

**FINAL—Archaeological Inventory Survey for a Proposed
Solar Farm in Kalaeloa, Honouliuli Ahupua‘a, ‘Ewa District,
Island of O‘ahu**

TMK: (1)9-1-013:001



Prepared For:

Mana Elua
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Honolulu, Hawaii 96813

September 2013

Keala Pono 

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Prepared By:

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MANAGEMENT SUMMARY

Archaeological inventory survey was conducted at TMK: (1)9-1-013:001, a 43 acre parcel located in Honouliuli Ahupua'a, 'Ewa District, on the island of O'ahu. Two archaeological sites, Site 50-80-12-1725 and NL-25 were previously recorded on the property. Site NL-25 was not found.

Site 1725 consists of 17 features. All 17 were re-located and ten new features were found. Given the proximity of these new features to those of Site 1725, it is recommended that the new features are subsumed within that site number, and the site boundaries revised to encompass them.

Subsurface testing indicates that the Feature 4 c-shaped structure was likely used in the early-20th century as a military fortification. Construction style of the structure suggests that it may have been built earlier, during traditional Hawaiian times. The other three excavated features did not yield any material to determine age or function. A WW II-era artifact found within the Feature 3 enclosure and bottle glass within the walls of the enclosures could not be correlated to the age of the structure.

Of the 27 features of Site 1725, data recovery is proposed for four features, preservation is recommended for 17 features, partial preservation/partial data recovery is recommended for one feature, and no further work is recommended for five features.

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INTRODUCTION

At the request of Mana Elua, Keala Pono Archaeological Consulting, LLC conducted an archaeological inventory survey of TMK: (1)9-1-013:001 in Honouliuli Ahupua‘a, ‘Ewa District, on the island of O‘ahu. Mana Elua is planning to construct a 5 megawatt solar farm on the property. The archaeological inventory survey was designed to re-assess archaeological sites that were previously identified on the parcel and to identify any new historic properties that may be located on the property, in anticipation of the proposed construction.

The report begins with a description of the project area and an historical overview of land use and archaeology in the area. The next section presents methods used in the fieldwork, followed by the results of the archaeological inventory survey. Project results are summarized and recommendations are made in the final section. Hawaiian words, flora and fauna, and technical terms are defined in a glossary at the end of the document.

Project Location and Environment

The project area is located in Kalaeloa, or Barber’s Point, in Honouliuli Ahupua‘a, ‘Ewa District, on the island of O‘ahu (Figure 1). TMK: (1)9-1-013:001 is a 43 acre parcel on the northwest side of the Kalaeloa Airport John Rogers Field runway (Figures 2 and 3). The property is bounded on the south by Malakole Street, on the east by a large drainage canal, and on the north and west by adjacent properties.

The parcel is owned by the Department of Hawaiian Homelands and is currently leased by Mana Elua to develop a 5 megawatt solar farm. The property is situated between 0 and 50 feet (0–15 m) in elevation. Rainfall is sparse, averaging roughly 0–20 inches (0–50 cm) per year (Juvik and Juvik 1998). Honouliuli Stream is the only one permanent watercourse in the area, thus when the ‘Ewa plain floods, water percolates into the porous limestone and drains into sinkholes. Ponds and marshes were more plentiful across the plain in the past, as drilling of artesian wells for historic-era sugarcane cultivation has drained the water table significantly. Vegetation in the project area consists predominantly of *kiawe*, *koa haole*, and thick grass.

The project area lies 1.2 miles (2 km) from the coast on the south and 1.6 miles (2.6 km) from the shoreline on the west. Topography is relatively flat, with an upraised coral limestone ground surface. Soils in the area are of the Lualualei-Fill land-Ewa Association, described by Foote et al. (1972) as follows:

Deep, nearly level to moderately sloping, well-drained soils that have a fine-textured or moderately fine-textured subsoil or underlying material, and areas of fill land; on coastal plains.

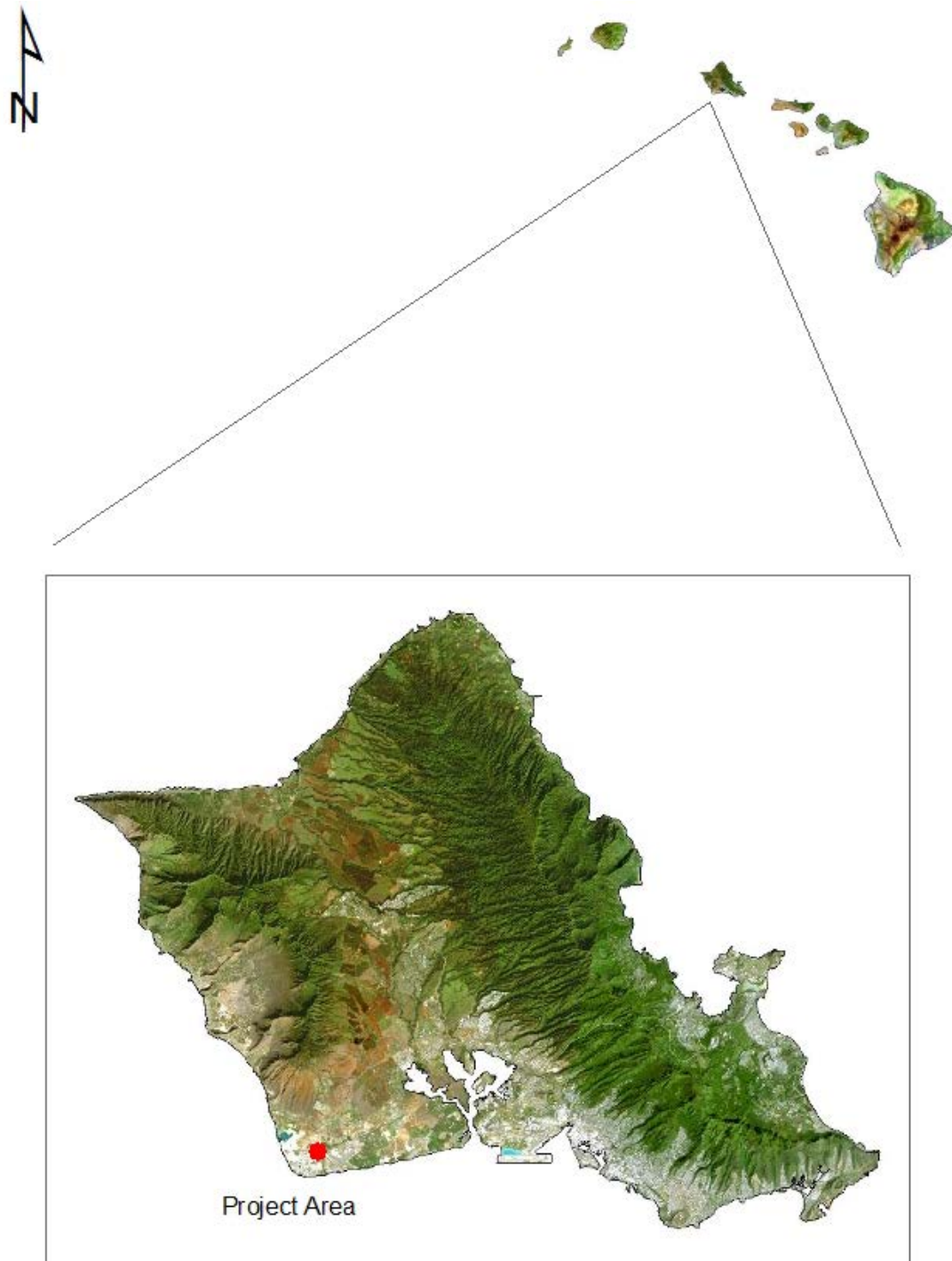


Figure 1. Project location in Kalaeloa, island of O‘ahu.

BACKGROUND

This section of the report presents background information as a means to provide a context through which one can examine the cultural and historical significance of the ‘Ewa plain and the *ahupua‘a* of Honouliuli. In the attempt to record and preserve both the tangible (i.e., traditional and historic archaeological sites) and intangible (i.e., *mo‘olelo*, *mele*, place names) culture, this research assists in the discussion of anticipated finds. Research was conducted at the Hawaii State Archives, Hawaii State Library, and the State Historic Preservation Division. Historical maps, archaeological reports, and historical reference books were among the materials examined.

‘Ewa and Honouliuli in the Pre-Contact Era

The current subject property is located in the ‘Ewa District, the largest land district on O‘ahu, situated on the southern shore of the island of O‘ahu. The name “‘Ewa” means “to crook, to twist, to bend” (Andrews 1865). This name may refer to the *mo‘olelo* within which Kāne and Kanaloa threw stones to determine the boundaries of the district (see *Mo‘olelo* section) (Sterling and Summers 1978). The current area of study is located within the *ahupua‘a* of Honouliuli, which is the largest of ‘Ewa’s *ahupua‘a*. Translated, Honouliuli means “dark bay” (Pukui et al. 1974), likely referring to the deep waters of what is now called West Loch of Pearl Harbor, located on the eastern perimeter of Honouliuli Ahupua‘a.

Within the *mo‘olelo* of Kūapāka‘a and Pāka‘a and the wind gourd of La‘amaomao, the winds of O‘ahu are recited by Kūapāka‘a:

...Moa‘e-ku is of Ewaloa,
Kēhau is of Waiopua,
Waikōloa is of Līhu‘e,
Kona is of Pu‘uokapolei,
Māunuunu is of Pu‘uloa... (Nakuina 1990:43)

...He Moae-ku ko Ewaloa,
He Kehau ko Waiopua,
He Waikoloa ko Lihue,
He Kona ko Puuokapolei,
He Maunuunu ko Puuloa... (Nakuina 1902:57)

This Moa‘e wind is also mentioned in the *‘ōlelo no‘eau*, “*Haunāele ‘Ewa i ka Moa‘e*” which is translated as “‘Ewa is disturbed by the Moa‘e wind” (Pukui 1983:59). According to Pukui, this phrase was used when discussing something disturbing, such as a violent argument. It is said that the people of ‘Ewa gathered *pipi*, or pearl oyster, in silence due to the belief that if they spoke, a Moa‘e breeze would blow, rippling the water and making the oysters “disappear” (Pukui 1983).

‘Ōlelo No‘eau

‘Ōlelo no‘eau referring to the ‘Ewa plain are numerous while a single *‘ōlelo no‘eau* was found referring to Honouliuli. The following Hawaiian proverbs and poetical sayings provide further insight to traditional beliefs and practices of these lands.

‘Āina koi ‘ula i ka lepo.
Land reddened by the rising dust.
Said of ‘Ewa, O‘ahu. (Pukui 1983:11)

O 'Ewa, 'āina kai 'ula i ka lepo.
'Ewa, land of the sea reddened by earth.
'Ewa was once noted for being dusty, and its sea was reddened by mud in time of rain.
(Pukui 1983:257)

Anu o 'Ewa i ka i'a hāmau leo e. E hāmau!
'Ewa is made cold by the fish that silences the voice. Hush!
A warning to keep still. First uttered by Hi'iaka to her friend Wahine'oma'o to warn her not to speak to Lohi'au while they were in a canoe near 'Ewa. (Pukui 1983:16)

E 'Ewa e—e ku'i na lima!
O 'Ewa—join hands!
This cry was a call of the men of Kona, O'ahu, when they went with their chief to destroy his brother, the 'Ewa chief. (Pukui 1983:33)

'Ewa kai lumaluma'i.
'Ewa of the drowning sea.
An epithet applied to 'Ewa, where *kauwā* were drowned prior to offering their bodies in sacrifice. (Pukui 1983:47)

'Ewa nui a La'akona.
Great 'Ewa of La'akona.
La'akona was a chief of 'Ewa, which was prosperous in his day. (Pukui 1983:47)

He kai puhi nehu, puhi lala ke kai o 'Ewa.
A sea that blows up nehu fish, blows up a quantity of them, is the sea of 'Ewa. (Pukui 1983:74)

He lō'ihī o 'Ewa; he pali o Nu'uanu; he kula o Kulaokahu'a; he hiki mai koe.
'Ewa is a long way off; Nu'uanu is a cliff; Kulaokahu'a is a dry plain; but all will be here before long.
Said of an unkept promise of food, fish, etc. O'ahu was once peopled by evil beings who invited canoe travelers ashore with promises of food and other things. When the travelers asked when these things were coming, this was the reply. When the visitors were fast asleep at night, the evil ones would creep in and kill them. (Pukui 1983:85)

I Waialua ka po'ina a ke kai, o ka leo ka 'Ewa e ho'olohe nei.
The dashing of the waves is at Waialua but the sound is being heard at 'Ewa.
Sounds of fighting in one locality are quickly heard in another. (Pukui 1983:137)

Ka i'a hāmau leo o 'Ewa.
The fish of 'Ewa that silences the voice.
The pearl oyster, which has to be gathered in silence. (Pukui 1983:145)

Ka i'a kuhi lima o 'Ewa.
The gesturing fish of 'Ewa.
The *pipi*, or pearl oyster. Fishermen did not speak when fishing for them but gestured to each other like deaf-mutes. (Pukui 1983:148)

Ke kai he'e nehu o 'Ewa.
The sea where the nehu come in schools to 'Ewa.
Nehu (anchovy) come by the millions into Pearl Harbor. They are used as bait for fishing, or eaten dried or fresh. (Pukui 1983:185)

Ke one kuilima laula o 'Ewa.

The sand on which there was a linking of arms on the breadth of 'Ewa.

'Ewa, O'ahu. The chiefs of Waikīkī and Waikele were brothers. The former wanted to destroy the latter and laid his plot. He went fishing and caught a large *niuhi*, whose skin he stretched over a framework. Then he sent a messenger to ask his brother if he would keep a fish for him. Having gained his consent, the chief left Waikīkī, hidden with his best warriors in the "fish." Other warriors joined them along the way until there was a large army. They surrounded the residence of the chief of Waikele and linked arms to form a wall, while the Waikīkī warriors poured out of the "fish" and destroyed those of Waikele. (Pukui 1983:191)

Ku a'e 'Ewa; Noho iho 'Ewa.

Stand-up 'Ewa; Sit-down 'Ewa.

The names of two stones, now destroyed, that once marked the boundary between the chiefs' land (*Kua'e 'Ewa*) and that of the commoners (*Noho iho 'Ewa*) in 'Ewa, O'ahu. (Pukui 1983:200)

Ua 'ai i ke kākoi o 'Ewa.

He has eaten the kākoi taro of 'Ewa.

Kākoi is O'ahu's best eating taro; one who has eaten it will always like it. Said of a youth or a maiden of 'Ewa, who, like the *kākoi* taro, is not easily forgotten. (Pukui 1983:305)

Ka i'a hali a ka makani.

The fish fetched by the wind.

The *'anaeholo*, a fish that travels from Honuliuli, where it breeds, to Kaipāpa'u on the windward side of O'ahu. It then turns about and returns to its original home. It is driven closer to shore when the wind is strong. (Pukui 1983:145)

Mo'olelo

The boundaries of 'Ewa have been linked to the story of the gods Kāne and Kanaloa who, while surveying the islands reached Red Hill and saw the expanse of what is the 'Ewa plain. To mark the boundaries of the area, they would throw a stone, and the boundary would be placed where the stone landed. Seeing the beautiful land below them, they thought to include as much as possible, throwing the stone as far as the Wai'anae mountain range in the area known as Waimānalo. While in search of their flung stone, Kāne and Kanaloa were unable to find where it had landed. Because of this, the area was named "'Ewa" due to the "straying" of the stone. Eventually, the stone was found on a hill and was named Pili o Kahe. This place marks the boundary between the 'Ewa and Wai'anae Districts, Honouliuli Ahupua'a within 'Ewa, and Nānākuli in Wai'anae (Nawa'a in Sterling and Summers 1978:1).

The cultural richness of 'Ewa *moku* is seen with the important *mo'olelo* of the origin of the *'ulu*, or breadfruit in Hawai'i. Noted as one of the two places in Hawai'i where the *'ulu* "is to be found," the other being Ka'awaloa in Kona on the island of Hawai'i (W.S. Lokai in Fornander 1918–1919:676–677). The breadfruit of Pu'uloa came from a mythical land in Kahiki, named Kanehunamoku. It was brought by two men of Pu'uloa who were out fishing and, caught in a rainstorm, landed on an island only inhabited by the gods who then introduced the two men to the fruit of the *'ulu* tree.

According to Beckwith, near Pu'uloa, at 'Ewa Beach, the first "human beings" or *olohe*, landed on O'ahu. At this place, caves of the *olohe* (*ka lua olohe*) are to be seen. Represented in legends as "professional robbers" with tendencies towards cannibalism, the *olohe*, or Ha'a people were highly skilled in the art *lua* which includes wrestling and bone-breaking (Beckwith 1970:343).

In the epic tale of Hi‘iakaikapoliopole, the sister of Pele, traversed the ‘Ewa plain as she returned back to her sister’s domain of Kīlauea, Hawai‘i, from Hā‘ena, Kaua‘i where she was to fetch her sister’s lover, Lohi‘au-ipo (Lohi‘au). The full story was printed in the Hawaiian-language newspaper, *Ka Hōkū o Hawai‘i* from September 18, 1924 to July 17, 1928. An excellent summary of this story can be found within Appendix G of Beardsley (2001) which was written by Kepā Maly. An excerpt pertaining to the ‘Ewa plain and Honouliuli is included below (translations by Kepā Maly).

*...Aloha ka hau o Ka‘ala
‘Oia hau halihali ‘a‘ala mau‘u nēnē
Honi ai ke kupa o Pu‘uloa
He loa ka imina e ke aloha e...*

Beloved is the dew of Ka‘ala
That dew which bears the fragrance of the *nēnē* grasses
[fragrant dew which] Kissed the natives of Pu‘uloa
One searches far for love...
(*Ka Hōkū o Hawai‘i*, January 18, 1927 in Beardsley 2001:G-1)

As Lohi‘au and Wahine‘ōma‘o traveled by boat from Pōka‘i (Wai‘anae) to Kou (Honolulu), Hi‘iaka traveled over land and traversed the plain of Honouliuli, encountering women on their way to gather *pāpa‘i* (crabs), *limu* (seaweeds), *mahamoe*, and ‘ōkupe (both edible bivalves). At the plain of Keahumoa (between Waipi‘o and Honouliuli), Hi‘iaka came across a group of women gathering *ma‘o* blossoms (*Gossypium tomentosum*, an endemic yellow-flowered hibiscus typically found on dryland plains) with which they would make *lei*. Hi‘iaka offered them the following *oli*:

*E lei ana ke kula o Keahumoa i ka ma‘o
‘Ohu‘ohu wale nā wahine kui lei o ke kanahale
Ua like no a like me ka lehua o Hōpoe
Me he pua koili lehua ala i ka lā
Ka oni pua koai‘a i ka pali
I nā kaupoku hale o ‘Āpuku
Ke ku no I ke alo o ka pali o Pu‘uku‘ua
He ali‘i no na‘e ka ‘āina
He kauwā no na‘e ke kanaka
I kauwā no na‘e wau i ke aloha
Na ke aloha no na‘e i kono e haele no māua
E hele no wau a—*

The plain of Keahumoa wears the ma‘o blossoms as its lei
Adorning the women who string garlands in the wild
It is like the lehua blossoms of Hōpoe
Lehua blossom upon which the sun beats down
On the nodding koai‘a flowers of the cliff
On the rooftops of the houses at ‘Āpuku
Rising in the presence of the cliff of Pu‘uku‘ua
The land is indeed the chief
Man is indeed a slave
I am indeed a slave to aloha – love
It is love which invites us two – come
I come-

(*Ka Hōkū o Hawai‘i*, February, 1927 in Beardsley 2001:G-3)
[Place names ‘Āpuku and Pu‘u Ku‘ua are both areas located in the uplands of Honouliuli]

The *mo'olelo* of Kahalaopuna also takes place in 'Ewa (Fornander 1918, Vol. V:188–192). Kahalaopuna was a young woman who was from Mānoa. Betrothed to marry Kauhi, a man from Ko'olau, he sent her numerous gifts before they were to be married. He soon became very angry when he heard rumors that Kahalaopuna had been unfaithful to him. Kauhi took Kahalaopuna to 'Ewa, leading her through the back valley and trails to a place known as Pohakea and a large *lehua* tree, where he took her life, even though she begged of her innocence. After burying her body under leaves of the *lehua* tree, Kauhi returned home. Meanwhile, Kahalaopuna's spirit had flown into the tree, and was able to chant to passers-by to tell her parents of her death and of her location. After she was brought back to life by her parents, Kauhi returned to Kahalaopuna, asking for forgiveness, however, she would not listen to him.

The *mo'olelo* of Namakaokapaoo, is about the aforementioned boy, who has extraordinary strength for a young man his age. His father was Kauluakahai, a great chief with a “godly relationship” who hailed from a great land in Kahiki. Namakaokapaoo's mother was Pokai. The couple met in 'Ewa, in a place called Hoaeae. Shortly after Namakaokapaoo was conceived, Kauluakahai returned to his own land. Pokai then met a man named Pualii who was from Līhu'e [Wahiawa, O'ahu] and was fishing at Honouliuli. The couple resided at the plains of Keahumoa where Pualii had two large potato patches. One day, while Pualii was gone, Namakaokapaoo pulled up Pualii's potato plants. Upon his return, Pualii attempted to kill Namakaokapaoo with his axe, but ended up cutting off his own head. Namakaokapaoo flung the head towards Waipouli, a cave located on the beach at Honouliuli (Fornander 1918, Vol. 5:275, 276).

In the *mo'olelo* of Kawelo, the king, Aikanaka is offended by Kawelo and sends him to live at Waikīkī. While at Waikīkī, Kawelo studied the art of *lua* in order to get his revenge on Aikanaka. Kawela's teacher was a fish *kupua*, or demi-god, Uhu maikaikai, who lived at Pohaku o Kawai, near Kalaeloa (Hawaiian Ethnological Notes, Vol. II:114 in Sterling and Summers 1978:41).

The 'Ewa plain was known to be a very fruitful place, with abundant resources in the ocean and on land. Protecting such a place was the *kia'i*, or caretaker of 'Ewa, named Kanekua'ana (Kamakau 1991:83). Relied on by the 'Ewa *kama'aina*, during times of scarcity of fish, her descendants built Waihou Heiau and lit fires for the cooking of offerings with the hope of blessings. According to Kamakau (1991), blessings were in the form of the various types of seafood:

The *pipi* (pearl oyster)—strung along from Namakaohalawa to the cliffs of Honouliuli, from the *kuapa* fishponds of inland 'Ewa clear out to Kapakule. That was the oyster that came in from the deep water to the mussel beds near shore, from the channel entrance of Pu'uuloa to the rocks along the edges of the fishponds. They grew right on the *nahawe*le mussels, and thus was this *i'a* obtained. Not six months after the *hau* branches [that placed a kapu on these waters until the *pipi* should come in] were set up, the *pipi* were found in abundance—enough for all 'Ewa—and fat with flesh. Within the oyster was a jewel (*daimana*) called a pearl (*moni*), beautiful as the eyeball of a fish, white and shining; white as cuttlefish, and shining with the colors of the rainbow—reds and yellows and blues, and some pinkish white, ranging in size from small to large. They were of great bargaining value (*he waiwai kumuku'ai nui*) in the ancient days, but were just “rubbish” (*opala*) in 'Ewa. (Kamakau 1991:83)

Other seafood described by Kamakau include the transparent shrimp (*opae huna*) and spiked shrimp (*opae kakala*) which came into the *kuapa* and *pu'uone* fishponds, the *nehu pala* and *nehu maoli* fish which filled the *nuku awalau* (lochs), as well as the bivalves *mahamoe* and *'okupe* and other types which have disappeared long ago (Kamakau 1991:84).

