

# Appendix I



## Archaeological Inventory Surveys





LINDA LINGLE  
GOVERNOR OF HAWAII



LAURA H. THIELEN  
CHAIRPERSON  
BOARD OF LAND AND NATURAL RESOURCES  
COMMISSION ON WATER RESOURCE MANAGEMENT

RUSSELL Y. TSUJI  
FIRST DEPUTY

KEN C. KAWAHARA  
DEPUTY DIRECTOR - WATER

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



STATE OF HAWAII  
DEPARTMENT OF LAND AND NATURAL RESOURCES

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

September 8, 2010

Aki Sinoto  
Aki Sinoto Consulting  
2333 Kapiolani Blvd., No. 2704  
Honolulu, Hawaii 96826

LOG NO: 2010.1666  
DOC NO: 1009MD04  
Archaeology

Dear Mr. Sinoto:

**SUBJECT: Chapter 6E-42 Historic Preservation Review –  
Revised Archaeological Inventory Survey Report of 700 Acres with 12 New Sites  
Paeahu, Palauea & Keauhou Ahupua'a, Makawao District, Island of Maui  
TMK: (2) 2-1-008:056 and 071**

This letter reviews the aforementioned revised report (Sinoto, Pantaleo and Titchenal March 2010; *Revised Archaeological Inventory Survey: Supplemental Archaeological Procedures, Proposed Honua`ula Development Area, Paeahu, Palauea, & Keauhou Ahupua`a, Makawao District, Maui Island, TMK 2-1-08: 56 and 71; ASC080724*), which we received on March 23, 2010. We apologize for the delay in our reply.

A site visit was conducted at the request of a number of community members concerned about this project. The visit was attended by SHPD staff archaeologist Morgan Davis and cultural historian Hinano Rodrigues on August 26, 2010. At that time no significant unrecorded sites were noted, although stated concerns from the public regarding the detail of the maps included in this AIS report were considered.

This report presents a comprehensive summary of past archaeological work in this area and nicely incorporates previous surveys in the discussion of current findings. We are requesting editorial revisions to the current version of the report as detailed in the attachment to this letter.

We look forward to reviewing your revised report. If you have questions about this letter please contact Morgan Davis at (808) 243-5169 or via email to: [morgan.e.davis@hawaii.gov](mailto:morgan.e.davis@hawaii.gov).

Aloha,

Theresa K. Donham  
Acting Archaeology Branch Chief  
State Historic Preservation Division

ATTACHMENT

1. Page 7, Land Tenure During the Historic Period, first paragraph: Please correct the date(s) 1854 (the date Chiefess Miriam Kekauonohi was awarded her LCAw.) and/or 1851, the year reported as her death.
2. Figure 3, page 9: Please clearly indicate the areas of previous archaeological work either by shading the different survey areas in different colors, or by using different markings – it is unclear where the work survey areas were conducted on this map.
3. Page 10, Regional Studies, first paragraph: WWII is described as recent yet early historic extends to 1950; consider revising/clarifying.
  - a. Sixth line down, “The prehistoric occupation of site ...” – which site, 2012 or 2013?
  - b. If the ‘site’ in (a) above is referring to 2013, please explain why it is dated earlier than the two Historic burials found in it?
4. Page 11, Previous Studies within the Project Area, fifth line from the bottom: please correct typo “Siote.”
5. Page 13, Current Phases of Archaeological Work..., sixth line from the bottom: the text indicates that sites recommended for preservation were [re]located, all but one. Were these sites recommended for preservation in the 2000 and 2001 surveys? Which one was it that could not be relocated?
  - a. Figure 4: Please indicate survey area blocks by color or pattern to show the relative locations of respective surveys; the arrows do not indicate the scale of the area.
6. Page 16, Methods, first paragraph: Please document the total number of man-hours for this survey.
  - a. Second paragraph: please correct the scale of controlled manual excavations; they were either natural layers or arbitrary 5cm levels but can't be both. Do you mean arbitrary levels within natural layers, which is the standard approach.
7. Page 17, first paragraph: what was the spacing of the transects for the amendment survey?
  - a. Was a plan/report created/required for the two monitoring projects that occurred for the water tank access road and firebreak clearing projects?
  - b. Third paragraph: please note that we require SIHP numbers (as opposed to temporary numbers) for all sites in the final report documentation. If you still have not received your site numbers please contact Morgan Davis at [morgan.e.davis@hawaii.gov](mailto:morgan.e.davis@hawaii.gov).
8. Page 18, Results of Survey: for all Site records, please change “SITE” (indicating formal SHPD-assigned site numbers) to “SIHP”; this will avoid confusion with the temporary ASC numbers which are also referred to as “SITE” numbers.
9. Page 19, Figure 5: Please indicate the location of SIHP 200, the wall, which is indicated on the Figure heading. If it is supposed to be the yellow line to the south of the map please change the

Key to show that this is the wall.

10. Please provide a plan map of the survey area with all the sites and features clearly plotted; while the satellite view can be helpful it is too vague to fulfill the requirements of HAR §13-276.
11. Page 67, Table 2: For recommendations of those sites previously recorded, please indicate whether there was a previous recommendation/determination of significance, and if so whether the one(s) presented in this table are different. If different, that should be addressed in the text.
12. Page 75, Figure 52: please replace map, the site numbers are illegible.
13. Page 76, Bibliography: Please carefully review all citations and listings in the Bibliography and ensure they appear correctly in the text; for some the year is incorrect, or else the citations are not all appearing in the Bibliography. The Bibliography does not include all the works cited in the text.





Archaeological Inventory Survey – Honua‘ula







ASC080724

ASC080724

**REVISED ARCHAEOLOGICAL INVENTORY SURVEY:  
Supplemental Archaeological Procedures  
Proposed Honua`ula Development Area  
Paeahu, Palauea, & Keauhou *ahupua`a*  
Makawao District, Maui Island  
TMK 2-1-08: 56 and 71**

July 2008  
Updated March 2010  
Revised March 2011  
and March 2012



**Aki Sinoto Consulting  
2333 Kapiolani Blvd. No. 2704  
Honolulu, Hawaii 96826**

**REVISED ARCHAEOLOGICAL INVENTORY SURVEY:  
Supplemental Archaeological Procedures  
Proposed Honua`ula Development Area  
Paeahu, Palauea, & Keauhou *ahupua`a*  
Makawao District , Maui Island  
TMK 2-1-08: 56 AND 71**

by

Aki Sinoto  
Jeffrey Pantaleo  
and  
Paul Titchenal

for

Honua`ula Partners, LLC  
c/o Pacific Rim Land, Inc.  
1300 N. Holopono Street  
Suite 201, P.O. Box 220  
Kihei, Hawaii `i 96753

July 2008  
Updated March 2010  
Revised March 2011  
and March 2012

**Aki Sinoto Consulting  
2333 Kapiolani Blvd. No. 2704  
Honolulu, Hawaii 96826**

**ABSTRACT**

At the request of Honua'ula Partners, LLC (formerly WCPT/GW Land Associates, LLC), Aki Sinoto Consulting of Honolulu completed revised archaeological inventory survey procedures for the proposed Honua'ula development area, formerly known as Wailea 670, located on the southwestern slopes of Haleakala in East Maui. In order to facilitate historic preservation review by the State Historic Preservation Division (SHPD), the current revision, covering the total development area, incorporates the results of two previous undertakings completed in May 2000 and June 2001 together with the results of additional fieldwork conducted during a number of separate procedures during August 2003, June 2008, and February 2012.

The project area that encompasses 700 acres, ranges in elevation from approximately 320 to 720 feet amsl, and includes portions of three *ahupua'a*; Paeahu, Palauea, and Keauhou. The Honua'ula property is located in the modern district of Makawao on Maui Island. Topographically, the project area can roughly be divided in to two distinct areas, the northern two-thirds and the southern one-third. The Northern Section comprises a grass-covered area that exhibits compounded prior disturbance. The Southern Section, under high tree cover, primarily of *kiawe* and intermittent stands of *wilowili* has expansive areas of open, relatively young aa flows in between older pahoehoe ridges and plateaus. A large wall, trending east to west, demarks a physical division between the two areas.

All of the afore-mentioned phases of fieldwork have resulted in the documentation of forty (40) sites comprised of some sixty (60) component features in the total 700-acre project area. The Northern Section yielded only one single-feature site, a natural overhang shelter in a seasonal gulch. Contrastingly, the Southern Section produced a total of 39 sites with 59 component features. The occurrence of two multiple feature complexes along with a relatively high frequency of larger platform sites were unexpected based on the location, topography, climatic conditions, and the marginal nature of previously known sites resulting from studies in similar elevations in the neighboring properties.

Of the total 40 sites, 16 have been recommended for *in-situ* preservation, 18 for intensive data recovery, and the remaining 6 warrant no further work. Comprehensive preservation and data recovery plans shall be forthcoming shortly in conjunction with progressive phases of development planning.

**TABLE OF CONTENTS**

ABSTRACT ..... iii  
CONTENTS .....iv  
INTRODUCTION ..... 1  
    PROJECT AREA ..... 1  
    ENVIRONMENT ..... 1  
    HISTORICAL BACKGROUND ..... 4  
        Land Tenure During the Historic Period ..... 6  
    PREVIOUS ARCHAEOLOGY ..... 7  
        Island-wide Studies ..... 7  
        Regional Studies ..... 8  
        Previous Studies Within the Project Area ..... 11  
        Current Phases of Work ..... 13  
    SETTLEMENT PATTERN ..... 14  
    SITE EXPECTABILITY ..... 15  
    METHODS ..... 16  
RESULTS OF SURVEY ..... 18  
    SITE 200 ..... 18  
    SITE 201 ..... 22  
    SITE 204 ..... 25  
    SITE 205 ..... 25  
    SITE 3156 ..... 25  
    SITE 3157 ..... 25  
    SITE 3158 ..... 29  
    SITE 4945 ..... 29  
        Testing ..... 29  
    SITE 4946 ..... 30  
    SITE 4947 ..... 30  
    SITE 4948 ..... 32  
    SITE 4949 ..... 32  
    SITE 4950 ..... 34  
        Testing ..... 34  
    SITE 4951 ..... 34  
    SITE 4952 ..... 36  
    SITE 4953 ..... 36  
    SITE 4954 ..... 36  
        Testing ..... 36  
    SITE 4955 ..... 39  
        Testing ..... 41  
    SITE 4956 ..... 42  
    SITE 4957 ..... 44  
        Feature A ..... 44  
        Feature B ..... 44  
            Testing ..... 44  
        Feature C ..... 44  
        Feature D ..... 44  
        Feature E ..... 44  
        Feature F ..... 46  
            Testing ..... 46

Feature G.....	46
SITE 4958.....	46
Feature A.....	47
Feature B.....	47
SITE 4959.....	47
SITE 4960.....	49
SITE 4961.....	49
SITE 5109.....	50
Testing.....	51
SITE 5110.....	52
SITE 5111.....	53
SITE 5112.....	55
SITE 6794.....	56
Feature A.....	56
Feature B.....	56
SITE 6795.....	57
SITE 6796.....	57
SITE 6797.....	59
SITE 6798.....	59
SITE 6799.....	59
SITE 6800.....	62
SITE 6801.....	63
SITE 6802.....	64
SITE 6803.....	64
SITE 6804.....	64
SITE 6805.....	66
SUMMARY.....	66
DISCUSSION.....	68
CURRENT INSIGHTS ON THE REGIONAL SETTLEMENT PATTERN.....	70
SITE CHRONOLOGY.....	72
INITIAL SIGNIFICANCE ASSESSMENT.....	74
RECOMMENDATIONS.....	74
BIBLIOGRAPHY.....	76

Figure 9. Plan of Site 201.....	23
Figure 10. View of Site 201 Features A & C.....	24
Figure 11. Plan and View of Site 204.....	26
Figure 12. Plan and View of Site 205.....	27
Figure 13. Plan and View of Site 4945.....	28
Figure 14. Site 4945 Test Unit Profile.....	29
Figure 15. Plan of Site 4946.....	30
Figure 16. Plan and View of Site 4947.....	31
Figure 17. Plan of Site 4949.....	32
Figure 18. Plan and View of Site 4950.....	33
Figure 19. Site 4950 Test Unit Profile.....	34
Figure 20. View of Site 4951.....	35
Figure 21. Plan and View of Site 4952.....	37
Figure 22. Plan and View of Site 4953.....	38
Figure 23. Plan of Site 4954.....	39
Figure 24. Site 4954 Test Unit Profile.....	39
Figure 25. Plan and View of Site 4955.....	40
Figure 26. Site 4955 Test Unit Profile.....	41
Figure 27. Plan and View of Site 4956.....	42
Figure 28. Plan of Site 4957.....	43
Figure 29. Site 4957 Feature B Test Unit Profile.....	44
Figure 30. Views of Site 4957 Features E & F.....	45
Figure 31. Site 4957 Feature F Test Unit Profile.....	46
Figure 32. Plan of Site 4958.....	47
Figure 33. View of Site 4959.....	48
Figure 34. Plan of Site 4960.....	49
Figure 35. Plan of Site 4961.....	50
Figure 36. Plan and View of Site 5109.....	51
Figure 37. View and Test Unit Profile for Site 5109.....	52
Figure 38. Plan and View of Site 5110.....	53
Figure 39. Plan and View of Site 5111.....	54
Figure 40. Plan and View of Site 5112.....	55
Figure 41. Plan of Site 6794.....	56
Figure 42. View of Site 6795.....	57

**LIST OF FIGURES**

Figure 1. Project Location on USGS Makena Quadrangle.....	2
Figure 2. Project Location and <i>ahupua'a</i> on Tax Map.....	3
Figure 3. Locations of Previous Archaeological Studies.....	9
Figure 4. Areas Covered by Various Studies.....	13
Figure 5. Location of Site 5109 in the Northern Section.....	19
Figure 6. Location of 39 Sites in the Southern Section.....	20
Figure 7. Aerial View of Site 200 Segments.....	21
Figure 8. View of Site 200 Southern Terminus.....	22

Figure 43. Plan and View of Site 6796.....	58
Figure 44. Plan of Site 6798.....	59
Figure 45. Views of Site 6798 Features A & B.....	60
Figure 46. Plan and View of Site 6799.....	61
Figure 47. Plan and View of Site 6800.....	62
Figure 48. Plan and View of Site 6801.....	63
Figure 49. Plan of Site 6803.....	64
Figure 50. Plan and View of Site 6804.....	65
Figure 51. Distribution of Frequently Occurring Feature Types in Southern Section .....	69
Figure 52. Location of the 14 Preservation Sites in the Southern Section .....	75
One Oversized Figure of the 39 Sites in the Southern Section .....	Folded in Back of Report

**LIST OF TABLES**

Table 1. All Portable Cultural Remains.....	66
Table 2. Archaeological Site in the Honua`ula Development Area .....	67
Table 3. Site Type Frequencies .....	73

**INTRODUCTION**

As requested by the Owner, Honua`ula Partners, LLC (formerly WCPT/GW Land Associates, LLC), Aki Sinoto Consulting of Honolulu completed revised archaeological inventory survey procedures for the proposed Honua`ula development area, formerly called Wailea 670, located on the southwestern slopes of Haleakala in East Maui. To facilitate historic preservation review by the State Historic Preservation Division (SHPD), the current revision, covering the total development area, incorporates the results of two previous undertakings completed in May 2000 and June 2001 (Sinoto & Pantaleo 2000 & 2001) together with the results of additional fieldwork conducted separately during August 2003, June 2008, and February 2012.

**PROJECT AREA**

The development area for the proposed Honua`ula Project (hereafter called the “project area”), encompassing approximately 700 acres (ca 670-acres plus the proposed Pi`ilani Highway extension easement and a Maui Electric substation exclusion that total ca 30-acres), is located along the southwestern slopes of Haleakala, within the *moku* (traditional district) of Honua`ula, currently subsumed into the Makawao District, on Maui Island (Fig. 1). Occupying elevations ranging between approximately 320 and 720 feet amsl, the project area (TMK: (2) 2-1-08: POR 56 & 71) conjoins portions of three *ahupua`a*, from Paeahu in the north, Palauea in the middle, to Keauhou in the south (Fig. 2). The project area is bordered on the north by the existing Maui Meadows residential subdivision; on the east by a barbed wire fence-line along its boundary with Ulupalakua Ranch lands; on the south by a paved utility road and another barbed wire fence-line along its boundary with Makena Resort lands; and on the west by portions of three Wailea golf courses, other developments within Wailea Resort, and the existing southern terminus of Pi`ilani Highway. Roughly three-fourths of the northern section of the project area is located within Paeahu *ahupua`a* with the remaining fourth in Palauea *ahupua`a* and roughly half of the southern section is Palauea and the other half a portion of Keauhou 1 *ahupua`a* (Fig. 2).

**ENVIRONMENT**

Two relatively distinct topographic characteristics separate the northern two-thirds and the southern third of the project area. The northern section generally consists of grass-covered, moderately-sloping, rocky terrain dissected by several large, east/west trending dry gulches. The soil is Keawakapu extremely silty clay loam, developed in volcanic ash. This soil occurs in the low uplands on slopes between 3 to 25% and is characterized by moderate permeability, slow to medium runoff, and with slight to moderate erosion hazard (Foote et al. 1972:68). Bulldozed



Figure 1. Location of Proposed Honua'ula Project Area on USGS Makena Quadrangle

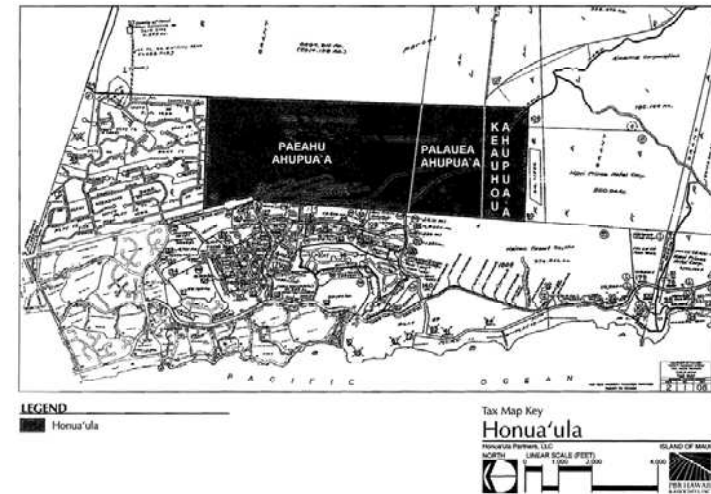


Figure 2. Tax Map of Project Area Showing Portions of the Three ahupua'a

roads, cuts, and clearings occur throughout the northern area. With the exception of the dry gulch and a few rocky outcrop ridge areas, extensive previous clearing is evident over most of the northern two-thirds of the project area. The southern section consists of dense, tree cover on old pahoehoe ridges and aa flows with expansive, open, more recent, aa flows. Very Stony Land is characterized as areas where 50-90% of the surface is covered with stones and boulders. On Maui, this land type consists of young aa lava and occurs as large areas on the slopes of Haleakala (Foote et al. 1972:124). Soils in the southern portion include the Oanapuka Series, a well-drained and very stony silt loam that occurs on low uplands and derived from volcanic ash and cinders on slopes between 7-25%. These soils are characterized with slow runoff, moderately rapid permeability, and represents slight to moderate erosion hazard (Foote et al. 1972:101). The southern portion, too, exhibits signs of previous disturbances in the form of bulldozed cuts, clearings, and secondary growth vegetation. A wide corridor was cleared by bulldozer in conjunction with the proposed Pi'ilani Highway extension which to date has not been implemented. The western or *makai* half of the southern portion below the jeep road shows

expansive areas of previous disturbance, only some of which can directly be attributed to development activities in the adjoining areas or for utility infrastructure within the project property. Some of the clearing is probably associated with historic and modern ranching and also some pre-WWII period, military activities. The project area elevations range between 300 to 720 feet above mean sea level. Annual rainfall averages 10 to 15 inches, with most of it occurring during the winter months between November and February (Armstrong et al. 1983:62).

In the northern portion, the dominant vegetation is various dry grasses and shrubs with limited stands of *kiawe* (*Prosopis pallida*) and *koa haole* (*Leucaena leucocephala*) as high cover in the gulch areas. Some *pili* or Tanglehead grass (*Heteropogon contortus*) also occurs in the northern portion. In the southern portion, the dominant high cover vegetation is *kiawe* and the dominant ground cover in certain localities is dry grasses. Other notable flora consists of *wiliwili* (*Erythrina sandwichensis*), *koa haole*, *ilima* (*Sida fallax*), lantana (*Lantana camara*), wild basil (*Ocimum basilicum*), beggar's tick (*Bidens pilosa*), and golden crown-beard (*Verbesina encelioides*). Two species of cacti, *Panini* or prickly pear (*Opuntia ficus-indica*) and hedge cactus (*Cereus uruguayanas*) are also present. Fauna includes cattle, axis deer, feral cats, wild pigs, mice, and various common exotic avian species.

#### **HISTORICAL BACKGROUND**

Detailed historical summaries for the Wailea/Makena region have been presented in various reports including Clark and Kelly (1985), Cordy and Athens (1988), Schilt (1988), Gosser et al. (1997), McIntosh et al. (1997), and most recently Donham (2006). The reader is referred to a few notable studies completed for neighboring areas, in particular *Na Lawai`a o `Ao`ao o ka Moku: Excavations at the Southern Acreage and Lot 15, Wailea Maui* (Gosser et al 1993); *Data Recovery Procedures for Parcels III and IV, Makena Resort Corporation* (Gosser et al. 1997); *Addendum Survey and Supplementary Tasks for: Archaeological Inventory Survey of Portions of Palauea ahupua`a Makawao District, Maui, Hawaiian Islands* (Rotunno-Hazuka, Pantaleo, and Sinoto 2000); and *He Mo`olelo `Aina No Ka`eo Me Kahi `Aina E A`e Ma Honua`ula O Maui: A Cultural-Historical Study of Ka`eo and Other Lands in Honua`ula, Island of Maui* (Maly and Maly 2005). In addition, *Wailea: Waters of Pleasure for the Children of Kama* (Barrere 1975) and *Sites of Maui* (Sterling 1998) contain important historical information and ethnographic accounts regarding the region. Thus, a brief summary of key points is presented here.

The earliest prehistoric settlement on Maui Island is postulated to have occurred between A.D. 300-600 along the windward regions where abundant rainfall and fertile soil supported crop

cultivation and human populations (Kirch 1985, Cordy and Athens 1988, Gosser et al. 1997). Population expansion into the drier, leeward areas of Kihei, Wailea, and Makena, likely took place by A.D. 1000-1200 (Cordy 1974, Kirch 1985) although localized area of earlier permanent occupation appear to have been present (Gosser et al. 1997). The traditionally held view that population pressures forced expansion into the more "marginal" regions has been questioned by more recent research. The general pattern of occupation suggested by archaeological research to date consists of seasonal settlements occurring along the coastal areas to exploit marine resources, while permanent settlements occupied the upland areas to utilize forest products and cultivate agricultural resources. Between these settlement loci was an arid area used for cultivating sweet potatoes and during transit on *mauka-makai* trails. Upland populations exchanged taro, bananas, and sweet potatoes with the coastal populations for ocean resources (Handy 1940). Although a number of scenarios regarding the prehistoric chronology of the coastal Honuaula region have previously been postulated (Cordy and Athens 1988, Gosser et al. 1996, and Donham 2006), the number of dated sites is still too limited to permit the establishment of cogent intra-regional chronological benchmarks.

