

Appendix I

**Archaeological Data Recovery at Ten Sites on
TMKs: 3-7-5-10:85 and 3-7-5-17:06
Wai'aha Ahupua'a
North Kona District, Island of Hawai'i
Rechtman Consulting, October 2007**

Archaeological Data Recovery at Ten Sites
on TMKs:3-7-5-10:85
and 3-7-5-17:06

Wai‘aha Ahupua‘a
North Kona District
Island of Hawai‘i



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October 2007

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North Kona District
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INTRODUCTION

At the request of Ken Holzhei of U of N BENCORP, Rechtman Consulting, LLC has prepared this data recovery report for ten archaeological sites located on TMKs:3-7-5-10:85 and 3-7-5-17:06 in Wai‘aha Ahupua‘a, North Kona District, Island of Hawai‘i (Figure 1). The preparation of this Archaeological Data Recovery Report follows the successful completion of an Archaeological Inventory Survey (Clark and Rechtman 2003) of the property, in which ten sites were recommended for data recovery investigation. This Archaeological Data Recovery Report is based on the strategies set forth in the Data Recovery Plan (Rechtman 2004) for the mitigation of these ten sites from any possible impacts resulting from development of the property.

The current study area is bounded to the east by land (part of the same TMK parcel) that was reportedly (Corbin and Rosendahl 2002) given historic preservation clearance by a DLNR-SHPD representative (Mr. Marc Smith); to the north by a stone wall along the Wai‘aha 1st/Pua‘a 3rd boundary; to the south by a stone wall in Wai‘aha 2nd Ahupua‘a just south of the Wai‘aha 1st boundary along the edge of TMK: 3-7-5-17:6 and by an existing residential development where the wall no longer stands; and to the west by a stone wall along the *mauka* edge Kuakini Highway (Figure 2). During the *Māhele*, the majority of Wai‘aha 1st was awarded to the American Board of Commissioners for Foreign Missions (LCAw. 387). There were no *kuleana* awards made within the project area. Wai‘aha is generally considered to have been a place of high-status residences and ceremonial complexes, and Queen Emma lived in the *ahupua‘a* in her later years.

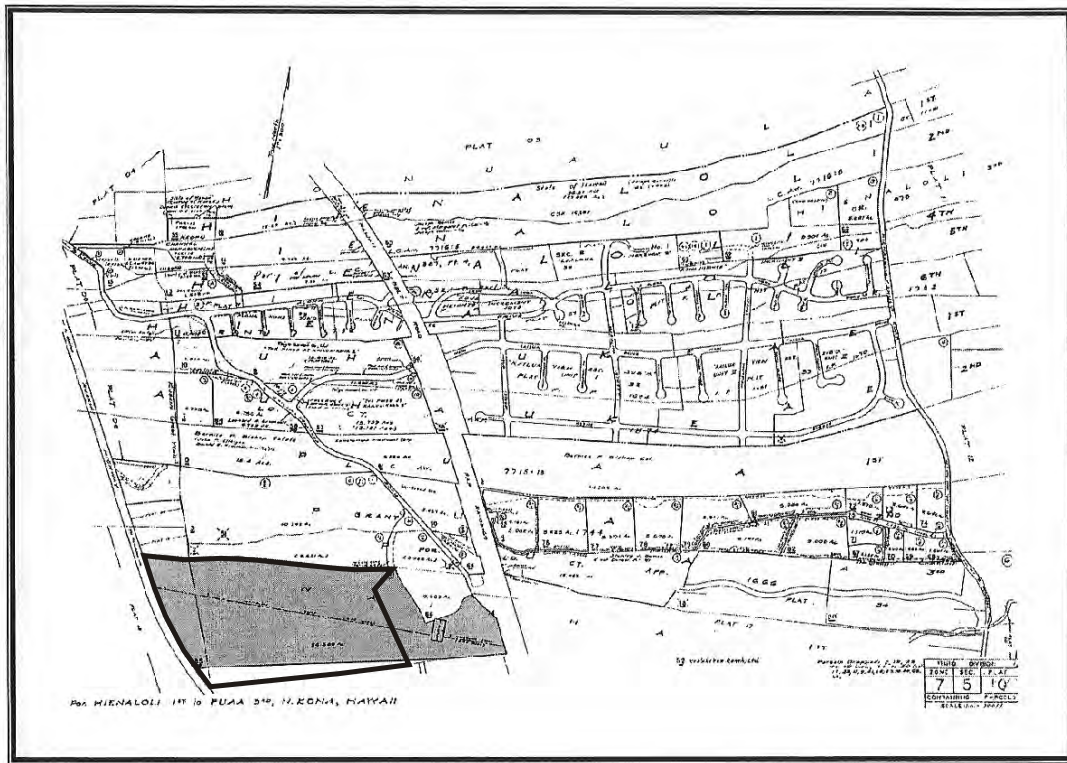
Terrain in the project area is gently undulating and elevation ranges from 100 to 240 feet above sea level. Two soils characterize the project area, Wai‘aha extremely stony silt loam and Punalu‘u extremely rocky peat (Sato et al. 1973). Both are well-drained, thin organic soils over bedrock. The underlying bedrock is *pāhoehoe* within the western third of the project area transitioning to *‘a‘ā* in the eastern two-thirds; the flows date to more than 5,000 years BP (Wolfe and Morris 1996).

Two historically introduced species, *kiawe* (*Prosopis pallida*) and *koa haole* (*Leucaena glauca*) dominate the vegetation within the project area. A variety of grasses, vines, weeds, and shrubs are also present. Prior impacts within the project area can be described as substantial. Mechanical earth moving is evident as a graded road (no longer in use) corresponding to a waterline easement running *mauka/makai* through the property.

A total of twenty-five previously unrecorded sites and one previously recorded site were discovered during the Archaeological Inventory Survey (Clark and Rechtman 2003) (Figure 3). The ten sites recommended for data recovery are listed in Table 1. For descriptions of the other sites see Clark and Rechtman (2003).

Table 1. Data recovery sites on TMK: 3-7-5-10:85.

<i>SIHP No.</i>	<i>Function</i>	<i>Temporal Association</i>
23670	Permanent habitation	Precontact
23671	Temporary habitation	Precontact
23672	Permanent habitation	Precontact
23673	Permanent habitation	Precontact
23674	Temporary habitation	Precontact
23675	Permanent habitation	Precontact
23676	Temporary habitation	Precontact
23677	Temporary habitation	Precontact
23678	Temporary habitation	Precontact
23686	Agricultural	Precontact



↑ TMK:3-7-5-10:85  = Study area  = U of N BENCORP parcels TMK:3-7-5-17:06 ↓

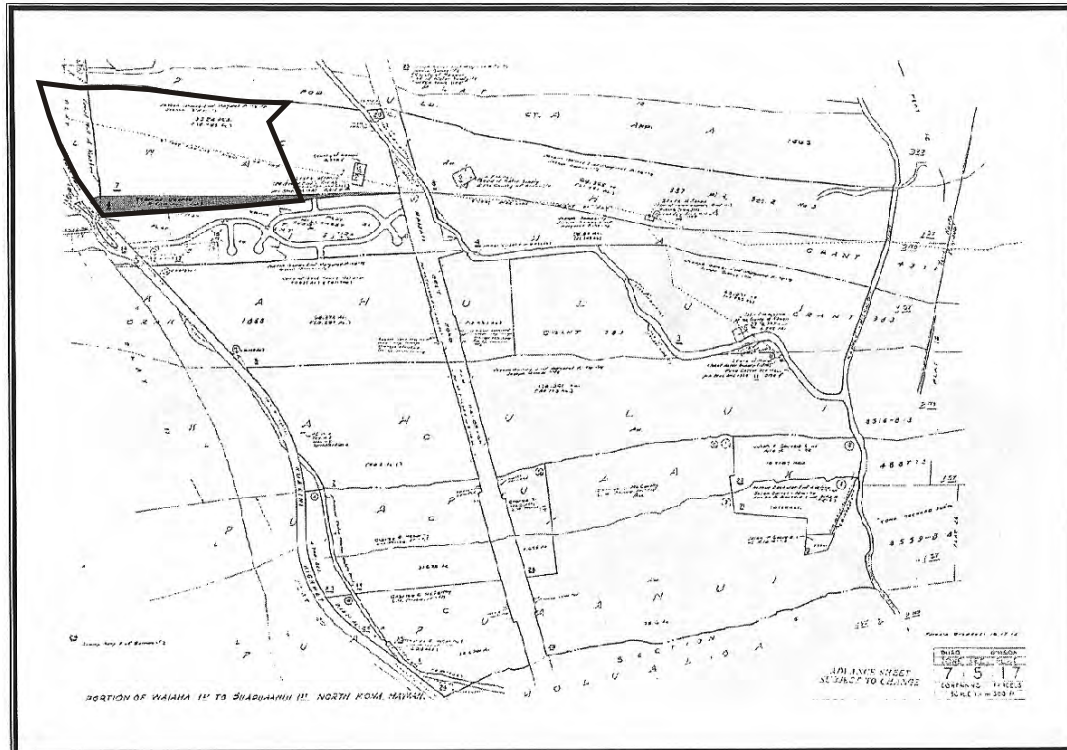


Figure 2. Tax Map Keys:3-7-5-10 and 17 showing current project area (parcels 85 and 06).

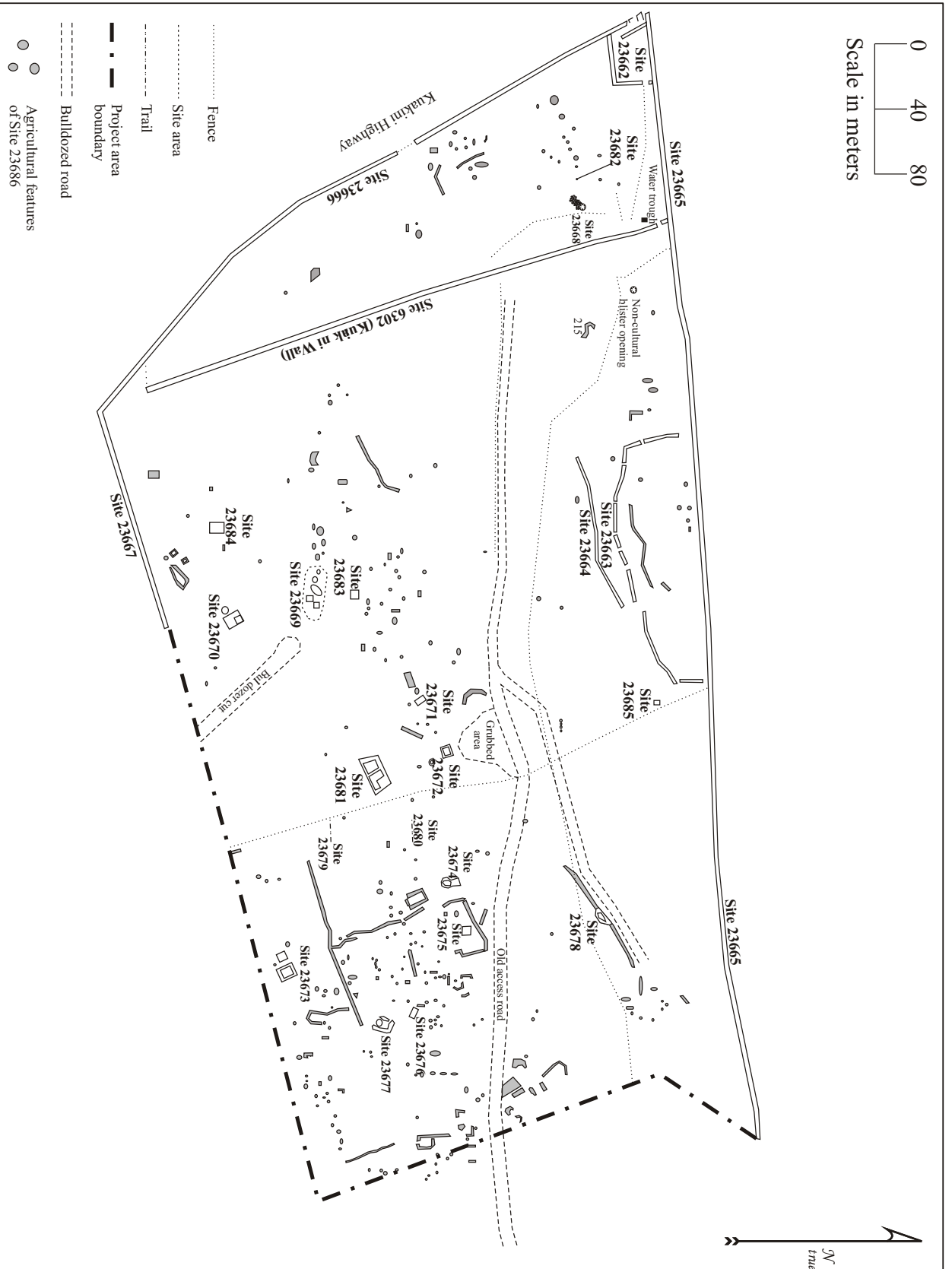


Figure 3. Project area plan view showing site locations.

PHYSICAL AND CULTURAL SETTING

The west-central coast of the island of Hawai'i includes the western slopes of the dormant Hualālai volcano. The Kona coast is for the most part covered with barren Hualālai lava flows broken only occasionally by fertile patches of land. The successive lava flows contain numerous tubes and blisters. The abundance of volcanic rock provided readily available building material for house platforms, temples, fences, agricultural terraces, and Historic Period stock enclosures. The many crevices and caves created by the numerous lava flows afforded convenient locales for habitation, refuge, storage, refuse disposal, and burial.

Mean annual rainfall in the region ranges between 75 and 125 centimeters. Because it seldom rains on the leeward coast, West Hawai'i is characterized by a paucity of stream drainages and a tendency to aridity; any surface water is quickly absorbed in the porous bedrock. In the early nineteenth century Ellis (1916:45-46) observed this water shortage, finding on his journey through the area that the populous Kailua was destitute of fresh water, except what was found in pools, or small streams, normally at higher elevations. Native Hawaiian people, however, had no problem drinking from the brackish springs on the coast (Cheever 1851:110).

Remnants of early house platforms that have been found near the Kaloko coast in North Kona radiocarbon dated to between AD 920 and 1290 (Cordy 2000:132). This area is known for its large brackish ponds and flowing drainage around their edges. In Lanihau Ahupua'a immediately north of the project parcel midden deposits below stone platforms yielded charcoal fragments that were dated to between AD 1055 and 1270. A lava tube shelter to the south of the project parcel, near Kahalu'u Bay, yielded a roughly contemporary date of AD 1000-1280 (ibid. 132-133). These sites are considered to represent temporary habitations of pioneers utilizing the nearby coastal resources. Charcoal dates from walled upland fields suggest that cultivation of the Kona uplands started between AD 1000 and 1200 (ibid. 133). Considered together, these roughly contemporary dates suggest the small pioneering communities that exploited coastal resources also cultivated the uplands.

Most of the Hawaiians living on the west coast chose to settle in small villages near the shore or clustered around bays where canoes could be launched or landed. Fish and marine resources were nearby and plentiful. The moister uplands could be reached by trails several miles long (Holland 1971:32). Upland forests contained a smaller number of people, in temporary villages, who hunted birds, harvested timber and bark, and logged sandalwood (ibid. 35). The seaward slope eventually became a mixed agricultural zone, with breadfruit planted on the lower slopes and large sweet potato and dry land taro plantations established in the higher elevations that received more rain (ibid. 33). With the decline of the breadfruit plantations, small fields of crops were planted in those areas and enclosed with low stone walls concealed by sugarcane. Plantains and bananas were sometimes planted in the lower reaches of the rain forest (ibid. 34). Fish and other marine resources from the coast, plus crops and wild plants harvested from the higher slopes, supplied all the food, shelter, and clothing for the people on the west coast of Hawai'i.

The study parcel is in the *kula* zone, a belt that stretches between sea level and the 150 meter elevation contour. This belt is associated with traditional habitation and the cultivation of sweet potatoes, paper mulberry, and gourds. Agricultural features, notably clearing mounds, planting mounds, planting depressions, modified outcrops, and planting terraces, are common within the *kula* zone (e.g., Hammatt and Clark 1980, Schilt 1984).

Traditional dwellings were concentrated within a roughly 200 meter wide belt along the shoreline, although some were also scattered throughout the agricultural portion of the *kula* zone. In addition to permanent houses, shoreline buildings were constructed for canoe storage, ceremonies and burials, and fishing related activities. A *heiau* related to fishing, known as Hekelinui, was recorded along the shoreline at the union of the two Kahului *ahupua'a*, not far south of the current study area (Reinecke 1930, Site 62). Bryan (1915:50), among other scholars, observed that *heiau* shrines were usually located near the shore and were particularly dense in the region between Kailua and Kealakekua. A prominent *heiau* near the project area is 'Ahu'ena, adjacent to Kamehameha's royal residence at Kailua.

The west coast's warm, dry climate and fertility made it a favorite residential area of Hawai'i's royalty. Important chiefly centers were located within the shoreline portion of the *kula* zone. Several large and densely populated royal centers were located along the shoreline between Kailua and Honaunau (Cordy 1995, Tomonari-Tuggle 1993). A variety of non-residential features are present in the *kula* zone near royal centers, including small agricultural plots, and burials. Wherever the ruling chief had his home, a large group of houses for members of the royal entourage and commoner laborers could also be found.

By the 1400s, dual seats of power existed on the windward and leeward coasts of Hawai'i Island. The "Kona" chiefs governed Kohala, Kona, and Ka'u, while the "I" chiefs controlled Hamakua, Hilo, and Puna (Cordy 2000:205-207). The first chief to permanently unite the island of Hawai'i was 'Umi-a-Liloa, whose father had been an *ad hoc* ruler of the island with his court located in Waipi'o Valley, Hamakua. 'Umi subsequently moved the seat of power from the windward to the leeward side of the island at Kona. According to royal genealogies all this most likely took place sometime during the early 1400s to the early 1600s. Royal oral traditions imply that the period from 1500 to the mid-1700s consisted of continual attempts to wrest power from 'Umi's descendants. These cycles of conquest and re-conquest finally ended with Kamehameha's unification of the Hawaiian Islands in the early Western contact period. The earlier chiefdoms were incorporated into the six districts of Kamehameha's kingdom. Despite the further subdivision of Hilo, Kohala, and Kona into northern and southern portions, the original district boundaries of Hawai'i Island still exist today, probably due to their separation according to natural physical barriers.

The town of Kailua, Kona, has long been the residence of Hawaiian chiefs. Kailua is also the site of Kamakahonu, the parcel of land containing King Kamehameha's principal residence and court during the last years of his life. Following Kamehameha's death, his successor Liholiho overthrew the *kapu* system. Following the breaking of the *kapu* system and related traditional Hawaiian beliefs, the older places of worship, such as the *heiau*, lost their former significance. Many such places were dismantled, and the stones were used for other projects, such as the building the Kuakini Wall, which runs through the western third of the project parcel (see Figure 3).

