important to note that the project would generate little scenic impact, no impact to public use and enjoyment of trails and shoreline areas, and no effect to historic or cultural properties. There would thus be no risk of cumulative impact to these resources.

### 3.6 Required Permits and Approvals

#### *County of Hawaii:*

Special Management Area Permit or Exemption  
Building Permit and Plan Approval

#### *State of Hawaii*

Conservation District Use Permit  
Chapter 6e Concurrence on Historic Sites

### 3.7 Consistency With Government Plans and Policies

#### 3.7.1 General Plan

The *General Plan* for the County of Hawai'i is the document expressing the broad goals and policies for the long-range development of the Island of Hawai'i. The plan was adopted by ordinance in 1989. The *General Plan* is organized into thirteen elements, with policies, objectives, standards, and principles for each. There are also discussions of the specific applicability of each element to the nine judicial districts comprising the County of Hawai'i. Below are pertinent sections followed by a discussion of conformance. In recognition that the *General Plan* is currently in the final stages of a periodic update and is likely to be adopted soon, the following references include language from the revisions. Additions to the 1989 language are in bold and underlined, and deletions are bracketed.

#### ECONOMIC GOALS

Provide residents with opportunities to improve their quality of life[.] **through economic development that enhances the County's natural and social environments.**

Economic development and improvement shall be in balance with the physical, [and] social, **and cultural** environments of the island of Hawaii.

[The County of Hawaii shall strive] **Strive** for diversity and stability in [its] **the** economic system.

[The County shall provide] **Provide** an economic environment [which] **that** allows new, expanded, or improved economic opportunities that are compatible with the County's **cultural,** natural and social environment.

*Discussion:* The proposed project is in balance with the natural, cultural and social environment of the County, would create temporary construction jobs for local residents and indirectly affect the economy through construction industry purchases from local suppliers. A multiplier effect takes place when these employees spend their income for food, housing, and other living expenses in the retail sector of the economy. Such activities are in keeping with the overall economic development of the island.

#### HOUSING GOALS

Attain safe, sanitary, and livable housing for the residents of the County of Hawaii.

Attain a diversity of socio-economic housing mix throughout the different parts of the County.

Maintain a housing supply [which] **that** allows a variety of [choice.] **choices.**

[Develop better places to live in Hawaii County by creating] **Create** viable communities with [decent] **affordable** housing and suitable living environments [for our people].

Improve and maintain the quality and affordability of the existing housing [stock.] **inventory.**

Seek sufficient production of new affordable rental and fee-simple housing in the County in a variety of sizes to satisfactorily accommodate the needs and desires of families and individuals.

#### HOUSING POLICIES

[The County shall encourage] **Encourage** a volume of construction and rehabilitation of housing sufficient to meet growth needs and correct existing deficiencies.

#### ENVIRONMENTAL QUALITY GOALS

**Define the most desirable use of land within the County that achieves an ecological balance providing residents and visitors the quality of life and an environment in which the natural resources of the island are viable and sustainable.**

Maintain and, if feasible, improve the existing environmental quality of the island.

#### HOUSING COURSES OF ACTION, SOUTH KONA

[Since the lands in this district are sloped, the County shall] **Encourage** the use of innovative types of housing developments, such as cluster and planned unit developments, [which] **that** take advantage of **the steep** topographic conditions.

Aid and encourage the development of a wide variety of housing for this area to attain a diversity of socio-economic housing mix.]

#### **Increase affordable housing opportunities in South Kona.**

*Discussion:* The proposed project would provide the opportunity for additional housing in an area in which such housing is environmentally and socially appropriate.

#### ENVIRONMENTAL QUALITY GOALS

**Define the most desirable use of land within the County that achieves an ecological balance providing residents and visitors the quality of life and an environment in which the natural resources of the island are viable and sustainable.**

Maintain and, if feasible, improve the existing environmental quality of the island.

#### ENVIRONMENTAL QUALITY POLICIES

[The County of Hawaii shall take] **Take** positive action to further maintain the quality of the environment [for residents both in the present and in the future].

#### ENVIRONMENTAL QUALITY STANDARDS

Pollution shall be prevented, abated, and controlled at levels [which] **that** will protect and preserve the public health and well being, through the enforcement of appropriate Federal, State and County standards.

[Environmental] **Incorporate** environmental quality controls [are to be incorporated] either as standards in appropriate ordinances or as conditions of approval.

*Discussion:* The proposed project would not have a substantial adverse effect on the environment and would not diminish the valuable natural resources of the region. The two homes would be compatible with the existing rural single-family homes and recreational and historic site uses in the area.

#### HISTORIC SITES GOALS

Protect, **restore**, and enhance the sites, buildings, and objects of significant historical and cultural importance to Hawaii.

[Access] **Appropriate access** to significant historic sites, buildings, and objects of public interest should be made available.

#### HISTORIC SITES POLICIES

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

[The County of Hawaii shall require] **Require** both public and private developers of land to provide [a] historical **and archaeological** [survey] **surveys and cultural assessments, where appropriate**, prior to the clearing or development of land when there are indications that the land under consideration has historical significance.

Public access to significant historic sites and objects shall be acquired[.], **where appropriate**.

*Discussion:* The archaeological inventory survey concluded that three historic sites were present. The sites, which comprise walls and other historic and prehistoric remnants of habitation on the site, were determined to be significant under Criterion D (information content) only, not for preservation. The data potential of these sites has been realized as a result of the current study and no further work is recommended, there would be no adverse effect to significant historic sites.

#### AGRICULTURAL LAND GOALS

Identify, protect and maintain important agriculture lands on the island of Hawaii.

##### **Preserve the agricultural character of the island.**

Zoning shall protect and maintain important agricultural lands from urban encroachment. New approaches to preserve important agricultural land shall be implemented by the County.

*Discussion:* The land is not zoned or used for agricultural, and no agricultural land would be affected directly or indirectly by the action.

#### FLOOD CONTROL AND DRAINAGE GOALS

Conserve scenic and natural resources.

Protect human life.

Prevent damage to man-made improvements.

Control pollution.

Prevent damage from inundation.

Reduce surface water and sediment runoff

#### FLOOD CONTROL AND DRAINAGE POLICIES

[In areas vulnerable to severe damage due to the impact of wave action,] **Enact** restrictive land use and building structure regulations [must be enacted relative to the potential for loss of life and property.] **in areas vulnerable to severe damage due to the impact of wave action.** Only uses [which] **that** cannot be located elsewhere due to public necessity and character, such as maritime activities and the necessary public facilities and utilities, [would] **shall** be allowed in these areas.

[All development] **Development**-generated runoff shall be disposed of in a manner acceptable to the Department of Public Works[,] **and in compliance with all State and Federal laws.**

#### FLOOD CONTROL AND DRAINAGE STANDARDS

Applicable standards and regulations of Chapter 27, "Flood Control," of the Hawaii County Code.

Applicable standards and regulations of the Federal Emergency Management Agency (FEMA).

Applicable standards and regulations of Chapter 10, "Erosion and Sedimentation Control," of the Hawaii County Code.

**Applicable standards and regulations of the Natural Resources Conservation Service and the Soil and Water Conservation Districts.**

*Discussion:* The areas proposed for building are not within an area subject to flooding according to the Flood Insurance Rate Maps (FIRM) prepared by the U.S. Corps of Engineers.

#### NATURAL BEAUTY GOALS

Protect, preserve and enhance the quality of areas endowed with natural beauty, including the quality of coastal scenic resources.

Protect scenic vistas and view planes from becoming obstructed.

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

#### NATURAL BEAUTY POLICIES

Increase public pedestrian access opportunities to scenic places and vistas.

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

**Do not allow incompatible construction in areas of natural beauty.**

*Discussion:* The area does not abut the shoreline. Heavily vegetated property owned by Kamehameha Schools is between the property and the beach. No trees that serve to screen

the property from the beach would be removed, and the natural, low-key environment of the beach and shoreline would not be affected.

#### NATURAL RESOURCES AND SHORELINES GOALS

Protect and conserve the natural resources of the County of Hawaii from undue exploitation, encroachment and damage.

Provide opportunities for the public to fulfill recreational, economic, and educational needs without despoiling or endangering natural resources.

Protect and promote the prudent use of Hawaii's unique, fragile, and significant environmental and natural resources.

Ensure that alterations to existing land forms and vegetation, except crops, and construction of structures cause minimum adverse effect to water resources, and scenic and recreational amenities and minimum danger of floods, landslides, erosion, siltation, or failure in the event of earthquake.

#### NATURAL RESOURCES AND SHORELINES POLICIES

The County of Hawaii should require users of natural resources to conduct their activities in a manner that avoids or minimizes adverse effects on the environment.

Encourage the use of native plants for screening and landscaping.

*Discussion:* The proposed project avoids impact on shoreline resources.

#### LAND USE GOALS

Designate and allocate land uses in appropriate proportions and mix and in keeping with the social, cultural, and physical environments of the County.

#### LAND USE POLICIES

Allocate appropriate requested zoning in accordance with the existing or projected needs of neighborhood, community, region and County.

#### LAND USE, OPEN SPACE GOALS

Provide and protect open space for the social, environmental, and economic well-being of the County of Hawaii and its residents.

Protect designated natural areas.

## LAND USE, OPEN SPACE POLICIES

Open space [in the County of Hawaii] shall reflect and be in keeping with the goals, policies, and standards set forth in the other elements of the General Plan.

*Discussion:* The proposed construction of two houses on these kuleana does not detract from the open space in the areas, as the lots are set back from the ocean and surrounded by tall vegetation. No impact upon any scenic resource of the area would occur.

### 3.7.2 SMA Guidelines

The proposed land use complies with provisions and guidelines contained in Chapter 205A, Hawaii Revised Statutes (HRS), entitled *Coastal Zone Management*. The proposed use would be consistent with Chapter 205A because it would not affect public access to recreational areas, historic resources, scenic and open space resources, coastal ecosystems, economic uses, or coastal hazards.

The proposed development is similar in character to the surrounding area and is not likely to result in any substantial adverse impact on the surrounding environment. The property is separated from the coast by existing recreational and open space uses. It is not tied directly to the recreational resources of the coastal areas. Furthermore, the viewplanes to and along the shoreline towards the property will not be adversely impacted as the lots are surrounded by tall vegetation. An archaeological inventory survey of the property has ensured proper treatment of the historic sites in the area, which have been evaluated as significant for information content only. It is expected that the project will not result in any impact on the biological or economic aspects of the coastal ecosystem. The project site is not situated over any major natural drainage system or water feature that would flow into the nearby coastal system. The property contains few native plants and none that are not extremely common. Flood Insurance Rate Maps (FIRM) prepared by the U.S. Corps. of Engineers delineate the areas of the property in which construction would occur as Zone X. The proposed development would not create an increase in coastal flooding.

As part of the County's responsibility to manage development, surrounding property owners within 300 feet of the perimeter of the property will be notified, per Zoning Code and Planning Commission Rule No. 9 (Special Management Area) public hearing notification requirements. The applicant is required to serve a First Notice to the surrounding property owners of the proposed development at the time the Special Management Area Use Permit Application is submitted to the Planning Director. The First Notice informs the surrounding property owners the opportunity to participate in the evaluation of the Applicant's request in the Special Management Area Use Permit Application. The public participation process also includes the Contested Case Hearing process. As such, the public's participation begins as soon as the Application is submitted to the Planning Department. The public is able to submit their comments, provide

information to the Planning Director, prior to the scheduling of the Special Management Area Use Permit Application for a public hearing. This initial and the subsequent public hearing process improves the development review process, communication, and public participation in the management of coastal resources and hazards. The Planning Commission public hearing and if required, the Contested Case Process provides the vehicle for stimulating public awareness, education of this process and more importantly participation in the coastal management decision making.

In terms of beach protection, the property is not located adjacent to the shoreline and the project would not affect any public beaches nor adversely affect public use and recreation of the shoreline in this area. No impact on marine resources will occur.

On May 9, 2003, Special Management Area Minor Permit No. 136 was issued to allow for the construction of a two-story single family dwelling, approximately 1,808 square feet in size, and the septic field system, subject to the applicant's compliance with the conditions of approval, on TMK 8-3-6-5. In a letter of July 18, 2003, the Planning Department noted its determination that the single-family residence and septic system on TMK 8-3-6:6 was determined to be exempt from the definition of development and that no further review against the Special Management Area rules and regulations is required.

### **3.7.3 Conservation District Rules**

The property is in the State Land Use Conservation District, Subzone General. Any proposed use must undergo an examination for its consistency with the goals and rules of this district and subzone. The applicant has concurrently prepared a Conservation District Use Application (CDUA), to which this EA is an Appendix. The CDUA includes a detailed evaluation of the consistency of the project with the criteria of the Conservation District permit process. Briefly, the following individual consistency criteria should be noted:

- The development of these single family residences is an identified land use within the General Subzone and is consistent with the purpose of the district as defined in Chapter 13-5, HAR. The objective of the General Subzone is to designate open space where specific conservation uses may not be defined, but where urban use would be premature. The proposed action is a permitted use in the General Subzone and will not negatively impact the natural resources of the State or be detrimental to the public health, safety or welfare. All construction on the subject properties will be consistent with the Building Code requirements of the County of Hawai'i. The proposed land use complies with provisions and guidelines contained in Chapter 205A, Hawai'i Revised Statutes (HRS), entitled *Coastal Zone Management*. Single family residences may be determined to be an exempt action under the County's Special Management Area (SMA) guidelines. The proposed use would be consistent with Chapter 205A because it would not affect public access to recreational areas, historic resources, scenic and open space resources, coastal

- ecosystems, economic uses, or coastal hazards. The Hawai'i County Planning Department is expected to confirm that the proposed action is exempt from SMA Rules.
- The proposed land use will not cause substantial adverse impact to existing natural resources within the surrounding area, community or region. The construction activities of these single-family residences will be confined to the owner's lots and will not have any adverse impact on the natural resources of the area, community or region.
  - The proposed land use, including buildings, structures and facilities are compatible with the locality and surrounding areas, appropriate to the physical conditions and capabilities of the specific parcel or parcels. The lots were created as kuleana during the 19<sup>th</sup> century. Owners of kuleana lands may be entitled to construct a single family dwelling in a conservation zone as a "non-conforming use", provided the property meets certain requirements. The proposed use is compatible with other residences in the area and is appropriate to the existing uses and physical conditions of the properties.
  - The existing physical and environmental aspects of the land, such as natural beauty and open space characteristics, will be preserved. The physical beauty of the lots will be improved with the removal of weeds, trash and the installation of minimal landscaping.
  - Subdivision of land will not be utilized to increase the intensity of land uses in the Conservation District. The proposed action will not subdivide the properties and will not lead to any increase in intensity of use beyond the permitted single family residences.

**PART 4: DETERMINATION**

Based on evaluation of the environmental setting and impacts, the Hawai'i State Department of Land and Natural Resources has determined that the proposed action will not have a significant effect upon the environment and is thus issuing a Finding of No Significant Impact (FONSI).

**PART 5: FINDINGS AND REASONS**

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

1. *The proposed project will not involve an irrevocable commitment or loss or destruction of any natural or cultural resources. No valuable natural or cultural resource would be involved, committed or lost. No native ecosystems or historic sites are present.*
2. *The proposed project will not curtail the range of beneficial uses of the environment. No restriction of beneficial uses would occur.*
3. *The proposed project will not conflict with the State's long-term environmental policies. The State's long term environmental policies are set forth in Chapter 344, HRS. The broad goals of this policy are to conserve natural resources and enhance the quality of*

life. The project is minor and basically environmentally benign, and it is thus consistent with all elements of the State's long-term environmental policies.

4. *The proposed project will not substantially affect the economic or social welfare of the community or State.* The project will not have any substantial effect on the economic or social welfare of the Kona community or State.

5. *The proposed project does not substantially affect public health in any detrimental way.* The project will not affect public health and safety in any way.

6. *The proposed project will not involve substantial secondary impacts, such as population changes or effects on public facilities.* As the project involves the construction of single-family homes on existing kuleana lots, no secondary effects are expected.

7. *The proposed project will not involve a substantial degradation of environmental quality.* The project is minor and environmentally benign, and it would thus not contribute to environmental degradation.

8. *The proposed project will not substantially affect any rare, threatened or endangered species of flora or fauna or habitat.* The site supports entirely alien vegetation. No rare, threatened or endangered species of flora or fauna are known to exist on the project site, and none would be affected by any project activities.

9. *The proposed project is not one which is individually limited but cumulatively may have considerable effect upon the environment or involves a commitment for larger actions.* The project is not related to other activities in the region in such a way as to produce adverse cumulative effects or involve a commitment for larger actions.

10. *The proposed project will not detrimentally affect air or water quality or ambient noise levels.* No substantial effects to air, water, or ambient noise would occur. Brief, temporary effects would occur during construction and will be mitigated.

11. *The project does not affect nor would it likely to be damaged as a result of being located in environmentally sensitive area such as a flood plain, tsunami zone, erosion-prone area, geologically hazardous land, estuary, fresh water, or coastal area.* Although the proposed project is located in zone exposed to earthquake and volcanic hazard, there are no reasonable alternatives that would avoid such exposure, the project presents no additional hazard to the public, and the project is not imprudent for landowner.

12. *The project will not substantially affect scenic vistas and viewplanes identified in county or state plans or studies.* The project does not impact the views listed in any plan, particularly those of Kealakekua Bay and Palemano Point listed in the Hawai'i County General Plan. Furthermore, the project will not impair views of or along the coastline.

13. *The project will not require substantial energy consumption.* Negligible amounts of energy input will be required for construction.

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

#### REFERENCES

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Wolfe, E.W., and J. Morris. 1996. *Geologic Map of the Island of Hawai'i*. USGS Misc Investigations Series Map i-2524-A. Washington, D.C.: U.S. Geological Survey.

**APPENDIX 1A**

**COMMENT LETTERS**

**FROM AGENCIES AND ORGANIZATIONS**

**IN RESPONSE TO PRE-CONSULTATION**



**NA ALA HELE**  
Hawaii Trail & Access System

14 January 2002

Ron Terry, PhD  
Geometrician  
HC 2 Box 9575  
Keaau, HI 96749

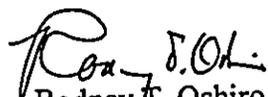
Dear Mr. Terry,

**SUBJECT:** Pre-Consultation on Environmental Assessment  
Construction of Single-Family Dwellings  
TMK 8-3-06:5 & 6  
Keel 2, South Kona, Hawaii

Thank you for allowing us to comment on a proposal to construct single-family dwellings on parcels 5 and 6 of TMK 8-3-06. Our concern is the trail alignment depicted on TMK 8-3-06 mauka of parcel 6. Aside from the beach area along the edge of the point, it appears to be the alignment of the Ala Kahakai. Na Ala Hele has no objections so long as access along this trail alignment is not impeded in any way.

We will appreciate a copy of the environmental assessment when it is completed.

Sincerely,

  
Rodney T. Oshiro  
Na Ala Hele



**DEPARTMENT OF WATER SUPPLY • COUNTY OF HAWAII**

345 KEKUANAOA STREET, SUITE 20 • HILO, HAWAII 96720

TELEPHONE (808) 961-8050 • FAX (808) 961-8657

December 13, 2001

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

**PRECONSULTATION ON ENVIRONMENTAL ASSESSMENT FOR CONSTRUCTION OF  
SINGLE-FAMILY DWELLINGS  
TAX MAP KEY: 8-3-006:005 AND 006**

We have reviewed your request for comments, and the subject parcels do not have water service with the Department. The nearest point of adequacy to the Department's waterline is approximately 4,750 feet away in Manini Beach Road.

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

Sincerely yours,

A handwritten signature in black ink, appearing to read "M. Pavao", with a horizontal line extending to the right.

Milton D. Pavao, P.E.  
Manager

SHK:jkh

*...Water brings progress...*

PHONE (808) 594-1888

FAX (808) 594-1885



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

HRD01-398

December 28, 2001

Ron Terry  
Geometric Associates, LLC  
HC 2 Box 9575  
Keaau, HI 96749

Subject: Environmental Assessment for Construction of Single-Family  
Dwellings at TMKs 8-3-6: 5 & 6, Ke'ei, South Kona

Dear Mr. Terry:

Thank you for the opportunity to comment on the above referenced project.

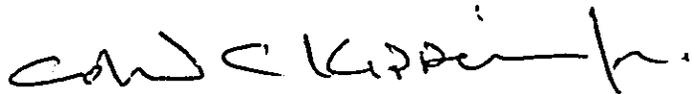
The Office of Hawaiian Affairs requests that the EA assess cultural resources in the project area. In addition to the archeological inventory that has been commissioned, the EA should include ethnographic, historical, anthropological and other culturally-related documentary research on the site. The document should examine if the project would interfere with any known traditional trails or access ways. Procedures for handling inadvertent discoveries of human burials and cultural artifacts should also be included.

The EA should also include a substantive cultural impact statement based upon consultation with the Hawaiian community, as required by Act 50, Session Laws of 2000. The cultural impact statement must identify and describe the cultural practices located within the potentially affected area; assess the impact on these practices; examine alternatives to the proposed action; and propose mitigation measures. You should consult with Native Hawaiian individuals and organizations to determine the impact of the proposed structures and activities on cultural practices. The EA should include a discussion of the methods used to identify and select persons with knowledge of cultural practices and the results of consultation with them. At a minimum, the draft EA should identify individuals

and organizations with expertise on cultural practices with whom consultation has occurred.

If you have questions, please contact Sharla Manley, policy analyst at 594-1944 or email her at sharlam@oha.org.

Sincerely,



Colin C. Kippen, Jr.  
Deputy Administrator

CK: sam

cc: Board of Trustees  
Clyde W. Namu'o, Administrator  
Kona CAC

## **APPENDIX 1B**

# **COMMENT LETTERS IN RESPONSE TO DRAFT EA AND RESPONSES**

Notes: Several comment letters included copies of letters provided by other commenters. In the interest of clarity, only one copy of each letter is included in this appendix. Responses to comment letters are also included just once, after the letter they respond to, although they may be referenced in other responses. Finally, the reader should be aware that several commenters responded separately to the two CDUAs that DLNR required to be submitted for the actions on the two parcels, which, for the purposes of the EA, were considered to be part of one action. In such cases, the response letter responds to both letters at once.

LINDA LINGLE  
GOVERNOR OF HAWAII



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

POST OFFICE BOX 621  
HONOLULU, HAWAII 96809

AUG 22 2003

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

DAN DAVIDSON  
DEPUTY DIRECTOR - LAND

ERNEST Y.W. LAU  
DEPUTY DIRECTOR - WATER

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

REF:PB:MM

File: CDUA HA-3140  
Acceptance Date: June 23, 2003  
180-Day Expiration Date: December 20, 2003

Desmond Twigg-Smith  
c/o Gregory Mooers  
P.O. Box 1101  
Kamuela, Hawaii 96743

**Subject: Comment letters for Conservation District Use Application (CDUA) for the Construction of a Single-Family Residence at Ke'ei, South Kona, Hawaii (3) 8-3-006:005**

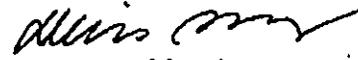
Dear Mr. Smith:

Attached to this letter are the comments of substance that the Office of Conservation and Coastal Lands (OCCL) received as of July 14, 2003 the end of the public comment period on your CDUA and draft Environmental Assessment (EA). As you may know, pursuant to the rules EAs (Section 11-200-9.1, Hawaii Administrative Rules), a written response must be prepared (and provided to the commenter) for all comment letters submitted during the public comment period. Further, copies of all comment letters and your responses must be included in the Final EA for the project, along with any modifications to the original draft EA that may be necessary in light of your response to the comment letters.

Please submit six paper copies of the Final EA to us as soon as possible, but at least 60 days prior to your Conservation District Use Application's (CDUA) 180-day expiration date of December 20, 2003. Otherwise, we may not be able to complete our processing of your CDUA, and negative action by the Board of Land and Natural Resources may result. Also include an Office of Environmental Quality Control (OEQC) Publication Form for the Final EA, and if the project summary has changed, a new summary on a diskette. We also request that you include the digital file for the entire CDUA with the Final EA on a diskette (preferably in Microsoft Word 2000) for your submittal.

Should you have any questions, please contact Matthew Myers of our OCCL staff at 587-0382.

Aloha,



Dierdre S. Mamiya  
Acting Administrator  
Office of Conservation and Coastal  
Lands

Attachments

LINDA LINGLE  
GOVERNOR OF HAWAII



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

POST OFFICE BOX 821  
HONOLULU, HAWAII 96809

AUG 22 2003

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

DAN DAVIDSON  
DEPUTY DIRECTOR - LAND

ERNEST Y.W. LAU  
DEPUTY DIRECTOR - WATER

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

REF:PB:MM

File: CDUA HA-3141  
Acceptance Date: June 24, 2003  
180-Day Expiration Date: December 21, 2003

Desmond Twigg-Smith  
c/o Gregory Mooers  
P.O. Box 1101  
Kamuela, Hawaii 96743

**Subject: Comment letters for Conservation District Use Application (CDUA) for the Construction of a Single-Family Residence at Ke'ei, South Kona, Hawaii (3) 8-3-006:006**

Dear Mr. Smith:

Attached to this letter are the comments of substance that the Office of Conservation and Coastal Lands (OCCL) received as of July 15, 2003 the end of the public comment period on your CDUA and draft Environmental Assessment (EA). As you may know, pursuant to the rules EAs (Section 11-200-9.1, Hawaii Administrative Rules), a written response must be prepared (and provided to the commenter) for all comment letters submitted during the public comment period. Further, copies of all comment letters and your responses must be included in the Final EA for the project, along with any modifications to the original draft EA that may be necessary in light of your response to the comment letters.

Please submit six paper copies of the Final EA to us as soon as possible, but at least 60 days prior to your Conservation District Use Application's (CDUA) 180-day expiration date of December 21, 2003. Otherwise, we may not be able to complete our processing of your CDUA, and negative action by the Board of Land and Natural Resources may result. Also include an Office of Environmental Quality Control (OEQC) Publication Form for the Final EA, and if the project summary has changed, a new summary on a diskette. We also request that you include the digital file for the entire CDUA with the Final EA on a diskette (preferably in Microsoft Word 2000) for your submittal.

*Handwritten mark*

STATE OF HAWAII  
DEPARTMENT OF LAND AND NATURAL RESOURCES  
Office of Conservation and Coastal Lands

JUL - 2 2003

Ref.:PB:MM

File #: CDUA HA-3140  
Acceptance Date: June 23, 2003  
180-Day Expiration Date: December 20, 2003  
SUSPENSE DATE: 21 Days from stamped date

MEMORANDUM

TO: Division of Conservation and Resource Enforcement,  
Historic Preservation Division, Division of Forestry and  
Wildlife, Hawaii District Land Agent

FROM: *Handwritten signature*  
Dierdre S. Mamiya, Acting Administrator  
Office of Conservation and Coastal Lands

SUBJECT: REQUEST FOR COMMENTS  
Conservation District Use Application (CDUA)  
[Board Permit]

APPLICANT: Desmond Twigg-Smith

FILE NO.: HA-3140

REQUEST: Single-Family Residence

LOCATION: South Kona, Hawaii, TMK: (3) 8-3-06:05

2003 JUN 29 A 9:53  
RECEIVED

PUBLIC HEARING: YES \_ NO X

Attached please find a copy of the subject CDUA, Draft Environmental Assessment and our Department's Notice of Acceptance and Environmental Determination. We would appreciate your review and comment on this CDUA by the suspense date noted above.

Should you require additional information, please call Matthew Myers of our Office of Conservation and Coastal Lands at 587-0382. If no response is received by the suspense date, we will assume there are no comments.

We have no comments.

Comments attached.

Signed: *Handwritten signature*  
Michael G. Buck  
DOFAW Administrator

Date: JUL - 7

*Louie*

STATE OF HAWAII  
DEPARTMENT OF LAND AND NATURAL RESOURCES  
Office of Conservation and Coastal Lands

Ref.:PB:MM

File #: CDUA IIA-3141

Acceptance Date: June 24, 2003

180-Day Expiration Date: December 21, 2003

SUSPENSE DATE: 21 Days from stamped date

JUL - 2 2003

MEMORANDUM

TO: Division of Conservation and Resource Enforcement,  
Historic Preservation Division, Division of Forestry and  
Wildlife, Hawaii District Land Agent

FROM: Dierdre S. Mamiya, Acting Administrator *Dierdre Mamiya*  
Office of Conservation and Coastal Lands

SUBJECT: REQUEST FOR COMMENTS  
Conservation District Use Application (CDUA)  
[Board Permit]

APPLICANT: Desmond Twigg-Smith

FILE NO.: HA-3141

REQUEST: Single-Family Residence

LOCATION: South Kona, Hawaii, TMK: (3) 8-3-06:06

PUBLIC HEARING: YES \_ NO X

Attached please find a copy of the subject CDUA, Draft Environmental Assessment and our Department's Notice of Acceptance and Environmental Determination. We would appreciate your review and comment on this CDUA by the suspense date noted above.

Should you require additional information, please call Matthew Myers of our Office of Conservation and Coastal Lands at 587-0382. If no response is received by the suspense date, we will assume there are no comments.

We have no comments.

Comments attached.

Signed: *Michael G. Buck*

Michael G. Buck  
DOFAW Administrator

Date: JUL - 7

DOCUMENT CAPTURED AS RECEIVED

SENT BY: ;

808 885 1574;

AUG-25-03 12:08PM;

PAGE 3

Dierdre S. MAMIYA  
c/o Office of Conservation  
PO Box 621  
Honolulu, HI. 96809

05-08-03

HA 04-053  
LAND  
(CDUA INSPECTION)

Page 1 of 2 pages

#### MASTER REPORT

This report is the master report, connect up report is HA 04-054.

#### APPLICANT CONTACTED

On 07-09/11-03, I made three attempts to contact Desmond TWIGG-SMITH at 896-3349. Which ended in negative results. I left three messages to contact me. On 07-17-03 while on of duty status, I was contacted by Desmond on my personal cellular phone. I explain my business with him and requested permission to inspect the proposed property. Desmond accepted my proposal.

#### LAND INSPECTED

On 07-18-03 at 1045 Hrs., I made a visual inspection of the proposed properties and noted that the property was somewhat cleared with manual hand tools. A storage building was already erected on property TMK: 3-8-3-06:5. I noted that the door was locked. Therefore, peered through the cracks of the wall and saw swimming paraphernalia stored within.

There are no discrepancies noted on both properties.

My only concern is that allowing development in these areas places a huge impact on the *Culture Serenity* and opens the doors for other adjacent land owners to build on. Kulou beach is one of the last beaches in Kona with public access but still have the privacy for users.

As noted in the pictures taken by Gregory MOOERS, the proposed buildings will not have a view to Kulou beach or Kealakua Bay. I propose that the trees that blocks the view of the buildings, not by touch in any way or fashion to provide some privacy for the uses of the beach and keep what *Culture Serenity* there is left.

#### DISPOSITION

In view of the above information, I recommend that this case be closed and approval is recommend.

DOCUMENT CAPTURED AS RECEIVED

DOCARE-18	3141 HA
DESMOND TWIGG-SMITH	DOCARE
GREGORY MODERS, 885-6839	
TMK: (3) 803006:06, SOUTH KONA, HAWAII	
SINGLE FAMILY RESIDENCE	
<p>APPLICANT IS PROPOSING THE CONSTRUCTION OF A TWO STORY, SEVEN ROOM, SINGLE FAMILY RESIDENCE LOCATED ON KULEANA LANDS WITHIN THE GENERAL SUBZONE OF THE STATE CONSERVATION DISTRICT.</p>	
HAWAII	7/8/2003
	7/21/2003
<p>REVIEW THE ATTACHED APPLICATION AND COMMENT WITH RESPECT TO DOCARE'S CURRENT AND FUTURE PROGRAMS. NO SITE INSPECTION IS NEEDED. IF NO RESPONSE IS RECEIVED, LAND DIVISION WILL ASSUME THAT THERE ARE NO COMMENTS</p>	
HA-01-054	Ofcr. I, KAMAKAU
07-13-03 1205 Hrs	
<p><i>See attached Sugg.</i></p>	

Dierdre S. MAMIYA  
c/o Office of Conservation  
PO Box 621  
Honolulu, HI. 96809

05-08-03

HA 04-054  
LAND  
(CDUA INSPECTION)

DISPOSITION

In view of the information in the master report, I recommend that this case be closed and approval is recommended.

MASTER REPORT IS HA 04-053

CLOSED: RECORD ONLY.

APPROVED:   
Charles NAHALE #7 WH SUPERVSOR

  
Lino M. KAMAKAU  
CREO III  
07-19-03

#185  
WH  
0905 HRS

**geometrician**  
ASSOCIATES, LLC  
integrating geographic science and planning

September 10, 2003

Dierdre Mamiya, Acting Administrator  
Office of Conservation and Coastal Lands  
Hawai'i State Department of Land and Natural Resources  
P.O. Box 621  
Honolulu HI 96809

Dear Ms. Mamiya:

**Subject: Comment Letters to Draft Environmental Assessment, Twigg-Smith Single-family Homes In the Conservation and Historic Districts TMKs: (3rd): 8-3-6: 5 & 6**

Thank you for your letter of August 22, 2003, to Desmond Twigg-Smith, transmitting the comments of various parties on the Conservation District Use Permit (CDUA) and Environmental Assessment (EA). As the author of the EA, I am responding to the comments on behalf of Mr. Twigg-Smith. Although some commenters may have referenced the CDUA only and not the EA, in the interest of comprehensiveness, we are responding to all commenters as part of the EA process.

We have responded directly to every comment letter transmitted by you for which a mailing address was provided, and are hereby transmitting a copy of each such response to your office. Attached are copies of response letters to:

- State Historic Preservation Division
- Hawai'i County Planning Department
- Hawai'i State Dept. of Health, Environmental Management Division

For commenters who did not supply an address and instead submitted an inter-office memo to you, we have responded within the text of this letter; we trust that you will pass along the following responses to the appropriate parties.

*DOFAW Memo of July 2, 2003 (8-3-06:05)*

We note that DOFAW had no comments to offer on the application.

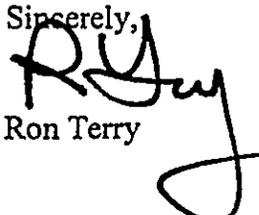
*DOFAW Memo of July 2, 2003 (8-3-06:06)*

We note that DOFAW had no comments to offer on the application.

*DOCARE Memo (date illegible on our copy)*

1. *Huge Impact on Serenity.* There are several homes and a well-used camping area within a few hundred feet of Kulou Beach. The applicant desires greatly to preserve the serenity of the surroundings and will not disturb the landscaping on the Kamehameha Schools property that separates the subject properties from the beach. As the Draft EA points out, as long as the homes are restricted, as planned, to rooflines less than 35 feet in height, and vegetation surrounding the lot is left uncleared, no substantial impact to scenery would occur. This is because the property is in the center of the peninsula, where tall vegetation screens the area from both the distant viewpoints along Mamalahoa Highway and Napo'opo'o Road and the closer viewpoints along Kulou (Ke'ei) Beach and any point in the ocean.
2. *Precedent for Other Landowners to Develop Homes.* We agree that landowners of the very few undeveloped lots in the area with a legal right to develop homes, such as Mr. Twigg-Smith, may be expected to eventually build them, in conformance with applicable County and State laws and regulations.