'Ewa's abundance could also be attributed to the blessings it received from the gods Kāne and Kanaloa:

...There are many other legends of 'Ewa which Mrs. Pukui has collected from old-timers or translated from old newspaper stories. ...According to another legend it was here in 'Ewa that Kane and Kanaloa were invoked by a planter of sweet potatoes, taros, and 'awa named Maihea. This man, living in the upland of Wai'awa, when he had prepared his meal and his 'awa, would pray:

O unknown gods of mine,
Here are 'awa, taro greens and sweet potatoes
Raised by me, Maihea, the great farmer.
Grant health to me, to my wife and to my son.
Grant us *mana*, knowledge and skill.
Amama. It is freed.

Kane and Kanaloa sent ashore at Waimalu a great whale. It lay there many days. Children climbed on it. Maihea's son did likewise. One day the whale moved into the water. The other children jumped off, but Maihea's son remained on the whale's back. It swam out to sea, and on to Kahiki. There 'Ula-a-Maihea, the farmer's son, "was trained in priestly lore and all of its arts through the instructions of these gods, Kane and Kanaloa." One day two strangers appeared at his door as Maihea was about to pray to his unknown gods. He poured 'awa into three cups and said, "Let me pray to my unknown gods." Then the two strangers revealed that they were his "unknown gods," Kane and Kanaloa, and instructed him to call upon them by name. "This was the beginning of the travels of these gods on earth...." The gods went up the hill named Hauapu'u and gazed down upon the fishponds and plantations and coconut groves of 'Ewa and blessed them.

There was a fisherman at Pu'uloa named Hanakahi, who, like Maihea, prayed to "unknown gods." Kane and Kanaloa visited him also, revealed their identity, and taught him to pray properly. They went on to Ke-ana-pua'a, and built a fishpond which "is there to this day." They made another at Kepo'okala, and then another opposite this. Then they returned to Hanakahi's house and told them that these ponds were made for him and his descendants. Thus they blessed the beautiful land of 'Ewa" (*Ka Loea Kalai'aina*, June 10, 1899 in Handy and Handy 1991:472, 473).

The land of Honouliuli was known for its 'ama'ama, or mullet fish. The following *mo'olelo* describes how the route of the 'ama'ama, which travel from Honouliuli to Lā'ie, came to be.

Kaihuopala'ai (a place) was famous from olden times down to the time when the foreigner ruled Honouliuli, after which time the famous old name was no longer used. It is said that in those days the 'ama'ama heard and understood speech, for it was a fish born of a human being, a supernatural fish. These were the keepers of this fish. Kaulu, the husband, and Apoka'a, the wife, who bore the children, Laniloa, the son, and Awawalei, the daughter. These two children were born with two other supernatural children, an eel and a young 'ama'ama. From this 'ama'ama child came all the 'ama'ama of Kaihuopala'ai, and thus did it gain renown for its 'ama'ama. Laniloa went to La'ie, in Ko'olauloa, and there he married. His sister remained in Honouliuli and married Mokueo, and to them were born the people who owned the 'ama'ama, including the late Maui'awa and others. These were fishermen who knew the art of making the fish multiply and make them come up to the sand.

While Laniloa lived in La'ie he heard of the great schools of 'ama'ama at Honouliuli. There were no 'ama'ama, large or small, where he lived. He thought of his younger sister, the 'ama'ama, and guessed that was the reason the place was growing so famous. He said to his wife, "I shall ask my sister to send us some fish for I have a longing for 'ama'ama ..." Laniloa left La'ie to go to Ewa. He reached the house and found his parents and sister. His parents were quite old for he had been away a long time. He said,

“I have come to my ‘ama‘ama sister for a bit of fish as there is none where I live except for some *au moana* (sea-faring) crabs.” After three days and nights he left Ewa. The fish were divided into two groups, those that were going and those that were staying. As Laniloa’s sister went along the shore she went in her human form. The fish came from, that is, left Honouliuli without being seen on the surface. They went deep under water until they passed Ka‘a‘ali‘i, then they rose to the surface. They reached Waikiki. They went on. The sister slept at Nu‘upia while the fish stopped outside of Na Moku Manu. Finally she reached La‘ie, and to this day this is the route taken by the ‘ama‘ama. (Mokumaia 1922 and *Ka Loea Kalaiaina* 1899 in Titcomb 1972:65)

Mele

Printed during the last few months of 1895, *Buke Mele Lahui*, was a response to the recent overthrow of the Hawaiian monarchy in 1893. A collection of 105 songs, this publication served as a means of expression during a time of censorship. The following song mentions various places in ‘Ewa and Wai‘anae and in this *mele*, the bending sugar cane leaves of beautiful Honouliuli are described. (Hawaiian Historical Society 2003:98,99).

KUE HAO O KA LANAKILA.
Hanohano Lanakila i ka'u ike, Ka niniu poahi a na kue, Ua kolu naia no ka moana, Ka pakika, ka pahee i ke alahao, Kilohi iho au ma ka aoao, O Moanalua ka i hai ke au, A ke kula makou a o Puuloa, Laulea pu ana me na hoa, Kau aku ka manao no Aiea, Ka pa a ka makani a he Moae, Aia ka iini i Pualehua, I ka hale hulalahula malu ohai, A hiki makou a i Manana, Ano kaukaulua e ka Lanakila, Ike i ka nani kai o Polea, I ka hapa-Ilikini ili-ulaula; Hanohano Waikele i ka ulu niu, I ke kai o ka Pa Hamauleo, A Honouliuli ike i ka nani, I ka luhe a na lau o ke kumu ko, A ke kula wela a o Waimanalo, Malu ana e ka lau a o ke kiawe,
Alawa ae au Puuohulu, O ka puu kaulana o Waianae, Kuupau Lanakila i ke oeoe, E i mai ana o Waianae, Ike i ka nani o ia wahi, Me ke kai holu mai i ka pueone; Haina ka puana no Waianae, Ka makani ahehe he Kaiaulu S. PINAO.

Place Names

Within various accounts, place names can contain significant information which further reveal traditional beliefs and practices associated with an area. Maps of traditional places and features can be found in Figures 4 and 5. The following places are in the Honouliuli region:

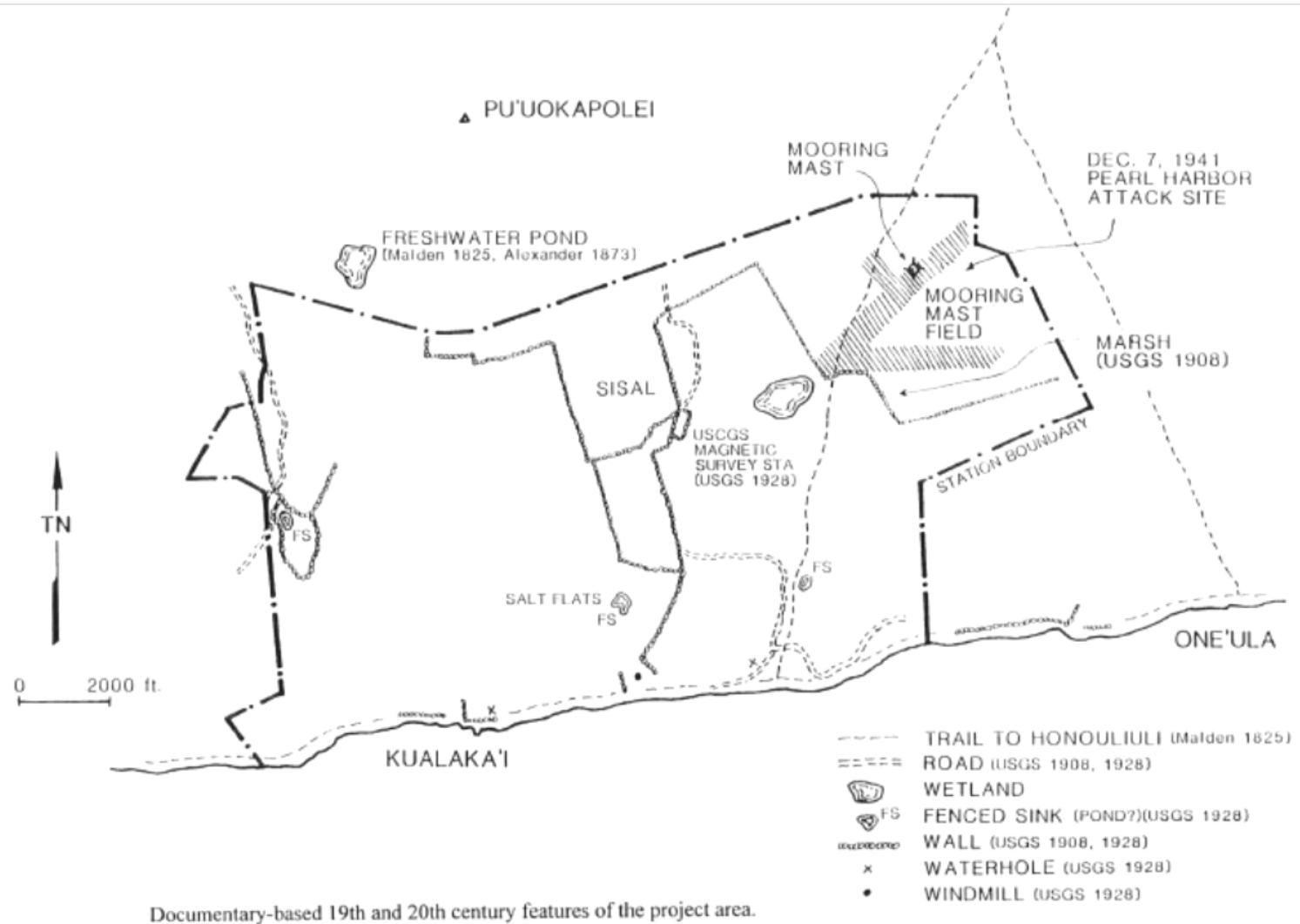


Figure 4. Features of Kalaeloa (adopted from Tuggle and Tomanari-Tuggle 1994:11-12).



Figure 5. Place names of Honouliuli (adopted from Tuggle 1995:10).

Hanalei

Hanalei, a small flat land with a little gulch on either side on the right of Puuloa mauka of Puu-o-Kapolei. Formerly there was much milo, neneleau, kamani and other trees on the land, home of the iiwi and oo birds (lono, Honomu). (T. Kelsey Collection, HEN: Vol. I, p. 820 in Sterling and Summers 1978:34)

Hani-o

“The fishing ground outside Kalaehoa is named Hani-o...” (Beckwith 1970:23)

Kalaehoa

Literally meaning “the long point,” this area later became known as Barbers Point after Captain Henry Barber ran aground at the point in 1796 (Pukui et al.1974).

Kaloi

....Harry's first thought when riding over the country was where to find water, and during the years 1890-91-92 much was done in the way of new troughs, getting water from plantations of flumes, and digging out wet places that showed any prospects of water. One of those places is on the old trail to Palehua, and had evidently been a place of which the Hawaiians had known, for its name is Kaloi (the taro patch), and even in dry weather water would be standing in the holes made by the cattle, as they tried to get a drop or two. ...When water was finally led down the rocky hillside to the trough at Kaloi, Mr. William R. Castle, who was with Harry, rechristened the spring "Wai o Kakela," Kakela being Mr. Castle's Hawaiian name. But the old name still stuck to it, and as Kaloi it is known to this day. (Knudsen von Holt 1953:116 in Sterling and Summers 1978:35)

Keahumoa

"...Was the plain before reaching the Kipapa gulch."(Fornander 1918, vol. IV:274) (see Battle of Keahumoa Plain)

Pohakea

A place where Lohiau and Hiiaka rested on their journey to meet Pele, between 'Ewa and Wai'anae (Fornander, 1918:188).

...The travelers only stopped one night and spent the following night on the other side of Pohakea. The elders and children who went with them slept above Kunia on this side of Pohakea... (I'i 1959:23)

Pukaua Plain

The Two Old Women Who Turned to Stone

If a traveller [sic] should go by the government road to Waianae, after leaving the village of gold, Honouliuli, he will first come to the plain of Puu-ainako and when that is passed, Ke-one-ae. Then there is a straight climb up to Puu-o-Kapolei and there look seaward from that government road to a small hill. That is Puu-o-Kapolei. It is this hill that hides Ewa from view. When you go to that side of Waimanalo, you see no more of the sight back here. You go down some small inclines, then to a plain. This plain is Pukaua and on the mauka side of the road, you will see a large rock standing on the plain. This stone has a legend that made this plain noted.... (*Ka Loea Kalaiaina* 1900 in Sterling and Summers 1978:39)

Puu-Kuua

Here are some pointers for the traveler to Ewa. If you are going by train, look up toward the Ewa mill. If you are above Puuloa, you will see Puu-o-Kapolei, a small hill. Lying below and back of that hill is the government road going to Waianae. Above that is also a small hill and back of that, is a big hill and above it is a large hollow. That is Puu-Kuua where the very dirty ones lived. (*Ka Loea Kalaiaina* 1899 in Sterling and Summers 1978:32)

...A place where the chiefs lived. Was said to be a battlefield. There were two important things concerning this place. (1) This place is entirely deserted and left uninhabited and it seems that this happened before the coming of righteousness to Hawaii Nei. Not an inhabitant is left. (2) The descendants of the people of this place were so mixed that they

were all of one class. Here the gods became tired of working and returned to Kahiki. (*Ka Loea Kalaiaina*, July 8, 1899 in Sterling and Summers 1978:32–33)

Pu‘uloa

Literally translates to “long hill,” this area is now known as Pearl Harbor (Pukui et al.1974).

Puu o Kapolei

Located to the north of the current subject property, “it is here that Kamauluaniiho (Kamaunuaniiho) lived with her grandson, Kekeleaiiku, the older brother of Kamapua‘a after they left Kaliuwaa in Kaluanui, Koolau-loa” (*Ka Loea Kalaiaina* 1900 in Sterling and Summers 1978:32–33).

After Kamapua‘a conquered most of O‘ahu, he installed his grandmother, Kamaunuaniiho as queen, taking her to Puuokapolei. It was noted as a desolate spot, being “almost equally distant from the sea, from which came the fish supplies; from the taro and potato patches of Ewa, and from the mountain ravines containing the banana and sugar cane plantations.” It was believed that the foundations of Kamaunuaniiho’s house, as well as her grave, were still present before the turn of the 20th century. However, with the expansion of sisal and cane activities at the base of Puuokapolei, stones may have been removed for making walls (Nakuina 1904:50 in Sterling and Summers 1978:34).

Pu‘uokapolei is also noted as an important landmark which marked the season of Ho‘oilō:

...the people of Oahu reckoned from the time when the sun set over Pu‘uokapolei until it set in the hollow of Mahinaona and called this period Kau, and when it moved south again from Pu‘uokapolei and it grew cold and the time came when young sprouts started, the season was called for their germination (oilō) the season of Ho‘oilō. (Kamakau n.d.:23 in Sterling and Summers 1978:34).

Legendary fisherman, Nihooleki, lived at Kuukuu on Pu‘u o Kapolei under the name of Keaha-ikiaholeha. Born at Keauhou in Kona, he became a ruling chief of Wai‘anae. Wielding his famous *aku*-attracting pearl fishhook named Pahuhu, Keaha-ikiaholeha traveled to Kaua‘i, the birthplace of his high chiefess wife, and became ruling chief. When he died, his body was brought back to Wai‘anae and prayed back to life by his parents. Among his later exploits, Nihooleki returns to Wai‘anae and “enters his tomb” and dies (Beckwith 1970:420).

Waimanalo

Koolina is in Waimanalo near the boundary of Ewa and Waianae. This was a vacationing place for chief Kakuhihewa and the priest Napuaikamao was the caretaker of the place. Remember Reader, this Koolina is not situated in the Waimanalo on the Koolau side of the island but the Waimanalo in Ewa. It is a lovely and delightful place and the chief, Kakuhihewa loved this home of his. (*Ke Au Hou* 1910 in Sterling and Summers 1978:41)

Land Use and Coastal Resources

What truly sets the ‘Ewa area apart is its expansive coastal plain which is surrounded by the deep bays of West Loch and Pearl Harbor. Offering a favorable environment for the construction of *loko i‘a*, fishponds, and fish traps, residents of this area had the opportunities to catch deep-sea fish such as *akule*, which entered the bays during the incoming tide. These ponds were the summer home of the ‘*ama‘ama*, or mullet. Another important resource of the coastal area was the diverse variety of shellfish found in the harbor. The Hawaiian pearl oyster, *pipi*, was eaten raw and was

prized for its shell that was used to make fishhooks. Other shellfish of the area included *papaua*, *‘owa* *‘owaka*, *nahawe*, *kupekala*, *mahamoe* (Lahilahi Webb in Handy and Handy 1991:471).

The wide lowlands, bisected by streams, created a land that easily facilitated the cultivation of *lo‘i kalo*, irrigated taro patches. ‘Ewa’s natural landscape and sprawling plain, and gently sloping valley walls, created environments ideal for crops such as banana and yams. Inland, ‘Ewa was noted for the cultivation of *‘awa*, as well as its *mamaki*, *wauke*, and *olonā*. This extensive upland area, also known as *wao*, gave inhabitants an advantage during times of famine as a place where they could forage for food during droughts (Handy and Handy 1991:469). The upland areas of ‘Ewa were also home to unique avifauna and birds which were prized for their colorful feathers that were used in helmets, capes, and *lei*.

‘Ewa and Honouliuli in the Historic Period

Descriptions and maps from early visitors to Hawai‘i help to paint a picture of what Honouliuli was like in the 18th to 20th centuries.

Early Descriptions of the ‘Ewa Plain

Anchored off the entrance to West Loch in 1793, Captain George Vancouver described the ‘Ewa landscape:

The part of the island opposite to us was low, or rather only moderately elevated, forming a level country between the mountains that compose the east [Koolau] and west [Waianae] ends of the island. This tract of land was of some extent, but did not seem to be populous, nor to possess any great degree of natural fertility; although we were told that, at a little distance from the sea, the soil is rich, and all the necessities of life are abundantly produced. ...Mr. Whitbey observed [sic], that the soil in the neighborhood of the harbor appeared of a loose sandy nature; the country low for some distance, and, from the number of houses within the harbour, it should seem to be very populous; but the very few inhabitants who made their appearance were an indication of the contrary. (Vancouver 1801, vol. 3:361,363)

Campbell’s 1819 account includes a description of his way through ‘Ewa:

We passed by foot-paths winding through an extensive and fertile plain, the whole of which is the highest state of cultivation. Every stream was carefully embanked, to supply water for the taro beds. Where there was no water, the land was under crops of yams and sweet potatoes. The roads and numerous houses are shaded by cocoa-nut trees, and the sides of the mountains covered with wood to a great height. We halted two or three times, and were treated by the natives with the utmost hospitality.” (Campbell 1819:145)

G.F. Mathison, visiting the “Sandwich Islands” in 1821–1822, noted the abundance of resources of the ‘Ewa Plain:

The adjoining low country is overflowed both naturally and by artificial means, and is well stocked with taro-plantations, bananas, etc. The land belongs to many different proprietors; and on every estate there is a fishpond surrounded by a stone wall, where the fish are strictly preserved for the use of their rightful owners, or tabooed, as the natives express it. One of particular dimensions belongs to the King. (Mathison 1825 in McAllister 1933:109)

During a visit to Hawai‘i in 1825, James Macrae offered the following remarks about Pu‘uloa and the surrounding area:

The neighborhood of the Pearl River is very extensive, rising backwards with a gentle slope towards the woods, but is without cultivation, except round the outskirts to about half a mile from the water. The country is divided into separate farms or allotments belonging to the chiefs, and enclosed with walls from four to six feet high, made of a mixture of mud and stone. (Macrae 1922 in McAllister 1933:31)

Captain Jacobus Boelen’s 1828 narrative of Pu‘uloa discusses traveling to ‘Ewa from Honolulu and the shallow reefs which shelter the bay. He notes of the highly fertile soils which are heavily cultivated in *kalo* and sugar cane:

On 26 February, in the company of some good friends and acquaintances, we made an excursion to what the Indians called the harbor of Oporooa [Pu‘uloa], which I believe means approximately “Pearl River”—at least that is what the foreigners call this bay. This is because the Indians sometimes find pearls there, which they offer for sale in Honoruru. We departed from Honoruru at ten o’clock in the morning in two boats, sailed out of the harbor to sea, and rowed a distance of about three quarters or one league toward the west along the coral reef that encircles the whole south coast of Woahoo. We passed over the bar of Oporooa harbor. The bar is no more than ten feet deep at low tide, from which one can conclude that in a rough sea high waves will break against it. Even at high tide the passing of this bar can be very dangerous unless the sea is calm. Therefore, on the advice of our pilot, a native of the island, we remained for a time outside the bar and then rowed hard across it.