Nineteenth century habitation features built on stone platforms were present in the *kula* zone of the project area (Hammatt and Meeker 1979, Schilt 1984). The Historic Period marked a shift from separate single-function structures (i.e., separate male sleeping quarters, female sleeping quarters, and cooking structures) to single structures with multiple rooms (i.e., male rooms, female rooms, and kitchens under one roof) (Ladefoged 1991). Burials associated with Historic Period structures made from mortar and corrugated tin are present in the lower portions of the *kula* zone. Burials also occurred within residential platforms during the Historic Period (O'Hare and Wolforth 1998).

In 1823 Ellis (1916:47) observed small gardens among the barren rocks of Kailua on which numerous but scattered houses were built "wherever soil could be found sufficient to nourish the sweet potato, the water melon, or even a few plants of tobacco." The project area is actually within the coastal portion of the so-called Kona Field System (Cordy 1995, Newman 1970, Schilt 1984) of North Kona. These fields extend north at least to Kaū Ahupua'a and south to Honaunau, west to the coastline and east to the forested slopes of Hualālai (Cordy 1995). A significant portion of the fields is designated in the Hawai'i Inventory of Historic Places as SIHP Site 50-10-37-6601 and has been determined eligible for inclusion in the National Register of Historic Places.

Long stone-and-earth field boundaries characterize the Kona Field System. This complex of agricultural fields has never been completely mapped or properly delineated, however. Moreover, Historic Period construction and land-alteration activities have obliterated and obscured large portions of this walled complex. Long walls that mainly run parallel with the slope, called *kuaiwi*, or backbone, typically define former agricultural fields within this field complex. Shorter walls intersect the *kuaiwi* walls in places, giving the field complex an overall grid-like appearance of narrow and elongated rectangles, typically perpendicular to the coast (Soehren and Newman 1968:5). Bearing in mind that the *kuaiwi* walls follow the slope they were very likely not intended to retain soil or water. Instead, they were more likely constructed to delineate plot boundaries and to receive rocks from cleared fields (Kirch 1985:228). Among the *kuaiwi* walls are also preserved stone mounds, terraces, enclosures, and a variety of habitation features (ibid. 230).

Judging from available radiocarbon dates, the most intensive phase of agricultural wall building occurred in the seventeenth to eighteenth centuries.

The emergence of a Euro-American style of land ownership accompanied religious and demographic changes between 1790 and 1840. The Great *Māhele* of 1848 defined the land interests of King Kamehameha III, the high-ranking chiefs, and low-ranking chiefs. The Land Commission awarded land to chiefs given the understanding that the traditional boundaries would prevail until such boundaries could be surveyed. Commoners received land known as *kuleana*.

During the Territorial Period (1900–1959) population declined and settlements diminished along the Kona coast. Coastal populations were concentrated in the small villages of Kailua and Keauhou. These contained residences with gardens and animal pens that were scattered along the shoreline. Upland habitation was associated with cultivation and ranching activities. As cattle pastures expanded into the lower elevations (in the vicinity of the current project area), more walls were built in the *kula* zone.

PREVIOUS WORK AND RESEARCH QUESTIONS

Summary of Previous Work

A total of eleven sites (25 features) were closely investigated during the Archaeological Inventory Survey (Clark and Rechtman 2003) (Table 2). Of the eleven sites (25 features) investigated, nine sites (15 features) were interpreted as habitation and one site (10 features) was interpreted as agricultural. Seven test units were excavated within the habitation features, whereas ten test units were excavated within the agricultural features. Two charcoal samples obtained from habitation features were submitted for radiocarbon assaying. The calibrated dates ranged between the sixteenth and twentieth centuries.

Table 2. Archaeological Inventory Survey sites, features, test units, and dates.

<i>Site #</i>	<i>Feature letter</i>	<i>TU #</i>	<i>Form of habitation feature</i>	<i>C-14 calibrated date range (AD)</i>
23670	A	-	Lower two-tiered platform	-
23670	B	12	Upper two-tiered platform	-
23670	C	-	Small platform	-
23671	A	-	Platform	-
23672	A	11	Rectangular enclosure	-
23672	B	13	Rounded enclosure	1510-1950
23673	A	17	Platform	-
23673	B	-	Enclosure	-
23674	A	-	Platform	-
23674	B	-	Circular enclosure	-
23675	A	20	Enclosed platform depression	-
23676	A	18	Platform	-
23677	A	16	Small platform in enclosure	1660-1950
23677	B	-	Rough enclosure	-
23678	A	-	Oval enclosure	-
n=9	n=15	n=7		n=2
<i>Site #</i>	<i>Feature #</i>	<i>TU #</i>	<i>Form of agricultural feature</i>	<i>C-14 calibrated date range (AD)</i>
23686	187	1	Mound	-
23686	189	2	Mound	-
23686	262	15	Mound	-
23686	266	19	Mound	-
23686	271	21	Mound	-

Continued on next page

Table 2. Continued.

<i>Site #</i>	<i>Feature #</i>	<i>TU #</i>	<i>Form of agricultural feature</i>	<i>C-14 calibrated date range (AD)</i>
23686	183	4	Modified outcrop	-
23686	201	5	Modified outcrop	-
23686	204	6	Modified outcrop	-
23686	239	8	Modified outcrop	-
23686	297	22	Modified outcrop	-
n=1	n=10	n=10		n=0

The following six functional categories have been tentatively assigned to features based on their size and items recovered (Table 3): permanent habitation (n=7), temporary habitation (n=7), unknown agricultural (n=6), agricultural clearing (n=3), planting area (n=1), and storage and/or trash facility (n=1).

Table 3. Archaeological Inventory Survey feature size, inferred function, and items.

<i>Site</i>	<i>Feature</i>	<i>Area m²</i>	<i>Function</i>	<i>Items recovered</i>
23670	A	55.8	Permanent habitation	<i>Cypraea</i> sp.
23670	B	10.2	Permanent habitation	-
23670	C	11.4	Permanent habitation	-
23671	A	26.2	Temporary habitation	-
23672	A	114.8	Permanent habitation	cow
23672	B	8.8	Storage/trash	shark, shell, <i>kukui</i> nutshell, charcoal, rodent, basalt, volcanic glass
23673	A	26.5	Permanent habitation	fish, <i>Cypraea</i> sp., coral, Echinoidea, <i>kukui</i> nutshell, charcoal, rodent, volcanic glass
23673	B	74.8	Permanent habitation	coral
23674	A	17.2	Temporary habitation	-
23674	B	18.1	Temporary habitation	-
23675	A	33.1	Permanent habitation	<i>Cypraea</i> sp., pig, charcoal, basalt
23676	A	18.0	Temporary habitation	fish, <i>Cypraea</i> sp. lure, shell, Echinoidea, pig, rodent, <i>kukui</i> nutshell, volcanic glass
23677	A	7.3	Temporary habitation	fish, shell, Echinoidea, coral, small mammal, charcoal, volcanic glass
23677	B	6.3	Temporary habitation	-
23678	A	20.0	Temporary habitation	-
23686	187	3.0	?	coral
23686	189	1.5	?	coral
23686	262	5.8	?	-
23686	266	2.9	?	-
23686	271	7.3	?	coral
23686	183	35.5	Planting area	-
23686	201	23.6	Agricultural clearing	-
23686	204	9.2	?	-
23686	239	10.0	Agricultural clearing	-
23686	297	18.0	Agricultural clearing	-

Research Objectives and Analytical Approaches

The primary research objective of this data recovery project is to assess a general hypothesis related to the timing and nature of Precontact land use within the project area, and the concomitant implications for the prehistory within the *kula* zone of Kona. This hypothesis is developed based on general information contained in the large corpus of reports prepared over the past thirty years for the Kona region, as well as the specific results of the inventory survey conducted on the property (Clark and Rechtman 2003).

Secondary research questions, related to the primary hypothesis, are also discussed, along with analytical approaches for assessing all of the research objectives.

Primary Hypothesis and Archaeological Implications

The sequence of Precontact land use within the study area (and the *kula* of Kona in general) is as follows: The first use was for short term habitation and associated opportunistic agriculture, followed by formal agriculture and associated recurrent habitation, then the end of the sequence is marked by more consistent habitation with associated household gardens and animal pens.

The archaeological implications of this hypothesis are many. Those sites that were interpreted as “permanent habitations” in the inventory study (Clark and Rechtman 2003) should postdate the sites interpreted as “temporary habitations,” and exhibit the largest investment in construction and contain the widest range of artifact types and the greatest diversity of faunal remains. The temporary habitations should fall into two temporal categories, the earlier being less substantial in construction and contain the fewest artifacts and the least diverse faunal collection, reflective of short term use; the later being more substantial in construction and possessing a wider range of artifacts and a greater diversity of faunal remains, reflective of recurrent use. The recurrent use habitation sites are expected to temporally correlate with the majority of the agricultural features of Site 23686. The permanent habitations should spatially and temporally correlate with enclosure features used either for agriculture or animal husbandry.

A key analytical component for assessing the hypothesis and its implications is comparative analyses of recovered artifact assemblages and faunal collections from the habitation features, and correlating this information with the metric characteristics of the sites. Radiocarbon age determinations are also vital in establishing the contemporaneity of defined recurrent use habitation sites and the formal agricultural features (i.e., *kuaiwi* and terraces). Fifteen charcoal samples from both habitation and agricultural contexts were submitted for radiocarbon analysis. Together with the existing two radiocarbon dates from the test units, the total of radiocarbon assays from the project is seventeen.

An avenue of investigation specific to multi-component habitation sites is an assessment of the functional variability between features. Ethno-historic models suggest that habitation sites (Cordy 1981), and the “planter’s homestead” (Handy and Handy 1972:290) contained several functionally different structures (i.e. common house, men’s eating house, woman’s eating house, sleeping houses, cooking house, etc.). This “idealized” living complex is termed *kauhale*. While this residential pattern may not have been strictly or universally adhered to, the underlying cultural rules are likely to have been practiced in varying degrees at most residential complexes. Therefore, there should be recognizable formal and material content differences between the different types of structures. This can be studied at the sites recorded in the study area. All of the features at these sites will be subject to subsurface investigation. An inter-feature comparative analysis of the recovered material and correlation with the features’ formal attributes is used to identify potential functional differences between the site’s features. Functional interpretations can then be proposed for the individual features based on the ethno-historic information.

Handy and Handy’s (1991:290-300) account of a *kauhale* is based primarily on work that they conducted with Pukui in the district of Ka’ū in southern Hawai’i. For reasons of *kapu*, structures with different uses and/or occupied by people of different gender and/or rank were kept spatially separate. Within most household complexes sleeping was in common but males and females ate and worked separately. The following structures normally occurred within a *kauhale*: common house, men’s house, women’s *tapa* manufacturing structures, women’s menstrual huts, a storage shed for crops and implements, and cooking sheds that were separated along gender lines. Apparently only a few households ever exhibited the full complement of structures, although sleeping and cook houses were probably present within most household complexes. What follows is an overview of the more ubiquitous structures and excavated items that can be expected to be associated with each.

The main structure within the household complex was the common house, or *hale noa*, in which all the family members slept at night. It was normally the largest building within a family compound and the most weatherproof. Its frame consisted of end posts upon which rested the ridgepole. There were also four corner

posts with side posts between them. Prior to thatching, the house frame looked like a great cage. In drier areas a low stone wall often formed the outside perimeter support of the thatched rafters. The house sometimes stood on a stone platform of varying size and thickness. This platform at times extended beyond the front of the house to provide a roof-less porch, or *lanai*. A single waist high doorway was usually placed in the center of the front wall. During dedication rituals for a new house, fish were placed under the threshold to keep away evil influences from outside. Hogs, dogs, and chicken were also consumed and discarded during this ritual consecration. Women did not eat pork or dog (e.g., Handy and Handy 1991:292). The sleeping area was normally against the back wall. It was raised slightly and covered with pebbles, dried vines, and leaf mats. It was in the mat-covered space between the sleeping area and the door where women sat weaving mats and where children played on rainy days. Light in the evening was from candles made of the oily *kukui* nuts. Bearing in mind that no food was supposed to be consumed within the *hale noa*, with the exception of the initial house dedication feast, excavated food residues should ideally be a reflection of what was consumed primarily during this feast. Pork and dog bones would be residues left by men, whereas everybody would have consumed shell fish, and *kukui* nutshell fragments most likely would have come from candles or as a delicacy during the dedication feast. Areas covered with mats might appear as voids, whereas food items could expect to accumulate near the wall, particularly in corners, and near the doorway.

In the vicinity of the main sleeping house was the men's house, or *hale mua*. Interestingly, the term *mua* also refers to the fore part, or bow, of a canoe, showing the pervasiveness of a seafaring mindset in Hawaiian culture. At least in historic times the men's house was smaller than the sleeping house. Within the *hale mua* men kept and worked on their tools, including adzes and files for making tools and weapons. No women were allowed within the men's quarters. Against the narrow back wall of the *hale mua* was the shrine of the family ancestor spirits, or *'aumakua*. This shrine often included an altar, or *kuahu*, that comprised a framework of poles supporting a shelf on which was an image of the family ancestor. Shrines could also simply be an upright stone. At the time of the main meal, once a day, the family head placed the slightly narcotic *'awa* liquid on the altar while praying to the family ancestors. On special occasions, such as prior to heavy work or fighting, the men would sleep in the *hale mua*, for intercourse with women was *kapu* at such times. Near the men's house was the oven, or *imu*, where the men cooked their food. Considered overall then, material traces of a *hale mua* would include fragments of basalt adzes, pumice abraders, bone and shell fishing and cultivation gear. Food residues within *hale mua* can be expected to be denser than those from the sleeping house, including pig and dog bones. Upright stones and/or special food residues and coral at one end of the structure could be remnants associated with a shrine.

Cooking areas, as indicated by pits or stone-lined hearths, seemingly occurred on different sides of the house dwelling, or close to the spatially separate activity areas of men and women. Women did their bark cloth, or *tapa*, making in the *hale ku'a*, where strips of bark were processed and stored. These were often raised stone platforms without a roof, the implements being stored inside cupboard-like hollows within the platforms. The structures were apparently somewhat separate from the main house complex as it was *kapu* for men to touch the tools of *tapa* processing. Instruments that are associated with bark cloth processing include wooden beaters that are sometimes preserved within their storage spaces in the drier areas of Hawai'i. The menstrual hut, or *hale pe'a*, was even more remote than the *tapa* processing locales, to ensure that "impure" women during their menses did not come into contact with men. Women who were not menstruating took food to the secluded menstruating women. Remains associated with *kapu* production locales and menstrual huts are expected to be limited and restricted to certain spots, and would include beaters, abraders, and certain shellfish.

Close to the cultivated fields, a farmer would have had a stout storage shed, or *hale papa'a*. This shed served as a storehouse for crops, a place to keep digging sticks, and cuttings of taro, sweet potato, and sugar cane for replanting. Cultivators also used this shed as a shelter during bad weather. Due to the perishable nature of cultivation-related tools and foodstuffs, storage sheds are not expected to contain many items, unless a fire has carbonized and preserved some of the plants and implements from decay.

It is worth noting that according to Handy and Handy, point features on the landscape, such as fresh water sources or protected bays, typically facilitated inter-*kauhale* clustering and intra-*kauhale* nucleation. In the *kula* zone of the project area where such naturally occurring nodes were ostensibly absent, *kauhale*

would likely have been dispersed, often with some distance separating neighboring *kauhale* (Handy and Handy 1991:284). Also, a *kauhale* associated with dispersed agricultural activities can be expected to lack the more clearly discernable internal structured relationship between different features found within those *kauhale* that were centered on bays, for example.

Secondary Research Objectives

Refining the nature of habitation sites

Refined assessments of site and feature function have been problematic at best in Hawaiian archaeology. This is particularly so when attempting to assess the nature of presumed habitation features. Nearly thirty years ago a rigid dichotomy of habitation sites types (permanent/temporary) was formally established along with the criteria for distinguishing between temporary versus permanent habitations (Cordy 1978), then later revised (Cordy 1981). The model that resulted is based on a set of co-varying surface observable attributes: form, size; substantiveness of construction; internal features (single versus multiple fire hearths); associated structures; and geographic context. Although criticized (Kirch 1983, 1985) and elaborated on (Clark 1987), the basic elements of Cordy's model have remained in use over years of testing (literally hundreds of studies have used the key variables for interpreting temporary and permanent habitation sites), and codified in the recently signed Administrative Rules (HAR 13§13-275) that govern the historic preservation review process.

Using the criteria of form, size, internal features, and associated structures contained in the Cordy model, three of the sites that are the focus of this data recovery study would be interpreted as permanent habitations; however, the geographic context and substantiveness of construction are not what is expected for a permanent habitation. Further, the qualitatively assessed amount of habitation debris (recovered from testing and seen on the surface) does not seem to be enough for permanent habitation; thus all of these sites are presently interpreted as temporary. It is the criteria for making this interpretation (and thus the utility of the continued use of the orthodox version of the Cordy model) that will be addressed in the data recovery investigation.

One criterion used by Clark (1987) for assessing permanence of habitation sites, which was not a consideration of Cordy's model, was that of abundance and diversity of accumulated habitation debris. Clark did not provide a measurable distinguishing threshold, however, quantity and diversity of habitation debris can be a qualitative measure (an impression). As stated elsewhere (Rechtman 2002), and in the process of being demonstrated (based on data recovery investigations at several sites in both South Kona, and North Kona), that if further developed, some measure of the quantity and diversity of faunal material present within a site can be a powerful tool in assessing permanence of habitation. When a site is excavated, volumetric data can be generated with respect to the quantity of habitation debris. These measures can then be statistically analyzed to identify patterning, which can then be tested against the normative criteria contained in Cordy's model. Likewise, the diversity of species present in the faunal collection can be used as a measure of habitation permanence. This is based on the logical assumption that faunal assemblages from temporary habitations will be less diverse than those from permanent habitations. A diversity index can be generated based on number of species present given a particular volume of excavated sample. Both of these measures might also ultimately prove useful, in conjunction with an examination of other formal feature attributes and recovered artifactual material, in assessing the status of the site residents, through comparisons of inter- and intra-site variability and distribution analyses. It is recognized that environmental conditions and site taphonomy can greatly effect preservation of material remains, and thus their accurate reflection of past behaviors.

Refining the age estimate and functional interpretation of agricultural features

As the subsurface examination of mounds and modified outcrops during the inventory survey (Clark and Rechtman 2003) yielded very little information, the focus of data recovery at SIHP Site 23686 included the other four recorded features types; *kuaiwi*, terraces, enclosures, and pavement.

Cross-sections through three *kuaiwi* (Features 17, 82, and 291) and through the rock facings of six terraces (Features 81, 185, 212, 247, 254, and 286) were excavated by hand in an attempt to document

potential successive build episodes, the relationship between the rock feature and the underlying soil, and to recover charcoal samples for radiocarbon analysis.