Sincerely,

  
Ron Terry

LINDA LINGLE  
GOVERNOR OF HAWAII



**STATE OF HAWAII**  
**DEPARTMENT OF LAND AND NATURAL RESOURCES**

HISTORIC PRESERVATION DIVISION  
KAKUHIHEWA BUILDING, ROOM 555  
601 KAMOKILA BOULEVARD  
KAPOLEI, HAWAII 96707

July 9, 2003

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

DAN DAVIDSON  
DEPUTY DIRECTOR - LAND

ERNEST Y.W. LAU  
DEPUTY DIRECTOR - WATER

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

**MEMORANDUM**

**TO:** Dierdre S. Mamiya, Administrator  
Office of Conservation and Coastal Lands

LOG NO: 2003.1148  
DOC NO: 0307PM08

**FROM:** P. Holly McEldowney, Acting Administrator *PHM*  
State Historic Preservation Division

**SUBJECT:** Chapter 6E-42 Historic Preservation Review of a Conservation District  
Use Application (CDUA HA-3140) Single-Family Residence  
(Desmond Twigg-Smith), Ke'ei, South Kona, Hawaii Island  
TMK: (3) 8-3-06:05

We received the subject CDUA application on July 7, 2003, and have the following comments. We have recently reviewed the draft archaeological inventory survey report that is included in the Draft Environmental Assessment for the subject Conservation District Use Permit Application. A copy of our review letter dated June 26, 2003 is attached. In our letter we agreed that the archaeological survey of the subject parcel was adequate and concurred with the site significance evaluations. We disagreed with the recommended site treatments. We believe that additional archaeological investigations are needed to mitigate the "adverse effects" of the proposed single-family residence on significant historic sites. We recommend that no decision be made on the permit application until the issue of site mitigation is resolved.

- c. Chris Yuen, Director, Dept of Planning, County of Hawaii
- Kai Emler, Director, Dept of Public Works, County of Hawaii

PM:ak

LINDA LINGLE  
GOVERNOR OF HAWAII



**STATE OF HAWAII**  
**DEPARTMENT OF LAND AND NATURAL RESOURCES**

HISTORIC PRESERVATION DIVISION  
KAKUHIHEWA BUILDING, ROOM 555  
601 KAMOKILA BOULEVARD  
KAPOLEI, HAWAII 96707

July 9, 2003

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

DAN DAVIDSON  
DEPUTY DIRECTOR - LAND

ERNEST Y.M. LAU  
DEPUTY DIRECTOR - WATER

AQUATIC RESOURCES  
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CONSERVATION AND COASTAL LANDS  
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ENGINEERING  
FORESTRY AND WILDLIFE  
HISTORIC PRESERVATION  
KAOLOAWE ISLAND RESERVE COMMISSION  
LAND  
STATE PARKS

**MEMORANDUM**

**TO:** Dierdre S. Mamiya, Administrator  
Office of Conservation and Coastal Lands

**LOG NO:** 2003.1149  
**DOC NO:** 0307PM09

**FROM:** P. Holly McEldowney, Acting Administrator  
State Historic Preservation Division

**SUBJECT:** Chapter 6E-42 Historic Preservation Review of on a Conservation District  
Use Application (CDUA HA-3141), Single-Family Residence (Desmond  
Twigg-Smith), Ke'ei, South Kona, Hawaii Island  
**TMK: (3) 8-3-06:06**

We received the subject CDUA application HA-3141 on July 7, 2003. We have recently reviewed the draft archaeological inventory survey report that is included in the Draft Environmental Assessment for the subject Conservation District Use Permit Application. A copy of our review letter dated June 26, 2003 is attached. In our letter we agreed that the archaeological survey of the subject parcel was adequate and concurred with the site significance evaluations. We disagreed with the recommended site treatments. We believe that additional archaeological investigations are needed to mitigate the "adverse effects" of the proposed single-family residence on significant historic sites. We recommend that no decision be made on the permit application until the issue of site mitigation is resolved.

- c. Chris Yuen, Director, Dept of Planning, County of Hawaii  
Kai Emler, Director Dept of Public Works, County of Hawaii

PM:ak

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SENT BY: ;

808 885 1574;

AUG-25-03 12:11PM;

PAGE 24/28

LINDA LINGLE  
GOVERNOR OF HAWAII



**STATE OF HAWAII**  
**DEPARTMENT OF LAND AND NATURAL RESOURCES**

HISTORIC PRESERVATION DIVISION  
KAKUHIHEWA BUILDING, ROOM 555  
601 KAMOKILA BOULEVARD  
KAPOLEI, HAWAII 96707

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

DAN DAVIDSON  
DEPUTY DIRECTOR - LAND

ERNEST Y. LAU  
DEPUTY DIRECTOR - WATER

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

June 26, 2003

Dr. Bob Rechtman  
Rechtman Consulting  
HC1, Box 4149  
Kea'au, Hawaii 96749

LOG NO: 2003.0951  
DOC NO: 0306PM10

Dear Dr. Rechtman:

**SUBJECT: Chapter 6E-42 Historic Preservation Review of a Draft Report RC--0100:  
"Archaeological Inventory Survey of Two Parcels at Ke'ei Beach  
(Rechtman and Clark 2002)  
Ke'ei, South Kona, Hawaii Island, TMK: (3) 8-3-06:5, 6**

Thank you for the opportunity to review and comment on the above referenced report, which was received in our office on November 26, 2002. We apologize for our late review.

The information presented in the historical and archaeological background sections of the report is generally adequate for predicting the kinds of historic properties that might be found during the survey. The background information is likewise sufficient in terms of providing a context for understanding and evaluating the significance of sites found in the survey.

We believe that the archaeological inventory survey of the two parcels, which correspond to Land Commission Awards 9652 (Parcel 5) and 6940 (Parcel 6), was adequate in terms of the field methods employed and amount of field time. Three historic sites were identified in the survey of the 0.6 acre project area. These include a wall that encloses the two parcels (Site 23427), LCAw 9652 (Site 23428), and LCAw 6940 (Site 23429). The sites have been adequately mapped and described. We have a couple of minor comments about the excavations and interpretations (see Attachment).

We agree with your site significance evaluations. All three sites have yielded information important for an understanding of local prehistory or history and are thus significant under Criterion "d."

You have recommended no further work for all three sites. We agree that Site 23427 (enclosing wall) holds little additional research potential. We believe that Sites 23428 and 23429 both hold additional research potential and should be recommended for data recovery (see Attachment for details).

2

Bob Rechtman

1.  
Please revise the report and resubmit it for our continued review and approval. If you should have any questions about our review comments please contact our Hawaii Island archaeologist, Patrick McCoy, at 692-8029.

Aloha,

*P. Holly McEldowney*

P. Holly McEldowney, Acting Administrator  
State Historic Preservation Division

c. Chris Yuen, County of Hawaii Planning Department  
Kai Embler, County of Hawaii Department of Public Works

PM:ak

JUN 30 2003

JUN 30 2003

**Attachment**

**Detailed Comments on Draft Report RC-0100**

**"Archaeological Inventory Survey of Two Parcels at Ke'el Beach**

**(Rechtman and Clark 2002)**

---

**Previous Archaeological Research**

Page 6, para. 4. Kahaulao should read Kahauloa.

**Findings**

**Site 23428**

Page 17, para. 3. The date for the 6 pieces of pearlware is incomplete. In the last sentence you say that the debris concentration may have been an historic dump dating to the early 19<sup>th</sup> century and refer to Appendix A, which is the LCA Native Register and Testimony. Is there a reference to a dump in the register or testimony? Please clarify.

Page 21, para. 2. The profile of TU-2 suggests that the "architectural layer" of the platform is relatively intact, rather than the result of bulldozer push as indicated here (e.g., the stones look stacked and the Layer I/II appears undisturbed). Please review this and make any wording changes if needed.

**Summary**

Page 28. The summary should include a brief discussion of the test excavation results in terms of the kinds of artifacts and midden recovered, their probable age, and significance. It seems like you would want to highlight, for example, the possible early historic date for the materials from Site 23428.

**Site Treatment Recommendations**

Page 29. We do not agree that the documentation of Sites 23428 and 23429 has been adequate to mitigate any potential impacts. The testing of both sites, which was minimal, yielded a variety of cultural materials including some artifacts that appear on current evidence to date to the early 19<sup>th</sup> century. Sites with intact deposits dating to the early 19<sup>th</sup> century are rare. Additional excavation is needed in our view to confirm the age of the artifact assemblages and their relationship to the surface architecture, which may be later. It appears that there is also a good opportunity to investigate inter and intra-site variability in dietary patterns for the early historic period.

---

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**geometrician**  
ASSOCIATES, LLC  
integrating geographic science and planning

September 10, 2003

P. Holly McEldowney, Acting Administrator  
State Historic Preservation Division  
601 Kamokila Blvd., Rm. 555  
Kapolei, Hawaii 96707

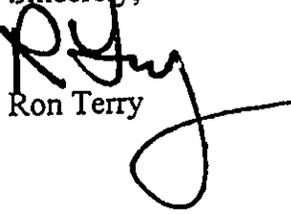
Dear Ms. McEldowney:

**Subject: Comment Letter to Draft Environmental Assessment, Twigg-Smith Single-family Homes In the Conservation and Historic Districts TMKs: (3rd): 8-3-6: 5 & 6**

This letter responds to your two letters of July 9, 2003, to Deirdre Mamiya of DLNR, concerning the Draft EA (which covered Conservation District Use Applications for two separate but related actions). As the author of the EA and on behalf of Mr. Twigg-Smith, I offer the following point-by-point responses to your individual comments.

1. *Comments on draft archaeological inventory survey.* We acknowledge receipt of these comments. It is our understanding that the inventory survey will be revised to meet your comments in your letters and detailed comments to the archaeological consultant.
2. *Recommendation for data recovery for Sites 23428 and 23429.* The Final EA will be revised to state that your office has recommended preparation of a data recovery plan and data recovery, and that data recovery will be accomplished to the satisfaction of SHPD prior to construction work.

Sincerely,

  
Ron Terry

Harry Kim  
Mayor



Christopher J. Yuen  
Director

Roy R. Takemoto  
Deputy Director

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

July 18, 2003

Ms. Dierdre S. Mamiya, Administrator  
Department of Land and Natural Resources  
Office of Conservation and Coastal Lands  
P. O. Box 621  
Honolulu Hi 96809

Dear Ms. Mamiya:

**CDUA HA-3141 (Board Permit)**  
**Desmond J. Twigg-Smith**  
**Construction of a Single Family Residence**  
**Ke'el, District of South Kona, County of Hawaii**  
**TMK: 8-3-6: 6**

This is in response to the above-referenced application for the construction of a single-family residence.

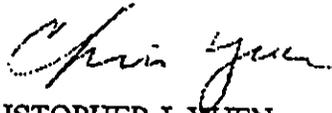
Although we have no objections to the proposed improvements, we do have the following comments to offer:

1. The subject .34 acre parcel is zoned Open (O) by the County and is located in an area designated Conservation by the State Land Use Commission.
2. It is located within the County's Special Management Area. However, by letter dated April 4, 2003, the construction of a two-story, 3,079 square feet single family residence and septic system was determined to be exempt from the definition of development. Therefore, no further review against the Special Management Area rules and regulations is required.

Ms. Dierdre S. Mamiya, Administrator  
Department of Land and Natural Resources  
Office of Conservation and Coastal Lands  
Page 2  
July 18, 2003

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

Sincerely,



CHRISTOPHER J. YUEN  
Planning Director

ETI:pak  
P:\WP\WTN60\ETI\CDUAM\mamiya\TwiggSmith83006006.doc

xc: Planning Department - Kona

Harry Kim  
Mayor

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LAND DIVISION

2003 AUG -5 A 10:55



Christopher J. Yuen  
Director

Roy R. Takemoto  
Deputy Director

DEPT. OF LAND &  
NATURAL RESOURCES  
STATE OF HAWAII

County of Hawaii

PLANNING DEPARTMENT

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

July 22, 2003

Ms. Dierdre S. Mamiya, Administrator  
Department of Land and Natural Resources  
Office of Conservation and Coastal Lands  
P. O. Box 621  
Honolulu Hi 96809

Dear Ms. Mamiya:

**CDUA HA-3140 (Board Permit)**  
**Desmond J. Twigg-Smith**  
**Construction of a Single Family Residence**  
**Ke'ei, District of South Kona, County of Hawaii**  
**TMK: 8-3-6: 5**

This is in response to the above-referenced application for the construction of a single-family residence.

Although we have no objections to the proposed improvements, we do have the following comments to offer:

1. The subject 14,351 square feet parcel is zoned Open (O) by the County and is located in an area designated Conservation by the State Land Use Commission.
2. It is located within the County's Special Management Area. On May 9, 2003, Special Management Area Minor Permit No. 136 was issued to allow for the construction of a two-story single family dwelling, approximately 1,808 square feet in size, and the septic field system, subject to the applicant's compliance with the conditions of approval.

SENT BY: ;

808 885 1574;

AUG-25-03 12:10PM;

PAGE 21/28

Ms. Dierdre S. Mamiya, Administrator  
Department of Land and Natural Resources  
Office of Conservation and Coastal Lands  
Page 2  
July 22, 2003

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

Sincerely,



CHRISTOPHER J. YUEN  
Planning Director

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xc: Planning Department - Kona

1.

**geometrician**  
ASSOCIATES, LLC  
integrating geographic science and planning

September 10, 2003

Christopher J. Yuen, Director  
Hawai'i County Planning Department  
101 Pauahi Street, Suite 3  
Hilo HI 96720

Dear Mr. Yuen:

**Subject: Comment Letter to Draft Environmental Assessment, Twigg-Smith Single-family Homes In the Conservation and Historic Districts TMKs: (3rd): 8-3-6: 5 & 6**

This letter responds to your letters of July 18 and July 22, 2003 to Deirdre Mamiya of DLNR, concerning the Draft EA (which covered Conservation District Use Applications for two separate but related actions). As the author of the EA and on behalf of Mr. Twigg-Smith, here are point-by-point responses to your individual comments.

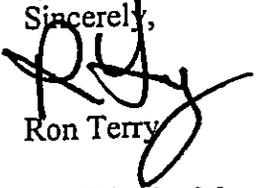
*July 18 letter:*

1. *County Zoning and State Land Use District.* We acknowledge these designations, which are specified on p. 7 of the EA.
2. *SMA Exemption for 8-3-6:6.* Thank you for your statement regarding the Planning Department's determination that the single-family residence and septic system was determined to be exempt from the definition of development and that no further review against the Special Management Area rules and regulations is required. This information has been added to Section 3.7.2 of the EA.

*July 22 letter:*

1. *County Zoning and State Land Use District.* We acknowledge these designations, which are specified on p. 7 of the EA.
2. *SMA Minor Permit No. 136.* Section 3.7.2 of the EA was amended to include the information that on May 9, 2003, Special Management Area Minor Permit No. 136 was issued to allow for the construction of a two-story single family dwelling, approximately 1,808 square feet in size, and the septic field system, subject to the applicant's compliance with the conditions of approval.

Sincerely,

  
Ron Terry

Cc: Dierdre Mamiya, DLNR

LINDA LINGLE  
GOVERNOR OF HAWAII



CHIYOME L. FUKINO, M.D.  
DIRECTOR OF HEALTH

STATE OF HAWAII  
DEPARTMENT OF HEALTH  
P.O. BOX 3370  
HONOLULU, HAWAII 96801

In reply, please refer to:  
EMD / WPB

H8 03 08 05.wpd  
WPB 030820

July 18, 2003

TO: Dierdre S. Mamiya, Acting Administrator  
Office of Conservation and Coastal Lands  
Department of Land & Natural Resources

FROM: Thomas E. Arizumi, Chief *Thomas E. Arizumi*  
Environmental Management Division

SUBJECT: Request for Comments - Conservation District Use Application (CDUA)  
Draft Environmental Assessment  
Desmond Twigg-Smith - Single Family Residence  
Ke'ei 2<sup>nd</sup>, South Kona, Island of Hawaii  
TMK: (3) 8-3-006: 005 .67 acres

We have reviewed the subject document which proposes to construct a single family residence on conservation lands.

The subject project is located in the critical wastewater disposal area as determined by the Hawaii Wastewater Advisory Committee. No new cesspools will be allowed. The owners have proposed to utilize an on site treatment individual wastewater system (septic tank) to treat and dispose of wastewater from the proposed dwelling. We have no objections to this proposal.

All wastewater plans must conform to applicable provisions of the Department of Health's Administrative Rules, Chapter 11-62, "Wastewater Systems." We do reserve the right to review the detailed wastewater plans for conformance to applicable rules. Should you have any questions, please contact the Planning & Design Section of the Wastewater Branch at 586-4294.

LNK:erm

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808 885 1574;

AUG-25-03 12:07PM;

PAGE 5

LINDA LINGLE  
GOVERNOR OF HAWAII



CHRYSE L. FUKINO, M.D.  
DIRECTOR OF HEALTH

STATE OF HAWAII  
DEPARTMENT OF HEALTH

P.O. BOX 3378  
HONOLULU, HAWAII 96801

In reply, please refer to:  
EMD / WB

H8 03 06 06.wpd  
WP8 030619

July 18, 2003

TO: Dierdre S. Mamiya, Acting Administrator  
Office of Conservation and Coastal Lands  
Department of Land & Natural Resources

FROM: Thomas E. Arizumi, Chief *Thomas E. Arizumi*  
Environmental Management Division

SUBJECT: Request for Comments - Conservation District Use Application (CDUA)  
Draft Environmental Assessment  
Desmond Twigg-Smith - Single Family Residence  
Ke'ei 2<sup>nd</sup>, South Kona, Island of Hawaii  
TMK: (3) 8-3-006: 006 .67 acres

We have reviewed the subject document which proposes to build a single family residence on conservation lands.

The subject project is located in the critical wastewater disposal area as determined by the Hawaii Wastewater Advisory Committee. No new cesspools will be allowed. A treatment individual wastewater system (septic tank system) has been proposed to handle wastewater from the dwelling. We have no objections to this means of wastewater disposal.

All wastewater plans must conform to applicable provisions of the Department of Health's Administrative Rules, Chapter 11-62, "Wastewater Systems." We do reserve the right to review the detailed wastewater plans for conformance to applicable rules. Should you have any questions, please contact the Planning & Design Section of the Wastewater Branch at 586-4294.

LNK:ern

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AUG-25-03 12:10PM;

PAGE 18/28

LINDA LINGLE  
GOVERNOR OF HAWAII

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LAND DIVISION



CHIYOME L. FUKINO, M.D.  
DIRECTOR OF HEALTH

2003 AUG -1 P 12:37

DEPT. OF LAND &  
NATURAL RESOURCES  
STATE OF HAWAII

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

In reply, please refer to:  
File:

July 28, 2003

03-807A CAB

TO: Dierdre S. Mamiya, Acting Administrator  
Office of Conservation and Coastal Lands  
Department of Land and Natural Resources

FROM: Thomas E. Arizumi, P.E., Chief *TE Arizumi*  
Environmental Management Division

SUBJECT: Conservation District Use Applications (2) for Desmond Twigg-Smith,  
Keel, South Kona, Hawaii; TMK: (3) 8-3-06:05 & (3) 8-3-06:06

This memo is to transmit the following comments on the subject documents:

Control of Fugitive Dust:

There is a significant potential for fugitive dust emissions during all phases of construction. Proposed construction activities will occur in proximity to existing residences, public areas and major thoroughfares, thereby exacerbating potential dust problems. It is recommended that a dust control management plan be developed which identifies and addresses all activities that have a potential to generate fugitive dust. Implementation of adequate dust control measures during all phases of development and construction activities is warranted.

Construction activities must comply with the provisions of Hawaii Administrative Rules, §11-60.1-33 on Fugitive Dust.

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

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

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808 885 1574;

AUG-25-03 12:10PM;

PAGE 19/28

Ms. Dierdre S. Mamiya  
July 28, 2003  
Page 2

- b) Provide an adequate water source at the site prior to start-up of construction activities;
- c) Landscape and provide rapid covering of bare areas, including slopes, starting from the initial grading phase;
- d) Minimize dust from shoulders and access roads;
- e) Provide adequate dust control measures during weekends, after hours, and prior to daily start-up of construction activities; and
- f) Control dust from debris being hauled away from the project site.

If you have any questions, please contact Mr. Barry Ching of the Clean Air Branch at 586-4200.

BC:jhm

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808 885 1574;

AUG-25-03 12:08PM;

PAGE 10

LINDA LINGLE  
GOVERNOR OF HAWAII



GENEVIEVE SALMONSON  
DIRECTOR

STATE OF HAWAII  
OFFICE OF ENVIRONMENTAL QUALITY CONTROL

533 SOUTH BERETANIA STREET  
SUITE 702  
HONOLULU, HAWAII 96813  
TELEPHONE (808) 584-4185  
FACSIMILE (808) 585-4185  
E-mail: oego@health.hawaii.gov

July 23, 2003

Deirdre Mamiya  
Department of Land and Natural Resources  
P.O. Box 621  
Honolulu, Hawaii 96809

Attention: Matt Myers

Dear Ms. Mamiya:

Subject: Draft Environmental Assessments (EA), Twigg-Smith Single Family Residences  
TMKs: 8-3-6:05 and 8-3-6:06; HA-3140 and HA-3141

We have the following comments to offer:

Final document: These two parcels abut one another. The assessments should have been covered in a single draft EA. For the final EA combine your discussion and analysis of impacts and corresponding mitigation measures for both parcels into a *single* final document.

Permits and approvals: If this project requires a chapter 6B clearance from the Historic Preservation Division of DLNR, include it in your list of permits in section 3.6.

If you have any questions, call Nancy Heinrich at 586-4185.

Sincerely,

*Genevieve Salmonson*  
GENEVIEVE SALMONSON  
Director

c: Greg Mooers  
Ron Terry

**geometrician**  
ASSOCIATES, LLC  
integrating geographic science and planning

September 10, 2003

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

Dear Ms. Salmonson:

**Subject: Comment Letter to Draft Environmental Assessment, Twigg-Smith Single-family Homes In the Conservation and Historic Districts TMKs: (3rd): 8-3-6: 5 & 6**

This letter responds to your letter of July 23, 2003, to Deirdre Mamiya of DLNR, concerning the Draft EA. As the author of the EA and on behalf of Mr. Twigg-Smith, I offer the following point-by-point responses to your individual comments.

1. *Final Document Should Be Covered in a Single Draft EA.* The fact that two separate TMKs were involved induced DLNR to require two separate Conservation District Use Applications (CDUA). However, the Draft EA was (and the final EA will be) one document covering both CDUAs. This was done in order to address the impacts of two separate but related actions in a comprehensive and holistic manner. Our apologies if there was any confusion regarding the nature of the document.
2. *Permits and Approvals.* Chapter 6E clearance has been added to the list of approvals in Section 3.6.

Sincerely,

  
Ron Terry

**geometrician**  
ASSOCIATES, .LLC  
integrating geographic science and planning

September 10, 2003

Thomas E. Arizumi, Chief  
Environmental Management Division  
Hawai'i State Department of Health  
P.O. Box 3378  
Honolulu HI 96801

Déar Mr. Arizumi:

**Subject: Comment Letter to Draft Environmental Assessment, Twigg-Smith Single-family Homes In the Conservation and Historic Districts TMKs: (3rd): 8-3-6: 5 & 6**

This letter responds to your two memos of July 18, 2003, to Deirdre Mamiya of DLNR, as well as your memo of July 28, 2003, concerning the Draft EA (which covered Conservation District Use Applications for two separate but related actions on adjacent properties). As the author of the EA and on behalf of Mr. Twigg-Smith, I offer the following point-by-point responses to your individual comments:

*July 18, 2003 memos:*

Both memos stated that DOH has no objection to utilizing an onsite treatment individual wastewater system (septic tank) to treat and dispose of wastewater from the proposed dwellings, and that your division reserves the right to review the wastewater plans. Onsite treatment individual wastewater systems were proposed in the Draft EA, which also recognized the need for the systems to conform with State laws and regulations.

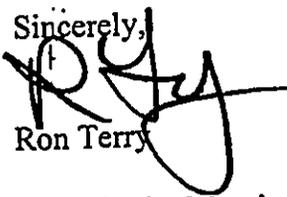
*July 29, 2003 memo:*

1. *Significant Potential for Fugitive Dust During All Phases of Construction.* While we acknowledge the sensitivity of the area and intend to implement precautionary measures during construction, we do not share your opinion regarding a significant potential for fugitive dust. Construction will be in two separate phases, each one consisting of very limited ground disturbance in association with a modestly sized, post-and-pier single-family dwelling and associated septic system. No residences are located within 100 feet, and the nearest major thoroughfare is several miles away
2. *Development of a Dust Control Management Plan.* We agree that development of this plan and implementation of adequate dust control measures during all phases of development and construction activities is warranted. The Draft EA has been

amended in Section 3.2.3 to specify preparation of such a plan as a condition of Plan Approval. However, we would point out that some of the measures on the list you have provided are not applicable; e.g., there are no slopes, there is no need (or means) to centralize on-site vehicular traffic routes, and there are few options on the small properties for locating potential dust-generating equipment in areas of least impact.

Thank you for your review of the project.

Sincerely,



Ron Terry

Cc: Dierdre Mamiya, DLNR



**DEPARTMENT OF WATER SUPPLY • COUNTY OF HAWAII**

345 KEKUANAOA STREET, SUITE 20 • HILO, HAWAII 96720

TELEPHONE (808) 961-8050 • FAX (808) 961-8657

August 22, 2003

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

**DRAFT ENVIRONMENTAL ASSESSMENT  
TWIGG-SMITH SINGLE-FAMILY HOMES  
IN THE CONSERVATION AND HISTORIC DISTRICT  
TAX MAP KEYS 8-3-006:005 AND 006**

We have reviewed your request for comments, and the subject parcels do not have water service with the Department. The nearest point of adequacy to the Department's waterline is approximately 4,750 feet away in Manini Beach Road.

Should there be any questions, please contact Ms. Shari Komata of our Water Resources and Planning Branch at 961-8070.

Sincerely yours,

Milton D. Pavao, P.E.  
Manager

SHK:dfg

copy - Director, Office of Environmental Quality Control  
Mr. Matthew Myers, State of Hawaii, Department of Land and Natural Resources

*... Water brings progress...*



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August 29, 2003

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IN THE CONSERVATION AND HISTORIC DISTRICT  
TAX MAP KEYS 8-3-006:005 AND 006**

We have reviewed your request for comments, and the subject parcels do not have water service with the Department. For clarification, water is available from the nearest point of adequacy to the Department's waterline that is approximately 4,750 feet away in Manini Beach Road.

Should there be any questions, please contact Ms. Shari Komata of our Water Resources and Planning Branch at 961-8070.

Sincerely yours,

Milton D. Pavao, P.E.  
Manager

SHK:sco

copy - Director, Office of Environmental Quality Control  
Mr. Matthew Myers, State of Hawaii, Department of Land and Natural Resources

*... Water brings progress...*

**geometrician**  
ASSOCIATES, LLC  
integrating geographic science and planning

September 10, 2003

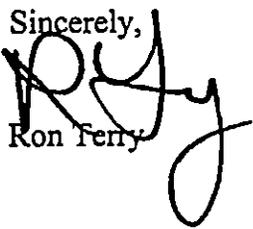
Milton D. Pavao, Manager  
Hawai'i County Dept. of Water Supply  
345 Kekuanaoa Street, Suite 20  
Hilo HI 96720

Dear Mr. Pavao:

**Subject: Comment Letter to Draft Environmental Assessment, Twigg-Smith Single-family Homes In the Conservation and Historic Districts TMKs: (3rd): 8-3-6: 5 & 6**

*This letter responds to your letters of August 22 and August 29, 2003, concerning the Draft EA. Your first letter stated that the subject parcels did not have water service, and that the nearest point of adequacy to a DWS waterline was about 4,750 feet away on Manini Road. Your second letter clarified that water was available to the properties from this nearest point of adequacy. Thank you for your review of the project.*

Sincerely,

  
Ron Terry

**APPENDIX 2**

**FIGURES**





FIGURE 3.

PROJECT SITE PHOTOGRAPHS



Interior of  
Project Site



Viewing Back of  
Kulou Beach  
Through  
Vegetation



Kulou Beach



Topographic Map Showing  
 TMK (3)8-3-006:005  
 and  
 TMK (3)8-3-006:006  
 At Keei 2nd, South Kona  
 Island of Hawaii, Hawaii

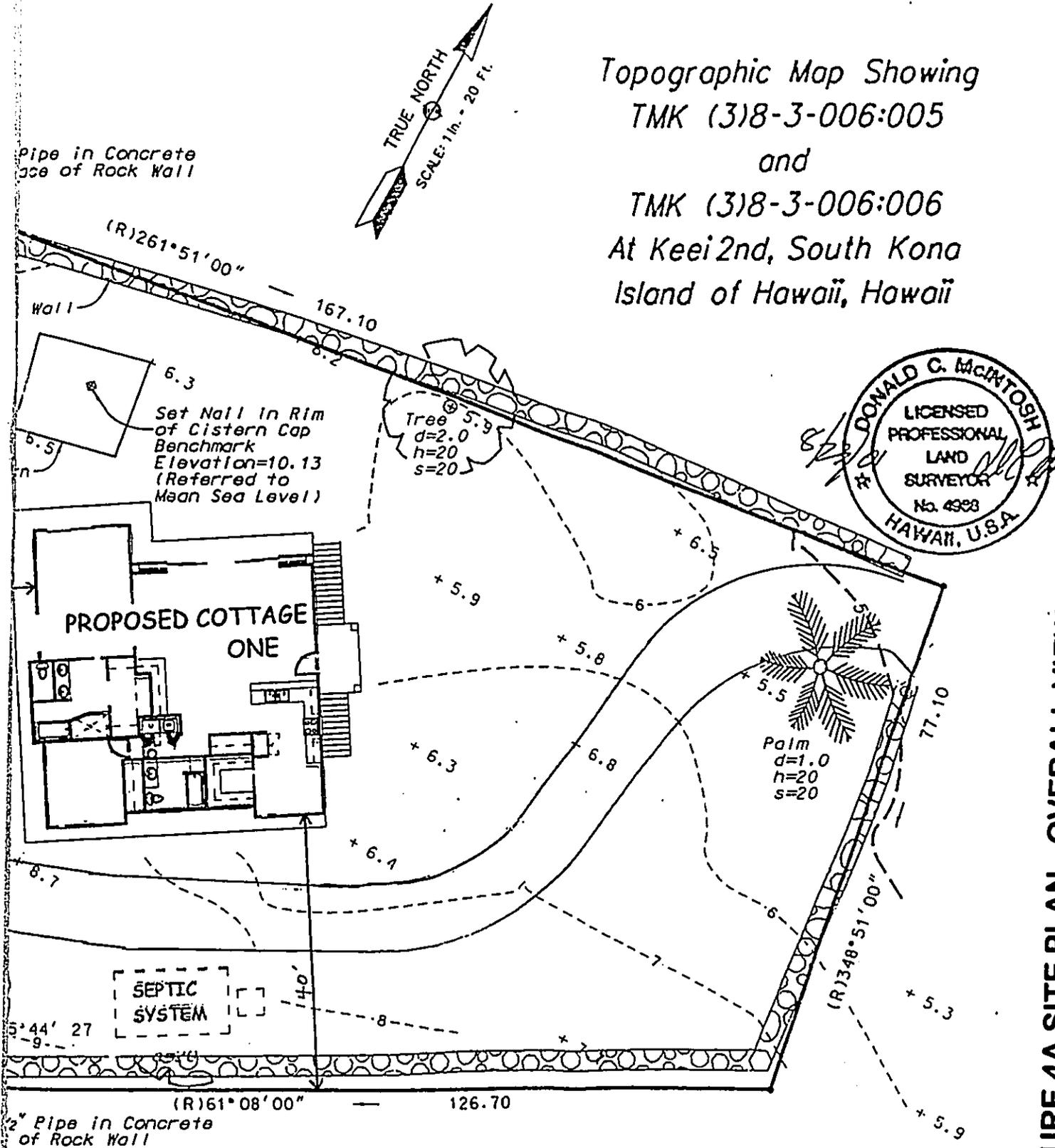


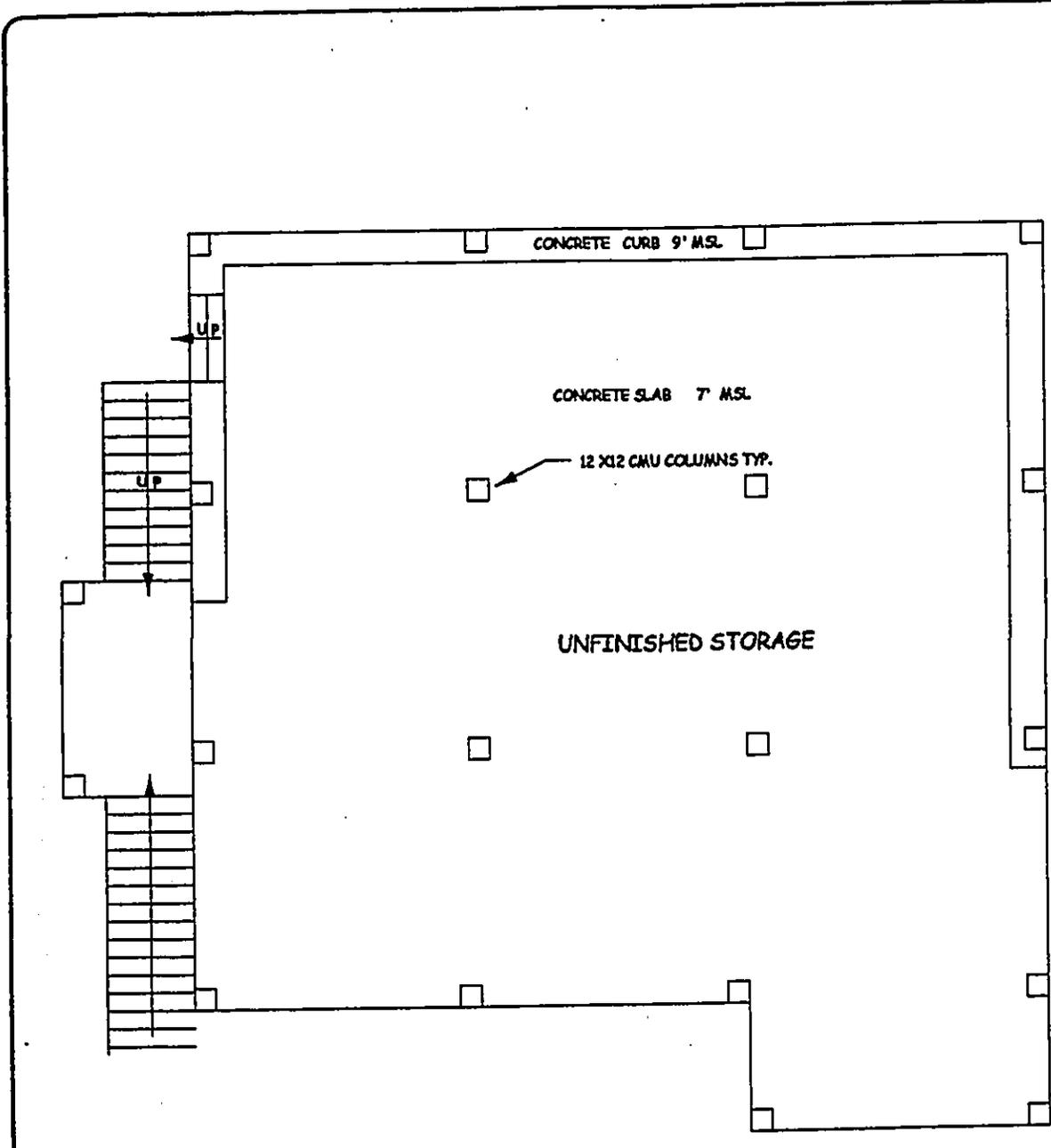
FIGURE 4A SITE PLAN - OVERALL VIEW

and record positions do not fit field locations.  
 ended before building to insure proper setbacks.  
 by an actual survey on the ground done

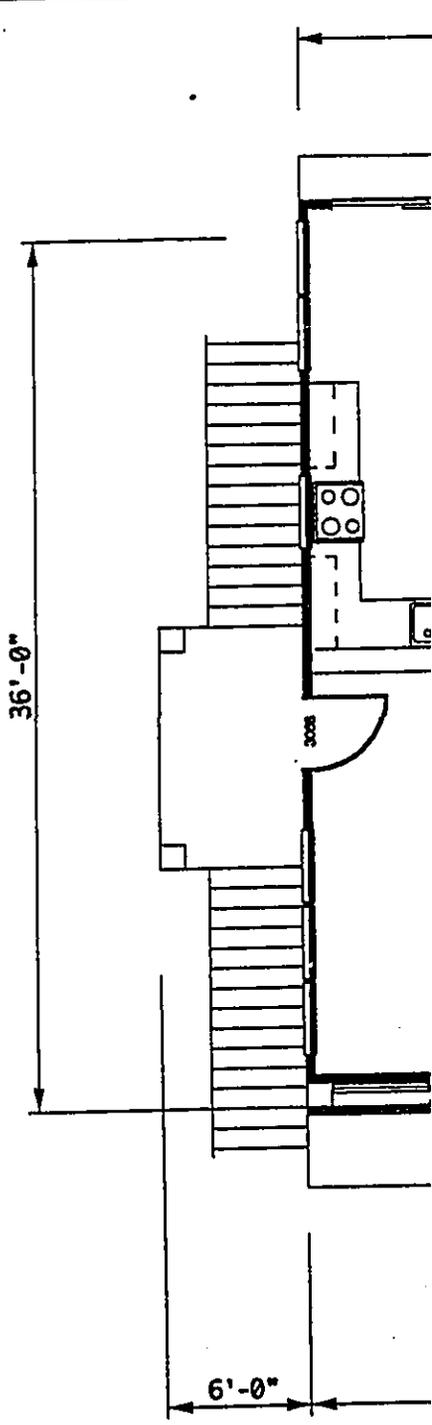
The undersigned hereby certifies to the best of his professional knowledge, information and belief, that this map and the survey on which it is based correctly shows the features near the boundaries.