The inhabitants of Honua`ula subsisted mainly on fish and sweet potatoes, a common diet of those who lived in the leeward area of Maui (Barrere 1975:41). The early French navigator La Perouse noted, while anchored at Keoneoio Bay that "this part of the coast was altogether destitute of running water. The inhabitants had no drinking water but a brackish water obtained from shallow wells." (1798:350)

Due to the lack of running water, agricultural production in leeward Maui Island was limited to dryland taro in the upland areas in pockets of moist soil where rainfall was greater, while sweet potatoes were grown at the lower elevations (Handy 1940:113-114). Irish potatoes became an important cash crop in East Maui, for provisioning whaling ships and supplying the west coast of North America during the Gold Rush of 1848. By 1846, the cultivation of Irish potatoes had spread from Kula to Honua`ula. Sweet potatoes were also grown for export, and sugarcane was being cultivated commercially by 1841. M.J. Nowlein and S.D. Burrows leased lands from Kamehameha III at Ulupalakua to grow sugarcane and Irish potatoes. In 1845, Nowlein and Burrows transferred their lease and interests to Linton L. Torbert, who extended sugarcane cultivation to adjoining lands and started cattle ranching. In 1856, Captain James Makee bought the Torbert Plantation and it was later referred to as the "Rose Ranch." By 1862, sugarcane was being extensively cultivated, and a steam mill was built for processing sugar. A severe drought in 1878 forced the end of sugarcane production, and cattle ranching became the dominant

commercial enterprise of Honua`ula. By the 1880s, `Ulupalakua Plantation was basically a cattle ranch utilizing the road and landing at Makena in Papa`anui. From the late 1800s into the 1970s, even through several land purchases and name changes including, Dowsett in 1886, Raymond in 1900 (Raymond Ranch), Baldwin in 1923 (Ulupalakua Ranch), and Erdman in 1963, ranching continued to dominate the economic activity in the region. However, although ranching still continues today in a more limited capacity, the dominant economic and land-use theme since then has focused on tourism-related and residential development. The past three decades have seen the intensification of golf course, resort, and luxury residence developments in the Wailea and Makena areas.

#### **Land Tenure During the Historic Period**

During the Mahele in 1848, lands of Hawaii were divided among the Royalty, Government, and commoners. Applications for land titles were considered by the Board of Commissioners to Quiet Land Titles. When a claim was validated, a Land Claim Award (L.C.A.) was awarded. Following payment of this claim, a Royal Patent (R.P.) was issued.

The *ahupua`a* of Paeahu was part of the lands assigned to Moses Kekaiwa, the eldest son of Kekuanao`a, a powerful governor of O`ahu. However, in 1842, it was included with other Honua`ula lands that were reclaimed by the government (Barrere 1975:32). The commutation of lands to the government, in lieu of cash tax payments, was a common practice among the chiefs. Thus, much of the land of Honua`ula became government lands (Cordy and Athens 1988:15). At the time of the Great Mahele, nine (9) *kuleana* Land Commission Awards (L.C.A.) in Paeahu ranged in size from 0.22 to 11.68 acres and consisted of shoreline parcels, houselots, and agricultural lands. Banana, dryland taro, and sweet potato were listed as the cultivated crops (Stocker et al. 1992:14). One of the *kuleana* awards, LCA 10665 to Piopio, appears to have been located close to, but beyond the northern boundary of the current project area, probably within the existing Maui Meadows subdivision. The locations of the other LCAs, with the exception of 5220 to Koukaina, located at the coast, were undocumented and are currently unknown. Based on the pattern seen in this region, the other parcels were most likely located *mauka* of the current project area in the inland agricultural zone. Following 1850, portions of Paeahu *ahupua`a* were sold to *haole* businessmen, and large acreages changed owners often, until in 1864; 4,445 acres were sold to James McKee, the famous founder of Rose Ranch in Ulupalakua. Much of the lands passed through McKee to Ulupalakua Ranch and Alexander and Baldwin, Ltd. (Kleiger et al. 1992:25). For a detailed narrative of the history of land tenure in Paeahu *ahupua`a*, the reader is referred to Stocker et al. 1992 and Kleiger et al. 1992.

The *ahupua`a* of Palauea, comprising about 2,130 acres (LCA 11216:21) was awarded to Chiefess Miriam Kekauonohi during the Mahele of 1848. The current project area includes a portion of this Land Commission Award. Upon her death in 1851, the land passed to her husband Levi Haalelea. In 1862, most of the *ahupua`a* was sold to James McKee through public auction. A total of fourteen (14) Land Commission Awards and eleven Royal Patent Grants are listed for Palauea *ahupua`a*. Four (4) are described as Irish potato plots and three (3) others as houselots. The remaining awards are not described as to land use. Map locations of *kuleana* are unavailable. However, the narrative descriptions of two of the houselots place them at the coast. The others likely consisted of agricultural lots located in the wetter uplands.

In 1852, L.C.A. 6715 (R.P.8213) was awarded to Ho`omanawanui, which included the entire *ahupua`a* of Keauhou 1. The award covered an area of 853 acres. In 1856, Ho`omanawanui and her husband Hikiu sold Keauhou 1 to James McKee for \$1,000.00. Eleven commoner awards are listed for all of Keauhou (1 and 2) *ahupua`a*. Although their locations are unknown, based on the descriptions given in the award documents, most appear to be Irish and sweet potato lands or houselots. The potato lands probably occurred further inland (above the 1200' elevation) of the current project area, while the houselots were most likely located closer to the coast. In addition, five (5) Royal Patent Grants are also listed. None of the *kuleana* awards and grants appeared to have been within the boundaries of the current project area.

#### **PREVIOUS ARCHAEOLOGY**

Due to the advent of resort and residential development in the region in the past four decades, a large number of development-related archaeological studies have taken place in Wailea and Makena. Several have dealt with large land holdings ranging from 40 to more than 1,800 acres.

#### **Island-wide Studies**

For Maui Island, there are three references that can be considered to form the basis for the archaeological investigations that followed. The seminal work is the 1931 survey by Winslow Walker that focused on prominent sites throughout Maui. In Honua`ula *moku* his survey documented 10 coastal *heiau*, four upland *heiau*, a number of fishing shrines (*ko`a*), a coastal village, and two fishponds. Sterling continued where Walker left off and undertook extensive surface surveys in various regions of Maui and collected valuable first-hand information from native Hawaiian *kupuna* that lived in the regions. Although Sterling's data was not published until 1998, the represented body of her work spans a decade of research between 1960 and 1970. The third was the Maui Island component of the Statewide Inventory of Historic Places that took

place during 1972-1973 under the auspices of the State of Hawaii, to complete an inventory of known sites on the island. The conditions and dispositions primarily of sites previously recorded by Walker and Sterling were evaluated in the field by a team of archaeologists from the Bishop Museum accompanied by Maui *kupuna* Charles Keau. Recommendations for nominations and eligibility to the Hawaii and National Registers of Historic Places were made and established the foundation for modern historic preservation initiatives on Maui and in the State of Hawaii. Although implementation did not take place until the mid-1980s, this undertaking also paved the way for establishing and maintaining a Statewide database of archaeological and historic records.

### Regional Studies

A large number of studies have been completed in the coastal areas of Wailea and Makena. The reports for studies undertaken in conjunction with expansions of the Wailea (Gosser et al. 1993) and Makena (Gosser et al. 2002) golf courses, developments in coastal Paia *ahupua'a* (Rotunno-Hazuka, Pantaleo, and Sinoto 2000), development parcels in Wailea (Stocker et al. 1992 and Kleiger et al. 1992), and coastal Makena (Donham 2006) contain comprehensive summaries of previous work in the general region (Fig. 3). The reader is referred to those reports for an archaeological overview of traditional occupation in the vicinity of the current project area.

The majority of previously completed projects in Paia *ahupua'a* have taken place along the coastal areas or immediately *makai* of Pi'ilani Highway and Kalai Wa'a Street adjacent to the western boundary of the current project area. Brief summaries of selected studies in Paia *ahupua'a* are presented below.

In 1985, PHRI conducted archaeological data recovery for the Wailea Point Condominium site (Walker et al. 1985), located on the shoreline at Wailea Point. Three multiple feature sites were investigated. A total of 13 features; including 4 C-shapes, 4 U-shapes, a terrace, 2 walled enclosures, and two enclosed terraces; were investigated. The smaller, simple features yielded sparse midden and limited artifacts while the larger, more complex structural features yielded a profusion of prehistoric and early historic period artifacts. Of the more than 6,500 artifacts, 49% were prehistoric in type, 39% were historic, and 12% were modern. A span of occupation ranging from AD 1350 through 1900 was indicated through radiocarbon, stratigraphic, and artifactual analyses. Relocation and reconstruction of several of the features were recommended for public interpretation and were subsequently implemented.

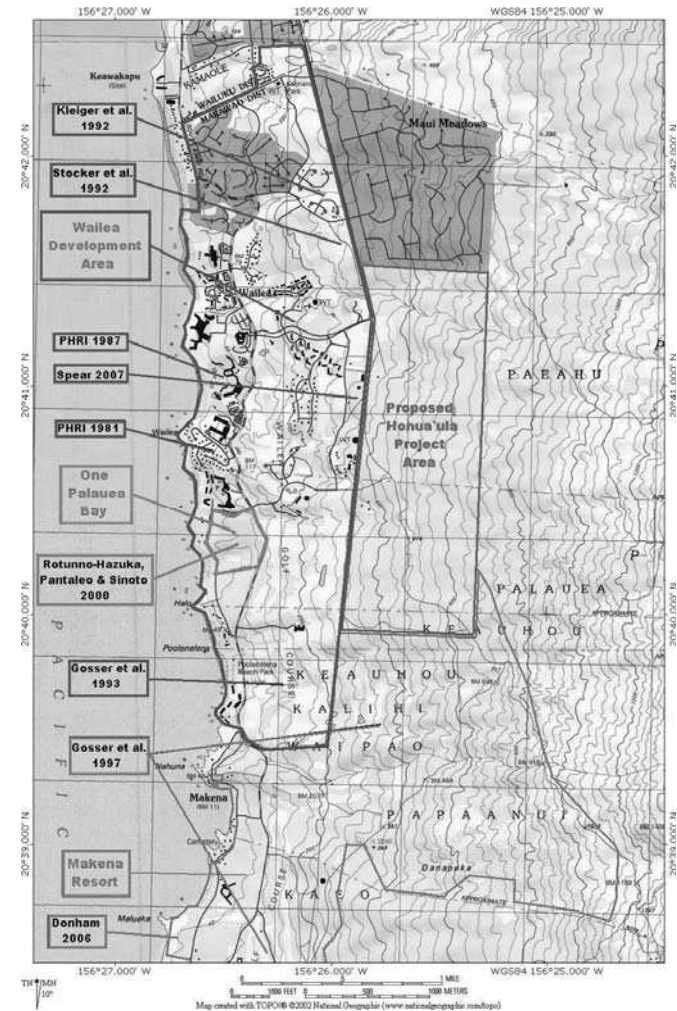


Figure 3. Locations of Previous Archaeology and Major Development Areas



In 1987, PHRI conducted archaeological data recovery for the proposed Grand Wailea Hotel (Rosendahl and Haun 1987), located on the shoreline of Paeahu *ahupua`a*. Site 2012, a single enclosure feature, and Site 2013, with 6 features (A-F) were excavated. Utilization of Site 2012 during three periods, late prehistoric (AD 1640-1890), early historic (AD 1650-1950), and recent (WWII) was determined. Two human burials were recovered from Site 2013 along with an extensive collection of portable artifacts. The prehistoric occupation of site was dated between the mid-1300s to the mid-1600s. Glass bead burial goods indicated that the burials originated during the historic period. No further work was recommended. These sites were destroyed during hotel construction and the burials were disinterred and later re-interred within the project area. A large number of burials, mostly prehistoric, were encountered during the subsequent monitoring procedures during hotel construction.

The Applied Research Group (ARG) of the Bishop Museum conducted archaeological data recovery in Parcel SF-7 of the Wailea Resort company holdings in 1992 (Klieger et al. 1992). Two sites were investigated including 3 C-shapes and two modified outcrop features. The only artifacts recovered from excavations were basalt and volcanic glass flakes and polishing stones. The radiocarbon analyses were unsuccessful, yielding modern or no dates. The C-shapes were all relegated to be of WWII origin while the modified outcrops were interpreted as traditional Hawaiian. No further work, for any of the features associated with the two sites, was recommended.

In the same year, ARG undertook an archaeological inventory survey in a portion of Wailea Resort Company Parcel MF-12 (Stocker et al. 1992). Four structural features of one site; two circular alignments, one oval enclosure, and one wall; were investigated within a portion of this parcel slated for a rock crusher site. No subsurface deposits or features were encountered. No further work was recommended for three of the features, and future data recovery was recommended for the wall feature.

Scientific Consultant Services conducted an archaeological inventory survey of a 17.89 acre parcel located between the 160-300 ft. elevation of Paeahu *ahupua`a* (Spear 2000), immediately *makai* of the current Wailea 670 project area. The area was found to be extensively altered previously and no surface cultural remains were encountered during the walk-through survey. Due to the negative results of the surface survey, no testing was performed and no further work was recommended.

Gosser's characterization of the nature of dry-land agriculture in the lower reaches of Paeahu to Papa`anui *ahupua`a* in the Wailea development area adjoining the subject project area to the west states in part that:

Agriculture in the Wailea region was restricted to small plots that were probably under sweet potato cultivation. Not much can be said about the agricultural sites in the Wailea area because very little excavated material was recovered from them and no attempt to calculate crop yields was made, primarily because crop production is potentially very variable. In terms of chronology, it is statistically significant that only one radiocarbon sample derived from an agricultural context dated to earlier than A.D. 1600. Agriculture, within the immediate region (perhaps in contrast to the wetter Makena region to the south) was not a primary pursuit although sweet potato was cultivated (based on the evidence of small mound clusters at Sites 2549, 2534, and 2535), probably at the *kauhale* or *kulanakauhale* level; it should also be stated that only one agricultural site (Site 2549) extended outside the project area, suggesting that the contiguous agricultural site was relatively small and would not constitute a "field system." (Gosser 1993:261)

The nature of the early occupation of the more arid localities in the *moku* of Honua`ula is still unclear. However; that a number of other factors influenced the settlement of these areas, besides just population growth and expansion from other districts and political hegemony, are becoming progressively understood. The transition from seasonal recurrent occupation for the exploitation of marine resources to the development of small permanent hamlets in localized areas with favorable micro-climates and brackish water sources, such as in Ka`eo in Makena, would not have been too difficult to imagine or to effect.

#### Previous Studies within the Project Area

Four surveys were previously conducted within the current project area; two for the proposed development of the Wailea 670 property, one for the proposed Piilani Highway extension, and the most recent, for a cinder haul road at the southern boundary. The earliest was completed in 1972 and covered the segment of the right-of-way corridor for the proposed highway extension within portions of Paeahu, Paluaea, and Keauhou *ahupua`a* (Walton 1972). Seven sites were recorded within the current project area. Site 200 is the long wall that forms the northern boundary of the project area. Site 201 is a complex of fairly prominent structural features. Site 202 is a complex of deteriorated walls near the Site 200. Site 203 is a deteriorated C-shaped enclosure. Site 204 is a small platform built against a bedrock ledge with an associated paved area. Site 205 is an enclosed overhang shelter. Site 211 is a single aa boulder alignment constructed along the base of a rocky ridge. All of the sites were recommended for avoidance with no further work. Site 201 was recommended for data recovery if avoidance was not possible

and Sites 204 and 205 were recommended for public interpretation. Sites 202, 203, and 211 could not be relocated during any of the subsequent surveys.

The first survey for the whole Wailea 670 property was completed seven years after Walton's report. This reconnaissance survey, completed in one day, did not locate any remains and failed to relocate Walton's sites, all of which were assumed to have been destroyed during the bulldozing of jeep roads (Hammatt 1979). Based on the supposed "total absence of sites", archaeological "clearance" of the whole area was recommended without any further work including monitoring during construction. This researcher apparently mistook the wall (Walton's Site 200) at the northern boundary of the southernmost 190 acres to be the southern boundary of Wailea 670, so the southern third of the project area was not included in the survey.

The second survey of the 670 property was completed 9 years after Hammett's. This seven-day surface survey which also supposedly covered the whole area, both on foot and in a 4WD vehicle, failed to relocate any of Walton's sites or record any new sites (Kennedy 1988). One remnant of a historic water tank base was mentioned on the northern section. Although Kennedy's survey included the whole property, no sites, including Walton's, were located. Based on the informal testimony of a former *paniolo* for Ulupalakua Ranch, the walls were assumed to be associated with "modern" ranching activities and considered not to warrant documentation, all of Walton's sites were assumed destroyed, and no further work was recommended.

The cinder haul road survey (Sinoto and Pantaleo 1993) was conducted along the southern boundary of the current project area. Three sites, a C-shaped enclosure (3156) and two walls (3156 and 3157) were recorded. Testing of the interior floor of the C-shape produced negative results. No further work and avoidance of these sites were recommended with limited breaching of the walls, with archaeological monitoring, for the cinder haul road. No inadvertent findings were made during monitoring.

No subsurface testing was previously undertaken in any of the known sites in the project area. Thus, the age of the sites are not known and at the same time, a paucity exists of dates obtained from sites in neighboring areas at around the same elevation. The closest dated sites occurred in the north course of the Maui Prince Golf Course and produced a date range of A.D.1327-1889 (Gosser et al. 1997). Corresponding date ranges occur in the coastal areas as well and indicate that a similar chronology could be predicted for the occupation of the current project area.

#### Current Phases of Archaeological Work in the Honua'ula Development Area

Commencing in April 2000, archaeological inventory procedures were undertaken within the ca 190-acre southern portion of the Honua'ula project area. The results of this study were reported in May 2000 and the final revision was completed in October 2000 (Sinoto and Pantaleo). Following this initial report, after re-evaluating the previous work by Hammatt and Kennedy, the State Historic Preservation Division (SHPD) concluded that the negative findings may have resulted from inadequate fieldwork and an inventory survey of the northern two-thirds of the Honua'ula project area was recommended (Fig. 4). At the same time SHPD requested additional walk-through transects to be completed within the 190-acre inventory survey area. The addendum survey addressing these concerns was completed during March through May 2001 and reported in June 2001 (Sinoto and Pantaleo). Only one site, an unmodified, natural overhang shelter (SIHP Site 50-50-14-5109) was found in a gulch within the northern two-thirds of the Honua'ula project area. The northern area was found to have undergone compounded extensive disturbances through historic and recent ranching activities and possibly some military activities during WWII. Within the southern third however, a total of 27 archaeological sites comprised of 43 component features were recorded during the course of the two surveys. In October of 2003, a GPS point survey was conducted in which all, but one of the sites recommended for *in situ* preservation was located. More transects sweeps were conducted during dry periods when ground cover vegetation was minimal. A total of 40 archaeological sites comprised of 60 component features, the subject of the following sections of this report, have been recorded in the proposed Honua'ula development area. Only one site comprised of one feature is represented in the northern section of the project area, the remaining sites and features all occur within the southern section.

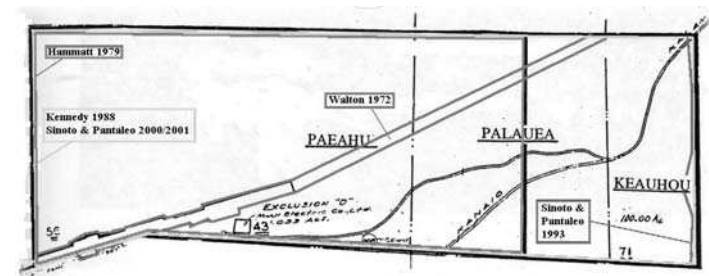


Figure 4. Map Showing Areas Covered by Previous Investigations within the Project Area

#### SETTLEMENT PATTERN INFERENCES BY PREVIOUS RESEARCHERS

Researchers such as Kirch (1974) have asserted that later prehistoric expansion on Maui led to the occupation of harsher or more ecologically marginal regions. Chapman and Kirch (1979) proposed that a pattern of transience existed between coastal and inland areas. Inhabitants of the upland agricultural region may have utilized the coastal shelters as temporary or seasonal bases for expanding the range of resource exploitation. Trails linked these permanent upland habitation areas to coastal areas. Cleghorn (1975) suggested dual permanent settlement in both coastal and inland areas of Keauhou. Temporary habitation sites, located along trails linking upland and coastal settlements were used by travelers from upland residences to the coast in order to exploit the seasonal marine resources.

Sinoto (1978) and Gosser et al. (1997) argued that the presence of localized, environmentally favorable zones, such as areas with more rainfall, influenced permanent occupation and the types of activities that took place. In fact, for Wailea, the area immediately west of the Honua'ula Development area, only 20% of the sites recorded within a 187-acre project area was considered to have some agricultural function. These primarily consisted of mounds for sweet potato cultivation, but the low frequency led Gosser to conclude that agriculture in Wailea, "was not a primary pursuit" (Gosser et al.1993:248).

Following a review of previous reports completed to the year 2000, Haun compiled a listing of minimally 77 permanent habitation features, 192 temporary habitation features, 282 agricultural features, 8 human burials, 23 ritual features, and 11 trail segments in coastal Honua'ula from Keauhou to Onau *ahupua'a*.

Based on work undertaken in Wailea, Gosser et al. (1993) noted a strong *ahupua'a* constrained site distribution along the coastal areas between Paeahu and Papa'anui. Additionally, the coastal settlement of Palauea and Keauhou *ahupua'a* appeared to indicate that the earliest sites were permanent residential units and other structural features that may have had religious or ceremonial functions. In both Keauhou and Palauea, these site types occur near the central portions of the *ahupua'a*. In Keauhou, a site complex that extends from the coast to approximately 300 m inland (40-80ft. elevation) consists of four to six *kauhale* (residential compound), a *mua* (or men's house), a *heiau*, and a *ko'a* (fishing shrine).

Late prehistoric/early historic settlement in Palauea and Keauhou was characterized by permanent habitation along the coast and limited agricultural expansion into harsher, more ecologically

marginal regions (Kirch 1977). Sites over a quarter-mile inland continued to be temporary habitation and agriculture, although scattered permanent habitation extended as far as a half-mile inland in certain localities (Schilt 1988). The presence of earlier permanent settlements on the coast has been recently discovered as well (Donham 1986 and Fredericksen 1999).

According to Cordy (1978), where the 30-inch rainfall zone exceeded distances of 6 to 7 miles inland, dual permanent settlement occurred. If it was less than 6 miles inland, permanent settlement would primarily be coastal. In the current study area, 30-inch rainfall occurs beyond 6 miles inland, thus suggesting permanent settlement both on the coast and further inland. Situated between the 300-700-foot elevations, the project area occurs wholly within the intermediate zone. This zone was traditionally considered by researchers primarily as a zone of transit between the coastal and inland areas during the prehistoric period and increasing agriculture-related permanent occupation during the early to middle historic period.

In Paeahu, the regional pattern of habitation on the coast below the 150-200-foot elevations and at higher elevations above 3000 feet in areas with more rainfall appears applicable. The intermediate zone that lies between these two permanent settlement areas exhibits a much lower density of sites and a decrease in site type variation. Only marginal structural features such as modified outcrops, rock shelters, and stone mounds are common to this intermediate zone.

The foregoing pattern of occupation, in the general region of the project area, is applicable to the prehistoric and early historic patterns of traditional occupation. By the 1800s, with the advent of cattle and commercial agricultural enterprises; the introduction of the western concept of private ownership of land; together with the development of cart paths, roadways, and harbors; the traditional occupation pattern underwent major changes throughout this region as well as island-wide.

#### SITE EXPECTABILITY

According to the settlement pattern model inferred by previous researchers as discussed in the preceding section; the subject area, located approximately three-quarters of a mile to one and a quarter miles inland, is situated in a harsher, more ecologically marginal area. Sites expected in this zone would include features related to temporary habitation, possibly limited dry-land agricultural features, and transportation during the prehistoric period. Features represented may include modified outcrops, isolated C-shape and U-shape structures, overhang shelters, and trails. Most likely, the historic period sites would primarily be related to ranching activities. These may

include; walls, mounds, pits, modified outcrops, enclosures, clearings, and roadways. Site density is expected to be sparse with occurrences being scattered and dispersed over a wide area. Especially within the northern portion, with evidence for extensive previous disturbance over much of the area, only those remnant areas near and within the gulches and rocky outcrops have potential for extant remains.