Three enclosures (Features 251, 293, and 294) were also excavated. As a result of the inventory survey (Clark and Rechtman 2003) these sites were interpreted to be associated with agricultural activities as opposed to having served as animal pens or habitations. This interpretation will be tested through data recovery, as will the identification and characterization of any soil deposits. The stratigraphy of the soil deposits will be recorded and soil and radiocarbon samples collected for laboratory analyses.

Three pavements were recorded during the inventory survey (Clark and Rechtman 2003), all in the *mauka* third of the study area. This feature type represents only about one percent of the feature types recorded at SIHP Site 23686. Rechtman et al. (2001) formally defined this specialized agricultural feature type as a stone surfaced area, level with the surrounding ground surface on at least one side. Pavements are generally constructed against or into sloping terrain, and are then filled with stones to create a relatively flat surface. Pavements come in many shapes (including square, rectangular, and irregular) and sizes. The outside edges of a pavement may be piled or stacked (piled edges are sloped, while stacked edges are generally vertical). Small (cobble to gravel size) stones are generally used as the fill material. In the absence of excavation data, pavements were functionally described as specialized features associated with agricultural activity (possibly for staging and processing agricultural products). It is also possible that pavements served as locations of temporary habitation, or were used simply for sleeping (a use defined here as distinct from habitation).

All three of the recorded pavements (Features 250, 282, and 289) were excavated. The analytical criteria used to interpret the pavements as plant processing activity features was a combination of an abundance of volcanic glass flakes, and a paucity of faunal remains. The characteristics that distinguished the pavement features as loci of habitation were the presence of faunal remains and the identification of a hearth or hearths (hearth features would not be expected to occur within the pavements if they were used for plant processing or drying). If these features were used simply for sleeping then very little or no surface or subsurface cultural material would be present. Based on architectural and artifact similarities with excavated pavements/platforms elsewhere on the island, it could be that some of the more elaborately paved structures represent *heiau*, or shrines.

DATA RECOVERY METHODS

Excavation Units

This section presents a site-by-site accounting (in table form) of the data recovery excavation units and a description the excavation techniques. Table 4 lists the hypothesized habitation sites and the number and configuration of the excavation units. Table 5 lists the excavated features and the unit configuration at the agricultural Site SIHP 23686.

Table 4. Excavation sample size per habitation site and feature.

<i>SIHP No.</i>	<i>Total m²</i>	<i>Unit Number and Configuration</i>
23670 Feature A	8	EU-31 (2 x 2m), EU-32 (2 x 2m)
23670 Feature B	2	TU-12 (1 x 1m), EU-34 (1 x 1m)
23670 Feature C	1	EU-33 (1 x 1m)
23671	4	EU-4 (2 x 2m)
23672 Feature A	6	TU-11 (1 x 1m), EU-2 (1 x 1m), EU-3 (2 x 2m)
23672 Feature B	3	TU-13 (1 x 1m), EU-1b (2 x 1m)
23673 Feature A	5	TU-17 (1 x 1m), EU-27 (1 x 2m), EU-28 (1 x 2m)
23673 Feature B	4	EU-29 (2 x 2m), EU-30 (2 x 2m)

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Table 4. Continued.

<i>SIHP No.</i>	<i>Total m²</i>	<i>Unit Number and Configuration</i>
23674	5	EU-6 (2 x 2m), EU-7 (1 x 1m)
23675	7	TU-20 (1 x 1m), EU-9 (2 x 1m), and EU-10 (2 x 2m)
23676	5	TU-18 (1 x 1 m), EU-21 (2 x 2m)
23677 Feature A	2	TU-16 (1 x 1m), EU-22 (1 x 1m)
23677 Feature B	4	EU-23 (2 x 1m), EU-24 (2 x 1m)
23678	4	EU-14 (2 x 1m), EU-15 (2 x 1m)

Table 5. Features of SIHP Site 23686 subject to data recovery excavation.

<i>Feature Type</i>	<i>Feature No.</i>	<i>Unit Number and Configuration</i>
Mound	187	TU-1 (1 x 1m)
Mound	189	TU-2 (1 x 1m)
Mound	262	TU-15 (1 x 1m)
Mound	266	TU-19 (1 x 1m)
Mound	271	TU-21 (1 x 1m)
Modified outcrop	183	TU-4 (1 x 1m)
Modified outcrop	201	TU-5 (1 x 1m)
Modified outcrop	204	TU-6 (1 x 1m)
Modified outcrop	239	TU-8 (1 x 1m)
Modified outcrop	297	TU-22 (1 x 1m)
<i>Kuaiwi</i>	17	EU-37 (2 x 1m)
<i>Kuaiwi</i>	82	EU-26 (2 x 1m)
<i>Kuaiwi</i>	291	EU-13 (2 x 1m)
Terrace	81	EU-25 (2 x 1m)
Terrace	185	EU-1a (2 x 1m)
Terrace	212	EU-38 (2 x 1m)
Terrace	247	EU-5 (2 x 1m)
Terrace	254	EU-12 (2 x 1m)
Terrace	286	EU-16 (2 x 1m)
Enclosure	251	EU-8 (2 x 2m)
Enclosure	293	EU-36 (2 x 1m)
Enclosure	294	EU-37 (2 x 1m)
Pavement	250	EU-11 (2 x 2m)
Pavement	282	EU-17 (2 x 1m), EU-18 (2x2m)
Pavement	289	EU-19 (2 x 2m), EU-20 (2 x 2m)

Prior to sub-surface testing, all sites were adequately cleared of vegetation and photographed. Also, scaled plan views were drawn, or updated from the inventory survey (Clark and Rechtman 2003) for each site and feature to show the placement of the excavation units. All excavation units were dug by hand following natural stratigraphic layers divided into 10-centimeter arbitrary levels. The arbitrary levels were measured relative to an elevation datum corresponding to the highest corner of the excavation unit. All excavated matrix were passed through quarter inch mesh screening and cultural material were collected and segregated by level. Level Record Forms were completed for each excavated level. Subsurface features encountered during excavation were fully documented before further excavation of the unit. Excavation was continued down to bedrock. Upon completion of the excavation unit, a Unit Summary Form was completed, photographs were taken, a stratigraphic profile was drawn, and the unit was backfilled.

Cultural Material Analyses

All recovered cultural material was processed in the Rechtman Consulting, LLC laboratory facility. Items were cleaned, weighed, counted, described, and entered into a master project catalog (Appendix A). Where appropriate, artifacts were drawn, photographed, and subjected to further detailed analysis. Faunal remains were tabulated and identified to the lowest taxonomic level possible. Where applicable, the Number of

Identified Specimens (NISP) and the Minimum Number of Individuals (MNI) were determined. Based on evidence from test excavations (Clark and Rechtman 2003) these sites are poor candidates for pollen and flotation (macrobotanical) analyses. Charcoal and other organic samples were prepared for possible radiocarbon analysis.

Radiocarbon Samples

The radiocarbon samples collected during fieldwork were prioritized based on size, provenience, and integrity of association. Priority was given to large single-piece samples recovered in situ from a clear stratigraphic context. All samples were cataloged and initially cleaned and weighed in the Rechtman Consulting, LLC laboratory facility. Following this process, selected samples were sent to Beta Analytic Inc for analysis (Appendix B). Conventional radiocarbon analysis coupled with a calculation of stable isotope ratios (C^{13}/C^{12}) were used for all samples.

Curation of Recovered Archaeological Material

All items recovered during data recovery are temporarily stored at the Rechtman Consulting, LLC curation facility for a period of no more than one year following submission of the final data recovery report, during which time arrangements will be made for permanent curation in consultation with the landowner and DLNR-SHPD. It is the responsibility of the landowner to secure permanent curation in an acceptable facility; included in this responsibility are the costs associated with long-term curation.

DESCRIPTION OF EXCAVATION RESULTS

Introduction

The following description considers together the results from the test units and from the excavation units. The results are presented generally in the sequence of the SIHP Site numbers and feature numbers. The description of the results include site and feature location, size, shape, make-up, stratigraphy, identification and number of recovered items by layer and level, and radiocarbon assays where charcoal samples were analyzed by Beta Analytic. Whereas the items recovered are merely listed in table format within this descriptive section, the identification, weight, distribution, and likely exploitation zones of items are discussed afterwards within the synthesis section.

SIHP Site 23670

Site 23670 is a stone platform complex located in the western half of the project area approximately 30 meters north of the eastern end of Site 23667 (see Figure 3). Site 23670 consists of a two-tiered platform (Features A and B) with a second smaller platform (Feature C) located two meters to the east (Figure 4). Both platforms are constructed of 'a'ā with large cobbles stacked around the outside edges and small cobbles paving the surface. A single *Cypraea* shell fragment was found on ground surface near the south edge of Feature A.

Feature A

Feature A is the lower platform of the two-tiered platform (see Figure 4). This roughly rectangular platform measures 9.0 meters long by 6.2 meters wide. The feature is constructed on bedrock with the outside edges stacked 70 centimeters (two courses) high. The paved surface of Feature A is relatively level and in good condition, although some collapse has occurred along the south and west edges (Figure 5). Two excavation units (EU-31 and EU-32) were placed on the Feature A platform. EU-31 (2 x 2m) was placed near the eastern corner of Feature A, while EU-32 (2 x 2m) was placed near the center of the same feature.

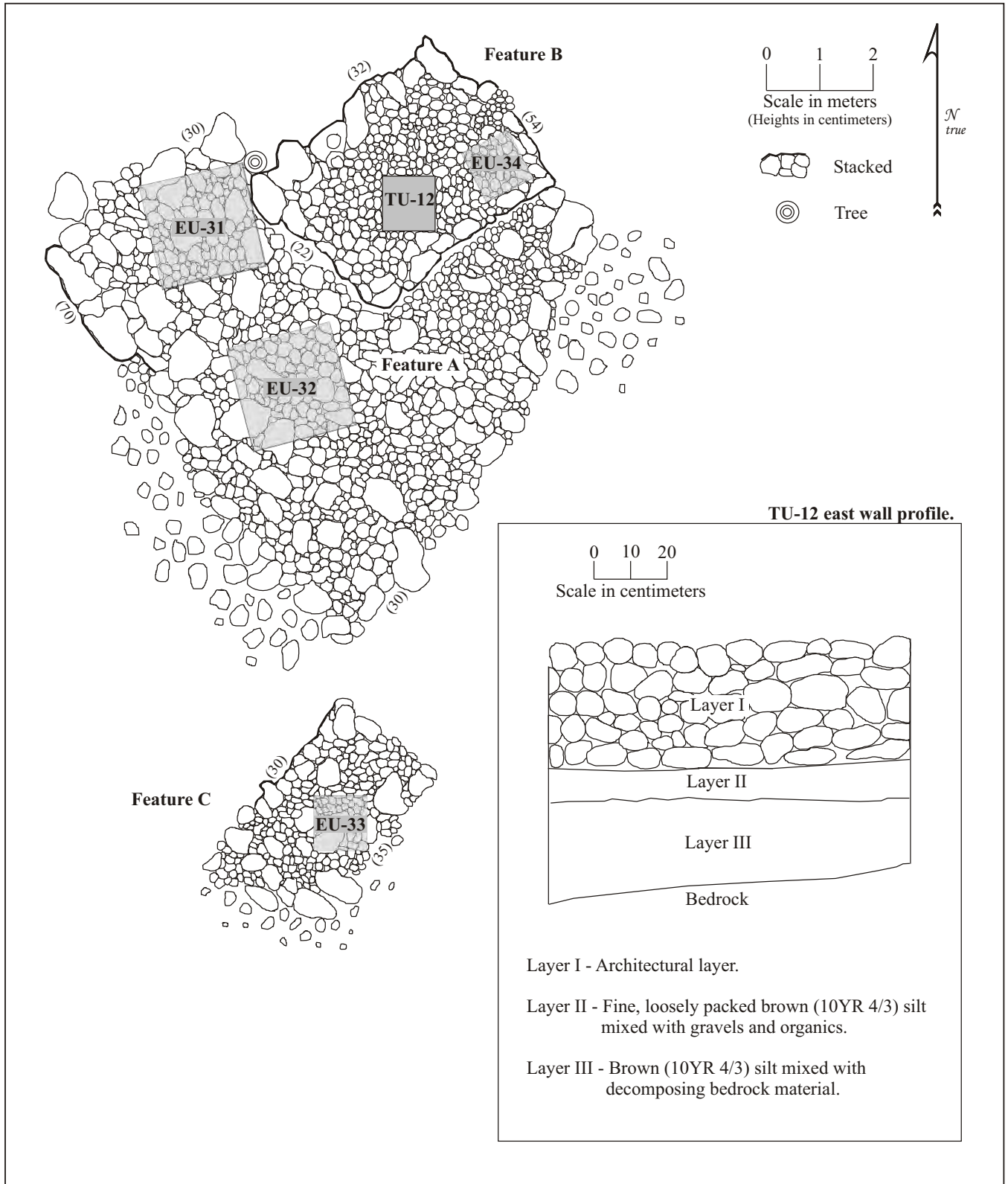


Figure 4. SIHP Site 23670 Features A-C plan view and TU-12 east wall profile.



Figure 5. SIHP Site 23670 Features A and B, view to the west.

EU-31 revealed the following stratigraphic profile (Figures 6 and 7):

Layer I (0-30cmts)..... architectural layer with small to large 'a'ā cobbles and boulders.

Layer II (30-50cmts) pebble and cobble layer with dark yellowish brown (10YR 4/4) silt in northeastern corner and very dark grayish brown (10YR 3/2) silt in southeastern corner on undulating bedrock.

Items recovered from EU-31 include *Cypraea* sp., Echinoidea, *kukui* nutshell, and charcoal (Table 6). Historic Period items, all recovered from Layer I, include a glass fragment, iron fragments, and two brass button parts. The brass button parts (Acc# 516 and 517) appear to go together (both came from the same provenience and each weigh 0.8 grams). The size and shape of the buttons differ slightly, however. Brass button part Acc# 516 is a flat round disk with a diameter of 23.5 millimeters and thickness of 0.3 millimeters. Brass button part Acc# 517 (Figure 8) is a slightly convex disk with one hole in the middle and incised with a crown and “warranted fast shank.” This brass button is slightly oval (31.3 millimeters long by 20.9 millimeters wide) and is comparatively thick (1.9 millimeters).



Figure 6. SIHP Site 23670 Feature A EU-31 showing Layer I and upright boulders, view to the south.

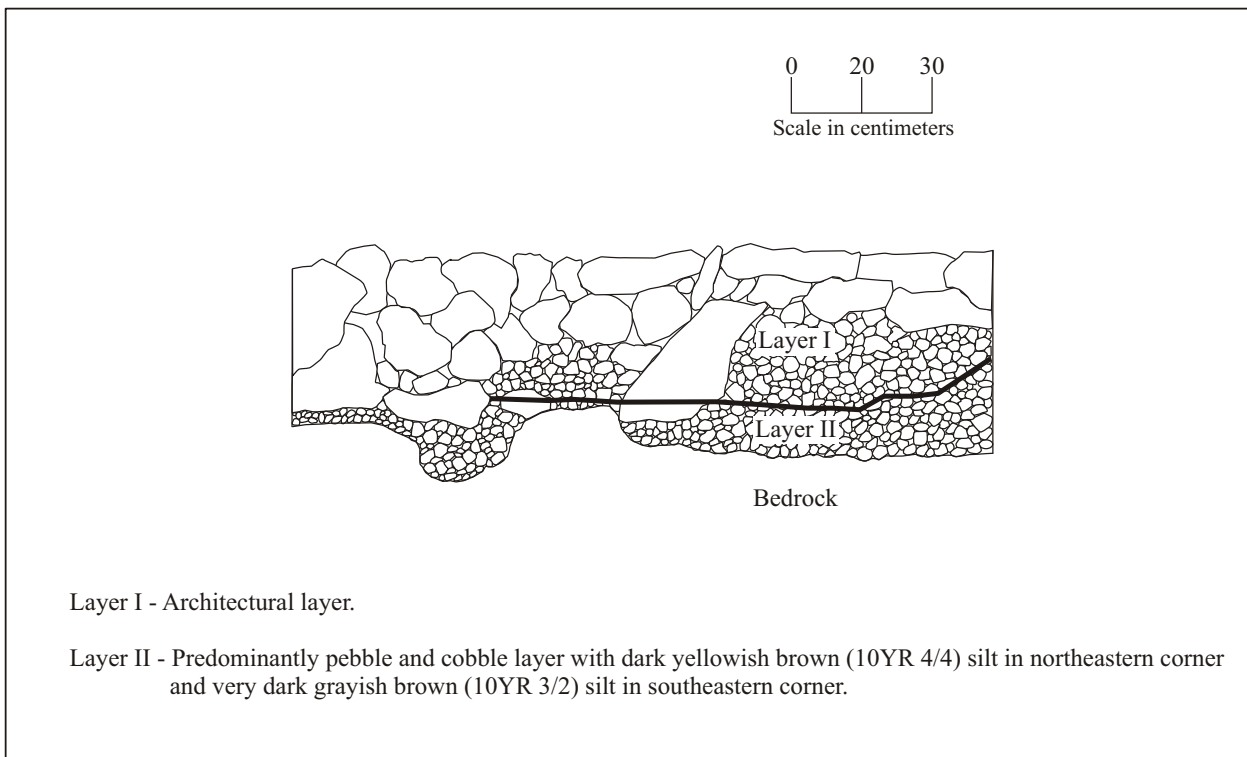


Figure 7. SIHP Site 23670 Feature A EU-31 west wall profile.



Figure 8. SIHP Site 23670 brass button part recovered from EU-31 (Acc#. 517).

Table 6. Recovered items from SIHP Site 23670, Feature A, EU-31.

<i>ACC#</i>	<i>Layer</i>	<i>Level</i>	<i>Material</i>	<i>Species/type</i>	<i>Count</i>	<i>MNI</i>	<i>Weight (g)</i>
512	I	1	Marine shell	<i>Cypraea</i> sp.	3	1	3.3
515	I	1	Echinoderm	Echinoidea	7	-	0.6
511	I	1	Organic	<i>Kukui</i> nutshell	14	-	6.8
510	I	1	Organic	Charcoal	-	-	0.4
513	I	1	Metal	Iron fragments	4	-	0.9
516	I	1	Metal	Brass button part	1	-	0.8
517	I	1	Metal	Brass button inscribed	1	-	0.8
514	I	1	Glass	Brown bottle fragment	1	-	0.4
Layer I, Level 1 Total:					31	1	14.0
519	II	1	Echinoderm	Echinoidea	2	-	0.1
520	II	1	Organic	<i>Kukui</i> nutshell	7	-	2.1
518	II	1	Organic	Charcoal	-	-	0.2
Layer II, Level 1					9	-	2.4
EU-31 Total:					40	1	16.4

EU-32 contained the following stratigraphic profile (Figures 9 and 10):

Layer I (0-60cmbs)..... architectural layer with 'a' cobbles.

Layer II (60-70cmbs) pebble and cobble layer with brown (10YR 3/3) silt in southeastern corner.