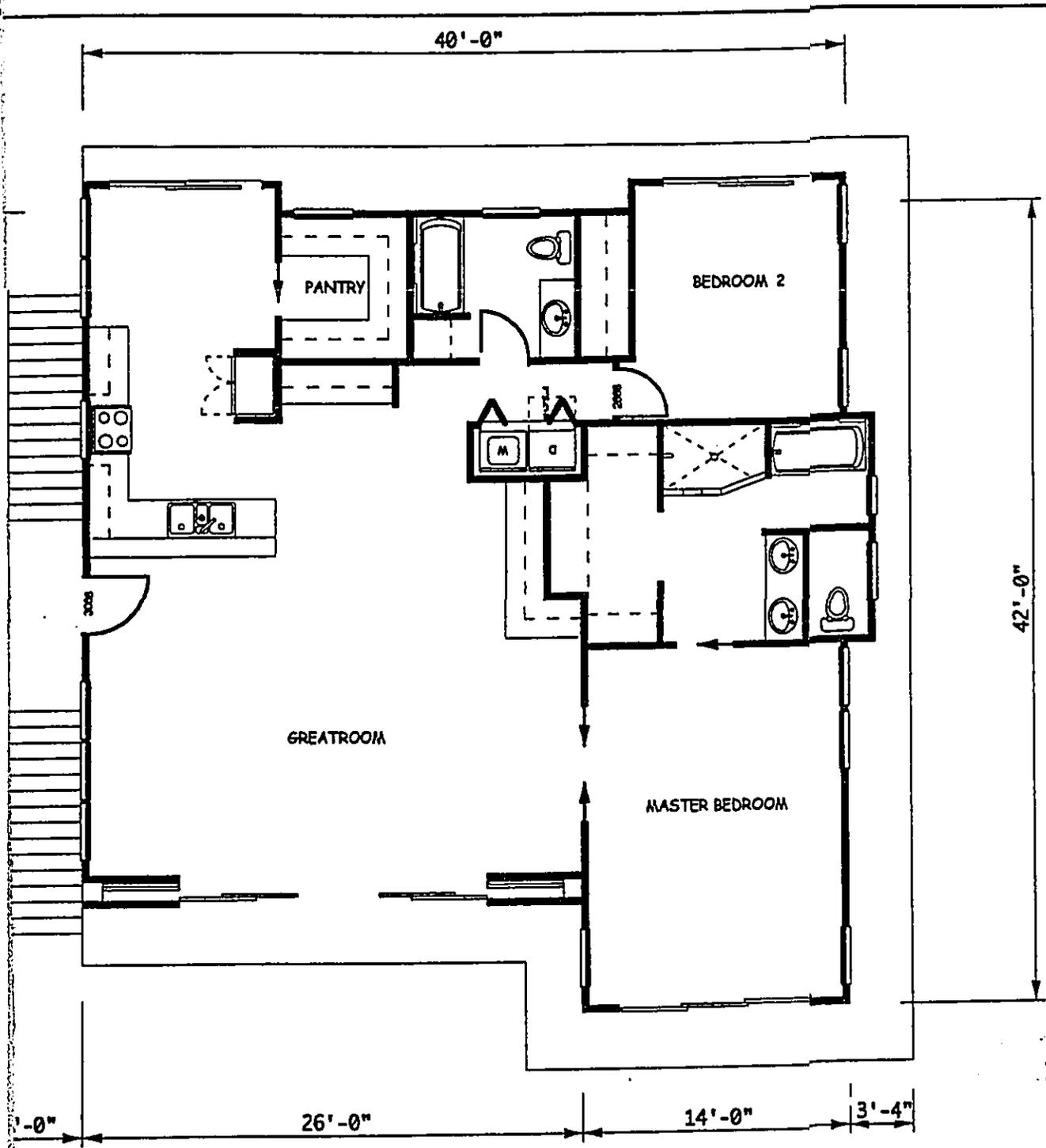
*Donald C. McIntosh*  
 Donald C. McIntosh, L.P.L.S.

JOB #306901 FB #4:15-18  
 DATE: 08/21/01  
 Drawing: 83006005.DGT



LOWER FLOOR





SCALE 1/8" = 1'  
 PLANS BY T. BUCKNER  
 DATE 8/10/02

**COTTAGE ONE**

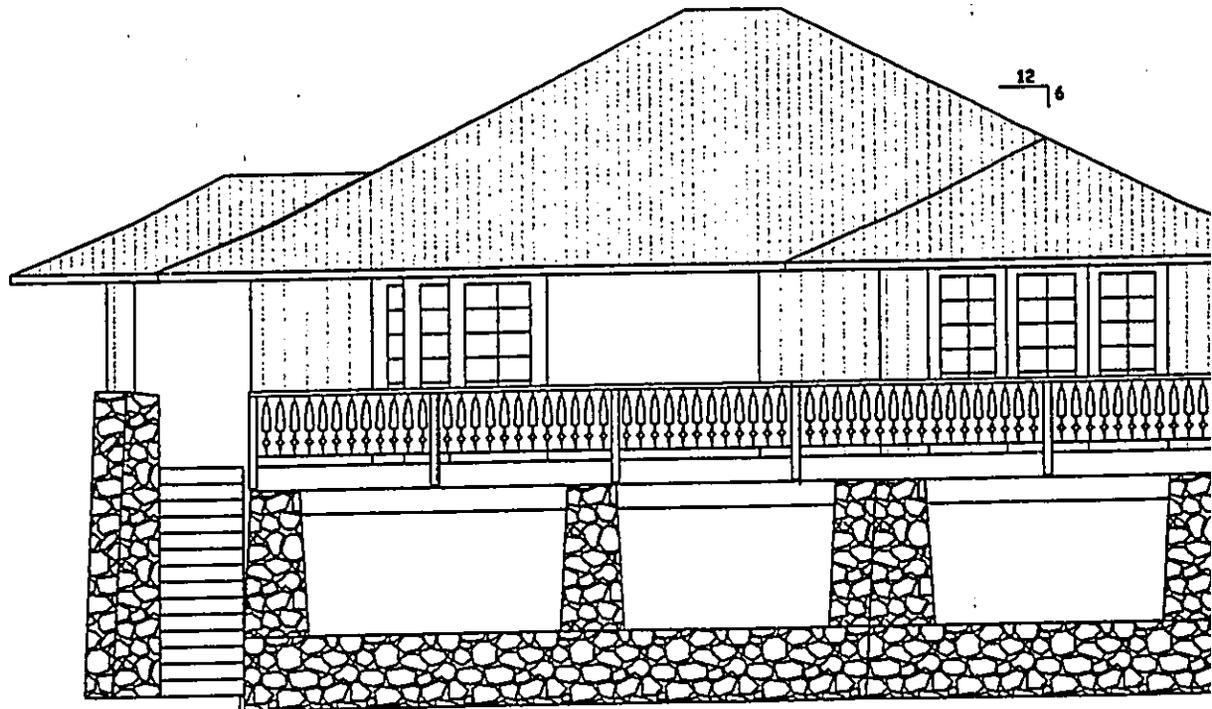
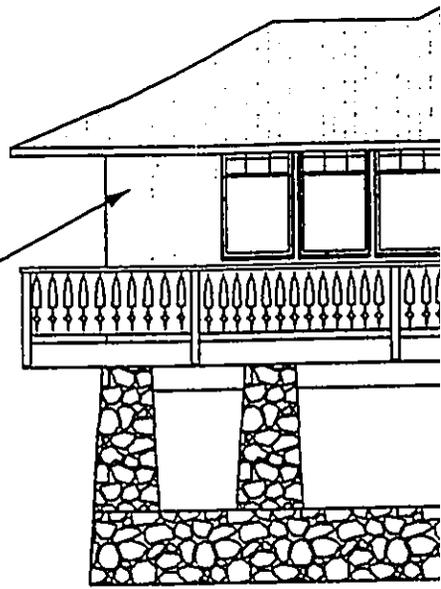
**FIGURE 4B SITE PLAN**

**FLOOR PLAN**

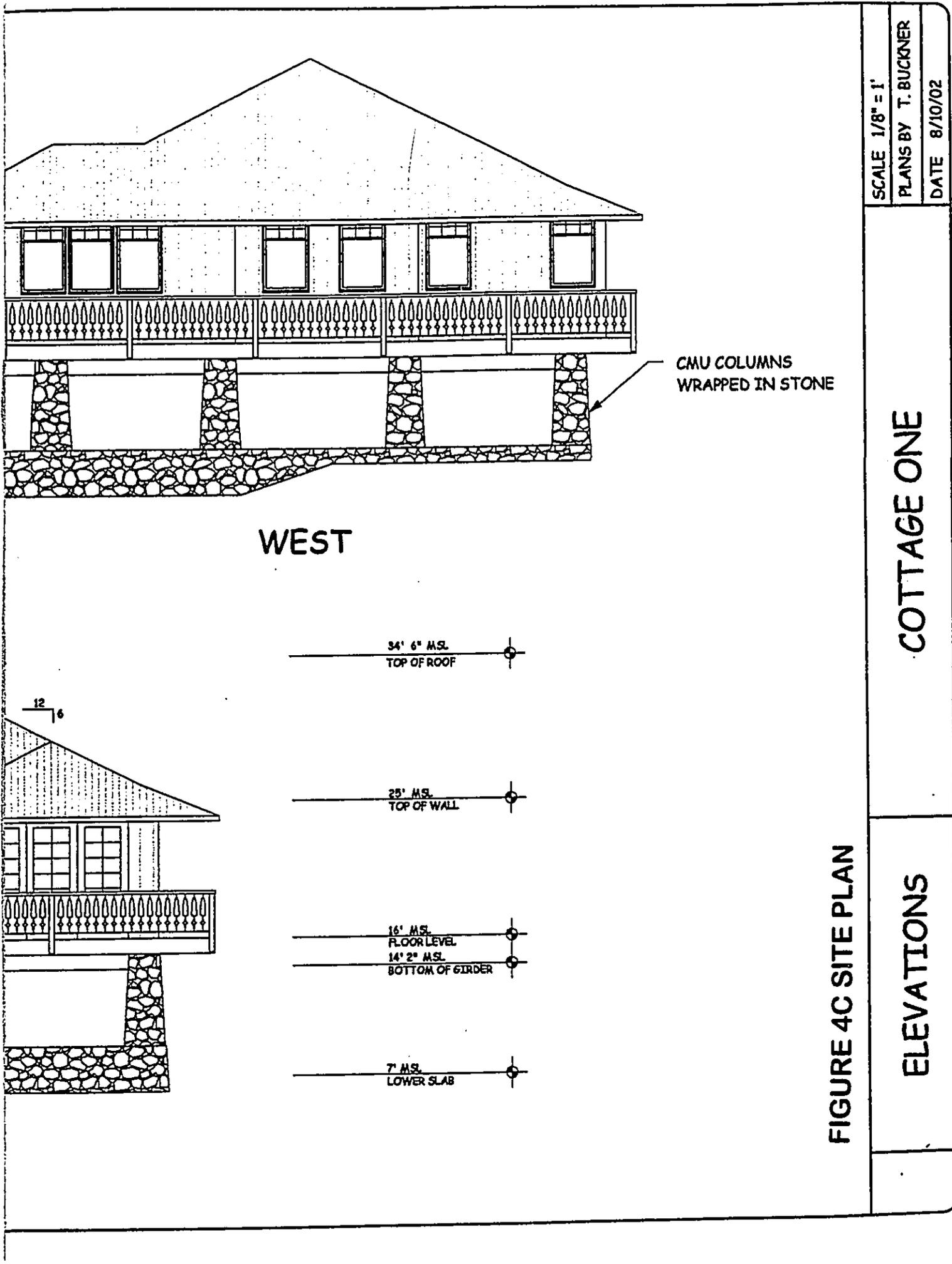
**UPPER FLOOR**

**AREA:**  
 LIVING 1555 SQ. FT.  
 STORAGE 1524 SQ.FT.

BOARD & BATTEN SIDING



NORTH



SCALE 1/8" = 1'  
 PLANS BY T. BUCKNER  
 DATE 8/10/02

COTTAGE ONE

ELEVATIONS

FIGURE 4C SITE PLAN

WEST

34' 6" M.S.L.  
TOP OF ROOF

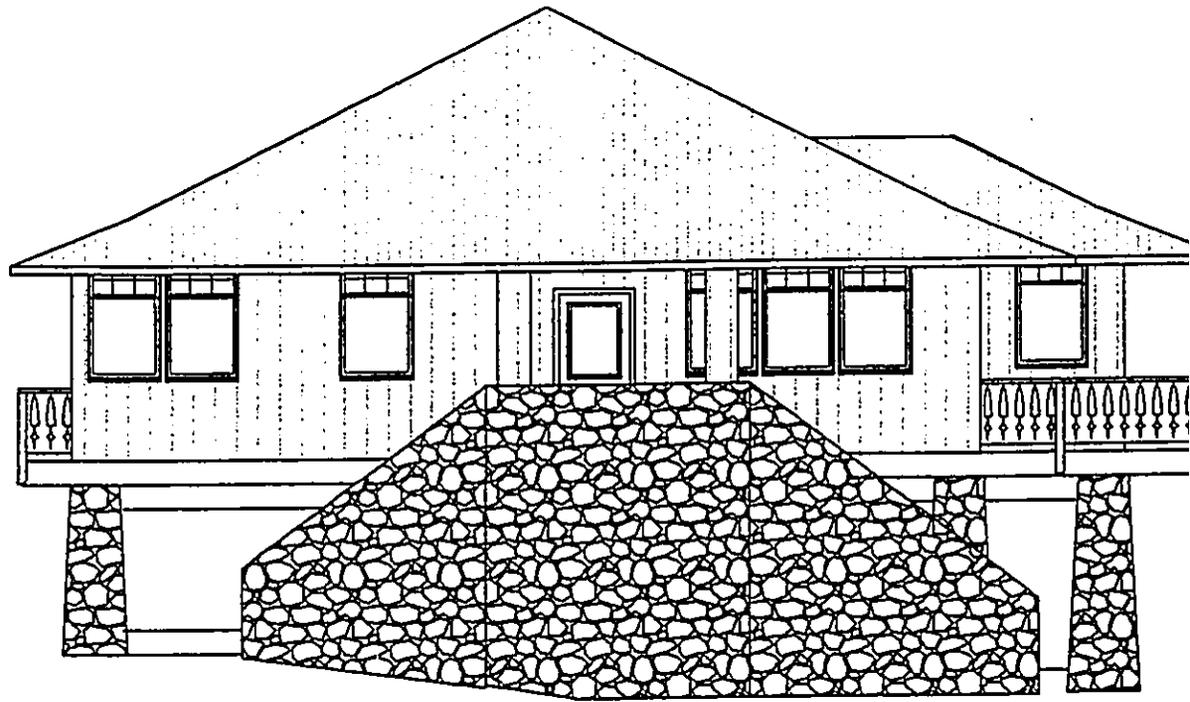
25' M.S.L.  
TOP OF WALL

16' M.S.L. FLOOR LEVEL  
 14' 2" M.S.L. BOTTOM OF GIRDER

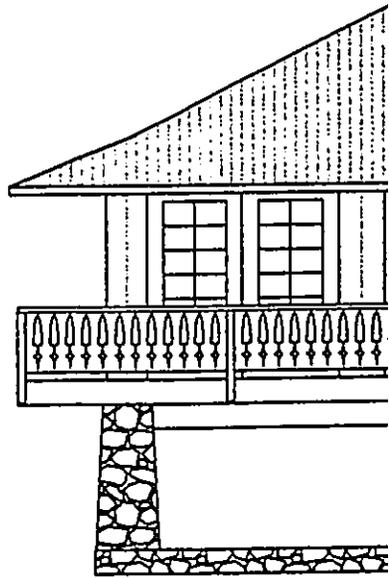
7' M.S.L.  
LOWER SLAB

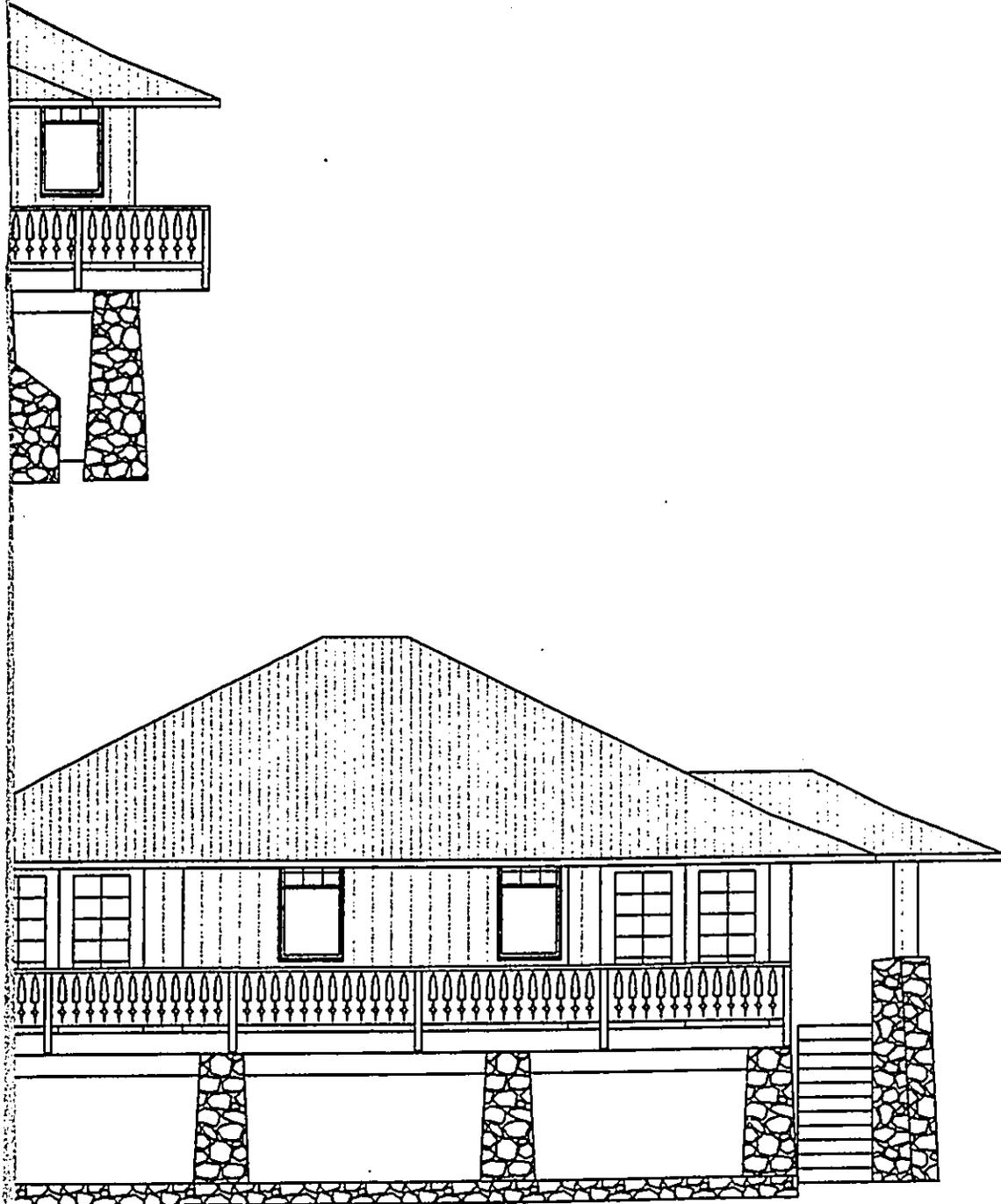
CMU COLUMNS  
WRAPPED IN STONE

1/2" = 6'



EAST





SOUTH

FIGURE 4D SITE PLAN

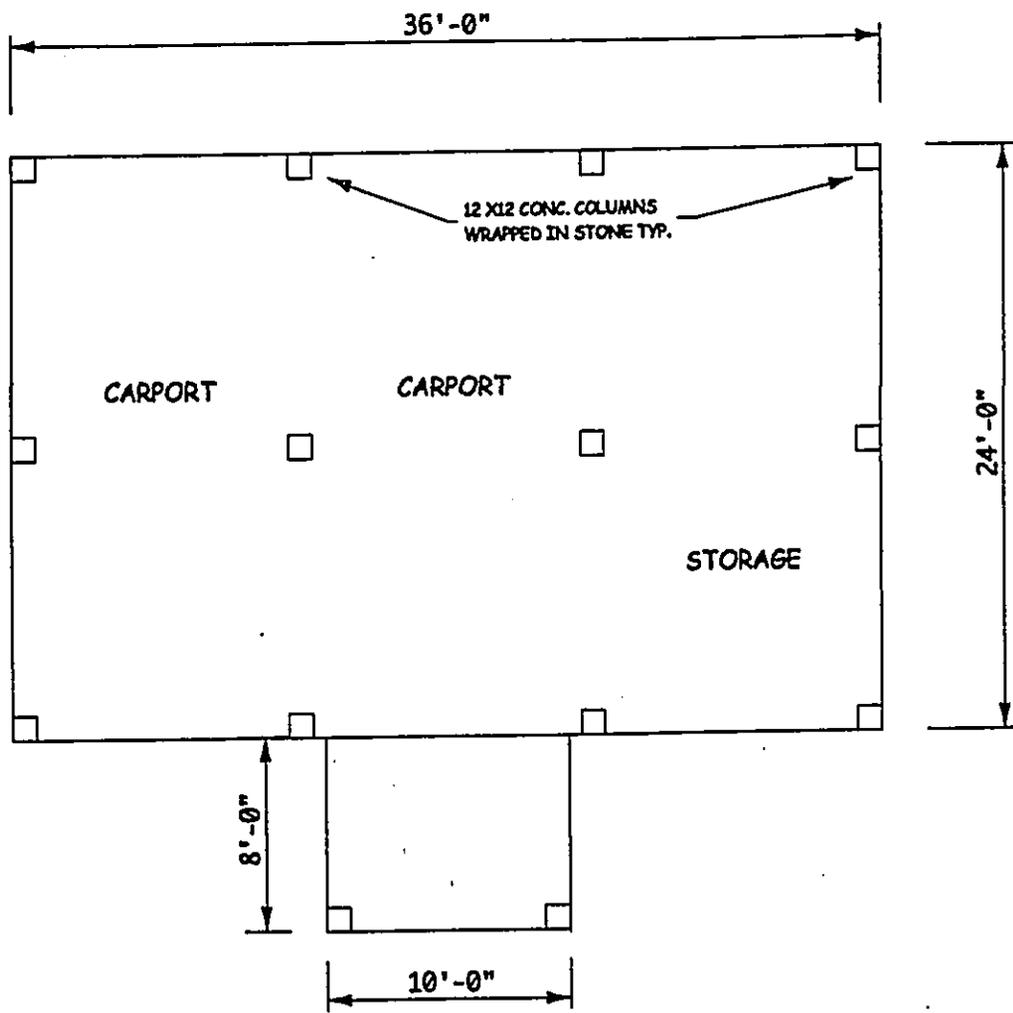
ELEVATIONS

COTTAGE ONE

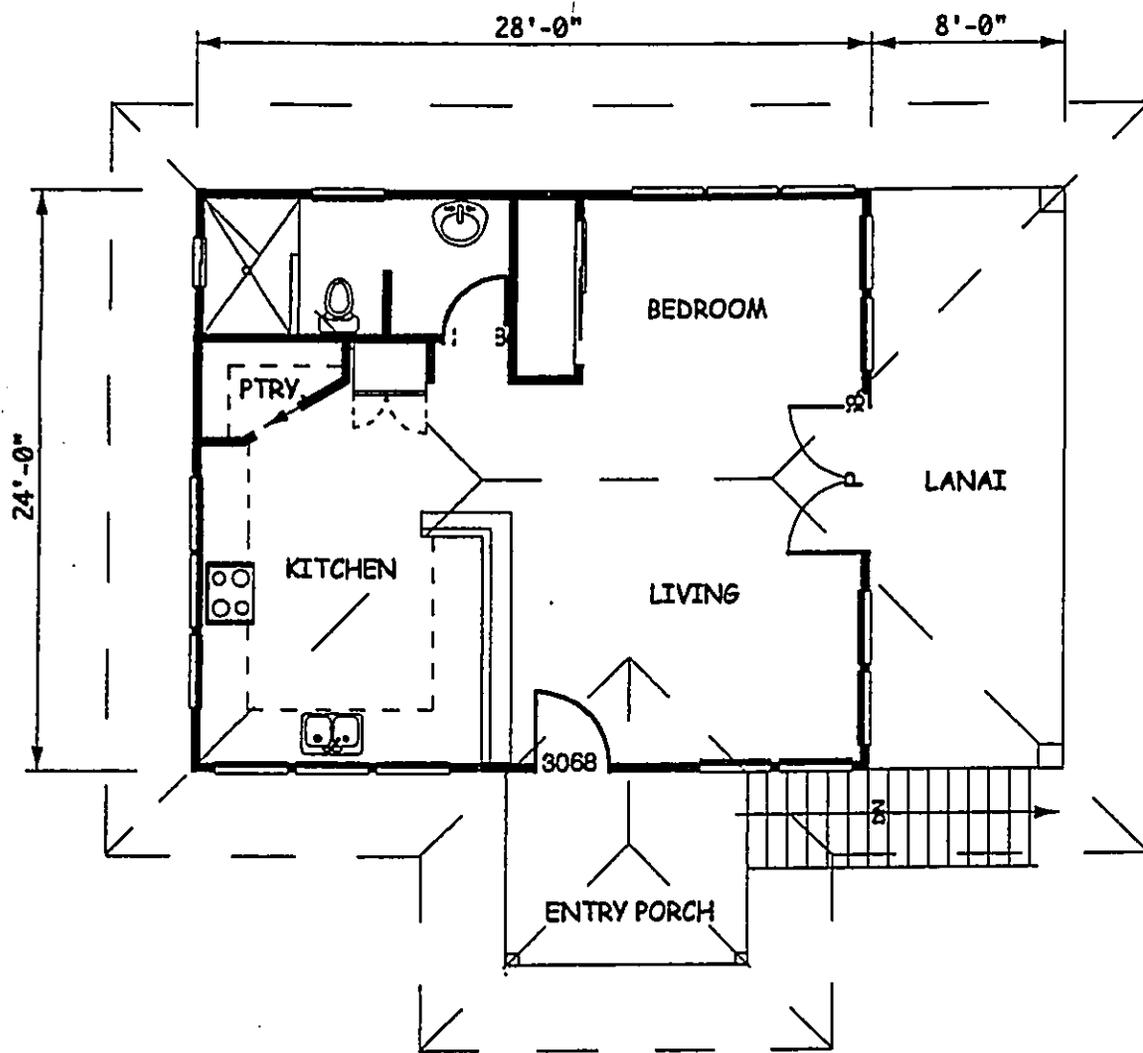
SCALE 1/8" = 1'