#### **METHODS**

The fieldwork for the initial inventory survey, limited only to the southern section, took place discontinuously over a three week period, commencing on April 18 and concluding on May 9, 2000. The project personnel consisted of Jeffrey Pantaleo, M.A. principal investigator and Aki Sinoto, project coordinator; assisted by Lisa Rotunno-Hazuka and Paul Titchenal, M.A.. The survey entailed walking systematic north-south and east-west transects. The density of vegetation and the type of terrain directly influenced the transect intervals, which generally ranged between 5-25 m apart. Areas disturbed through extensive mechanical clearing were spot checked. To facilitate the walk-through survey and locating the recorded sites on a map, the bulldozed roadways were used to subdivide the survey area into increments of more manageable size. The project area was divided into east and west sectors using the main unpaved access road that traverses across the area from the Ulupalakua Ranch gate at the southeast corner through the central section of the Site 200 wall on to the two entry gates into the Wailea 670 property. When a site was identified, it was cleared of vegetation, assigned a temporary site number, plan mapped using tape and compass, and located on a topographic map provided by the client. The site was tagged with a piece of flagging tape, labeled with the site number, for subsequent relocation and identification. B&W and color photographs in 35mm format were taken of project area overviews and selected sites. The subsequent work employed digital photographs.

Subsurface testing was conducted at selected sites/features to determine the presence/absence and extent of cultural remains, deposits, and to retrieve any datable samples. Controlled manual excavations, using a trowel, were conducted by natural layers, subdivided into 5 cm levels, and soil was sifted through a 1/8" mesh screen. Any collected material was placed in labeled bags.

The fieldwork for the amendment survey took place discontinuously over a two month period during March-May 2001, with an accumulated total of twenty person days being expended for preparation and surface survey. The personnel consisted of Lisa Rotunno-Hazuka, Ian Bassford, Aki Sinoto, and Jeffrey Pantaleo, M.A. In the southern section, the amendment procedures entailed traversing areas with denser vegetation with closer interval transects. Each pass was

oriented in the direct opposite direction of the previous pass in order to maximize visual coverage of outcrop and ledge areas. In the northern, grass-covered section where immediate ground visibility was poor, an enlargement of a 1996 aerial color photograph taken by the R.M. Towill Corporation was utilized to determine specific localities of potential sensitivity. These areas, concentrated along the vegetated dry gulches and remnant outcrop ridges, were thoroughly inspected by walking systematic transects. Subsurface testing was undertaken at the solitary overhang shelter located in the northern portion. Following the completion of the amendment procedures, SHPD concurred with the findings and conclusions that the northern section exhibited ample evidence of compounded, extensive previous impacts and absent of significant archaeological remains. Thus, subsequently, attention was focused on the southern section.

During August 2003, June 2008, and February 2012 various field procedures; including additional walk-through inspections during the die-back of cover vegetation in the dry season and GPS point survey of sites recommended for preservation were conducted. Some monitoring was also undertaken in conjunction with the clearing of firebreaks along the northern boundary with Maui Meadows, marking sites for surveyors, assessing the impact of deer on archaeological surface remains, and the construction of a water tank and access road for Wailea Resort within a portion of the subject project area. These tasks were undertaken by Kimokeo Kapahulehua; Eugene Dashiell, M.A.; Paul Titchenal, M.A.; and Aki Sinoto.

During July to October of 2006, A & B Wailea LLC, constructed a 1 million gallon water tank and access road in the Paeahu portion of the project area. Although, archaeological monitoring was not required by SHPD based on the negative results of the aforementioned amendment survey (Sinoto and Pantaleo 2001), informal monitoring during clearing and grading of the access road, water tank construction, and trenching within Kaukahi Road was conducted by Aki Sinoto Consulting at the request of A & B Wailea LLC. The monitoring procedure was completed with negative results.

Accepted standard archaeological procedures, techniques, and practices were followed throughout the inventory survey procedures described in this report. Permanent State Site (SIHP) numbers were obtained from the State Historic Preservation Division for all sites. Handheld Garmin GPSmap 76Cx and Trimble Pro XRS GPS units were used for GPS point survey. The collected data was later processed in the office using Garmin and ArcView GIS software to produce various maps of the project area.

## RESULTS OF SURVEY

A total of 40 sites comprised of 60 component features have been recorded within the 700-acre, project area during multiple field sessions that took place between April 2000 and June 2008. One site was located in the northern section (Fig. 5) and the remaining thirty-nine sites are in the southern section (Fig. 6 and large folded map in back cover). Seven of the sites in the southern section were previously recorded prior to the start of the current procedures. Thus, a total of thirty-three sites were previously unknown. Remnant segments of the historic roadway referred to as the Kanaio-Kalama roadway were apparently obliterated at the time when the current access road was bulldozed atop the same alignment. Waterworn cobbles and boulders, representing manuports foreign to the environment, presumably used in the original construction of the Kanaio-Kalama roadway, can be seen strewn on either side of the existing jeep road in certain locations. Portions of the roadway may also have been modified for use by the military.

Twenty-eight sites (Sites 200-205, 3156-3158, 4945-4961, and 5109-5112) recorded in 2000 and 2001 were previously assigned permanent State Site numbers. Twelve additional sites (Sites 6794-6805) were added later. Descriptions of all recorded sites are presented below:

### SITE 200 (all permanent SIHP numbers are prefixed by 50-50-14-)

This well-constructed wall, running *mauka-makai* (east/west) and previously recorded by Walton (1972), defines the northern boundary between the north and south sections of the project area. This free-standing, double-faced wall built of 4-10 courses of stacked basalt cobbles and boulders, ranges 0.80-2.0 meters in height and 0.50-0.80 meters in width, and continues beyond the east and west boundaries of the project area (Fig. 7). According to Walton (1972:10), this wall was constructed by Ulupalakua Ranch in the 1880s. The wall was breached in several locations by bulldozing for access roads. Other walls also intersect and conjoin with this wall. The east-west segment measures ca 1000 meters in length.

### SITE 200 (southern divergence)

The second longest wall in the project area is the southern divergence of Site 200 which starts around 170 m from the western boundary of the project parcel and follows the curving edge of a drop in elevation toward the south for 500 meters. This wall, upon reaching an area of bare aa, sharply turns towards the west and continues beyond the west boundary (Fig. 8). This wall is similar in construction and dimensions to Site 200 over most of its length although in places the construction does not appear contemporaneous. This segment was not recorded by Walton, but designated as part of Site 200 because these two prominent walls are joined.

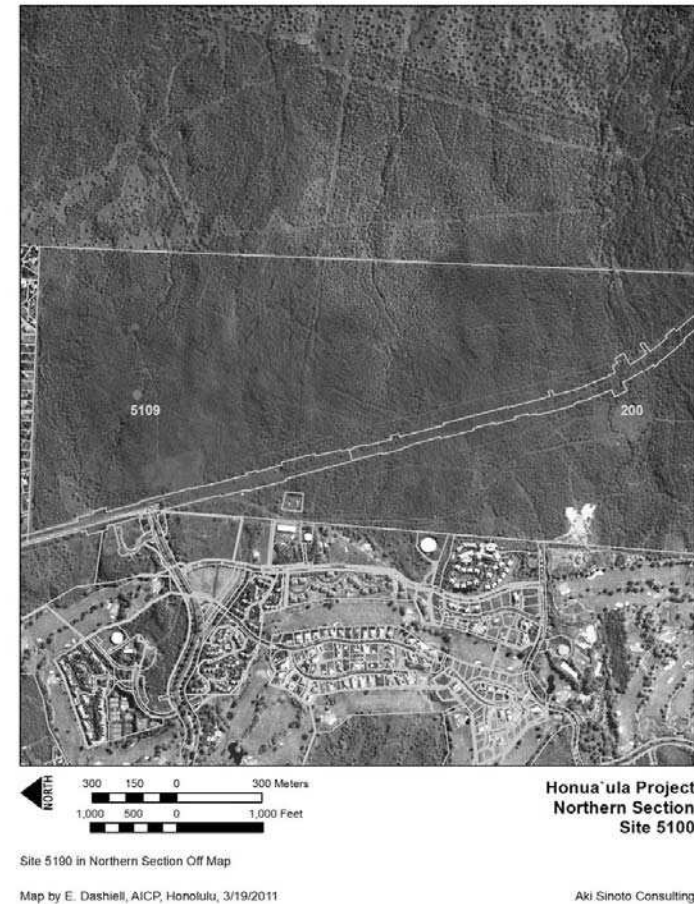


Figure 5. Location of Site 5109 in the Northern Section of the Project Area  
(Note Site 200 Wall to the South)

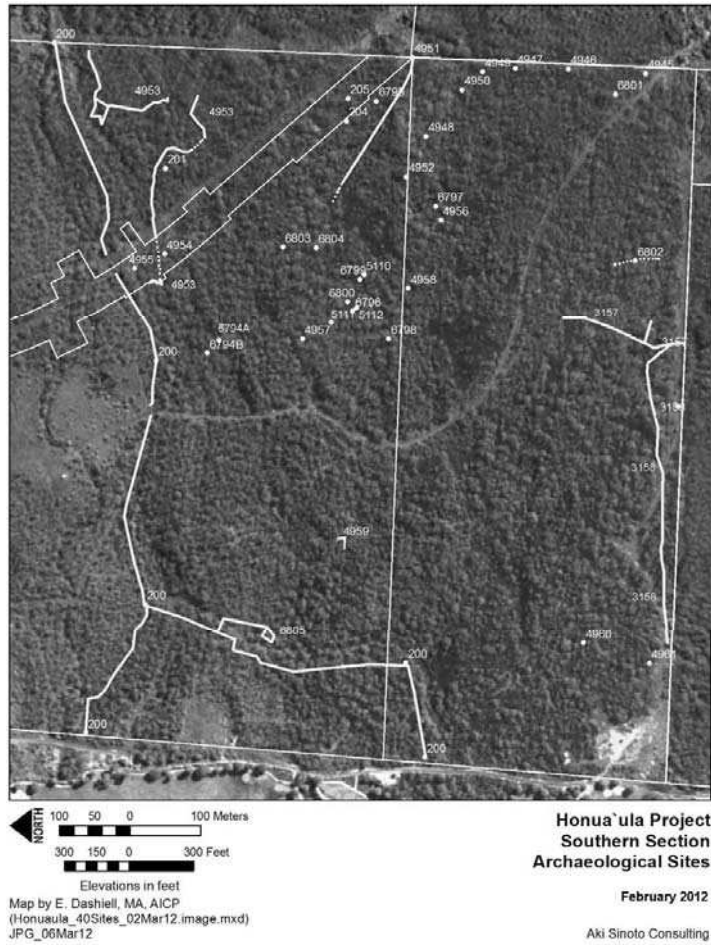


Figure 6. Locations of 39 Sites in the Southern Section  
(See large folded map insert at back of this report)



Figure 7. Partial Aerial Overviews of Intact Sections of Site 200 Wall  
Left Panel: Lower Segment Showing Breach at Jeep Road Entry  
Right Panel: Upper Segment Connected to Lower Segment  
(Aerial Courtesy PBR Hawaii, Inc.)



Figure 8. View of the Site 1/200A Wall Near Its Western Breach at Boundary, View to East

#### SITE 201

This site, previously recorded by Walton (1972:17), is a complex consisting of a meandering wall, a platform, overhang shelter, parallel walls, and a low, amorphous clinker platform located near the northeast corner of the south section (Fig. 9). The site occupies ca 4100 square meters.

**Feature A** is a terrace platform built against the southern edge of an outcrop ledge (Fig. 10 top). The platform measures 10.2 by 3.5 m and ranges between 0.7 to 1.8 m high. It is solidly constructed of stacked basalt cobbles and boulders, 3-10 courses high, and filled with boulder/cobble clinkers. A depression was observed on the surface in the southeastern corner of the platform and a portion of the long southern face is tumbled.

**Feature B** is an overhang shelter located 10 m west of Feature A. The shelter measures 2.8 by 1.2 m and the ceiling at the entrance is 0.8 m high. Fronting the shelter is a level soil terrace enclosed by a piled basalt cobble/boulder wall. The terrace measures 2.6 by 2.8 m. The wall enclosing the soil area is circular, 3-4 courses high, and measures between 0.4 to 0.7 m wide and interior height 0.55 m and exterior height 0.65 m. A cowrie shell octopus lure was found on the surface of the south wall.

**Feature C** consists of parallel walls located in a swale 8 m north of Feature B (Fig. 10 bottom). These free-standing parallel walls are 3 m apart and constructed of stacked basalt cobbles and boulders. They measure 10.6 by 0.8 m and 1.0 to 1.6 m high.

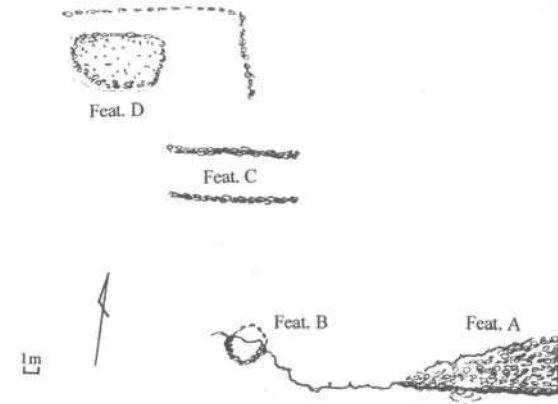


Figure 9. Plan View of Site 201 Complex

**Feature D** is a crude platform located on a ridge approximately 4 m north of Feature C. It is constructed of stacked cobbles and small boulders, filled with cobbles and clinkers, and its sides are not faced. It is roughly rectangular, measuring 6.0 by 4.0 m, and orients east-west along its long axis. The brass washer was located on the east side of this platform. The meandering Site 4953 wall is located to the east, west, and north of this feature and complex. The western end of the wall extends to the Pi'ilani Highway extension right-of-way cut where it is truncated. A short remnant segment continues west of the cut (see Fig. 6).



Figure 10. (top) Site 201 Feature A Platform to West  
(bottom) Site 201 Feature C Parallel Walls to East

#### **SITE 204**

This site, also previously recorded by Walton (1972:12) is a platform and a small paved area located approximately 30 m west of Site 205 along the base of a sloping outcrop ridge (Fig. 11). The platform measures 5.5m long by 3.9 m wide and 1.2 m high. It is constructed of stacked basalt cobbles and boulders, 3-4 courses high. A coral manuport is located on a level soil area immediately north of the platform. The eastern portion of the platform has been disturbed by a large, fallen *wilwili* tree. The paved area, one stone high and measuring 2.0 m by 1.0 m, is located roughly 6 meters north of the large platform. The brass washer with site number was located in a boulder on the north face, near the northwest corner of the large platform.

#### **SITE 205**

This site, previously recorded by Walton (1972:14), consists of an overhang shelter open to the west with an enclosed walled area fronting the opening (Fig. 12). The shelter measures 3.7 m long by 1.5 m deep and 0.85 m high at the entrance. Fronting the shelter is a level soil area measuring 3.0 by 4.0 m enclosed by a three-sided wall. The north wall measures 2.2 m long, 0.9 m wide, and 0.6 m high; the south wall measures 2.5 m long, 0.8 m wide and 0.2 m high; and the west wall measures 3.7 m long, 0.6 m wide, and 0.8 m high. The western side of this wall is tumbled. No artifacts or midden were seen on the surface or the interior floor. The brass washer with site number left by Walton was located above the opening of the shelter, wedged into a crack in the outcrop.

#### **SITE 3156**

This C-shaped structure constructed of stacked aa cobbles and boulders, measures 3.8 by 2.3 m with wall heights of 0.65-0.80m. This site, located roughly 5 m north of the southern boundary fence-line, was previously recorded by Sinoto and Pantaleo (1993:7). Subsurface testing of two units on the interior floor and at the opening produced negative results. Based on the absence of cultural materials, its age and function are not clear. This site was previously destroyed.

#### **SITE 3157**

This site is a ranch wall located near the central portion of the southern boundary of the project area. It is oriented north-south and continues beyond the southern boundary of the project area. This wall, constructed of stacked aa cobbles and boulders, was also previously recorded by Sinoto and Pantaleo (1993:10). Its length was estimated to exceed 180 m, with widths ranging 0.60-1.0 m and heights ranging 1.0-1.5 m. Its northern end has been impacted by bulldozing. A short 25 m spur to the east is truncated by previous bulldozing. An outcrop boulder sits at the junction.



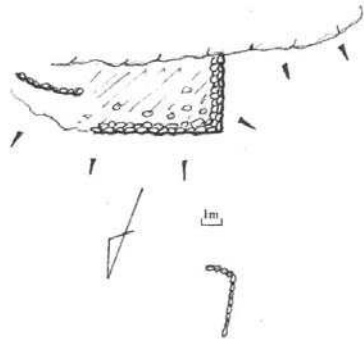


Figure 11. Plan View and Photo of Site 204 Platform to East

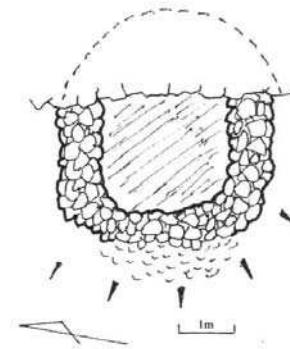


Figure 12. Plan View and Photo of Site 205 Modified Overhang Shelter to East

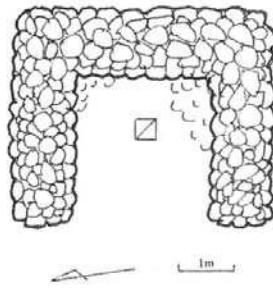


Figure 13. Plan and Photo of Site 4945, U-shaped Enclosure, View East

**SITE 3158**

This free-standing, double-faced wall measures 1.2 to 2.5 m high and 1.0 to 1.5 m wide. It is constructed of stacked aa cobbles and boulders and oriented east-west. This site was also previously recorded by Sinoto and Pantaleo (1993:10). At the time of the previous survey, this wall was reported to continue in both directions beyond the project area. Currently, large segments of the wall appear to have been bulldozed by the construction of the gravel haul road. Discontiguous segments are still extant along a 450m long alignment. The eastern end of this wall adjoins the Site 3157 wall (see Fig. 6).

**SITE 4945**

This site is a U-shaped enclosure located at the southeastern corner of the project area (Fig. 13). It is constructed of stacked basalt cobbles and boulders with clinker fill and open to the west. The enclosure measures 4.6 by 4.0 m, with walls between 0.3 to 0.65 m high and 1.0 to 1.2 m wide. The south wall is tumbled and the northeast corner incorporates an outcrop. The interior floor is soil and no midden or artifacts were observed on the surface.

**Testing**

A 0.25 X 0.25m test unit revealed no cultural deposit within the soil floor of this structure. A thin overburden, 2-3cm, covered a sterile clinker and loam substratum. Excavation was terminated at 20 cmbs due to the absence of cultural remains and abundant clinkers (Fig. 14).

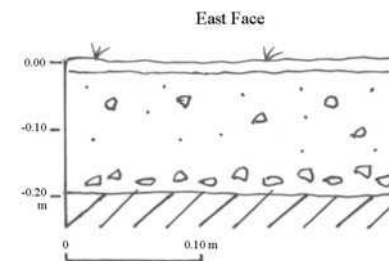


Figure 14. Stratigraphic Profile of Test Unit at Site 4945

**SITE 4946**

This site is a C-shaped enclosure located 7.5 m west of the eastern boundary fence near the southeast corner of the project area. It is constructed of stacked basalt cobbles and boulders with clinker fill and open to the south. The enclosure measures 4.2 by 2.2 m and the collapsed wall heights range between 0.2 to 0.4 m (Fig. 15). This C-shape is in poor condition due to extensive bulldozing in the area. No midden or artifacts were observed on the surface.

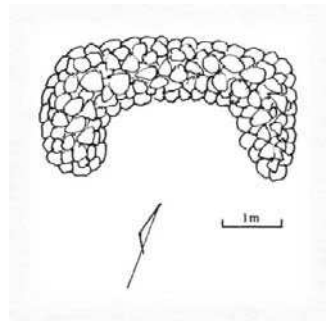


Figure 15. Plan of Site 4946, Collapsed C-shaped Enclosure

**SITE 4947**

This site is an overhang shelter fronted by two levels of modified outcrop terracing (Fig. 16). It is located on the south edge of a gulch, along the northern slope of an outcrop ridge near Site 4946 along the eastern boundary of the project area. The overhang shelter measures 2.2 m wide by 2.0 m deep and the ceiling at the entrance is 0.6 m high. Fronting the shelter are two levels of terracing. The upper terrace is constructed of an alignment of basalt cobbles and boulders creating a level area measuring approximately 4.5 m long and 0.8 m wide. The terrace face is 0.5 to 0.6 m high. The lower terrace near the base of the slope measures approximately 4.0 m long and 1.8 m wide. This terrace is disturbed and in poor condition due to tumbled wall face. No midden or artifacts were observed on the surface in or near this site.

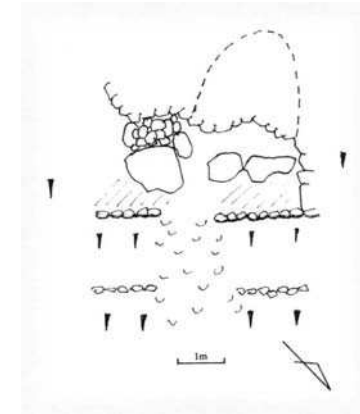


Figure 16. Photo and Plan of Site 4947, Overhang Shelter with Terraces, View to Southwest

**SITE 4948**

This site is a large, open, earthen clearing measuring, 30 m east to west and 15m north to south. A series of 10+ amorphous rock, probable clearing, mounds, roughly 1.0 to 1.5 m in diameter and ranging 0.10 to 0.30 m in height, are located near the southwestern edge of the clearing.

**SITE 4949**

This site consists of 3 overhang shelters fronted by 4 modified outcrop terraces (Fig. 17). It is located 14 m west of the eastern boundary of the project area along the southern edge of an outcrop ridge. The eastern shelter measures 5.0 by 3.5 m and 0.8 m high at the entrance, and the interior measures 1.8 m deep and 3.0 m wide. The middle shelter measures 4.5 by 3.5 m and 0.6 m high, and the interior measures 1.0 m deep and 2.0 m wide. A clinker paved area measuring 4.0 by 3.0 m separates the eastern and middle shelters. The western shelter measures 2.5 by 2.0 m and 0.5 m high, and the interior measures 1.5 m deep and 0.8 m wide. Fronting the series of overhang shelters are 4 modified outcrop terraces constructed of basalt cobble and boulder alignments creating level areas. This site occupies a 60 square meter area which measures 15m (e/w) by 4m (n/s).

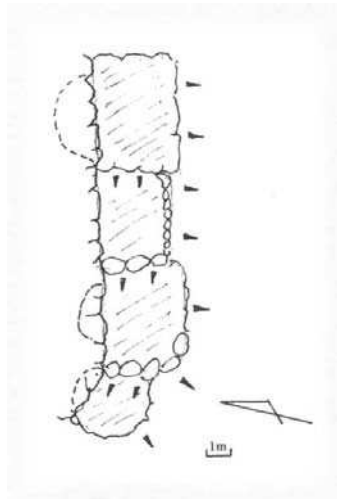


Figure 17. Plan of Site 4949, Overhang Shelters and Terraces

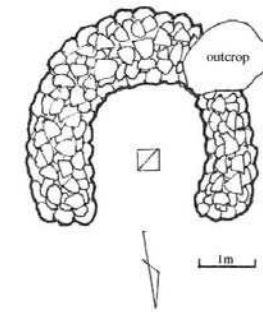


Figure 18. Plan and Photo of Site 4950, C-shaped Enclosure, View to Southeast

**SITE 4950**

This site is a C-shaped enclosure located 30 m north of Site 4949 along the eastern boundary of the project area (Fig. 18). It measures 4.0 by 3.5 m and is constructed of stacked basalt cobbles and boulders incorporating a large outcrop on the southwest portion. The C-shape is open to the north with a clinker filled interior floor. The opening measures 1.7 m wide. The walls measure 1.0 m wide and the exterior heights range between 0.25 to 0.8 m and interior between 0.2 to 0.3 m. No midden or artifacts were observed on the surface in or around this site.