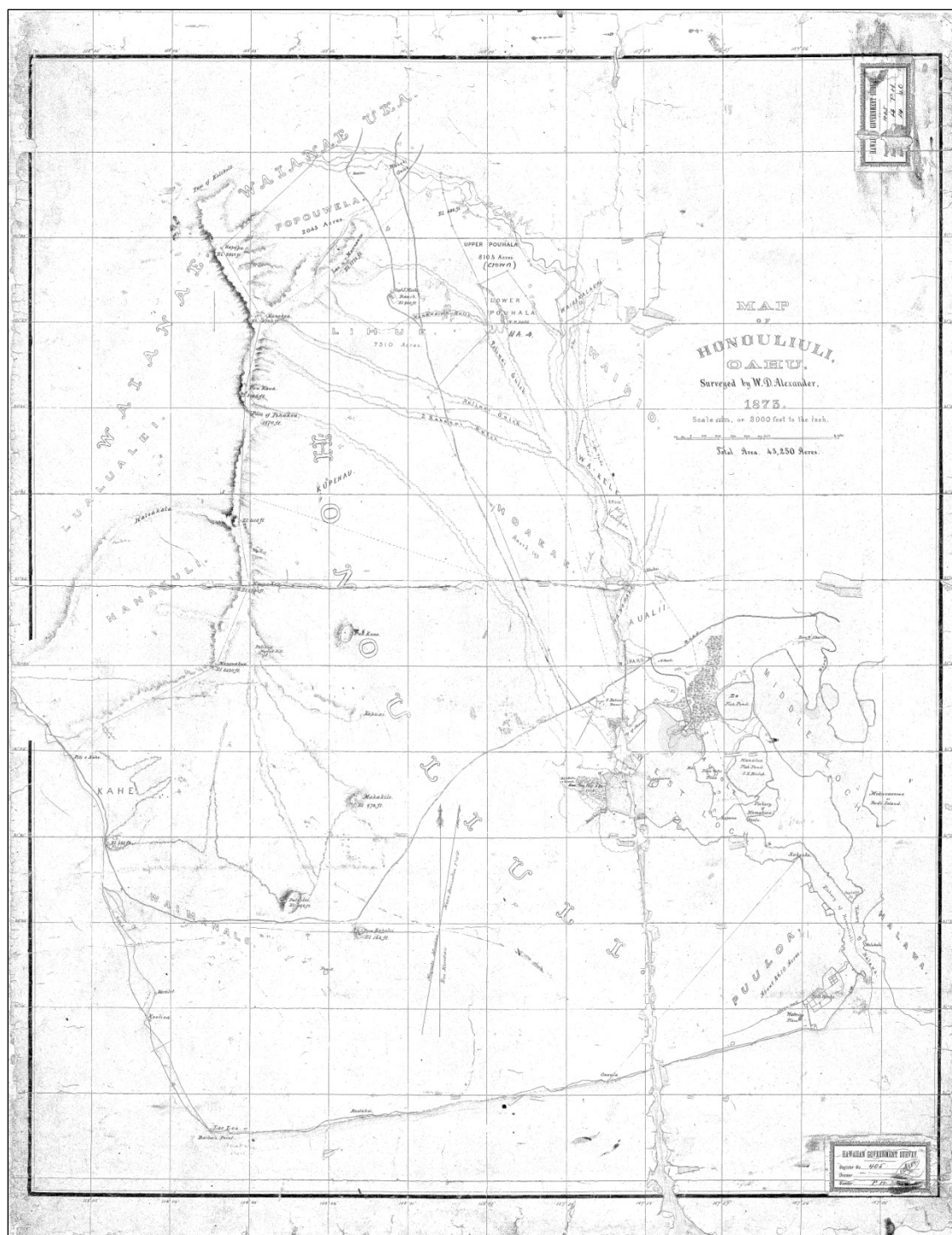
We found ourselves in a rectangular bay, or rather a lake with several arms, consisting of several deep bights. Two of the most important of these stretched to the northeast, while the one to the northwest cut the farthest....The soil in this region seemed at first sight to be exceptionally fertile, and the land consisted of meadows and *taro* and sugar [cane] fields....

We rowed to the end of the harbor of Oporooa, or the so-called Pearl River, and landed with the boats near a small Indian village with the name of Mannonco....In the meantime, we strolled through the surrounding land, which everywhere was very fertile, with cultivated fields of *tarro*, maize, and also sugar cane (Boelen 1988:64-65).

In an 1873 map, Honouliuli is depicted with numerous place names such as Puu Kuua, Puu Kapolei, Kapuai, Puu Kaua, an “Old Catholic Church”, salt ponds, Waioha, Kaheeka, Oneula, Milolii, Anue, a pond, and Laulaunui Island (Figure 6). It is interesting to note that while Pu‘uloa is the area adjacent to the entrance to West Loch, the map confirms that this passageway actually belongs to the “Fishery of Honouliuli” (Alexander 1873).

An 1878 map of “Honouliuli Taro Lands” illustrates the thriving cultivation of *kalo* in Honouliuli (Figure 7). Numerous family plots are mapped in this figure, as is an area on the west marked as “mud flats,” a road circling the land plots, as well as a wall, or “pa aina” which encloses several of the lots.

A map titled, “Coast of Oahu, from Windmill at Puuloa to Waimanalo” shows tents” a stone quarry and flag located along the western end of Honouliuli at Waimanalo (Figure 8). In addition to recording the shoreline type (“Sand” or “Rock”), this 1881 map also shows the location of “Anchors,” Barber’s Point, Laeloa, Kualakai, Oneula, a stone wall, and Puuloa.



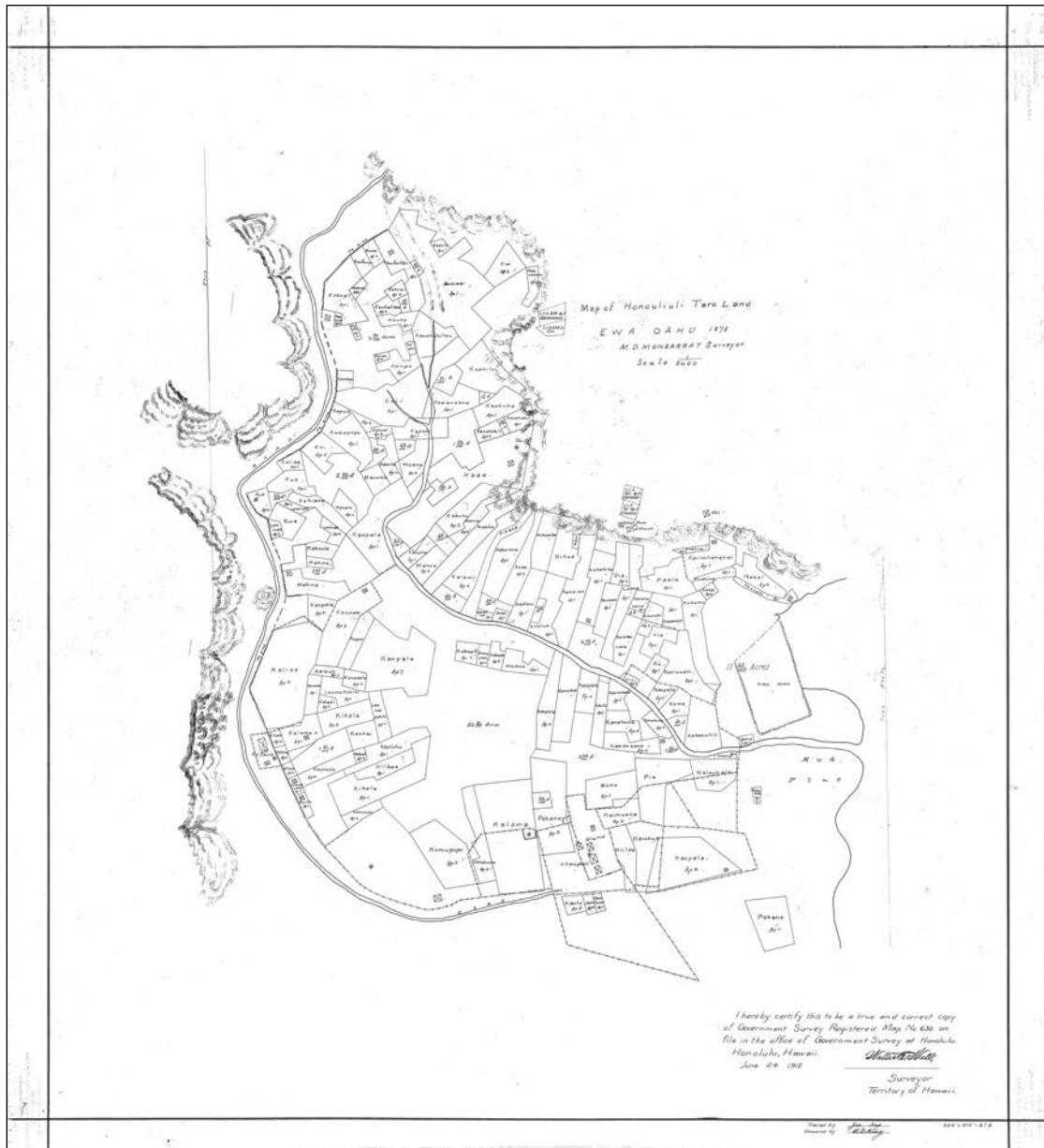


Figure 7. Map of Honouliuli Taro Lands (Monsarrat 1878).

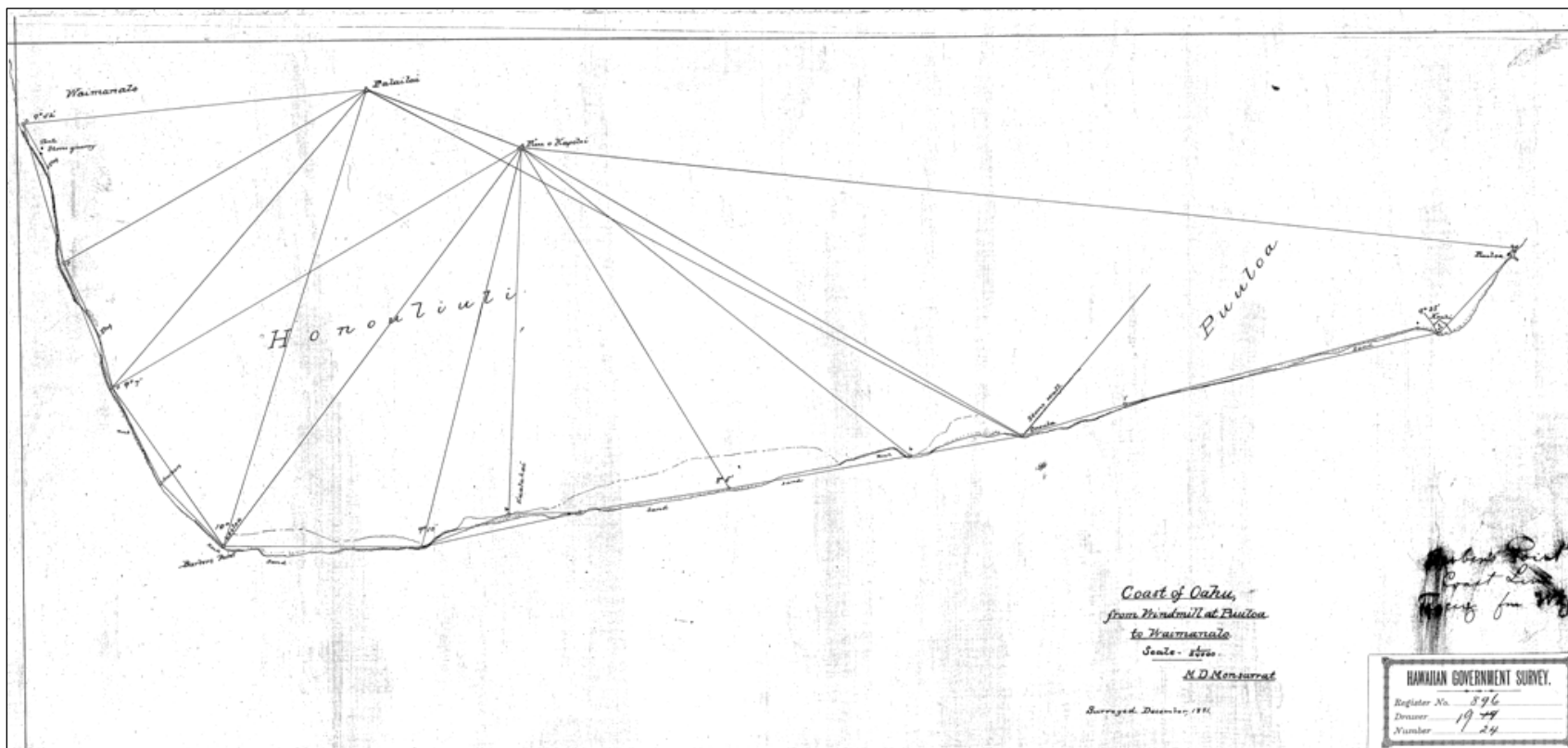


Figure 8. Coast of Oahu map (Monsarrat 1881).

An 1884 map of Barbers Point, shows depths and sea floor material of the waters off of Kalaeloa (Figure 9). While the map uses “Barbers Point” in its title, the location is noted with the traditional name of Kalaeloa. To the west of Kalaeloa is a place named Puhilele.

Power and Warfare in Honouliuli

Known for its bountiful resources which included fertile lands and well-stocked fishponds, the ‘Ewa area was a sought-after land for the *ali‘i*, and as a result, numerous battles ensued on these lands. One such example is the unfought battle of the Keahumoa Plain which involved Kualī‘i (ca. 1650) who was a celebrated *ali‘i*, skilled, and victorious in the art of warfare. This bloodless “battle” instigated by brothers Kapaahulani and Kamakaaulani resulted in Kualī‘i uniting all the islands (Fornander 1918, vol. IV:364).

Another battle known to have taken place on the ‘Ewa Plain was that of Mā‘ilikūkahi. During this battle, chiefs from the island of Hawai‘i, joined with *ali‘i* from Maui, waged war on O‘ahu *mō‘i*, Mā‘ilikūkahi. Fornander offers a genealogy of *ali‘i* preceding Mā‘ilikūkahi and follows with an account of the battle:

On Oahu, at the close of the migratory period, after the departure of *Laamaikahiki*, we find his son, *Lauli-a-Laa*, (88) Maelo, married to *Maelo*, the sixth in descent from *Maweke*, and daughter of *Kuolono*, on the *Mulielealii-Moikeha* line. They probably ruled over the Kona side of the island, while *Kaulaulaokalani*, on the *Maweke-Kalehenui* line, ruled over the Koolau side, and *Lakona*, also sixth from *Maweke*, on the *Mulielealii-Kumuhonua* line, ruled over Ewa, Waianae, and Waialua districts, and in this latter line descended the dignity of *Moi* of Oahu. Tradition is scanty as to the exploits of the Oahu *Mois* and chieftains, until *Haka* we arrive at the time of *Haka*, *Moi* of Oahu, chief of Ewa, and residing at Lihue. The only genealogy of this chief that I have, while correct and confirmed by others from *Maweke* to *Kapae-a-Lakona*, is deficient in three generations from *Kapae-a-Lakona* to *Haka*. Of *Haka's* place on the genealogy there can be no doubt, however, as he was superseded as *Moi* by *Mailikukahi*, whose genealogy is perfectly correct from the time of *Maweke* down, and conformable to all the other genealogies, descending from *Maweke* through his various children and grandchildren. Of this *Haka*, tradition records that he was a stingy, rapacious, and ill-natured chief, who paid no regard to either his chiefs or his commoners. As a consequence they revolted from him, made war upon him, and besieged him in his fortress, called *Waewae*, near Lihue. During one night of the siege, an officer of his guards, whom he had ill-treated, surrendered the fort to the rebel chiefs, who entered and killed *Haka*, whose life- was the only one spilt on the occasion. Tradition does not say whether *Mailikukahi* had a hand in this affair, but he was clamorously elected by the Oahu chiefs in council convened as *Moi* of Oahu, and duly installed and anointed as such at the *Heiau* (temple).

I have before (p. 70) referred to the expedition by some Hawaii chiefs, *Hilo-a-Lakapu*, *Hilo-a Hilo-Kapuhi*, and *Punaluu*, joined by *Luokoo* of Maui, which invaded Oahu during the reign of *Mailikukahi*. It cannot be considered as a war between the two islands, but rather as a (90) raid by some restless and turbulent Hawaii chiefs, whom the pacific temper of *Mailikukahi* and the wealthy condition of his island had emboldened to attempt the enterprise, as well as the *éclat* that would attend them if successful, a very frequent motive alone in those days. The invading force landed at first at Waikiki, but, for reasons not stated in the legend, altered their mind, and proceeded up the Ewa lagoon and marched inland. At Waikakalaua they met *Mailikukahi* with his forces, and a sanguinary battle ensued. The fight continued from there to the Kipapa gulch. The invaders were thoroughly defeated, and the gulch is said to have been literally paved with the corpses of the slain, and received its name, “Kipapa,” from this circumstance. *Punaluu* was slain on

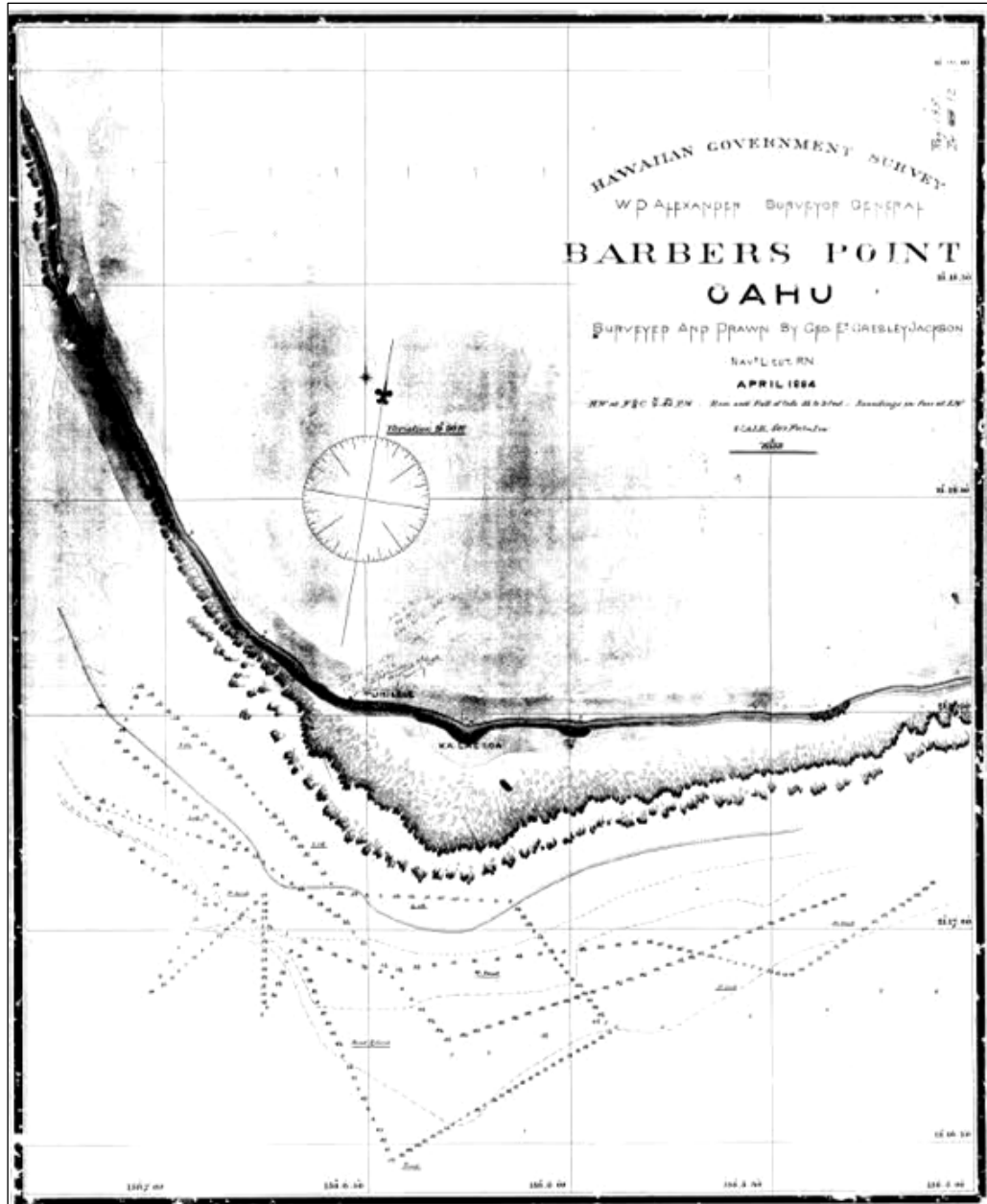


Figure 9. Hawaiian Government Survey map of Barber's Point (Jackson 1884).

the plain which bears his name, the fugitives were pursued as far as Waimano, and the head of *Hilo* was cut off and carried in triumph to Honouliuli, and stuck up at a place called *Poo-Hilo*.

Mailikukahi's wife was *Kanepukoa*, but to what branch of the aristocratic families of the country she belonged has not been retained on the legends. They had two sons, *Kalononui* and *Kalona-iki*, the latter succeeding his father as *Moi* of Oahu. (Fornander 1996:87–90)

Māhele Land Tenure and Ownership of Honouliuli and Kalaeloa

The change in the traditional land tenure system in Hawai‘i began with the appointment of the Board of Commissioners to Quiet Land Titles by Kamehameha III in 1845. The Great Māhele took place during the first few months of 1848 when Kamehameha III and more than 240 of his chiefs worked out their interests in the lands of the Kingdom. This division of land was recorded in the Māhele Book. The King retained roughly a million acres as his own as Crown Lands, while approximately a million and a half acres were designated as Government Lands. The Konohiki Awards amounted to about a million and a half acres, however title was not awarded until the *konohiki* presented the claim before the Land Commission.

In the fall of 1850 Legislature was passed allowing citizens to present claims before the Land Commission for lands that they were cultivating within the Crown, Government, or Konohiki lands. By 1855 the Land Commission had made visits to all of the islands and had received testimony for about 12,000 land claims. This testimony is recorded in 50 volumes that have since been rendered on microfilm. Ultimately between 9,000 and 11,000 *kuleana* land claims were awarded to *kama‘āina* totaling only about 30,000 acres and recorded in ten large volumes.

During the Māhele, 97 *kuleana* awards were given to applicants in Honouliuli by the Board of Commissioners to Quiet Land Titles. A majority of these claims were located in the wetland *lo‘i* and were approximately one acre in size, with all 97 awards totaling only 106.54 acres (Haun 1991:160). The majority of the land of Honouliuli, 43,250 acres, was granted to Kekau‘onohi, granddaughter of Kamehameha I, within LCA 11216.

In 1849, Kekau‘onohi sold the land of Pu‘uloa, now known as Pearl Harbor, to Isaac Montgomery, where it is believed that he and Kamehameha III established a successful salt works enterprise that shipped salt to the Pacific Northwest (Haun 1991:160).

Land also changed hands when Kekau‘onohi’s widow, Ha‘alele‘a died, and his second wife, Anadelia Amoe deeded the land to her sister’s husband, John H. Coney. In 1877, Coney subsequently sold Honouliuli to James Campbell. For approximately 43,640 acres of land, Campbell paid a sum of \$95,000 (Haun 1991:160). During the initial years of his ownership, Campbell utilized about 10,000 acres as a cattle ranch and also leased out land for rice cultivation, fishing rights to Pearl Harbor, as well as a lime quarry.

In 1889, Campbell leased Honouliuli for 50 years to Benjamin Dillingham, who established the Ewa Sugar Plantation in the lower portion of the *ahupua‘a*, and Oahu Sugar Company’s cane fields in the upper reaches of Honouliuli. Dillingham also built the Oahu Railway and Land Company in Honouliuli which extended out to Wai‘anae. In 1893, the first sisal was brought to Hawai‘i from Florida, and was grown in Honouliuli. The sisal plantation operated under the name of Hawaii Fibre Company in 1898 (Haun 1991:166).

A 1913 map of the fisheries from Pearl Harbor to Honolulu depicts the lands noted as “Honouliuli Fishery, Estate of James Campbell” (Figure 10). On the northeastern portion of Honouliuli Ahupua‘a shows Laulaunui Island and a pond, as well as Kapapahu Point.