PLANS BY T. BUCKNER

DATE 8/10/02



LOWER FLOOR



UPPER FLOOR

AREA	SQ. FT.
LIVING	672
LANAI & ENTRY	272
CARPORT	576
UNFINISHED STORAGE	288

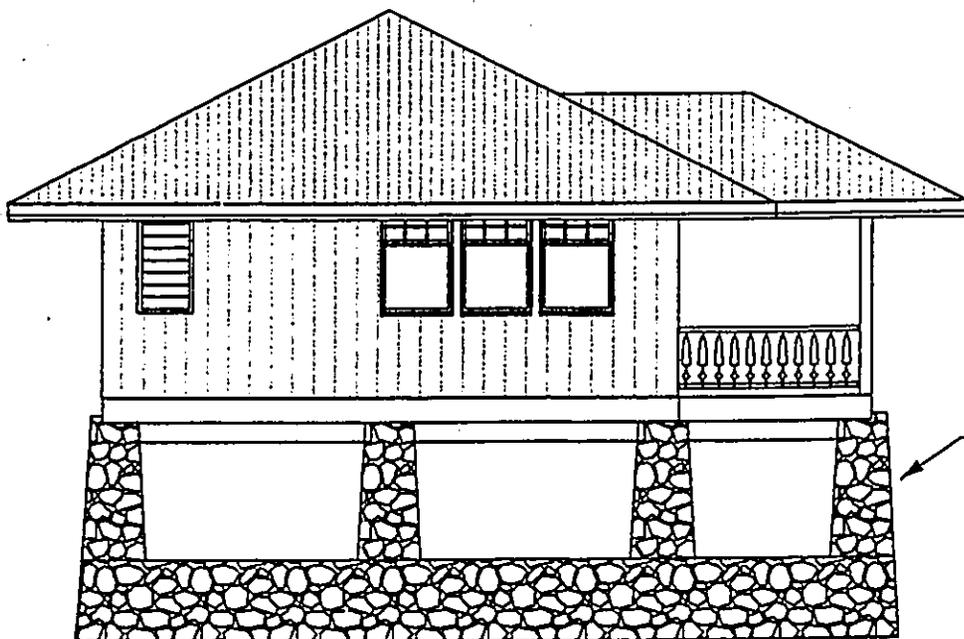
FIGURE 4E SITE PLAN

FLOOR PLAN	SCALE 1/8"=1'
	PLANS BY T. BUCKNER
	DATE 6/18/02

COTTAGE TWO

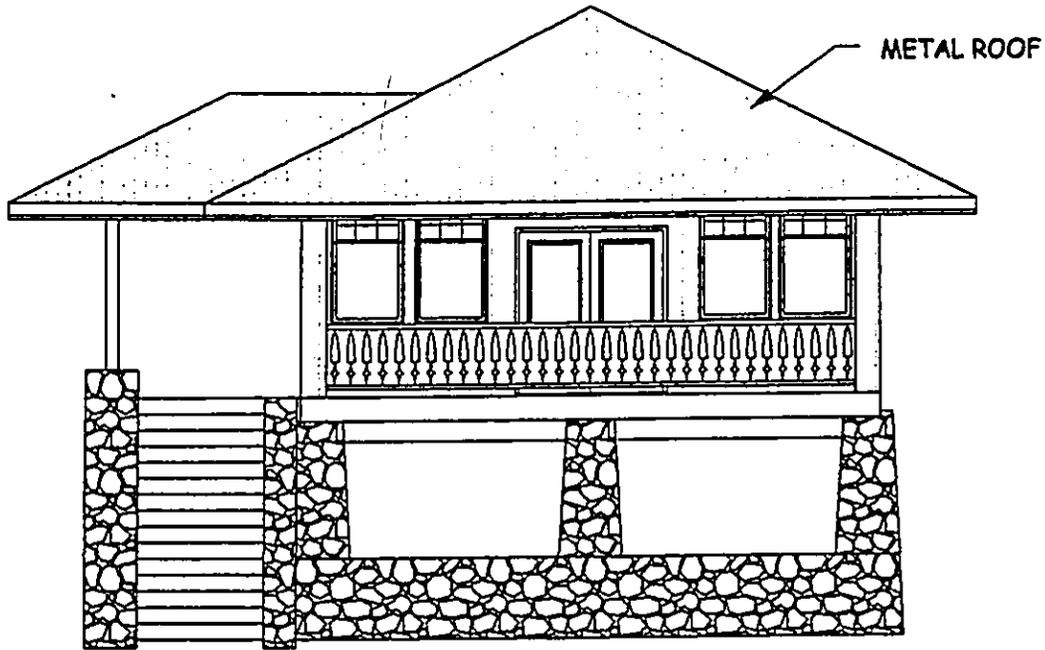


EAST

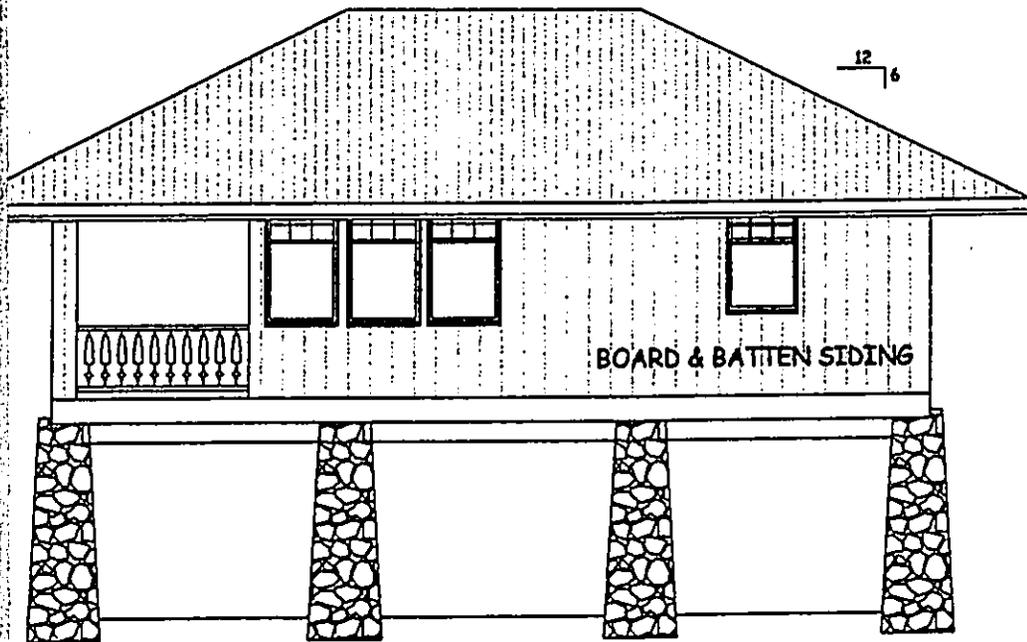


CMU COLUMNS  
WRAPPED W/ STONE

SOUTH



NORTH



WEST

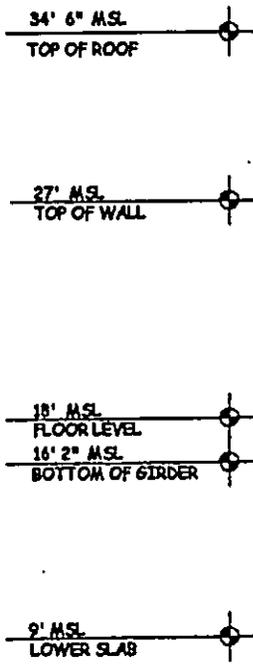


FIGURE 4F SITE PLAN

SCALE 1/8" = 1'  
 PLANS BY T. BUCKNER  
 DATE 6/18/02

COTTAGE TWO

ELEVATIONS



FIGURE 6

Project Site Indicated by Arrows

VIEW TO KE`EI FROM VIEWPOINTS

▼ Upper Napo`opo`o Road



▼ Lower Napo`opo`o Road

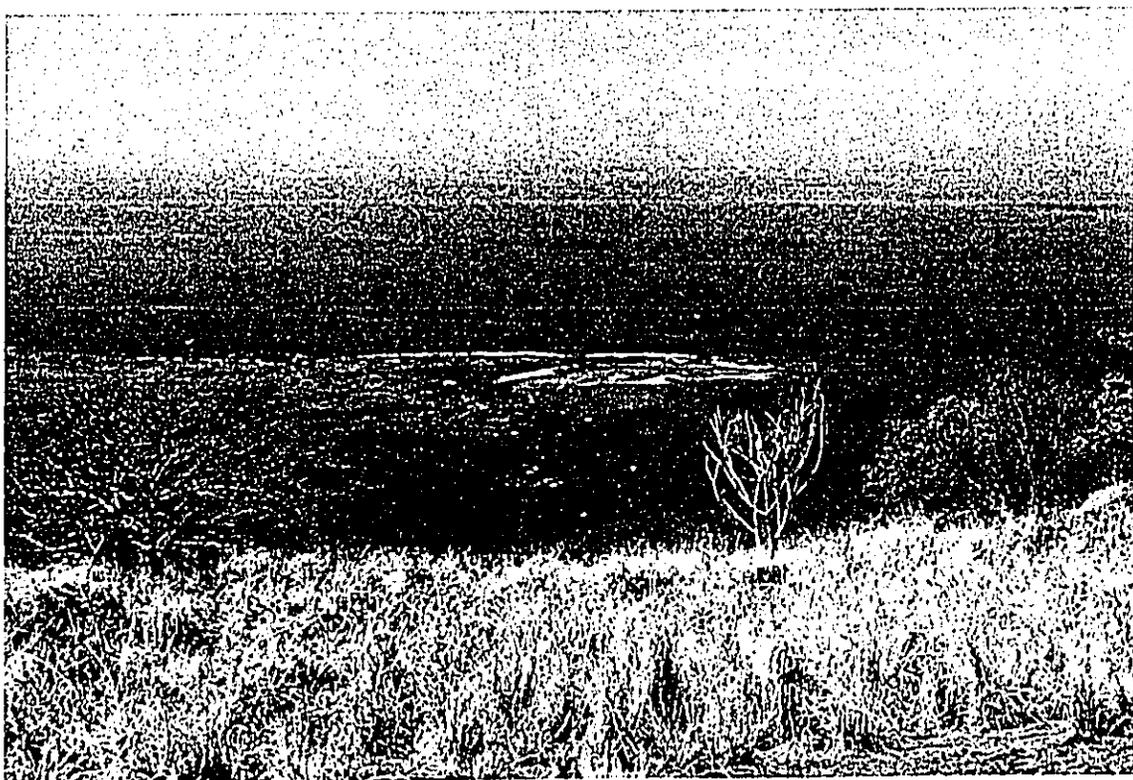
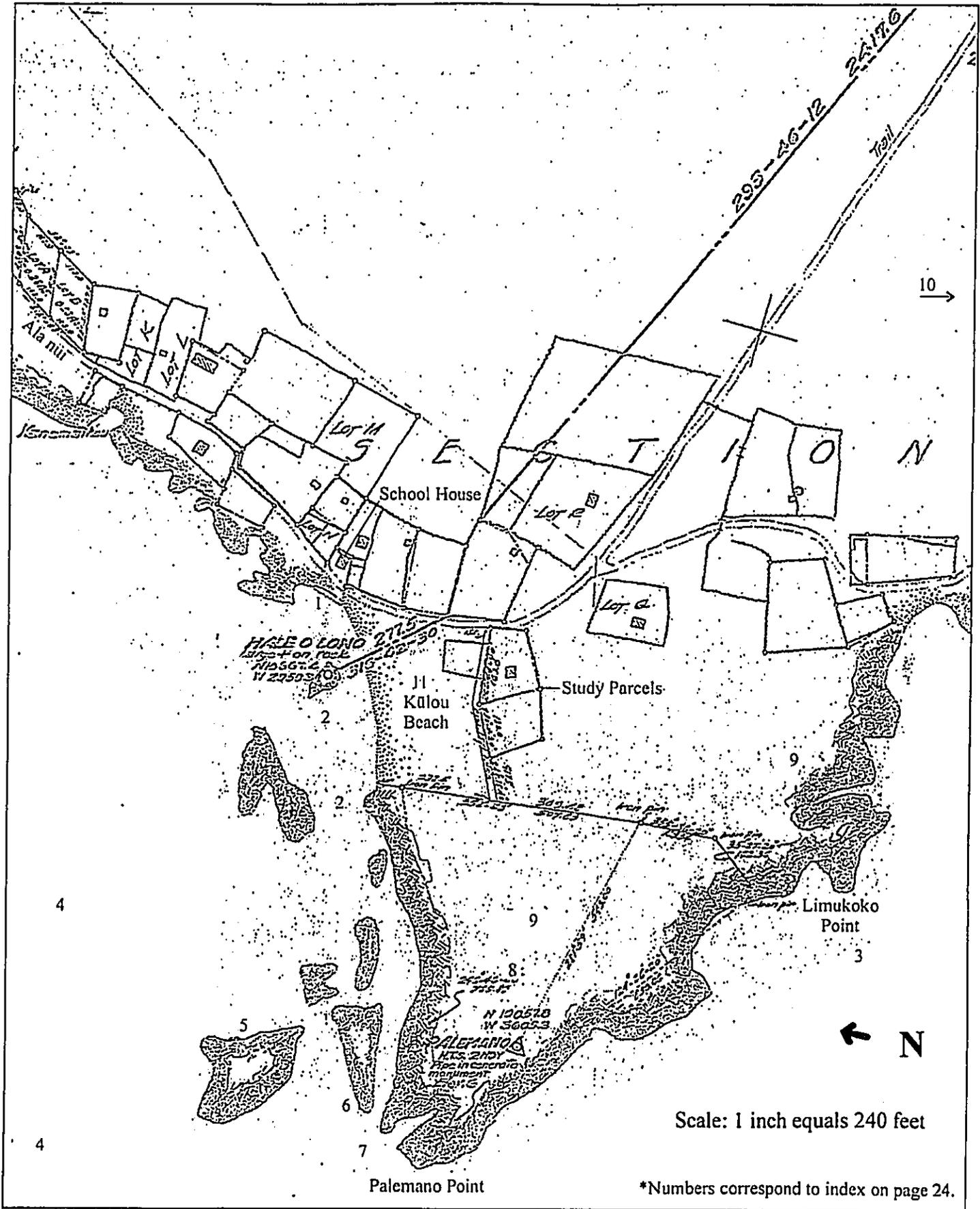


FIGURE 7

TRADITIONAL CULTURAL PROPERTIES



Portion of annotated interview map showing study parcels (from Maly and Maly 2002).

DOCUMENT CAPTURED AS RECEIVED

**APPENDIX 3**

**ARCHAEOLOGICAL INVENTORY SURVEY**

Archaeological Inventory Survey  
of Two Parcels at Ke'ei Beach

TMK:3-8-3-06:5,6

Ke'ei 2nd Ahupua'a  
South Kona District  
Island of Hawai'i



PREPARED BY:

Robert B. Rechtman, Ph.D.  
and  
Matthew R. Clark, B.A.

PREPARED FOR:

Desmond Twigg-Smith  
c/o Greg Mooers  
P.O. Box 1101  
Kamuela, HI 96743

October 2002

---

**RECHTMAN CONSULTING**

HC 1 Box 4149 • Kea'au, Hawai'i 96749  
phone: (808) 966-7636 • FAX (800) 406-2665  
e-mail: rechtmanconsult@aol.com

Archaeological Inventory Survey  
of Two Parcels at Ke'ei Beach  
TMK:3-8-3-06:5,6

Ke'ei 2nd Ahupua'a  
South Kona District  
Island of Hawai'i

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## INTRODUCTION

At the request of Mr. Greg Mooers of Mooers Enterprises, LLC, on behalf of his client Mr. Desmond Twigg-Smith, Rechtman Consulting, LLC conducted an archaeological inventory survey on two parcels (TMK 3-8-3-06:5,6) located near Palemano Point, Ke'ei 2<sup>nd</sup> Ahupua'a, South Kona District, Island of Hawai'i (Figure 1). The objective of the survey was to record the locations of all archaeological sites and features that might be present within the study area and to provide preliminary significance evaluations for any recorded sites. This report is intended to accompany an Environmental Assessment being prepared for the residential development of the two parcels pursuant to Chapter 343, HRS. The current project was undertaken in compliance with the historic preservation review process requirements of DLNR-SHPD as specified in *draft* Hawai'i Administrative Rules 13§13-284 (dated 10/15/98).

This report details the current project objectives and scope of work, field methods and procedures, and survey findings. A brief archaeological and historical background is provided, which forms the basis for a set of project expectations. Lastly, recommendations addressing future preservation concerns are offered.

### Scope of Work

Given the nature of known archaeological resources in the general vicinity of the current project area, the following tasks were determined adequate to constitute an appropriate scope of work in accordance with the historic preservation review requirements of DLNR-SHPD.

- (1) Conduct an archival search of the available archaeological and historical literature, historic documents and records, and cartographic sources relevant to the immediate project area;
- (2) Perform an intensive surface survey of the subject parcel, locating and documenting all archaeological sites and features;
- (3) Excavate test units to sample subsurface archaeological deposits, and;
- (4) Analyze the researched and recovered information to prepare a report of the findings that includes significance evaluations and recommendations for any subsequent historic preservation work that may be required.

### Project Area Description

The project area (Figure 2) consists of two adjacent parcels (TMK 3-8-3-06:5 and 6) comprising approximately 0.6-acres in Ke'ei 2<sup>nd</sup> Ahupua'a, South Kona District, Island of Hawai'i. The parcels are situated within the northwest corner of the Kealakekua Bay Historic District (HRHP 10-47-7000) (see Figure 1), which is listed in both the National Register of Historic Places (NRHP) and the Hawai'i Register of Historic Places (HRHP). The project area also falls within the coastal zone of the Kona Field System (SIHP Site 4150), a complex of dryland agricultural and habitation features covering minimally 60 square miles between Kailua (to the north) and Ho'okena (to the south). The Kona Field System has also been determined eligible for listing in the National Register of Historic Places.

The two parcels, located just back from Ke'ei beach, were granted as Land Commission Awards (LCAw.) to separate native claimants during the *Māhele*; the western parcel (TMK: 3-8-3-06:5), LCAw. 6940, went to Kekuhaupio and the eastern parcel (TMK: 3-8-3-06:6), LCAw. 9652 C, went to Makaiahai (Appendix A). An award to L. Konia (LCAw. 5524:5), encompassing all of Ke'ei 2<sup>nd</sup> Ahupua'a, surrounds the entire study area. In addition to this, several small Land Commission Awards are located to the north and south of the current project area (see Figure 2).





The parcels are bounded on all sides by core-filled stonewalls. A dirt access road runs along the eastern edge of the property and sandy Ke'ei Beach fronts the northern edge. A functioning wooden outhouse is located in the southeast corner of the western parcel. Soils within the study area consist of shallow pockets of sand and decomposing organic material overlying a roughly 3,000-year old Mauna Loa *pāhoehoe* flow (Wolfe and Morris 1996). Within the project area, elevation ranges from 5-15 feet (2-5 meters) above sea level and rainfall ranges from 20-50 inches per year. Ke'ei, like much of South Kona, is protected from the prevailing trade winds by Mauna Loa and, as a result, rainfall is heavier in the summer months with common late afternoon or early evening showers (McEldowney 1979).

Portions of both parcels have been altered by mechanical land clearing activities. As a result of this past land use, vegetation has been substantially thinned allowing for fair to excellent ground visibility throughout most of the project area. Plant species growing within the current study area include various non-native grasses and vines, coconut palms (*Cocos nucifera*), 'opiuma (*Pithecellobium dulce*), tamarind (*Tamarindus indica*), and *pānini o ka punahou* (*Hylocereus undatus*) (Figure 3).



Figure 3. Project area view to west.

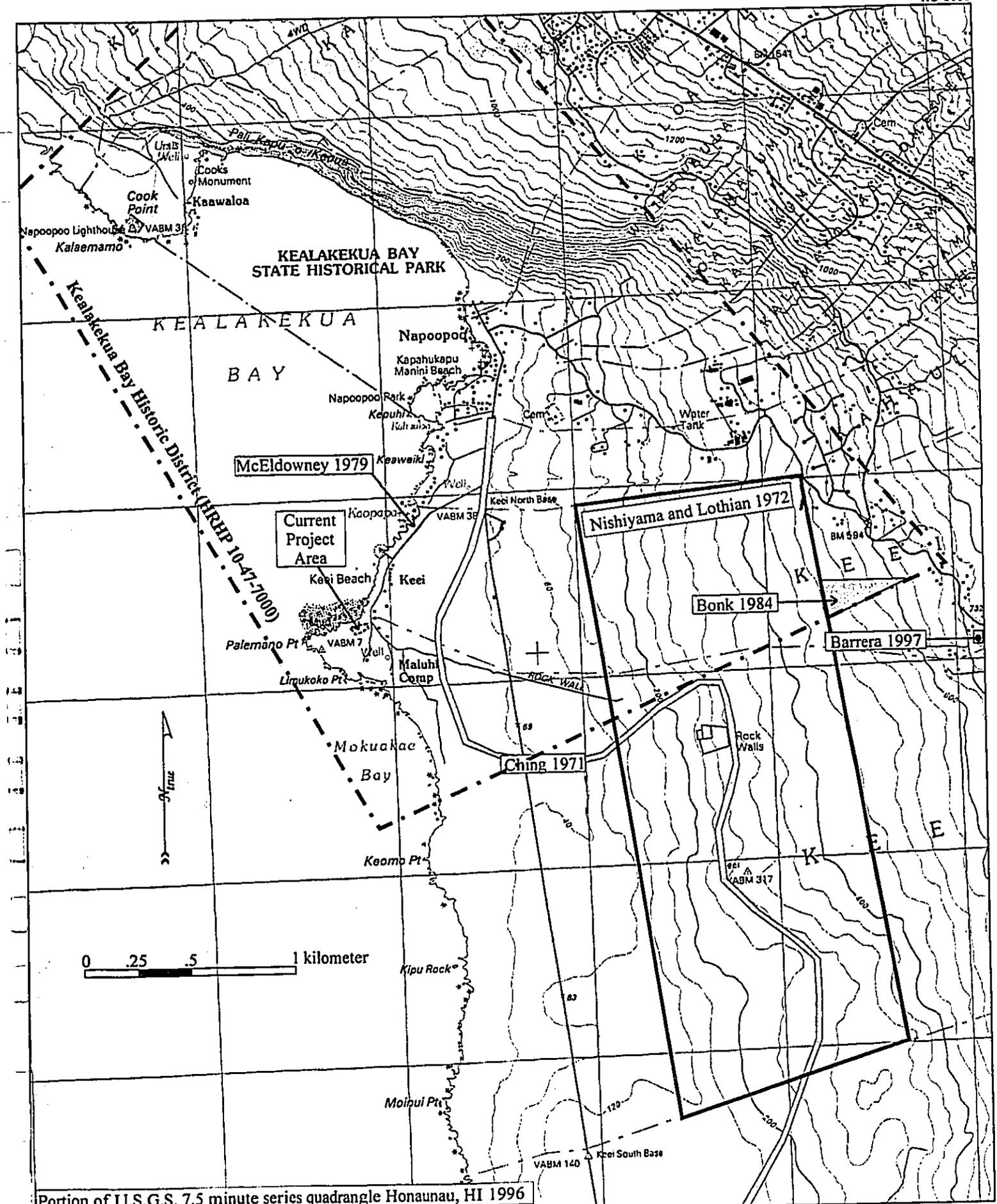
## BACKGROUND

To generate a set of expectations regarding the nature of archaeological resources that might be encountered on the study parcels, and to establish an environment within which to assess the significance of any such resources, previous archaeological studies relative to the project area and a general historical context for broader Kealakekua Bay region are presented.

### Previous Archaeological Studies

Several archaeological studies have been conducted in the general vicinity of Ke'ei, but none included the current study parcels. Brief descriptions of the previous studies with summaries of their findings are presented below. The locations of the study areas are shown on Figure 4.

Archaeological studies in the Ke'ei region began with John Reinecke's 1930 survey of coastal sites in South Kona conducted for the Bishop Museum. Reinecke identified two archaeological sites in the vicinity of the current project area; "Site 32," consisting of two platforms, and "Site 33," a complex, divided by an *ahupua'a* boundary wall, containing a *pū'o'a* and a lava tube shelter on the Ke'ei 1<sup>st</sup> side, and a platform, animal pens (enclosures), wall fragments, and several *pū'o'a* located on the Kahauloa 2<sup>nd</sup> side.



Portion of U.S.G.S. 7.5 minute series quadrangle Honaunau, HI 1996

Figure 4. Previous archaeological studies in the vicinity of the current project area.

To the south of the current project area, Archaeological Research Center Hawaii (Ching 1971) conducted a surface survey of the Nāpo'opo'o-Hōnaunau Road Alignment (Alternate 2) for the Department of Public Works. The survey corridor ranged from coastal elevations to approximately 1-mile inland and extended for a total distance of 4.7 miles. The survey efforts identified a total of 144 archaeological features which were placed into seven major categories: habitation structures, enclosures, agricultural features, burials, trails, *ahu*, and miscellaneous (27 independent walls and one cistern). Because of the linear nature of this study (coursing across multiple *ahupua'a* at varying elevations), it offered a unique opportunity to observe settlement strategies used for this particular environment along the southern Kona coastline.

South, but more *mauka*, Anthropological Research International (Nishiyama and Lothian 1972) conducted an archaeological investigation of the proposed County Golf Course in Ke'ei for the Department of Parks and Recreation, County of Hawai'i. Survey of the northern one-third of the project area identified 12 sites that consisted of enclosures, platforms, a storage vault, and rock mounds. Additional sites recorded in the southern two-thirds of the project area include rock-filled depression areas, rock-filled terraced areas, rock mounds, habitation tubes, a core-filled wall complex, platforms, and enclosures. Dense vegetation reduced the survey effectiveness in the southern portion of the project area. Sites identified were grouped into one of three categories; (I) Sites that warrant preservation, (II) Sites which need not be preserved, and (III) Sites that require more scientific study before determining a category. Preservation was recommended for as many sites as possible, but the golf course development plans were never carried out.

A statewide inventory conducted by the Hawai'i State Office of Historic Preservation inspected and evaluated multiple sites in the general vicinity of Ke'ei. This effort, conducted between 1971 and 1975, contributed to defining the Kealakekua Bay Archaeological and Historical District and provided information on previously recorded sites in Ke'ei 2<sup>nd</sup>, south of the current project area, as well as a summary of sites at Hōnaunau (McEldowney 1979).

The Bishop Museum (McEldowney 1979) conducted a reconnaissance survey of roughly 9 acres for a proposed subdivision development in Kahaulao 2<sup>nd</sup> and Ke'ei 1<sup>st</sup>, along the coast to the north of the current study area. During the survey of these parcels, dense vegetation and existing residences on the survey property reduced the ability of the surveyors to identify and record existing features and accurately delimit site boundaries. The study was divided into four sub-areas depending on the vegetation and survey method used. Sites identified in Sub-area 1 include a core-filled boundary wall dividing Kahaulao 2<sup>nd</sup> and Ke'ei 1<sup>st</sup> Ahupua'a, several steppingstone trails extending through the surrounding 'a'a, and a large habitation complex including platforms, possible burial platforms, a C-shape enclosure, a stone alignment, terraces, a wall and cupboard feature, and a steppingstone trail segment. The sites observed in Sub-area 2 were mostly obscured by dense vegetation and included a wall segment, a possible terrace, two terraced platforms with scattered marine shell and 'ili 'ili, and a rock mound. Sites located in the third sub-area include core-filled walls and collapsed wall segments interspersed with rock mound features that were interpreted as a coastal agricultural complex, and one rectangular enclosure. No sites were located in the fourth sub-area. Recommendations for sites in the project area include comprehensive site recordation, test excavations, and a thorough evaluation for the sites in the Kealakekua-Hōnaunau area.

William Bonk (1984) conducted an archaeological survey of 10 acres (within portions of TMK:8-3-07:53, 54, and 55) located in Ke'ei 1<sup>st</sup> Ahupua'a at approximately 600 feet above sea level *makai* of Middle Ke'ei Road. A total of five features were recorded during the survey including one core-filled boundary wall, two possible burial features ("flat-topped cairns"), a low lying wall, and a rock mound interpreted as being either a boundary marker (*ahu*) or an agricultural clearing mound. Both the boundary wall and the two possible burial features were recommended for preservation.

William Barrera (1997) conducted an archaeological inventory survey of a 1.08-acre parcel (TMK:8-3-07: por. 3) in Ke'ei 2<sup>nd</sup> Ahupua'a. The parcel is situated approximately two miles inland at the 800-foot elevation *makai* of Middle Ke'ei Road. One site (SIHP Site 21275) was recorded, which consists of 15 features: eight stone mounds, four free-standing walls, two irregular shaped linear mounds, and one modified bedrock outcrop. Barrera surmises the features were associated with contemporary agricultural practices based upon their condition and the surrounding vegetation, which includes coffee and avocado. Three features (two linear mounds and one modified outcrop) were interpreted as possible remnants of the larger Kona Field System (SIHP 6601). The site was considered significant under Criterion D, but no further work was recommended.

## Cultural Contexts

In an effort to provide a comprehensive and holistic understanding of the current study area, detailed archival and historical information pertaining to Ke'ei Ahupua'a as well as the broader South Kona region and Hawai'i Island as a whole is presented below.

### An Overview of Hawaiian Settlement

Archaeologists and historians describe the inhabiting of these islands in the context of settlement that resulted from voyages taken across the open ocean. For many years, researchers have proposed that early Polynesian settlement voyages between Kahiki (the ancestral homelands of the Hawaiian gods and people) and Hawai'i were underway by A.D. 300, with long distance voyages occurring fairly regularly through at least the thirteenth century. It has been generally reported that the sources of the early Hawaiian population—the Hawaiian Kahiki—were the Marquesas and Society Islands (Cordy 2000; Emory in Tatar 1982:16-18).

For generations following initial settlement, communities were clustered along the watered, windward (*ko'olau*) shores of the Hawaiian Islands. Along the *ko'olau* shores, streams flowed and rainfall was abundant, and agricultural production became established. The *ko'olau* region also offered sheltered bays from which deep sea fisheries could be easily accessed, and near shore fisheries, enriched by nutrients carried in the fresh water, could be maintained in fishponds and coastal waters. It was around these bays that clusters of houses where families lived could be found (McEldowney 1979:15). In these early times, Hawai'i's inhabitants were primarily engaged in subsistence level agriculture and fishing (Handy et al. 1972:287).

Over a period of several centuries, areas with the richest natural resources became populated and perhaps crowded, and by about A.D. 900 to 1100, the population began expanding to the *kona* (leeward side) and more remote regions of the island (Cordy 2000:130). In Kona, communities were initially established along sheltered bays with access to fresh water and rich marine resources. The primary "chiefly" centers were established at several locations—the Kailua (Kaiakeakua) vicinity, Kahalu'u-Keauhou, Ka'awaloa-Kealakekua, and Hōnaunau. The communities shared extended familial relations, and there was an occupational focus on the collection of marine resources. By the fourteenth century, inland elevations to around the 3,000-foot level were being turned into a complex and rich system of dryland agricultural fields (today referred to as the Kona Field System). By the fifteenth century, residency in the uplands was becoming permanent, and there was an increasing separation of the chiefly class from the common people. In the sixteenth century the population stabilized and the *ahupua'a* land management system was established as a socioeconomic unit (see Ellis 1963; Handy et al. 1972; Kamakau 1961; Kelly 1983; and Tomonari-Tuggle 1985).

In Kona, where there were no regularly flowing streams to the coast, access to potable water (*wai*), was of great importance and played a role in determining the areas of settlement. The waters of Kona were found in springs and caves (found from shore to the mountain lands), or procured from rain catchments and dewfall. Traditional and historic narratives abound with descriptions and names of water sources, and also record that the forests were more extensive and extended much further seaward than they do today. These forests not only attracted rains from the clouds and provided shelter for cultivated crops, but also in dry times drew the *kēhau* and *kēwai* (mists and dew) from the upper mountain slopes to the low lands.

In the 1920s-1930s, Handy et al. (1972) conducted extensive research and field interviews with elder native Hawaiians. In lands of North and South Kona, they recorded native traditions describing agricultural practices and rituals associated with rains and water collection. Primary in these rituals and practices was the lore of Lono—a god of agriculture, fertility, and the rituals for inducing rainfall. Handy et al., observed:

The sweet potato and gourd were suitable for cultivation in the drier areas of the islands. The cult of Lono was important in those areas, particularly in Kona on Hawai'i . . . there were temples dedicated to Lono. The sweet potato was particularly the food of the common people. The festival in honor of Lono, preceding and during the rainy season, was essentially a festival for the whole people, in contrast to the war rite in honor of Ku which was a ritual identified with Ku as god of battle. (Handy et al. 1972:14)

Handy et al. (1972) noted that the worship of Lono was centered in Kona. Indeed, it was while Lono was dwelling at Keauhou, that he is said to have introduced taro, sweet potatoes, yams, sugarcane, bananas, and 'awa to Hawaiian farmers (Handy et al. 1972:14). The rituals of Lono "The father of waters" and the annual *Makahiki* festival, which honored Lono and which began before the coming of the *kona* (southerly) storms and lasted through the rainy season (the summer months), were of great importance to the native residents of this region (Handy et al. 1972: 523). The significance of rituals and ceremonial observances in cultivation and indeed in all aspects of life was of great importance to the well being of the ancient Hawaiians, and cannot be overemphasized, or overlooked when viewing traditional sites of the cultural landscape.

#### Hawaiian Land Use and Resource Management Practices

Over the generations, the ancient Hawaiians developed a sophisticated system of land and resources management. By the time 'Umi-a-Li'loa rose to rule the island of Hawai'i in ca. 1525, the island (*moku-puni*) was divided into six districts or *moku-o-loko* (cf. Fornander 1973-Vol. II:100-102). On Hawai'i, the district of Kona is one of six major *moku-o-loko* within the island. The district of Kona itself, extends from the shore across the entire volcanic mountain of Hualālai, and continues to the summit of Mauna Loa, where Kona is joined by the districts of Ka'ū, Hilo, and Hāmākua. One traditional reference to the northern and southern-most coastal boundaries of Kona tells us of the district's extent:

*Mai Ke-ahu-a-Lono i ke 'ā o Kani-kū, a hō'ea i ka 'ūlei kolo o Manukā i Kaulanamauna e pili aku i Ka 'ū!*—From Keahualono [the Kona-Kohala boundary] on the rocky flats of Kanikū, to Kaulanamauna next to the crawling (tangled growth of) 'ūlei bushes at Manukā, where Kona clings to Ka'ū! (*Ka'ao Ho'oniua Pu'uwai no Ka-Miki in Ka Hōkū o Hawai'i*, September 13, 1917; Translated by K. Maly)

Kona, like other large districts on Hawai'i, was subdivided into '*okana* or *kalana* (regions of land smaller than the *moku-o-loko*, yet comprising a number of smaller units of land). The lands of Ke'ei situated in an area now known as Kona Hema (South Kona), are part of an ancient subregion generally known as "*Ka-pali-lua*" (The-two-cliffs; describing the topographic features of the *kula* or lands of the mountain slope). The *moku-o-loko* and '*okana* or *kalana* were further divided into manageable units of land, and were tended to by the *maka'āinana* (people of the land) (cf. Malo 1951:63-67). Of all the land divisions, perhaps the most significant management unit was the *ahupua'a* (Figure 5). *Ahupua'a* are subdivisions of land that were usually marked by an altar with an image or representation of a pig placed upon it (thus the name *ahu-pua'a* or pig altar). In their configuration, the *ahupua'a* may be compared to wedge-shaped pieces of land that radiate out from the center of the island, extending to the ocean fisheries fronting the land unit. Their boundaries are generally defined by topography and geological features such as *pu'u* (hills), ridges, gullies, valleys, craters, or areas of a particular vegetation growth.

The *ahupua'a* were also divided into smaller individual parcels of land (such as the '*ili*, *kō'ele*, *māla*, and *kīhāpai*, etc.), generally oriented in a *mauka-makai* direction, and often marked by stone alignments (*kuaiwi*). In these smaller land parcels the native tenants tended fields and cultivated crops necessary to sustain their families, and the chiefly communities with which they were associated. As long as sufficient tribute was offered and *kapu* (restrictions) were observed, the common people, who lived in a given *ahupua'a* had access to most of the resources from mountain slopes to the ocean. These access rights were almost uniformly tied to residency on a particular land, and earned as a result of taking responsibility for stewardship of the natural environment, and supplying the needs of the *ali'i* (see Kamakau 1961:372-377 and Malo 1951:63-67).

Entire *ahupua'a*, or portions of the land were generally under the jurisdiction of appointed *konohiki* or lesser chief-landlords, who answered to an *ali'i-'ai-ahupua'a* (chief who controlled the *ahupua'a* resources). The *ali'i-'ai-ahupua'a* in turn answered to an *ali'i 'ai moku* (chief who claimed the abundance of the entire district). Thus, *ahupua'a* resources supported not only the *maka'āinana* and '*ohana* who lived on the land, but also contributed to the support of the royal community of regional and/or island kingdoms. This form of district subdividing was integral to Hawaiian life and was the product of strictly adhered to resources management planning. In this system, the land provided fruits and vegetables and some meat in the diet, and the ocean provided a wealth of protein resources. Also, in communities with long-term royal residents (like Ke'ei, Ka'awaloa, and Kealakekua), divisions of labor (with specialists in various occupations on land and in procurement of marine resources) came to be strictly adhered to. It is in the general cultural setting outlined above, that we find the *ahupua'a* of Ke'ei at the time of European contact.

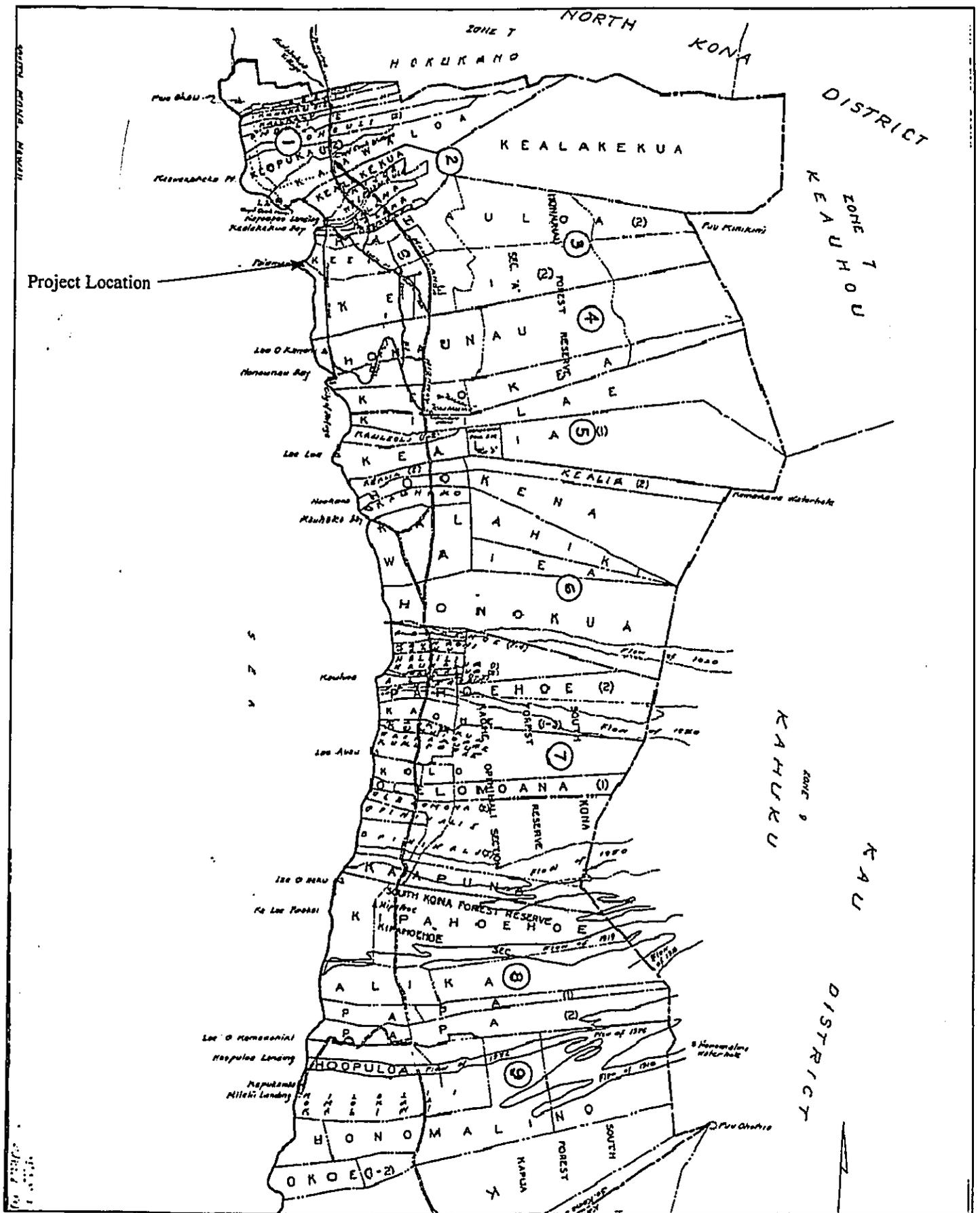


Figure 5. Portion of Tax Map Key Third Division Zone 8 showing major land divisions of South Kona.

### The Lands of Ke'ei

The Lands of Ke'ei consists of two *ahupua'a*, Ke'ei Iki (1<sup>st</sup>) and Ke'ei Nui (2<sup>nd</sup>) (see Figure 5). Ke'ei 1<sup>st</sup>, located north of the current project area, comprises approximately 1,106 acres extending from the shore to 2,750 feet elevation, where Kahauloa Ahupua'a cuts it off. Ke'ei 2<sup>nd</sup>, which includes the current project area, comprises approximately 5,478 acres extending from the shore to 5,500 feet elevation. Traditionally, both *ahupua'a* also included protected fisheries extending out into the sea (Maly and Maly 2002).