**Testing**

A 0.25 by 0.25 m test unit was excavated in the central interior floor of the enclosure. No subsurface cultural remains or deposits were encountered during testing. The culturally sterile soil matrix consisted of a brown silty loam with abundant rocks. Excavation was terminated at 15 cm below surface due to reaching bedrock (Fig. 19).

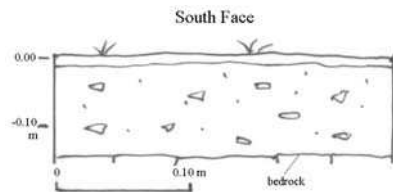


Figure 19. Stratigraphic Profile of Test Unit at Site 4950

**SITE 4951**

This site is a stepping-stone trail located on an open aa flow in the central area of the eastern half of the southern section (Fig. 20). The trail is constructed of flat basalt slabs placed at 0.5 to 1.0 m intervals. It is oriented east-west and continues beyond the eastern boundary of the project area. The segment measures approximately 30 m long. Another segment of this trail was identified further west within the same aa flow (4959). Recent fence-line replacement activities by the neighboring ranch have impacted the eastern segment of this trail *mauka* of the eastern boundary of the project.

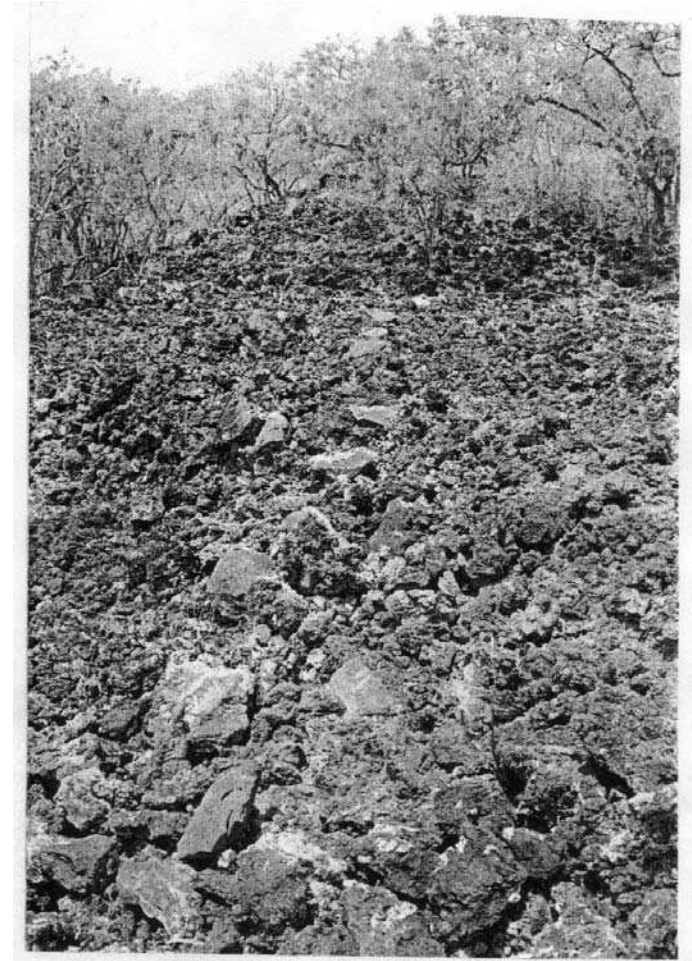


Figure 20. Photo of Site 4951, Steppingstone Trail in Aa Flow, View to West

**SITE 4952**

This site is a platform built against an outcrop on a gentle slope to the west of the Site 4951 steppingstone trail (Fig. 21). It measures 2.3 by 1.5 m and ranges between 0.7 to 1.3 m high along the faced sides. The platform is constructed of stacked basalt cobbles and boulders, 3-4 courses high, on the northeast and northwest sides. The southern side abuts a large outcrop bench creating a level area. No midden or artifacts were observed.

**SITE 4953**

This site consists of a series of intersecting and conjoined walls totaling ca 480 meters long in the northeastern corner of the southern section (see Fig. 6). The wall segments are located along the southern edge of a gulch, in low-lying areas between outcrop ridges, and along the tops of ridges. The walls range 0.6-0.8 m in width and 0.7-1.5 m in height. It is double-faced and constructed of stacked basalt cobbles and boulders and generally trends east to west. A discontinuous wall, incorporating an outcrop ledge, extends east-west along the top of a ledge, and is constructed of stacked and aligned basalt cobbles and boulders and terminating at a large outcrop boulder at its eastern end (Fig. 22). A free-standing segment extends roughly 100m northward, from the northern base of the ledge towards the Site 200 wall along the northern boundary of project area. It is constructed of stacked basalt cobbles and boulders and measures 0.8 m high along the western side and 0.7 high along the eastern side. The wall is 0.8 m wide, and is breached in several areas. A segment also occurs along the north side of the Site 201 complex. This wall continues down-slope, across the Piilani Highway extension right-of-way for a short distance. A bulldozed cut destroyed most of the remaining down-slope segment of the wall.

**SITE 4954**

This site is a deteriorated C-shaped enclosure located, immediately north of a road cut near the northern boundary and west of the Piilani Highway extension corridor (Fig. 23). It measures 3.2 by 2.5 m with walls 0.8 m wide and 0.4 to 0.5 m high. A large outcrop boulder is incorporated into the northeast wall measures 1.3 m long, 1.0 m wide, and 0.50m high.

**Testing**

A 0.25 by 0.25 m test unit was excavated in the central interior floor of the C-shape. A culturally sterile cobbly, silt loam was encountered immediately underlying the humic overburden. No cultural remains were observed during testing. Excavation encountered bedrock at 10 cmbs (Fig. 24).

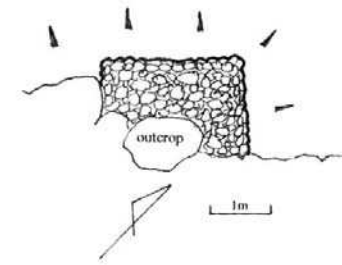


Figure 21. Plan and Photo of Site 4952, Modified Outcrop Platform, View to Northwest

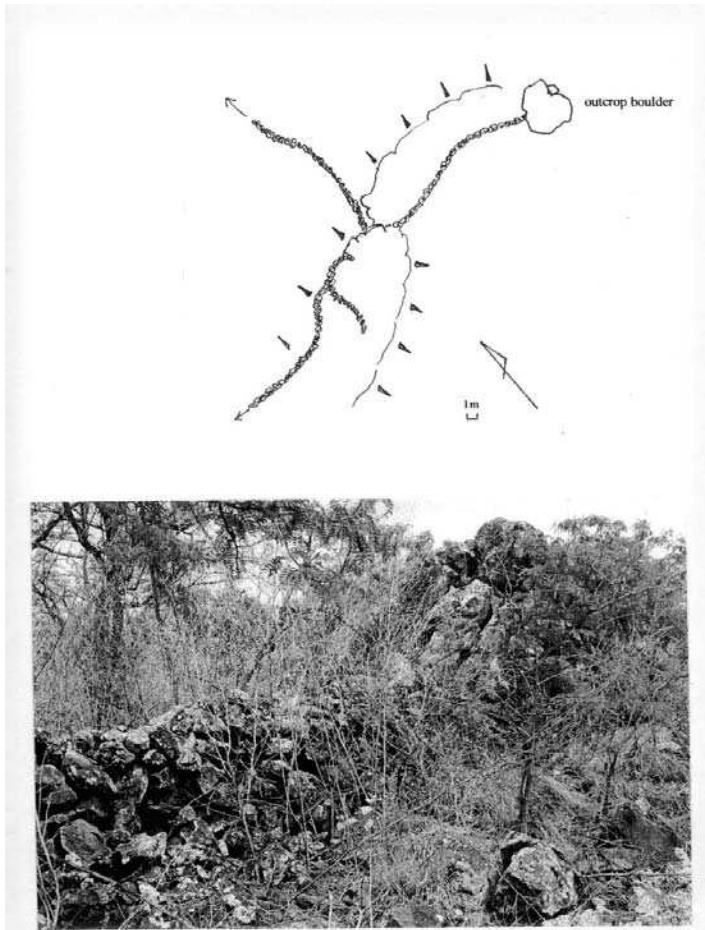


Figure 22. Plan and Photo of Site 4953, Interconnected Walls, View to East

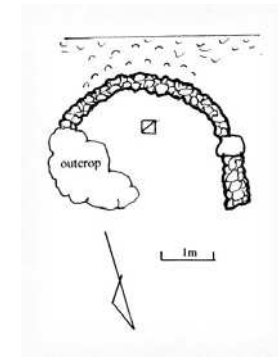


Figure 23. Plan of Site 4954, C-shaped Enclosure

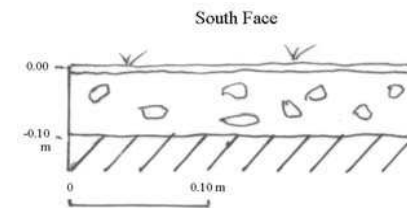


Figure 24. Stratigraphic Profile of Test Unit at Site 4954

**SITE 4955**

This site is an overhang shelter with a flat, soil terrace fronting the opening with two walls partially enclosing the soil area (Fig. 25). It is located on the south slope of a ridge south of a bulldozer cut paralleling the northern boundary wall (Site 200) within the proposed highway corridor. The overhang in the outcrop ledge measures 2.0 m wide, 1.2 m deep, and 0.70 m high at the opening. The soil terrace measures 5.0 m by 2.0 m. The western wall segment measures 2.0 m long, 0.80 m wide, and 0.60 m high. The longer eastern wall segment measures 2.8 m long, 1.2 m wide, and 0.80 m high. A sea urchin shell fragment and a medium bird bone were observed on the surface of the shelter floor.

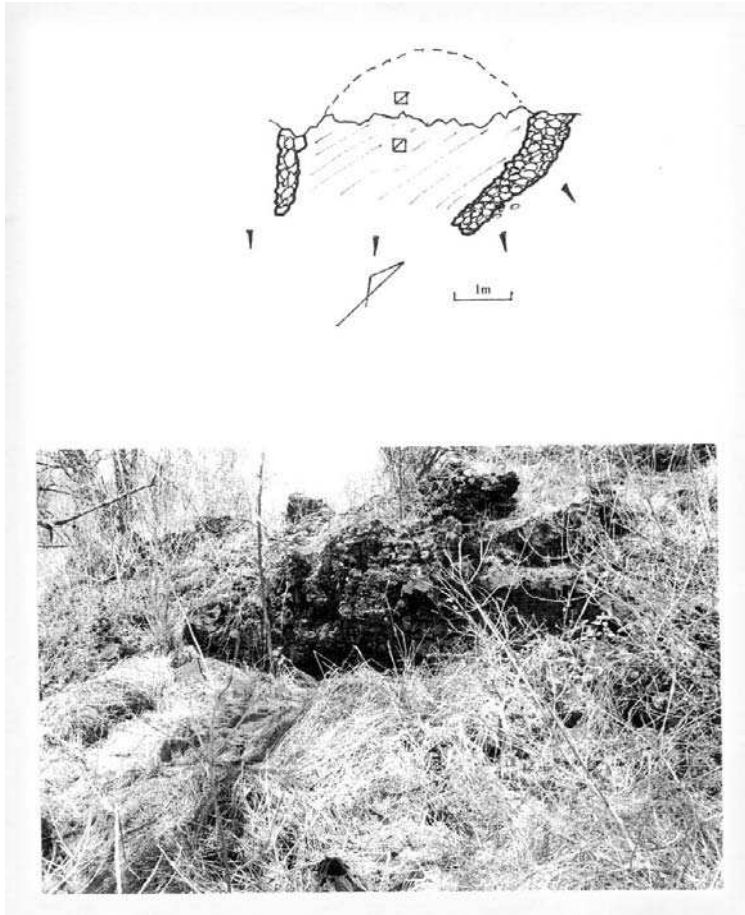


Figure 25. Plan and Photo of Site 4955, Modified Overhang, View to Northwest

**Testing**

Two 0.25 by 0.25 m test units were excavated; one in the interior floor of the overhang and another in the central area of the soil terrace fronting the shelter. The interior unit was taken to 15cm below surface and the other to a depth of 22 cm. Both units revealed a sterile, cobbly silt loam deposit with no cultural materials (Fig. 26).

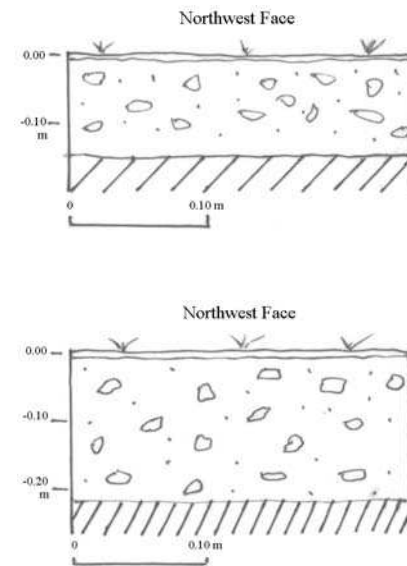


Figure 26. Stratigraphic Profile of Test Units at Site 4955  
(top) interior unit (bottom) exterior unit



**SITE 4956**

This site consists of a 7.0 m long outcrop ledge, oriented northeast-southwest, with two small overhangs (Fig. 27). It is located in the southern central portion of the east half of the southern section. The smaller western overhang measures, 0.80 wide, 1.0 m deep, and 0.30 m high at the opening. It is fronted by a rectangular alignment, 1.6 by 2.3 m, of single boulders and one large slab forming the eastern side. A flat soil area 4.5 m by 2.0 m fronts the ledge. At the eastern end is another small overhang, 0.80 m wide, 2.0 m deep, and 0.70 m high at the opening. A cranium of a cat was found on the interior floor surface.

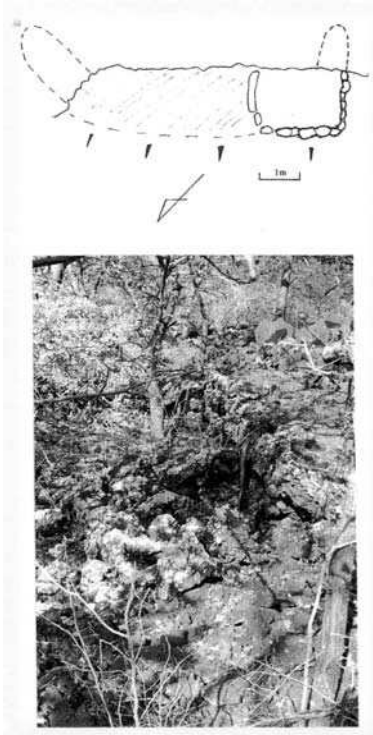


Figure 27. Plan and Photo of Site 4956, Modified Overhangs, View to Northeast

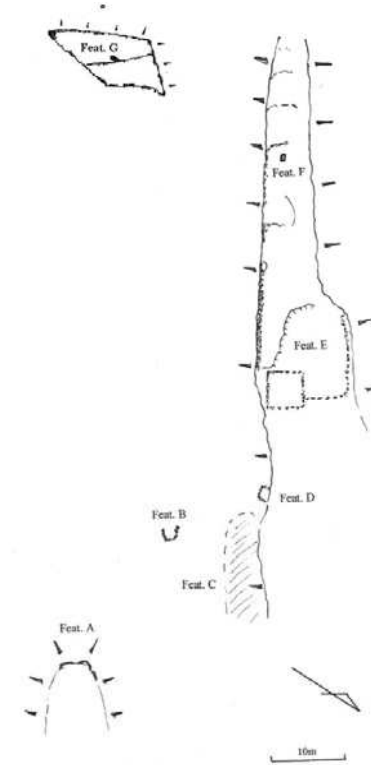


Figure 28. Plan View of Site 4957, Ridge-top Complex

**SITE 4957**

This complex of 6 features is located along a ridge crest on the southern edge of a gulch east of the jeep road in the eastern half of the southern section near the Site 200 wall (Fig. 28). It encompasses ca 3000 square meters and measures 100m (ne/sw) by 20-50m (nw/se). Portions of this complex are visible from the main access road.

**Feature A** is a cluster of 10+ modified outcrops along the base of an outcrop ridge located to the east of the main complex. These features consist of filled areas, single stone alignments, and crude mounds.

**Feature B** is a C-shaped enclosure measuring 5.0 m by 2.8 m with dilapidated walls ranging in height from 0.20 to 0.45 m. The enclosure opens to the west and the interior floor is soil. The southern portion of this structure incorporates a large outcrop into the wall.

#### Testing

One test unit, 0.25 by 0.25 m, was excavated in the center of the soil floor. Underlying the superficial humic overburden was a culturally sterile, cobbly, silt deposit. The excavation was stopped at 15 cm (Fig. 29). No cultural materials were encountered.

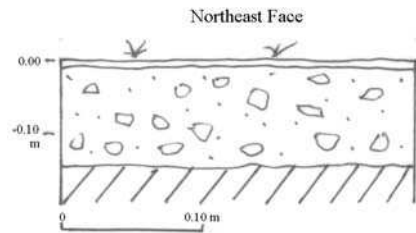


Figure 29. Stratigraphic Profile of Test Unit at Site 4957 Feature B

**Feature C** is an open, earthen clearing, adjacent to the outcrop ridge. It measures about 15 m east-west and 6 m north-south. Several clearing mounds of rocks and cobbles occur in the area between this feature and Feature B.

**Feature D** is a small platform built up against the southern base of the ridge just 4 m southwest of Feature C. It measures 2.4 m square and 1.0 m high at its southern facing. Its northern side is incorporated onto a bedrock ledge.

**Feature E** consists of a rectangular enclosure with two adjoining walled areas and several small activity areas that are leveled and descend down the top of a narrow outcrop ridge towards the southwest (Fig. 30 top). The enclosure measures roughly 5.5 m square, with walls ranging in width from 0.80-1.0 m and 0.70-1.4 m high. A straight wall adjoins the southern corner of the enclosure and follows the edge of the ridge down-slope for 14.5 m. An L-shaped wall adjoins the enclosure on the northwest side to create a three-sided enclosed area. This wall follows the northern edge of the ridge for about 8.0 m. The interior floor areas are fairly clear of rocks and flat. A branch coral manuport was located outside the southwest wall of the enclosure. Below these structures along the ridge are at least three, stepped, modified terrace areas that measure 5.0 by 3.0 m. Each terrace is about 0.35-0.40 m lower. Modification of rock and rubble fill areas and some boulder alignments define these terrace areas.



Figure 30. (top) Site 4957 Feature E, Rectangular Enclosure and Attached Wall, View to NW  
(bottom) Feature F, Slab-lined Firepit, Long Axis Oriented Northeast/Southwest

**Feature F** is a rectangular firepit located on the last well-defined terrace area of Feature E (Fig. 30 bottom). It is located nearly centrally within a level floor area measuring 6.1 by 2.6 m. It is composed of four elongate, thin slabs of basalt set on edge to form a rectangular enclosure measuring 0.73 by 0.56 m, and standing about 0.16 m above ground surface. Each of the slabs was buried about 12-14cm into the ground.

#### Testing

The western end of the firepit was excavated in an effort to collect charcoal for dating. A 0.35 by 0.30 m unit was excavated and produced a small amount of charcoal. Three small fragments of cowrie shell and seven small fragments of sea urchin carapace were recovered. The excavation was terminated at 10 cm below surface when bedrock was encountered. Unfortunately, upon transmittal and processing, the consultant found the quantity of charcoal collected to be inadequate to permit chronometric analyses.

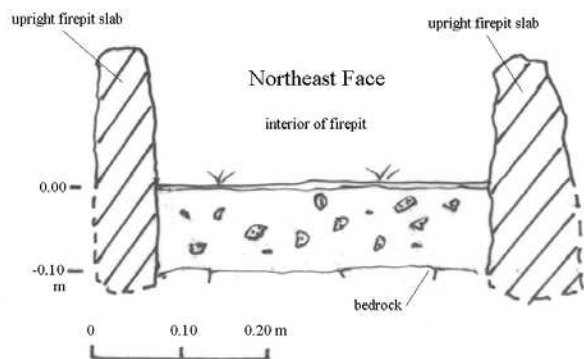


Figure 31. Stratigraphic Profile of Testing at Site 4957, Feature F, Firepit

**Feature G** is a four-sided area roughly encompassing about 120 sq m consisting of modified outcrop terraces and low enclosures located on a small plateau across a low-lying area south of the ridge where Feature F occurs. Linear outcrop benches are modified with rock fill.

#### SITE 4958

This site consists of a circular enclosure and an adjacent low rectangular enclosure constructed 2m apart, on an aa flow in the central portion of the southern section (Fig. 32).

**Feature A**, the circular enclosure, measures 4.0 by 3.5 m with an interior height of 1.1 m and an exterior height of 0.9 m. The walls are core-filled and constructed of stacked basalt cobbles and boulders. The southern and northern ends are tumbled. The interior floor of the structure is rock filled.

**Feature B**, the low rectangular enclosure, is located 2.0 m west of Feature A. It measures 3.0 by 2.7 m and ranges between 0.3 to 0.5 m high. A possible entranceway is located along its western wall. The walls are core-filled and constructed of stacked basalt cobbles and boulders. The interior floor consists of soil and rocks.

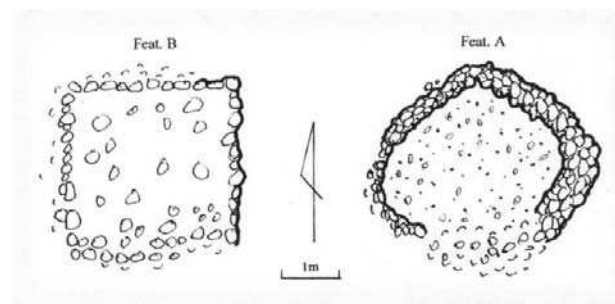


Figure 32. Plan of Site 4958, Two Adjoining Enclosures

#### SITE 4959

This site consists of two intersecting segments of steppingstone trails and pits located in an aa flow in the central portion of the western half of the southern section (Fig. 33). The steppingstone trail is constructed of flat basalt slabs placed at 0.5 to 1.0 m intervals. One segment of the trail extends north-south and measures approximately 15 m long. The east-west segment intersects with the north-south segment and measures 20 m long. This longer segment is probably a continuation of the Site 4951 trail segments located on the same aa flow to the east.

At the western end of the longer trail segment are 3-4 pit features in the aa flow. These pits are the result of removing aa rocks and clinkers to create a shallow depression. The pits range from 1.0-1.5 m in diameter and between 0.5 to 0.7 m in depth. These pits are artificial and exhibit diagnostic attributes when compared with depressions formed naturally when trees are uprooted.