Items recovered from EU-32 include *kukui* nutshell fragments and brown bottle glass (Table 7).



Figure 9. SIHP Site 23670 Feature A EU-32 base of excavation, view to the west.

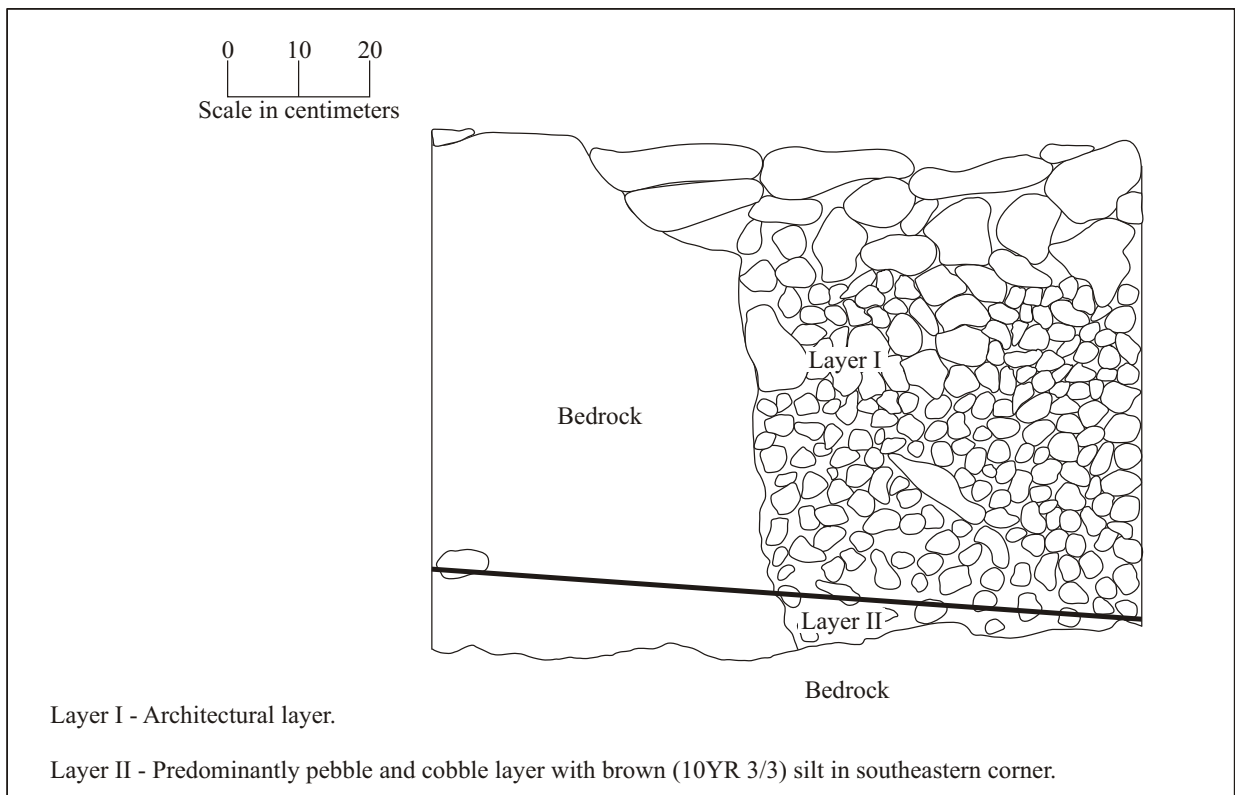


Figure 10. SIHP Site 23670 Feature A EU-32 north wall profile.

Table 7. Recovered items from SIHP Site 3670, Feature A, EU-32.

<i>ACC#</i>	<i>Layer</i>	<i>Level</i>	<i>Material</i>	<i>Species/type</i>	<i>Count</i>	<i>MNI</i>	<i>Weight (g)</i>
522	I	1	Organic	<i>Kukui</i> nutshell	2	-	0.5
521	I	1	Glass	Bottle/brown	1	-	0.7
EU-32 Total:					3	0	1.2

Feature B

Feature B, the upper platform of the two-tiered platform (see Figure 4), is situated on the northeast corner of Feature A. Feature B is rectangular in shape measuring 3.4 meters long by 3.0 meters wide. The stacked edges rise as much as 30 centimeters (2 courses) above the surface of Feature A and 54 centimeters above the bedrock ground surface. Test Unit 12 (TU-12) was excavated near the central portion of Feature B, whereas Excavation Unit 34 (EU-34) was excavated near the eastern corner of Feature B.

Excavation of TU-12 (1 x 1m) revealed the following stratigraphic profile (see Figure 4):

- Layer I (0-35cmbs)..... architectural layer with small to large 'a'ā cobbles and boulders.
- Layer II (35-45cmbs) fine loosely packed brown (10YR 4/3) silt mixed with gravels and organics.
- Layer III (45-70cmbs)..... brown (10YR 4/3) silt mixed with decomposing bedrock on bedrock.

No cultural material was recovered from TU-12.

The surface of Feature B on which EU-34 was placed had a pavement of pebbles and cobbles. The surface sloped to the south, probably due to collapsed stacking on this side of Feature B. EU-34 (1 x 1m) revealed the following stratigraphic profile (Figures 11 and 12):

- Layer I (0-60cmbs)..... architectural layer with large and small 'a'ā cobbles and pebbles.
- Layer II (60-80cmbs) loose 'a'ā on uneven bedrock.

The only item recovered within EU-34 is 0.4 grams of charcoal (Acc# 523) in Layer II.



Figure 11. SIHP Site 23670 Feature B EU-34 base of excavation, view to the east.

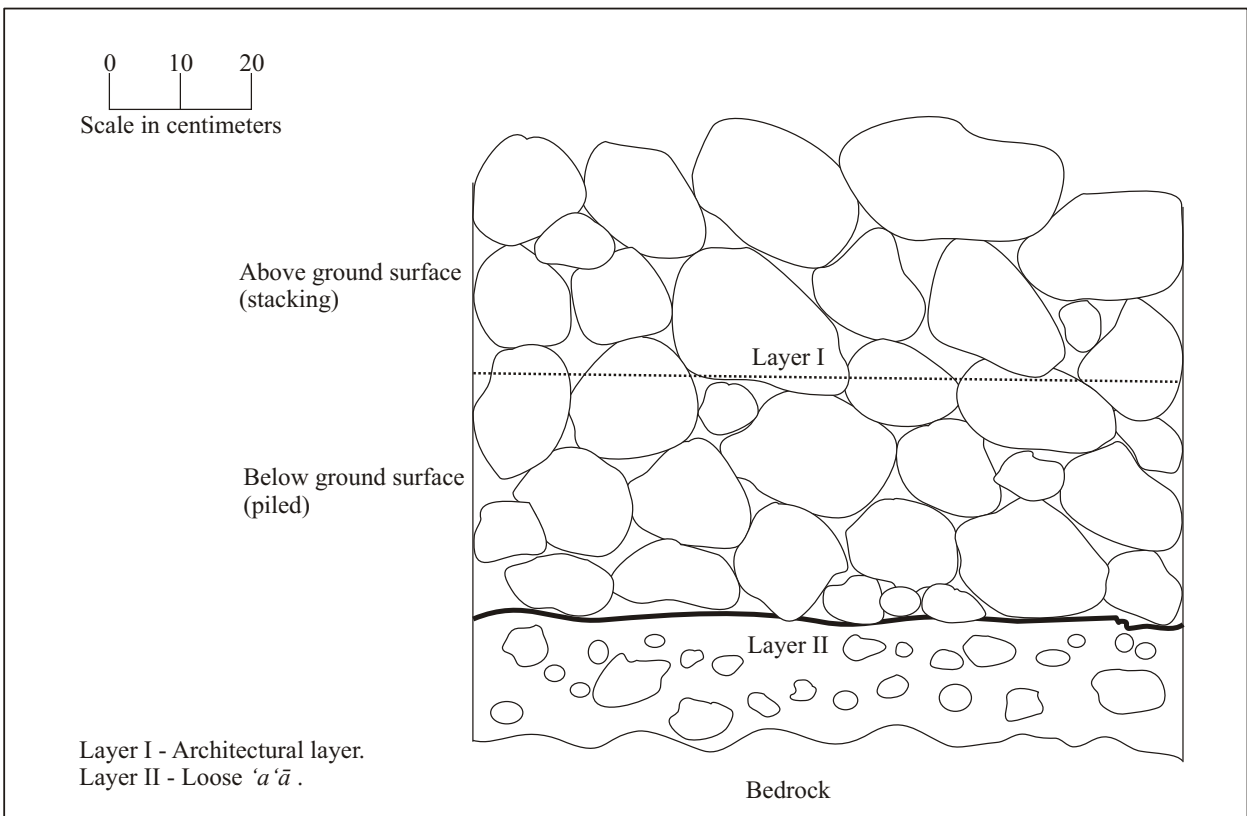


Figure 12. SIHP Site 23670 Feature B EU-34 east wall profile.

Feature C

Feature C is a small rectangular platform located 1.5 meters south of Feature A's southwestern corner (see Figure 4). Feature C measures 3.8 meters long by 2.5 to 3.1 meters wide (including some collapsed cobbles that are scattered along the southeast side of the feature) with stacked sides standing up to 35 centimeters (1 to 2 courses) above the surrounding bedrock ground surface. Feature C is in relatively good condition, although portions of its southwestern edge have collapsed. No habitation debris was observed in the vicinity of this feature. EU-33 was placed on the southeastern side of the rough 'a'ā pavement, within a slight depression.

Excavation of EU-33 (1 x 1m) contained the following stratigraphic profile (Figures 13 and 14):

Layer I (0-50cmbs)..... architectural layer with large and small 'a'ā cobbles and pebbles.
 Layer II (50-60cmbs) brown (10YR 4/3) silt and clay mixed with organics and decomposing 'a'ā bedrock.

No cultural material was recovered from EU-33.

SIHP Site 23671

Site 23671 is a platform remnant located in the central portion of the project area (see Figure 3). The platform (Figure 15), constructed of 'a'ā cobbles, is largely collapsed although some stacking remained along the western edge. Current platform dimensions are 6.9 meters (north/south) by 3.8 meters (east/west) including the rubble scatter that surrounds the feature. The stacked western edge of the site is 90 centimeters above the surrounding bedrock surface. The surface of the platform is relatively level and paved primarily with small 'a'ā cobbles, although some larger cobbles are present. Site 23671 seems to have been heavily disturbed by ranching activities in the area. No habitation debris was observed on ground surface at this site. During data recovery EU-4 was placed immediately south of the feature's center (Figure 16).

Excavation of EU-4 (2 x 2m) revealed the following stratigraphic profile (Figures 17 and 18):

Layer I, Level 1 (0-40cmbs).....architectural layer with 'a'ā boulders and cobbles.
 Layer I, Level 2 (40-65cmbs) 'a'ā cobbles with dark grayish brown (10YR 3/2) silt.
 Layer II, Level 1 (65-90cmbs) 'a'ā cobbles with brown (10YR 4/3) silt.
 Layer II, Level 2 (90-100cmbs) 'a'ā cobbles with brown (10YR 4/3) silt.
 Layer II, Level 3 (100-110cmbs)exfoliating bedrock with 'a'ā cobbles and dark yellowish brown (10YR 3/4) silt and rootlets.



Figure 13. SIHP Site 23670 Feature C EU-33 base of excavation, view to the south.

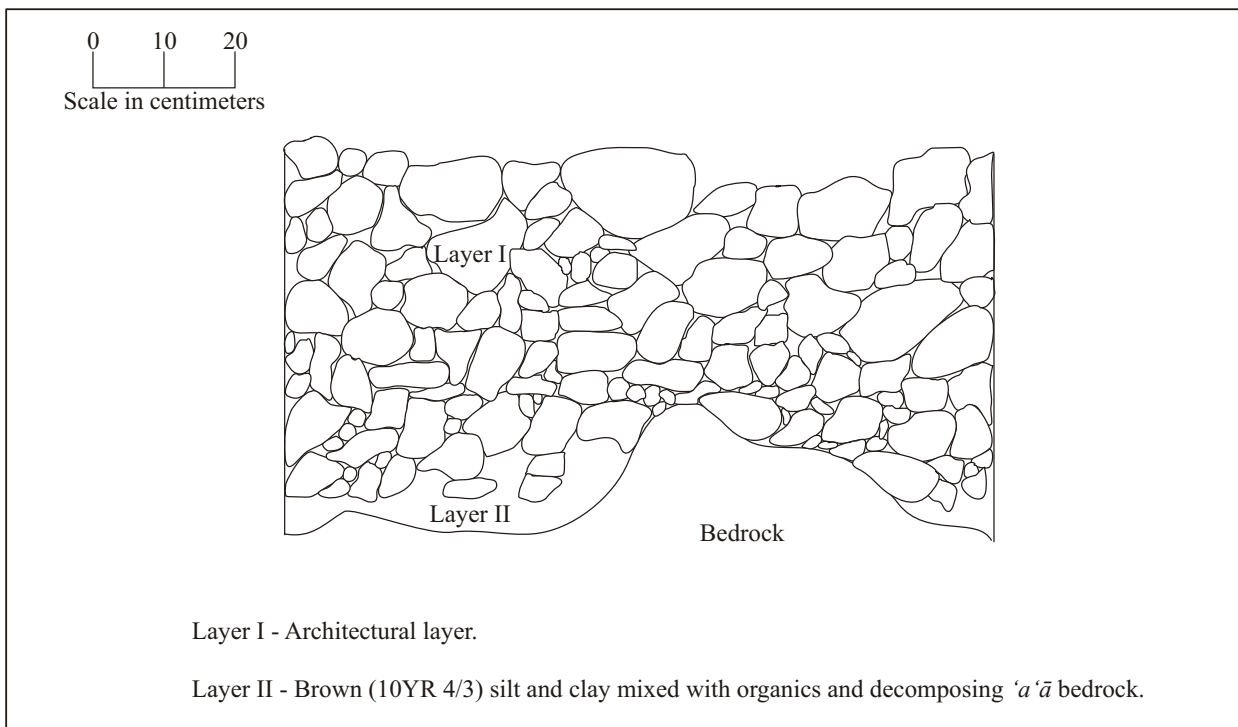


Figure 14. SIHP Site 23670 Feature C EU-33 south wall profile.



Figure 15. SIHP Site 23671, view to the north.

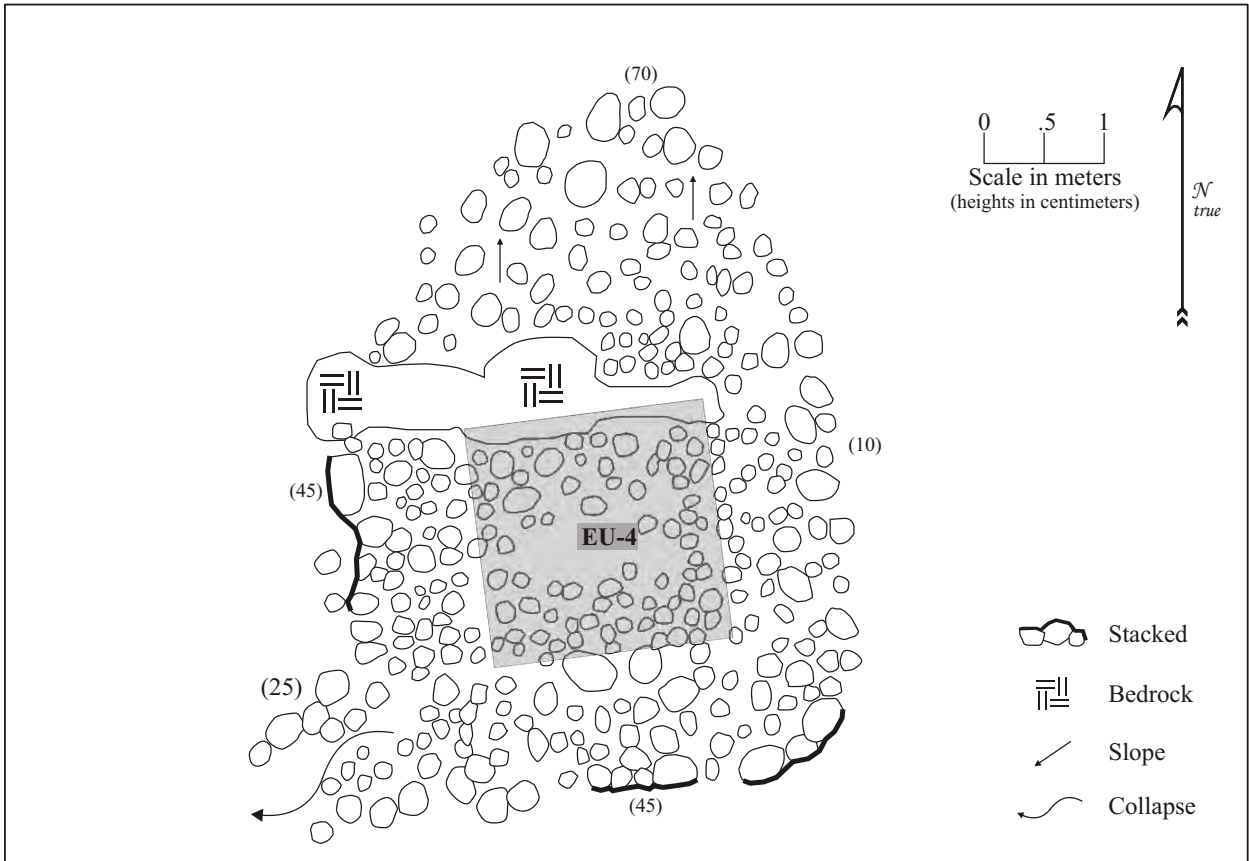
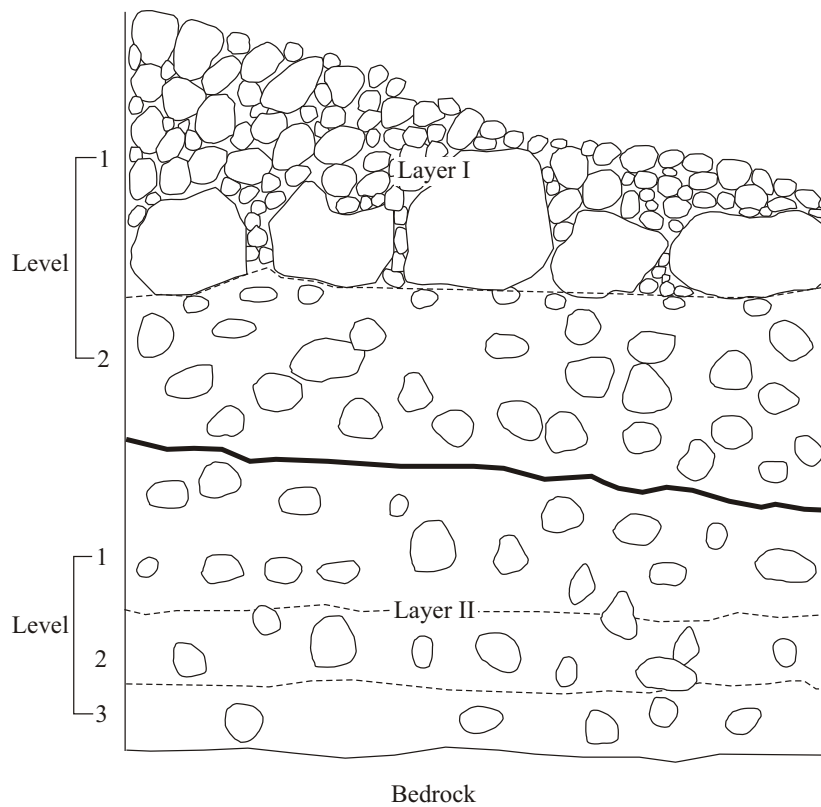
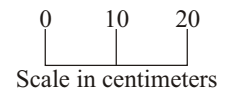


Figure 16. SIHP Site 23671 plan view.