Different areas of the *ahupua'a* were utilized by the people living on the land for diverse types of resource procurement.

The ocean resources fronting Ke'ei were integral to life upon the land. On the *kula kahakai* or shoreward flats, were found potable water sources (caves, wells and springs), several village clusters and many residents, groves of coconut trees, and low land agricultural fields. The *kula uka* or upland plains, extending up to an area above the *mauka alalao*, Keala'ehu (near present day Māmalahoa Highway) was highly valued for its fertile lands which were extensively cultivated. The lands extending from around the 2,000 to 5,000 foot elevation were cultivated in area, and a significant resource of woods, fibers, birds, and other materials of value and importance to native life. The traditional accounts, claims for *kuleana* to the Land Commission (ca. 1848-1855), Boundary Commission Testemonies (ca. 1873-1878), survey records, and oral historical descriptions of the landscape of Ke'ei, describe a wide range of knowledge of, and uses of resources the *ahupua'a* of Ke'ei. (Maly and Maly 2002:6)

The current project area is located within Ke'ei 2<sup>nd</sup> near Palemanō Point along the southern shore of Kealakekua Bay. This area has played a well-documented and significant role in the history of the Hawaiian Islands. Kealakekua Bay is the former home of some of Hawai'i's most powerful *Ali'i* and feared warriors. One such warrior, named Kekūhaupi'o, was born at Ke'ei of royal blood (his father was Kohapi'olani, a Ke'ei chief, and his mother was from Napo'opo'o). An article published in *Ka Hōkū o Hawai'i* on September 10, 1908 (translated by K. Maly) tells of Kekūhaupi'o's loyalty to Kamehameha and his role at the battle of Moku'ōhai, just south of Ke'ei, against the chief's cousin, Kiwalao. Although a lower chief, Kekūhaupi'o fought so well in this battle that he came to be known as "*Ko Kamehameha koa a waele makaihe*" (Kamehameha's warrior who weeds through men with a spear) and he became the most cherished companion of Kamehameha, outside of his own uncles. Kekūhaupi'o continued to live at Ke'ei and serve Kamehameha for the remainder of his life, which he lost not in battle, but at the sport of spear fighting. A Kekūhaupi'o descendant of the same name received LCAw. 6940 at Ke'ei, the eastern parcel of the current study area (Maly and Maly 2002).

### South Kona and Ke'ei After European Contact

Kealakekua Bay (more precisely the flats of Ka'awaloa north of the current project area) is perhaps best known as the place where Captain Cook first made landfall on the island and then ultimately met his demise. The arrival of Europeans on Hawai'i Island began a long series of events that would eventually, but not immediately, alter the Hawaiian way of life. As Major writes, "From the moment Cook and his crew arrived, relations between Native Hawaiians and outsiders were heavily influenced by the sailors' need for supplies (Major 2001)." Because of Hawai'i's isolation in the mid-Pacific it made an excellent way point for Europeans and Americans involved in the East Indian and northwest American trade networks (Sahlins 1992). Kealakekua Bay, with its excellent anchorage and abundant supply of food soon became the most frequented harbor by visitors to the island. Thus began the written history of Hawai'i.

Captain James Cook and members of his crew provided the first European accounts of the coastal region in 1779. The journals and diaries of the expedition noted the political and religious importance of the area. Descriptions provided by John Ledyard and Lieutenant James King of the expedition described the coastal area to approximately 3 miles inland as being cultivated primarily in sweet potatoes (*'uala*) (Figure 6). These were grown in small enclosures separated by low walls (Ching 1971). Also grown in this coastal zone were sugar cane, *wauke*, and banana trees. Breadfruit trees (*ulu*) were cultivated in the area situated inland of this coastal habitation and agrarian zone. Archibald Menzies, who was a member of Captain George Vancouver's 1792-1794 expeditions, provided descriptions of the coastal and upland areas and observed that the upper elevations were cultivated primarily in *taro* and *ti*.

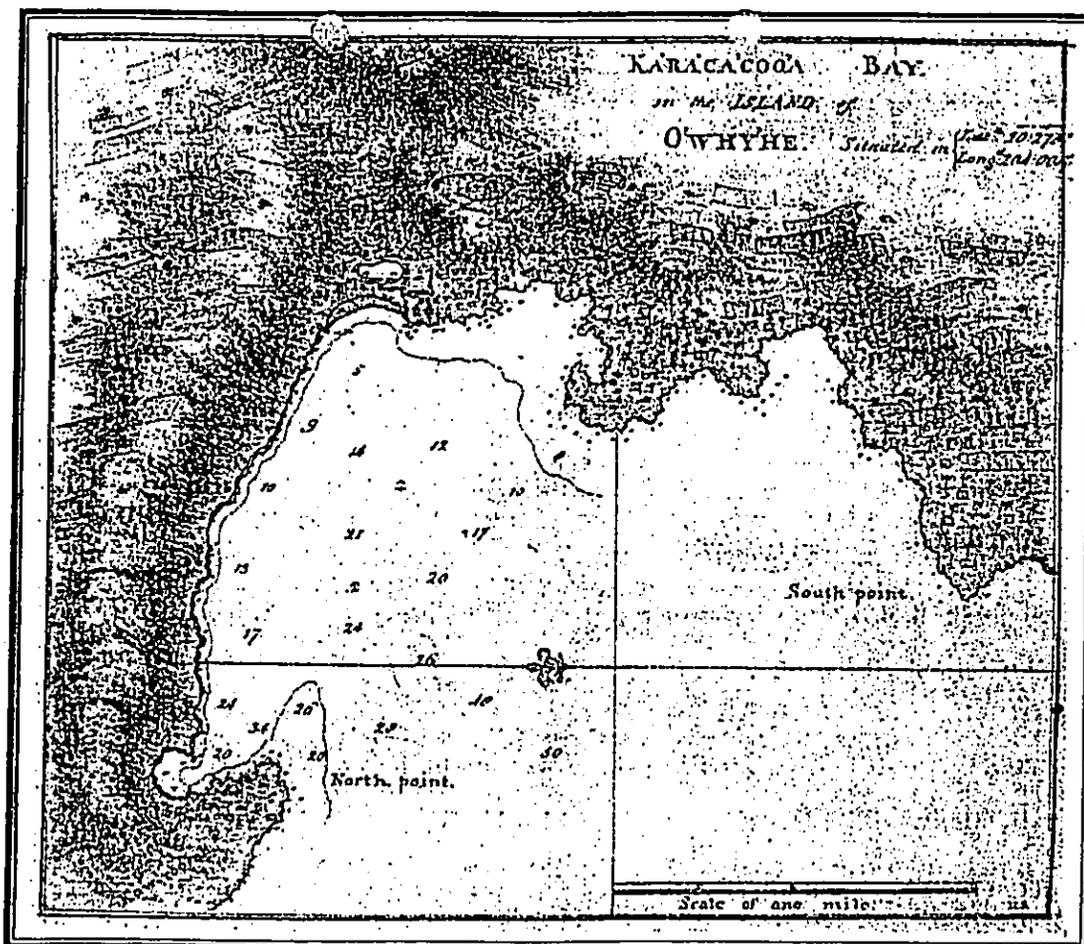


Figure 6. Map of Kealakekua Vicinity Palemanō Point to Keawekaha (depicting villages and agricultural fields extending to the uplands above Kealakekua Pali); Henry Roberts Survey (1779) (Fitzpatrick 1986).

Some of the first Europeans to reside permanently on the island, besides sailors who jumped ship, were Christian missionaries. In 1823, William Ellis visited this coastal area during his tour of the Island of Hawai'i. After leaving Ke'ei village for Hōnauanu, he described passing the location of the decisive battle of Mokuohai where Kamehameha defeated his cousin Kiwalao for control of half of the island of Hawai'i. His description of the battlefield follows:

Since leaving Ke'ei, we had seen several heaps of stones raised over the bones of the slain, but now became more numerous. As we passed along, our guide pointed out the place where Tairi, Tamehameha's [Kamehameha's] war-god, stood, surrounded by the priests, and, a little further on, he showed us the place where Tamehameha himself, his sisters, and friends, fought during the early part of the eighth day. A few minutes after we left it, we reached a large heap of stones overgrown with moss, which marks the spot where Kauikeouli [Kiwalao] was slain. (Ellis 1963:95)

In 1824, Reverend James Ely established the South Kona Mission Station on the Flats of Ka'aawaloa (Maly and Maly 2002). The Mission set up not only churches in South Kona, but schools as well (for formal education and the spread of the Christian word). In the Missionaries' reports, much information pertaining to daily life in South Kona, church happenings, and local populations can be found (see Maly and Maly 2002). One missionary letter, written by C. Forbes on November 8, 1835, states, "I suppose there are something like 2,000 inhabitants on that [south] side of the bay in the villages of Kealakekua, Napopo-Keii [Napo'opo'o & Ke'ei]." (cited in Maly and Maly 2002:82)

#### Ke'ei and the *Māhele 'Āina*

The best source of documentation pertaining to native Hawaiian residency and land use practices—identifying specific residents, types of land use, crops cultivated, and features on the landscape—is found in the records of the *Māhele 'Āina* (Land Division) which the King entered into with the chiefs and people in 1848. The "Land Division" gave native tenants an opportunity to acquire land (in fee-simple) that they lived on and actively cultivated.

In precontact Hawai'i, all land and natural resources were held in trust by the high chiefs (*ali'i 'ai ahupua'a* or *ali'i 'ai moku*). The use of lands and resources were given to the *hoa'āina* (native tenants), at the prerogative of the *ali'i* and their representatives or land agents (*konohiki*), who were generally lesser chiefs as well. In 1848, the Hawaiian system of land tenure was radically altered by the *Māhele 'Āina*. This change in land tenure was promoted by the missionaries and the growing Western population and business interests in the island kingdom. Generally these individuals were hesitant to enter business deals on leasehold land.

The *Māhele* (division) defined the land interests of Kamehameha III (the King), the high-ranking chiefs, and the *konohiki*. As a result of the *Māhele*, all land in the Kingdom of Hawai'i came to be placed in one of three categories: (1) Crown Lands (for the occupant of the throne); (2) Government Lands; and (3) *Konohiki* Lands (Chinen 1958:vii, Chinen 1961:13).

The "Enabling" or "Kuleana Act" (December 21, 1849) laid out the frame work by which native tenants could apply for, and be granted fee-simple interest in "*kuleana*" lands, and their rights to access and collection of resources necessary to their life upon the land in their given *ahupua'a*. The lands awarded to the *hoa'āina* (native tenants) became known as "*Kuleana* Lands." All of the claims and awards (the Land Commission Awards or LCA) were numbered, and the LCA numbers remain in use today to identify the original owners of lands in Hawai'i.

On January 28, 1848, the land of Ke'ei 2<sup>nd</sup> was awarded to L. Konia, the wife of A. Pākī and the mother of Bernice Pauahi Bishop, as Apana 5 of LCAw 5524 (Royal Patent No. 1663) (see Appendix A). Ke'ei 1<sup>st</sup> was given to the chiefess 'Akahi, a cousin of L. Konia, as part of Land Commission Award (LCAw.) 5368 (Royal Patent No. 7733). The genealogies of both Awardees stem from the Keaweikekāhiali'iokomoku, the same line from which Kamehameha I descended on his paternal side (Maly and Maly 2002).

In addition to the two *ali'i* awardees, 70 native tenant claims for *kuleana* lots in the 2 *ahupua'a* were made, of which 34 were granted (Maly and Maly 2002). "Most of the claimants described several uses of their *kuleana*, these included house lots, and cultivation extending from areas near the shore to the forest zone. Crops identified in the testimonies included — *kalo*, *'uala*, *mai'a*, *'ohe*, *wauke*, *hau*, *lauhala*, *niu*, *kope*, and *'alani*; and one claim was made for a *pa kao* or goat enclosure" (Maly and Maly 2002: 23). The current study parcels were awarded to Makaiahai (LCAw 9652:c) and to Kekūhaupi'o (LCAw 6940), *kuleana* house lots, which both claimants had received from family members by 1819 (see Appendix A). In addition to these awards, both claimants for the parcels identified several *kihapai* of both coffee and taro in separate *mo'o*, distant from the house lots.

The population of Kona declined during the early nineteenth century and Hawaiians maintained marginalized communities outside of the central population centers. These communities were located in the "out-of-the-way" places, like Ka'awaloa Point, while the recently immigrated Asian and *haole* populations lived above the *pali* (Alvarez 1990). In the aftermath of the *Māhele*, economic interests in the region swiftly changed from the traditional Hawaiian land tenure system of subsistence farming and regional trading networks to the more European based cash crops including coffee, tobacco, sugar, and pineapple, and emphasized dairy and cattle ranching. The earliest mention of a wharf at Ka'awaloa Point was in 1853, and its construction insured the regions ability to effectively export these products and maintain a regional presence, as Kailua eventually became the primary political seat on the Big Island.

## CURRENT SURVEY EXPECTATIONS

Given the previous archaeological research conducted near the current project area and within the Kealakekua Bay Historic District combined with other projects along the South Kona coast, the comprehensive historical and cultural background developed for the area (Smith 1991, Cordy 1995, Allen 2001, Rechtman et al. 2002), and the *Māhele* data, the following set of expectations concerning potential findings can be generated. The parcels are recorded as having been in the possession of Hawaiian tenants for residential and agricultural purposes from at least the 1820s well into the 20<sup>th</sup> century. Thus, it is expected that cultural material earlier than the *Māhele*-age would be difficult to locate among the historic and modern cultural debris. It is possible, though unlikely—as the project area contains only shallow soil deposits—that subsurface testing could reveal previously undisturbed cultural deposits. It is further expected that the archaeological landscape of the project area has been modified by modern recreational use of the easily accessed Ke'ei Beach area, and that modern land clearing and landscaping activity in the vicinity has significantly impacted several of the features.

## FIELDWORK

Dennis Dougherty, B.A., Richard Rudolph, B.A., and Michael Rivera, B.A., under the supervision of Robert B. Rechtman, Ph.D., conducted a 100%-coverage pedestrian survey of the project area and limited subsurface testing from November 15-16, 2001.

### Methods

Archaeologists intensively surveyed the entire project area utilizing meandering pedestrian transects. All identified archaeological features were then cleared of vegetation and their locations were recorded on a map of the project area using the property pins as primary reference points. The sites were then recorded in detail. Site documentation included: site area and environmental descriptions, site and feature dimensions, presence and type of cultural material, site condition and level of disturbance, detailed plan maps, and photographs.

Limited subsurface testing, in the form of fifty centimeter to one square meter test units (TUs), was conducted at selected features to examine subsurface archaeological deposits and aid in determining feature type and function. Test units were excavated using natural stratigraphic layers. All excavated soil matrix was passed through ¼-inch mesh screens and all cultural material was collected. Unit level record forms were completed for each level. Excavation of test units terminated upon reaching bedrock. Upon completion, test units were photographed, a profile drawing was prepared, and stratigraphic information was recorded following the U.S. Soil Conservation Service guidelines and the Munsell color notation. The excavated test units were then backfilled and all recovered cultural material was remanded to the laboratory for detailed analysis.

### Results

A total of three archaeological sites were recorded during the current survey: one site number was assigned to the historic boundary walls enclosing both parcels (SIHP Site 23427), and each of the two LCAw residential parcels received an individual site number (SIHP Site 23428 [eastern parcel] and SIHP Site 23429 [western parcel]). The locations of the sites are shown on Figure 7, and site descriptions are presented below.

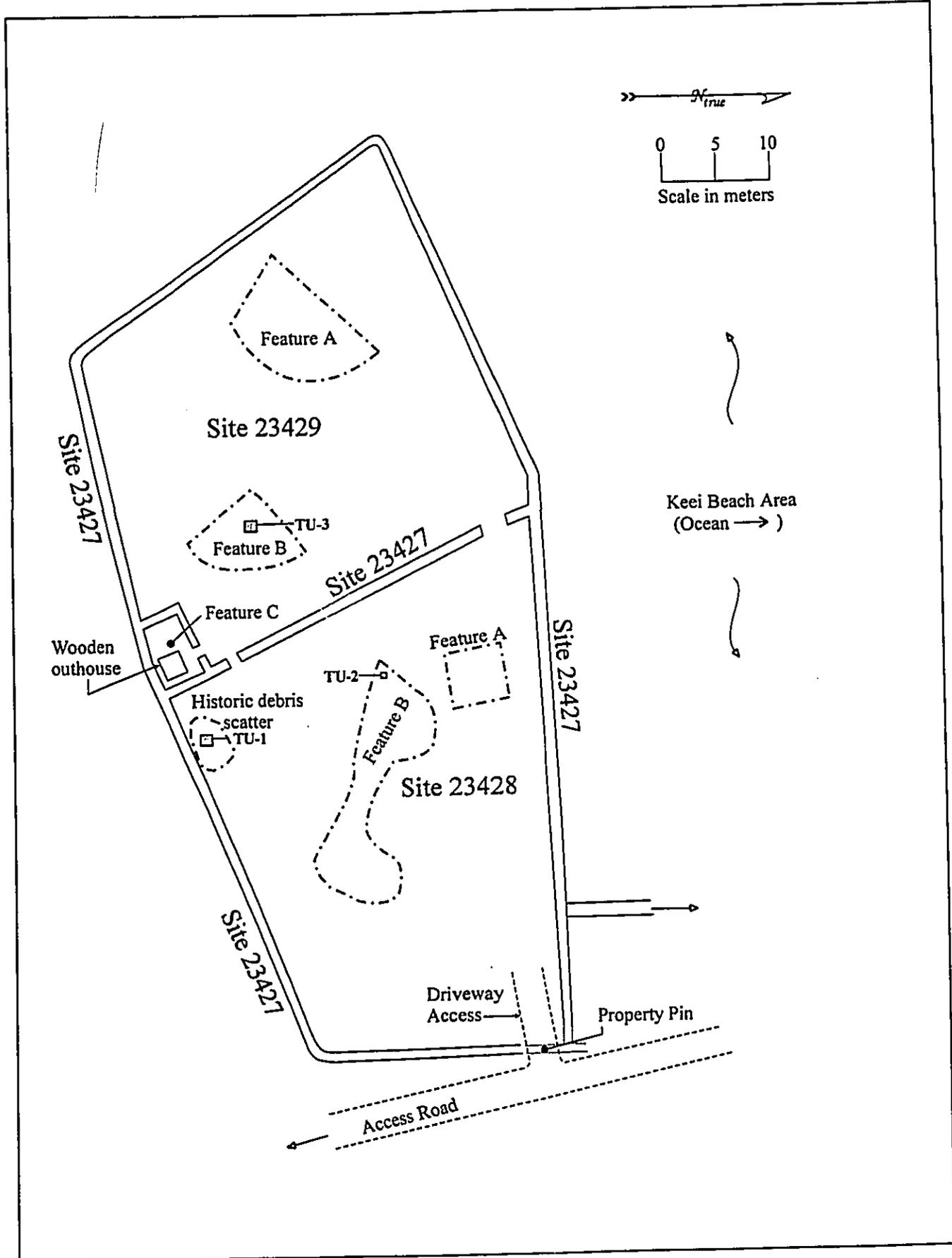


Figure 7. Project area map.

**SIHP Site 23427**

Site 23427 consists of the core-filled boundary walls that surround and separate the two LCAws (see Figure 7). The walls are constructed of stacked *pāhoehoe* cobbles with larger cobbles and boulders forming the outer edge and smaller cobbles filling the core. The walls measure approximately 1.0 meter in width and 0.9 meters in height. The route of the walls carries them across level ground and up on to exposed bedrock outcrops. The site is mostly intact and in good condition; but one breach occurs in the extreme northeast corner of the western parcel, and the eastern most wall is obscured by dense vegetation. The walls' corners are generally curvilinear rather than forming distinct 90° angles (Figure 8).

Another linear portion of the wall bisects the project area separating the two LCAw parcels. This segment forms a continuous interlocking junction with the perimeter wall at both ends. It is similar in construction method, materials, and dimensions to the perimeter wall. Two engineered breaks occur along the course of the wall; a northern breach, 3.2 meters wide, located 2.0 meters from the wall's northern end and a southern breach (Figure 9), 1.2 meters wide, located 6.4 meters from the southern end of the wall. The breaches may have been constructed to facilitate pedestrian access between the two LCAws. Given the smooth transition the walls make between the two parcels and the continuous junction with the dividing wall, along with the identical style and size of the wall segments bordering each LCAw (Figure 10), it appears that the walls were all constructed during a single construction episode.



Figure 8. SIHP Site 23427 southwest corner, view to southwest.



Figure 9. SIHP Site 23427 southern break in the dividing wall, view to west.



Figure 10. SIHP Site 23427 north wall (typical wall construction), view to north.

### SIHP Site 23428

Site 23428 consists of the eastern parcel of the project area (LCAw 9652:C) and contains of a light surface concentration of historic debris and two architectural features: a cistern (Feature A) and a remnant house platform (Feature B). The site is shown on Figure 7 and each feature is described below.

The debris concentration consists of a light surface scatter of historic artifacts (i.e. glass, ceramic, metal, etc.) located in the southwest corner of the site along the southern boundary wall. The roughly oval concentration measures approximately 20 square meters in area. One test unit (TU-1) was excavated in the center of this debris concentration (see Figure 7). The unit was placed approximately 1.0 meter north of the southern boundary wall and approximately 14 meters south of a remnant house platform (SIHP Site 23427 Feature B). TU-1 was excavated to examine the subsurface extent of the refuse deposit and to help better understand its nature.

Excavation of TU-1 revealed a simple one-layer stratigraphic sequence. Layer I consists of surface organic material and dark brown (7.5YR 3/2) sandy silt that gradates to very dark brown (7.5YR 2.5/2) sandy silt. The loosely compacted soil deposit extends 19 to 38 centimeters below ground surface before reaching bedrock (Figure 11). Cultural material recovered from Layer I included marine shell fragments, bone fragments, metal wiring, glass, and ceramic fragments (Table 1). Included in the ceramic fragments were 4 pieces of whiteware (ca. 1820-1900), 1 piece of whiteware hand painted polychrome (ca. 1825-1860), 6 pieces of pearlware (ca. 180-1830), 3 pieces of pearlware hand painted polychrome (ca. 1780-1835), and 1 piece of red earthenware gold gild glaze (1830-1875) (Noël Hume 1970). Excavation of TU-1 terminated upon reaching bedrock. Three fragments of fish bone, 2 jaw fragments and a pharyngeal plate, were identified as belonging to the family Scaridae (Parrot fish). The debris concentration may have been a historic dump area dating to the early 19<sup>th</sup> century (see Appendix A).

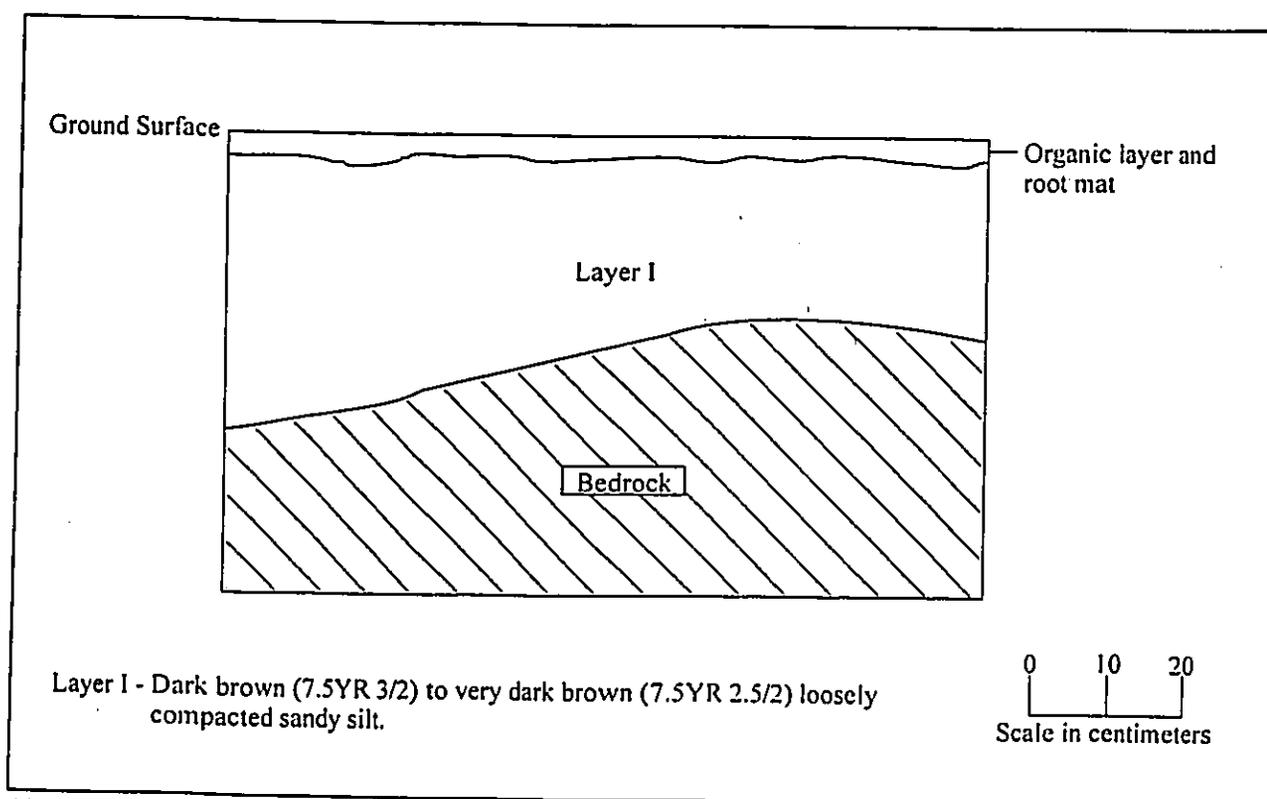


Figure 11. SIHP Site 23428 TU-1 west wall profile.

Table 1. Cultural material recovered from SIHP Site 23428, TU-1.

Acc. #	Layer	Material	Species/Type	NISP	MNI	Weight (g)
1	Layer I	Glass	Bottle	96	-	341.0
2	Layer I	Metal	Unidentified	-	-	134.2
3	Layer I	Ceramic	Tableware	15	-	85.5
4	Layer I	Composite	Electrical Fitting	3	-	3.3
5	Layer I	Organic	<i>Kukui</i>	2	-	1.3
6	Layer I	Shell	<i>Cellana</i>	7	4	14.2
7	Layer I	Shell	<i>Conus</i>	14	7	100.0
8	Layer I	Shell	<i>Nerita</i>	60	57	25.1
9	Layer I	Shell	<i>Drupa</i>	133	5	15.5
10	Layer I	Shell	<i>Echinodia</i>	33	1	20.5
11	Layer I	Shell	<i>Cypraea</i>	26	6	63.1
12	Layer I	Glass	Window	20	1	56.8
13	Layer I	Shell	<i>Littorina</i>	2	2	0.4
14	Layer I	Shell	<i>Morula</i>	6	6	7.5
15	Layer I	Shell	<i>Latirus</i>	1	1	23.2
16	Layer I	Stone	Volcanic glass	1	-	0.5
17	Layer I	Ceramic	Pipe Stem	1	-	0.9
18	Layer I	Bone	Fish	6	1	0.9
19	Layer I	Bone	<i>Sus</i>	20	1	33.7
20	Layer I	Shell	Unidentified	50	-	22.0

#### Feature A

Feature A is a rectangular cistern located in the northwestern portion of the site area (see Figure 7). The base of the cistern measures 4.2 meters (N/S) by 9.6 meters (E/W) (Figure 12). It is constructed with large, stacked *pāhoehoe* cobbles (mortar jointed) forming the outer platform edge and smaller *pāhoehoe* cobbles filling the inner area. The surface of the platform is capped with a 5-10 centimeter thick layer of mortar. A centrally located dome shaped circular cap (2.4 meters in diameter) rises 40 centimeters above the platform surface. Access to the interior of the 2.7-meter deep cistern is gained through a circular opening (50 centimeters in diameter) located in the center of the stone and mortar cap. A carved *pāhoehoe* boulder lid partially covered with mortar rests near the opening (Figure 13). Two other access holes, a raised rectangular opening (Figure 14) and a small circular opening are also situated on the raised portion of the cistern. These openings may have accommodated waterlines running to and from the feature.

The platform rises approximately 1.0 above the surrounding ground surface. Access to the platform is gained by using a stairway, consisting of two steps, located along the eastern edge of the feature (Figure 15). Feature A is in relatively fair condition (as compared to Feature B). Portions of both the southeast and southwest corners have collapsed, and one step has collapsed resulting in a rubble scatter surrounding the stairway. The cistern must have served as the primary water source for the LCAw tenants. It was probably filled by catchment from a roofed structure that existed on Feature B, or when rain was scarce, by truck delivery.

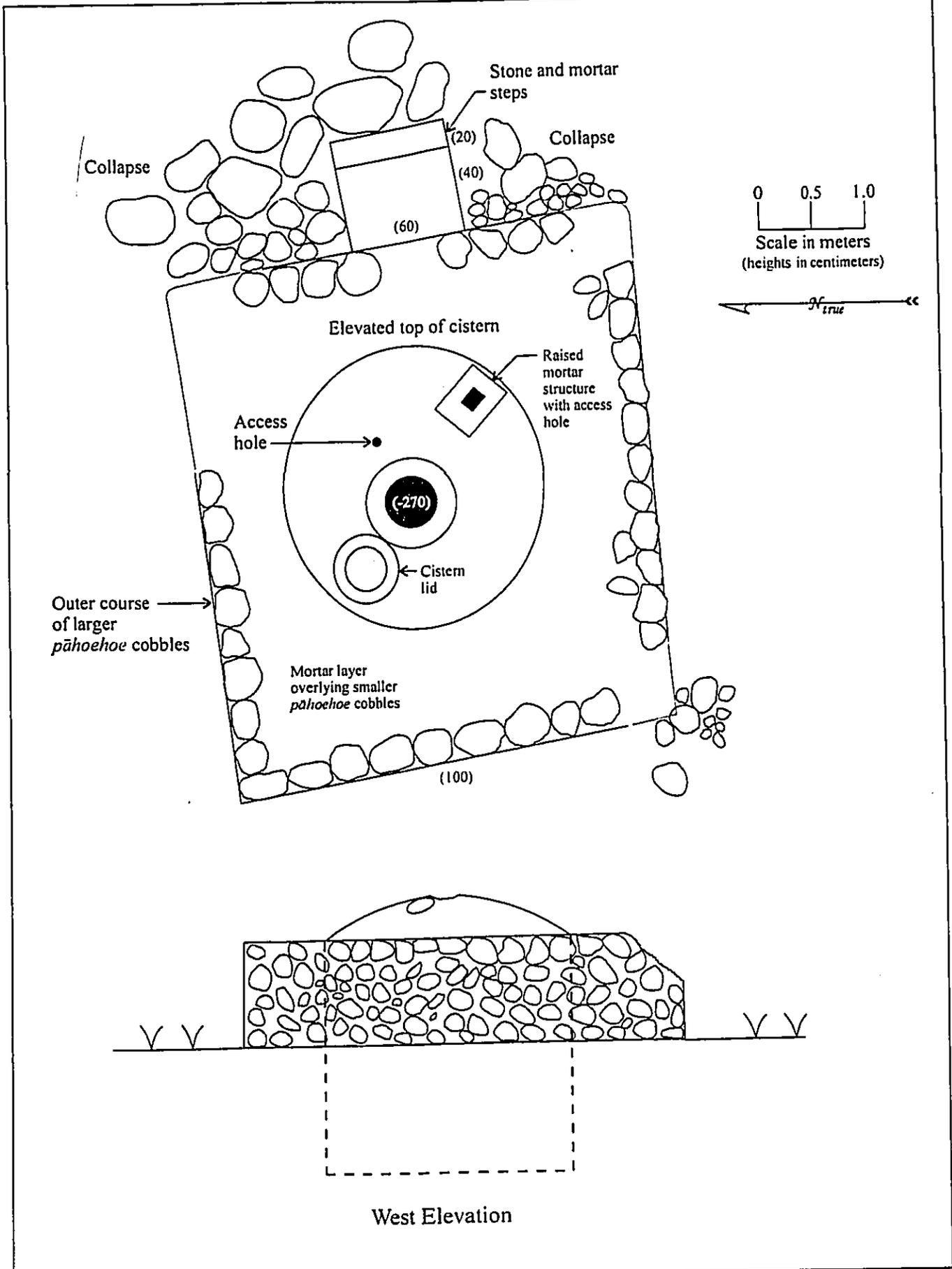


Figure 12. SIHP Site 23428 Feature A plan view.



Figure 13. SIHP Site 23428 Feature A, cistern lid.



Figure 14. SIHP Site 23428 Feature A, raised rectangular opening.



Figure 15. SIHP Site 23428 Feature A view to west.

#### *Feature B*

Feature B consists of a platform remnant located southeast of, and adjacent to, Feature A (see Figure 7). The platform was formerly constructed of small to large sized *pāhoehoe* cobbles, but is now no more than scattered cobbles and coral fragments contained in an area 8.2 meters wide (N/S) by 18 meters long (E/W) (Figure 16). Multiple brush piles are situated on top of the cobble scatter, and several depressions, caused by prior mechanical land clearing activities on the parcel, occur throughout the area. A 50 x 50 centimeter test unit (TU-2) was excavated along the western side of the platform remnant in an attempt to reveal the platform's edge and examine its integrity.

Excavation of TU-2 revealed a simple two-layer stratigraphic sequence (Figure 17). Layer I consists of an architectural layer composed of collapsed platform materials including small to large sized *pāhoehoe* cobbles and boulders mixed with coral. This layer extends 40 centimeters below the disturbed platform's surface. It is likely that the architectural layer in this area was pushed there as a result of prior grading activity. The platform edge revealed in profile is most likely not the original platform edge but consists of push material that does not extend below ground surface. Layer II consists of lightly compacted sandy silt (10 YR 3/2) and extends 9 to 12 centimeters below the base of Layer I. Excavation of TU-2 terminated upon reaching bedrock, and no cultural material identified within the unit.