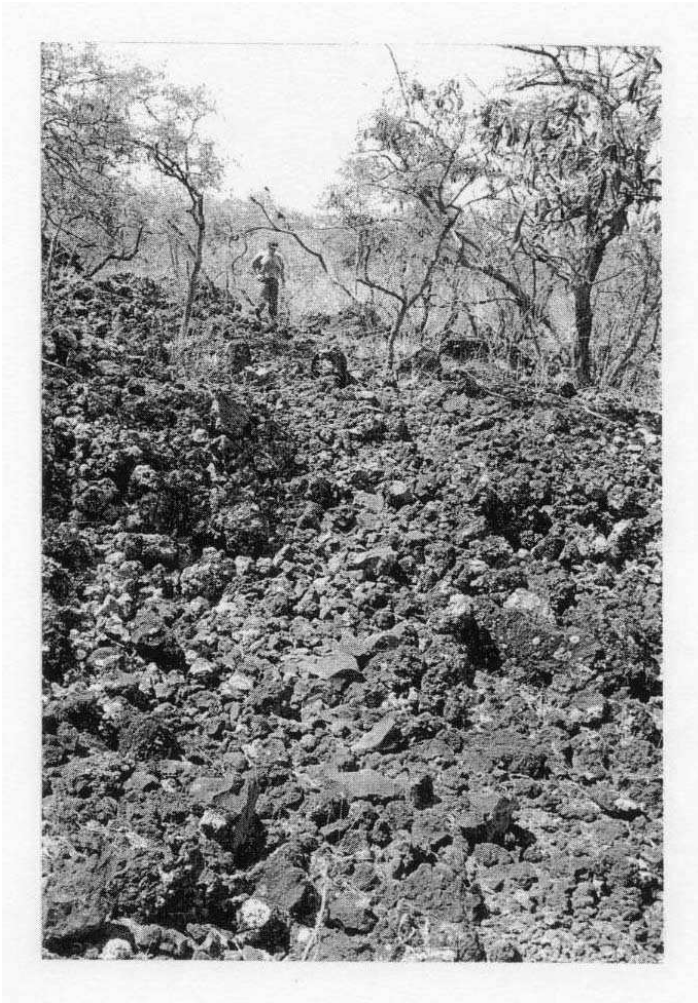


Figure 33. Site 4959, Steppingstone Trail on Aa, View to East

**SITE 4960**

This site consists of two adjoining platforms constructed against the base of a ridge located in the central portion of the southern half of the western half of the southern section (Fig. 34). The feature measures 6.7 m in total length, with the lower paved platform, to the north, measuring 3.5 m and the filled platform 3.2 m. The filled platform is 1.3 m in height and the interior is rock and soil filled, while the paved platform is .90 m high and its surface is paved with cobbles and clinkers. A 1.2 m long common wall separates the two features with the paved platform situated 0.30 m lower than the filled platform. Constructed stone facings define the north, west, and south sides of this structure but the eastern side is built up against the ridge base.

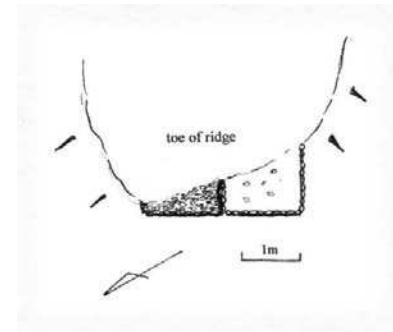


Figure 34. Plan of Site 4960, Two Adjoining Platforms

**SITE 4961**

This site is a remnant bend of a wall located along the base of a ridge near the southern boundary in the middle of the western half of the southern section (Fig. 35). The wall is core-filled and constructed of stacked basalt cobbles and boulders. The long segment of the wall along the base of the ridge is oriented east-west and measures 7.9 m long, 1.0 m wide, and 0.7 m high. The eastern end of the wall is breached and the western end is tumbled. The north-south segment measures 4.0 m long, 0.6 m wide, and 0.85 to 0.4 m high. This wall segment extends from the top to the base of the ridge.

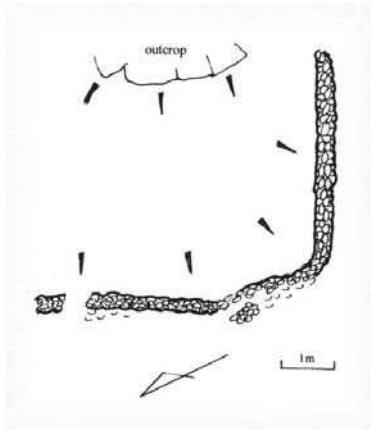


Figure 35. Plan of Site 4961, Remnant Wall

#### **SITE 5109**

This site consists of a small overhang shelter situated near the 500 ft. elevation on the north edge of the second gulch southward from the northern boundary in the northern section of project area. The overhang is located on a ledge 4 meters above the gulch bed and measures 6.0 m wide and ranges in depth from 0.50 to 1.5 m from the drip-line. The ceiling heights vary from 0.50 to 0.70 m at the drip-line and decreases towards the back wall of the shelter, where the ceiling eventually meets the floor. A small, natural, earthen terrace area, measuring 1.5 m wide and 4.0 m long, fronts the shelter opening to the south (Fig. 36). Two fragments of sea urchin carapace were observed on the surface of the interior floor in the central portion of the shelter (Fig. 37). No other cultural remains were present.

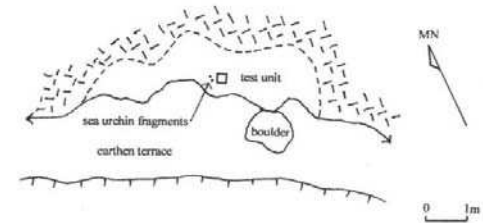


Figure 36. Plan and Photo of Site 5109, Overhang Shelter, View to North

#### **Testing**

A small test unit, 0.25 by 0.25 m, was excavated in the central interior floor near the sea urchin shell fragments (Fig 37). The unit revealed a culturally sterile deposit of silty loam and saprolitic rock overlying a solid bedrock substratum. The deposit was 0.20m deep with reddish brown (5YR 4/4) silty loam occupying the upper half (0 to 10 cm) and saprolitic rock within the same silty loam matrix in the bottom half (10 to 20 cm). No cultural material was encountered.

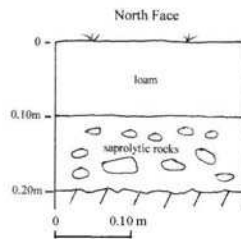


Figure 37. Sea Urchin Fragments on Surface of Shelter Floor and North Face Profile of Test Unit

**SITE 5110**

This site is a small, collapsed lava-blister shelter measuring 2.7 m wide, 1.6 m deep, and 0.75m high at the dripline (Fig. 38). It is located on the northwest facing edge of an outcrop ledge near the 560 ft. elevation. A few small fragments of marine shell were observed on the interior floor surface. However, a series of trowel probes revealed a shallow deposit (0.15 m) of culturally sterile silty loam with cobbles overlying bedrock on the interior floor.

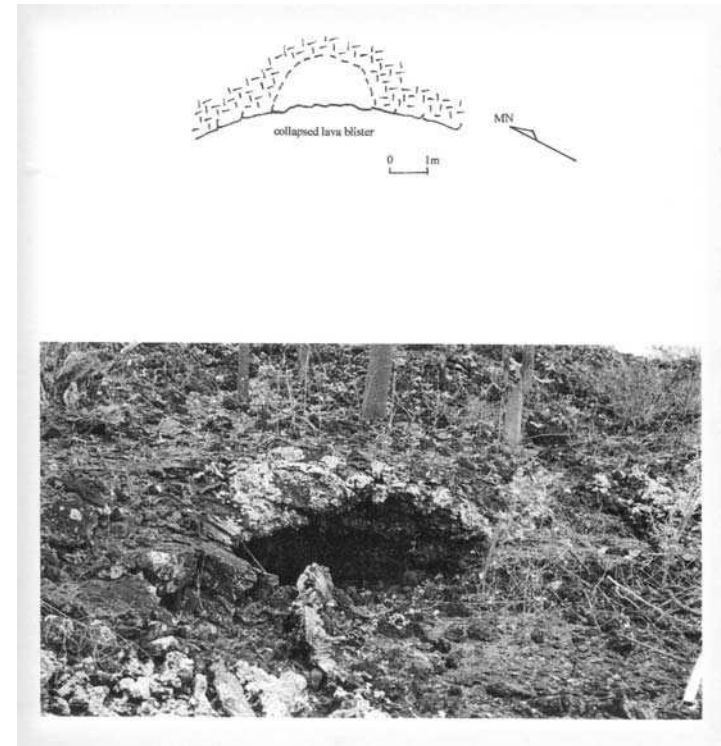


Figure 38. Plan and Photo of Site 5110, Lava Blister Shelter, View to Northeast

**SITE 5111**

This site is a small terrace platform constructed against an outcrop ridge around the 680 ft. elevation within the southern half of the eastern half of the southern section, roughly 182m (600 feet) west of the eastern boundary fenceline. It is also located immediately west of an old bulldozed road. The site measures 5.0 m long, 2.0 m wide, and varies in height from 0.30 m on the south side to 1.2 m on the west side (Fig. 39). An outcrop ridge occupies the eastern side, and the northern side is tumbled. Five to six courses of aa boulders form a facing around the exterior

of this roughly rectangular structure. The upper surface and interior are clinker-filled and leveled. No cultural material was observed on the surface of the structure or in areas surrounding this site.

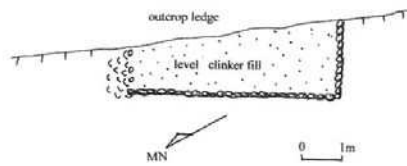


Figure 39. Plan View and Photo of Site 5111, Platform, View to Northeast

#### **SITE 5112**

This site, similar in construction and form to Site 5111, is another terrace platform incorporating an outcrop ridge. It is located about 40 m northwest of the Site 5110 shelter. This platform is constructed against the northwest side of an outcrop ridge and measures 12.0 m in length, 2.5 m in width, and averages 1.3 m in height (Fig. 40). The structure is roughly rectangular with three sides faced with 3-4 courses of aa cobbles and boulders with the interior and upper surface clinker-filled. Its long axis orients roughly east to west. No cultural material was observed on the platform surface or in the surrounding areas.

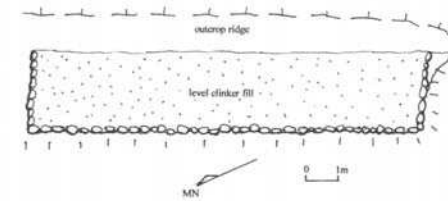


Figure 40. Plan View and Photo of Site 5112, Platform, View to Northeast

#### SITE 6794

A small cluster consisting of two small structural features occurs along the northern slope of a ridge located ca 260 meters south of the north boundary wall (Site 1/200) of the southern section (Fig. 41). The site is located 90-100 meters east of the main jeep road that separates the eastern and western halves of the southern section of the project area.

**Feature A** is a small platform terrace built along the toe of the west-facing slope of a rocky ridge roughly 100 meters east of the main jeep road. The structure measures 2.5 m in length, 1.5 m in width and 0.80m in height with 4-5 courses of stone facing on three sides; north, west, and south. The eastern side is built into the slope of the ridge. The long-axis of the platform trends north/south.

**Feature B**, located 20m northeast of Feature A on a small level plateau below the ridge, is a U-shaped enclosure. This structure measures 4.0m in length, 2.0m in width, and its walls built of 2-3 courses of stacked boulders is 0.60m in height. The west side is open and the interior earthen floor has been cleared of rocks.

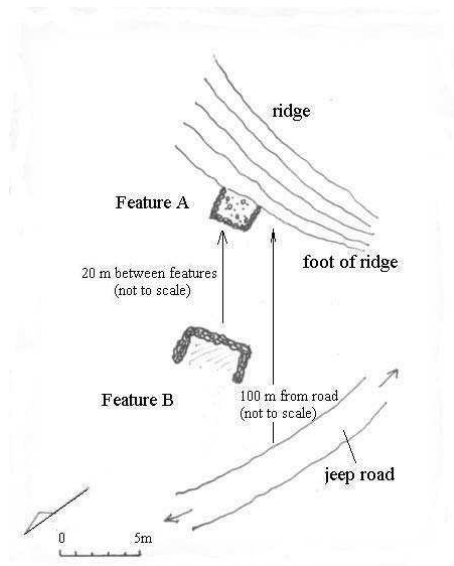


Figure 41. Plan of Site 6794, Two-feature Cluster  
(Note distances are not to scale)

#### SITE 6795

This C-shape is located about 40 meters south of the Site 205 modified overhang shelter on a low bedrock bluff on the eastern edge of a bulldozer cut. The enclosure measures 3.0 by 3.0 meters with wall width 0.40 m and 0.40 m in height (Fig. 42). The interior floor is bedrock with some loose cobbles and boulders. The feature opens to the east. No surface remains were observed in or around this site.



Figure 42. View of Site 6795, C-shaped Enclosure, to North

#### SITE 6796

This site is a modified outcrop platform located roughly 60 meters northeast of the Site 6798 cluster of two C-shaped enclosures. This feature is built up against an outcrop ledge and measures 5.0 m long by 1.8 m wide and averages 0.80 m in height (Fig. 43). The outcrop is incorporated on the south side and the long axis of the feature is east to west. The top is clinker and cobble filled. No surface remains were observed.



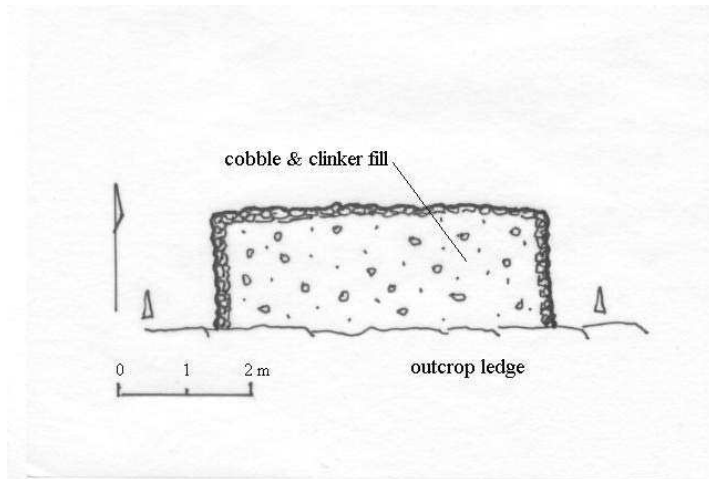


Figure 43. Plan and Photo of Site 6796, Modified Outcrop Platform, View to Northeast

**SITE 6797**

This site is a short segment of a steppingstone trail located about 20 m east of the Site 4956 modified overhang shelter. This short segment, measuring 5.0 m in length in a north/south orientation with only 4 visible steppingstones, is in a low-lying open aa flow. This trail remnant, located more than 140 meters southwest of the Site 4951 steppingstone segment, probably did not connect to that segment.

**SITE 6798**

This site is a feature cluster comprised of two C-shaped enclosures situated 2 meters apart in a low-lying area, roughly 100 meters due south of the Site 4957 complex. The larger structure, Feature A, measures 3.5 m by 4.5m with 0.80 m thick walls that range in height from 1.0 to 1.2 meters (Figs. 44 & 45). The opening is oriented 151° of magnetic north. Feature B, the smaller structure, located roughly 2.0 meters to the south-southwest, measures 3.6 m in diameter with 0.60 m wide walls that range in height from 0.20 to 0.40 m. The opening of the smaller C-shape is oriented 126° of magnetic north. The interior floor of both features is dirt. No cultural remains were observed on the surface in or near both features.

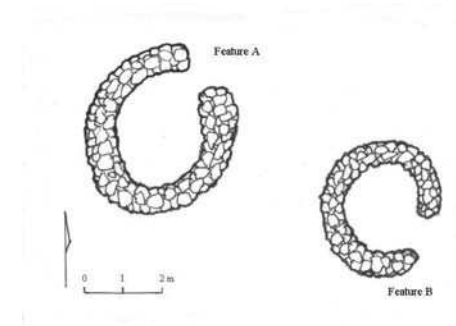


Figure 44. Plan of Site 6798, Two C-shaped Enclosures

**SITE 6799**

This overhang shelter is at the base of an outcrop ledge and opens to the north. The opening measures 2.5 m wide, 1.5 m deep, and 0.90 m high at the dripline (Fig. 46). The interior floor consists of silt with some cobbles. No surface remains were observed.



Figure 45. Photos of Site 6798, Two C-shaped Enclosures, (top) View of Feature A to East (bottom) Overview to North with Feature A to Left and Feature B to Right

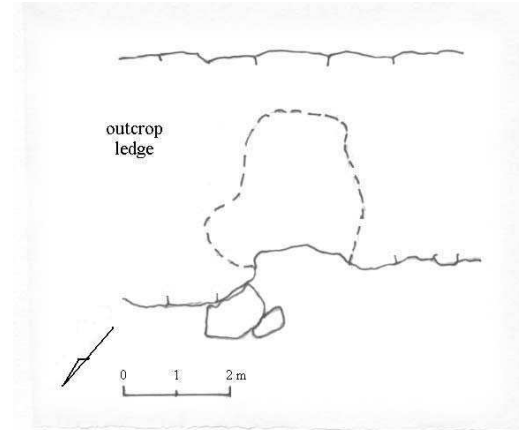


Figure 46. Plan and Photo of Site 6799, Overhang Shelter, View to South

**SITE 6800**

This modified outcrop, rectangular platform, measuring 9.0 m long, 2.5 m wide, and 1.2 m in height, is built along the edge of an outcrop ridge with its long axis oriented at 210° of magnetic north (Fig. 47). This site is located about 50 meters south of the eastern terminus of the Site 20/4957 complex and northeast of Site 27/5112.

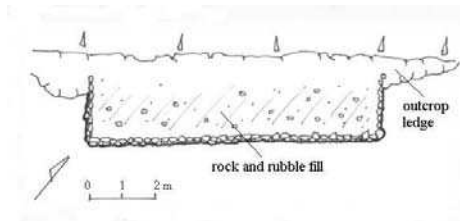


Figure 47. Plan and Photo of Site 6800, Terrace Platform on Edge of Outcrop Ridge

**SITE 6801**

This site is a lava tube with the opening facing east and measuring 1.2 m east/west, 0.80 m north/south, and 0.80 m in height (Fig. 48). The interior opens up to a chamber measuring 3.0 m wide and 3.5 m deep with ceiling heights ranging from 0.8 to 1.3 m. The opening is situated at the eastern edge of a bedrock ledge approximately 1.0 m high. This site is located near the southeast corner of the southern section roughly 50 meters northwest of Site 4945 and 30 meters east of the main jeep road.

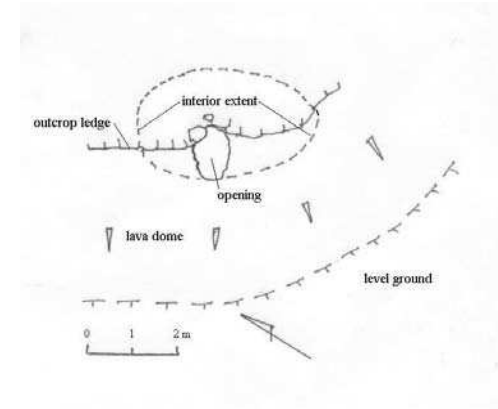


Figure 48. Plan and Photo of Site 6801 Lava Tube, View to Northeast

**SITE 6802**

This site is a segment of a stone wall, crudely constructed of stacked single slabs of basalt, located near the southern boundary of the project area, roughly a third of the way west from the southeast corner of the project area. The segment measures 50 m long, 0.30 m wide, and ranges in height from 0.30 to 0.70 m. A bulldozed road cut parallels the wall on the east along a north/south orientation.

**SITE 6803**

This modified outcrop ridge is located roughly 100 northeast of the Site 20/4957 complex and consists of a 40 m long ridge top roughly 5.0 m wide. Associated with this natural feature are a number of artificial modifications including a worn trail, a roughly 6.0 X 2.0 meter filled and paved area, and a stacked rock facing 7.0 m long and 1.2 m in height with 6 courses of stones along the north edge of the paved area (Fig. 49). The long axis of the ridge is oriented east/west.

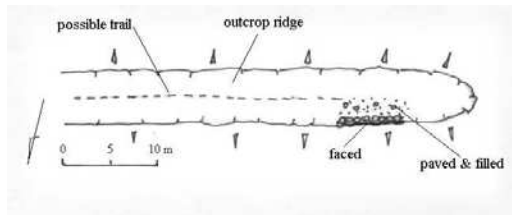


Figure 49. Plan of Site 6803, Modified Outcrop Ridge

**SITE 6804**

This site is a small overhang shelter at the east end of a 7.0 m long outcrop ledge oriented east/west. It is located about 30 m south of Site 38. The opening faces south and measures 0.60 m wide and 0.30 m high with a walled modification built along the western edge of the shelter, creating a level area 1.5 m square fronting the feature to the southwest (Fig. 50). No surface remains were observed.

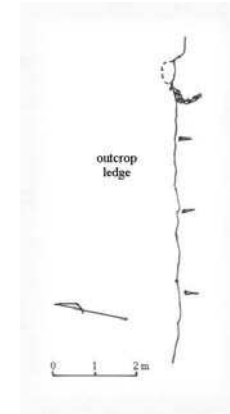


Figure 50. Plan and Photo of Site 6804, Modified Outcrop Shelter, View to Northeast

**SITE 6805**

This site consists of a wall which is connected to the Site 200 wall southern diversion near its central section between the northern bend to the east and the southern bend to the west. The feature consists of a wall segment roughly 100 m long which parallels the 200 wall to the east and incorporating a segment of the Site 200 wall creates a large, roughly rectangular enclosure, encompassing almost 4000 square meters, with an opening on the south. Built on to the southern end of the Site 40 wall is a triangular enclosure (see Fig. 5). The wall is well constructed and consists of up to 5-8 courses of stones. The wall ranges in width from 0.60 to 0.80 m and in height from 0.70 to 1.2 m. Three shorter remnant wall segments occur near the southern end of this feature. A bulldozed road parallels the Site 200 wall in this area.

**SUMMARY**

The subsurface testing procedures, comprising 10 test units at seven sites, produced negative results, with the exception of the Feature F firepit at Site 4957. The remaining units exhibited total absence of subsurface cultural components and associated midden, other sample material, or artifacts. No post-field laboratory procedures were warranted. There was also a pronounced paucity of surface remains, especially historic period artifacts, such as glass bottles, and cans that are usually found in association with occupation areas. A summary of all findings by site is presented on Table 1 below and data summaries for all sites is presented on Table 2 on the following page.