The presence of government structures in Kalaeloa began in 1888 with the construction of the Barbers Point Lighthouse by the Hawaiian Government. The following work in the area consisted of the construction of the United States Coast and Geodetic Survey Magnetic Observatory. In the 1930s the military leased a 3,000 square foot area from Campbell Estate. This era brought much development of the areas infrastructure and capital improvements and included the creation of

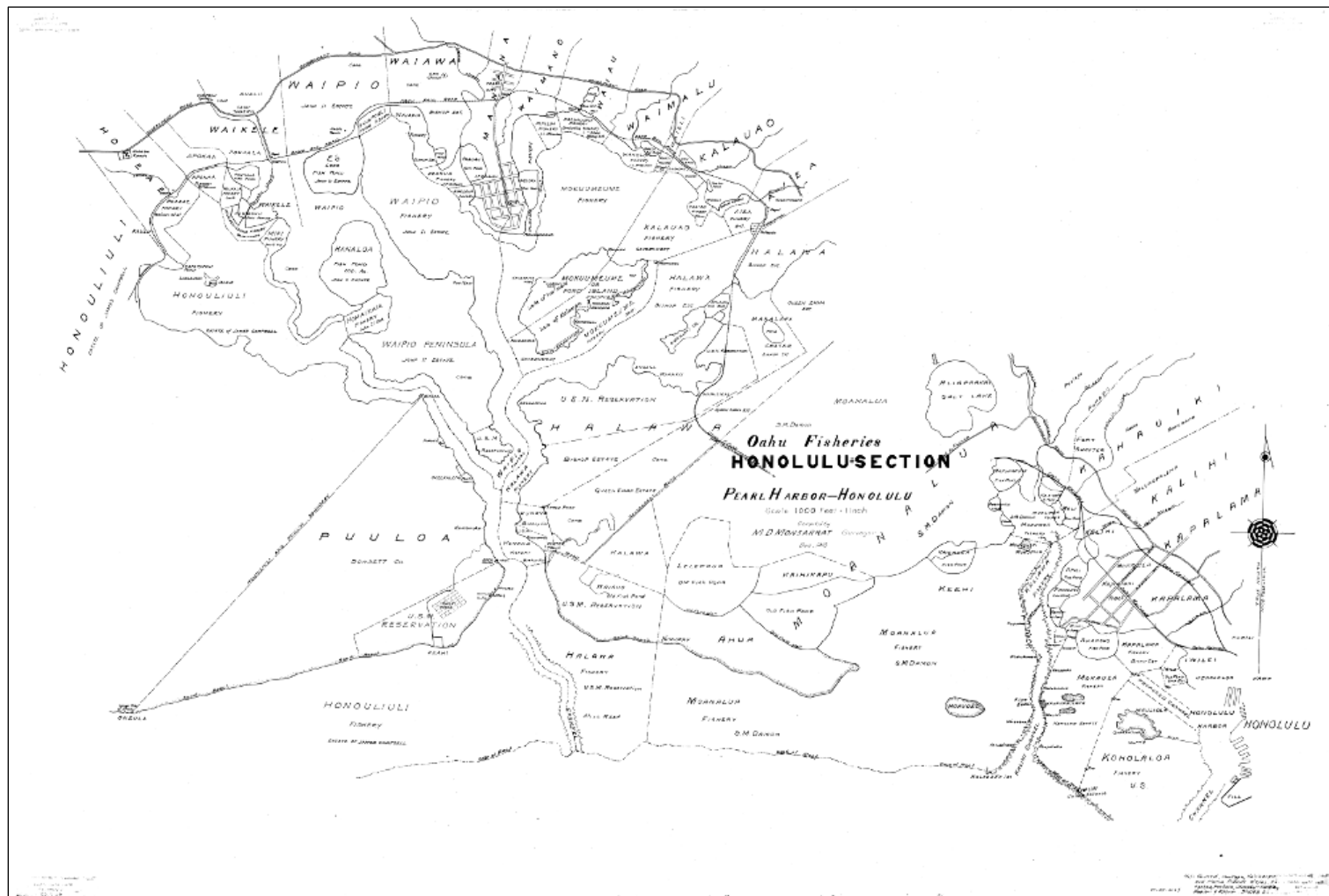


Figure 10. Oahu fisheries map (Monsarrat 1913).

approximately 18 miles of road built between 1935 and 1937 (Beardsley 2001:II.23). When the military's lease expired in 1940, the Navy acquired a lease of 3,500 acres on which the 'Ewa Marine Corps Air Station, and later, Barbers Point Naval Air Station would be built. The Following the Japanese bombings of Pearl Harbor on December 7, 1941, construction at the Air Station dramatically increased after the 'Ewa airstrip and majority of the planes were destroyed in the attack. Construction of the Naval Air Station at Barbers Point was completed on April 15, 1942.

Since World War II, Barbers Point Naval Air Station has played an integral role as a strategic military base and has provided a diverse range of functions including: an antisubmarine patrol, headquarters of the Pacific Airborne Barrier Command (1958-1965), guided missile units, and the Pacific Sound Surveillance System (Beardsley 2001:II.24). Over the course of time, activities associated with construction and the execution of these functions have had a major impact on cultural and natural resources. Some of these impacts include: a defensive line of barbed wire and gun emplacements along the coast, infrastructure developments of roads, sewers, water systems, utilities, electricity, gas, housing units, and general bulldozing and grading in surrounding areas (Hammatt 1984, Kelly 1991, Tuggle and Tomonari-Tuggle 1995 in Beardsley 2001:II.24).

In 1999 the Naval Air Station was closed by Base Realignment and Closure (BRAC) and was turned over to the State of Hawai'i and is currently titled the Kalaeloa Community Development District (Hawai'i Community Development Authority 2012).

A 1933 map depicts the location of the Honouliuli-Ewa Road Realignment (Figure 11). The 50-foot realignment extended from the Wai'anae Government Main Road to the Oahu Railway and Land Company's Main Track to Ewa Mill. Of note on this map are Land Commission Award and Royal Patent parcels with numbers and awardees/applicants.

Previous Archaeology

A wealth of archaeological studies have been conducted on the 'Ewa Plain, and within Honouliuli Ahupua'a. The following discussion provides information on archaeological investigations that have been performed in the immediate vicinity of the current area of study (Figure 12). Table 1 lists previous archaeological projects and their results for the larger 'Ewa plain region.

One of the earliest island-wide archaeological studies was conducted in 1930 by J. Gilbert McAllister (1933). In his study of O'ahu, he recorded numerous sites located on the 'Ewa Plain and specifically in the *ahupua'a* of Honouliuli. Sites consist of a variety of types, such as *heiau*, *ko'a*, fishponds, and ranching walls. The only site McAllister noted in the vicinity of the project area is Pu'u Kapolei Heiau (Site 138) (see previous discussion on Puuokapolei). Unfortunately, the *heiau* was destroyed by the time of McAllister's study (1933:108):

The stones from the heiau supplied the rock crusher which was located on the side of this elevation, which is about 100 feet away on the sea side. There was formerly a large rock shelter on the sea side where Kamapuaa is said to have lived with his grandmother.

Aside from the *heiau* mentioned above, McAllister described the plethora of sites on the 'Ewa plain within a single site number, Site 146 (1933:109):

Ewa coral plains, throughout which are the remains of many sites. The great extent of old stone walls, particularly near the Puuloa Salt Works, belongs to the ranching period of about 75 years ago. It is probable that the holes and pits in the coral were formerly used by the Hawaiians. Frequently the soil on the floor of larger pits was used for cultivation, and even today one comes upon bananas and Hawaiian sugar cane still growing in them.

They afford shelter and protection, but I doubt if previous to the time of Cook there was ever a large population here.

The area *mauka* of Malakole Road to the northwest of the current project area was the subject of many archaeological investigations (Lewis 1970, Barerra 1975, Sinoto 1976, Cleghorn and Davis 1990, Hammatt et al. 1994). The most extensive study (Sinoto 1976) provided a list of the 24 sites identified during previous investigations and identified 44 additional sites within four survey areas (A-D). The most common features were unmodified limestone sinkholes (n=80), walled sinks (n=17), rectangular enclosures (n=18), C-shaped enclosures (n=12), wall segments (n=14), and *ahu* (n=15+). Less frequent site/feature types included cairns, wall/enclosure complexes, an L-shaped wall, a ramp associated with a sinkhole, a filled sinkhole, railroad tracks, a crypt, platforms, and modified caves. Excavating a total of 27 sites, one significant discovery was the recovery of fossil bird bones in limestone sinkholes. Six fossil bird sites were recorded.

In 1991 a large scale archaeological survey was conducted at Barbers Point Naval Air Station, identifying 43 sites comprised of 385 features (Haun 1991) (Figure 13). Approximately three-quarters of these sites were deemed to be associated with the pre-Contact era and are “architecturally complex” suggesting permanent habitation. Within the 1991 survey, Site 1725 was located on the current subject property. The site consisted of 20 pre-Contact and historic features which range from walls, platforms and possible burial mounds to ranching walls. A later survey (Beardsley 2001) reassessed Site 1725 and documented 17 feature components, which include a platform, a terrace, six cairns, three wall alignments, two u-shaped walls, three enclosures, and a modified sinkhole. Full descriptions of the features of Site 1725 are provided in the Results section of this report.

A survey prior to Haun’s (1991) work recorded an historic homestead (Site NL-25) in the Site 1725 area (Tuggle 1983). The report of the original documentation of Site NL-25 could not be located, however the site is briefly mentioned in a later cultural resource summary (Tuggle and Tomonari-Tuggle 1994:62):

Two sites are recorded in this area. One (1725) is a Hawaiian complex, with a possible 19th century component. The second (NL-25) is a 20th century homestead.

The Hawaiian features of 1725 are in excellent condition and the site should be mapped and tested. In addition the features recorded by Tuggle (1983) need to be incorporated into the overall site boundary.

The homestead should be mapped and photographed.

Inventory survey was conducted for 345 acres just west of the current project area (McDermott et al. 2006). Findings included three previously identified historic sites (plantation-era drainage channel, and O.R.&L. railroad right-of-way) and three unrecorded sites including pre- and post-Contact stacked stone walls, mounds and enclosures, and sinkhole features.

Settlement Pattern

Based on a review of previous archaeological studies and examination of both pre- and post-Contact Hawaiian history, settlement patterns for the Honouliuli area and larger ‘Ewa Plain can be surmised. Synthesized with Cordy’s (1993) model of O‘ahu’s sociopolitical model, Beardsley (2001:III-8, III-9) summarizes the following settlement pattern for Honouliuli:

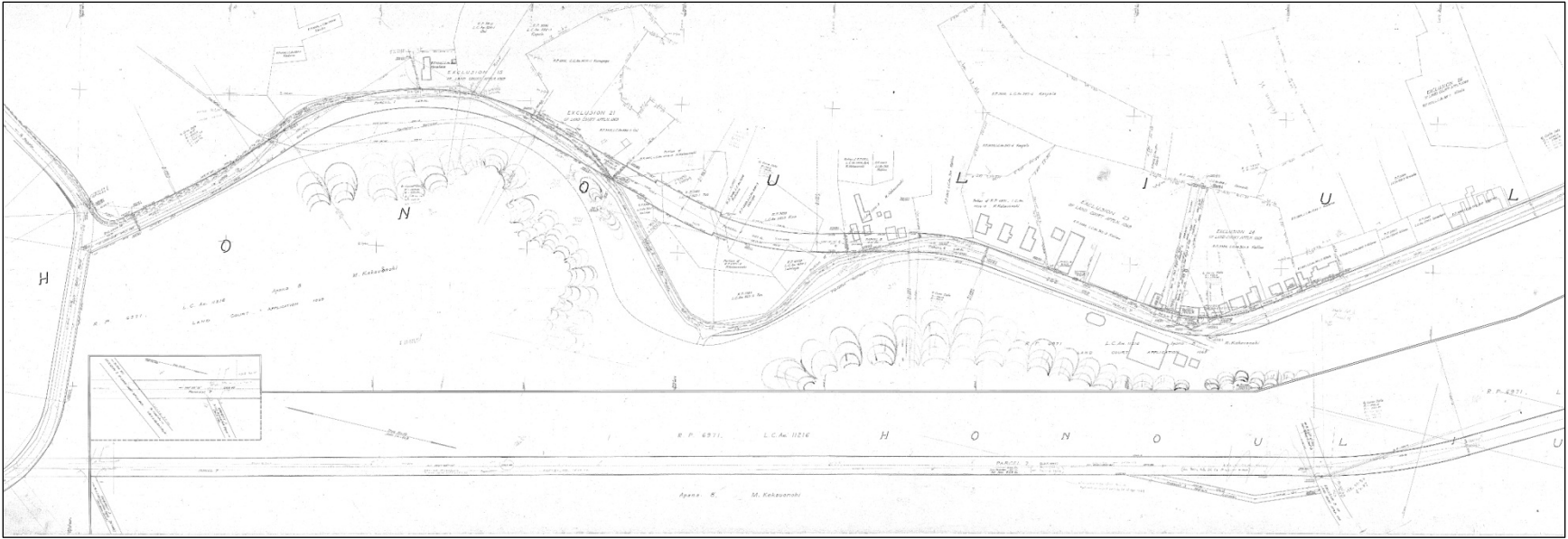


Figure 11. Portion of the Honouliuli-Ewa road realignment map (Evans 1933).

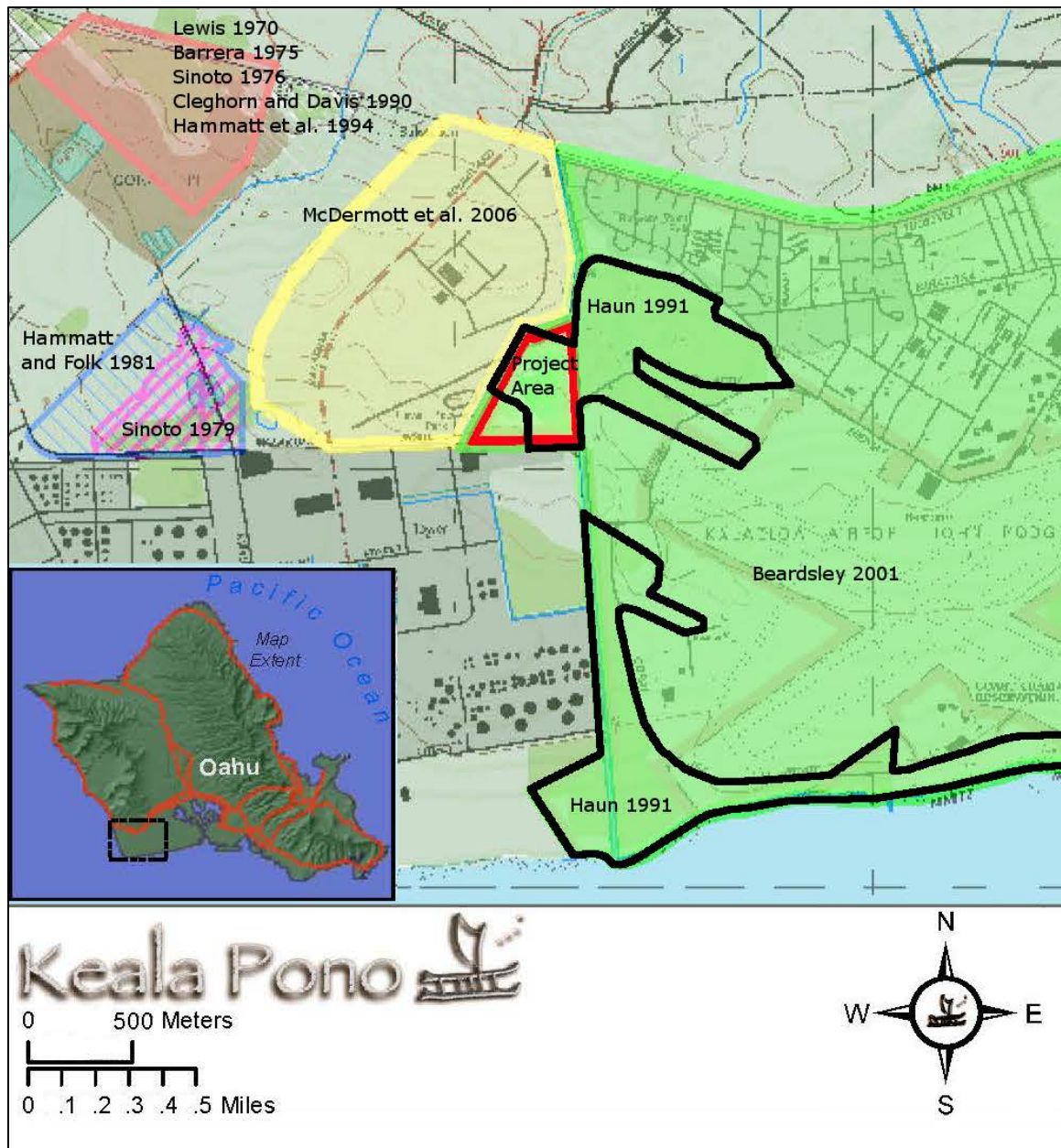


Figure 12. Previous archaeological studies in the vicinity of the project area.

Table 1. Previous Archaeology on the ‘Ewa Plain

Author and Year	Location	Work Completed	Findings
Stokes 1909	Pearl Harbor	Examination of Fishponds	Recorded fish traps, ponds, and fishing shrines of Pearl Harbor.
McAllister 1933	Island of Oahu	Archaeological Survey	McAllister recorded and examined 384 archaeological sites on O‘ahu, many of these located in the ‘Ewa District. Site types include <i>heiau</i> , enclosures, and fishpond.
Kikuchi 1959	Standard Oil refinery	Burial Disinterment	Kikuchi removed 12–16 human burials which were located in a limestone sinkhole prior to the construction of the Standard Oil refinery (noted in Haun 1991:9–10)
Soehren 1962	Barbers Point, Naval Air Station	Burial Documentation	A single burial was recorded as a “second interment” and was found in a sinkhole near house sites and modified pits.
Lewis 1970	Area <i>mauka</i> of Malakole Road	Archaeological Survey	Documented were house sites and compounds, mounds, <i>ahu</i> , modified pits and walls.
Barrera 1975	Barbers Point, Naval Air Station	Archaeological Reconnaissance	A total of 24 sites were located within a 900-acre area, nine of which were re-identified from Lewis’ studies. Site types include house sites, sinkholes, walls, cairns, enclosures, shelters, a terrace, midden deposit, a paved area, a burial cave and many mounds.
Sinoto 1976	Barbers Point, Naval Air Station	Archaeological Survey and Excavations	Sinoto provided a list of sites identified with Lewis' and Barrera's investigations and identified 44 additional sites within four survey areas (A–D). The most common features were unmodified limestone sinkholes (80 total), walled sinks (17), rectangular enclosures (18), C-shaped enclosures (12), wall segments (14), and <i>ahu</i> (15+). Less frequent site/feature types included cairns, wall/enclosure complexes, an L-shaped wall, a ramp associated with a sinkhole, a filled sinkhole, railroad tracks, a crypt, platforms (2) and modified caves (3). Excavating a total of 27 sites, one significant discovery was the recovery of fossil bird bones in limestone sinkholes. Six fossil bird sites were recorded.
Sinoto 1978	Barbers Point, Harbor	Archaeological and Paleontological Excavations	A total of 18 sites were excavated, five of them being archaeological sites which produced portable artifacts, midden, soil, and land snail samples. Artifacts include basalt tool fragments, modified bird bone, polished hematite and volcanic glass.
Sinoto 1979	Barbers Point, Naval Air Station	Archaeological Survey and Excavations	Survey of an 80 acre parcel southeast of the area Sinoto surveyed in 1976 revealed sites with less frequency and complexity than the previous study. Site/feature types included: c-shapes, <i>ahu</i> and modified natural features.
Hammatt and Folk 1981	Barbers Point, Deep Draft Harbor	Archaeological and Paleontological Investigations	Salvage excavations and paleontological studies at 26 sites.

Table 1. (cont.)

Author and Year	Location	Work Completed	Findings
Cleghorn and Davis 1990	Barbers Point Deep Draft Harbor	Archaeological and Paleontological Investigations	75 sites located within the 89 acre survey area. Habitation sites and culturally-modified sinkholes were documented.
Charvet-Pond et al. 1991	Ko‘olina	Archaeological and Paleontological Excavations	The first of four volumes, this study identifies both archaeological and paleontological sites in the area.
Folk 1991	Honouliuli, Proposed Kapolei Business/Industrial Park	Archaeological Reconnaissance	As a supplement to an archaeological assessment, this study identified one site, Site 2722.
Hammatt et al. 1991	Maka‘iwa Hills	Archaeological Inventory Survey	Within the approximately 1,915 acre parcel, 34 sites were recorded and consisted of permanent and temporary habitation structures, agricultural features (terraces and mounds), rock shelters, a possible rock shelter quarry, <i>ahu</i> , petroglyphs and historic features associated with the Ewa Plantation Co.
Haun 1991	Barbers Point, Naval Air Station	Archaeological Survey	Survey of 1,230 acres recorded 43 sites comprised of 385 features. Three-quarters of sites were determined to be pre-Contact, many of which are “architecturally complex” suggesting permanent habitation.
Burgett and Rosendahl 1992	Barbers Point, Naval Air Station: Contaminated Soil Stockpile Remediation Facility	Archaeological Inventory Survey	Within the 17 acre project area, 21 sites were identified, comprised of more than 71 features. Feature types included: mounds, outcrops, modified sinkhole, wall, terrace, cairn, enclosure, pavement, platform, alignment, cave, and cupboard. Features are associated with agricultural, habitation, burial, marker, and possible storage functions.
Denham and Kennedy 1992	The Ewa Beach International Golf Club	Archaeological Preservation Plan	Outlines a preservation plan for 11 sites which include sinkholes, a residential complex, a religious site, a raised reef environment, and a habitation site.
Erkelens 1992	Barbers Point, Naval Air Station	Archaeological Survey	Survey report included detailed mapping of Site 1719, as it was described in Haun (1991). The scope included 5 features which consisted of enclosure, c-shape, and mound features, as well as a sinkhole and cairn (possible grave). Additional features were encountered during this survey, however, but they were not included in Haun’s survey and were not mapped.

Table 1. (cont.)

Author and Year	Location	Work Completed	Findings
Folk 1992	Barbers Point, Naval Air Station	Archaeological Subsurface Testing	Testing within a beach berm, a cultural layer was recorded.
Goodman et al. 1993	Pu'uloa	Archaeological Reconnaissance	Within the 20 acre parcel, evidence of sugarcane cultivation was encountered. There was an absence of cultural material or surface features.
Jones 1993	Barbers Point, Naval Air Station	Archaeological Inventory Survey	A total of 274 pre-Contact and historic archaeological features were identified and included: linear alignments, mounds, enclosures, sinkholes, cairns, modified outcrops, platforms, a possible hearth, historic wall segments, an irrigation ditch, concrete cistern and stone cattle tank. This survey re-identified 5 sites recorded by Bishop Museum (Haun 1991): Sites 50-80-08-1718, -1719, -1720, -1723, and -1726.
Nakamura et al. 1993	Makakilo, Honouliuli	Archaeological Inventory Survey	Survey of the 87 acre project area documented one historic site and a portion of the Ewa Plantation irrigation system.
Hammatt 1994	Honouliuli, Estate of James Campbell	Burial Treatment Plan	Preservation of burial in place within burial cave.
Hammatt et al. 1994	Barbers Point Harbor	Archaeological Inventory Survey	This 56.5-acre survey associated with the proposed Harbor Expansion project identified 37 sites including habitation, sinkholes, mounds, walls, historic occupation sites. Test excavations were conducted at 21 features. Radiocarbon dating was also performed.
Kaneshiro and Schilz 1994	Barbers Point, Naval Air Station	Review of Previous Archaeological Survey	Provides recommendations to the management of cultural resources.
Tuggle and Tomonari-Tuggle 1994	Barbers Point, Naval Air Station	Summary and Assessment of Cultural Resources, Inventory Research Design	Findings of previous studies summarized.
Davis et al. 1995	Barbers Point, Naval Air Station, Deep Draft Harbor	Archaeological and Paleontological Investigations	This study identified 19 sites.
Dye 1995	Barbers Point, Naval Air Station, Nimitz Beach	Inadvertent Discovery of Human Remains	Partially exposed cranium and cultural deposit were recorded in a dune at Nimitz Beach and make up part of Site 2220. Radiocarbon dating returned a date of 270 +/-110 BP. Nearby was a single, flexed burial.