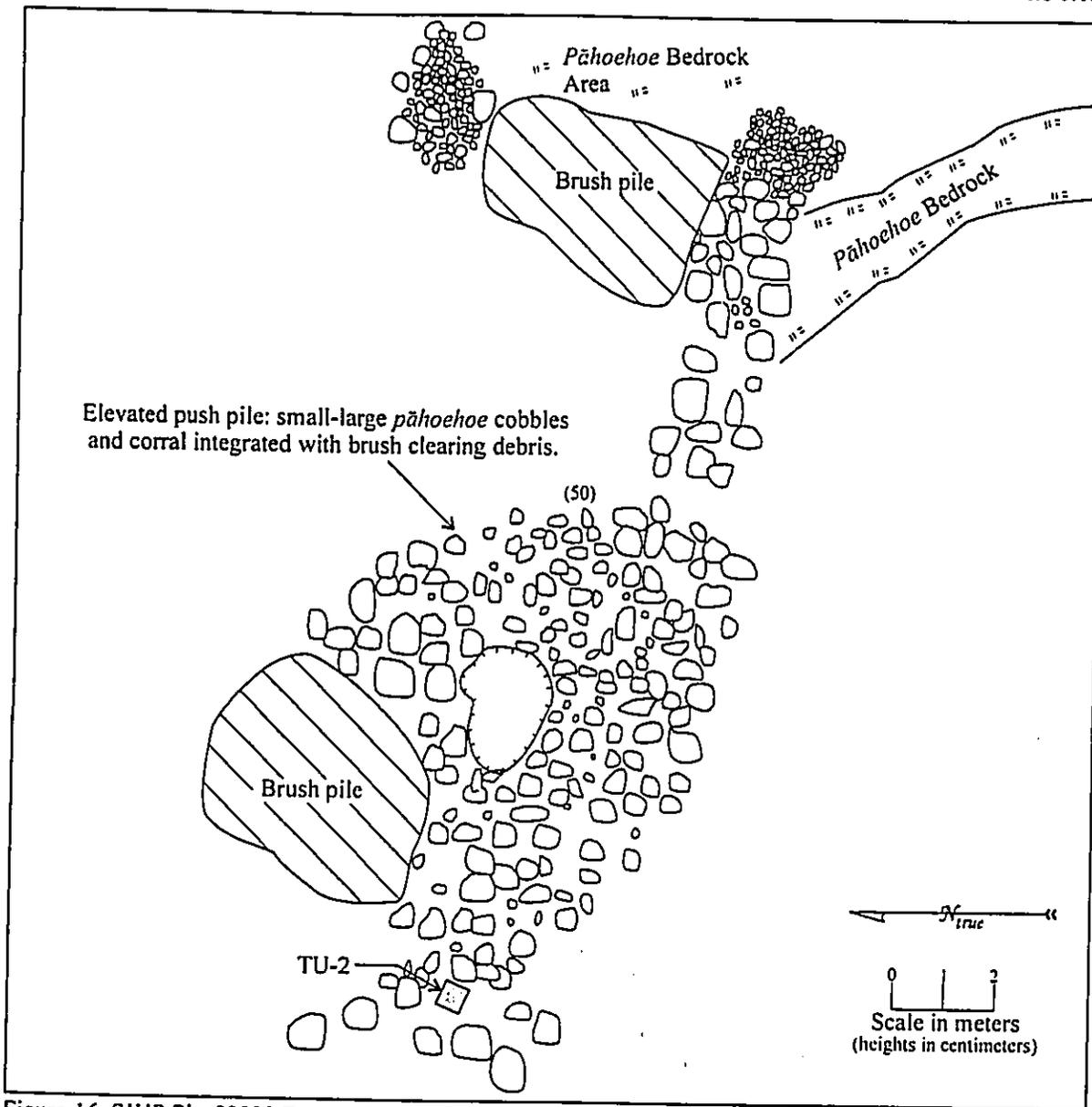


Figure 16. SIHP Site 23328 Feature B plan view.

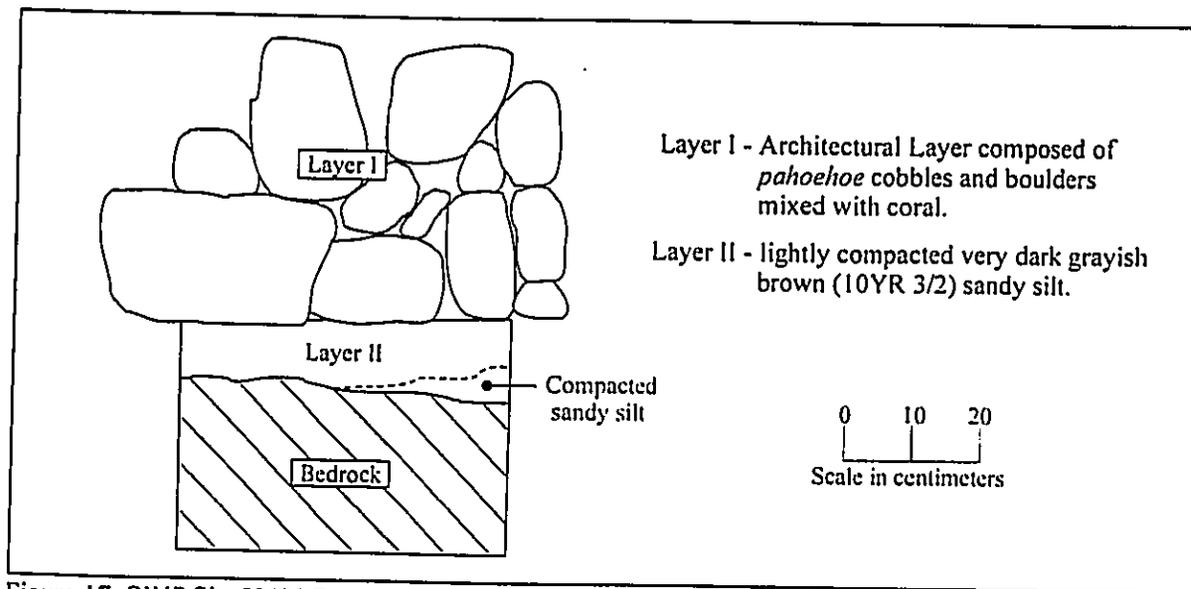


Figure 17. SIHP Site 23428 Feature BTU-2 east wall profile.

### SIHP Site 23429

Site 23429 consists of the western parcel of the study area (LCAw 6940) and contains three archaeological features; a house platform (Feature A), a rubbish dump area (Feature B), and a privy area (Feature C). According to the Māhele records, these features most likely date to sometime post 1819 (see Appendix A). The site's features are shown on Figure 7 and each is described below.

#### *Feature A*

Feature A consists of a residential platform located in the northwestern portion of the site area (see Figure 7). The platform measures 13.6 meters long (NE/SW) by 7.2 meters wide (NW/SE). The north edge of the platform, which remains mostly intact, is constructed on exposed *pāhoehoe* bedrock (Figure 18). The outer edge of the platform consists of relatively large *pāhoehoe* cobbles, while the platform's surface contains a rough pavement of medium sized *pāhoehoe* cobbles. Access to the feature is facilitated by use of a step, also with large perimeter boulders and small cobble fill, located at the extreme northwestern corner of the platform (Figure 19).



Figure 18. SIHP Site 23429 Feature A north edge, view to south.

The platform's surface is relatively flat (uniform), but its southwestern edge slopes slightly so that collapsed cobble material from the platform merges with the collapsed cobble material from the adjacent wall of Site 23427. Along the southern platform edge, the paved surface dissipates into the surrounding ground surface (predominately level bedrock) creating an ill-defined boundary. With the exception of the north face, Feature A is mostly collapsed, one other possibly intact segment remains along the features extreme southwestern edge (see Figure 17).

#### *Feature B*

Feature B consists of a rubbish dump located approximately 11.0 meters southeast of Feature A (see Figure 7). The dump area consists of rubble and scattered debris contained within an approximately 11-meter (N/S) by 14-meter (E/W) roughly triangular space (Figure 20). A wall remnant or possible dozer push pile is situated along the western portion of the scatter, and the eastern portion consists of push material (larger *pāhoehoe* cobbles) integrated with smaller cobbles and coral fragments. One test unit (TU-3) was excavated within the central portion of the feature to determine the extent of subsurface archaeological deposits.

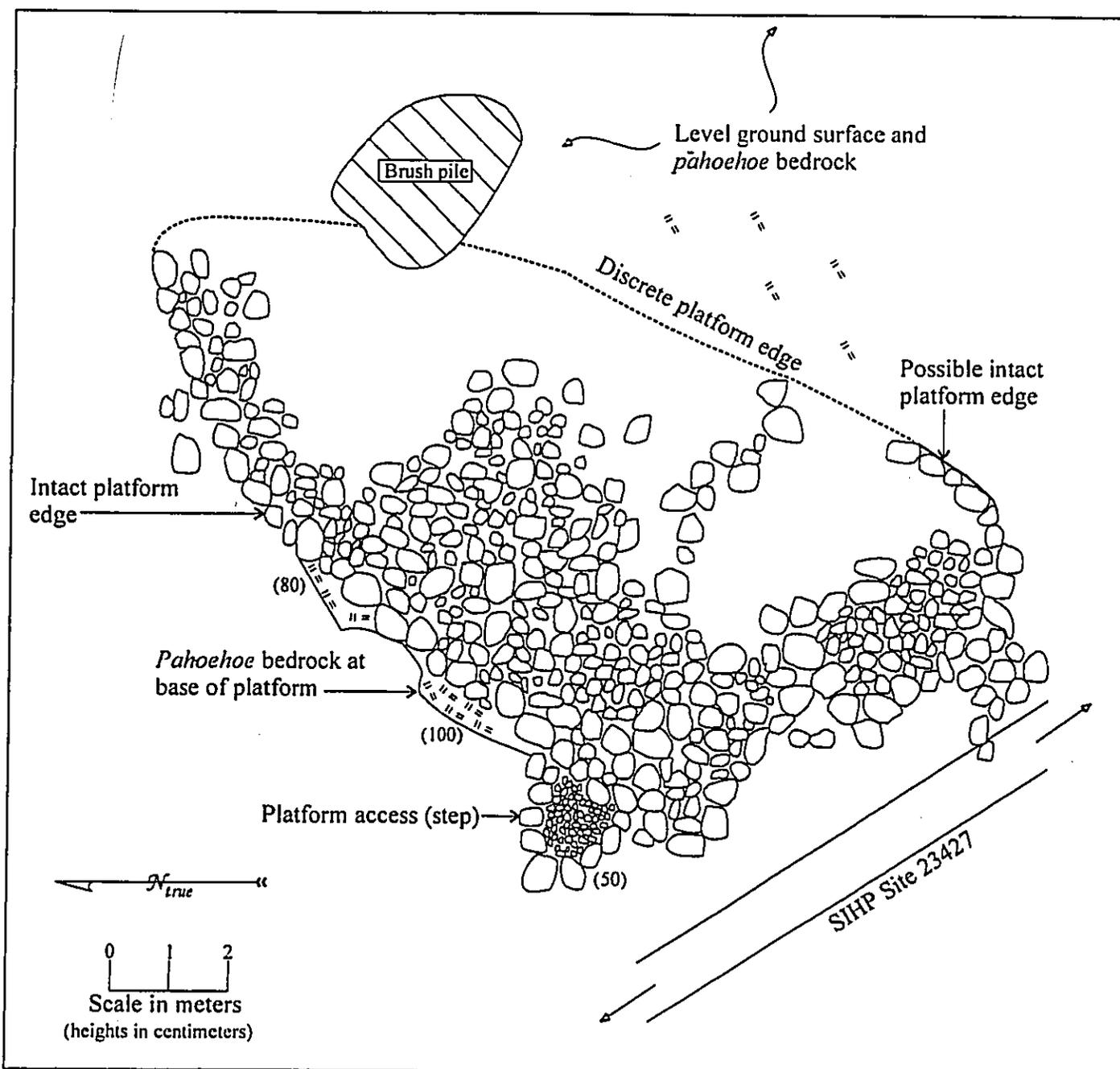


Figure 19. SIHP Site 23429 Feature A plan view.

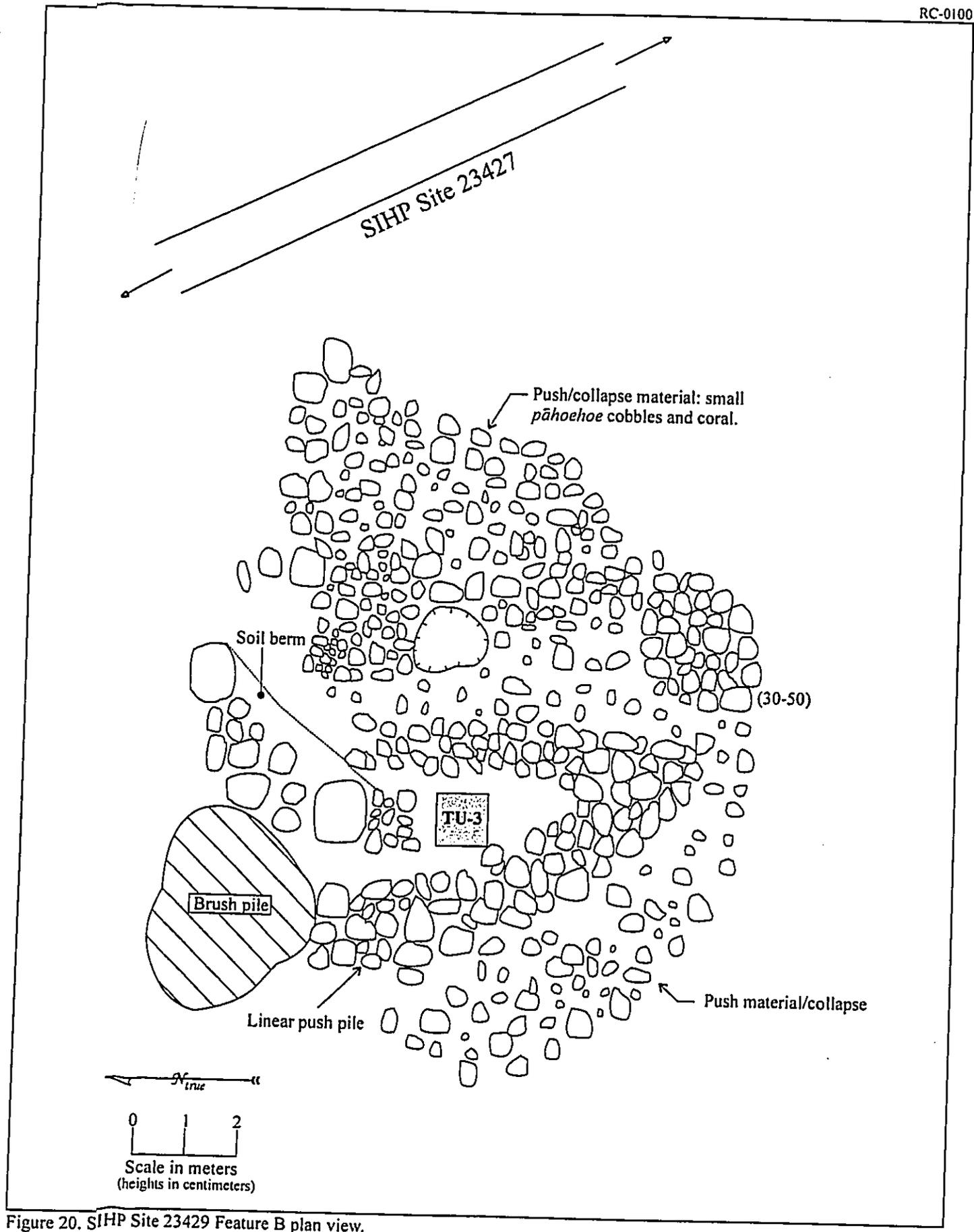


Figure 20. SIHP Site 23429 Feature B plan view.

The placement of TU-3 intentionally corresponds with a natural depression in Feature B. Excavation of the unit revealed a one-layer stratigraphic sequence (Figure 21). Layer I, the only layer, extends 64 centimeters below ground surface. The upper 5-10 centimeters of the layer consist of *pāhoehoe* cobbles integrated with dark gray (7.5YR 4/1) sandy silt. As the depth of the layer increases the number of cobbles decreases, but the sandy silt continues throughout. Excavation of TU-3 terminated upon reaching bedrock. Cultural material recovered from the unit includes marine shell fragments, bone fragments, sharks teeth, metal buttons, one yellow faceted glass bead, bottle glass, volcanic glass, metal fragments, and ceramic fragments (8 whiteware (ca. 1800-1920), 3 yellowware (ca. 1830-1940), and 1 porcelain) (Noël Hume 1970) (Table 2). Table 3 lists identified fish species found in TU-3.

Table 2. Cultural material recovered from SIHP Site 23429 Feature B, TU-3.

Acc. #	Layer	Material	Species/Type	NISP	MNI	Weight (g)
21	Layer I	Crustacean	Crab	5	2	3.5
22	Layer I	Shell	Echinodia	1158	1	346.0
23	Layer I	Shell	<i>Cypraea</i>	695	47	1040.3
24	Layer I	Shell	<i>Nerita</i>	1336	1270	409.0
25	Layer I	Shell	<i>Cellana</i>	460	61	184.5
26	Layer I	Shell	<i>Conus</i>	157	48	388.0
27	Layer I	Shell	<i>Bursa</i>	80	22	136.0
28	Layer I	Shell	<i>Venus Sp.</i>	18	9	28.0
29	Layer I	Shell	<i>Latirus</i>	4	1	14.2
30	Layer I	Shell	<i>Littorina</i>	145	67	57.4
31	Layer I	Shell	<i>Terebra</i>	2	2	1.2
32	Layer I	Shell	<i>Strombus</i>	75	32	48.2
33	Layer I	Shell	<i>Cypraea</i>	2	2	5.3
34	Layer I	Shell	<i>Trochus</i>	13	3	10.4
35	Layer I	Shell	<i>Littorina</i>	2	2	6.3
36	Layer I	Shell	Hipponicidae	67	67	15.6
37	Layer I	Shell	<i>Nassarius</i>	7	5	3.0
38	Layer I	Shell	<i>Charonia Sp.</i>	1	1	111.6
39	Layer I	Shell	<i>Pinctada Sp.</i>	64	1	22.8
40	Layer I	Glass	Bottle	45	-	125.3
41	Layer I	Stone	Volcanic glass	11	-	4.9
42	Layer I	Glass	Bead	1	1	1.8
43	Layer I	Ceramic	Houseware	12	-	63.3
44	Layer I	Metal	Micellaneous	6	-	25.5
45	Layer I	Organic	<i>Kukui</i>	19	-	20.8
46	Layer I	Organic	Charcoal	-	-	4.1
47	Layer I	Bone	Fish	32	12	17.8
48	Layer I	Bone	Avian	7	1	10.4
49	Layer I	Bone	<i>Sus</i>	34	1	33.0
50	Layer I	Shell	Unidentified	323	-	149.5

Table 3. Identified Fish Species from SIHP Site 23429 Feature B, TU-3, Acc. # 47.

Family	Species	Hawaiian/Common name	Element used for ID	Count
Scaridae	<i>Chlorurus persicillatus</i>	Uhuuliuli/ Spectacled parrot fish	Jaw	2
Scaridae	<i>Calatomus carolinus</i>	Ponuhunuhul/ Star eye parrot fish	Pharyngeal plate	1
Monacathidae	<i>Cantherhines-Sanwhichiensis</i>	'o'ililepa/ Squaretail filefish	Dorsal spine Pelvic girdle	1 1
Aulostomidae	<i>Aulostomus chinensis</i>	Nanu/trumpet fish	Vertebra	1
Carangidae	<i>Caranx melampygius</i>	'omilu/Bluefin trevally	Jaw	1
Carangidae	Unknown	Unknown	Vertebra	3
Holocentridae	<i>Sargocentron tiere</i>	'ala 'ihi/Tahitian squirrel fish	Jaw	1
Muraenidae	<i>Gymnothorax flavimarginatus</i>	Puhi/Yellow margin moray	Jaw Vertebra	1 1
Scombridae	<i>Katsuwonus pelamis</i>	Aku/Skipjack tuna	Vertebra	1
Shark	Unknown	Unknown	Teeth	2

#### Feature C

Feature C consists of a privy area situated within a walled enclosure that is located approximately 5.0 meters southwest of Feature B (see Figure 7). The enclosure walls are of core-fill construction and form interlocking and continuous intersections with the lot boundary walls (SIHP Site 23427). The walls, which measure up to 1.1 meters high and 0.8 meters wide, are constructed of stacked *pāhoehoe* cobbles. A 1.1 meter wide opening located in the northern enclosure wall allows for accesses to the interior.

The enclosure's interior area measures 3.5 meters wide (N/S) by 5.8 meters long (E/W) and consists of relatively level soil. A modern wooden outhouse has been constructed over the remains of an older privy hole. No other cultural material was identified within the enclosure area. Feature C mostly likely served as a privy for the former LCAw tenants.

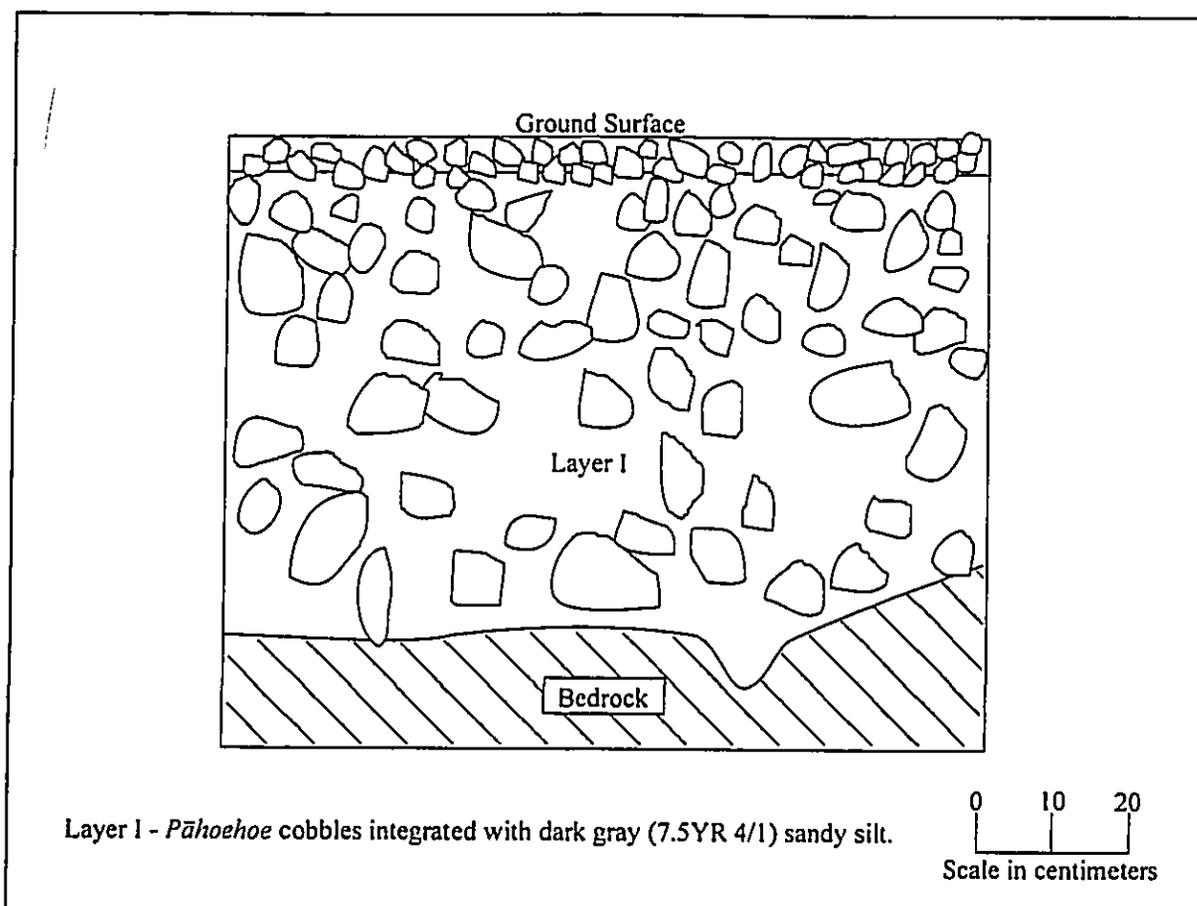


Figure 21. SIHP Site 23429 Feature B TU-3 east wall profile.

## SUMMARY

Rechtman Consulting, LLC completed an archaeological inventory survey of two parcels (TMK 3-8-3-06:5 and 6) comprising roughly 0.6 acres in Ke'ei 2<sup>nd</sup> Ahupua'a, South Kona District, Island of Hawai'i. As a result of the inventory survey, three archaeological sites were identified and recorded. The sites include two adjacent *kuleana* lots awarded to separate native claimants during the *māhele* (SIHP Sites 23428 and 23429) and the core-filled lot boundary walls that surround and separate the lots (SIHP Site 23427). The western lot (SIHP Site 23429—LCAw. 6940) was awarded to Kekuhaupi'o and the eastern lot (SIHP Site 23428—LCAw. 9652 C) was awarded to Makaiahai (see Appendix A). The boundary wall that fully surrounds both parcels (Site 23427) was erected during a single construction episode—it could not be confidently placed with either *kuleana*—so, therefore, it received its own site number. All archaeological features present within the current study area were described, mapped, and photographed. Recorded features included two house platforms, two historic debris concentrations, a rock and mortar cistern, a privy with a modern wooden outhouse, and multiple core-filled boundary wall segments. Several of the features have been impacted to one degree or another by prior land clearing activities on the property. Three of the features received subsurface testing in the form of 1 x 1 or 0.5 x 0.5 meter test units. All of the recorded sites retain sufficient integrity to facilitate an assessment of their significance.

## SIGNIFICANCE EVALUATION AND TREATMENT RECOMMENDATIONS

The sites located on the study property are assessed for their significance based on criteria established and promoted by the DLNR-SHPD and contained in the draft Hawaii Administrative Rules 13§13-284-6, dated 1998. These significance evaluations should be considered as preliminary until DLNR-SHPD provides concurrence. For resources to be considered significant they must possess integrity of location, design, setting, materials, workmanship, feeling, and association and meet one or more of the following criteria:

- A. Be associated with events that have made an important contribution to the broad patterns of our history;
- B. Be associated with the lives of persons important in our past;
- C. Embody the distinctive characteristics of a type, period, or method of construction; represent the work of a master; or possess high artistic value;
- D. Have yielded, or are likely to yield, information important for research on prehistory or history;
- E. Have an important traditional cultural value to the native Hawaiian people or to another ethnic group of the state due to associations with traditional cultural practices once carried out, or still carried out, at the property or due to associations with traditional beliefs, events or oral accounts—these associations being important to the group's history and cultural identity.

The significance and recommended treatments for the three sites are discussed below and are presented in Table 4.

**Table 4. Site significance and treatment recommendations.**

<i>SIHP Site No.</i>	<i>Function</i>	<i>Temporal Assignment</i>	<i>Significance</i>	<i>Treatment</i>
23247	Boundary Wall	Historic Period	D	No further work
23428	Residential Complex	Historic Period	D	No further work
23249	Residential Complex	Historic Period	D	No further work

SIHP Site 23247 is assessed as significant under Criterion D as having yielded data relative to the nineteenth century transition from traditional Hawaiian land tenure practices to a Western system of land ownership. Precisely marking property boundaries was an important element in the latter system. The data potential of these sites has been realized as a result of the current study and no further work is recommended.

SIHP Site 23428 is a complex of residential features that was used throughout the early nineteenth to mid-twentieth centuries. Despite the diminished site integrity due to grading activities, the site remains significant under Criterion D for the information it has yielded relative to coastal habitation during the late Historic Period. The documentation presented in this report has been adequate to mitigate any potential impacts to the site; therefore, no further work is recommended.

SIHP Site 23249 is a complex of residential features that was used throughout the early nineteenth to mid-twentieth centuries. This complex is similar to SIHP Site 23428 in both setting and in its diminished integrity. The current inventory survey, including test excavations, has realized the data potential of this site, thus no further work is recommended prior to development of the parcels.

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Appendix A  
Land Commission Award Native Register and Testimony

6940 Kekuhauhi

He kuleana aina keia ma Keki ke ahupuaa  
 Ho, Kawaii ka ili: he pua aina iho keia maai ka lala  
 lawa, a hiki i ke kula, ia ka palena o na kila-  
 pua i pona i na mea kani. 4 Kihapai kope, 6 Kihapai  
 kolo, 10 wai 2 Kihapai alani. Oo Kamahii-  
 ai maai keia ma kekahi pua aina e ae i loko  
 no ia ili, 5 Kihapai 1 Kihapai kope, no Kawai-  
 pua maai keia ma kekahi pua aina e ae.  
 ma loko no ia ili, 1 Kihapai ke kope, 1 Kihapai  
 kope no, a me keia hiki i laila no. Na ma  
 maai keia. O Kawai ka ili 3 Kihapai kolo  
 no Kawai maai keia. O Keki ke ahupuaa o  
 Kawai 3 ka ili, 1 Kihapai wala, no Kamahii  
 keia. Oia ma wahi kuleana ia e l. e ka Koo-  
 wa kuleana

O na anana o na Kawai haka lua  
 $80 \times 12 = 160 \times 3 = 480$  Kawai. O ka lala 130 anana  
 780 Kawai.

Iain ma Kekuhauhi

Keki Kona Hawaii.  
 Januari 20, 1849

No. 6940 - Kekuhauhi'o (Native Register Vol. 8:191).

No. 6940 Kekuhaupio

This land claim is in the ahupua'a of Keel, 'ili of Kaieie. I have a mo'o from the wooded point to the kula; this is the boundary of the kihapais which have been improved with cultivation: 4 kihapai of coffee, 6 kihapai of taro, 1 of bananas, 2 kihapai of oranges. I received this from Kamahiahi. In another mo'o in this 'ili are 5 kihapai. I received 1 kihapai of coffee from Kawalimaka. In another mo'o in this same 'ili is 1 kihapai of coffee. /In/ Aki is coffee also, and my house is there also. I received it from Ina. In H/a/uiki 'ili are 3 kihapai of taro which I received from Kahiki. In Keel ahupua'a, 'ili of Kapia 3 is 1 kihapai of sweet potatoes which I received from Kamahiahi. These are the claims submitted to you, the Land Commissioners.

Translator's note: Claimant shows a rectangle, with no dimensions, and the following note below the diagram: The fathoms of the two rectangles are 80 x 12 = 160 x 3 = 480 feet. The width is 130 fathoms /or/ 780 feet.

Keel, Kona, Hawaii  
January 20, 1848

KEKUHAPPIO

No. 6940 - Kekuhaupio (Native Register Vol. 8:191) (translation).

9652 No. Sec 7 Makaihai  
He pukaala ma kaieie 1161 kupaia ka awa puni a pa-  
hulana aia mo'oufuni, ka awa kee 2, Apama 3. Eia  
na pukaala i mo'oufuni, kaieie, 2 pukaala 3 kaieie,  
Pulehuia hulana aia aia, i' i' ukaala kee 2, 3 Mala kee  
2 Mala kee  
2 Kea kee  
Mo. Sec  
Kekuhaupio

No. 9652 - Makaihai (Native Register vol. 8:635).

No. 9652 - Makaihai

Makiele and Kahiki sworn they have seen his land.

- Section 1 - Pukaala ili in Keel 2 from Luahine in 1823.
  - Section 2 - 4 coffee and potato kihapais in Pukaala ili.
  - Section 3 - 4 taro and potato kihapais in Pulehuia ili.
  - Section 4 - 2 taro kihapais in Keel.
  - Section 5 - Taro kihapais in Kaieie ili.
  - Section 6 - Taro kihapai in Uluwela.
  - Section 7 - Taro kihapai in Kahunakailie.
- Land from Luahine in 1823.  
Section 8 - House lot in Keel 2 ahupua'a from a dispute.

No. 9652 - Makaihai (Native Register vol. 8:635) (translation).



**APPENDIX 4**

**CULTURAL IMPACT ASSESSMENT**

Cultural Impact Assessment for the Residential  
Development of Two Parcels at Ke'ei Beach

TMK:3-8-3-06:5,6



Ke'ei 2nd Ahupua'a  
South Kona District  
Island of Hawai'i

PREPARED BY:

Robert B. Rechtman, Ph.D.

PREPARED FOR:

Desmond Twigg-Smith  
c/o Greg Mooers  
P.O. Box 1101  
Kamuela, HI 96743

February 2003

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**RECHTMAN CONSULTING**

HC 1 Box 4149 • Kea'au, Hawai'i 96749  
phone: (808) 966-7636 • FAX (800) 406-2665  
e-mail: rechtmanconsult@aol.com

Cultural Impact Assessment for the Residential  
Development of Two Parcels at Ke‘ei Beach  
TMK:3-8-3-06:5,6

Ke‘ei 2nd Ahupua‘a  
South Kona District  
Island of Hawai‘i

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## INTRODUCTION

At the request of Mr. Greg Mooers of Mooers Enterprises, LLC, on behalf of his client Mr. Desmond Twigg-Smith, Rechtman Consulting, LLC has prepared this Cultural Impact Assessment for the residential development of two parcels (TMK 3-8-3-06:5,6) located near Palemano Point, Ke'ei 2<sup>nd</sup> Ahupua'a, South Kona District, Island of Hawai'i (Figure 1). A companion Archaeological Inventory Survey report for study parcels has already been submitted to DLNR-SHPD for approval (Rechtman and Clark 2002). Kumu Pono Associates (Maly and Maly 2002) has recently completed a detailed archival and oral-historical study for the general Ke'ei area. Information contained in that study was made available to Rechtman Consulting, LLC for use in the present study. The Kumu Pono Associates study, combined with a dditional oral-historical and archival research, forms the basis for the identification and assessment presented in the current report.

This report is intended to accompany an Environmental Assessment (EA) compliant with Chapter 343 HRS, as well as fulfilling the requirements of the County of Hawai'i Planning Department and the Department of Land and Natural Resources-State Historic Preservation Division (DLNR-SHPD) with respect to permit approvals for land-altering and development activities. This study has been prepared in accordance with the Office of Environmental Quality Control (OEQC) *Guidelines for Assessing Cultural Impact*, adopted by the Environmental Council, State of Hawai'i, November 19, 1997.

This report begins with a description of the general project area and the proposed development activities. This is followed by a presentation of the archaeological background for both the specific project area and the general vicinity. A discussion of the cultural and historical background relative to Ke'ei Ahupua'a and the general South Kona region was generated based on detailed archival research (see also Maly and Maly 2002). It is a comprehension of this background that facilitates a more complete understanding of the potential significance of any identified cultural practices, beliefs, or resources. Information from both prior and newly conducted oral-historical interviews is presented and summarized (see also Maly and Maly 2002). Although numerous significant cultural practices, beliefs and associated cultural resources exist within the vicinity of the project area, the residential redevelopment of the subject parcels will likely have no adverse effect on any of the identified practices, beliefs, or resources.

## PROJECT AREA DESCRIPTION AND PROPOSED DEVELOPMENT ACTIVITIES

The project area (Figure 2) consists of two adjacent parcels (TMK 3-8-3-06:5 and 6) comprising approximately 0.6-acres in Ke'ei 2<sup>nd</sup> Ahupua'a, South Kona District, Island of Hawai'i. The parcels are situated within the northwest corner of the Kealakekua Bay Historic District (HRHP 10-47-7000) (see Figure 1), which is listed in both the National Register of Historic Places (NRHP) and the Hawai'i Register of Historic Places (HRHP). The project area also falls within the coastal zone of the Kona Field System (SIHP Site 4150), a complex of dryland agricultural and habitation features covering minimally 60 square miles between Kailua (to the north) and Ho'okena (to the south). The Kona Field System has also been determined eligible for listing in the National Register of Historic Places.

The two parcels, located just back from Kūlou Beach, are bounded on all sides by core-filled stonewalls. A dirt access road runs along the eastern edge of the property and sandy Kūlou Beach fronts the northern edge. A functioning wooden outhouse is located in the southeast corner of the western parcel. Soils within the study area consist of shallow pockets of sand and decomposing organic material overlying a roughly 3,000-year old Mauna Loa *pāhoehoe* flow (Wolfe and Morris 1996). Within the project area, elevation ranges from 5-15 feet (2-5 meters) above sea level and rainfall ranges from 20-50 inches per year. Ke'ei, like much of South Kona, is protected from the prevailing trade winds by Mauna Loa and, as a result, rainfall is heavier in the summer months with common late afternoon or early evening showers (McEldowney 1979).

Portions of both parcels have been altered by mechanical land clearing activities. Plant species growing within the current study area include various non-native grasses and vines, coconut palms (*Cocos nucifera*), 'opiuma (*Pithecellobium dulce*), tamarind (*Tamarindus indica*), and *pānini o ka Keauhou* (*Hylocereus undatus*).