**Table 1. All Surface and Subsurface Portable Cultural Remains**

Site	Feat.	Type	Surface	Test Unit/Subsurface
201	B	OH*	cowrie shell octopus lure	
204		platform	coral manuport	
4955		OH	sea urchin shell frag., med. bird bone	
4956		OH	cat cranium	
4957	E	rect encl.	branch coral manuport	
"	F	firepit		cowrie and sea urchin shell frags. and charcoal pieces
5109		OH	sea urchin shell fragments	

\*OH – overhang shelter

**Table 2. Archaeological Sites in the Honua'ula Development Area**

No.	SIHP *	Type	Feats.	ahupua'a	Period	Recorded	Signif.	Pres.	Data Rec.	NFW
1	200	wall	1	Palaea	historic?	1971	C,D	X		
2	201	complex	5	"	traditional?	"	A,D	X		
3	204	platform	2	"	"	"	D	X		
4	205	mod OH	1	"	"	"	"	X		
5	3156	C-shape	1	Keauhou	"	1993	nls			X
6	3157	wall	1	"	historic?	"	nls			X
7	3158	"	1	"	"	"	nls			X
8	4945	U-shape	1	"	traditional?	2000	D		X	
9	4946	C-shape	1	"	"	"	"		X	
10	4947	mod OH	1	"	"	"	"		X	
11	4948	open area	1	"	historic?	"	"		X	
12	4949	mod OH	2	"	traditional?	"	"		X	
13	4950	C-shape	1	"	"	"	"		X	
14	4951	SS trail	1	Palaea	"	"	C,D,E	X		
15	4952	platform	1	"	"	"	D	X		
16	4953	walls	3	"	historic?	"	D	X		
17	4954	C-shape	1	"	traditional?	"	D		X	
18	4955	mod OH	1	"	"	"	"		X	
19	4956	"	2	Keauhou	"	"	"		X	
20	4957	complex	6	Palaea	"	"	A,D	X		
21	4958	enclosures	2	"	"	"	D		X	
22	4959	SS trail/pits	3	"	"	"	C,D,E	X		
23	4960	platform	1	Keauhou	"	"	D		X	
24	4961	wall seg.	1	"	historic?	"	nls			X
**25	5109	OH	1	Paeahu	traditional	2001	D	X		
26	5110	lava blister	1	Palaea	"	"	"		X	
27	5111	platform	1	Keauhou	"	"	"	X		
28	5112	platform	1	Palaea	"	"	"	X		
29	6794	cluster	2	"	"	2003	"		X	
30	6795	C-shape	1	Palaea	"	2008	"		X	
31	6796	platform	1	"	"	"	"		X	
32	6797	trail	1	Keauhou	"	"	C,D,E	X		
33	6798	cluster	2	Palaea	"	"	D	X		
34	6799	OH	1	"	"	"	"		X	
35	6800	platform	1	"	"	"	"	X		
36	6801	lava tube	1	Keauhou	"	"	"	X		
37	6802	wall	1	"	historic?	"	Nls			X
38	6803	mod outcrop	1	Palaea	traditional?	"	D		X	
39	6804	OH	1	"	"	"	"		X	
40	6805	walls	2	"	historic?	"	Nls			X
<b>Totals</b>			<b>60</b>					<b>16</b>	<b>18</b>	<b>6</b>

\* State Inventory of Historic Places Site Number (prefixed by 50-50-14-)

\*\* Site located in northern two-thirds of project area

## DISCUSSION

The project area includes portions of three *ahupua`a*; Paeahu, Palauea, and Keauhou, from north to south. The majority of the northern two-thirds occupies a section of Paeahu *ahupua`a* and roughly half of the width of a section of Palauea *ahupua`a*. Only one site was recorded in all of the northern two-thirds of the project area and although there is ample evidence that the area had previously undergone compounded extensive disturbances, the paucity of archaeological remains is remarkable especially when compared to the southern third. The southern one-third consists of the remaining half of the width of the section of Palauea *ahupua`a* and a partial section of Keauhou *ahupua`a*. This portion of the project area consists of large areas of later aa flows with intermittent earlier pahoehoe flow ridges and there is much more vegetation cover in comparison to the northern portion. Due to the rough terrain, it appears that the earlier historic ranching activities attempted to keep the cattle out of this southern area and did not encroach south of the large wall (Site 200) until a later phase of the ranching activities. Ninety-seven and a half percent (97.5 %) of the recorded sites occur within the southern one-third of the project area. Also, the presence of two sites representing feature complexes with some prominent structural features and the presence of 7 platform sites are relatively uncommon for the elevation. These sites and the overall density of sites were unexpected, especially in view of the climate and topography.

The distribution of the 40 sites within the three *ahupua`a* consists of; Paeahu – 1, Palauea- 23, and Keauhou-16. The two complexes and the majority of the platform sites are located in Palauea *ahupua`a*. The fact that the full width of only Palauea *ahupua`a* is represented in the project area may be an important consideration when comparing the number and assemblage of sites among the three *ahupua`a*. The distribution of sites in the eastern portion of the southern section, *mauka* of the main jeep road may not be just the result of extensive disturbance in the western half. Three clusters of sites are apparent with the central one around the Site 4957 complex by far the most prominent. Whether this clustering indicates a functional association among the sites or attributable to other factors is currently unclear.

Figure 51 presents a graphic representation of the four most frequently occurring feature types within the Southern Section of the project area. These are platforms with nine (9), followed by C-shapes and walls both with eight (8), and overhang shelters (7). With the exception of the wall features, the other features all appear to be clustered within the eastern half of the southern section.

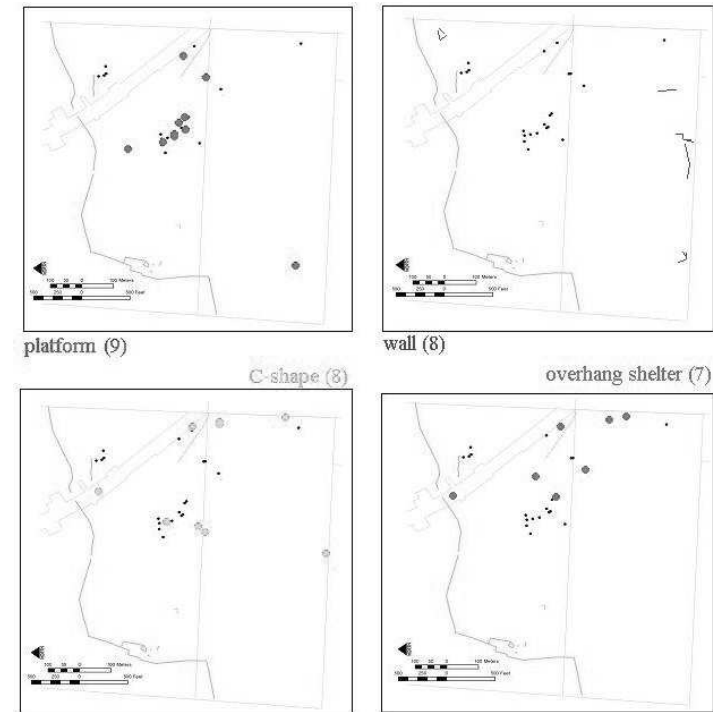


Figure 51. Distribution of Most Frequently Occurring Feature Types in the Southern Section

During the current inventory procedure, eight subsurface test units were excavated at six sites. These were; Site 4945, U-shaped enclosure; Sites 4950, 4954, Site 4955, overhang shelters; Site 4957 Feature B, C-shaped enclosure; Feature F, firepit; and Site 5109 overhang shelter. Only the firepit (Site 4957 Feature F) yielded any cultural material, sparse quantity of marine midden consisting of 3 small cowrie shell fragments and seven small fragments of sea urchin. Only one other site has been tested during the course of the previously completed surveys. Site 3156, the C-shaped enclosure located near the middle of the southern boundary of the project area was tested with negative results from the two units (Sinoto and Pantaleo 1993:7).

Thus, with the available data, interpreting the function and age of the two prominent complexes at Sites 201 and 4957, remains problematic. However, some general observations can be presented regarding the settlement pattern postulated in earlier sections of this report. The presence of the steppingstone trail in the aa flows and the small, isolated feature types that are best represented, support the argument that these mid-elevations zones were primarily used for temporary transit stops during travel between the coast and inland areas. Based on the results of previous research in the region, the dispersed, isolated occurrence of these small, crudely constructed, structural features; such as C-shapes, modified outcrops and overhang shelters; can be indicative of temporary habitation. These feature types are well-represented in the neighboring areas and have been interpreted as temporary habitation sites, most with intermediate to late prehistoric period origins. The paucity of subsurface remains is also a common trait of these types of features. One possibility is the agricultural function of such sites and the presence of marine shell attributed to fertilizing the soil rather than being the remains of human consumption as previously postulated by Handy (1940).

The two multiple feature complexes (Sites 201 and 4957); composed of more substantial structural features in terms of variety, size, numbers, and construction; suggest more intensive, if not permanent, occupation in the area. How these two complexes relate chronologically and functionally to the other temporary sites are important questions that still need to be answered. Perhaps, these complexes originated later and are associated with historic period ranching activities. Also, how the various sites fit into the broader settlement patterns of the rest of Paeahu, Palaua, and Keauhou *ahupua`a* is another interesting question. Perhaps the most intriguing question is why this particular area, with such rough terrain and unfavorable topography was utilized at all while much less harsher areas were available in the immediate neighboring areas, even within the same *ahupua`a*. Further investigations of the vicinity are needed to clearly understand the nature of occupation for these sites.

#### **CURRENT INSIGHTS ON THE REGIONAL SETTLEMENT PATTERN**

As amply demonstrated by the various hypotheses put forth by previous researchers regarding the nature of *mauka/makai* settlement, the prevailing conventional archaeological interpretation regarding the prehistoric settlement of this region has, until recently, held to two generalized patterns of occupation. One, consisting of seasonal satellite settlements occurring along the coastal areas to exploit the marine resources, while permanent settlements occupied the upland areas to utilize forest products and cultivate agricultural resources in a more favorable climatic zone. The second, consisting of permanent settlements in both the coastal and inland areas given

certain environmental conditions. In both patterns, the area between the two activity loci, termed the “intermediate zone” was considered an area of transience represented by trails and occupied by only a low number of marginal, temporary site types.

The progressive broadening of the archaeological knowledge base over the past two decades has shown that this conventional settlement pattern is applicable to some areas (*ahupua`a*), but not to the whole Honua`ula region. The traditionally held generalization that the “intermediate zone” was barren, used only during transit between the inland and coastal areas, and lacked any consequential occupation until the late prehistoric or historic periods, has been refuted by the results of investigations in the Wailea and Makena areas. Recent studies of the intermediate zone (Gosser et al. 1993 & 1997, Sinoto & Pantaleo 2000/2001) highlight the importance of the intermediate zone in specific areas of the region and describe the wide range of site types representing various activities engaged in by the inhabitants of this zone.

The foregoing discussion indicates that the interpretation of the human occupation of an extensive region such as Honua`ula cannot be generalized to any single pattern. Each traditional land unit, the *ahupua`a*, needs to be first analyzed on the basis of its discrete characteristics. Only then can the nature of human occupation for the whole region be meaningfully interpreted and this can only be accurately undertaken with the availability of a broad knowledge base. The current availability of the necessary information permits such interpretations to be made only within the northern half of the vast Honua`ula region, where the majority of development-related investigations to date have taken place.

The northern two-thirds of the Property, including portions of Paeahu and Palaua *ahupua`a*, exhibits an “intermediate zone” largely devoid of sites with seemingly more arid environmental conditions relative to the areas to the south. Thus, in the northern section of the Property, the major human activities appear to have been taking place in the inland and coastal settlements, with the “intermediate zone” primarily an area of transit between the two loci.

The southern third of the Property consisting of portions of Palaua and Keauhou *ahupua`a* with aa flows, a more undulating terrain, and cover vegetation indicative of less arid conditions; exhibit remains of a more diverse and intensive human occupation. In contrast with the northern section, the majority of the recorded sites occur within the southern section. Although further work, such as age determinations for specific sites are needed to make conclusive temporal interpretations (prehistoric or historic) of the occupation of the southern section, the frequencies

of more prominent site types reflect permanent or seasonal recurrent occupation in this “intermediate zone.”

During the historic period transition, permanent settlements in both the inland and coastal areas concentrated along the cart paths and roadways and the strong intra-*ahupua'a* based relationships declined as the movement of people and goods shifted to one that laterally cut across traditional land (*ahupua'a* and *moku*) boundaries. This shift in the settlement pattern reflected the cultural transition from a traditional subsistence economy to an introduced market economy that induced the inhabitants to become progressively dependent on imported goods and affected by global economic trends.

**SITE CHRONOLOGY**

No subsurface testing was previously undertaken in all, but one (Site 3156), of the previously recorded sites in the project area. Due to the lack of chronometric data from the project area and a marked scarcity of dates from previously investigated sites occupying similar elevations in neighboring areas, the age of the extant sites in the project area remains unclear. A date range of A.D. 1327-1889 obtained from three sites in the North Course of the neighboring Maui Prince Golf Course (Gosser et al. 2002:349) to the south and a date range of A.D. 1280 to 1650 from three lower elevation sites in the Wailea Golf Course (Gosser et al. 1993:258-259) to the west represent the closest dated sites to the subject area. Since similar age ranges occur from sites in the coastal areas, corresponding chronological ranges of A.D. 1300-1500 as early and A.D. 1600-1800 as late, may be tentatively postulated for the occupation of the subject area. The later prehistoric and proto-historic date ranges also suggest that the occupation may have continued into the historic period at certain sites. However, early historic period artifacts, (ie. diagnostic glass bottles, square nails, etc.), are markedly lacking from the project area.

Due to the absence of dated sites from the project area, the chronology of the sites are still unclear. However, based on the site type or the presence/absence of diagnostic artifacts, the relative periods of origin for the sites can be inferred. For instance, most of the long walls can be attributed to historic ranching period, while the other features such as platforms and overhang shelters can be associated with the prehistoric period. Of the 40 total sites recorded, 32 can be categorized as traditional-type sites and 8 as historic sites. Table 3 on the following page presents this breakdown by site type.

**Table 3. Site Type Frequencies**

<b>Site Types</b>	
<b>Traditional Type</b>	<b>Number</b>
Cluster	2
Complex	2
C-shape	5
Enclosure	1
lava blister	1
lava tube	1
mod OH	5
mod	
outcrop	1
OH	3
Pits	0.5*
Platform	7
SS trail	2.5*
U-shape	1
<b>Total</b>	<b>32</b>
<b>Historic Type</b>	<b>Number</b>
open area	1
Wall	7
<b>Total</b>	<b>8</b>
<b>Total</b>	<b>40</b>

*\*the pits and one of the trail segments occur together and are thus counted as 1 site*



### INITIAL SIGNIFICANCE ASSESSMENT

Initial significance has been assessed for all 40 recorded sites in the current project area. These assessments are based on the five Hawaii Register of Historic Places significance evaluation criteria which are stated as follows:

**Criterion A** specifies association with events or broad patterns important to the prehistory or history of a region, island, or Hawaii in general;

**Criterion B** reflects association with persons important to the prehistory or history of a region, island, or Hawaii in general;

**Criterion C** applies to sites that reflect architectural achievements or are excellent examples of a specific type of site;

**Criterion D** specifies that the site has yielded or has the potential to yield information significant to the understanding of traditional culture, prehistory, history, and/or foreign influences on traditional culture and history of a region, island, or Hawaii in general; and

**Criterion E** applies to sites or places perceived by the contemporary community as having traditional cultural value.

Six sites (Sites 3156, 3157, 3158, 4961, 6802, and 6805) are considered no longer significant. Six sites (Sites 200, 201, 4951, 4957, 4959, and 6797) are evaluated to be significant under multiple criteria. The remaining 28 sites are all considered significant under criterion D.

A summary of initial significance assessments is presented in Table 2.

### RECOMMENDATIONS

The extant sites are recommended for placement into three categories; no further work, data recovery, or *in situ* preservation. No further work is recommended for a total of six sites which correspond to those sites which were evaluated to be no longer significant. Data recovery is recommended for 18 sites. Permanent preservation is recommended for 16 sites (Fig. 52). Table 2 also presents the recommended categories for each site. Following SHPD concurrence to the recommendations in this report, preservation and data recovery plans shall be formulated, produced, and transmitted for review in conjunction with appropriate development planning phases in the near future.



Figure 52. Locations of 15 of the 16 Sites Recommended for Preservation in the Southern Section (Site 5109 is in the Northern Section, please refer to Fig. 5 for location)

## BIBLIOGRAPHY

- Armstrong, Warwick R.  
1973 *Atlas of Hawaii*. Honolulu: University of Hawaii Press
- Bordner, Richard M.  
1980 *Archaeological Reconnaissance of the Proposed Realignment of the Makena Coast Road: Update of Alignment C*. Ms. In files of the Environmental Impact Study Corporation. Honolulu.  
1982 *Archaeological Excavations (Salvage) of Features 1028-12 and 1028-13 for the Proposed Makena Road*. Ms. In files of the Environmental Impact Study Corporation. Honolulu.
- Cleghorn, Paul L.  
1974 *Survey and Salvage Excavations in Specified Areas of Wailea Lands, Maui*. Ms. In Dept. Anthropology, BPBM Honolulu.  
1975a *A Summary of Phase II, Part 2, Salvage Excavations at Site 50- Ma-B10-1, Wailea, Maui*. Ms. In Dept. Anthropology, BPBM, Honolulu.
- Cleghorn, Paul L. and Jim Landrum  
1989 *Phase I Archaeological Survey in Palauea ahupua'a, Makawao District, Maui Island. (TMK 2-1-11:07,08,09,29,31)* Applied Research Group, BPBM, Honolulu.
- Cordy, Ross, and J. Stephen Athens  
1983 *Archaeological Survey and Excavations, Makena, Honua'ula, Maui*. J. Stephen Athens, Ph.D., Archaeology Consultant, Honolulu.
- Davis, Bertell, and R.M. Bordner  
1977a *Archaeological Reconnaissance of the Makena Coast Road Alignment, Honua'ula, Island of Maui*. Ms. 14-821. Archaeological Research Center Hawaii, Inc., Lawai'i, Kaua'i.  
1977b *Archaeological Reconnaissance of the Proposed Realignment of the Makena Coast Road-Mauka Alternate, Honua'ula, Maui Island*. Ms. 14-82, Archaeological Research Center Hawaii, Inc., Lawai'i Kaua'i.
- Foote, Donald E.; Elmer L. Hill; Sakuichi Nakamura; and Floyd Stephens  
1972 *Soil Survey of the Islands of Kauai, Oahu, Maui, Molokai, and Lanai, State of Hawaii*. Soil Conservation Service, USDA. US Government Printing Office. Washington D.C.
- Gosser, Dennis C. et al.  
1993 *Na Lawai'a O 'Ao'ao Kona O Ka Moku: Excavations at the Southern Acreage and Lot 15, Wailea, Maui*. Prepared for the Wailea Resort Company, Ltd. Dept. of Anthropology, Bishop Museum, Honolulu.  
1997 *Data Recovery Procedures in Parcels III and IV, Makena Resort Corporation, Makena, Makawao, Maui*. Prepared for the Makena Resort Corporation. Dept. of Anthropology, Bishop Museum, Honolulu.
- Hammett, Hallett  
1979 *Archaeological Reconnaissance of the Proposed Wailea View Estates Subdivision and Other Lands in a 700 Acre Parcel at Paeahu and Palauea, Honuaula, Maui Island*. Letter Report. Archaeological Research Center Hawaii, Lawai, Kaua'i.
- Handy, E.S.C.  
1940 *The Hawaiian Planter Vol. I*. BPBM Bulletin 161. Bishop Museum, Honolulu.
- Haun, Alan E.  
1990 *Archaeological Field Inspection, Embassy Suites Hotel Site, Wailea Roesort, Lane of Palauea, Makawao District, Island of Maui*. PHRI. Hilo.
- Henry, Jack D. and Paul H. Rosendahl  
1991 *Interim Report: Additional Archaeological Inventory Survey Testing for Additional Burials, Paluaea Development Parcel, Land of Palauea, Makawao District, Island of Hawaii (sic)*. Prepared for Projects International. Paul H. Rosendahl, Ph.D., Inc. Hilo.
- Jensen, Peter M.  
1992 *Archaeological Mitigation Program for Interpretive Development and Site Preservation, Site 1030 – Halo Point, Land of Palauea, Makawao district, Island of Maui*. Prepared for Murray Hawaiian, Ltd. Paul H. Rosendahl, Ph.D., Inc. Hilo.
- Joesting, Ann  
1986 *Historical Research for the Makena-Keone'o'io Road in Makena, Maui*. Ms. in Dept. of Anthropology, BPBM, Honolulu.
- Kennedy, Joseph  
1988 *Archaeological Survey Results Concerning the Proposed Maui Wailea 670 Development. TMK: 2-1-08:56 & 71*. Letter Report. Archaeological Consultants of Hawaii. Haleiwa, O'ahu.

- Kirch Patrick V.  
 1969 *An Archaeological Survey of the A and B Property Surrounding Wailea, Maui.* Ms. in Dept. of Anthropology. BPBM, Honolulu.
- 1970 *Archaeology in the Ahupua'a of Palauea, Southeast Maui.* Ms. in Dept. of Anthropology, BPBM, Honolulu.
- 1971 *Archaeology Excavations at Palauea, Southeast Maui, Hawaiian Islands.* Archaeology and Physical Anthropology in Oceania VI(1):62-86.
- Kolb, Michael  
 1991 *Social Power, Chiefly Authority, and Ceremonial Architecture, in an Island Polity, Maui, Hawaii.* Ph.D. Dissertation, UCLA.
- Komori, Eric  
 1984 *Intensive Archaeological Data Recovery of Site 50-Ma-B8-217, Makena, Makawao District, Maui Island.* Ms. in Dept. of Anthropology, BPBM, Honolulu.
- La Perouse, J.F.G. de  
 1798 *A Voyage Round the World, performed in the years 1785...1788, by the Boussole and Astrolabe.* 2 Volumes, A. Hamilton, London.
- Landrum, Jim, III, Dennis Gosser, and Paul L. Cleghorn, Ph. D.  
 1989 *An Archaeological Reconnaissance of Wailea Resort Company, Ltd., Parcel MF-20,22,23,SF-12-14, Wailea, Makawao District, Island of Maui.*
- Landrum, Jim, III and Paul L. Cleghorn  
 1989 *Phase I Archaeological Survey in Palauea Ahupua'a, Makawao, District, Maui Island, Hawai'i. (TMK 2-1-11:07,08,09,29,31).* Applied Research Group, BPBM, Honolulu.
- Macdonald, Gordon A., and Agatin T. Abbott  
 1970 *Volcanoes in the Sea: The Geology of Hawaii.* Honolulu; University of Hawaii Press.
- Major, Maurice et al.  
 1995 *Archaeological Data Recovery Excavations at site 50-50-14-1028, Palauea, Maui, Hawai'i.* Prepared for Wailea Resort Company, Ltd. Dept. of Anthropology, Bishop Museum. Honolulu.

- Rosendahl, Margaret L. K., and Alan E. Haun  
 1987 *Archaeological Data Recovery Excavations, Development Parcels A/B and C, Wailea Resort, Land of Paeahu, Makawao District, Island of Maui.* PHRI, Hilo.
- Rotunno-Hazuka, Lisa and Paul L. Cleghorn  
 1990 *Supplemental Phase I Archaeological Inventory in Palauea ahupua'a, Makawao District, Maui Island, Hawai'i. (TMK 2-1-11:05 and 06).* For VMS. Bishop Museum, Honolulu.
- Schilt, Rose, and Susan Dobyns  
 1980 *Archaeological Reconnaissance and Testing on Wailea Properties in the ahupua'a of Paeahu, Makawao District, Maui Island, Hawai'i.* Ms.Dept. Anthropology, BPBM, Honolulu.
- Shapiro, William A., and Alan E. Haun  
 1988 *Archaeological Reconnaissance Survey and Limited Subsurface Reconnaissance, Murray Pacific Project Area, Land of Palauea, Makawao District, Island of Maui (TMK 2-1-23--:02, TMK 2-1-11:09, 12, 13, 30).* PHRI, Hilo.
- Shun, Kanalei, and Charles Streck  
 1982 *Archaeological Test Excavations and Monitoring of the Wailea Development Company Sewerline Construction from Polo Beach to Wailea Beach, Maui Hi.* Ms. On file, Department of Anthropology, BPBM, Honolulu.
- Sinoto, Akihiko  
 1978 *Archaeological Reconnaissance Survey of Makena Surf Property, Makawao, Maui.* Ms. On File, Dept. Anthropology. BPBM, Honolulu.
- Sinoto, Aki and Elaine Rogers-Jourdane  
 1979 *Archaeological Phase I Survey of Makena Surf Property, Makawao, Maui Island.* Ms. in Dept. of Anthropology, BPBM, Honolulu.
- Sinoto, Aki  
 1980 *Report on the Phase I Archaeological Survey of a Proposed Golf Course at Makawao, Maui.* For Seibu Hawaii, Inc. Dept. of Anthropology, Bishop Museum, Honolulu.