Table 1. (cont.)

Author and Year	Location	Work Completed	Findings
Franklin and Goodfellow 1995	Ewa Marina	Archaeological Data Recovery	Investigations consisted of 92 test units in 67 features in 22 sites, radiocarbon dating, pollen, and macrofloral analyses were also performed.
Jourdane 1995	"Paradise Cove," Honouliuli	Inadvertent Discovery of Human Remains	The burial of at least one individual was identified during excavation for a gas line trench.
Tuggle 1995	Barbers Point, Naval Air Station	Archaeological Inventory Survey	Within an approximately 60 acre area, 274 features were identified, with 33 features within 5 sites having been previously identified within or adjacent to the current study. Feature types consisted of mounds, enclosures, c-shapes and modified sinkholes attributed to the pre-Contact and early post-Contact periods.
Wulzen and Rosendahl 1995	West Loch, Barbers Point and Kaneohe	Archaeological Assessment	This report recorded 19 sites (28 features) which were all military related. No state site numbers were assigned
Corbin et al. 1996	Laulaunui Island and Fishpond	Field Reconnaissance	The report concludes Laulaunui Island and Fishpond has potential to be used as an educational site. It also notes that much work would be needed to restore the area for use.
Schilz and Landrum 1996a	Barbers Point, Naval Air Station	Archaeological Test Excavations	Conducted at the Shipboard Electronic Systems Evaluation Facility (SESEF), no historic sites were encountered.
Schilz and Landrum 1996b	Barbers Point, Naval Air Station	Archaeological Monitoring Report	During subsurface excavations, the burial of a Polynesian male was encountered.
Spear 1996	Kapolei	Cultural Resources Review	No sites were encountered as land was previously utilized as for sugar cane cultivation.
Trembly 1995	Barbers Point, Naval Air Station	Osteological Report	This report recorded the inadvertent discovery of a human burial encountered exposed on a sand dune. This pre-Contact burial is believed to be a young child (2-3 years old) and was recorded as Site 2220.
Wickler et al. 1996	Barbers Point, Naval Air Station	Cultural Resource Inventory	Within a 59-acre area, this study mapped and tested 2 Hawaiian site complexes and included detailed mapping of 22 additional sites which consisted of residential <i>kauhale</i> sites with associated agricultural features, historic military sites, early 20th c. sites.
Hammatt 1997	Pu'uloa, Honouliuli	Archaeological Inventory Survey	Survey of this 0.8-acre parcel did not reveal any archaeological sites.
Hammatt and Chiogioji 1997	Honouliuli	Archaeological Reconnaissance Survey	Survey of a 231.4-acre corridor did not directly impact the structures of the 'Ewa Villages Historic District or the O.R.&L. Railway. No further archaeological work was recommended.

Table 1. (cont.)

Author and Year	Location	Work Completed	Findings
Jensen and Head 1997	Pu'uloa, Honouliuli, Waipi'o, Waikele	Archaeological Reconnaissance Survey	During this survey of the Naval Magazine Lualualei NAVMAG-West Loch, 281 sites were recorded within the 1,483-acre area.
Rosendahl 1997	Ewa Marina, Honouliuli	Archaeological Monitoring Report	Records the monitoring of the grubbing and grading activities in the area of the wetlands and the flagging of specified sites for preservation.
Tuggle and Tomonari-Tuggle 1997	Barbers Point, Naval Air Station	Archaeological and Cultural Synthesis	Provides background research of previous archaeological and cultural studies within Barbers Point Naval Air Station and also provides framework and research design for an inventory.
Dega et al. 1998	University of Hawai'i, West O'ahu Campus	Archaeological Inventory Survey	No traditional sites were recorded during this 1,000-acre survey, however, present were portions of the Waiahole Ditch System.
Goodfellow et al. 1998	West Loch Estates	Archaeological Data Recovery	Subsurface excavations consisted of: 38 test units, 250 backhoe trenches, and 6 pollen cores which documented 68 subsurface features. Burials encountered were disinterred.
Wulzen and Rosendahl 1998	Barbers Point, Naval Air Station, Nimitz Beach	Archaeological Boundary Assessment and Limited Data Collections	A total of 59 shovel tests were excavated along Nimitz Beach and identified 5 distinct, discontinuous horizontal site areas with subsurface deposit.
Hammatt and Shideler 1999	Waimanalo Gulch	Archaeological Inventory Survey	Within the 122.7-acre area, remnants of Battery Arizona and modern rock shrine were found outside of expansion area, but within landfill property.
Magnuson 1999	Farrington Highway	Archaeological Reconnaissance Survey	Associated with the Farrington Highway Expansion between Golf Course Road and Ft. Weaver Rd. Six bridges were identified, none of them considered significant.
McDermott et al. 1999	Kalaeloa	Archaeological Data Recovery	This project examined archaeological sites within the 56-acre Barbers Point Harbor Expansion Area, focusing on the temporal use of traditional habitation sites and the relationships between settlement and avifaunal extinction.
Beardsley 2001	Barbers Point, Naval Air Station	Intensive Archaeological Survey and Testing	This study investigated 63 sites, as recommended in a previous study by IARII (Tuggle and Tomonari-Tuggle 1995). A total of 254 test units were excavated and "confirmed prehistoric Hawaiian occupation and use within the area of Naval Air Station Barbers Point."
Ostroff et al. 2001	Pu'u Kapolei/Fort Barrette	Archaeological Inventory Survey	Survey of this 23-acre parcel identified historic structures associated with Fort Barrette, as well as a mound and petroglyph.

Table 1. (cont.)

Author and Year	Location	Work Completed	Findings
Tulchin et al. 2001	Honouliuli Gulch	Archaeological Inventory Survey	Associated with the proposed 'Ewa Shaft Renovation Project, this survey identified one new site, Site 6370.
Wolforth 2001	'Ewa Plain to West Loch	Archaeological Report	Wolforth utilizes the pre-Historic archaeological record, which spans over 6,000 years, to examine the changing shoreline at West Loch of Pearl Harbor. Identified and delineated buried pondfields across the Honouliuli Stream delta. One habitation site (Site 3321) was recorded and subsurface excavations were performed.
Davis and McGerty 2002	Honouliuli to Mānoa	Archaeological and Cultural Assessment	Assessment along bus rapid transit corridor.
Magnuson and Tomonari-Tuggle 2002	Honouliuli, Hoae'ae, Waikele, Waipio, Waiawa, Waimano	Historical and Archaeological Assessment	Assessment associated with the proposed Waiau Fuel Pipeline
Sinoto and Titchenal 2002	Barbers Point, proposed Desalination Facility	Archaeological Inventory Survey	This survey identified three new archaeological sites.
McIntosh and Cleghorn 2003	Ewa Gentry Makai Development	Archaeological Survey	No new sites were identified within the 284 acre parcel.
O'Hare and Hammatt 2003	Bathhouse at Kalaeloa Campsite, Nimitz Beach	Archaeological Assessment	No intact cultural deposits or burials were encountered. However, "intact yet discontinuous" cultural deposits are located west and east of the area of study suggest original cultural deposits and burials may exist in central area of Nimitz Beach, near area of study.
McDermott et al. 2006	Malakole Rd. and Kalaeloa Blvd.	Archaeological Inventory Survey	Inventory of 345 acres associated with the proposed Kapolei Harborside Center revealed three previously identified historic sites (plantation-era drainage channel, and O.R. & L. railroad right-of-way) and three unrecorded sites including pre- and post-Contact stacked stone walls, mounds and enclosures, and sinkhole features.
Cleghorn and Kahahane 2008	Yorktown, Hancock and Bunker Hill Streets	Archaeological Assessment	Negative findings.

Table 1. (cont.)

Author and Year	Location	Work Completed	Findings
Dye et al. 2008	Pearl Harbor National Wildlife Refuge, in Waiawa, Honouliuli and Kalaeloa	Historic Properties Assessment	No historic properties recorded.
Pacific Legacy 2009	Yorktown Road (within area of former Barbers Point, Naval Air Station)	Monitoring Report	During construction, three “potential sinkholes” were encountered, as were foundations of a late-historic military structure.
Tome and Spear 2010	Kalaeloa Airport (within area of former Barbers Point, Naval Air Station)	Monitoring Report	Negative findings.
Gosser et al. 2011	Saratoga Ave. and Malakole St.	Supplemental Archaeological Inventory Survey	Survey of 80.5 acres encountered 16 sites, four of which were previously identified. Thirteen sites which were previously known were not located. They are believed to have been destroyed during grubbing and grading activities.



Figure 13. Sites identified by Haun (1991:33). Later annotations presented as found in the SHPD library copy of the report.

Pre-AD 1000 – During this period political organization of the islands consisted of small chiefdoms. Temporary habitations were located in resource rich areas. Permanent settlements were clustered around prime agricultural land; these prime agricultural lands were probably located in well-watered valleys. For the ‘Ewa Plain, this means that only temporary habitations should be found in the project area, located to exploit rich marine resource areas and possible to exploit bird populations. Permanent settlements might have been established in the Honouliuli floodplain.

AD 1000 to 1300s – The political organization of the island coalesced into three independent districts: Greater ‘Ewa, Ko‘olau and Kona. Temporary settlements were established for the first time in inland garden areas, associated with dryland agriculture; permanent habitation expanded into new areas. For ‘Ewa, the Honouliuli floodplain would have been the focus of permanent habitation. Settlement in the project area focused on exploitation of marine resources, but was also associated with permanent inland settlement.

AD 1400 to 1500s – Full development of class stratification occurred during this period, together with the unification of the entire island under one chief. Permanent habitations expanded in all areas; temporary habitations in inland garden areas were replaced by permanent habitations. For the project area, permanent habitations, possibly associated with rectangular enclosures, developed.

AD 1600 to 1778 – District chiefs fought for control over the resources of the islands. For ‘Ewa, the population density was still concentrated on the irrigated Honouliuli Valley floodplain. Other population concentrations occurred around Pearl Harbor and at the base of the Wai‘anae Range. Scattered permanent habitation in the project area, possibly on a seasonal basis, or only in years of high rainfall, might have also occurred.

Post-Contact – Scattered Hawaiian occupations continued across the ‘Ewa Plain and in the project area until the mid-19th century. In the later historical period, populations were low and consisted of scattered families with habitation sites along the coast for marine exploitation and inland houselots with possible walled agricultural areas.

Summary and Anticipated Finds

Through examination of traditional and historic land-use for Honouliuli as demonstrated in *mo‘olelo*, historic literature, and archaeological investigations, this area was once a land rich in natural, as well as cultural resources. *Mo‘olelo* and *‘ōlelo no‘eau* reveal a place blessed by the gods, abundant in natural resources of the land and sea. Known as an *ali‘i* stronghold, as well as a vacationing spot of the royalty, Honouliuli was a significant *ahupua‘a* of importance. Previous archaeological studies express the complexity of Hawaiian settlement of the area through the diversity and range of site types which include modified sinkholes utilized for habitation and burials, religious sites such as *heiau* and *ko‘a*, agricultural sites, walls, mounds, enclosures, *iwi kupuna*, as well as the remains of extinct animal species. Also unique to this area are the historic resources associated with cattle ranching, sugar and sisal plantations, transportation and military use.

Based on this cultural and historic background presented, anticipated archaeological finds during the current inventory-level survey include features associated with Site 1725 which consist of pre- and post-Contact enclosures, pavements, foundations, cairns, a terrace, wall alignments, U-shaped walls, mounds, burials, a platform, as well as sinkholes that were used as planting areas, for burial or habitation, and may contain extinct faunal remains. Historic sites that may be encountered include features associated with military activities such as paving and foundations, walls, bunkers,

roads, sewers, water systems, housing, mounds, modified sinks, boundary markers and/or fencing materials, trails and areas which may have been graded and bulldozed. Remnant features associated with ranching may include walls, wall segments, L- and C-shaped walls, mounds, enclosures, platforms, modified sinks, cairns, trails and boundary indicators such as fence supports.

METHODS

Pedestrian survey was conducted between May 19, 2012 and May 27, 2012, with four field days completed during that time. An additional day of mapping was added on November 2, 2012. The field crew consisted of Windy McElroy, PhD, Jeffrey Lapinad, and Dietrix Duhaylonsod, BA. McElroy also served as Principal Investigator, overseeing all aspects of the project. A site blessing was conducted on May 19, 2012 by Keahi Renaud, MA. Staff of Keala Pono, Mana Elua, and Ho‘omana Electric were among those in attendance.

Community consultation was conducted on April 24, 2012 by Kali Watson of the Hawaiian Community Development Board. A presentation was given at the Nanakuli Hawaiian Homestead Community Association meeting regarding the proposed solar farm to be constructed on the subject property. The presentation was well received, and the Nanakuli Hawaiian Homestead Community Association Board voted unanimously in support of the project.

Keala Pono Archaeological Consulting has also consulted with Patti Barbee and Kali Watson of Mana Elua throughout the duration of the project. This was done through phone calls, emails, and meetings between April 2012 and June 2012. Mana Elua was not able to provide any information on historic usage of the property or the presence of any potential undocumented archaeological sites.

In addition, Windy McElroy of Keala Pono and Patti Barbee of Mana Elua met with Deona Naboa and Pua Aiu of SHPD on April 26, 2012 to discuss the project. The SHPD staff requested a full inventory survey to be conducted of the entire parcel, as new methods and technology have been developed since the prior surveys were done (Haun 1991, Beardsley 2001). The results of that survey are presented here.

For the pedestrian survey, the ground surface was visually inspected for surface archaeological remains, with archaeologists spaced 5–10 m apart. Of the 43 acre survey block, 100% was covered on foot, although heavy vegetation impaired visibility of the ground surface in almost the entire project area. Vegetation included *kiawe*, *koa haole*, and thick grass (Figure 14).

Archaeological sites were described, digitally photographed, and marked with pink flagging tape. Keala Pono transect boundaries were marked with biodegradable red flagging tape. Sites were recorded with a 3 m-accurate Garmin GPSmap 62st and mapped with tape and compass.

Subsurface testing was conducted on four of the ten newly-identified features. All test units were excavated by hand, with trowel and whisk broom, within natural stratigraphic layers. Vertical provenience was measured from the surface and all sediment was dry screened through ¼ inch mesh. Wall profiles were drawn and photographed, and sediments were described using Munsell soil color charts and a sediment texture flowchart (Thien 1979). All test units were backfilled after excavation.

The scale in all field photographs is marked in 10 cm increments. The north arrow on all maps points to magnetic north. Throughout this report rock sizes follow the conventions outlined in *Field Book for Describing and Sampling Soils*: Gravel <7 cm; Cobble 7–25 cm; Stone 25–60 cm; Boulder >60 cm (Schoeneberger 2002:2–35).



Figure 14. South side of the parcel, showing vegetation typical throughout the project area.

RESULTS

Pedestrian survey of the 43-acre property located and reassessed a previously identified site, identified new features of that site, and attempted to locate a second previously identified site. State Site 50-80-12-1725, a pre-Contact to early historic habitation/agriculture/burial/ranching complex was re-located. A total of ten new archaeological features were found in the area, and should be included within the boundaries of Site 1725. Site NL-25, a 20th century homestead, was not found.

In addition to these archaeological features, two natural sinkholes were noted during the survey. The sinkholes showed no evidence of human modification or use, thus they are not considered archaeological sites.

Much of the property was found to be disturbed. Large trash piles, bulldozer push piles, and concrete slabs occur throughout the parcel, and paved roads with derelict tires and other refuse occur in the northern reaches of the property (see Modern Disturbance section).

Previously Recorded Features

Features previously recorded on the property include 17 components of Site 1725 as well as Site NL-25, a 20th century homestead.

Site 1725 was first documented in a Bishop Museum survey that recorded the site as a complex of burials, terraces, walls, sinkholes, foundations, enclosures, pavements, cairns, and a c-shaped structure (Haun 1991). A later survey identified a total of 17 feature components for Site 1725 (Beardsley 2001). These include one platform (Feature S), one terrace (Feature K), six cairns (Features J, M, N, P, Q, and V), three wall alignments (Features B, C, and G), two u-shaped walls (Features O and U), three enclosures (Features H, I, and L), and a modified sinkhole (Feature D). The features were mapped, ten test units were excavated, and two radiocarbon dates obtained (Beardsley 2001). In all, Site 1725 was described as a traditional to early historic multi-use complex, with functions including habitation, agriculture, burial, and historic ranching (Beardsley 2001:IV.56).

The current study re-located each feature, checked the previous descriptions for accuracy, and assessed the condition of each feature. It was found that all features were described accurately, except for a few details as noted in the descriptions below. In addition, some of the features were misplaced on the overall map of the site (Figure 15). Features B, I and G cluster closer together than depicted on the Beardsley (2001) map, Feature H is farther from this cluster than originally portrayed, and Feature N is southwest of Feature M (Figure 16). Figure 17 shows the placement of features as documented by GPS, and Figure 18 shows all features in the project area as currently mapped. The original feature descriptions and maps are reproduced below in full, along with current photographs and assessments.

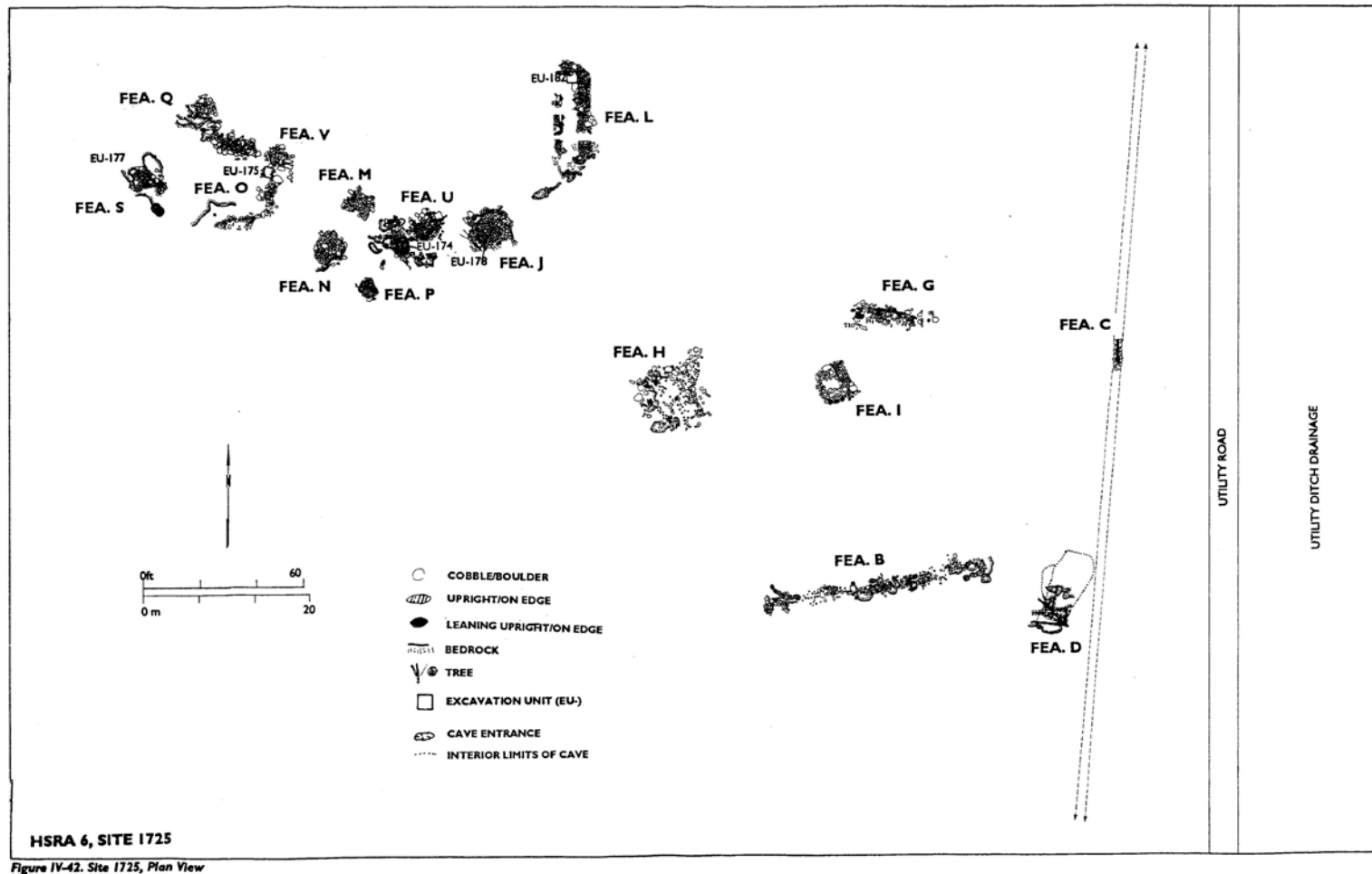


Figure 15. Site 1725, as mapped by Beardsley (2001).