Figure 17. SIHP Site 23671 EU-4 base of excavation, view to the east.



Layer I, Level 1- Architectural layer with 'a'ā boulders and cobbles.

Layer I, Level 2- 'A'ā cobbles with dark grayish brown (10YR 3/2) silt.

Layer II, Level 1- 'A'ā cobbles with brown (10YR 4/3) silt.

Layer II, Level 2- 'A'ā cobbles with brown (10YR 4/3) silt.

Layer II, Level 3- Exfoliating bedrock with 'a'ā cobbles and dark yellowish brown (10YR 3/4) silt.

Figure 18. SIHP Site 23671 EU-4 south wall profile.

Items recovered from EU-4 include *Cypraea* sp. shell, *Drupa* sp., *Morula* sp., *Isognomon* sp., *Nerita* sp., branch coral, Echinoidea, *Turbo* sp., *Brachidontes* sp., *Conus* sp., unidentifiable shell, rodent, charcoal, a basalt flake, and volcanic glass flakes (Table 8). A volcanic glass flake (Acc# 187) that shows signs of working on one edge is 17.9 millimeters long, 14.2 millimeters wide, and 3.3 millimeters thick. No obvious changes or trends in species or artifact types recovered from different layers could be detected.

Table 8. Recovered items from SIHP Site 23671, EU-4.

ACC#	Layer	Level	Material	Species/type	Count	MNI	Weight (g)
7	I	1	Marine shell	<i>Cypraea</i> sp.	3	2	6.8
8	I	1	Coral	Waterworn	2	-	3.2
9	I	1	Echinoderm	Echinoidea	1	-	0.4
Layer I, Level 1 Total:					6	2	10.4
12	I	2	Marine shell	<i>Cypraea</i> sp.	17	4	14.6
16	I	2	Marine shell	<i>Drupa</i> sp.	1	1	0.7
14	I	2	Marine shell	<i>Morula</i> sp.	3	3	2.7
18	I	2	Marine shell	<i>Isognomon</i> sp.	14	4	1.6
17	I	2	Marine shell	<i>Nerita</i> sp.	1	1	0.4
21	I	2	Marine shell	<i>Turbo</i> sp.	1	1	0.5
19	I	2	Marine shell	<i>Brachidontes</i> sp.	50	10	3.4
15	I	2	Marine shell	<i>Conus</i> sp.	1	1	1.5
22	I	2	Marine shell	Unidentified	3	-	0.4
20	I	2	Echinoderm	Echinoidea	167	-	13.5
13	I	2	Mammal bone	Unidentified rodent	1	-	0.3
11	I	2	Basalt	Flake	1	-	5.7
10	I	2	Organic	Charcoal	-	-	1.6
Layer I, Level 2 Total:					260	25	46.9
27	II	1	Marine shell	<i>Cypraea</i> sp.	24	4	18.0
25	II	1	Marine shell	<i>Isognomon</i> sp.	80	30	4.2
26	II	1	Marine shell	<i>Brachidontes</i> sp.	58	14	3.8
187	II	1	Volcanic glass	Flake worked	1	-	1.0
24	II	1	Volcanic glass	Flake	1	-	0.5
23	II	1	Organic	Charcoal	-	-	0.5
Layer II, Level 1 Total:					164	48	28.0
29	II	2	Marine shell	<i>Cypraea</i> sp.	1	1	2.4
32	II	2	Marine shell	<i>Drupa</i> sp.	5	2	4.1
31	II	2	Marine shell	<i>Conus</i> sp.	1	1	2.2
30	II	2	Coral	Waterworn	1	-	0.6
28	II	2	Echinoderm	Echinoidea	208	-	14.2
Layer II, Level 2 Total:					216	4	23.5
EU-4 Total:					646	79	108.8

Charcoal collected from Layer I, Level 2 in EU-4 was submitted for radiocarbon assaying. The sample (Beta-212756) intercepts the tree-ring calibration curve at AD 1490 and has a 2-sigma standard deviation calibrated date range of AD 1440 to 1640.

SIHP SITE 23672

Site 23672 is centrally located within the project area (see Figure 3). The site consists of a large rectangular enclosure (Feature A) with a small rectangular enclosure (Feature B) located six meters to its south (Figure 19). Bulldozing activity along the old central access road came close to impacting the north edge of Feature A and may have covered a third feature near its northwest corner. Two test units (TU-11 and TU-13), one in each feature, were excavated at Site 23672. Two additional excavation units (EU-2 and EU-3) were completed in Feature A.

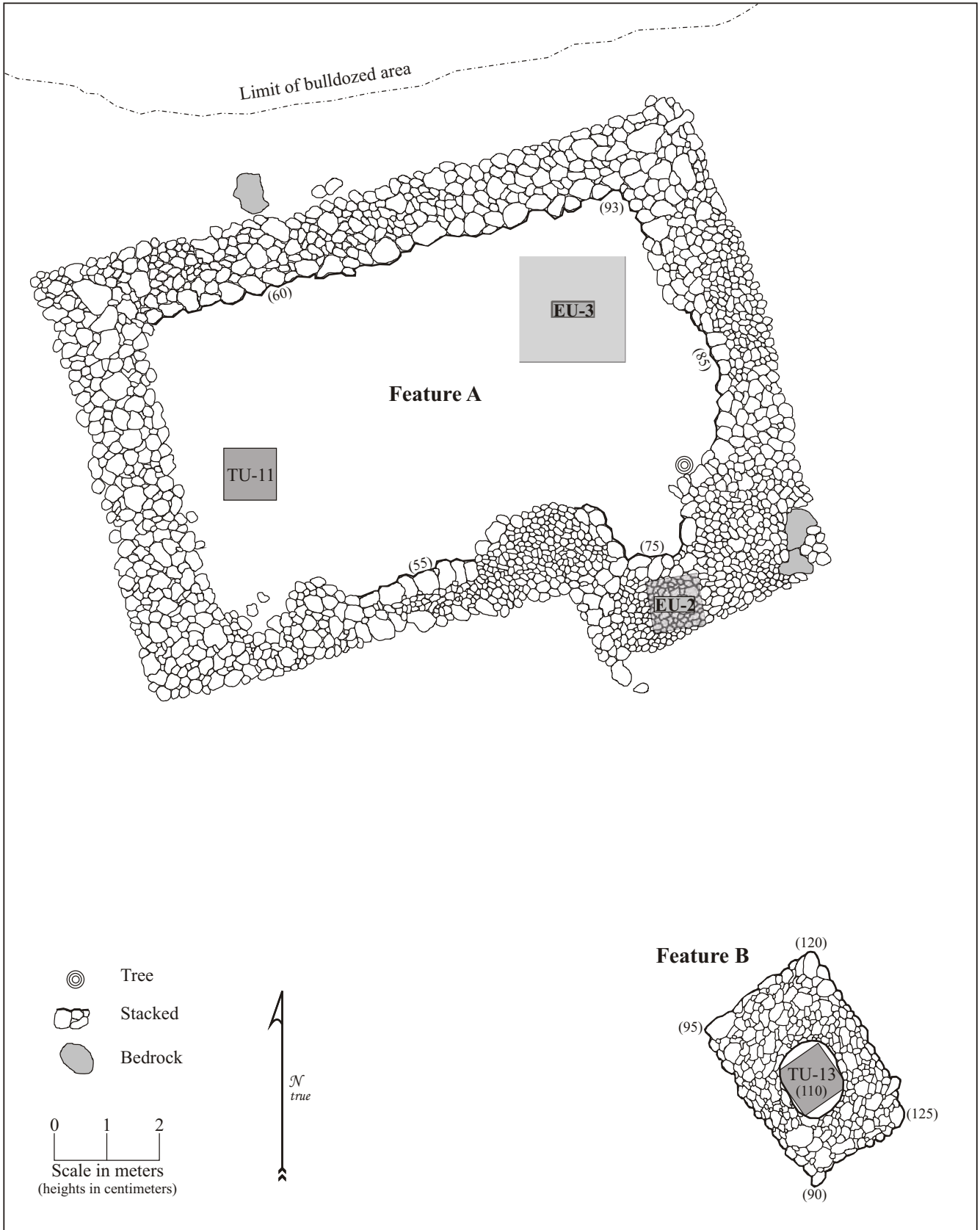


Figure 19. SIHP Site 23672 Features A and B plan view.

Feature A

Feature A is a large low-lying enclosure located at the north end of Site 23672 (see Figure 19). The enclosure (Figure 20), constructed of piled and stacked 'a'ā cobbles, measures 13.5 meters long by 8.5 meters wide. The interior area of the enclosure (10.1 meters by 6.0 meters) has been cleared of cobbles leaving a leveled soil floor. The cleared cobbles were used to create the enclosure's walls, which stand between 60 and 90 centimeters in height along the interior edges and gradually transition into ground surface along the exterior edges.



Figure 20. SIHP Site 23672 Feature A, view to the northeast (location of EU-3).

TU-11 was excavated in the soil floor along the western interior wall of Feature A (see Figure 19). Excavation of TU-11 (1 x 1m) revealed the following stratigraphic profile (Figures 21 and 22):

- Layer I (0-4cmbs)..... very dark brown (10YR 2/2) thin topsoil mixed with grass roots and organics.
- Layer II (4-42cmbs) 'a'ā cobbles mixed fairly evenly with a sandy-silt soil gradually transitioning from very dark brown (10YR 2/2) to dark yellowish brown (10YR 4/4) and mixed with decomposing bedrock with increasing depth until bedrock.

Sixteen cow bone fragments were recovered from Layer I and the top of Layer II. These bones showed no sign of human processing and are most likely not related to the feature, but rather to the cow pasture within which the feature resides.

An excavation unit (EU-2) was placed in the southeastern corner of Feature A, within the constructed wall south of the interior. The surface of the unit was fairly level, with medium-sized 'a'ā boulders and cobbles on the northern half and smaller 'a'ā cobbles and pebbles on the southern side. A possible constructed posthole occurred in the southeastern quadrant of EU-2.



Figure 21. SIHP Site 23672 Feature A TU-11 base of excavation, view to the north.

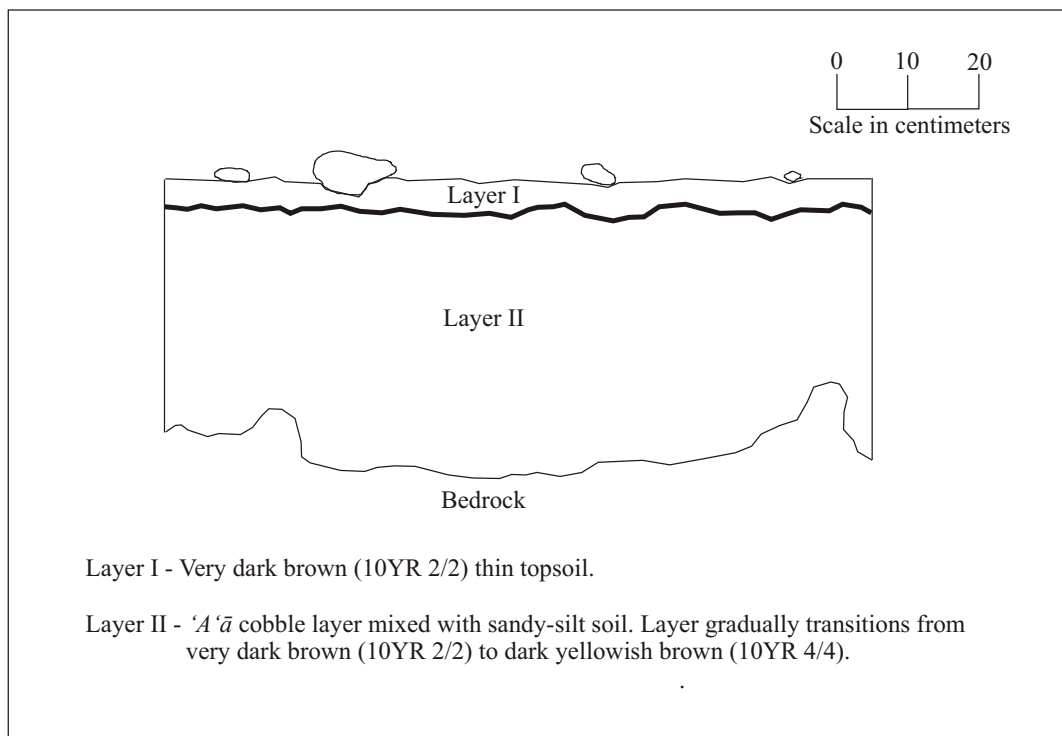


Figure 22. SIHP Site 23672 Feature A TU-11 north wall profile.

Excavation of EU-2 (1 x 1m) revealed the following stratigraphic profile (Figures 23 and 24):

Layer I (0-10cmbs)..... *a'ā* boulders and cobbles with very dark brown (10YR 2/2) silt.
 Layer II (4-42cmbs) fewer and smaller '*a'ā* cobbles and pebbles with very dark brown (10YR 2/2) silt on uneven bedrock.

EU-2 yielded a *Cypraea* sp. shell fragment and a volcanic glass flake (Table 9).

Table 9. Recovered items from SIHP Site 3672, Feature A, EU-2.

<i>ACC#</i>	<i>Layer</i>	<i>Level</i>	<i>Material</i>	<i>Species/type</i>	<i>Count</i>	<i>MNI</i>	<i>Weight (g)</i>
1	I	1	Marine shell	<i>Cypraea</i> sp.	1	1	1.8
2	II	1	Volcanic glass	Flake	1	-	2.8
EU-2 Total:					2	1	4.6

EU-3 was placed on the interior surface near the northeastern corner of the Feature A enclosure of Site 23672 (see Figure 19). Excavation of EU-3 (2 x 2m) revealed the following stratigraphic profile (Figures 25 and 26):

Layer I, Level 1 (0-25cmbs)very dark brown (10YR 2/2) silt with gravelly inclusions.
 Layer I, Level 2 (25-30cmbs)very dark yellowish brown (10YR 4/4) silt on '*a'ā* bedrock.

EU-3 yielded waterworn coral fragments, bone fragments of a rodent, volcanic glass flakes, and charcoal fragments (Table 10).

Table 10. Recovered items from SIHP Site 23672, Feature A, EU-3.

<i>ACC#</i>	<i>Layer</i>	<i>Level</i>	<i>Material</i>	<i>Species/type</i>	<i>Count</i>	<i>MNI</i>	<i>Weight (g)</i>
4	I	1	Coral	Waterworn	3	-	2.1
3	I	1	Mammal bone	Unidentified rodent	6	1	2.0
Layer I, Level 1 Total:					9	1	4.1
5	I	2	Volcanic glass	Flake	2	-	0.6
6	I	2	Organic	Charcoal	-	-	0.4
Layer I, Level 2 Total:					2	-	1.0
EU-3 Total:					11	1	5.1

Feature B

Feature B is a small roughly rectangular enclosure with rounded corners located six meters south of Feature A (see Figure 19). The enclosure is constructed on an '*a'ā* bedrock outcrop of stacked '*a'ā* cobbles standing 6 to 8 courses (1.0–1.3 meters) high (Figure 27). It measures 3.5 meters long by 2.5 meters wide along its exterior edges and has a roughly circular centrally located interior space 1.2 meters in diameter and 1.1 meters deep containing a soil floor. A rubber hose fragment, a modern beer can, decaying organics, and several cobbles were resting on ground surface within the enclosure. Feature B is not large enough to have been used for habitation purposes. The entire soil floor of Feature B was removed as a single 1 x 1 meter test unit (TU-13). Excavation of TU-13 revealed the following two distinct soil horizons resting on bedrock (Figure 28):

Layer I (0-22cmbs)..... very dark grayish brown (10YR 3/2) fine silt mixed with many small '*a'ā* pebbles, roots and decaying organic material (bedrock in the northeastern corner just below ground surface)
 Layer II (22-42cmbs) dark brown (10YR 3/3) fine silt mixed with decomposing bedrock on bedrock.



Figure 23. SIHP Site 23672 Feature A EU-2 base of excavation, view to the south/southeast.

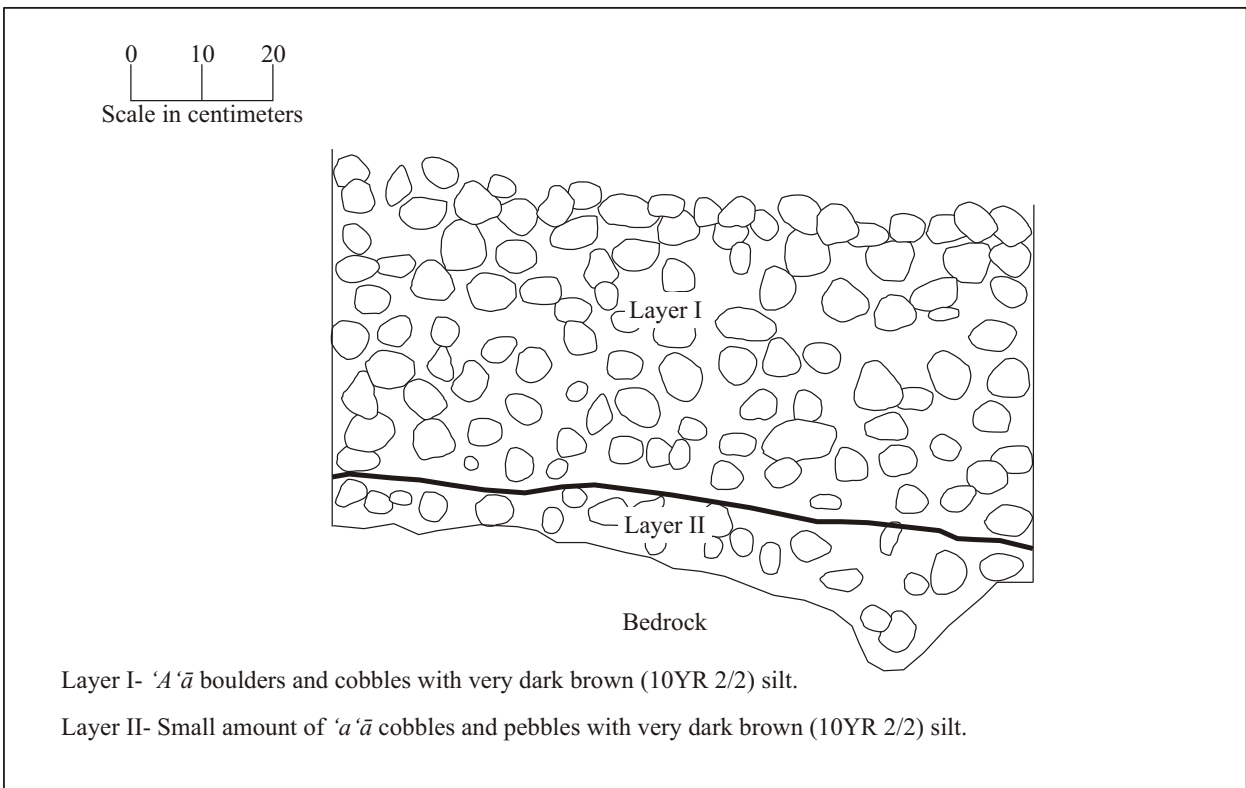


Figure 24. SIHP Site 23672 Feature A EU-2 south wall profile.