Sinoto, Aki and Jeffrey Pantaleo

- 1993 *Archaeological Inventory Survey of the Proposed Cinder Haul Road, Keauhou, Makawao, Maui Island (TMK 2-1-08:71)*. Aki Sinoto Consulting. Honolulu.
- 2000 *Archaeological Inventory Survey of the 190-acre Southernmost Portion of Lands Known as Wailea 670, Palauea, Keauhou, Makawao, Maui (TMK 2-1-08: Por. 56 and 71)*. For WCPT/GW Land Associates, LLC. Aki Sinoto Consulting. Honolulu.
- 2001 *Addendum Survey Report: Supplemental Inventory Survey Procedures in the Northern and Southern Portions of Lands Known as Wailea 670, Paeahu, Palauea, Keauhou, Makawao, Maui, TMK: 2-1-08:POR. 56 and 71*. For WCPT/GW Land Associates, LLC. Aki Sinoto Consulting. Honolulu.
- 2006 *DRAFT Archaeological Preservation Plan for Sites Located in the Southern 190-acres, Proposed Honua'ula Development Area, Paeahu, Palauea, and Keauhou ahupua'a, Wailea, Makawao District, Maui Island (TMK: 2-1-08: POR 56 & 71)*. For WCPT/GW Land Associates, LLC. Aki Sinoto Consulting. Honolulu.

Sterling, Elspeth P

- 1998 *Sites of Maui*. BPBM Press. Honolulu.

Walker, Alan T., and Alan E. Haun and Paul H. Rosendahl

- 1986 *Intensive Survey and Salvage Excavations, Wailea Point Condominium Site, Wailea Resort, Land of Paeahu, Makawao District, Island of Maui*.
- 1987 *Archaeological Reconnaissance and Limited Subsurface Testing, Grand Champions Beach Resort, Land of Paeahu, Makawao District, Island of Maui*. PHRI, Hilo.

Walker, Winslow

- 1931 *Archaeology of Maui*. Ms. in Dept. Anthropology. BPBM, Honolulu.

Walton, Beth

- 1971 *Archaeological Survey, Palauea and Keauhou Section, Pi'ilani Highway, Island of Maui*. Historic Preservation Report 72-2, Dept. Transportation, State of Hawai'i, Honolulu.



Archaeological Inventory Survey – Wastewaterline





ASC111510

ASC111510

DRAFT

**Archaeological Assessment Survey:  
 Offsite Wastewater Transmission Corridor  
 for the Proposed Honua`ula Development  
 Keauhou, Kalihi, Waipao, Papa`anui *ahupua`a*  
 Makawao District, Maui Island  
 (TMK: (2) 2-1-08:71, 90, por 108)**

**Archaeological Assessment Survey:  
 Offsite Wastewater Transmission Corridor  
 for the Proposed Honua`ula Development  
 Keauhou, Kalihi, Waipao, Papa`anui *ahupua`a*  
 Makawao District, Maui Island  
 (TMK: (2) 2-1-08:71, 90, por 108)**



for:  
 Honua`ula Partners, LLC  
 c/o Pacific Rim Land, Inc.  
 1300 N. Holopono Street, Suite 201  
 P.O. Box 220  
 Kihei, Hawaii 96753

by:  
 Aki Sinoto  
 and  
 Eugene Dashiell

November 2010

November 2010

Aki Sinoto Consulting  
 2333 Kapiolani Blvd., No. 2704  
 Honolulu, Hawai`i 96826

Aki Sinoto Consulting  
 2333 Kapiolani Blvd., No. 2704  
 Honolulu, Hawai`i 96826

**ABSTRACT**

During discontinuous periods between November 2009 and April 2010, Aki Sinoto Consulting of Honolulu at the request Honua`ula Partners LLC of Kihei, undertook archaeological inventory survey procedures in conjunction with the proposed off-site, waste-water transmission and treatment plan for the proposed Honua`ula Development. This waste-water plan is an alternative to an on-site waste-water treatment facility and calls for the waste-water generated by the proposed development to be conveyed by a pipeline for treatment at the neighboring Makena Waste Water Treatment Facility (MWWTF). A technical memorandum submitted by R M Towill (April 2008) determined the preferred alignment to be a force main connecting a proposed pumping station directly to the MWWTF.

The project area, consisting of a roughly 1.5 mile long north/south corridor in inland Wailea and Makena, Maui Island, includes portions of Keauhou, Kalihi, Waipao, and Papaanui *ahupua`a* in the Makawao District and traverses across the Makena Resort property which adjoins the proposed Honua`ula development area immediately to the south. The transmission corridor traverses across portions two separate tax map parcels; TMK: (2) 2-1-08:90 and (2) 2-1-08:108, also constituting portions of 6 discrete development parcels of the Makena Resort. Portions of the project corridor have previously been included in seven previous archaeological investigations. The current walk-through surface survey of the proposed project area together with the review of previous reports resulted in no previously recorded or newly discovered archaeological or historic remains within the project corridor. No surface structural remains or any other features indicative of prehistoric period or traditional Hawaiian cultural activities nor significant historic period activities were encountered within the project boundaries during the course of the fieldwork. Subsurface data recovery procedures previously undertaken at a few sites in adjoining areas yielded negative results. The absence of findings resulting from the current fieldwork warranted the preparation of this archaeological assessment survey report in accordance to HAR 13-284-5(A).

In view of the negative results of the current assessment, no further pre-construction archaeological procedures are warranted. However, archaeological monitoring of construction-related ground disturbing activities is recommended. When the transmission system plans are finalized, an archaeological monitoring plan shall be prepared and submitted to SHPD for review. Approval of this plan is required prior to commencement of any construction activities.

**TABLE OF CONTENTS**

	<u>page</u>
ABSTRACT .....	iii
TABLE OF CONTENTS .....	iv
LIST OF FIGURES .....	iv
INTRODUCTION .....	1
PROJECT AREA .....	1
ENVIRONMENTAL SETTING .....	1
METHODS .....	5
RESULTS OF FIELDWORK .....	5
SUMMARY OF PREVIOUS ARCHAEOLOGY .....	5
RECOMMENDATIONS .....	7
BIBLIOGRAPHY .....	8

**LIST OF FIGURES**

	<u>page</u>
Figure 1. Location of Project Area on USGS Makena Quadrangle .....	2
Figure 2. Aerial Showing TMK Boundaries and Project Alignment .....	3
Figure 3. Project Corridor Relative to Previous Archaeology .....	6



## INTRODUCTION

At the request Honua'ula Partners LLC of Kihei, Aki Sinoto Consulting of Honolulu undertook archaeological inventory survey procedures in conjunction with the proposed off-site, waste-water transmission and treatment plan for the proposed Honua'ula Development. This plan is an alternative to an on-site waste water treatment facility and calls for the wastewater generated by the proposed development to be conveyed by a pipeline for treatment at the neighboring Makena Waste Water Treatment Facility (MWWTF). A technical memorandum submitted by R M Towill (April 2008) determined the preferred alignment to be a force main connecting a proposed pumping station directly to the MWWTF. The project corridor traverses across the Makena Resort property which adjoins the proposed Honua'ula development area immediately to the south. Based on the negative results of the fieldwork, this archaeological assessment survey report was prepared in accordance to HAR 13-284-5(A).

## PROJECT AREA

The project area, consisting of a roughly 1.5 mile long north/south corridor in inland Wailea and Makena, Maui Island, includes portions of Keauhou, Kalihi, Waipao, and Papaanui *ahupua'a* in the Makawao District (Fig. 1). The project area, comprising a proposed corridor for a 12-inch diameter, waste-water transmission line, measures approximately 6,400 linear feet in length and thirty feet in width. The corridor traverses elevations ranging between 260 to 360 ft. amsl. This force main transmission line (Fig. 2) is slated to connect a proposed pump station located at the southwestern corner of the proposed Honua'ula Development area (TMK: (2)2-1-08:71) with the existing Makena Waste Water Treatment Facility (TMK: (2)2-1-08:por 108). The transmission corridor traverses across portions two separate tax map parcels; TMK: (2) 2-1-08:90 and (2) 2-1-08:108 which also constitute portions of 6 discrete development parcels of the Makena Resort; S-1 through S-4 (designated for single family development), M-2 (multi-family), and Fairways 6 and 14 of G-1 (the North Golf Course).

## ENVIRONMENTAL SETTING

The environment of the Wailea/Makena region is similar to arid leeward regions of the other Hawaiian Islands. There exist, however, localized micro-climatic variations. The project area receives approximately 20 inches of annual rainfall with January being the wettest month and July the driest (Armstrong 1973). Although rainfall data averaged for the year shows only slight differences, analyses of monthly rainfall data indicate that Makena receives more overall precipitation than Kihei or Coastal Wailea, especially during June through September. The

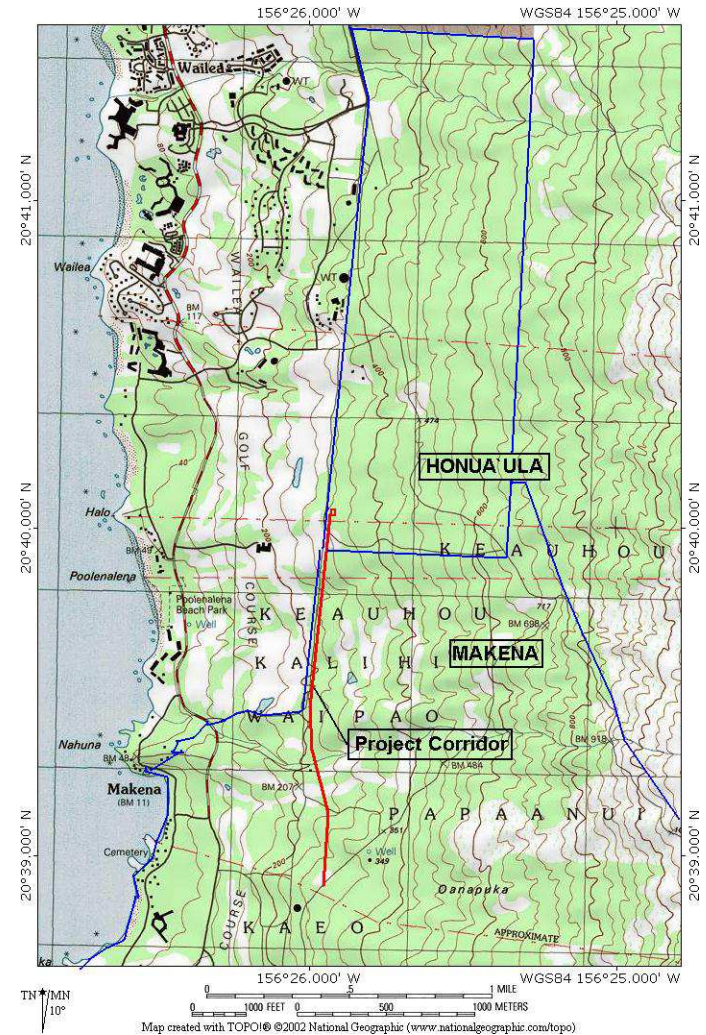


Figure 1. Location of Project Area (in red) on USGS Makena Quadrangle



Figure 2. Aerial Showing TMK Boundaries (in white) and Project Alignment (in yellow) (aerial base map courtesy PBR Hawaii, Inc.)

project area elevations range from about 260 to about 360 feet above mean-sea-level with the topography generally consisting of gently-sloping areas with a few ridge and gulch areas with exposed bedrock outcroppings interspersed with scatter patches of soil. Vegetation in the project area can largely be characterized as lowland dry scrub (Pratt 1998:22-29). The majority of the vegetation is xerophytic; consisting of common exotics such as *kiawe* (*Prosopis pallida*) and *koa haole* (*Leucaena leucocephala*) as the dominant high cover with intermittent, isolated stands of endemic *wiliwili* (*Erythrina sandwichensis*) trees. Common ground cover includes endemic *'ilima* (*Sida fallax*), exotics such as basil (*Ocimum basilicum*), lantana (*Lantana camara*), beggar's tick (*Bidens pilosa*), castor bean (*Ricinus communis*), and various dry grasses. Golden crown-beard (*Verbesina enceliodes*) with its yellow, daisy-like flowers predominates as secondary ground cover in areas that have been cleared of primary growth. The central segment of the corridor traverses the existing North Golf Course along the western portions of Fairways 6 and 14. At the time of the current survey, the region was drought stricken and the natural ground cover was exceptionally sparse and permitted unhampered visibility.

The soils in the project area consist of two major classifications; Makena loam, stony complex and very stony land. The Makena series are well-drained soils developed in volcanic ash with moderately rapid permeability, slow to medium runoff, and slight to moderate erosion hazard. Stony land, occurring on low ridges, makes up 30-60% of this complex and Makena loam in gently sloping areas, occurs between the low ridges of stony land (Foote et al. 1972:91). Very stony land consists of areas where 50-90% of the ground surface is covered with stones and boulders on slopes ranging from 7-30% and is composed of young aa lava with a thin covering of volcanic ash. The project area is dominated by basalt outcrops, interspersed with shallow, natural terraces of coarse rocky alluvium. There are no well-established gulches or seasonal water sources. Infrequent heavy rains cause sheet flooding, which normally courses along existing roadways, and through small, localized drainages.

The survey revealed evidence of historic and modern landscape alterations for activities associated with ranching which preceded the more recent development of access roads, water wells, maintenance facilities, golf courses, and other activities associated with the existing resort developments in Wailea and Makena. The disturbances associated with modern development occur sporadically in localized settings. However, more widespread through the project area are signs of extensive previous disturbances associated with both historic and modern ranching activities. The majority of the flat areas bore signs of having been chain-dragged, characterized by localized accumulations of loose stones, remains of displaced vegetation, and boulders around

Figure 3. Map Showing Project Corridor, Makena Development Parcels, and Previous Work (base map courtesy Makena Resort Corp.)



larger natural outcroppings and knolls, together with the presence of secondary vegetation regimes of fairly uniform growths, and the marked absence of large trees.

**METHODS**

The current archaeological walk-through survey was conducted during three occasions amounting to a total of 20 person/hours, between November 2009 and April of 2010. The subject transmission line corridor was systematically inspected by two persons walking the whole alignment. In addition, reports documenting the results of pertinent previous archaeological investigations within the parcels traversed by the transmission corridor were reviewed to evaluate sensitivity of the specified areas.

Based on the absence of any significant surface remains or other indications of significant prehistoric or historic period cultural activities within the project area, no subsurface testing was conducted.

The project personnel consisted of Kimokeo Kapahulehua and Aki Sinoto with Eugene Dashiell, M.A., as Principal Investigator.

**RESULTS OF FIELDWORK**

The current walk-through surface survey of the proposed project area together with the review of previous reports resulted in no previously recorded or newly discovered archaeological or historic remains within the project corridor. No surface structural remains or any other features indicative of prehistoric period or traditional Hawaiian cultural activities nor significant historic period activities were encountered within the project boundaries during the course of the fieldwork. Data recovery procedures previously undertaken at a few sites in adjoining areas also yielded negative results, lending support to the postulation that the intermediate zone in the northern portions of the region was traditionally sparsely occupied and/or utilized for sedentary activities.

**SUMMARY OF PREVIOUS ARCHAEOLOGY**

Portions of the project corridor have previously been included in seven previous archaeological investigations. A summary of these projects are provided in this section and the respective areas covered are depicted on Figure 3. The report references are also cited in the Bibliography section of this report.

The northern terminus of the project corridor was the southeastern corner of the proposed Honua'ula development area included in the inventory survey undertaken by Aki Sinoto Consulting (Sinoto et al. 2009). The segment of the subject corridor from the property boundary near the northern terminus to where it crosses the unpaved road south of Fairways 6 and 14 was included in the inventory survey and data recovery procedures undertaken by Bishop Museum in 1989 (Pantaleo and Pond 1989 & Gosser et al. 2002). Three previously recorded sites, 50-50-14-2614, 2588, and 2591 occur in relative proximity (ca 50m) to the proposed transmission alignment, however none of the sites or component features occur within the boundaries of the subject corridor. One of these three, Site 50-50-14-2591, a large boulder overhang shelter, was tested during the course of a subsequent project and resulted in negative findings (McIntosh 1997). The central portion of the project corridor was also included in the survey of development parcels M-2 and M-3 (Sinoto and Titchenal 2008) which also produced negative results. The corridor traverses the eastern end of parcel M-2. The southern third of the transmission corridor traverses across parcel S-4 which was surveyed in conjunction with the offsite water tank and waterline routing plan for Parcels M-2 and M-3 (Sinoto and Titchenal 2009). A surface survey was also conducted for Parcel S-4 which also resulted in negative findings (Sinoto and Hayashi pending).

#### RECOMMENDATIONS

In view of the negative results of the current assessment, no further pre-construction archaeological procedures are warranted. However, archaeological monitoring of construction-related ground disturbing activities is recommended. When the transmission system plans are finalized, an archaeological monitoring plan shall be prepared and submitted to SHPD for review and approval prior to commencement of any construction activities.

The 12-inch pipeline, as well as the limited width of the 30-foot wide transmission corridor, is anticipated to facilitate avoidance of any inadvertent discoveries that warrant preservation. Coincident to this point, the R. M. Towill report states that, "The alignment has some flexibility and can be adjusted as necessary to local development needs. The route attempted to follow open pathways to minimize its impact on the vegetation." (R.M. Towill 2008:4).

#### BIBLIOGRAPHY

- Armstrong, R.W.; J.A. Bier; and S. Chang  
1973 *Atlas of Hawaii*. University of Hawaii Press, Honolulu.
- Cordy, Ross and J. Stephen Athens  
1983 *Archaeological Survey and Excavations, Makena, Honua'ula, Maui*. J. Stephen Athens, Ph.D., Archaeology Consultant, Honolulu.
- Foote, D.; E.L. Hill; S. Nakamura; and F. Stephens  
1972 *Soil Survey of the Islands of Kauai, Oahu, Maui, Molokai, and Lanai*. U.S.D.A. Soil Conservation Service, U.S. Government Printing Office, Washington, D.C.
- Gosser, Dennis; S. Clark; B. Dixon; G. Hurst; and L. Rotunno-Hazuka  
1996 *Data Recovery Procedures in Parcels III and IV, Makena Resort Corporation, Makena, Maui*. For the Makena Resort Corporation. Bishop Museum, Honolulu.
- McIntosh, James; Jeffrey Pantaleo; and Aki Sinoto  
1997 *Archaeological Procedures in Six Petition Areas Proposed for State Land-use District Boundary Amendment by the Makena Resort Corp., Makena, Makawao, Maui Island (TMK: 2-1-05:83-85, por 108; 2-1-07:4; and 2-1-08:por 90)*. For Makena Resort Corp. Aki Sinoto Consulting in association with Garcia and Associates. Honolulu.
- Neal, Marie C.  
1965 *In Gardens of Hawaii*. Bishop Museum Special Publication No.50. Bishop Museum Press. Honolulu.
- Pantaleo, Jeffrey and Anne Charvet-Pond  
1989 *Summary Report: Limited Phase I Archaeological Survey of Parcels III and IV, Makena, Makawao, Maui Island*. For Makena Resort Corp. Department of Anthropology, Bernice Pauahi Bishop Museum. Honolulu.
- Pratt, H. Douglas  
1998 *A Pocket Guide to Hawai'i's Trees and Shrubs*. Mutual Publishing, Honolulu.
- R.M. Towill Corporation  
2008 *Wailea 670 Wastewater Conveyance Alternatives: Analysis and Recommendations*. A Technical Memorandum prepared by Leighton W.K. Lum dated April 28, 2008. For Honua'ula Partners, LLC.

- Sinoto, Aki  
1980 *Report on the Phase I Archaeological Survey of a Proposed Golf Course at Makawao, Maui.* For: Seibu Hawaii, Inc. Dept. of Anthropology, Bishop Museum, Honolulu.
- Sinoto, Aki and Toru Hayashi  
pending *An Archaeological Surface Assessment of Makena Resort Development Parcel S-4, Papaanui, Makawao, Maui Island (TMK:2-1-08:por 90).* For: The Dowling Company. Aki Sinoto Consulting. Honolulu.
- Sinoto, Aki and Eugene Dashiell  
2006 *Archaeological Surface Assessment: Mauka and Southern Parcels of the Makena Resort Corp. Holdings, Keauhou to Onau ahupua`a, Makawao District, Maui Island (TMK: 2-1-05/08:108).* For: Makena Resort Corp. By: Aki Sinoto Consulting. Honolulu.
- Sinoto, Aki and Paul Titchenal  
2008 *Archaeological Inventory Survey of Parcels M2 and M3 Waipao and Papa`anui ahupua`a, Makawao District, Maui Island (TMK 2-1-08: 79).* For: MF-2 & 3, LLC. Aki Sinoto Consulting. Honolulu.
- Sinoto, Aki and Paul Titchenal  
2009 *Archaeological Assessment Survey: Offsite Waterline Routing Plan Waipao, Papa`anui, and Kaeo ahupua`a, Makawao District, Maui Island. TMK 2-1-08: por. 90 and por. 108.* For: MF-2 & 3, LLC. Aki Sinoto Consulting. Honolulu.
- Sinoto, Aki; Jeffrey Pantaleo; and Paul Titchenal  
2009 *Revised Archaeological Inventory Survey: Supplemental Archaeological Procedures, Proposed Honua`ula Development Area, Paeahu, Palauea, and Keauhou ahupua`a, Makawao District, Maui Island, TMK: 2-1-08: 56 & 71.* For: Palauea Partners, LLC. By: Aki Sinoto Consulting. Honolulu.





Archaeological Inventory Survey – Waterline







ASC111610

DRAFT

**Archaeological Assessment Survey:  
Existing Offsite Wells, Proposed Well-Field,  
Reservoir, and Water Transmission Corridor  
Keokea, Kamaole, and Paeahu *ahupua`a*  
Makawao District, Maui Island  
(TMK: (2) 2-2-02:001, 050, & 054)  
(TMK: (2) 2-1-08:001 & 054)**



November 2010

**Aki Sinoto Consulting  
2333 Kapiolani Blvd., No. 2704  
Honolulu, Hawai'i 96826**

ASC111610

**Archaeological Assessment Survey:  
Existing Offsite Wells, Proposed Well-Field,  
Reservoir, and Water Transmission Corridor  
Keokea, Kamaole, and Paeahu *ahupua`a*  
Makawao District, Maui Island  
(TMK: (2) 2-2-02:001, 050, & 054)  
(TMK: (2) 2-1-08:001 & 054)**

for:

Honua`ula Partners, LLC  
c/o Pacific Rim Land, Inc.  
1300 N. Holopono Street, Suite 201  
P.O. Box 220  
Kihei, Hawaii 96753

by:

Aki Sinoto  
and  
Eugene Dashiell

November 2010

**Aki Sinoto Consulting  
2333 Kapiolani Blvd., No. 2704  
Honolulu, Hawai'i 96826**

**ABSTRACT**

During discontinuous periods in April and September of 2010, Aki Sinoto Consulting of Honolulu at the request Honua`ula Partners LLC of Kihei, undertook archaeological inventory survey procedures for the proposed well field and the water transmission corridor linking two existing off-site wells and proposed off-site reservoir to the northern section of the proposed Honua`ula Development (TMK: (2) 2-1-008:056). The project area, consisting of a roughly 3 mile long north/south corridor in inland Kihei and Wailea, Maui Island, includes portions of Keokea, Kamaole, and Paeahu *ahupua`a* in the Makawao District (Fig. 1). The project area traverses portions of property owned by Haleakala Ranch (TMK: (2) 2-2-002:001, 050, and 054) in the northern section and Ulupalakua Ranch (TMK: (2) 2-1-008:001 and 054) in the southern section (Fig. 2).