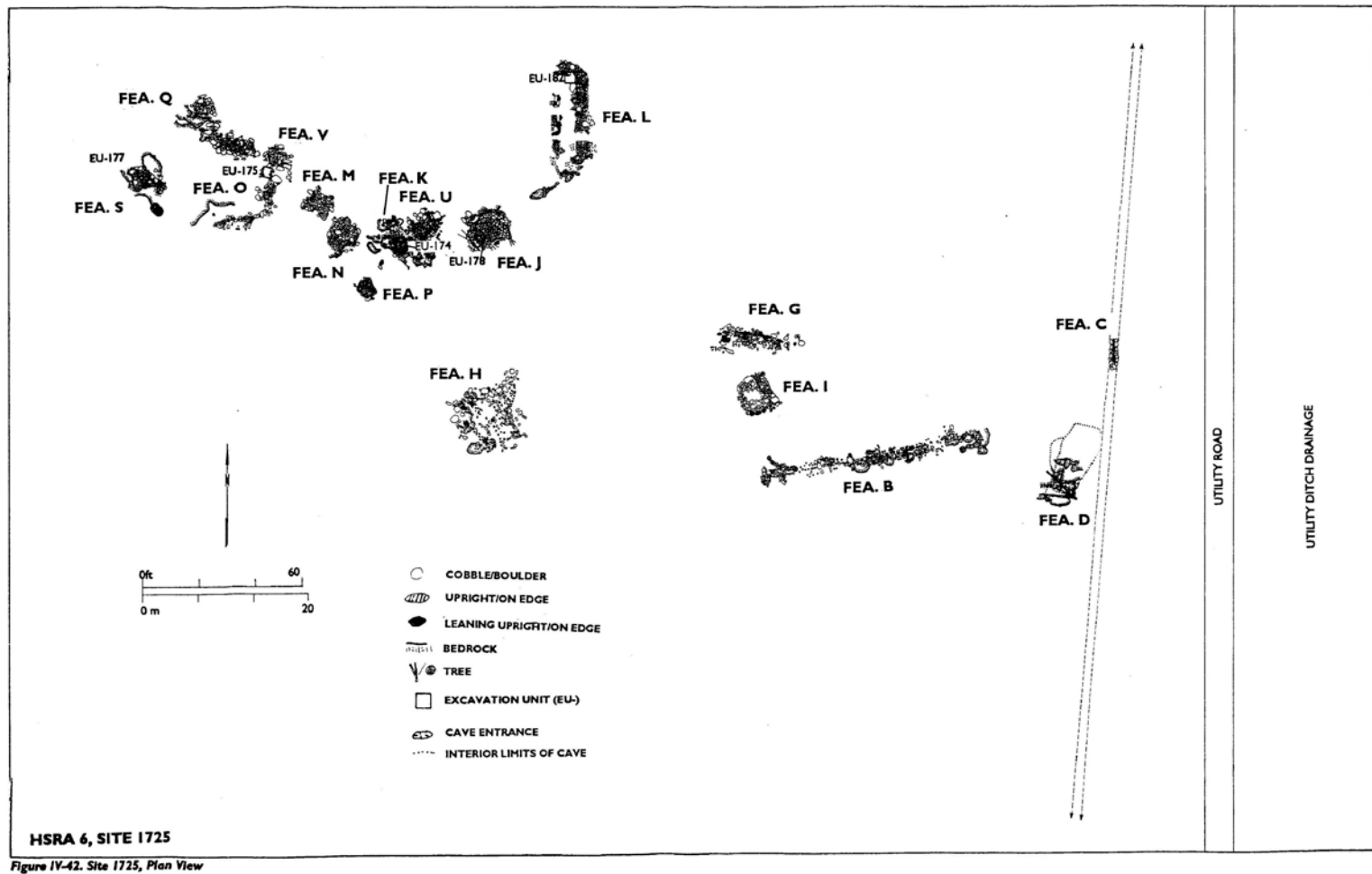


Figure 16. Beardsley (2001) map, revised to show feature placement as documented by GPS (see Figure 17). Features B, I and G cluster closer together than depicted on the Beardsley (2001) map, Feature H is farther from this cluster than originally portrayed, and Feature N is southwest of Feature M. In addition, Feature K was not labeled on the original map; the label has been added here.

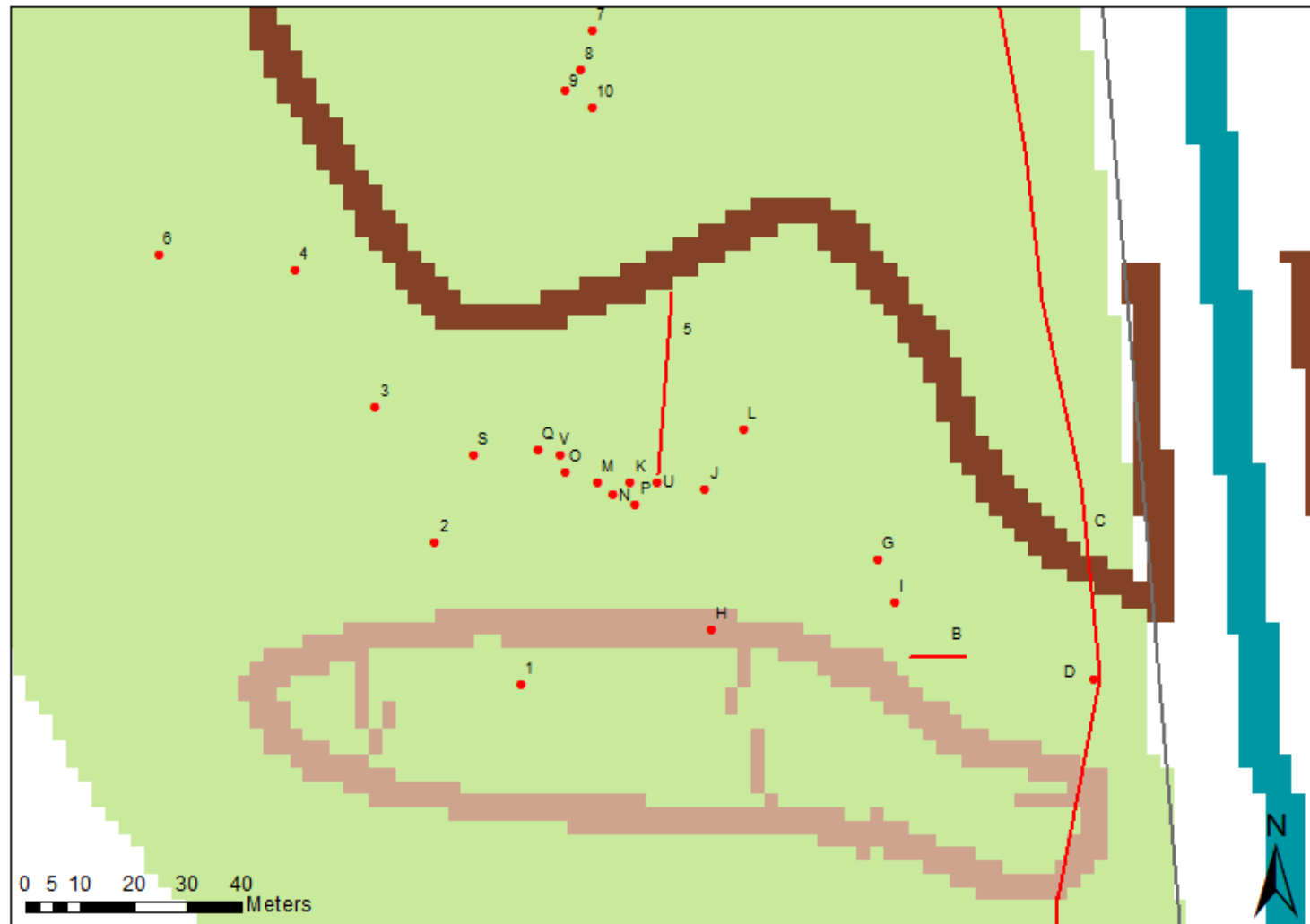


Figure 17. Site 1725, GIS map. Previously recorded features have letter designations, while new features are given numerical designations. Note the discrepancy in locations of Features B, I, and G, which are closer together than depicted on the Beardsley (2001) map, and Feature H, which is farther from this cluster than originally portrayed (see Figure 15). Heavy colored lines are from the USGS background map: brown for 30 m elevation contour; blue for canal; pink for unidentified topographic feature.

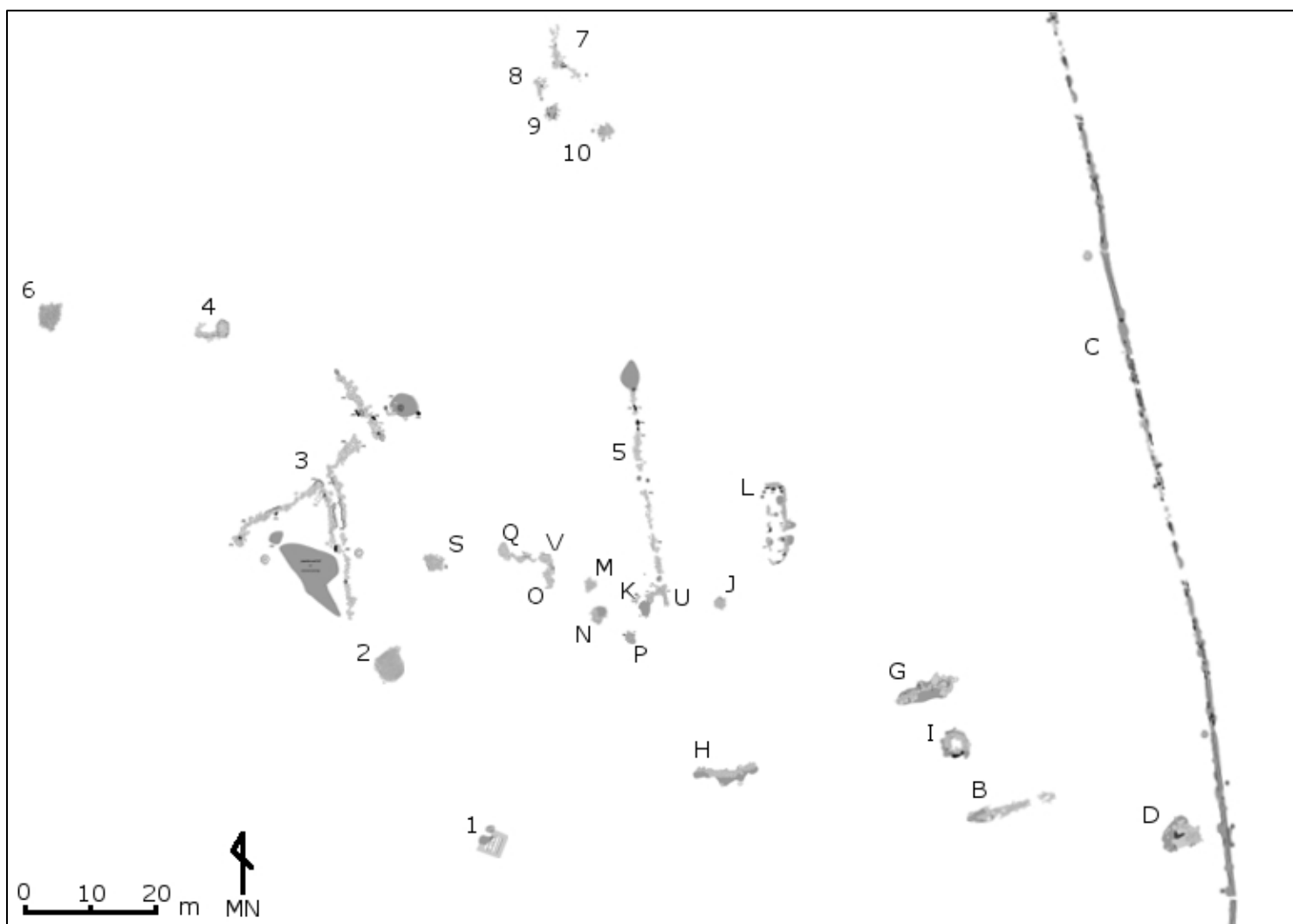


Figure 18. All features as currently mapped. See plan view drawings in individual feature discussion sections for greater detail.

Site 1725 Feature B

Feature description (Beardsley 2001:IV.56–IV.57):

Function: terrace, possible agriculture

Dimensions: 25 x 1.6 x 0.5 m

Condition: fair, natural collapse probable

Integrity: unaltered

A low retaining wall constructed on the edge of a steep southeast facing slope. The area to the north of the wall is level, and was probably used as an agricultural terrace. The retaining wall itself is comprised of multiple courses, constructed of subangular limestone cobble, [sic] boulders and slabs (up to 80 cm); today, there are several gaps along the length of the wall. Several in situ on-edge slabs were identified along the alignment; an additional on-edge slab remains in place, but is leaning. The wall was constructed in part on top of uplifted bedrock.

Current assessment:

Feature B is currently in very poor condition (Figure 19). Only 17 m of the terrace could be discerned, most of which is severely deflated and overgrown with grass. The terrace wall is 1.8 m wide and averages 60 cm tall. There is a 1.5 m-long gap near the east end of the terrace and a large tree has impacted the west end, eroding it further. One area of stacking remains (Figure 20), but for the most part, Feature B is very poorly defined (Figure 21).

Site 1725 Feature C

Feature description (Beardsley 2001:IV.57):

Function: wall alignment, possible boundary and agricultural use

Dimensions: 25 x 0.8 x 1.6 m

Condition: good

Integrity: unaltered

With the exception of short spans, much of this wall is deteriorated to the point of collapse. Using those intact spans for a description of the wall, it was high, rubble core-filled construction with retaining walls of large slabs placed on-edge, on top of which were subangular boulders stacked four to five (and even as much as six to eight) courses high. The slabs range from 70 cm to 1.2 m high and 70 cm to 1 m wide; the wall itself averages 60 to 80 cm wide. Interstitial fill within the retaining walls consisted of smaller cobbles and pebbles. The core was filled with cobbles and boulders, ranging from 20 cm to 1 m in size, with even larger boulders used as well. The top of the wall is flat.

The wall parallels a modern road at the edge of a forested area; this plus the manner of construction, suggests the wall likely served as a property boundary for a historic lot.

Current assessment:

Feature C is much longer than 25 m. It spans almost the entire project area, stretching 270 m in length. Several sections are in good condition and remain relatively intact (Figure 22), although much of the wall, including a 35 m-long segment on the south end is badly collapsed (Figure 23). There is also a 16 m-long gap on the south end where trash, including wood and tires, now lies. The wall is uniformly 80 cm wide and as tall as 1.5 m in the intact segments. A section of the wall was previously mapped (Figure 24). Figures 25 and 26 show the wall in its entirety.



Figure 19. Current plan view drawing of Feature B.



Figure 20. Feature B terrace, most preserved segment, in the center of the wall, where stacking is still evident. Orientation is to the north.



Figure 21. Feature B, showing the length of the terrace and severity of erosion. Orientation is to the west.



Figure 22. Feature C wall, intact segment located 8 m from the south end of the wall. Orientation is to the east.



Figure 23. Feature C, showing a collapsed segment of the wall near the south end. Orientation is to the southwest.

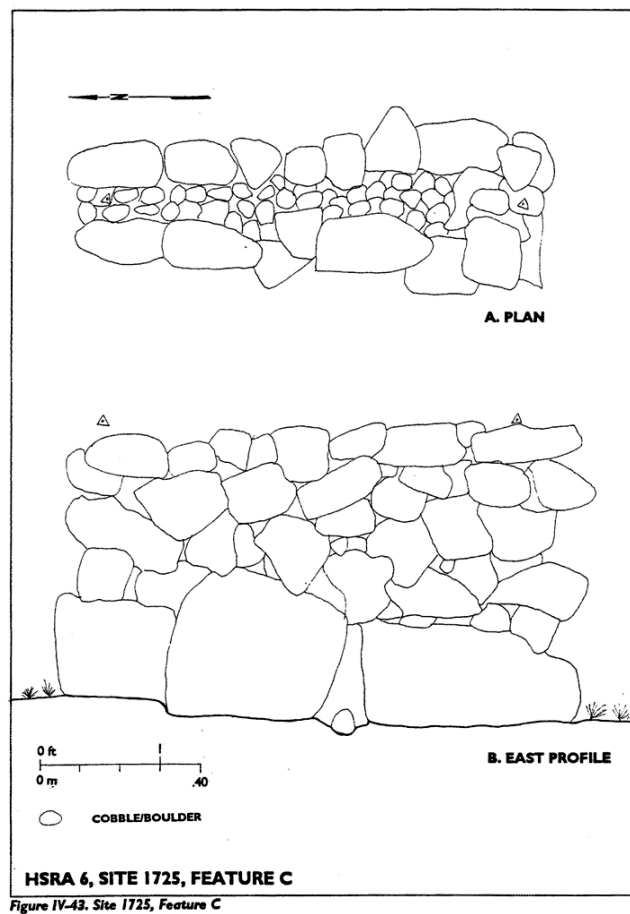


Figure 24. Feature C as mapped by Beardsley (2001).

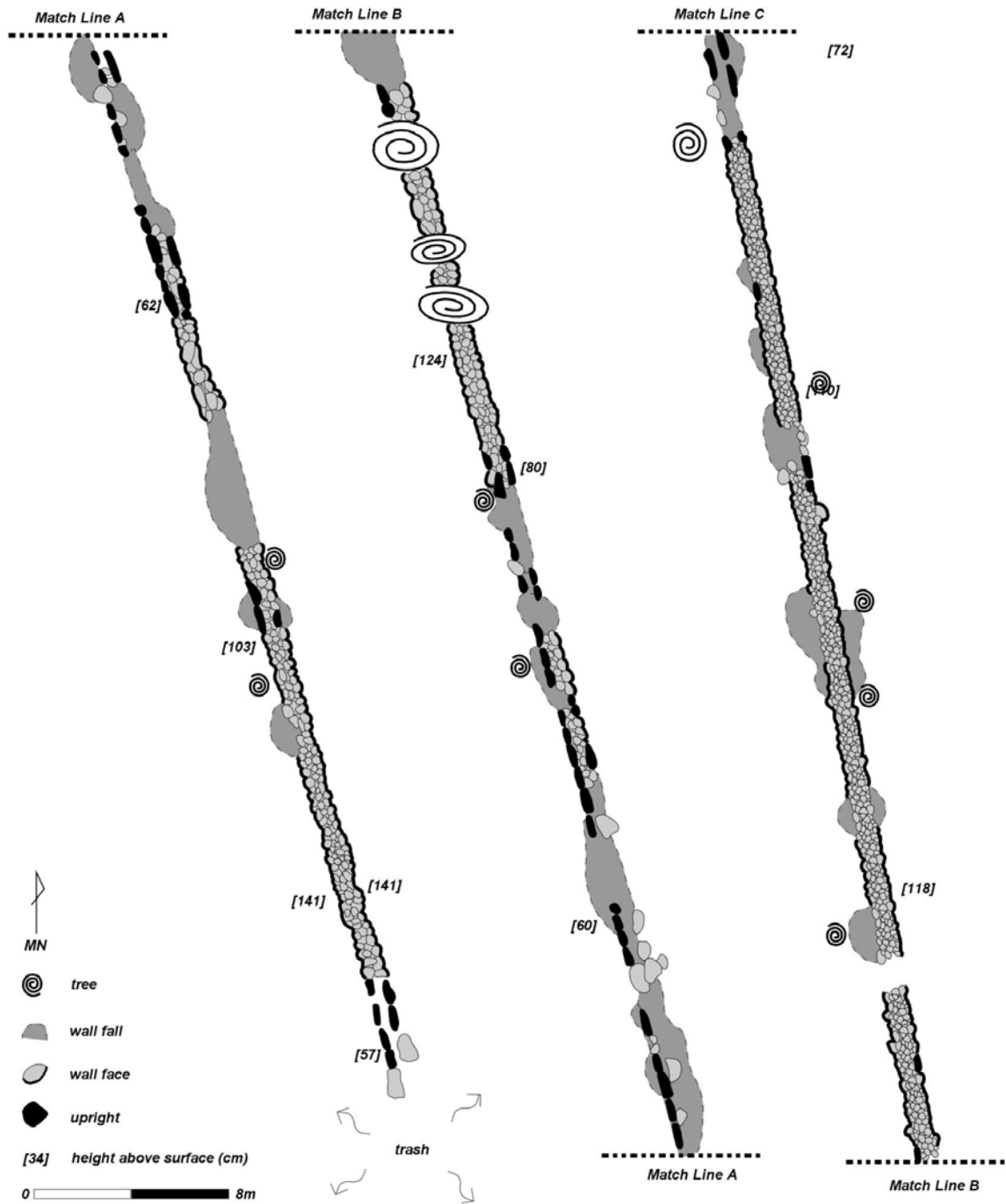


Figure 25. Current plan view drawing of Feature C, southern half of the wall. Note that upright slabs at the base of the wall are not visible in plan view where the wall is intact.

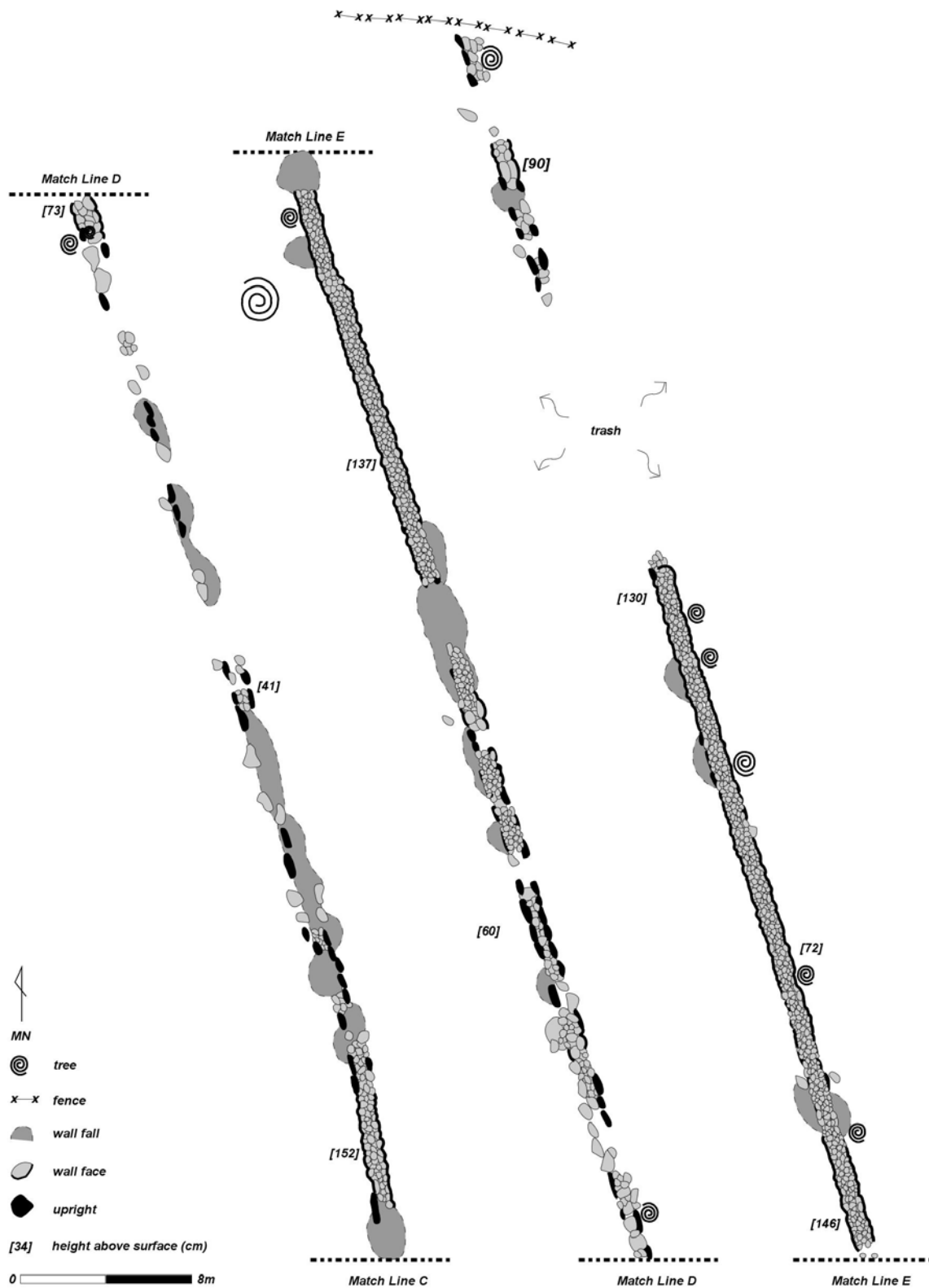


Figure 26. Current plan view drawing of Feature C, northern half of the wall. Note that upright slabs at the base of the wall are not visible in plan view where the wall is intact.