Figure 25. SIHP Site 23672 Feature A EU-3 base of excavation, view to the east.

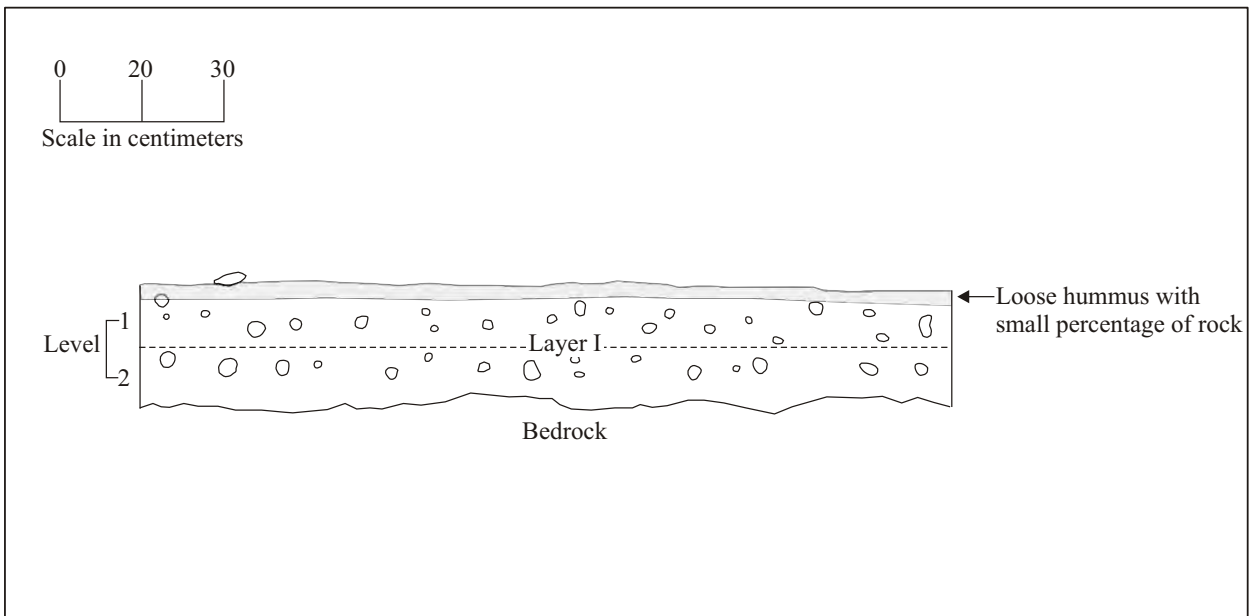


Figure 26. SIHP Site 23672 Feature A EU-3 east wall profile.

TU-13 yielded shark teeth, *Drupa* sp. fragments, *Nerita* sp. fragments, a rodent bone, *kukui* nutshell fragments, charcoal fragments, volcanic glass flakes and shatter, and waterworn basalt (Table 11). No trends of recovered species or artifact types by increasing depth were apparent, apart from a recovery peak between 10 and 20 centimeters deep.

Table 11. Recovered items from SIHP Site 23672, Feature B, TU-13 Layer I.

<i>ACC #</i>	<i>Depth (cm)</i>	<i>Material</i>	<i>Species/type</i>	<i>Count</i>	<i>MNI</i>	<i>Weight (g)</i>
4	0-10	Volcanic glass	Flake	4	-	1.5
5	0-10	Organic	<i>Kukui</i> nutshell	2	1	3.0
6	10-20	Basalt	Waterworn	1	-	45.1
7	10-20	Volcanic glass	Shatter	44	-	17.5
8	10-20	Mammal bone	Rodent	1	1	0.1
9	10-20	Fish bone	Shark (teeth)	2	1	0.2
10	10-20	Marine shell	<i>Drupa</i> sp.	1	1	0.1
11	10-20	Marine shell	<i>Nerita</i> sp.	1	1	0.2
12	10-20	Organic	Charcoal	-	-	1.8
TU-13 Total:				65	5	69.5



Figure 27. SIHP Site 23672 Feature B exterior, view to the north.

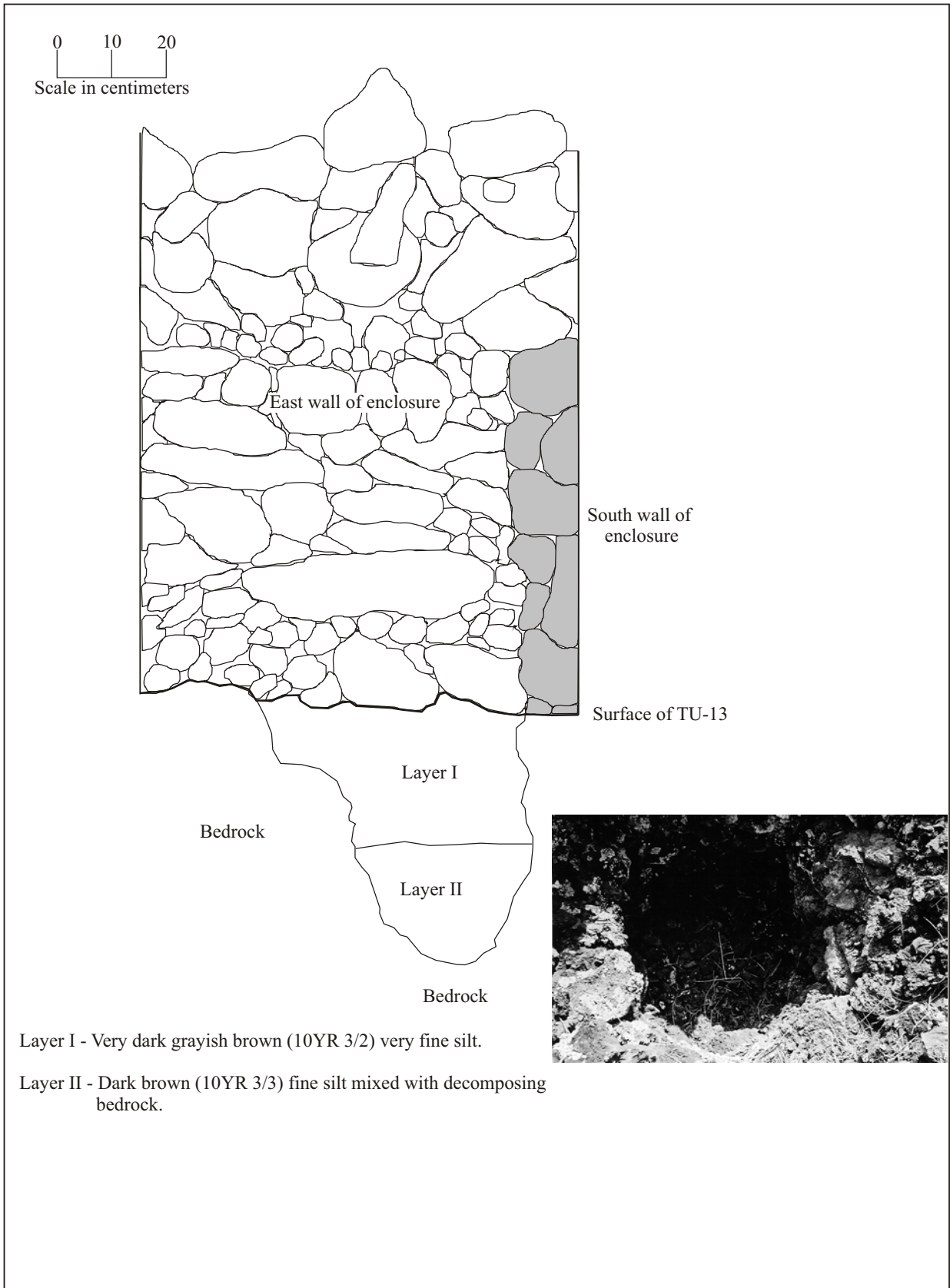


Figure 28. SIHP Site 23672 Feature B TU-13 east wall profile and photograph of base of excavation.

A charcoal sample (1.8 grams) was collected from Layer I during the screening of Level 2, 10-20 centimeters below the surface of TU-13. The carbon sample from this layer was sent to Beta Analytic, Inc. for radiocarbon age determination (Beta-175916). The sample produced a conventional radiocarbon age of 210 ± 70 years before present, or a 2 sigma calibrated range of AD 1510 to 1950 with an intercept of AD 1660 (Clark and Rechtman 2003).

EU-1b was placed in the north section of Feature B, measuring 2 meters from west to east and 1 meter from south to north. Excavation of EU-1b revealed the following stratigraphic profile (Figures 29 and 30):

Layer I (0-80cmbs)..... very dark brown (10YR 3/3) silt mixed with 'a'ā cobbles.
 Layer II (80-110cmbs)..... very dark brown (10YR 3/3) fine silt mixed with 'a'ā pebbles on bedrock.

No cultural material was recovered from EU-1b.

SIHP Site 23673

Site 23673 consists of a platform (Feature A) and an enclosure (Feature B) located in the eastern half of the project area along the southern property boundary (see Figure 3). The permanent habitation interpretation is primarily based on size (Cordy 1991; 1995). The features are constructed of 'a'ā cobbles and boulders in an area of exposed bedrock and thin soil. Feature A is located 6.7 meters west of Feature B (Figure 31). Modern debris was observed on the surface of the site including a paint can lid and several golf balls.

Feature A

Feature A is a platform measuring 6.8 meters long by 3.9 meters wide (see Figure 31). It is constructed of large cobbles and boulders stacked along the exterior edges (Figure 32) and small cobbles paving the roughly level platform surface. The western edge of the feature rises 90 centimeters above ground surface, while the eastern edge rises 40 to 70 centimeters above ground surface. The exterior edges of Feature A are collapsed in several locations. The following three excavations were conducted on the Feature A platform surface: TU-17 (1 x 1m); EU-27 (1 x 2m); and EU-28 (1 x 2m).

TU-17 was excavated in the approximate center of Feature A and revealed the following stratigraphic profile (see Figure 31):

Layer I (0-65cmbs)..... architectural layer with small to large sized 'a'ā cobbles.
 Layer II (65-73cmbs) very dark grayish brown (10YR 3/2) medium grained coarse silt rich with organics.
 Layer III (73-86cmbs) dark gray (10YR 4/1) medium grained coarse silt mixed with ash and 'a'ā gravels
 Layer IV (86-88cmbs)..... dark brown (10YR 3/3) fine silt mixed with gravels.
 Layer V (88-90cmbs) culturally sterile dark brown (7.5YR 3/4) fine silt mixed with decaying bedrock on bedrock.

Items recovered from TU-17 include fish, *Cypraea* sp., *Drupa* sp., *Cellana* sp., *Nerita* sp., branch coral, Echinoidea, *Conus* sp., rodent, *kukui* nutshell, unidentifiable plant seed, and volcanic glass flakes (Table 12). Apart from a species and artifact type peak in Layer III, no definite trends or change in items could be detected from one layer to the next.



Figure 29. SIHP Site 23672 Feature B EU-1b base of excavation, view to the south.

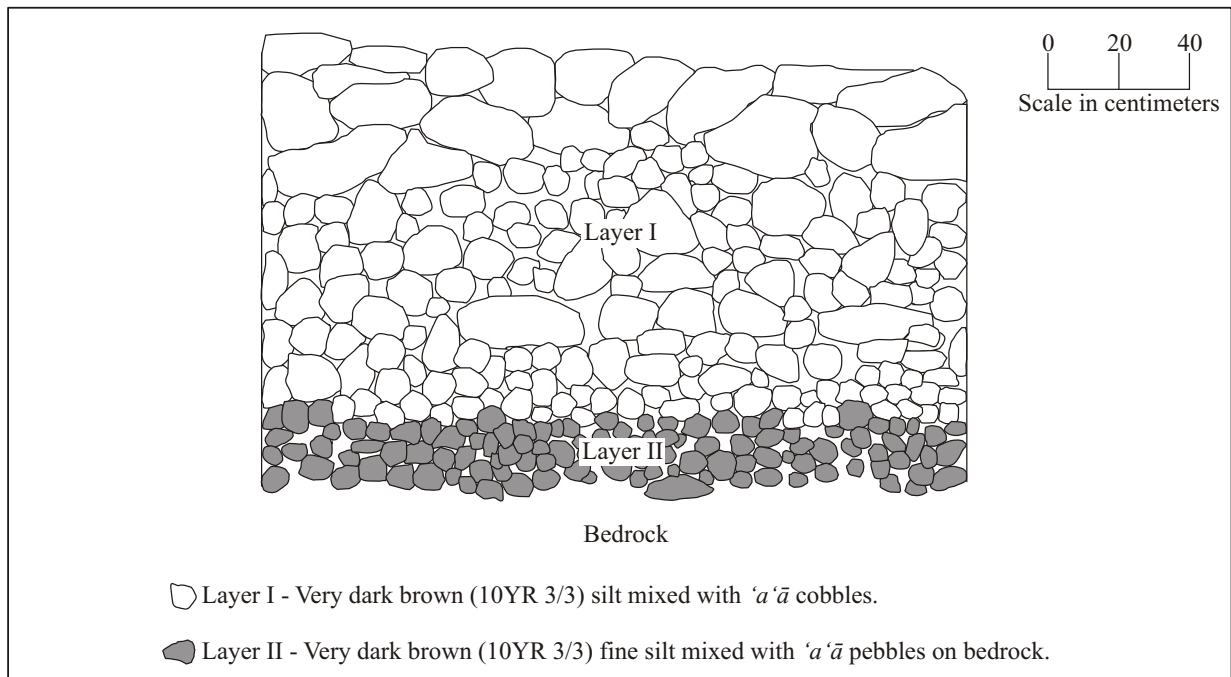


Figure 30. SIHP Site 23672 Feature B EU-1b south wall profile.

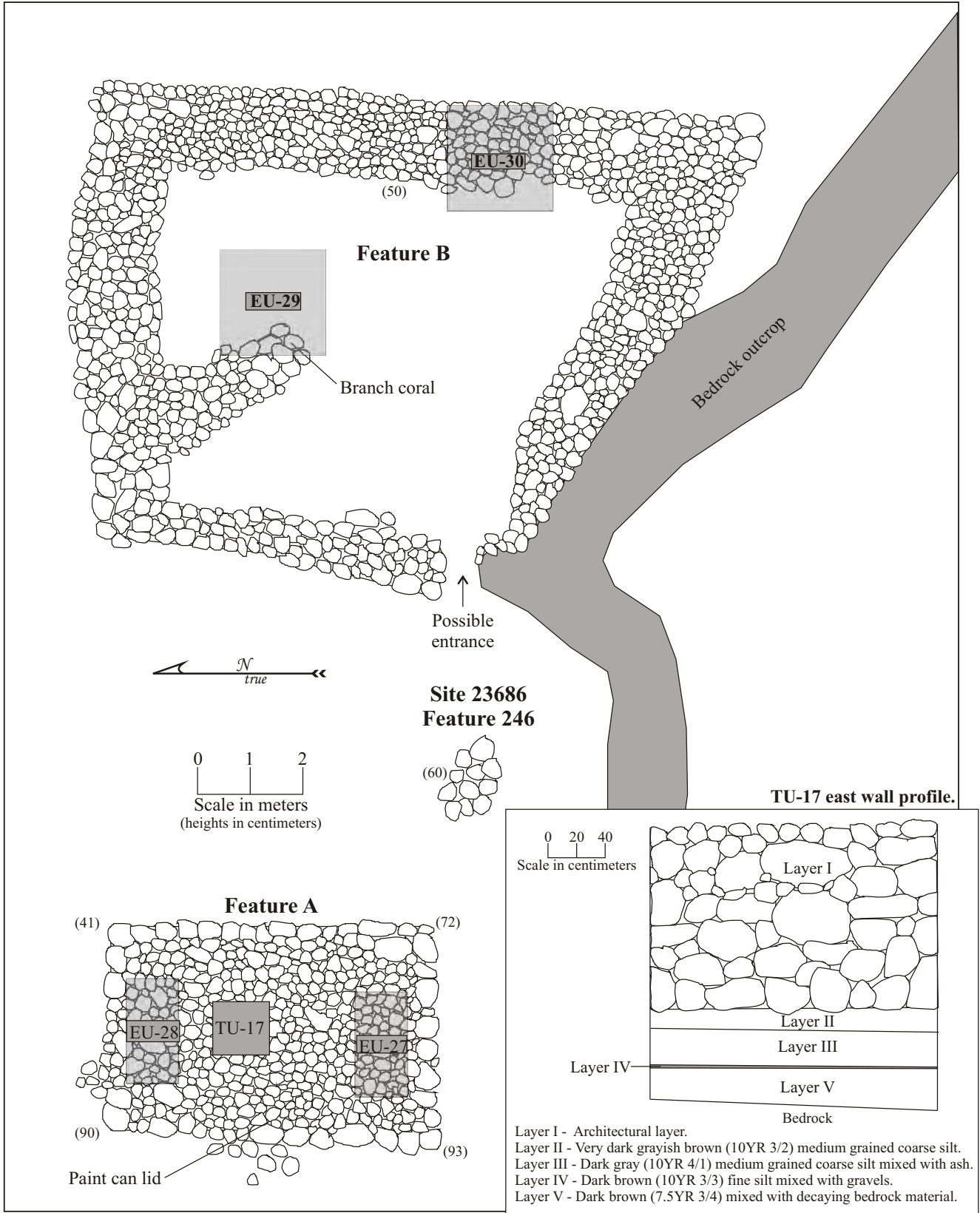


Figure 31. SIHP Site 23673 plan view and TU-17 east wall profile.



Figure 32. SIHP Site 23673 Feature A, view to the north.