The current surface survey resulted in negative findings. No new or previously unrecorded surface structural remains or any other features indicative of prehistoric period or traditional Hawaiian cultural activities were encountered within the project boundaries during the course of the fieldwork. Due to the absence of any significant surface remains or other indications of significant prehistoric or historic period cultural activities within the project area, no subsurface testing was conducted. One free-standing ranching wall, incorporating a fence-line along the northern side of a ranch road, is located *mauka* of the northern third of the Maui Meadows subdivision. The evidence of extensive and compounded previous disturbances was observed in the project area. However, the marked absence of archaeological remains most likely is not attributable solely to the impact of ranching and the other development-related disturbances. The intermediate zone, within which the project area occurs, has been characterized by researchers primarily as a zone of transit between the coastal and inland areas beyond the 1000 to 1200 foot elevations during the prehistoric period. The intermediate zone in the more arid northern part of the traditional Honua`ula District generally manifests the lowest density of extant sites when compared to the neighboring areas to the south.

Based on the negative results of the fieldwork, this archaeological assessment survey report was prepared in accordance to HAR 13-284-5(A) and no further pre-construction archaeological procedures are warranted. However, archaeological monitoring of construction-related ground disturbing activities is recommended. When the water system plans are finalized, an archaeological monitoring plan shall be prepared and submitted to SHPD for review. Approval of this plan is required prior to commencement of any construction activities.

**TABLE OF CONTENTS**

	<b><u>page</u></b>
ABSTRACT .....	iii
TABLE OF CONTENTS .....	iv
LIST OF FIGURES.....	iv
INTRODUCTION.....	1
PROJECT AREA .....	1
ENVIRONMENTAL SETTING.....	1
METHODS.....	9
RESULTS OF FIELDWORK .....	9
RECOMMENDATIONS .....	10
BIBLIOGRAPHY .....	11

**LIST OF FIGURES**

	<b><u>page</u></b>
Figure 1. Project Area on USGS Puu O Kali and Makena Quadrangles.....	2
Figure 2. Map Showing TMK Boundaries and Project Components.....	3
Figure 3. Aerial Showing Project Components.....	4
Figure 4. Two Photographic Overviews to South .....	5
Figure 5. Preliminary Layout of Storage Reservoirs.....	6
Figure 6. Layout Detail of On-site and Off-site Reservoirs .....	7

## INTRODUCTION

At the request of Honua`ula Partners LLC of Kihei, Aki Sinoto Consulting of Honolulu undertook archaeological inventory survey procedures for the proposed well field and the water transmission corridor linking two existing offsite wells and proposed offsite reservoir to the northern section of the proposed Honua`ula Development (TMK: (2) 2-1-008:056). The project area, consisting of a roughly 3 mile long north/south corridor in inland Kihei and Wailea, Maui Island, includes portions of Keokea, Kamaole, and Paeahu *ahupua`a* in the Makawao District (Fig. 1). The project area traverses portions of property owned by Haleakala Ranch (TMK: (2) 2-2-002:001, 050, and 054) in the northern section and Ulupalakua Ranch (TMK: (2) 2-1-008:001 and 054) in the southern section (Fig. 2). Based on the negative results of the fieldwork, this archaeological assessment survey report was prepared in accordance to HAR 13-284-5(A).

## PROJECT AREA

The project area includes the existing well sites and a proposed well field, water transmission corridor, and water storage-tank area. The well field, wells, and main transmission corridor occupy elevations of 520 to 640 ft. amsl. The proposed storage-tank area is located at the 810-foot elevation. The primary corridor for the 12-inch water-line is approximately 12,000 linear feet in length and 30 feet in width with its north/south alignment traversing above and roughly paralleling the upper boundary of the existing Maui Meadows subdivision to reach the Honua`ula Development area (Figs. 3 & 4). The proposed reservoir consists of a 0.20 million-gallon tank for potable water and an adjoining 0.50 million gallon tank for non-potable water within a 0.61-acre area. The proposed reservoir and the ca 2000 linear-foot, secondary transmission corridor for the 12" line, occupy Ulupalakua Ranch property within Paeahu *ahupua`a* (Figs. 5& 6). The well field, occupying portions of Keokea and Kamaole *ahupua`a*, is roughly 10,000 feet in length and 750 feet wide.

## ENVIRONMENTAL SETTING

The environment of the Wailea region is similar to arid leeward regions of the other Hawaiian Islands. The project area receives approximately 20 inches of annual rainfall with January being the wettest month and July the driest (Armstrong 1973). The project area elevations range from 520 to 810 feet above mean-sea-level, manifesting topography that varies from gently-sloping soil areas to ridge and gulch areas with exposed bedrock outcroppings. Vegetation in the project area can largely be characterized as weedy fields and old pasture (Pratt 1998:22-29). The majority of the vegetation is xerophytic; consisting of common exotics such as *kiawe*

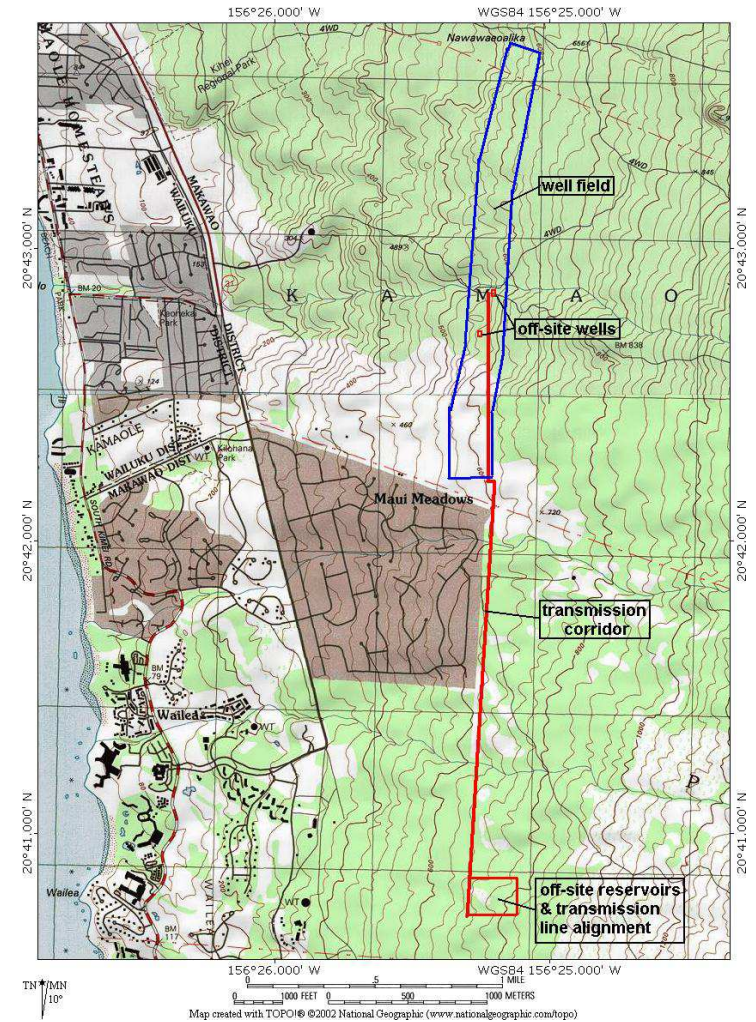
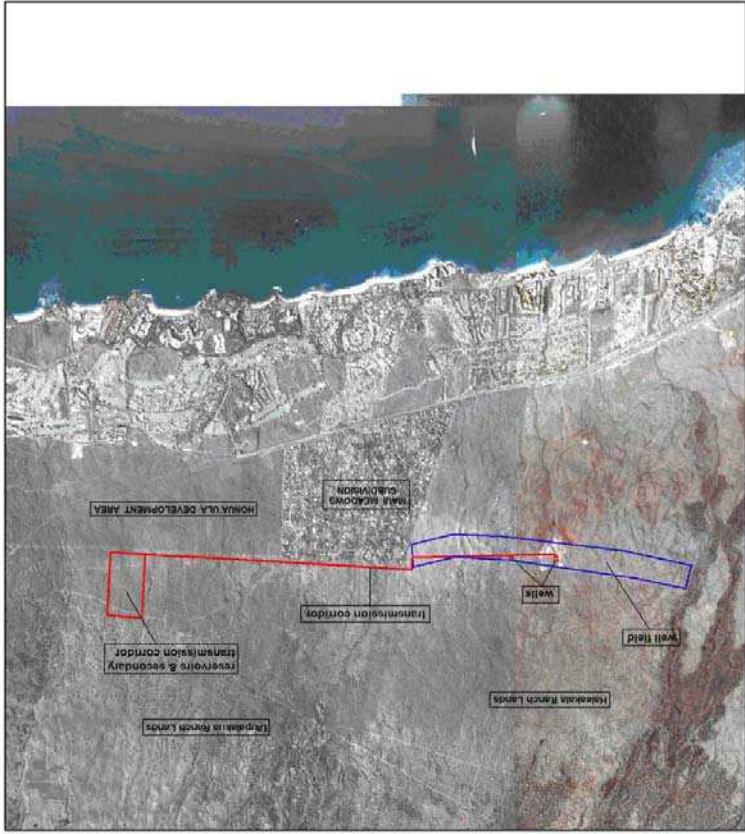


Figure 1. Project Location on USGS Puu O Kali and Makena Quadrangles



Map by E. Dashiell, AICP, Honolulu, 11/2/2010

Aki Sinofo Consulting

Figure 3. Aerial Showing Project Location

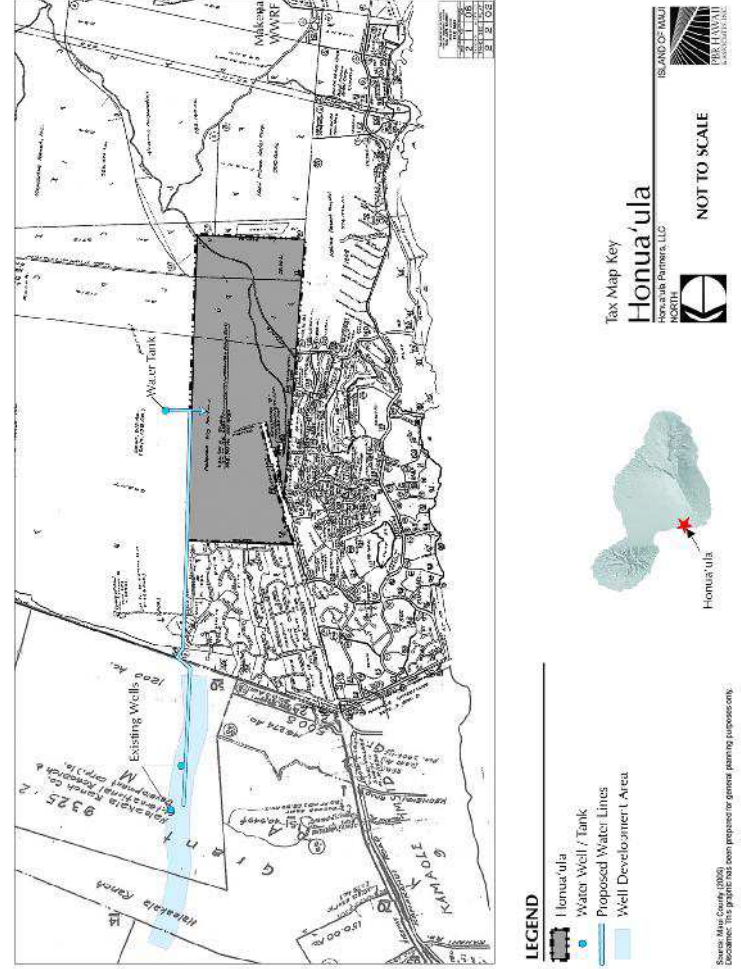


Figure 2. Map Showing Tax Map Key and Proposed Well Field (in Light Blue) (map courtesy PBR Hawaii)



Figure 4. top: Overview Along Water Transmission Corridor, View South  
 bottom: Overview of Ranch Wall above Maui Meadows, View South

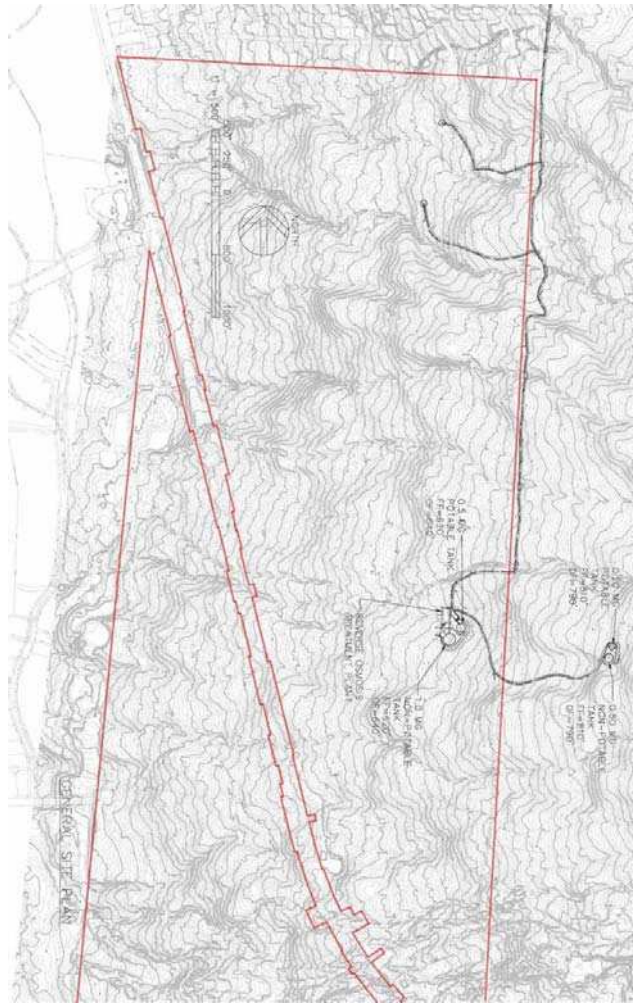


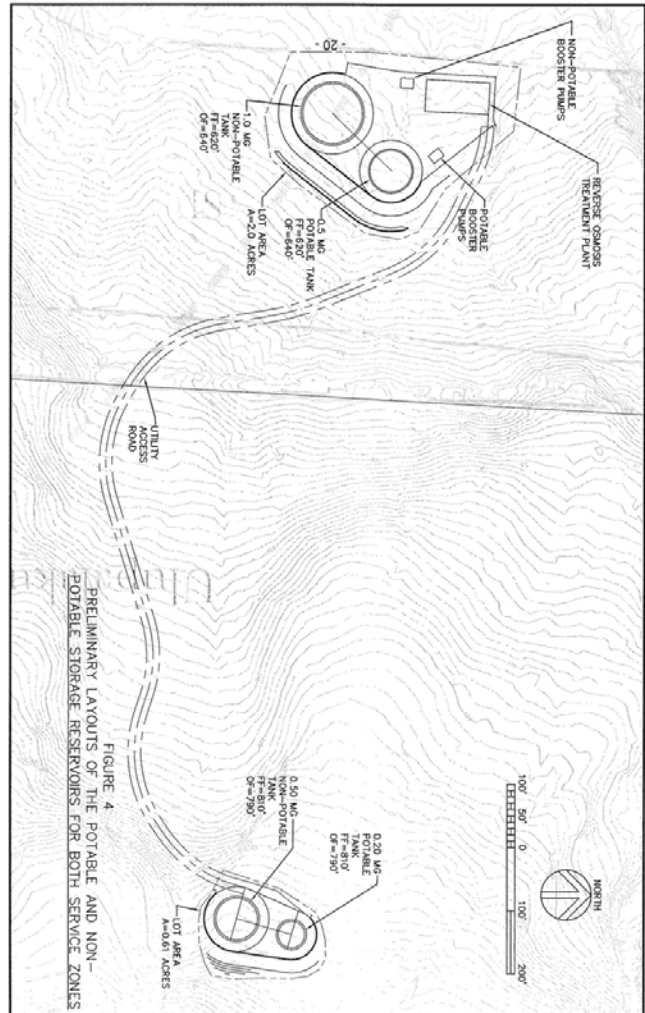
Figure 5. Preliminary Layout of the Storage Reservoirs (figure courtesy of PBR Hawaii, Inc.)

(*Prosopis pallida*) as the dominant high cover with intermittent, isolated stands of endemic *wiliwili* (*Erythrina sandwichensis*) trees. Common ground cover includes endemic *'ilima* (*Sida fallax*), exotics such as basil (*Ocimum basilicum*), lantana (*Lantana camara*), beggar's tick (*Bidens pilosa*), castor bean (*Ricinus communis*), and various dry grasses. Golden crown-beard (*Verbesina encelioides*) with its yellow, daisy-like flowers predominates as secondary ground cover in areas that have been previously cleared of primary growth. At the time of the current survey, the area was drought stricken and the ground cover was exceptionally sparse. Surface visibility was unhampered.

The soils in the project area consist exclusively of Makena loam, stony complex. The Makena series are well-drained soils developed in volcanic ash with moderately rapid permeability, slow to medium runoff, and slight to moderate erosion hazard. Stony land, occurring on low ridges, makes up 30-60% of this complex and Makena loam in gently sloping areas, occurs between the low ridges of stony land (Foote et al. 1972:91). The project area is dominated by basalt outcrops, interspersed with shallow, natural terraces of coarse rocky alluvium. There are no well-established gulches or seasonal water sources. Infrequent heavy rains cause sheet flooding, which normally courses along existing roadways, and through small, localized drainages.

The survey revealed evidence of modern landscape alterations such as access roads, water tank development, firebreaks, storm water diversion, and other activities associated with the existing Maui Meadows residential subdivision. These more recent disturbances occurred in only about a third of the total surface length of the project area in areas immediately adjoining the subdivision. Extensive landscape alteration in the form of clearing activities for well-drilling, associated access roads, and a borrow site were encountered in the area near the well heads. However, throughout the project area, were signs of extensive previous disturbances associated with both historic and modern ranching activities. The majority of the flat areas bore signs of having been chain-dragged, characterized by localized accumulations of loose stones, vegetation, and boulders around larger natural outcroppings and knolls, together with the presence of secondary vegetation regimes of fairly uniform growths, and the marked absence of large trees. With the exception of paved utility roadways, dirt ranch roads, and existing bulldozed firebreaks, the remaining project area comprises undeveloped portions of previously cleared (chain-dragged) ranch lands. Although some WWII-period military activities occurred in the general area, no specific evidence of such use, usually represented by shell casings, ammunition cans, or C-ration remnants, was encountered during the course of the current survey. Evidence of previous brush fires was observed in the form of charred stumps, fallen trunks, and secondary vegetation.

Figure 6. Preliminary Layout Detail of the Storage Reservoirs, Upper Facility is Off-site (figure courtesy Tom Nance Water Resource Engineers, Upper Facility is Off-site)



## **METHODS**

The current archaeological walk-through survey was conducted during three periods amounting to a total of 40 person/hours, between April and September of 2010. The water transmission line corridor, from the off-site wells to the eastern boundary of the proposed Honua'ula Development area, was systematically inspected by two persons walking the whole alignment. At the southern end of the main transmission corridor, the secondary transmission corridor to the proposed reservoir and the reservoir site were also systematically inspected by a two-person team. The survey coverage exceeded the proposed boundaries, thus achieving 100% coverage of the Area of Potential Effect (APE) of the proposed project. The boundaries of the proposed project were established in the field through the use of topographic maps and plans provided by the owner. The existing well-heads facilitated orienting the walk-through transects along the proposed transmission alignment. Proper orientation was maintained employing a hand held compass and a Garmin 76 Cx mapping GPS.

Based on the absence of any significant surface remains or other indications of significant prehistoric or historic period cultural activities within the project area, no subsurface testing was conducted.

The project personnel consisted of Kimokeo Kapahulehua and Aki Sinoto with Eugene Dashiell, M.A., as Principal Investigator.

## **RESULTS OF FIELDWORK**

The current surface survey resulted in negative findings. No surface structural remains or any other features indicative of prehistoric period or traditional Hawaiian cultural activities were encountered within the project boundaries during the course of the fieldwork. One free-standing ranching wall incorporating a fence-line is located *mauka* of the northern third of the Maui Meadows subdivision (see Fig. 3). A ranch road parallels this wall on the southern side. Although evidence of extensive and compounded previous disturbance were observed in the area, the absence of archaeological remains most likely is not attributable solely to the impact of ranching and the other development-related disturbances. The intermediate zone within which the project area occurs, has been characterized by researchers primarily as a zone of transit between the coastal and inland areas beyond the 1000 to 1200 foot elevations during the prehistoric period.

The intermediate zone in the more arid northern part of the traditional Honua'ula District generally manifests the lowest density of extant sites when compared to the neighboring areas to the south.

Previous surveys in neighboring areas within similar elevation ranges have also resulted in largely negative findings, including the results of test excavations conducted at extant surface features in the Honua'ula Development Area (Sinoto et al. 2009) as well as the adjoining Makena Resort development area (McIntosh et al. 1997).

## **RECOMMENDATIONS**

Due to the negative results of the current assessment, no further pre-construction archaeological procedures are warranted. However, archaeological monitoring of construction-related ground disturbing activities is recommended. When the water system plans are finalized, an archaeological monitoring plan shall be prepared and submitted to SHPD for review and approval prior to commencement of any construction activities. The 12-inch pipeline, as well as the limited width of the 30-foot wide transmission corridor, is anticipated to facilitate avoidance of any inadvertent discoveries that warrant preservation.

In addition, no new well development is currently being considered within the well field area included in the current assessment. An appropriate monitoring plan shall be prepared and submitted for approval when planning commences for the development of new wells in the future.

## **BIBLIOGRAPHY**

- Armstrong, R.W., J.A. Bier, and S. Chang  
1973 *Atlas of Hawaii*. University of Hawaii Press, Honolulu.
- Foote, D., E.L. Hill, S. Nakamura, and F. Stephens  
1972 *Soil Survey of the Islands of Kauai, Oahu, Maui, Molokai, and Lanai*. U.S.D.A. Soil Conservation Service, U.S. Government Printing Office, Washington, D.C.
- Gosser, Dennis; S. Clark; B. Dixon, G. Hurst; and L. Rotunno-Hazuka  
1996 Data Recovery Procedures in Parcels III and IV, Makena Resort Corporation, Makena, Maui. For the Makena Resort Corporation. Bishop Museum. Honolulu.
- McIntosh, James; Jeffrey Pantaleo; and Aki Sinoto  
1997 *Archaeological Procedures in Six Petition Areas Proposed for State Land-use District Boundary Amendment by the Makena Resort Corp., Makena, Makawao, Maui Island (TMK: 2-1-05:83-85, por 108; 2-1-07:4; and 2-1-08:por 90)*. For Makena Resort Corp. Aki Sinoto Consulting in association with Garcia and Associates. Honolulu.
- Neal, Marie C.  
1965 *In Gardens of Hawaii*. Bishop Museum Special Publication No.50. Bishop Museum Press. Honolulu.
- Pratt, H. Douglas  
1998 *A Pocket Guide to Hawai'i's Trees and Shrubs*. Mutual Publishing, Honolulu.
- Sinoto, Aki and Eugene Dashiell  
2006 *Archaeological Surface Assessment: Mauka and Southern Parcels of the Makena Resort Corp. Holdings, Keauhou to Onau ahupua`a, Makawao District, Maui Island (TMK: 2-1-05/08:108)*. For: Makena Resort Corp. By: Aki Sinoto Consulting. Honolulu.
- Sinoto, Aki; Jeffrey Pantaleo, and Paul Titchenal  
2009 *Revised Archaeological Inventory Survey: Supplemental Archaeological Procedures, Proposed Honua`ula Development Area, Paeahu, Palauea, and Keauhou ahupua`a, Makawao District, Maui Island, TMK: 2-1-08: 56 & 71*. For: Palauea Partners, LLC. By: Aki Sinoto Consulting. Honolulu.