Site 1725 Feature D

Feature description (Beardsley 2001:IV.57):

Function: sinkhole, historic era trash pit

Dimensions: 6.3 x 3.3 x 3.3 m

Condition: good

Integrity: altered

This sinkhole opens into a cave that is over 6 m long and 3 m wide. The soil deposit across the floor appears to be rather thick, while the floor is level and the walls have few crevices in them. The floor slopes slightly downward to the north. There is a ledge on the west wall about 1 m high, which extends to the south wall. Adjacent to the north wall is a small pocket that extends to a depth of about 1 m from the floor surface; it is filled with soil and modern rubbish. The sink/cave is littered with plastic and glass containers, a ten gallon bucket, wooden planks, and some rocks and plants that have fallen into the cavity. In the southwest area of the bedrock, there is another *puka* that extends down onto the ledge within the sink; this is 1.1 m from the surface. At the entrance of the sink, some of the bedrock has shifted to a lower position than the rest of the surrounding bedrock, but has not yet collapsed. A wooden ladder rests at the entrance to the sink.

Current assessment:

Feature D is heavily disturbed with modern refuse, including a dilapidated mattress left inside the cave. The wooden ladder now lies approximately 5 m south of the entrance. No evidence of traditional Hawaiian modification or use was noted at the entrance or inside the cave (Figures 27 and 28), although subsurface cultural deposits might remain undisturbed beneath the modern refuse. The opening of the sinkhole is 1.6 m long, 1.4 m wide and 2.7 m deep. Aside from the array of recent trash on the surface of the cave floor, Feature D is in good condition.

Site 1725 Feature G

Feature description (Beardsley 2001:IV.57):

Function: wall alignment, possible agriculture or boundary

Dimensions: 10 x 3 x 0.4 m

Condition: poor

Integrity: unaltered

This is a very poorly preserved jumble of limestone cobbles and boulders in a rough alignment reminiscent of a wall. The wall is about two to three courses high and contains some on-edge limestone slabs; these latter appear to be positioned haphazardly, as if in response to disturbance by tree growth (especially near the center and west end of the feature). A large uprooted *kiawe* tree on the western end of the feature has lifted several large components of the wall considerably higher than the general level of the others.

Current assessment:

Feature G is in very poor condition, poorly defined and heavily eroded (Figure 29). The feature is almost completely overgrown by grass and almost unidentifiable (Figure 30). Only scattered jumbles of limestone slabs remain. These measure 8.5 m long, 3.5 m wide, and 40 cm tall.

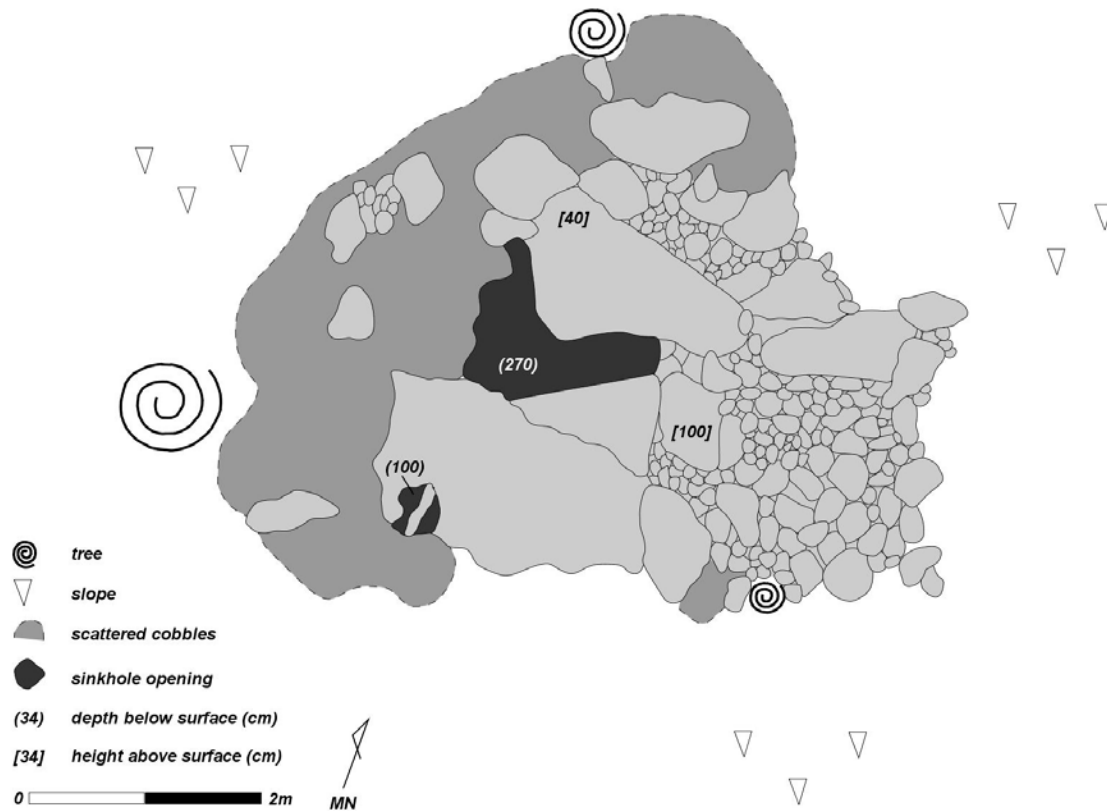


Figure 27. Current plan view drawing of Feature D, sinkhole.



Figure 28. Feature D, sinkhole entrance. Orientation is to the north.

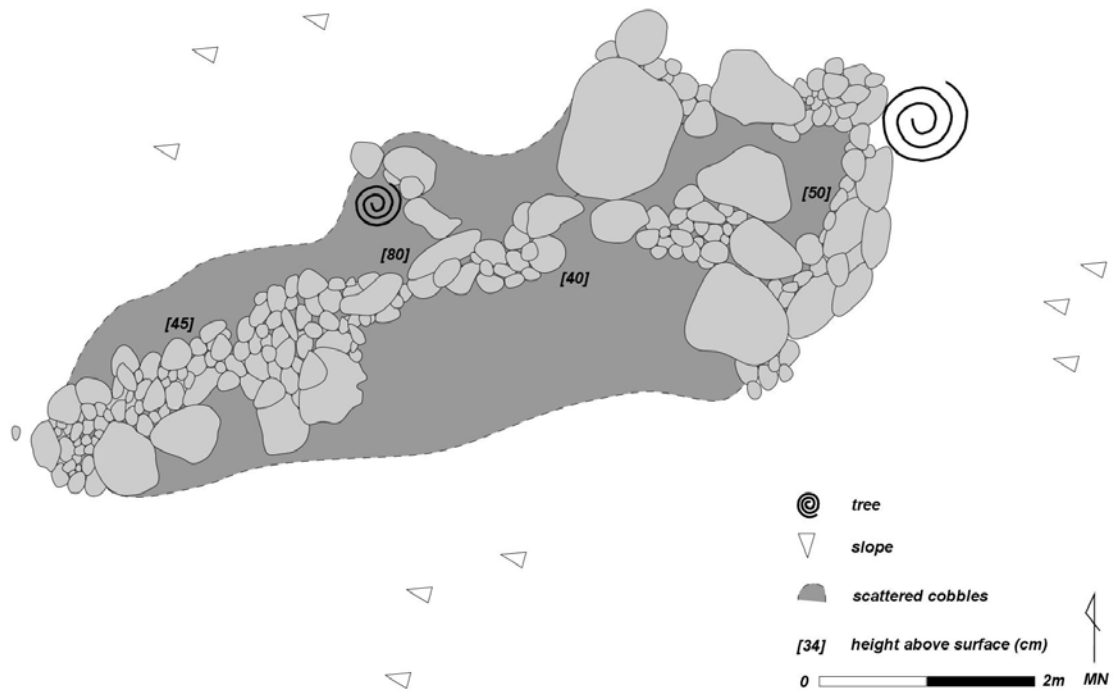


Figure 29. Current plan view drawing of Feature G wall.



Figure 30. Feature G, deteriorated segment at south end of the wall. Orientation is to the south.

Site 1725 Feature H

Feature description (Beardsley 2001:IV.58):

Function: enclosure, possibly agriculture

Dimensions: 8 x 7 x 0.6 m

Condition: poor

Integrity: unaltered

This feature consists of a discontinuous ring of pebble- to boulder-sized limestone piled on bedrock outcrops around a slightly sunken area of soil. The northwest wall is the most substantial, but is nowhere more than two to three courses high. A few leaning and on-edge slabs may not have been part of an upright alignment, but are merely chance elements within the structure of the wall. Cobbles scattered within and outside the enclosure may have been part of the walls.

Current Assessment:

Feature H is in very poor condition, barely discernible in its eroded condition, with only the north wall remaining (Figure 31). This measures 10 m long, 2.5 m wide, and 40 cm tall. Grass and trees have overtaken much of the enclosure, and much of it is deflated and collapsed (Figure 32).

Site 1725 Feature I

Feature description (Beardsley 2001:IV.58):

Function: enclosure, temporary habitation

Dimensions: 3.2 x 2.6 x 0.7 m

Condition: fair

Integrity: unaltered

A rectangular enclosure constructed of limestone cobbles and boulders, the latter are generally in the 50 to 70 cm size range. The retaining walls are four courses high, as visible in an intact portion of the eastern wall, with a rubble-filled core; the walls themselves are roughly 80 cm to 1 m thick. Sections of the exterior wall suggest it may have been faced with limestone uprights; a segment of the southern wall retains three large on-edge slabs, but these are also the only slabs in the structure. The area enclosed by the walls is 1.6-by-1.6 m in size. The floor itself is higher than the surrounding ground; it appears as though the enclosure is built to encompass an elevated bedrock outcrop. Boulders, cobbles and pebbles litter the floor, as if tumbled from the walls. There is no doorway.

A single excavation unit, EU-180, was placed in the center of the enclosure. It is a 1-x-1 m unit that was excavated in one layer, extending from 28 cm ad to 6 cmbd. The entire layer consisted of limestone boulders, cobbles and pebbles; in other words, it was a commingling of flooring across the surface of the bedrock as well as wall fall. The bedrock surface was modified to create a smoothed and even floor. Cracks and gaps in the rock surface had been filled with gravel and then capped with a flat, slab-like rock.

Current assessment:

Feature I is in fair condition. It is still well defined, although parts of the structure have fallen (Figure 33). The feature is overgrown with grass, and there are large trees in the area that may have contributed to the partial collapse. The on-edge limestone slabs that form a rough exterior facing are still visible on the south side of the structure, and the interior is well faced (Figure 34). The structure measures 3.2 m long, 2.6 m wide, and 70 cm tall.

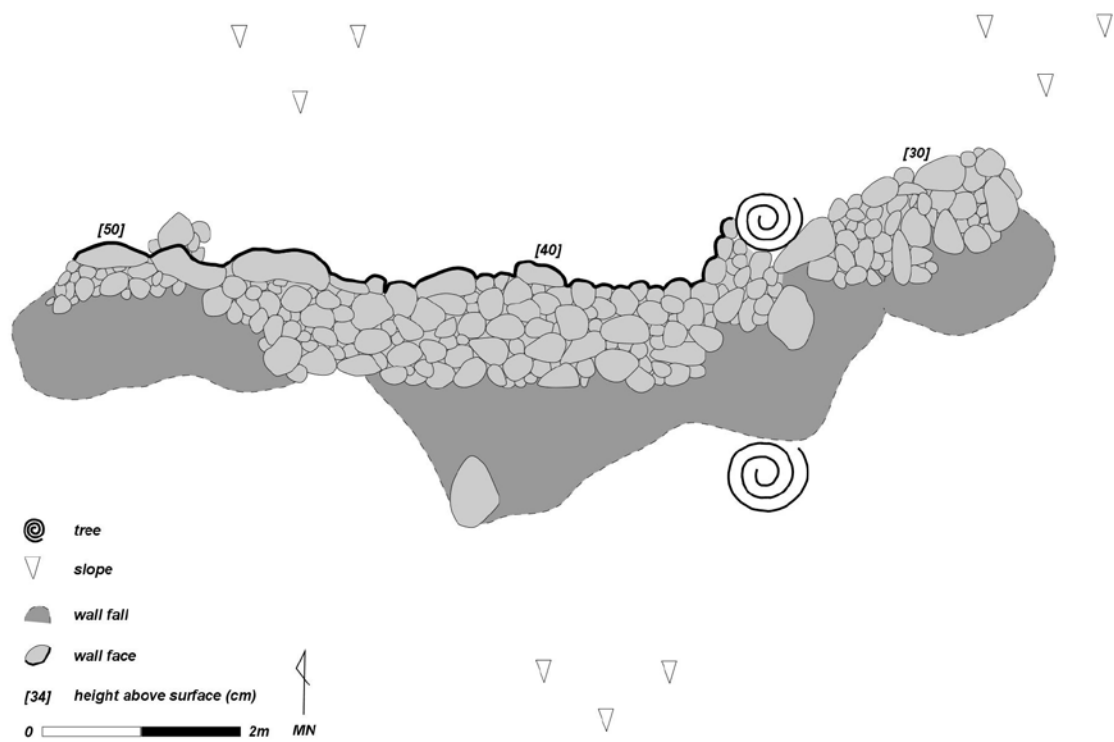


Figure 31. Current plan view drawing of Feature H.



Figure 32. Feature H enclosure, facing west.

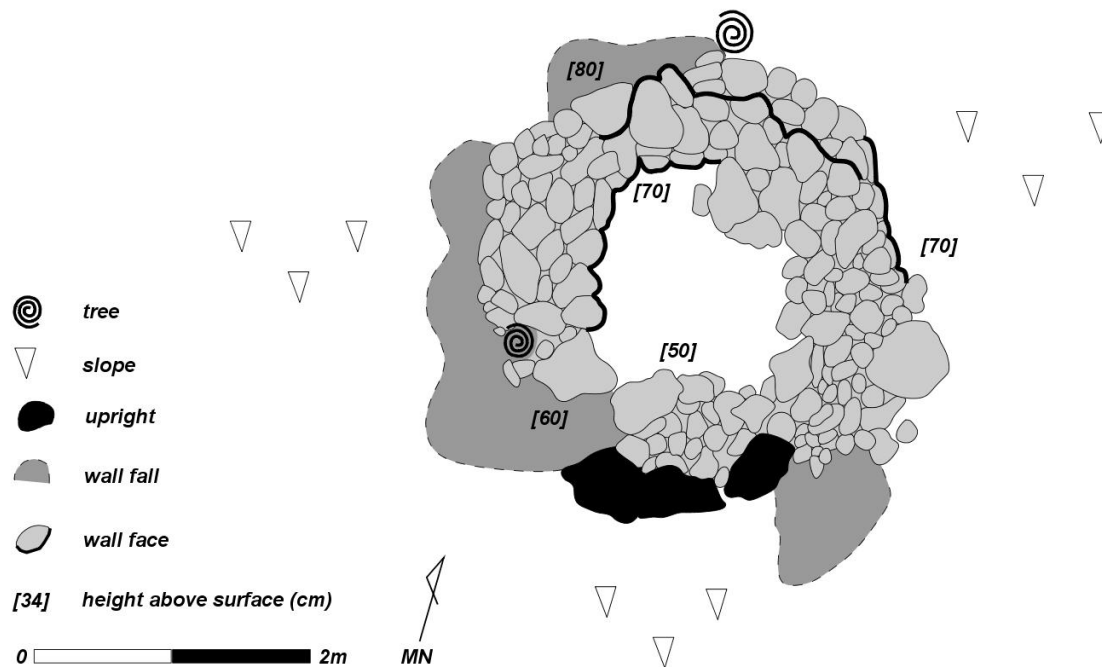


Figure 33. Current plan view drawing of Feature I.



Figure 34. Feature I enclosure, facing north.

Site 1725 Feature J

Feature description (Beardsley 2001:IV.58–59):

Function: cairn or collapsed platform, temporary habitation

Dimensions: 2.8 x 2.8 x 1 m

Condition: fair

Integrity: unaltered

Radiocarbon Date: 30 ± 60 BP, cal AD 1685-1740, 1810-1930 (Beta-85073)

In plan view this feature appears to be a circular mound of limestone cobbles and boulders up to 1.2 m in size. The northern and western sides of the feature consists of a basal course of on-edge slabs; the other two sides have collapsed with the interior rubble core spilling out to form sinuous, amorphous edges. Both the function and form of this feature is somewhat difficult to ascertain. It could be a platform modified with time; it could be a marker of some sort, or a mound of field-cleared rock. From the results of the test excavation, it appears as though the feature is resting atop the first soil layer encountered, Layer II.

A single excavation unit, EU-178, was placed in the center of the feature. It is a 1-x-1 m unit that was excavated in three layers to 15 cmbd, where it was terminated after encountering bedrock. The uppermost layer consisted almost entirely of architectural materials, the limestone cobbles and boulders that were used to construct the feature; some shell midden appeared in this layer, including sea urchin remains. The second layer consisted of soil commingled with limestone pebbles and cobbles; it also included invertebrate and faunal remains, along with cultural materials and charcoal. The lowest layer contained a mix of cultural and faunal materials from the overlying Layer II, and appeared sterile near the base at contact with bedrock. A single radiocarbon date was run on materials recovered from this unit. The date consisted of a very small sample of “charred material” that was recovered from Layer III; it had to be given extended counting time. Dates quoted above are at the 2 sigma range.

Stratigraphy, north wall profile:

- | | |
|-----|---|
| I | 130 cmad – 2 cmbd, 112 to 130 cm thick; limestone; strong, very coarse, massive structure; abrupt, smooth boundary; architectural. |
| II | 0-8 cmbd, 5 to 6 cm thick; very dark brown (10YR 2/2, moist) to very dark grayish brown (10YR 3/2, dry); silt loam; weak, fine crumb structure; loose, very friable, slightly sticky, non-plastic consistency; very few, very fine vesicular roots, many very fine interstitial pores; abrupt, smooth boundary; cultural. |
| III | 4-15 cmbd, 2 to 5 cm thick; dark yellowish brown (10YR 3/4, moist) to dark yellowish brown (10YR 3/6, dry); silt loam; weak, fine, crumb structure; loose, very friable, slightly sticky, slightly plastic consistency; few, medium, tubular roots; many fine interstitial pores; cultural. |

Current assessment:

Feature J is in fair condition. The structure is well defined and mostly intact, measuring 4 m long, 3.8 m wide, and up to 1.1 m tall. The top of the cairn/platform is collapsed and disturbed from previous excavation (Figure 35). The outside of the feature still exhibits stacking, although it is being overrun by tall grass (Figures 36 and 37). Large trees in the area seem to not affect the condition of the feature and it appears as it was mapped by Beardsley (2001).

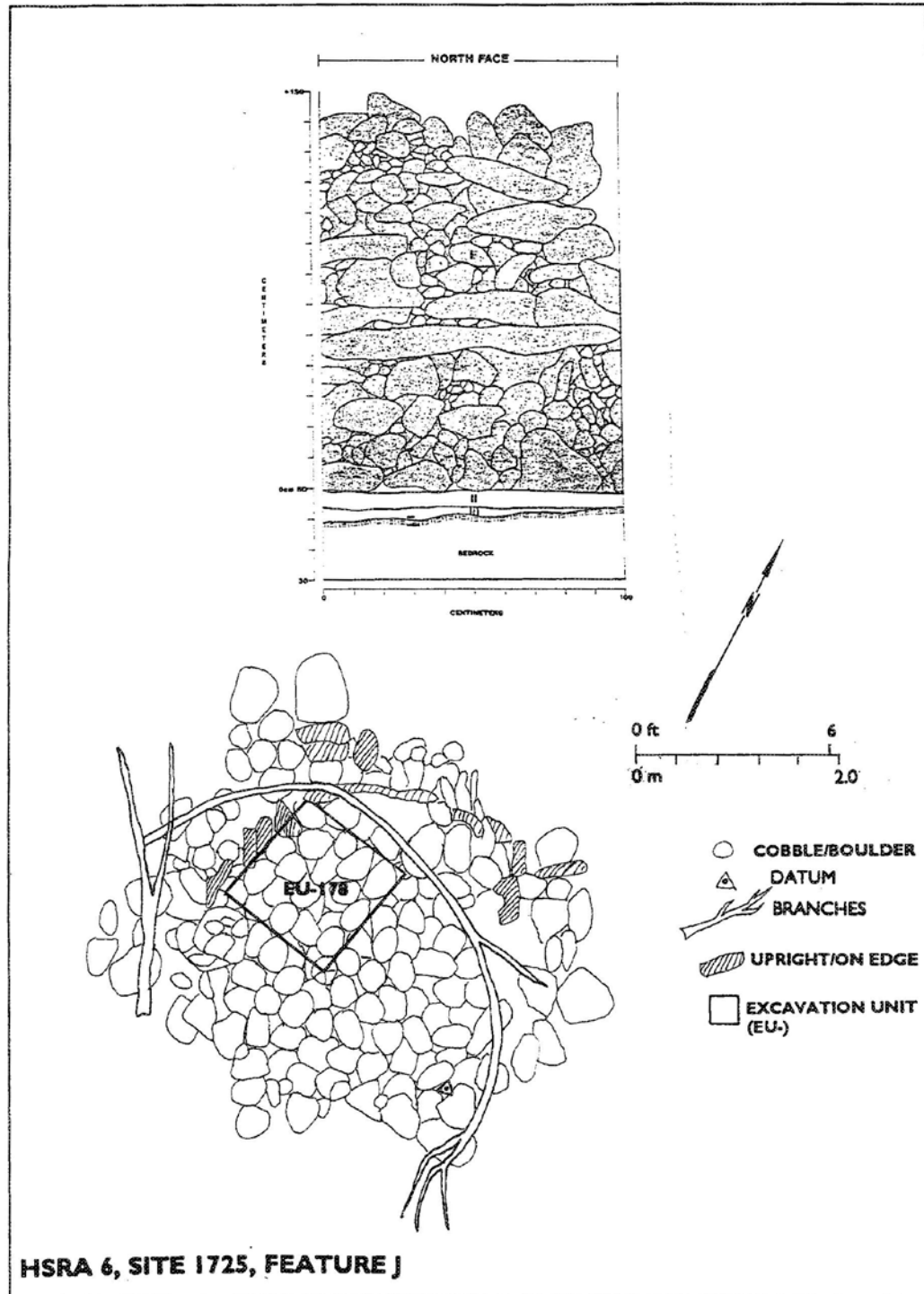


Figure 35. Feature J as mapped and excavated by Beardsley (2001).