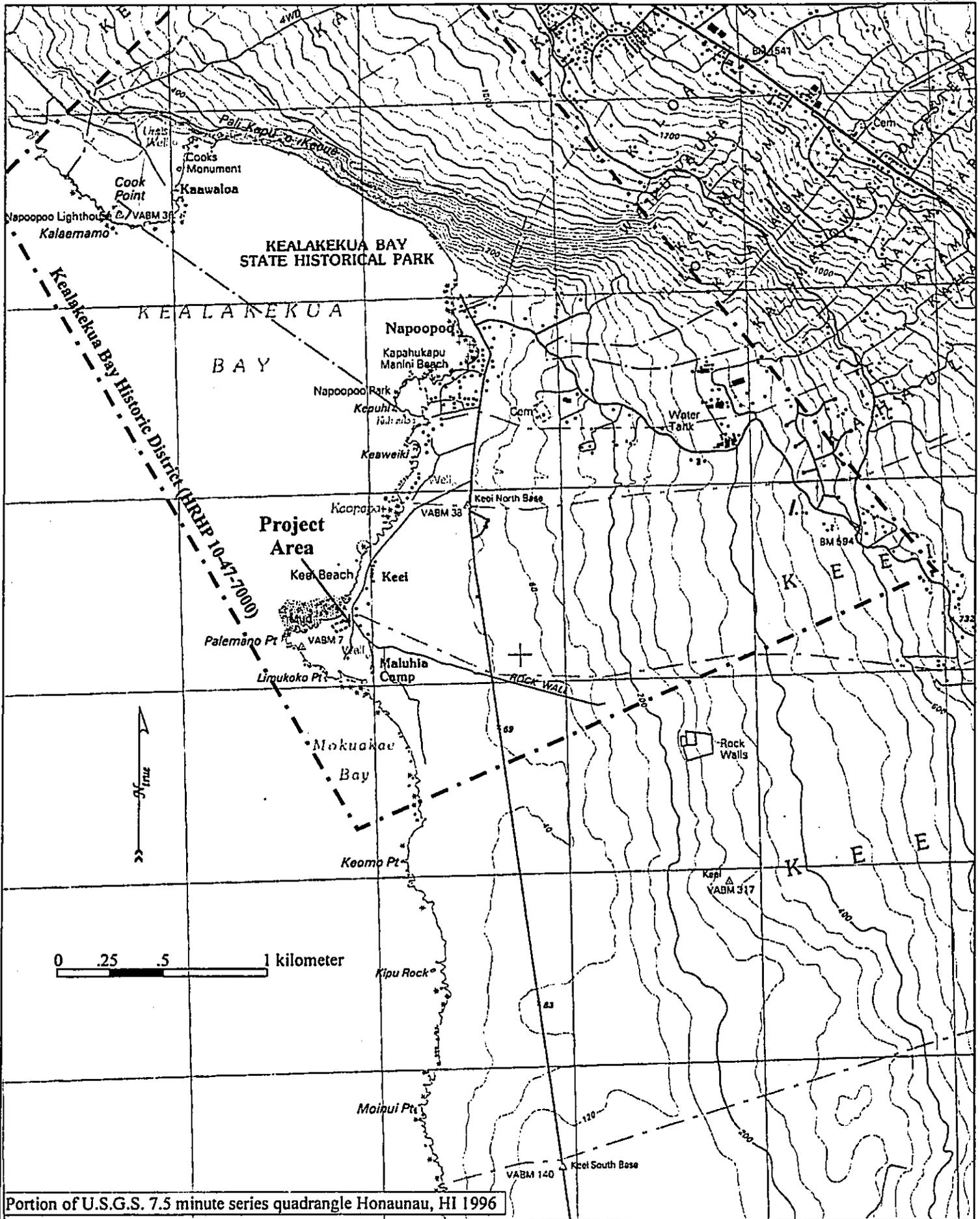


Figure 1. Project area location.

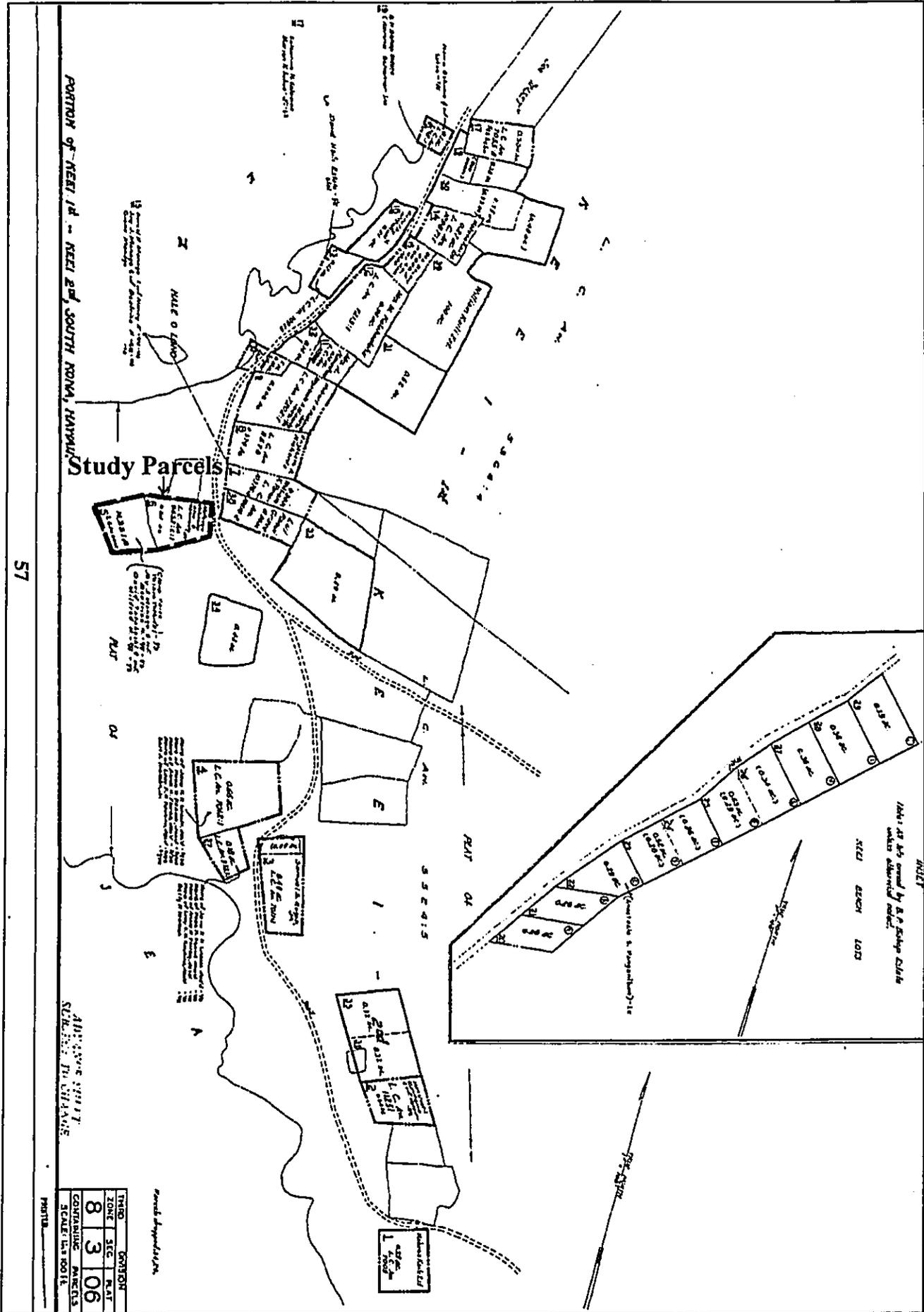


Figure 2. Portion of TMK 3-8-3-06 showing study parcels (5 and 6).

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# ARCHAEOLOGICAL BACKGROUND

Several archaeological studies have been conducted in the general vicinity of Ke'e'i, and as mentioned above one study (Rechtman and Clark 2002) specifically investigated the current study parcels. Brief descriptions of the previous studies with summaries of their findings are presented below. The locations of the study areas are shown on Figure 3.

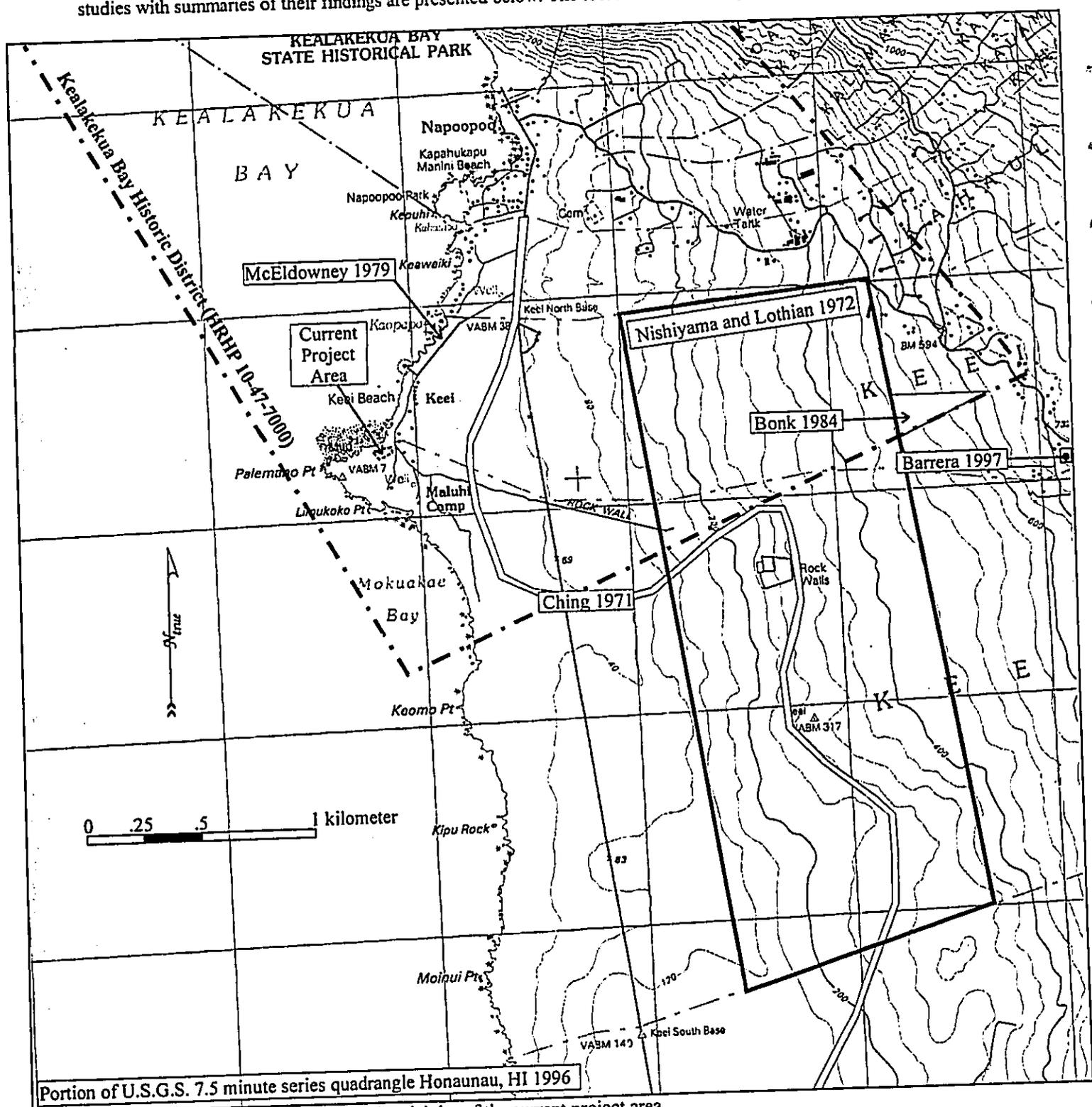


Figure 3. Previous archaeological studies in the vicinity of the current project area.

Archaeological studies in the Ke'ei region began with John Reinecke's 1930 survey of coastal sites in South Kona conducted for the Bishop Museum. Reinecke identified two archaeological sites in the vicinity of the current project area; "Site 32," consisting of two platforms, and "Site 33," a complex, divided by an *ahupua'a* boundary wall, containing a *pū'o'a* and a lava tube shelter on the Ke'ei 1<sup>st</sup> side, and a platform, animal pens (enclosures), wall fragments, and several *pū'o'a* located on the Kahauloa 2<sup>nd</sup> side.

To the south of the current project area, Archaeological Research Center Hawaii (Ching 1971) conducted a surface survey of the Nāpo'opo'o-Hōnaunau Road Alignment (Alternate 2) for the Department of Public Works. The survey corridor ranged from coastal elevations to approximately 1-mile inland and extended for a total distance of 4.7 miles. The survey efforts identified a total of 144 archaeological features which were placed into seven major categories: habitation structures, enclosures, agricultural features, burials, trails, *ahu*, and miscellaneous (27 independent walls and one cistern). Because of the linear nature of this study (coursing across multiple *ahupua'a* at varying elevations), it offered a unique opportunity to observe settlement strategies used for this particular environment along the southern Kona coastline.

South, but more *mauka*, Anthropological Research International (Nishiyama and Lothian 1972) conducted an archaeological investigation of the proposed County Golf Course in Ke'ei for the Department of Parks and Recreation, County of Hawai'i. Survey of the northern one-third of the project area identified 12 sites that consisted of enclosures, platforms, a storage vault, and rock mounds. Additional sites recorded in the southern two-thirds of the project area include rock-filled depression areas, rock-filled terraced areas, rock mounds, habitation tubes, a core-filled wall complex, platforms, and enclosures. Dense vegetation reduced the survey effectiveness in the southern portion of the project area. Sites identified were grouped into one of three categories; (I) Sites that warrant preservation, (II) Sites which need not be preserved, and (III) Sites that require more scientific study before determining a category. Preservation was recommended for as many sites as possible, but the golf course development plans were never carried out.

A statewide inventory conducted by the Hawai'i State Office of Historic Preservation inspected and evaluated multiple sites in the general vicinity of Ke'ei. This effort, conducted between 1971 and 1975, contributed to defining the Kealakekua Bay Archaeological and Historical District and provided information on previously recorded sites in Ke'ei 2<sup>nd</sup>, south of the current project area, as well as a summary of sites at Hōnaunau (McEldowney 1979).

The Bishop Museum (McEldowney 1979) conducted a reconnaissance survey of roughly 9 acres for a proposed subdivision development in Kahauloa 2<sup>nd</sup> and Ke'ei 1<sup>st</sup>, along the coast to the north of the current study area. During the survey of these parcels, dense vegetation and existing residences on the survey property reduced the ability of the surveyors to identify and record existing features and accurately delimit site boundaries. The study was divided into four sub-areas depending on the vegetation and survey method used. Sites identified in Sub-area 1 include a core-filled boundary wall dividing Kahauloa 2<sup>nd</sup> and Ke'ei 1<sup>st</sup> *Ahupua'a*, several steppingstone trails extending through the surrounding 'a'ā, and a large habitation complex including platforms, possible burial platforms, a C-shape enclosure, a stone alignment, terraces, a wall and cupboard feature, and a steppingstone trail segment. The sites observed in Sub-area 2 were mostly obscured by dense vegetation and included a wall segment, a possible terrace, two terraced platforms with scattered marine shell and 'ili'ili, and a rock mound. Sites located in the third sub-area include core-filled walls and collapsed wall segments interspersed with rock mound features that were interpreted as a coastal agricultural complex, and one rectangular enclosure. No sites were located in the fourth sub-area. Recommendations for sites in the project area include comprehensive site recordation, test excavations, and a thorough evaluation for the sites in the Kealakekua-Hōnaunau area.

William Bonk (1984) conducted an archaeological survey of 10 acres (within portions of TMK:8-3-07:53, 54, and 55) located in Ke'ei 1<sup>st</sup> *Ahupua'a* at approximately 600 feet above sea level *makai* of Middle Ke'ei Road. A total of five features were recorded during the survey including one core-filled boundary wall, two possible burial features ("flat-topped cairns"), a low lying wall, and a rock mound interpreted as being either a boundary marker (*ahu*) or an agricultural clearing mound. Both the boundary wall and the two possible burial features were recommended for preservation.

William Barrera (1997) conducted an archaeological inventory survey of a 1.08-acre parcel (TMK:8-3-07: por. 3) in Ke'ei 2<sup>nd</sup> *Ahupua'a*. The parcel is situated approximately two miles inland at the 800-foot elevation *makai* of Middle Ke'ei Road. One site (SIHP Site 21275) was recorded, which consists of 15 features: eight stone mounds, four free-standing walls, two irregular shaped linear mounds, and one modified bedrock outcrop. Barrera surmises the features were associated with contemporary agricultural practices based upon their condition and the surrounding vegetation,

which includes coffee and avocado. Three features (two linear mounds and one modified outcrop) were interpreted as possible remnants of the larger Kona Field System (SIHP 6601). The site was considered significant however no further work was recommended.

During a recent archaeological inventory survey (Rechtman and Clark 2002) conducted on the study parcels three archaeological sites were recorded: one site number was assigned to the historic boundary walls enclosing both parcels (SIHP Site 23427), and each of the two LCAw residential parcels received an individual site number (SIHP Site 23428 [eastern parcel] and SIHP Site 23429 [western parcel]). The locations of the sites are shown on Figure 4, the sites are briefly discussed below.

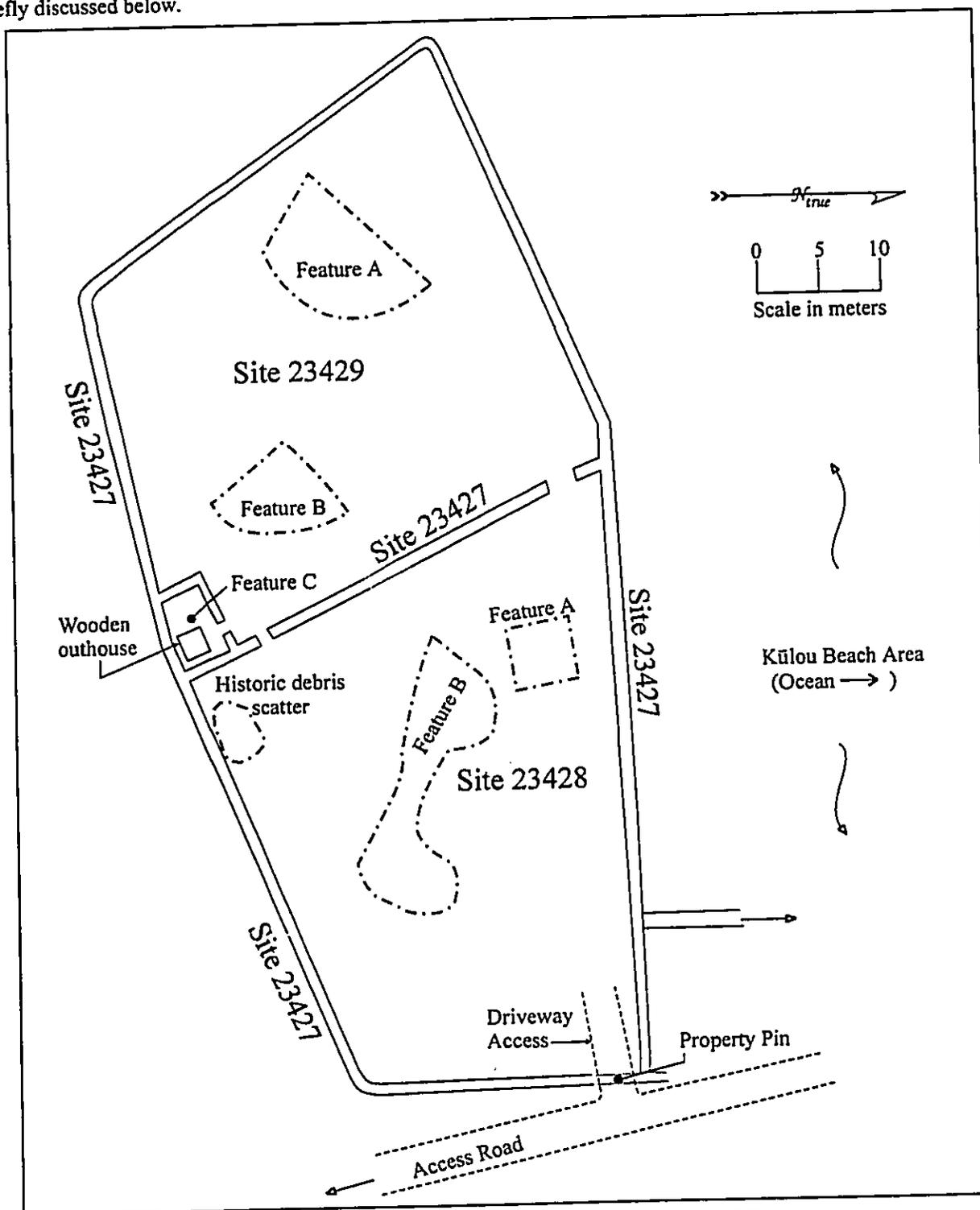


Figure 4. Archaeological plan view of project area (from Rechtman and Clark 2002).

**SIHP Site 23427**

Site 23427 consists of the core-filled boundary walls that surround and separate the two LCAw. parcels (see Figure 4). The walls are constructed of stacked *pāhoehoe* cobbles with larger cobbles and boulders forming the outer edge and smaller cobbles filling the core. The site is mostly intact and in good condition; but one breach occurs in the extreme northeast corner of the western parcel, and the eastern most wall is obscured by dense vegetation. The walls' corners are generally curvilinear rather than forming distinct 90° angles (Figure 5). Another linear portion of the wall bisects the project area separating the two LCAw parcels. This segment forms a continuous interlocking junction with the perimeter wall at both ends. It is similar in construction method, materials, and dimensions to the perimeter wall, but has two engineered breaks in it (Figure 6). Given the smooth transition the walls make between the two parcels and the continuous junction with the dividing wall, along with the identical style and size of the wall segments bordering each LCAw (Figure 7), it appears that the walls were all constructed during a single construction episode.



Figure 5. SIHP Site 23427 southwest corner, view to southwest.



Figure 6. §IHP Site 23427 southern break in the dividing wall, view to west.



Figure 7. §IHP Site 23427 north wall (typical wall construction), view to north.

### SIHP Site 23428

Site 23428 consists of the eastern parcel of the project area (Helu 9652:C to Makaiāhai) and contains of a light surface concentration of historic debris and two architectural features: a cistern (Feature A) and a remnant house platform (Feature B) (see Figure 4). The debris concentration consists of a light surface scatter of historic artifacts (i.e. glass, ceramic, metal, etc.) located in the southwest corner of the site along the southern boundary wall.

Feature A is a rectangular cistern. It is constructed with large, stacked *pāhoehoe* cobbles (mortar jointed) forming the outer platform edge and smaller *pāhoehoe* cobbles filling the inner area. The platform rises approximately 1.0 above the surrounding ground surface. Access to the platform is gained by using a stairway, consisting of two steps, located along the eastern edge of the feature (Figure 8). The surface of the platform is capped with a layer of mortar. A centrally located dome shaped circular cap rises above the platform surface. Access to the interior of the cistern is gained through a circular opening located in the center of the stone and mortar cap. A carved *pāhoehoe* boulder lid partially covered with mortar rests near the opening (Figure 9). Two other access holes, a raised rectangular opening (Figure 10) and a small circular opening are also situated on the raised portion of the cistern. These openings may have accommodated waterlines running to and from the feature. The cistern must have served as the primary water source for the LCAw tenants. It was probably filled by catchment from a roofed structure that existed on Feature B, or when rain was scarce, by truck delivery.

Feature B consists of a platform remnant that was formerly constructed of small to large sized *pāhoehoe* cobbles, but is now no more than scattered cobbles and coral fragments. Multiple brush piles are situated on top of the cobble scatter, and several depressions, caused by prior mechanical land clearing activities on the parcel, occur throughout the area.



Figure 8. SIHP Site 23428 Feature A view to west.



Figure 9. SIHP Site 23428 Feature A, cistern lid.



Figure 10. SIHP Site 23428 Feature A, raised rectangular opening.

### SIHP Site 23429

Site 23429 consists of the western parcel of the study area (Helu 6940 to Kekūhaupi'o) and contains three archaeological features: a house platform (Feature A), a rubbish dump area (Feature B), and a privy area (Feature C). According to the *Māhele* records, these features most likely date to sometime post 1819 (see Appendix A). The site's features are shown on Figure 4.

Feature A is a residential platform constructed on exposed *pāhoehoe* bedrock. The platform's surface is relatively flat (uniform), but its southwestern edge slopes slightly so that collapsed cobble material from the platform merges with the collapsed cobble material from the adjacent wall of Site 23427. With the exception of the north face (Figure 10), Feature A is mostly collapsed. Along the southern platform edge, the paved surface dissipates into the surrounding ground surface creating an ill-defined feature boundary.

Feature B is a rubbish dump. A wall remnant or possible dozer push pile is situated along the western portion of the rubbish scatter, while the eastern portion consists of push material (large *pāhoehoe* cobbles) integrated with smaller cobbles and coral fragments. Cultural material recovered from the feature included marine shell fragments, bone fragments, sharks teeth, metal buttons, one yellow faceted glass bead, bottle glass, volcanic glass, metal fragments, and ceramic fragments (8 whiteware (ca. 1800-1920), 3 yellowware (ca. 1830-1940), and 1 porcelain) (Noël Hume 1970).

Feature C consists of a privy area situated within a walled enclosure. A modern wooden outhouse has been constructed over the remains of an older privy hole within the enclosure. No cultural material was identified within the enclosure area. Feature C mostly likely served as a privy for the former LCAw tenants.



Figure 11. SIHP Site 23429 Feature A north edge, view to south.

## CULTURAL AND HISTORICAL BACKGROUND

### Natural and Cultural Resources in a Hawaiian Context

In Hawaiian society, natural and cultural resources are one and the same. Native traditions describe the formation (the literal birth) of the Hawaiian Islands and the presence of life on and around them in the context of genealogical accounts. All forms in the natural environment, from the skies and mountain peaks, to the watered valleys and lava plains, and to the shoreline and ocean depths were believed to be embodiments of Hawaiian deities. One Hawaiian genealogical account, records that Wākea (the expanse of the sky—father) and Papa-hānau-moku (Papa—Earth—mother who gave birth to the islands)—also called Haumea-nui-hānau-wā-wā (Great Haumea—Woman-earth born time and time again)—and various gods and creative forces of nature, gave birth to the islands. Hawai'i, the largest of the islands, was the first-born of these island children. As the Hawaiian genealogical account continues, we find that these same god-beings, or creative forces of nature who gave birth to the islands, were also the parents of the first man (Hāloa), and from this ancestor, all Hawaiian people are descended (cf. Beckwith 1970; Malo 1951:3; Pukui and Korn 1973). It was in this context of kinship, that the ancient Hawaiians addressed their environment and it is the basis of the Hawaiian system of land use.

### An Overview of Hawaiian Settlement

Archaeologists and historians describe the inhabiting of these islands in the context of settlement that resulted from voyages taken across the open ocean. For many years, researchers have proposed that early Polynesian settlement voyages between Kahiki (the ancestral homelands of the Hawaiian gods and people) and Hawai'i were underway by A.D. 300, with long distance voyages occurring fairly regularly through at least the thirteenth century. It has been generally reported that the sources of the early Hawaiian population—the Hawaiian Kahiki—were the Marquesas and Society Islands (Cordy 2000; Emory in Tatar 1982:16-18).

For generations following initial settlement, communities were clustered along the watered, windward (*ko'olau*) shores of the Hawaiian Islands. Along the *ko'olau* shores, streams flowed and rainfall was abundant, and agricultural production became established. The *ko'olau* region also offered sheltered bays from which deep sea fisheries could be easily accessed, and near shore fisheries, enriched by nutrients carried in the fresh water, could be maintained in fishponds and coastal waters. It was around these bays that clusters of houses where families lived could be found (McEldowney 1979:15). In these early times, Hawai'i's inhabitants were primarily engaged in subsistence level agriculture and fishing (Handy et al. 1972:287).

Over a period of several centuries, areas with the richest natural resources became populated and perhaps crowded, and by about A.D. 900 to 1100, the population began expanding to the *kona* (leeward side) and more remote regions of the island (Cordy 2000:130). In Kona, communities were initially established along sheltered bays with access to fresh water and rich marine resources. The primary "chiefly" centers were established at several locations—the Kailua (Kaiakeakua) vicinity, Kahalu'u-Keauhou, Ka'awaloa-Kealakekua, and Hōnaunau. The communities shared extended familial relations, and there was an occupational focus on the collection of marine resources. By the fourteenth century, inland elevations to around the 3,000-foot level were being turned into a complex and rich system of dryland agricultural fields (today referred to as the Kona Field System). By the fifteenth century, residency in the uplands was becoming permanent, and there was an increasing separation of the chiefly class from the common people. In the sixteenth century the population stabilized and the *ahupua'a* land management system was established as a socioeconomic unit (see Ellis 1963; Handy et al. 1972; Kamakau 1961; Kelly 1983; and Tomonari-Tuggle 1985).

In Kona, where there were no regularly flowing streams to the coast, access to potable water (*wai*), was of great importance and played a role in determining the areas of settlement. The waters of Kona were found in springs and caves (found from shore to the mountain lands), or procured from rain catchments and dewfall. Traditional and historic narratives abound with descriptions and names of water sources, and also record that the forests were more extensive and extended much further seaward than they do today. These forests not only attracted rains from the clouds and provided shelter for cultivated crops, but also in dry times drew the *kēhau* and *kēwai* (mists and dew) from the upper mountain slopes to the low lands.

In the 1920s-1930s, Handy et al. (1972) conducted extensive research and field interviews with elder native Hawaiians. In lands of North and South Kona, they recorded native traditions describing agricultural practices and rituals associated with rains and water collection. Primary in these rituals and practices was the lore of Lono—a god of agriculture, fertility, and the rituals for inducing rainfall. Handy et al., observed:

The sweet potato and gourd were suitable for cultivation in the drier areas of the islands. The cult of Lono was important in those areas, particularly in Kona on Hawai'i . . . there were temples dedicated to Lono. The sweet potato was particularly the food of the common people. The festival in honor of Lono, preceding and during the rainy season, was essentially a festival for the whole people, in contrast to the war rite in honor of Ku which was a ritual identified with Ku as god of battle. (Handy et al. 1972:14)

Handy et al. (1972) noted that the worship of Lono was centered in Kona. Indeed, it was while Lono was dwelling at Keauhou, that he is said to have introduced taro, sweet potatoes, yams, sugarcane, bananas, and 'awa to Hawaiian farmers (Handy et al. 1972:14). The rituals of Lono "The father of waters" and the annual *Makahiki* festival, which honored Lono and which began before the coming of the *kona* (southerly) storms and lasted through the rainy season (the summer months), were of great importance to the native residents of this region (Handy et al. 1972: 523). The significance of rituals and ceremonial observances in cultivation and indeed in all aspects of life was of great importance to the well being of the ancient Hawaiians, and cannot be overemphasized, or overlooked when viewing traditional sites of the cultural landscape.

### Hawaiian Land Use and Resource Management Practices

Over the generations, the ancient Hawaiians developed a sophisticated system of land and resources management. By the time 'Umi-a-Liloa rose to rule the island of Hawai'i in ca. 1525, the island (*moku-puni*) was divided into six districts or *moku-o-loko* (cf. Fornander 1973—Vol. II:100-102). On Hawai'i, the district of Kona is one of six major *moku-o-loko* within the island. The district of Kona itself, extends from the shore across the entire volcanic mountain of Hualālai, and continues to the summit of Mauna Loa, where Kona is joined by the districts of Ka'ū, Hilo, and Hāmākua. One traditional reference to the northern and southern-most coastal boundaries of Kona tells us of the district's extent:

*Mai Ke-ahu-a-Lono i ke 'ā o Kani-kū, a hō'ea i ka 'ūlei kolo o Manukā i Kaulanamauna e pili aku i Ka'ū!*—From Keahualono [the Kona-Kohala boundary] on the rocky flats of Kanikū, to Kaulanamauna next to the crawling (tangled growth of) 'ūlei bushes at Manukā, where Kona clings to Ka'ū! (*Ka'ao Ho'oniua Pu'uwai no Ka-Miki in Ka Hōkū o Hawai'i*, September 13, 1917; Translated by K. Maly)

Kona, like other large districts on Hawai'i, was subdivided into 'okana or *kalana* (regions of land smaller than the *moku-o-loko*, yet comprising a number of smaller units of land). The lands of Ke'ei situated in an area now known as Kona Hema (South Kona), are part of an ancient subregion generally known as "*Ka-pali-lua*" (The-two-cliffs; describing the topographic features of the *kula* or lands of the mountain slope). The *moku-o-loko* and 'okana or *kalana* were further divided into manageable units of land, and were tended to by the *maka'āinana* (people of the land) (cf. Malo 1951:63-67). Of all the land divisions, perhaps the most significant management unit was the *ahupua'a* (Figure 12). *Ahupua'a* are subdivisions of land that were usually marked by an altar with an image or representation of a pig placed upon it (thus the name *ahu-pua'a* or pig altar). In their configuration, the *ahupua'a* may be compared to wedge-shaped pieces of land that radiate out from the center of the island, extending to the ocean fisheries fronting the land unit. Their boundaries are generally defined by topography and geological features such as *pu'u* (hills), ridges, gullies, valleys, craters, or areas of a particular vegetation growth.

The *ahupua'a* were also divided into smaller individual parcels of land (such as the 'ili, *kō'ele*, *māla*, and *kīhāpai*, etc.), generally oriented in a *mauka-makai* direction, and often marked by stone alignments (*kuaiwi*). In these smaller land parcels the native tenants tended fields and cultivated crops necessary to sustain their families, and the chiefly communities with which they were associated. As long as sufficient tribute was offered and *kapu* (restrictions) were observed, the common people, who lived in a given *ahupua'a* had access to most of the resources from mountain slopes to the ocean. These access rights were almost uniformly tied to residency on a particular land, and earned as a result of taking responsibility for stewardship of the natural environment, and supplying the needs of the *ali'i* (see Kamakau 1961:372-377 and Malo 1951:63-67).



Entire *ahupua'a*, or portions of the land were generally under the jurisdiction of appointed *konoiki* or lesser chief-landlords, who answered to an *ali'i-'ai-ahupua'a* (chief who controlled the *ahupua'a* resources). The *ali'i-'ai-ahupua'a* in turn answered to an *ali'i 'ai moku* (chief who claimed the abundance of the entire district). Thus, *ahupua'a* resources supported not only the *maka'āinana* and *'ohana* who lived on the land, but also contributed to the support of the royal community of regional and/or island kingdoms. This form of district subdividing was integral to Hawaiian life and was the product of strictly adhered to resources management planning. In this system, the land provided fruits and vegetables and some meat in the diet, and the ocean provided a wealth of protein resources. Also, in communities with long-term royal residents (like Ke'ei, Ka'awaloa, and Kealakekua), divisions of labor (with specialists in various occupations on land and in procurement of marine resources) came to be strictly adhered to. It is in the general cultural setting outlined above, that we find the *ahupua'a* of Ke'ei at the time of European contact.

### The Lands of Ke'ei

The lands of Ke'ei consists of two *ahupua'a*, Ke'ei Iki (1<sup>st</sup>) and Ke'ei Nui (2<sup>nd</sup>) (see Figure 12). Ke'ei 1<sup>st</sup>, located north of the current project area, comprises approximately 1,106 acres extending from the shore to 2,750 feet elevation, where Kahauloa Ahupua'a cuts it off. Ke'ei 2<sup>nd</sup>, which includes the current project area, comprises approximately 5,478 acres extending from the shore to 5,500 feet elevation. Traditionally, both *ahupua'a* also included protected fisheries extending out into the sea (Maly and Maly 2002).