Table 12. Recovered items from SIHP Site 23673, Feature A, TU-17.

<i>ACC #</i>	<i>Layer</i>	<i>Material</i>	<i>Species/type</i>	<i>Count</i>	<i>MNI</i>	<i>Weight (g)</i>
58	I	Coral	Branch	1	1	28.7
59	I	Organic	<i>Kukui</i> nutshell	1	1	6.3
60	I	Echinoderm	Echinoidea	7	1	0.1
61	I	Marine shell	<i>Cypraea</i> sp.	1	1	2.0
62	I	Mammal bone	Rodent	1	1	0.1
Layer I Total:				11	5	37.2
63	II	Coral	Branch	1	1	0.4
64	II	Organic	<i>Kukui</i> nutshell	6	1	1.6
65	II	Echinoderm	Echinoidea	4	1	1.0
66	II	Marine shell	<i>Cypraea</i> sp.	5	2	5.3
67	II	Fish bone	Unidentified	1	1	0.6
68	II	Mammal bone	Rodent	1	1	0.1
69	II	Volcanic glass	Flakes	15	-	11.2
Layer II Total:				33	7	20.2
70	III	Organic	Seed	1	1	0.1
71	III	Echinoderm	Echinoidea	109	1	9.1
72	III	Marine shell	<i>Cypraea</i> sp.	6	3	6.6
73	III	Marine shell	<i>Drupa</i> sp.	3	1	0.7
74	III	Marine shell	<i>Nerita</i> sp.	2	2	0.4
75	III	Marine shell	<i>Cellana</i> sp.	3	1	0.5
76	III	Organic	<i>Kukui</i> nutshell	6	1	0.4
77	III	Fish bone	Unidentified	4	1	3.6
78	III	Volcanic glass	Flake	24	-	12.1

Continued on next page

Table 12. Continued.

<i>ACC #</i>	<i>Layer</i>	<i>Material</i>	<i>Species/type</i>	<i>Count</i>	<i>MNI</i>	<i>Weight (g)</i>
81	III	Basalt	Flake	1	-	0.1
Layer III Total:				159	11	33.6
82	IV	Echinoderm	Echinoidea	13	1	0.8
83	IV	Volcanic glass	Flake	2	-	0.3
84	IV	Marine shell	<i>Cypraea</i> sp.	4	1	2.7
85	IV	Marine shell	<i>Conus</i> sp.	1	1	2.1
86	IV	Marine shell	<i>Drupa</i> sp.	1	1	0.3
Layer IV Total:				21	4	6.2
TU-17 Total:				224	27	97.2

EU-27 (aligned east-west) was excavated in the southern third of the Feature A platform and revealed the following stratigraphic profile (see Figures 33 and 34):

Layer I (0-120cmbs)..... architectural layer with small 'a' cobbles on the surface transitioning to larger ones with depth.

Layer II (120-135cmbs) ... very dark grayish brown (10YR 3/2) medium grained silt with a gray (10YR 4/2) silt pocket in northeastern corner (both on undulating decomposed bedrock).

Items recovered from EU-27 include *Cypraea* sp., *Isognomon* sp., branch coral, Echinoidea, *Fimbria* sp., unidentifiable shell, *kukui* nutshell, charcoal, volcanic glass flakes and shatter, and waterworn basalt (Table 13). No definite stratigraphic trends in recovered items could be detected, except for the Layer II spike.

Table 13. Recovered items from SIHP Site 23673, Feature A, EU-27.

<i>ACC#</i>	<i>Layer</i>	<i>Level</i>	<i>Material</i>	<i>Species/type</i>	<i>Count</i>	<i>MNI</i>	<i>Weight (g)</i>
419	I	1	Marine shell	<i>Cypraea</i> sp.	1	1	3.8
420	I	1	Marine shell	<i>Fimbria</i> sp.	2	1	2.6
421	I	1	Coral	Branch	4	-	59.0
422	I	1	Coral	Unidentified	-	-	54.2
417	I	1	Basalt	Waterworn pebble	1	-	51.4
416	I	1	Volcanic glass	Flake	1	-	0.7
418	I	1	Organic	<i>Kukui</i> nutshell	3	-	5.1
415	I	1	Organic	Charcoal	-	-	0.2
Layer I, Level 1					12	2	177
425	II	1	Marine shell	<i>Isognomon</i> sp.	2	1	0.2
426	II	1	Echinoderm	Echinoidea	2	-	0.1
424	II	1	Volcanic glass	Flake	1	-	0.1
570	II	1	Volcanic glass	Shatter	1	-	13.5
423	II	1	Organic	<i>Kukui</i> nutshell/burnt	8	-	1.2
Layer II, Level 1					14	1	15
430	II	2	Marine shell	Unidentified	3	-	0.7
431	II	2	Coral	Unidentified	1	-	0.1
432	II	2	Echinoderm	Echinoidea	6	-	0.7
429	II	2	Volcanic glass	Flake	9	-	2.6
571	II	2	Volcanic glass	Shatter	7	-	21.5
428	II	2	Organic	<i>Kukui</i> nutshell	7	-	0.9
427	II	2	Organic	Charcoal	-	-	0.2
Layer II, Level 2					33	0	27
434	II	3	Marine shell	<i>Cypraea</i> sp.	1	1	0.1
433	II	3	Volcanic glass	Flake	2	-	0.8
Layer II, Level 3					3	1	0.9
EU-27 Total:					62	4	220



Figure 33. SIHP Site 23673 Feature A EU-27 base of excavation, view to the north.

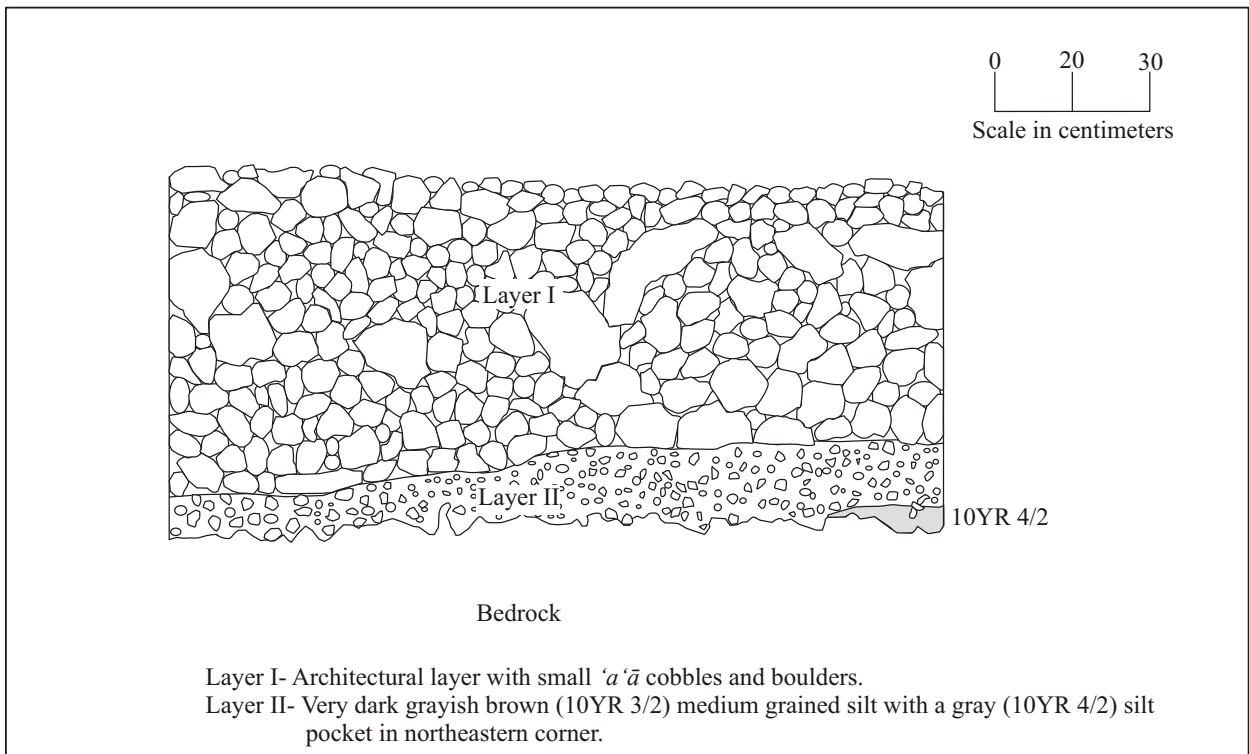


Figure 34. SIHP Site 23673 Feature A EU-27 north wall profile.

EU-28 (aligned east-west) was excavated in the northern third of the Feature A platform and revealed the following stratigraphic profile (see Figures 35 and 36):

Layer I (0-90cmbs)..... architectural layer with small 'a'ā cobbles on surface transitioning to larger ones with depth.

Layer II (90-98cmbs) thin band (i.e., 2cm thick) of dark brown (10YR 3/3) silt on dark grayish brown (10YR 3/2) loose silt.

Items recovered from EU-28 include fish, *Cypraea* sp., *Drupa* sp., coral, Echinoidea, *Mitra* sp., *Terebra* sp., unidentifiable shell, probable rodent, *kukui* nutshell, charcoal, basalt flake, and volcanic glass flakes and shatter (Table 14). A coral abrader (Acc# 439) from Layer I is cone-shaped with a pointed tip that has six abraded facets (Figure 37). The abrader is 19.15 millimeters long, 18.6 millimeters wide, and 7.9 millimeters thick. A worked coral fragment (Acc# 450) from Level 2 in Layer II has a tabular shape with six flattened surfaces (Figure 38). One of the sides is slanted so that the two edges come to a point. On the opposite side of this beveled edge is a crescent-shaped depression, roughly the size of a small finger. The worked piece of coral is 19.5 millimeters long, 18.6 millimeters wide, and 7.9 millimeters thick. An echinoderm abrader (Acc# 565) from Level 2 in Layer II has one side abraded from its mid-section to its proximal side where it attached to the main body (Figure 39). This abrader is 51.4 millimeters long, 9.6 millimeters wide, and 9.65 millimeters thick.

Table 14. Recovered items from SIHP Site 23673, Feature A, EU-28.

ACC#	Layer	Level	Material	Species/type	Count	MNI	Weight (g)
436	I		Marine shell	<i>Cypraea</i> sp.	1	1	2.2
437	I		Marine shell	Unidentified	1	-	3.8
439	I		Coral	Abrader	1	-	17.3
438	I		Coral	Unidentified	25	-	88.4
572	I		Basalt	Flake	1	-	6.0
435	I		Volcanic glass	Flake	6	-	6.3
573	I		Volcanic glass	Shatter	1	-	6.6
Layer I Total:					36	1	131
441	II	1	Fish bone	Unidentified	1	-	1.0
442	II	1	Marine shell	<i>Cypraea</i> sp.	2	2	15.9
443	II	1	Marine shell	<i>Drupa</i> sp.	1	1	0.9
445	II	1	Coral	Unidentified	5	-	41.2
446	II	1	Coral	Unidentified	1	-	0.6
447	II	1	Echinoderm	Echinoidea	5	-	0.2
440	II	1	Volcanic glass	Flake	7	-	4.8
444	II	1	Organic	<i>Kukui</i> nutshell	6	-	0.4
Layer II, Level 1 Total:					28	3	65
452	II	2	Marine shell	<i>Cypraea</i> sp.	1	1	1.4
454	II	2	Marine shell	<i>Mitra</i> sp.	1	1	0.1
453	II	2	Marine shell	<i>Terebra</i> sp.	1	1	0.1
455	II	2	Marine shell	Unidentified	1	-	0.1
450	II	2	Coral	Worked	1	-	0.5
456	II	2	Coral	Unidentified	3	-	0.8
457	II	2	Echinoderm	Echinoidea	5	-	0.1
565	II	2	Echinoderm	Echinoidea abrader	1	-	1.6
451	II	2	Small mammal	Jaw and teeth	2	1	0.4
449	II	2	Volcanic glass	Flakes	10	-	6.0
448	II	2	Organic	Charcoal	-	-	0.3
Layer II, Level 2 Total:					26	4	11
EU-28 Total:					90	8	207



Figure 35. SIHP Site 23673 Feature A EU-28 base of excavation, view to the west.

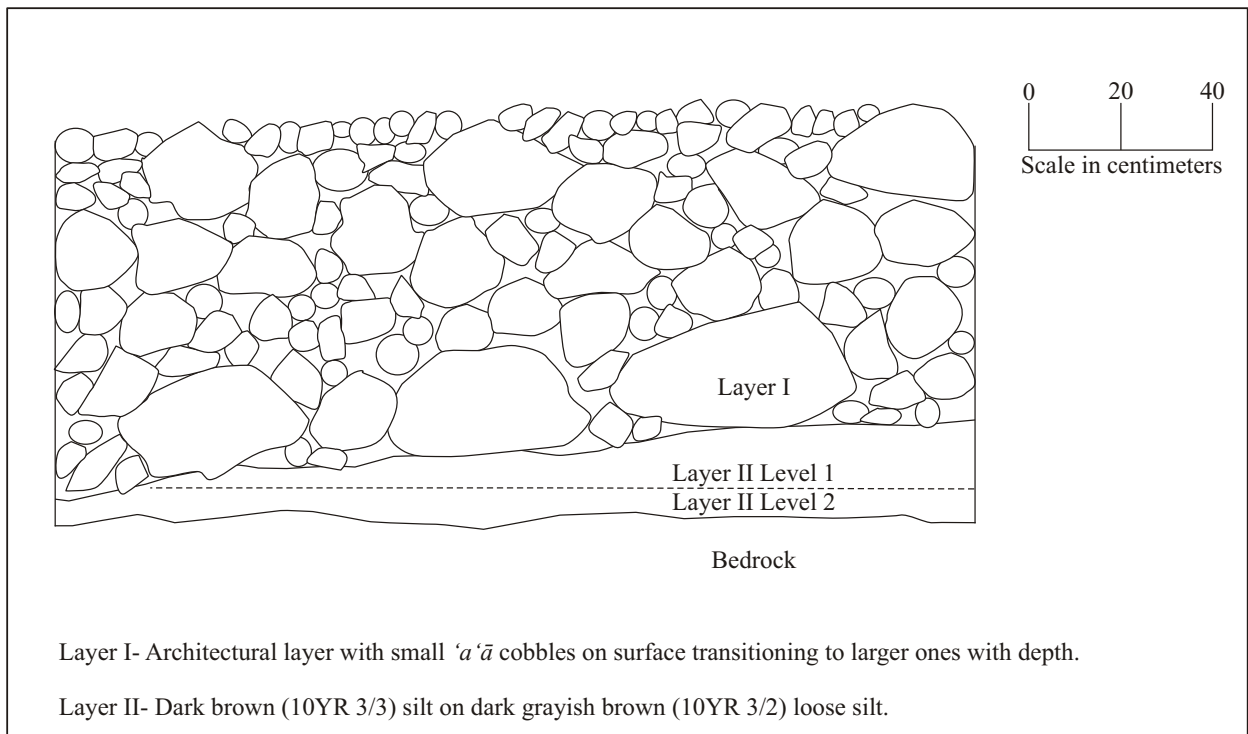


Figure 36. SIHP Site 23673 Feature A EU-28 north wall profile.



Figure 37. SIHP Site 23673 coral abrader from EU-28 (Acc#. 439).



Figure 38. SIHP Site 23673 worked coral fragment from EU-28 (Acc#. 450).



Figure 39. SIHP Site 23673 Echinoidea abrader from EU-28 (Acc#. 565).

Generally the same species and artifact types occur in both Layers I and II (Table 14), so no definite evidence exists that different depths represent different components or different activities.

Feature B

Feature B is a walled-enclosure located 6.7 meters east of Feature A (see Figure 31). The enclosure (Figure 40) is roughly square measuring 8.7 meters by 8.6 meters along its exterior edges. The enclosure walls, which are constructed of stacked (but largely collapsed) 'a'ā cobbles, measure up to 1.2 meters wide and stand 50 centimeters high. The south edge of the feature abuts a raised linear 'a'ā bedrock outcrop running northwest/southeast. There is a 1.0 meter wide opening (entrance?) accessing the enclosure's southwestern corner. A 3.0-meter long internal dividing wall runs southeast from Feature B's interior north wall. This internal wall, which may have partitioned off separate use areas within the enclosure, stands up to 70 centimeters high and 1.2 meters wide. A branch coral fragment was found on the surface of the wall's south end. No other cultural debris was observed at Feature B. The following two excavation units were conducted within Feature B: EU-29 (2 x 2m) and EU-30 (2 x 2m).



Figure 40. SIHP Site 23673 Feature B, view to the east.

EU-29 was placed in the northeastern portion of the Feature B enclosure, touching the southern tip of an internal partition wall, and revealed the following stratigraphic profile (Figures 41 and 42):

- Layer I (0-60cmts).....architectural layer with small to large 'a'ā cobbles, fire cracked rock, and branch coral.
- Layer II, Level 1 (60-70cmts).....small 'a'ā cobbles with dark brown (10YR 3/3) silt.
- Layer II, Level 2 (70-80cmts).....small 'a'ā cobbles with very dark gray brown (10YR 3/1) silt.
- Layer II, Level 3 (89-90cmts).....small 'a'ā cobbles with very dark gray brown (10YR 3/1) silt.
- Layer II, Level 4 (90-100cmts)...small 'a'ā cobbles with very dark brown (7.5YR 2.5/2) silt on weathered 'a'ā bedrock.

Items recovered from EU-29 include *Thunnus thynnus*, unidentifiable fish, *Trochus* sp., *Cypraea* sp., *Drupa* sp., *Isognomon* sp., *Nerita* sp., *Thais* sp., coral, Echinoidea, *Conus* sp., unidentifiable shell, pig, small mammal, charcoal, and volcanic glass flakes (Table 15). A Historic Period .177 caliber lead pellet (Acc# 479) from Level 3 in Layer II testifies to some kind of intrusion into earlier layers. This pellet is 6.6 millimeters long, 5.6 millimeters wide, and 5.75 millimeters thick. An echinoderm abrader fragment (Acc# 482) came from the same provenience as the lead pellet. Only one side of the spine bears signs of abrasion. The spine fragment is 10.8 millimeters long, 6.10 millimeters wide, and 5.9 millimeters thick. Layer I yielded no items. Recovered items peaked in Level 3 of Layer II.



Figure 41. SIHP Site 23673 Feature B EU-29 base of excavation, view to the west.

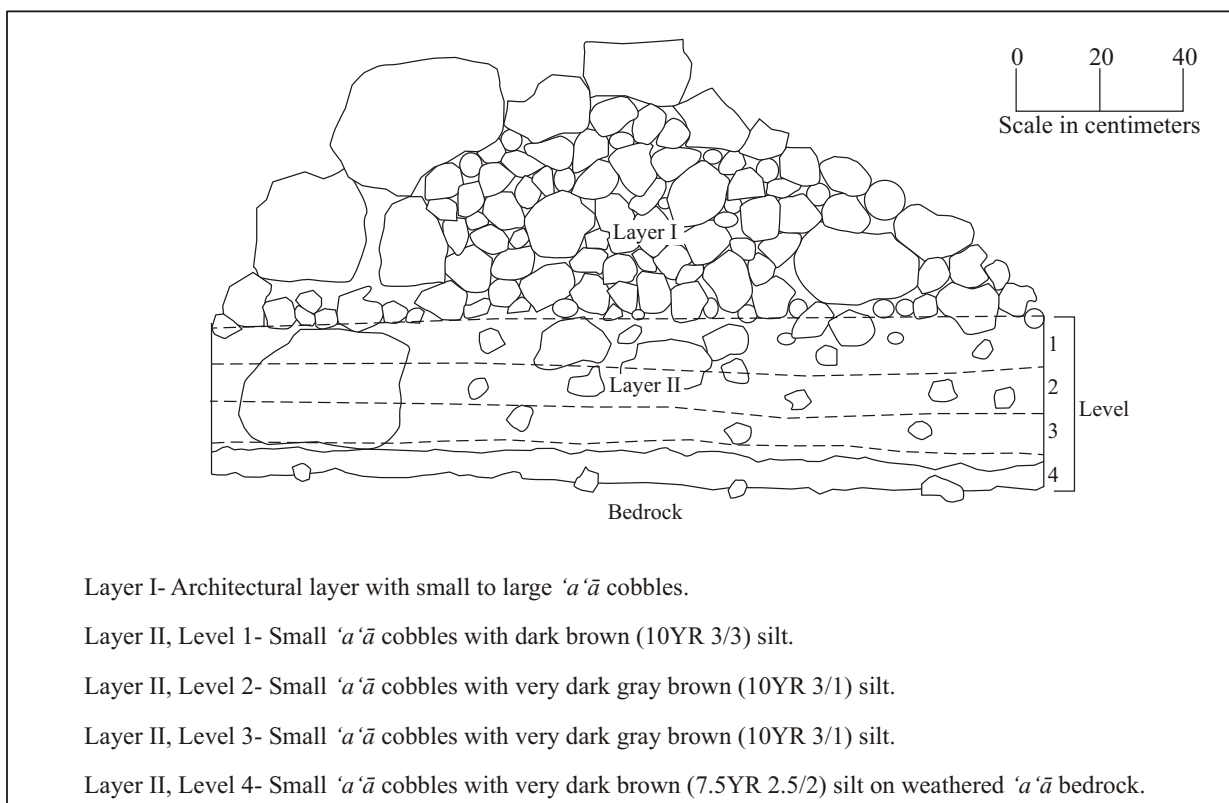


Figure 42. SIHP Site 23673 Feature B EU-29 west wall profile.

Table 15. Recovered items from SIHP Site 23673, Feature B, EU-29.

<i>ACC#</i>	<i>Layer</i>	<i>Level</i>	<i>Material</i>	<i>Species/type</i>	<i>Count</i>	<i>MNI</i>	<i>Weight (g)</i>
460	II	1	Fish bone	<i>Thunnus thynnus</i>	2	1	0.8
462	II	1	Marine shell	<i>Cypraea</i> sp.	9	2	7.8
463	II	1	Marine shell	<i>Nerita</i> sp.	1	1	0.2
464	II	1	Marine shell	Unidentified	2	-	0.4
465	II	1	Coral	Unidentified	1	-	27.4
466	II	1	Coral	Unidentified	2	-	3.1
467	II	1	Echinoderm	Echinoidea	9	-	0.6
461	II	1	Mammal bone	Unidentified	1	-	0.1
459	II	1	Volcanic glass	Flake	1	-	0.2
458	II	1	Organic	Charcoal	-	-	1.1
Layer II, Level 1 Total:					28	4	42
470	II	2	Marine shell	<i>Cypraea</i> sp.	29	2	25.0
471	II	2	Marine shell	<i>Conus</i> sp.	2	1	0.6
473	II	2	Coral	Unidentified	3	-	3.6
472	II	2	Echinoderm	Echinoidea	22	-	2.0
469	II	2	Volcanic glass	Flake	4	-	2.0
468	II	2	Organic	Charcoal	-	-	1.2
Layer II, Level 2 Total:					60	3	34
480	II	3	Fish bone	Unidentified	1	-	0.1
485	II	3	Marine shell	Unidentified	18	-	4.5
475	II	3	Marine shell	<i>Cypraea</i> sp.	36	7	36.5
487	II	3	Marine shell	<i>Drupa</i> sp.	2	2	0.6
476	II	3	Marine shell	<i>Isognomon</i> sp.	6	1	1.2
478	II	3	Marine shell	<i>Nerita</i> sp.	1	1	0.1
486	II	3	Marine shell	<i>Thais</i> sp.	1	1	0.5
483	II	3	Marine shell	<i>Conus</i> sp.	5	2	3.0
484	II	3	Coral	Unidentified	10	-	33.9
482	II	3	Echinoderm	Echinoidea abrader frag	1	-	0.2
488	II	3	Echinoderm	Echinoidea	208	-	25.8
477	II	3	Mammal bone	Unidentified	3	-	0.6
481	II	3	Volcanic glass	Flake	2	-	1.8
474	II	3	Organic	Charcoal	21	-	2.0
479	II	3	Metal	Lead .166 cal Pellet	1	-	0.9
Layer II, Level 3 Total:					316	14	112
494	II	4	Marine shell	<i>Trochus</i> sp.	1	1	0.3
491	II	4	Marine shell	<i>Cypraea</i> sp.	12	3	10.2
490	II	4	Echinoderm	Echinoidea	42	-	4.9
492	II	4	Mammal bone	<i>Sus</i> sp. vertebrae	1	1	2.2
489	II	4	Organic	Charcoal	47	-	5.5
493	II	4	Organic	Unidentified nut	1	-	0.6
Layer II, Level 4 Total:					104	5	24
EU-29 Total:					508	26	211

Charcoal collected from Layer II, Level 3 in EU-29 of Feature B in SIHP Site 23673 was submitted for radiocarbon assaying. The sample (Beta-212769) intercepts the tree-ring calibration curve at AD 1530, 1550, and 1630 and has a 2-sigma standard deviation calibrated date range of AD 1460 to 1660. Charcoal collected from Layer II, Level 4 in EU-29 of Feature B in SIHP Site 23673 was also submitted for radiocarbon assaying. The sample (Beta-212768) intercepts the tree-ring calibration curve at AD 1440 and has a 2-sigma standard deviation calibrated date range of AD 1320 to 1640. A calibrated weighted average of the two “linked” raw assays intercepts the tree-ring calibration curve at AD 1500, with a calibrated standard deviation that ranges between AD 1470 and 1630.

EU-30 was placed on the eastern wall of the Feature B enclosure and revealed the following stratigraphic profile (Figures 43 and 44):

Layer I (0-30cmbs).....architectural layer with small to large ‘a’ cobbles.

Layer II Level 1 (30-50cmbs)dark brown (10YR 3/2) silt with ‘a’ cobbles and very dark brown (7.5YR 5/2) silt resting on weathered ‘a’ bedrock.

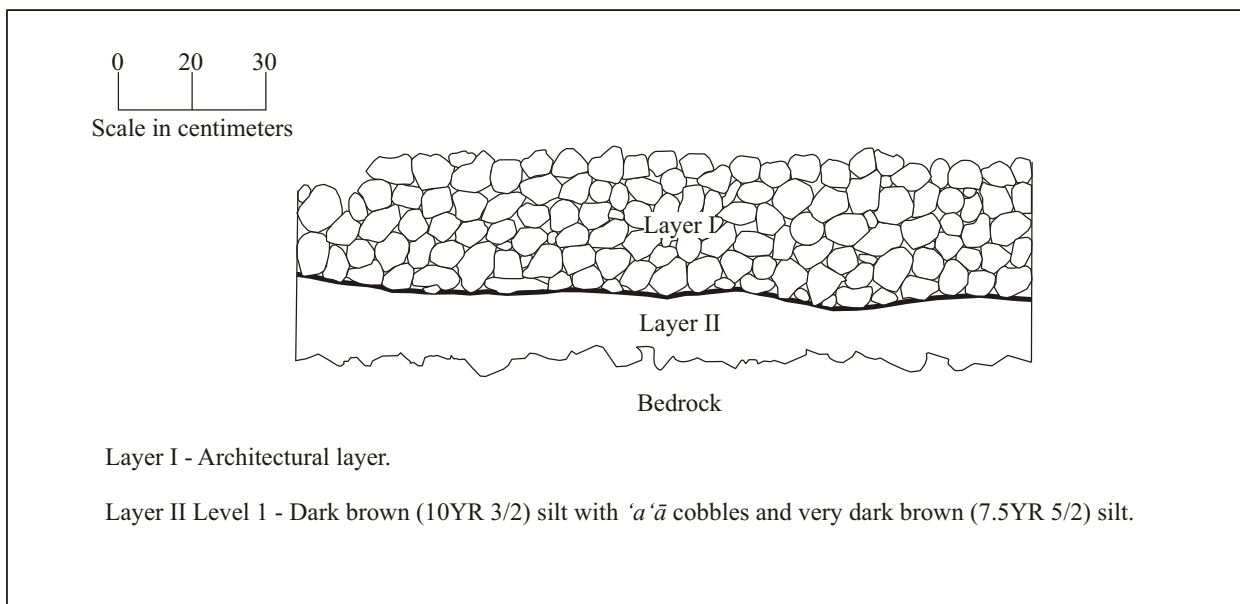
EU-30 yielded *Thunnus thynnus*, *Drupa* sp., coral, Echinoidea, *Canis* sp., *Rattus* sp., mammal, and *kukui* nutshell remains (Table 16). A machine cut mammal bone rib fragment (Acc# 566) from Level 1 of Layer II suggests some form of post-depositional intrusion. The rib is 118.3 millimeters long, 12.85 millimeters wide, and 11.05 millimeters thick. No trends or changes in species or artifact types could be discerned for the layers within EU-30; species and artifact types are fairly evenly distributed in all excavated layers, except for the comparatively sparse bottom Level 3 of Layer II.

Table 16. Recovered items from SIHP Site 23673, Feature B, EU-30.

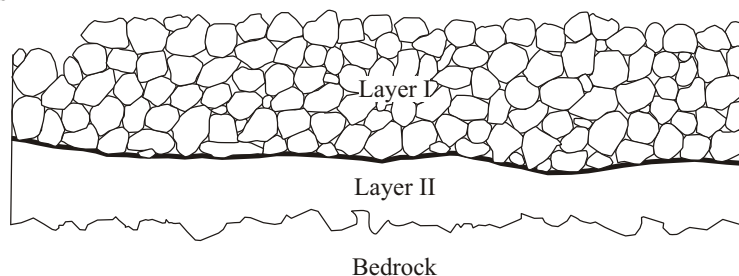
<i>ACC#</i>	<i>Layer</i>	<i>Level</i>	<i>Material</i>	<i>Species/type</i>	<i>Count</i>	<i>MNI</i>	<i>Weight (g)</i>
495	I	1	Fish bone	<i>Thunnus thynnus</i>	13	1	4.7
496	I	1	Mammal bone	<i>Canis</i> sp.	1	1	0.2
Layer I, Level 1 Total:					14	2	4.9
497	II	1	Fish bone	<i>Thunnus thynnus</i>	8	1	4.1
499	II	1	Coral	Unidentified	2	-	7.8
498	II	1	Mammal bone	Unidentified	6	-	4.7
566	II	1	Mammal bone	Machine cut rib	3	-	13.2
500	II	1	Organic	<i>Kukui</i> nutshell	2	-	2.1
Layer II, Level 1 Total:					21	1	31.9
501	II	2	Fish bone	<i>Thunnus thynnus</i>	3	1	0.2
503	II	2	Echinoderm	Echinoidea	2	-	0.1
504	II	2	Coral	Unidentified	3	-	0.7
502	II	2	Mammal bone	<i>Rattus</i> sp.	1	1	0.1
505	II	2	Organic	<i>Kukui</i> nutshell	2	-	0.2
Layer II, Level 2 Total:					11	2	1.3
506	II	3	Fish bone	<i>Thunnus thynnus</i>	2	1	0.1
509	II	3	Shell	<i>Drupa</i> sp.	1	1	1.9
508	II	3	Coral	Unidentified	1	-	0.2
507	II	3	Organic	<i>Kukui</i> nutshell	1	-	1.9
Layer II, Level 3 Total:					5	2	4.1
EU-30 Total:					51	7	42.2



Figure 43. SIHP Site 23673 Feature B EU-30 base of excavation, view to the east.



0 20 30
Scale in centimeters



Layer I - Architectural layer.

Layer II Level 1 - Dark brown (10YR 3/2) silt with 'a'ā cobbles and very dark brown (7.5YR 5/2) silt.

Figure 44. SIHP Site 23673 Feature B EU-30 east wall profile.

SIHP Site 23674

Site 23674 consists of a linked platform and enclosed circle feature that is located in the east-central portion of the project area (see Figure 3). Site 23674 consists of a rough rectangular platform (5.2 meters by 3.3 meters) with a circular enclosure (4.8 meters in diameter) protruding from its south edge (Figures 45 and 46). The site is constructed of stacked and piled 'a'ā cobbles, and the partially leveled surface of the platform is roughly paved with small 'a'ā cobbles (see Figure 45). The platform stands up to 66 centimeters above ground surface along its stacked southern edge and is slightly terraced to the north standing up to 46 centimeters above ground surface along its northern edge. The enclosure walls measures as wide as 1.9 meters and stand up to 66 centimeters high along their interior edge. The central area of the enclosure consists of leveled soil covered by dense vegetation. The following two excavations were conducted at Site 23674: EU-6 (2 x 2m) and EU-7 (1 x 1m).

EU-6 was placed on the central portion of the platform, and revealed the following stratigraphic profile (Figures 47 and 48):

- Layer I (0-70cmbs) architectural layer with 'a'ā pebble paving on top of small to large cobbles and a few boulders.
- Layer II Level 1 (70-90cmbs) dark brown (10YR 3/3) silt and 'a'ā gravel.
- Layer II Level 2 (90-100cmbs) very dark brown (10YR 2/2) and dark yellowish brown (10YR 3/4) sandy silt with 'a'ā gravel.
- Layer II Level 3 (100-110cmbs) dark yellowish brown (10YR 3/4) sandy silt and decomposed bedrock on sloping bedrock.

EU-6 yielded fish, *Trochus* sp., *Drupa* sp., *Cellana* sp., *Nerita* sp., coral, Echinoidea, crustacean, *Conus* sp., unidentifiable shell, bird, dog, rodent, mammal, *kukui* nutshell, charcoal, basalt flakes, and volcanic glass flakes and shatter (Table 17). No significant shifts or trends are apparent when the recovered items from different depths are compared. Species and artifact types peak in Layer I, drop off in Levels 1 and 2 of Layer II only to rise slightly again in the bottom Level 3 of Layer II.

Table 17. Recovered items from SIHP Site 23674, EU-6.

ACC#	Layer	Level	Material	Species/type	Count	MNI	Weight (g)
56	I	1	Fish bone	<i>Scarus</i> sp. teeth	4	1	0.6
49	I	1	Marine shell	<i>Cypraea</i> sp.	59	10	50.4
50	I	1	Marine shell	<i>Drupa</i> sp.	11	5	6.4
52	I	1	Marine shell	<i>Cellana</i> sp.	1	1	0.8
51	I	1	Marine shell	<i>Conus</i> sp.	6	2	0.7
53	I	1	Marine shell	Unidentified	3	-	2.0
61	I	1	Coral	Waterworn	12	-	24.4
55	I	1	Bird bone	Unidentified	5	-	1.0
54	I	1	Mammal bone	<i>Canis</i> sp.	2	1	2.0
58	I	1	Basalt	Flake	2	-	2.8
57	I	1	Volcanic glass	Flake	23	-	15.0
564	I	1	Volcanic glass	Shatter	7	-	12.1
60	I	1	Organic	<i>Kukui</i> nutshell	1	-	0.4
62	I	1	Organic	Charcoal	-	-	0.2
Layer I, Level 1 Total:					136	20	118.8

Continued on next page

Table 17. Continued.

ACC#	Layer	Level	Material	Species/type	Count	MNI	Weight (g)
69	II	1	Fish Bone	Unidentified jaw	1	-	0.4
63	II	1	Marine shell	<i>Cypraea</i> sp.	18	2	10.4
64	II	1	Marine shell	<i>Drupa</i> sp.	9	3	2.9
65	II	1	Marine shell	<i>Conus</i> sp.	3	2	1.2
66	II	1	Marine shell	Unidentified	3	-	0.6
72	II	1	Coral	Waterworn	1	-	2.9
67	II	1	Echinoderm	Echinoidea	7	-	6.6
68	II	1	Mammal bone	Unidentified	1	-	0.1
70	II	1	Volcanic glass	Flake	73	-	26.1
71	II	1	Organic	<i>Kukui</i> nutshell	3	-	0.8
73	II	1	Organic	Charcoal	-	-	0.3
Layer II, Level 1 Total:					119	5	52.3
80	II	2	Fish bone	Unidentified vertebrae	1	-	0.8
74	II	2	Marine shell	<i>Cypraea</i> sp.	16	2	7.6
75	II	2	Marine shell	<i>Drupa</i> sp.	7	3	4.5
76	II	2	Marine shell	<i>Conus</i> sp.	3	2	5.2
77	II	2	Marine shell	Unidentified	4	-	0.7
78	II	2	Echinoderm	Echinoidea	2	-	0.4
79	II	2	Bird bone	Unidentified	2	-	1.8
81	II	2	Mammal bone	Unidentified rodent	1	-	0.2
82	II	2	Volcanic glass	Flake	30	-	22.8
83	II	2	Organic	<i>Kukui</i> nutshell	2	-	0.2
84	II	2	Organic	Charcoal	-	-	0.2
Layer II, Level 2 Total:					68	7	44.4
85	II	3	Marine shell	<i>Cypraea</i> sp.	25	3	10.6
86	II	3	Marine shell	<i>Drupa</i> sp.	8	1	2.2
88	II	3	Marine shell	<i>Nerita</i> sp.	1	1	0.4
87	II	3	Marine shell	<i>Conus</i> sp.	6	2	4.0
89	II	3	Marine shell	Unidentified	5	-	1.5
90	II	3	Echinoderm	Echinoidea	6	-	0.5
91	II	3	Crustacean	UID claw fragment	1	-	0.2
92	II	3	Mammal bone	Rodent	10	1	0.5
93	II	3	Volcanic glass	Flake	48	-	14.3
94	II	3	Organic	Charcoal	-	-	0.5
Layer II, Level 3 Total:					110	8	34.7
EU-6 Total:					433	40	250.2

EU-7 was placed on the ground surface within the circular enclosure, and revealed the following stratigraphic profile (Figures 49 and 50):

Layer I (0-10cmbs)dark brown (10YR 3/3) silt with small 'a'ā pebbles on weathered bedrock.

No cultural material was recovered from EU-7.