Different areas of the *ahupua'a* were utilized by the people living on the land for diverse types of resource procurement.

The ocean resources fronting Ke'ei were integral to life upon the land. On the *kula kahakai* or shoreward flats, were found potable water sources (caves, wells and springs), several village clusters and many residents, groves of coconut trees, and low land agricultural fields. The *kula uka* or upland plains, extending up to an area above the *mauka alaloa*, Keala'ehu (near present day Māmalahoa Highway) was highly valued for its fertile lands which were extensively cultivated. The lands extending from around the 2,000 to 5,000 foot elevation were cultivated in area, and a significant resource of woods, fibers, birds, and other materials of value and importance to native life. The traditional accounts, claims for *kuleana* to the Land Commission (ca. 1848-1855), Boundary Commission Testimonies (ca. 1873-1878), survey records, and oral historical descriptions of the landscape of Ke'ei, describe a wide range of knowledge of, and uses of resources in the *ahupua'a* of Ke'ei. (Maly and Maly 2002:6)

The current project area is located immediately *mauka* of Kūlou Beach within Ke'ei 2<sup>nd</sup> near Palemanō Point along the southern shore of Kealakekua Bay. Maly and Maly (2002) describe one of the lesser-known traditions of the Ke'ei vicinity:

... one that documents the origin of the naming of Kūlou, the white sandy beach on the north side of Palemanō Point. The account centers on the arrival, in the 1500s, of a Spanish ship that wrecked on the rocks fronting Ke'ei. While there is only limited historical reference to the specifics of the shipwreck, the story is still told by elder native *kama'āina*, who tell us that Kūlou mean to kneel down. Kūpuna Kahele and Pānui, were told by their kūpuna that two youth, a boy and a girl survived the shipwreck, and upon dragging themselves to the sandy shore, they kneeled down in prayer. Witnessing this event, the natives called the place, Kūlou. Kupuna Kahele named the ship Laaka or Layasa, and gave the date of 1525, for the arrival. Kupuna Pānui, also pointed out a petroglyph at the *awa pae wa'a* (canoe landing), fronting Pauahi Bishop's former residence, which as a youth, was pointed out to him as being representative of person in Spanish garb, commemorating this history.

The arrival of Spanish ship wreck survivors along the Kona Coast, was mentioned as early as 1823, by Reverend William Ellis (1963). Ellis reported that several traditions on the island of Hawai'i, spoke of the arrival white men in the Ka'awaloa vicinity. Ellis observed:

The different parties that subsequently arrived were probably, if any inference

may be drawn from the accounts of the natives, survivors of the crew of some Spanish ship wrecked in the neighbourhood, perhaps on the numerous reefs to the north-west... It is possible that one or other of the islands might have been seen by some Spanish ship passing between Acapulco and Manila... These accounts, but particularly the latter, are generally known, and have been related by different persons at distant places. All agree respecting the boat, clothing, sword, &c. of the party who arrived at Kealake'kua... [Ellis 1963:320]

In 1891, W.D. Alexander, who had served as Surveyor General of the Kingdom and Republic of Hawai'i, published a study of Hawaiian history. In the matter of the naming of Kūlou, and the arrival of a Spanish ship at Ke'ei, he offered the following narratives:

*Discovery of the Islands by the Spaniards*—Umi was succeeded by his eldest son Kealiokaloa, who was succeeded in turn by his youngest brother Keawenui-a-Umi.

During the reign of the former, a foreign vessel was wrecked at Keei, in South Kona, Hawaii. The tradition relates that only the captain and his sister reached the shore in safety, and that they knelt down on the beach, remaining a long time in that posture, whence the place was called Kulou, as it is at this day.

Unlike the Fijians, the people received them kindly and set food before them. The strangers intermarried with the natives, and became the progenitors of certain well-known families of chiefs, such as that of Kaikioewa, former governor of Kauai.

In reckoning by generations, and allowing thirty years on an average to a generation, we find that Kealiokaloa was born about A.D. 1500, and probably came to the throne about A.D. 1525-30.

Now we learn from Spanish historians that Cortez, the conqueror of Mexico, fitted out several exploring expeditions on the western coast about this time. The first squadron, consisting of three vessels, commanded by Alvarado de Saavedra, sailed from Zacatula for the Moluccas or Spice Islands, October 31, 1527. These ships sailed in company, but when they were a thousand leagues from port they were scattered by a severe storm. The two smaller vessels were never heard from, but Saavedra pursued the voyage alone in the "Florida" to the Moluccas, touching at the Ladrone Islands on the way.

No white people except the Spaniards were navigating the Pacific Ocean at that early period, and it seems to be certain that the foreign vessel which was wrecked about this time on the Kona coast must have been one of Saavedra's missing ships.

There is also little doubt that these islands were discovered by the Spanish navigator Juan Gaetano, in the year 1555. \*

\* He had previously crossed the Pacific Ocean as pilot for Guy Lopez de Villalobo in 1542, on which voyage they discovered the Caroline Islands (Islas del Rey). The account of his second voyage has never been published, but there is an ancient manuscript chart in the Spanish archives on which a group of islands is laid down in the same latitude as the Hawaiian Islands, but over ten degrees of longitude too far east, with a note stating the name of the discoverer and the date of the discovery.

The southernmost and largest island was named La Mesa, "the table," which points to Hawaii, with its high table-land. North of it was La Desgraciada, "the unfortunate," or Maui, and three small islands called Los Monjes, "the monks," which were probably Kahoolawe, Lanai, and Molokai.

In June, 1743, the British ship of war "Centurion," under Lord Anson, after a bloody engagement captured the Spanish galleon from Acapulco near the Philippine Islands, on her way to Manila. A manuscript chart was found on board, containing all the discoveries which had been made in the navigation between Mexico and the Philippine Islands. In this chart the above-mentioned group of islands is laid down in the same position as in the old chart in the Spanish archives. A copy of it is to be seen in the account of Lord Anson's voyage which was published in London in 1748. These islands did not lie in the track of the Spanish galleons, for on leaving Acapulco they steered southwesterly so as to pass far to the south of them, and on their return voyage they sailed northward till they reached thirty degrees of latitude and then ran before the westerly winds till they approached the coast of North America. This was fortunate for the Hawaiians, who thus escaped the sad fate of the natives of the Ladrone or Marianne Islands.

The error in longitude need not surprise us when we consider that chronometers were not yet invented, and that Spanish navigators depended entirely on "dead reckoning" for their longitude. [W.D. Alexander 1891:100] (Maly and Maly 2002:15-17)

The Ke'ei area has also played a well-documented and significant role in the history of the unification of Hawaiian Islands. Kealakekua Bay is the former home of some of Hawai'i's most powerful *Ali'i* and feared warriors. One such warrior, named Kekūhaupi'o, was born at Ke'ei of royal blood (his father was Kohapi'olani, a Ke'ei chief, and his mother was from Napo'opo'o). An article published in *Ka Hōkū o Hawai'i* on September 10, 1908 (translated by K. Maly) tells of Kekūhaupi'o's loyalty to Kamehameha and his role at the battle of Moku'ōhai, just south of Ke'ei, against the chief's cousin, Kiwalao. Although a lower chief, Kekūhaupi'o fought so well in this battle that he came to be known as "*Ko Kamehameha koa a waele makaihe*" (Kamehameha's warrior who weeds through men with a spear) and he became the most cherished companion of Kamehameha, outside of his own uncles. Kekūhaupi'o continued to live at Ke'ei and serve Kamehameha for the remainder of his life, which he lost not in battle, but at the sport of spear fighting. Maly's translation goes as follows:

*Ka Make Ana o Kekuhaupio ke Koa Kaulana o Kamehameha*  
(The Death of Kekuhaupio, the Famous Warrior of Kamehameha)

At the time that Kamehameha set his mind to make war and rebel against his cousin, Kiwalao, the battle took place at Mokuohai, next to Keei. Among the warriors of Kamehameha was a chief of low rank (*kaukualii o ka papa haahaa*), whose name was Kekuhaupio. The place of birth of this lower chief was Keei.

By the outcome of that first battle of Kamehameha, it was seen that Kamehameha was truly a fearless warrior, and it is also said by some of the elders that Kekuhaupio, swiftly chased down the men, giving the honor to Kamehameha, by calling him, "E ka lani e, eia mai ke kanaka." (Oh chief, here are the men.) As a result of Kekuhaupio's fearlessness and strength, he came to be known as "*Ko Kamehameha koa a waele makaihe*" (Kamehameha's warrior who weeds through men with a spear).

Kekuhaupio and the chief he served were victorious, and in this way these lands went to Kamehameha; and Kekuhaupio, became the most cherished companion of Kamehameha, outside of his own uncles.

When the battle was ended, and peace returned to the land, Kekuhaupio returned to dwell at Keei, the place of his birth. He appeared before Kamehameha, the chief he served, whenever Kamehameha desired to see him. The presence of the chief was free to Kekuhaupio as well, and whenever he desired, he was able to meet with his chief.

Now the favorite and regular pastime of Kekuhaupio was "oo ihe" (the sport of throwing spears), near the place called Waipiele, which remains near Napoopoo to this day. It was there that he would pass the time teaching youth the art of spear throwing. And the spears with which they would practice were the ihe hau (hau wood spears).

One day, he stood up on the side to deflect the spears, and on the other side were people who were to thrust at him with their hau spears. With the thrust of one of the commoners—perhaps Kekuhaupio was indifferent or not paying attention—the spear struck him in the side of his stomach. Because of the strength of the thrust, the life of Kekuhaupio, the famous warrior of Kamehameha, was ended.

On the battle fields, and before many famous warriors of various chiefs, not one blemish from a battle had been upon Kekuhaupio's body. And he had protected Kamehameha from death at the hands of assassins. But in the sport of spear fighting, Kekuhaupio, the famous warrior of Kamehameha lost his life. [Ka Hoku o Hawaii, Sept. 10, 1908] (Maly and Maly 2002:13)

It appears that a descendant of Kekūhaupi'o received LCAw. 6940 at Ke'ei, the eastern parcel of the current study area (Parcel 5). Descendants of the Kekūhaupi'ō line remain in the South Kona region to the present day (Maly and Maly 2002).

Also of historical interest and relative to the project area vicinity, are two articles published in Hawaiian Language newspapers that describe the *heiau* of Kamaiko, situated on Palemanō Point:

*Loaa na Iwi Iloko o ka Heiau* (Bones Gotten in the Heiau)

Upon the return of Mr. A. Gartley and C.H. Cook from their sightseeing journey to South Kona, Hawaii, they told us of their visit to look at the heiau of Kamaiko at Keei. There were found many human bones in the heiau.

The reason comes to mind as to why there are so many skulls and other bones there, it is because their lives were sacrificed in the heiau at the time the dwelling and eating restrictions of the people of that time were ended.

The heiau is at a place near the shore, on the ocean-side of the government road (alanui aupuni). The foundation of this heiau is wide, something like 200 by 120 feet. The shoreward and southern sides of the heiau are broken down, but the interior and other sides are in good condition. Upon looking inside, one can see three small compartments.

This heiau is situated between Napoopoo and Honaunau, and while these gentlemen were sightseeing at the heiau, Mr. Gartley saw a stone that was loose, and when he opened it he saw the skulls and bones.

The story told by the native residents about the reason that the bones were there, is that they were of the followers of Kekuākalani. The ones who rose up in rebellion against Liholiho with the kapu were overthrown. Some those people were captured when they were routed in the battle of Kuamoo. The story goes on to say that the people were taken to, and killed at this heiau, with shots to their heads. And from the looks of the skulls, many of the heads have holes in them, so perhaps it is true... [Ku Okoa, March 27, 1908] (Maly and Maly 2002:14)

*"Na Poo Kanaka me na Iwi ma ka Heiau o Keei"*

In the rebellion of Kekuaokalani, against the abolition of the eating kapu, he took the battle to Kuamoo. Upon the death of Kekuaokalani, there were seized several priests who helped bring up the rebellion of Kekuaokalani against the kingdom of Liholiho, Kamehameha II. They were taken to this heiau, and shot by those on the side of Liholiho. The reason for this is, is that it was at this heiau, that the priests and their assistants, worked their final tasks of the ancient ways. At the place where the lele was set, as the punishment of old, they were punished with death, shot with the muskets and gun powder of the foreigners, and at this place where hidden their corpses.

There were five skulls that Mr. Gartley took to Honolulu, with gun shot holes in the them. Also, a captain, prior to that had taken some human skulls from the sacred pit (lua kapu) of Hoaiku, situated on the Pali kapu o Keoua, at Kaawaloa. When he arrived in Honolulu, his horse bucked, and he fell and died. [Ka Hoku o Hawaii April 9, 1908] (Maly and Maly 2002:15)

### South Kona and Ke'ei After European Contact

Kealakekua Bay (more precisely the flats of Ka'awaloa north of the current project area) is perhaps best known as the place where Captain Cook first made landfall on the island and then ultimately met his demise. The arrival of Europeans on Hawai'i Island began a long series of events that would eventually, but not immediately, alter the Hawaiian way of life. As Major writes, "From the moment Cook and his crew arrived, relations between Native Hawaiians and outsiders were heavily influenced by the sailors' need for supplies (Major 2001)." Because of Hawai'i's isolation in the mid-Pacific it made an excellent way point for Europeans and Americans involved in the East Indian and northwest American trade networks (Sahlins 1992). Kealakekua Bay, with its excellent anchorage and abundant supply of food soon became the most frequented harbor by visitors to the island. Thus began the written history of Hawai'i.

Captain James Cook and members of his crew provided the first European accounts of the coastal region in 1779. The journals and diaries of the expedition noted the political and religious importance of the area. Descriptions provided by John Ledyard and Lieutenant James King of the expedition described the coastal area to approximately 3 miles inland as being cultivated primarily in sweet potatoes (*'uala*) (Figure 13). These were grown in small enclosures separated by low walls (Ching 1971). Also grown in this coastal zone were sugar cane, *wauke*, and banana trees. Breadfruit trees (*ulu*) were cultivated in the area situated inland of this coastal habitation and agrarian zone. Archibald Menzies, who was a member of Captain George Vancouver's 1792-1794 expeditions, provided descriptions of the coastal and upland areas and observed that the upper elevations were cultivated primarily in *taro* and *ti*.

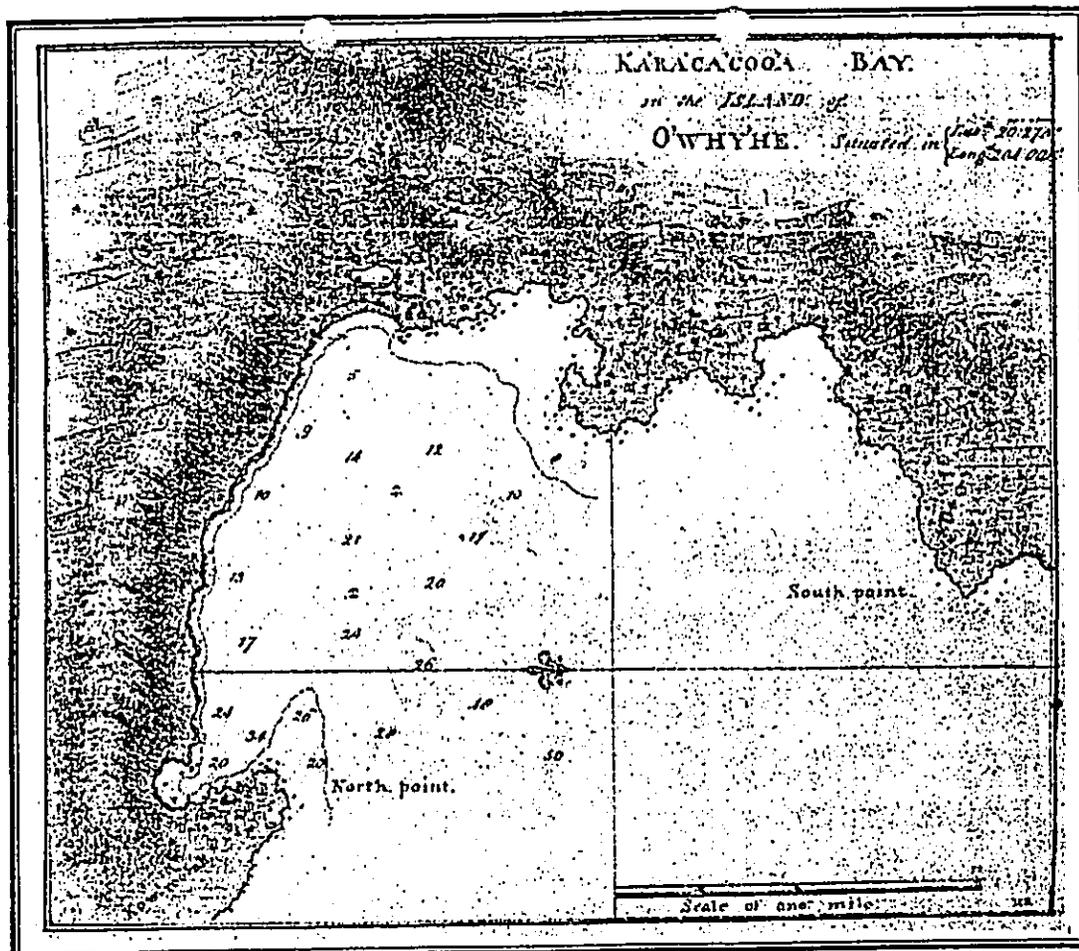


Figure 13. Map of Kealakekua Bay, Palemanō Point to Keawekaha (depicting villages and agricultural fields extending to the uplands above the Pali) from Henry Roberts Survey of 1779 (Fitzpatrick 1986).

Some of the first Europeans to reside permanently on the island, besides sailors who jumped ship, were Christian missionaries. In 1823, William Ellis visited this coastal area during his tour of the Island of Hawai'i. After leaving Ke'ei village for Hōnauanu, he described passing the location of the decisive battle of Moku'ōhai where Kamehameha defeated his cousin Kiwalao for control of half of the island of Hawai'i. His description of the battlefield follows:

Since leaving Ke'ei, we had seen several heaps of stones raised over the bones of the slain, but now became more numerous. As we passed along, our guide pointed out the place where Tairi, Tamehameha's [Kamehameha's] war-god, stood, surrounded by the priests, and, a little further on, he showed us the place where Tamehameha himself, his sisters, and friends, fought during the early part of the eighth day. A few minutes after we left it, we reached a large heap of stones overgrown with moss, which marks the spot where Kauikeouli [Kiwalao] was slain. (Ellis 1963:95)

In 1824, Reverend James Ely established the South Kona Mission Station on the Flats of Ka'aawaloa (Maly and Maly 2002). The Mission set up not only churches in South Kona, but schools as well (for formal education and the spread of the Christian word). In the Missionaries' reports, much information pertaining to daily life in South Kona, church happenings, and local populations can be found (see Maly and Maly 2002). One missionary letter, written by C. Forbes on November 8, 1835, states, "I suppose there are something like 2,000 inhabitants on that [south] side of the bay in the villages of Kealakekua, Napopo-Keii [Napo'opo'o & Ke'ei]." (cited in Maly and Maly 2002:82)

## Ke'ei and the *Māhele 'Āina*

The best source of documentation pertaining to native Hawaiian residency and land use practices—identifying specific residents, types of land use, crops cultivated, and features on the landscape—is found in the records of the *Māhele 'Āina* (Land Division) which the King entered into with the chiefs and people in 1848. The “Land Division” gave native tenants an opportunity to acquire land (in fee-simple) that they lived on and actively cultivated.

In precontact Hawai'i, all land and natural resources were held in trust by the high chiefs (*ali'i 'ai ahupua'a* or *ali'i 'ai moku*). The use of lands and resources were given to the *hoa'āina* (native tenants), at the prerogative of the *ali'i* and their representatives or land agents (*konohiki*), who were generally lesser chiefs as well. In 1848, the Hawaiian system of land tenure was radically altered by the *Māhele 'Āina*. This change in land tenure was promoted by the missionaries and the growing Western population and business interests in the island kingdom. Generally these individuals were hesitant to enter business deals on leasehold land.

The *Māhele* (division) defined the land interests of Kamehameha III (the King), the high-ranking chiefs, and the *konohiki*. As a result of the *Māhele*, all land in the Kingdom of Hawai'i came to be placed in one of three categories: (1) Crown Lands (for the occupant of the throne); (2) Government Lands; and (3) *Konohiki* Lands (Chinen 1958:vii, Chinen 1961:13).

The “Enabling” or “Kuleana Act” (December 21, 1849) laid out the frame work by which native tenants could apply for, and be granted fee-simple interest in “*kuleana*” lands, and their rights to access and collection of resources necessary to their life upon the land in their given *ahupua'a*. The lands awarded to the *hoa'āina* (native tenants) became known as “*Kuleana* Lands.” All of the claims and awards (the Land Commission Awards or LCA) were numbered, and the LCA numbers remain in use today to identify the original owners of lands in Hawai'i.

On January 28, 1848, the land of Ke'ei 2<sup>nd</sup> was awarded to L. Konia, the wife of A. Pākī and the mother of Bernice Pauahi Bishop, as Apana 5 of LCAw 5524 (Royal Patent No. 1663) (see Appendix A). Ke'ei 1<sup>st</sup> was given to the chiefess 'Akahi, a cousin of L. Konia, as part of Land Commission Award (LCAw.) 5368 (Royal Patent No. 7733). The genealogies of both Awardees stem from the Keaweikekākāhiali'iokomoku, the same line from which Kamehameha I descended on his paternal side (Maly and Maly 2002).

In addition to the two *ali'i* awardees, 70 native tenant claims for *kuleana* lots in the 2 *ahupua'a* were made, of which 34 were granted (Maly and Maly 2002). “Most of the claimants described several uses of their *kuleana*, these included house lots, and cultivation extending from areas near the shore to the forest zone. Crops identified in the testimonies included — *kalo*, *'uala*, *mai'a*, *'ohe*, *wauke*, *hau*, *lauhala*, *niu*, *kope*, and *'alani*; and one claim was made for a *pa kao* or goat enclosure” (Maly and Maly 2002: 23). The current study parcels were awarded to Makaiahai (LCAw 9652:c) and to Kekūhaupi'o (LCAw 6940), as *kuleana* house lots, which both claimants seem to have received in 1819 from their respective parents (see Appendix A). In addition to these awards, both claimants for the parcels identified several *kihapai* of both coffee and taro in separate *mo'o*, distant from the house lots. That Makaiahai and Kekūhaupi'o resided on adjacent lots may be more than coincidental. Early records from the Kingdom Department of Public Instruction (dating from 1847) suggest that both of these individuals were teachers at the Ke'ei school (Maly and Maly 2002:81). The school was situated a short distance to the north of their *kuleana* parcels (Figure 14).

The population of Kona declined during the early nineteenth century and Hawaiians maintained marginalized communities outside of the central population centers. These communities were located in the “out-of-the-way” places, like Ka'awaloa Point and Ke'ei, while the recently immigrated Asian and *haole* populations lived above the *pali* (Alvarez 1990). In the aftermath of the *Māhele*, economic interests in the region swiftly changed from the traditional Hawaiian land tenure system of subsistence farming and regional trading networks to the more European based cash crops including coffee, tobacco, sugar, and pineapple, and emphasized dairy and cattle ranching. The earliest mention of a wharf at Ka'awaloa Point was in 1853, and its construction insured the regions ability to effectively export these products and maintain a regional presence, as Kailua eventually became the primary political seat on Hawai'i Island.

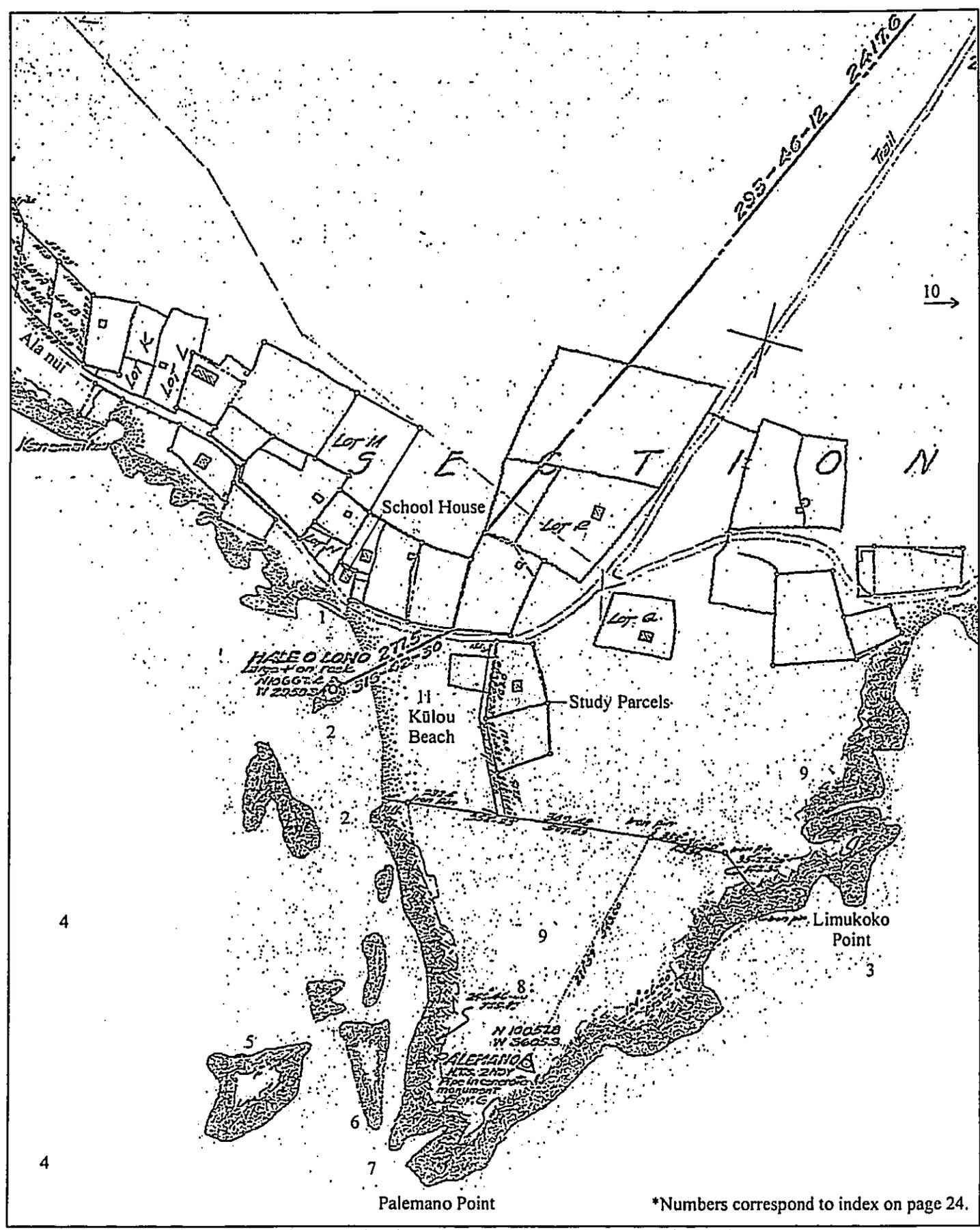


Figure 14. Portion of annotated interview map showing study parcels (from Maly and Maly 2002).

## ORAL HISTORY INTERVIEWS

The primary oral-historical information used in preparation of the current study was gathered by Kepā Maly (Maly and Maly 2002) between July and October 2002. During that time, six interviews (including two detailed field interviews at Ke'ei) with multiple interview participants were conducted. The interview participants included: William Kalikolehua and Nāmāhana Pānui; Maile Ke'ohohou-Mitchell, Mona Kapule-Kahele Howard and Harriet Ackerman; Daniel Waiānuhea and Margaret and Nerita Machado; and Katie Keli'i Kalā-Andrade. Maly also conducted several prior interviews (c.f. Maly and Maly 2001; Rechtman et al. 2001) with elder *kama'āina* (the late Joseph Keanini Gaspar; Joseph K. Keli'ipa'akaua; Fred Kaimalino Leslie; and Weston and Yvonne Leslie), who shared important information adding to the overall understanding of the land and practices of the people in the Ke'ei area. In addition, Robert B. Rechtman, Ph.D. conducted an interview with Abraham Manuia, A descendant of the Hāili family line on his mother's side, Abe spent much of his childhood in Ke'ei fishing with his grandfather (Abraham Hāili).

The collective interviewees ranged in age from 55 to 97 years old, and they shared recollections gained from personal experiences dating back to 1910. The combined interviews include important documentation about the landscape, traditions, customs, and historic land use. Prior to conducting his interviews, Kepā Maly prepared a questionnaire that followed a standard approach of identifying who the interviewee was and how the interviewee came to have the knowledge shared. Use of the questionnaire led to conversations pertaining to—knowledge of traditions; places; families on the land; practices; historical occurrences; changes on the landscape; and thoughts and recommendations on care for important places. During the interviews a packet of historic maps (dating from 1875 to 1900) was referenced (and given to the participants). Depending on the location being discussed and the nature of the resources or features being described, information was marked on one or more of the historic maps used during the interviews. Figure 14 is a portion of an annotated map, depicting the approximate locations of selected sites or features described by the interviewees.

### Summary of Oral-Historical Information

Information relevant to the current study area is summarized along with recollections of the general coastal community at Ke'ei. For the complete oral-historical transcripts readers are directed to Maly and Maly (2002).

Both *kūpuna* Pānui and Kahele recalled that the study parcels had residences inhabited by Hawaiian and Japanese families. *Kūpuna* Kahele explained that a Japanese family (Saiki) may have leased Parcel 6 and at the same time a Hawaiian family that later moved away occupied Parcel 5. During *kūpuna* Pānui's childhood Parcel 6 was the residence of John Hāili and his daughter Leina'ala (perhaps subsequent to the Japanese tenants).

All of the interview participants retained some knowledge of traditional practices and beliefs that were tied to specific places; primary among these were fisheries. Even one of the younger interviewees (and the one that spent the least amount of time at Ke'ei) recalled that life in Ke'ei was centered on fishing. Other onshore and offshore places of significance were cited including a traditional canoe landing, named semi-submerged rock formations, and a *heiau*. Information about, and the locations of, places of legendary and historical significance were retained by several of the interviewees. Most importantly, *mo'olelo* concerning Kulou Beach, Kamaiko Heiau, and Moku'ōhai Battlefield were described. This information was transmitted orally down through many generations and attests to the strong continuity of traditional practices and beliefs held by Ke'ei descendants.

## IDENTIFICATION OF CULTURAL PROPERTIES, BELIEFS, AND PRACTICES

According to the OEQC *Guidelines for Assessing Cultural Impacts*, one goal of a Cultural Impact Assessment is to identify cultural practices and beliefs and cultural resources that might be impacted by the proposed development of a particular study area. Accordingly, the types of cultural practices and beliefs subject to assessment may include subsistence, commercial, residential, agricultural, access-related, recreational, and religious and spiritual customs. The types of cultural resources subject to assessment may include traditional cultural properties and historic sites, which support the above-cited cultural practices and beliefs.

Some additional discussion relative to traditional cultural properties is warranted. In the Hawai'i Revised Statutes-Chapter 6E, and in the draft Hawai'i Administrative Rules (draft HAR 13§13-275-2) that would govern the State Historic Preservation Division, a definition of Traditional Cultural Property is provided.

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

The origin of the concept of Traditional Cultural Property is found in National Register Bulletin 38 published by the U.S. Department of Interior-National Park Service. "Traditional" as it is used, implies a time depth of at least 50 years, and a generalized mode of transmission of information from one generation to the next, either orally or by act. "Cultural" refers to the beliefs, practices, lifeways, and social institutions of a given community. The use of the term "Property" defines this category of resource as an identifiable place. Traditional Cultural Properties are not intangible, they must have some kind of boundary; and are subject to the same kind of evaluation as any other historic resource, with one very important exception. By definition, identifying and evaluating traditional cultural properties must rely on those who have knowledge of these beliefs, practices, and traditions or on historical source materials that have recorded this kind of information.

It is however with the definition of "Property" where there can be difficulty in the process of identification and evaluation, because it is precisely the concept of fixed boundaries that at times appears to run counter to the traditional Hawaiian belief system. The sacredness of a particular landscape feature is often times cosmologically tied to the rest of the landscape as well as to other features on it. To limit certain properties to a specifically defined area may actually partition it from what makes it significant in the first place. However offensive the concept of a fixed boundary may be, it is nonetheless the regulatory benchmark for defining Traditional Cultural Properties and assessing their validity.

Given the archaeological data, the extensive historical archival background research, and the collective oral-historical information, numerous cultural practices and beliefs and associated cultural resources (both archaeological sites and traditional cultural properties) can be identified in and around the study parcels. The most prominent of these include (see Figure 14):

1. *Awa pae wa'a* (canoe landing)
2. *Umu* and *'Upena Ku'u* Fishery
3. *Limu Koko* (*limu* grounds and fishery)
4. *Ko'a 'Opelu* (*'opelu* fishery)
5. *Papa o Kanukuokamanu*
6. *Papa o Pohākainalu*
7. *Palemanō* (shark shelter/cave)
8. Kamaiko Heiau
9. *Pā Ilina*
10. Moku'ōhai Battlefield
11. Kūlou Beach

## ASSESSMENT OF IMPACTS AND PROPOSED MITIGATION

The proposed use of the study parcels is that of single-family residential. This is the same use that the parcels have been subject to from at least the early 1800s (see discussion of *Māhele* records). Oral information indicates that at least one of the parcels (Parcel 6) had a functioning residence into the 1940s. It is asserted here that the construction of new single-family dwellings and the continued residential use of these parcels will have no effect on any of the identified cultural practices, beliefs, or associated cultural resources. Thus, given that the proposed development adheres to the Hawai'i State land use regulations and the Hawai'i County planning and building codes, no mitigation of resources will be necessary.

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### APPENDIX A Land Commission Award Native Register and Testimony

6940 Kekuhaupio

Ke kuleana aiaa heia ma. Keci ke ahupuaa  
 Ke, Keci ke ili: ke moa aiaa iho keia maai ka lala  
 lalan, a hiki i ke kula, eia ka palena o na kiiha-  
 pai i pono i na mea kama. 4 Kiihapai kope, 6 Kii-  
 hapai kale. 10 maai 2 Kiihapai alani. Oo Kamahi-  
 ai maai keia ma kekahi moa aiaa e ae i loko  
 no eia ili, 3 Kiihapai 1 Kiihapai kope, no Kauni-  
 puuaka maai keia ma kekahi moa aiaa e ae.  
 ma loko no eia ili, 1 Kiihapai ke kope, 1 Kii ke  
 kope no, a ma keia hale i laila no. Ma ma  
 maai keia. O Huike ka ili 3 Kiihapai kale  
 no Kahiiki maai keia. O Keci ke ahupuaa o  
 Kapiia 3 ka ili, 1 Kiihapai wala, no Kamahi-  
 ai keia. Eia na wahi kuleana ia al la. e ka Koo-  
 ma kuleana

O na anana o na Huiina kuleana eia  
 $80 \times 12 = 160 \times 3 = 480$  Kapiwai. O ka lala 130 anana  
 780 Kapiwai.

Maai ma Kekuhaupio  
 Keci Kona Hawaii.  
 Januari 20, 1879

No. 6940 - Kekuhaupio (Native Register Vol. 8:191).