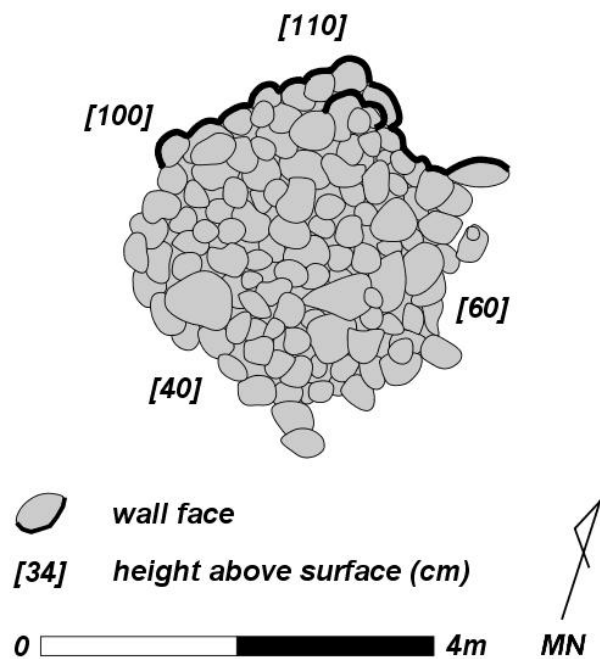


Figure 36. Current plan view drawing of Feature J.



Figure 37. Feature J cairn or platform, facing south.

Site 1725 Feature K

Feature description (Beardsley 2001:IV.59):

Function: terrace, temporary habitation

Dimensions: 3 x 2 x 1 m

Condition: fair

Integrity: unaltered

This small rectangular paved terrace was built on thin soils and exposed bedrock. The ground surface slopes down to the southwest. On the downhill, or southwest, side small limestone boulders have been placed in a U-shape, with the open end of the U directed uphill. Inside the area encompassed by these boulders are smaller boulders and cobbles, which were placed in such a way [sic] as to produce a rough pavement. The uphill side of the pavement terminates at a bedrock outcrop, on which Feature U, a C-shaped wall, is located. Just 3.5 m to the southwest a second feature is encountered, Feature P, a cairn. Two wire objects, possibly parts of a spool for barbed wire, were noted by [sic] not collected from the surface.

A single excavation unit, EU-174, was placed in the western part of the terrace. It is a 1-x-1 m unit that was excavated in four layers to 57 cmbd, where it was terminated upon encountering bedrock. The uppermost layer consisted almost exclusively of architectural materials, which were resting directly on top of the underlying Layer II. This second layer contained a sparse amount of faunal material; Layers III and IV were sterile.

Stratigraphy, east wall profile:

- | | |
|-----|--|
| I | 33 cmad - 3 cmbd, 20 to 36 cm thick; limestone; abrupt, smooth boundary; architectural. |
| II | 0-31 cmbd, 25 to 29 cm thick; black (10YR 2/1, moist) to very dark gray (10YR 3/1, dry); sandy loam; moderate, fine crumb structure; loose, very friable, non-sticky, non-plastic consistency; few, very fine interstitial roots, many micro interstitial pores; abrupt, smooth boundary; cultural deposit. |
| III | 25-51 cmbd, 18 to 25 cm thick; strong brown (7.5YR 5/6, moist) to reddish yellow (7.5YR 6/6, dry); silt loam; moderate, fine, crumb structure; soft, loose, slightly sticky, slightly plastic consistency; common, micro roots; common, medium interstitial pores; very abrupt, smooth boundary; non-cultural. |
| IV | 49-57 cmbd, 1 to 6 cm thick; pinkish gray (7.5YR 6/2, moist) to pinkish gray (7.5YR 7/2 dry); silt loam; moderate, very fine, crumb structure; slightly hard, loose, slightly sticky, slightly plastic consistency; few, very fine interstitial roots; common, micro interstitial pores; non-cultural. |

Current Assessment:

Feature K is in fair condition. The terrace is still paved, although disturbed from previous excavation (Figure 38). It is well defined but overgrown with grass (Figures 39 and 40). It measures 4.8 m long, 4 m wide, and 77 cm tall.

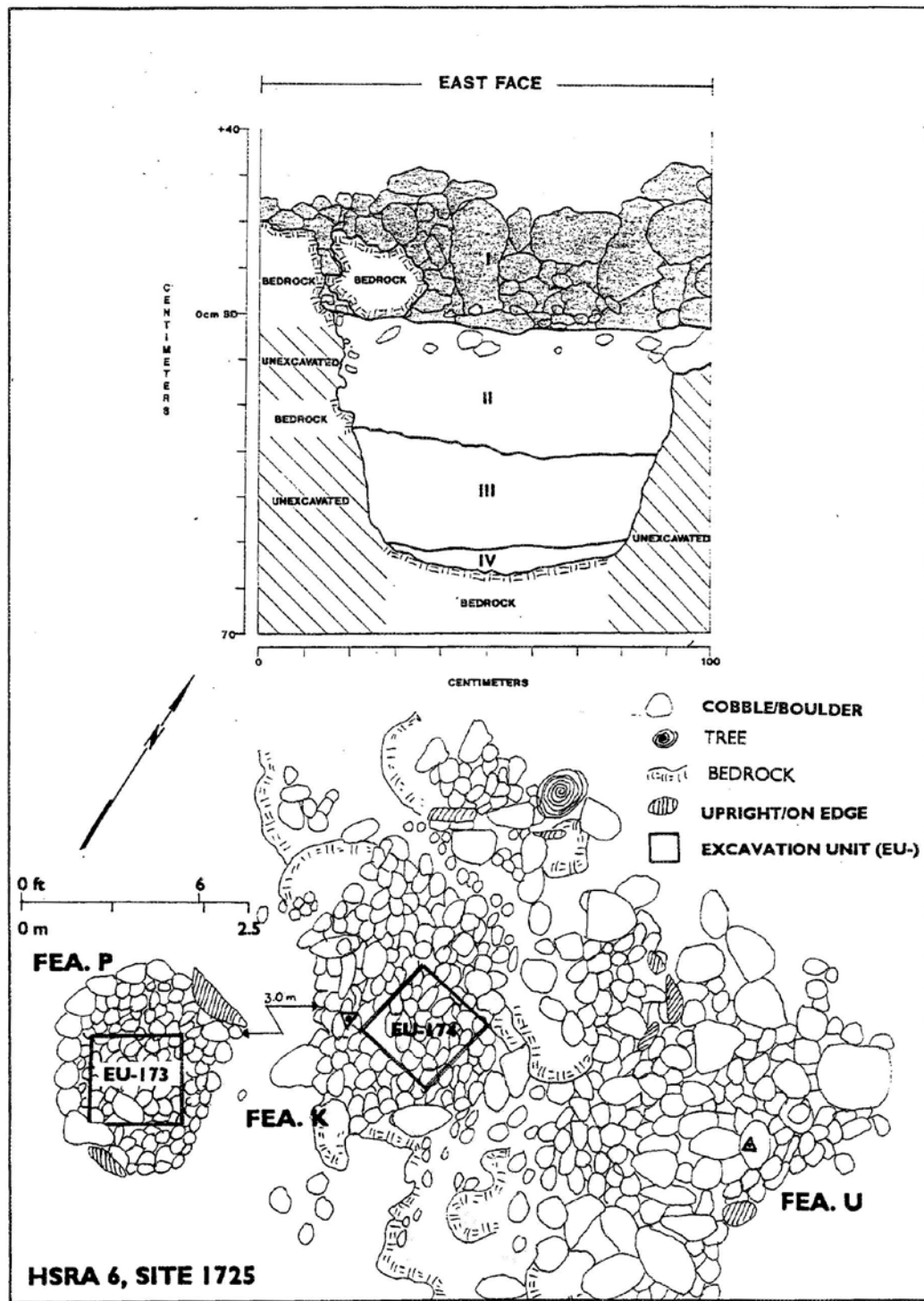


Figure IV-45. Site 1725, Features K, P, and U

Figure 38. Features K, P, and U, as mapped and excavated by Beardsley (2001).

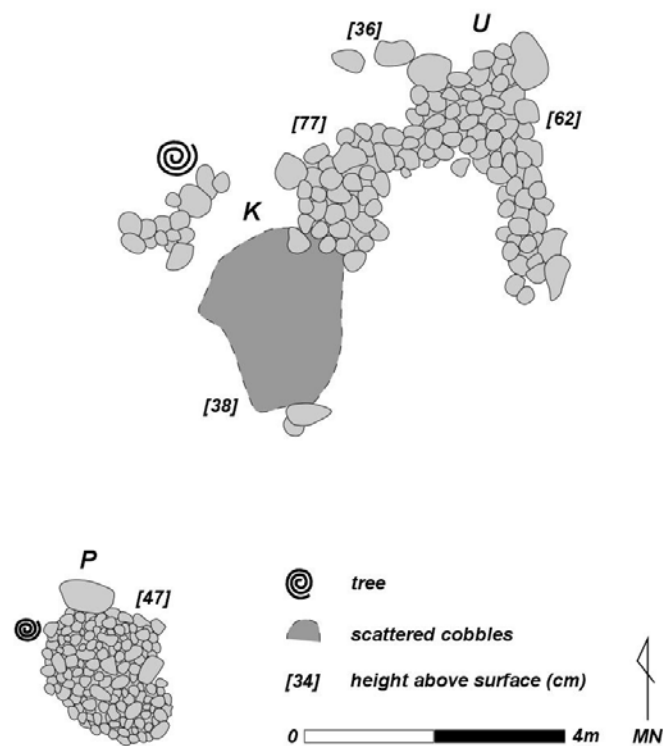


Figure 39. Current plan view drawing of Features K, P, and U.



Figure 40. Feature K terrace. Orientation is to the northwest.

Site 1725 Feature L

Feature description (Beardsley 2001:IV.60):

Function: enclosure, temporary habitation and burial

Dimensions: 12 x 4 x .7 m

Condition: good

Integrity: altered

This enclosure is built on a slope. The interior walls are lined with boulder-sized slabs placed on-end; many of these boulders remain in place. In the exterior retaining wall, little remains in place, although an occasional boulder was noted as in situ and on-end. Generally, this outer wall and the rubble core have collapsed into a mass of boulders and cobbles, spilling outward away from the interior of the structure. Elements of the western wall are missing, scavenged most likely for construction of a nearby cattle wall. This wall is discontinuous, with gaps present. The eastern wall is mostly intact, and contains an opening, a possible doorway, 3.8 m from the south end. The walls are 1.5 m wide and the interior floor space is 10-by-1.5 m.

Excavation within the feature revealed that the on-edge slabs are embedded into the upper soil layer (Layer I) and rest on the underlying soil layer (Layer II). The base of the architecture could not be determined because the test excavation was immediately terminated upon encountering a burial.

A single excavation unit, EU-182, was placed in the northern portion of the enclosure, adjacent to the wall. It is a 1-x-1 m unit that was excavated in two layer to 17 cmbd, where it was terminated upon encountering a burial. Both the upper and lower layers incorporated a large concentration of midden, both invertebrate and vertebrate faunal material, as well as floral remains such as several *kukui* nut shells. Artifacts included a bone fishhook perform, and in the uppermost layer, a fragment of clear bottle glass.

Layer II came to an immediate halt upon the discovery of an infant burial (HSR #2), which was left in place. The burial pit extends from 15 cmbd to at least 21 cmbd, when the cranium was encountered; the pit appears to end at the underlying bedrock, at about 22 cmbd. A constant volume sample, #1021, from Layer II was submitted for analysis.

Stratigraphy, north wall profile:

- I 0-10 cmbd, 5 to 9 cm thick; black (10YR 2/1, moist) to very dark grayish brown (10YR 3/2, dry); fine sandy silt; moderate, medium granular structure; slightly hard, friable, non-sticky, non-plastic consistency; common, fine tubular roots; abrupt, smooth boundary; cultural.
- II 9-17 cmbd, 3 to 8 cm thick; light yellowish brown (10YR 6/4, moist) to yellowish brown (10YR 5/4, dry); silt; weak, fine single grain structure; soft, very friable, non-sticky, non-plastic consistency; common tubular roots; cultural deposit.

Current assessment:

Feature L is in fair condition, appearing as previously described and mapped (Figures 41 and 42), although there is very little slope in this area. The enclosure is partially intact and overgrown with grass (Figure 43). It measures 12.3 m long, 4 m wide, and 50 cm tall. The eastern wall is the best preserved, while the western wall is fragmentary. The eastern wall has a 1 m-long gap that may be an entryway. The western wall has four gaps, which from south to north measure 1.1 m, .80 cm, 80

cm, and 2.5 m in length. There are large trees in the vicinity but they do not appear to impact the feature. The fragmentary state of the western wall is due to missing stones and not erosion or collapse.

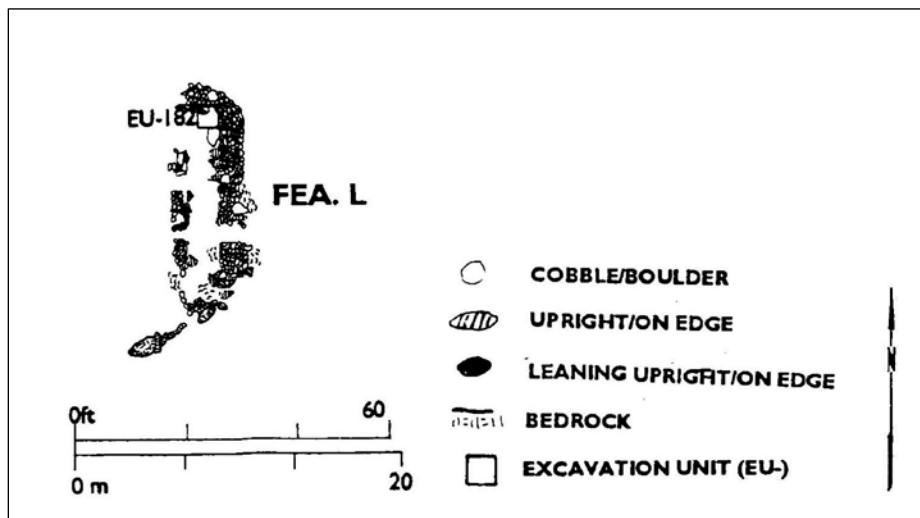


Figure 41. Feature L as mapped and excavated by Beardsley (2001).

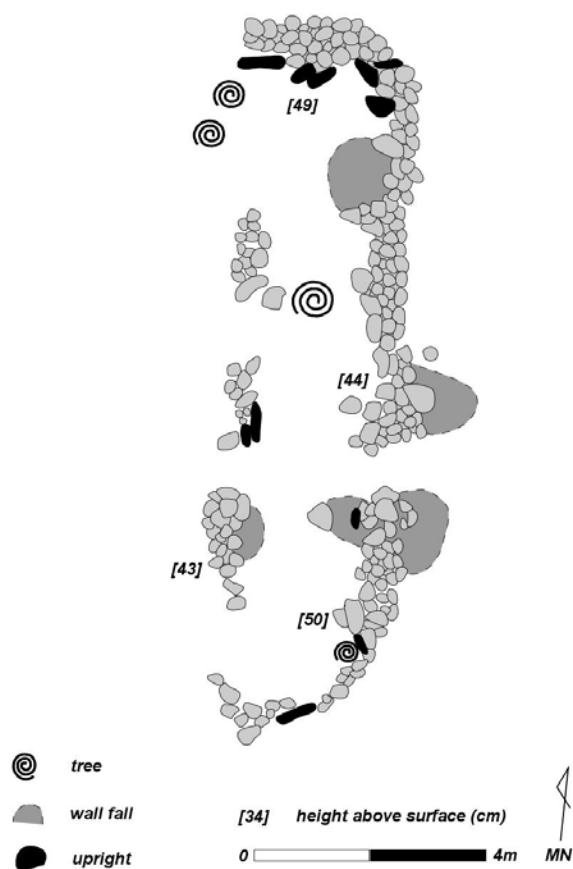


Figure 42. Current plan view drawing of Feature L.



Figure 43. Feature L enclosure, facing east.

Site 1725 Feature M

Feature description (Beardsley 2001:IV.60):

Function: cairn, possible agriculture

Dimensions: 1.8 x 1.8 x 1 m

Condition: fair

Integrity: unaltered

The cairn is a multi-course construction of loose, randomly placed limestone subangular cobbles and boulders (up to 40 cm in diameter) and slabs (30 to 60 cm in size), built on bedrock. The lower two or three courses are composed of boulders and cobbles, while the final two or three upper courses are built with loose slabs stacked horizontally. Most of these slabs have fallen off and are not leaning against the side of the cairn or lying flat on the ground. The original shape of the cairn seems to have been square and the original surface fairly level. The sides of the cairn were not faced.

A single excavation unit, EU-179, was placed within the center of the feature. It was excavated in a single layer, from 100 cmad to datum, or ground surface. The entire layer consisted of architectural materials. No cultural materials were recovered; however, a single on-edge slab (50-x-40 cm) was encountered in the center of the feature, set in an east/west alignment.

Current assessment:

Feature M is in fair condition. It is well defined, but overgrown with grass (Figure 44). Few sections of stacking are still evident (Figure 45). It is collapsing in places and disturbed by previous excavation. It currently measures 2.4 m long, 2.1 m wide, and up to 80 cm tall.

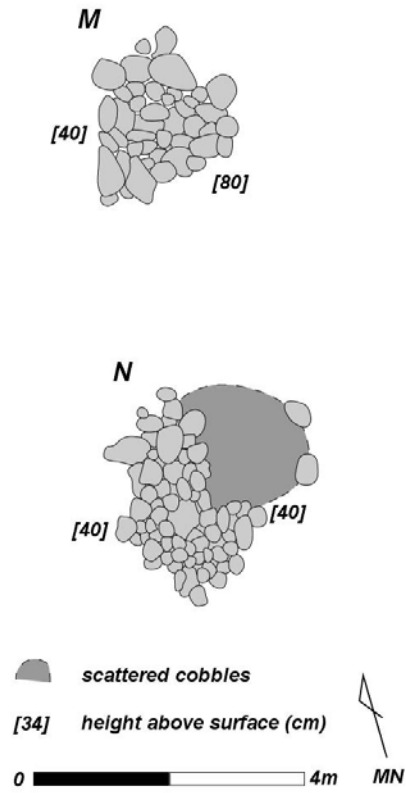


Figure 44. Current plan view drawing of Features M and N.



Figure 45. Feature M cairn, facing southwest.

Site 1725 Feature N

Feature description (Beardsley 2001:IV.61):

Function: cairn, possible agriculture

Dimensions: 2.6 x 2.4 x .5 m

Condition: fair

Integrity: unaltered

The feature is built on a slope, partially on bedrock and partially on the ground surface, using multiple courses of limestone subangular cobbles and boulders (up to 60 cm in size). It is rectangular to sub-circular in plan view and domed in profile. The sides of the feature gradually slope outward, away from the center. The surface is fairly regular, but the southwestern quad is slightly depressed.

A single excavation unit, EU-181, was placed within the feature. It was excavated in a single layer, from 47 cm ad to datum, or ground surface. Nearly the entire layer consisted of architectural materials; although the underlying soil layer was no deeper than 1 to 2 cm on top of bedrock. No cultural materials were recovered.

Current assessment:

Feature N is in fair condition, appearing as described above, although there is very little slope in this area (see Figure 44). The cairn is partially obscured by grass and has been impacted by small trees and previous excavation (Figure 46). It measures 3.3 m long, 2.5 m wide, and 40 cm tall.



Figure 46. Feature N cairn, facing north.

Site 1725 Feature O

Feature description (Beardsley 2001:IV.61):

Function: U-shaped wall, possible agriculture

Dimensions: 8.6 x 1.5 x .8 m

Condition: fair

Integrity: altered

This feature is part of a compound construction that incorporates two cairns, Features Q and V, into its structure. It is a generally U-shaped multi-course construction, built on a thin cultural soil deposit with limestone boulders and cobbles. Limestone slabs have been placed on-edge along the exterior face of the structure. Much of the structure seems to have collapsed. On the surface, a Coca-Cola bottle and a brown Duraglas bottle were observed; however, neither was collected.

A single excavation unit, EU-175, was placed in the northern corner of the U-shaped construction, at the point where Feature O merges with Feature V. EU-175 was a 1-x-1 m unit that was excavated in two layers to 33 cmbd, where it was terminated upon encountering bedrock. The upper layer contained a very sparse amount of historic glass; the lower layer was sterile.

Stratigraphy, north wall profile:

- I 0-18 cmbd, 11 cm thick; very dark brown (10YR 2/2, moist) to dark brown (10YR 3/3, dry); silty loam; weak, very fine crumb structure; loose, very friable, slightly sticky, non-plastic to slightly plastic consistency; common, micro vesicular roots; abrupt, smooth boundary; cultural.
- II 11-33 cmbd, 13 to 21 cm thick; dark yellowish brown (10YR 3/4, moist) to dark yellowish brown (10YR 3/6, dry); silty loam; gravel; weak, very fine crumb structure; loose, very friable, slightly sticky, slightly plastic consistency; few micro tubular roots; non-cultural.

Current assessment:

Feature O is in fair condition. It is well defined and partially intact, although heavily overgrown with grass (Figure 47). The wall connects the Features Q and V cairns, as described above (Figures 48 and 3497). It measures 6.5 m long, 2.5 m wide, and 42 cm tall.

Site 1725 Feature P

Feature description (Beardsley 2001:IV.61–62):

Function: cairn, possible agriculture

Dimensions: 2.8 x 1.5 x .5 m

Condition: good

Integrity: unaltered

The cairn consists of limestone cobbles, small to medium boulders, and two on-edge limestone slabs. Both slabs appear to have been placed at the northeast and southwest edges of this oval-shaped feature, after the feature had been completed. The cairn is part of a compound feature that includes Features K, a paved terrace, and U, a C-shaped wall. It is about 3.5 m southwest of Feature K, and was constructed on the natural soil surface and partially exposed bedrock. No interior cavities were observed, and no surface materials were present.



Figure 47. Feature O, u-shaped wall. Orientation is to the east.

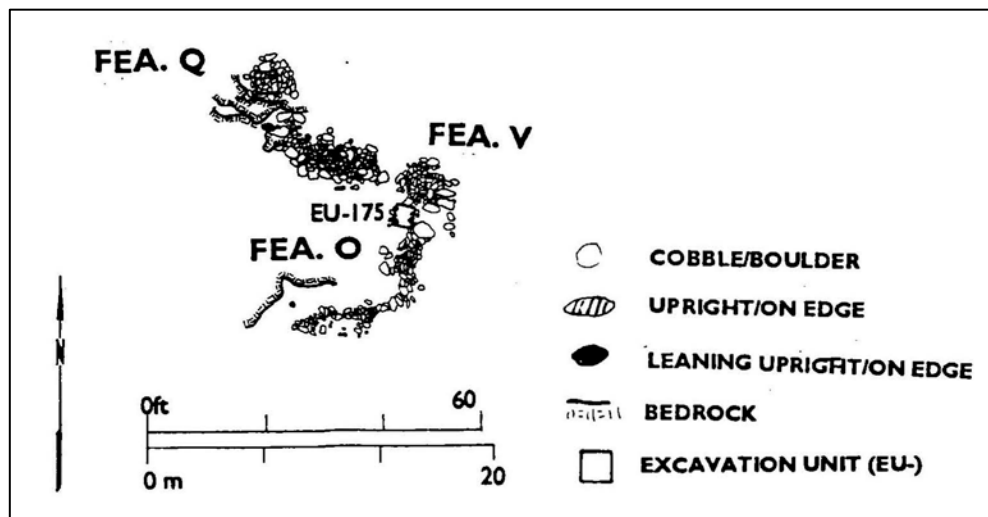


Figure 48. Features O, Q, and V, as mapped and excavated by Beardsley (2001).

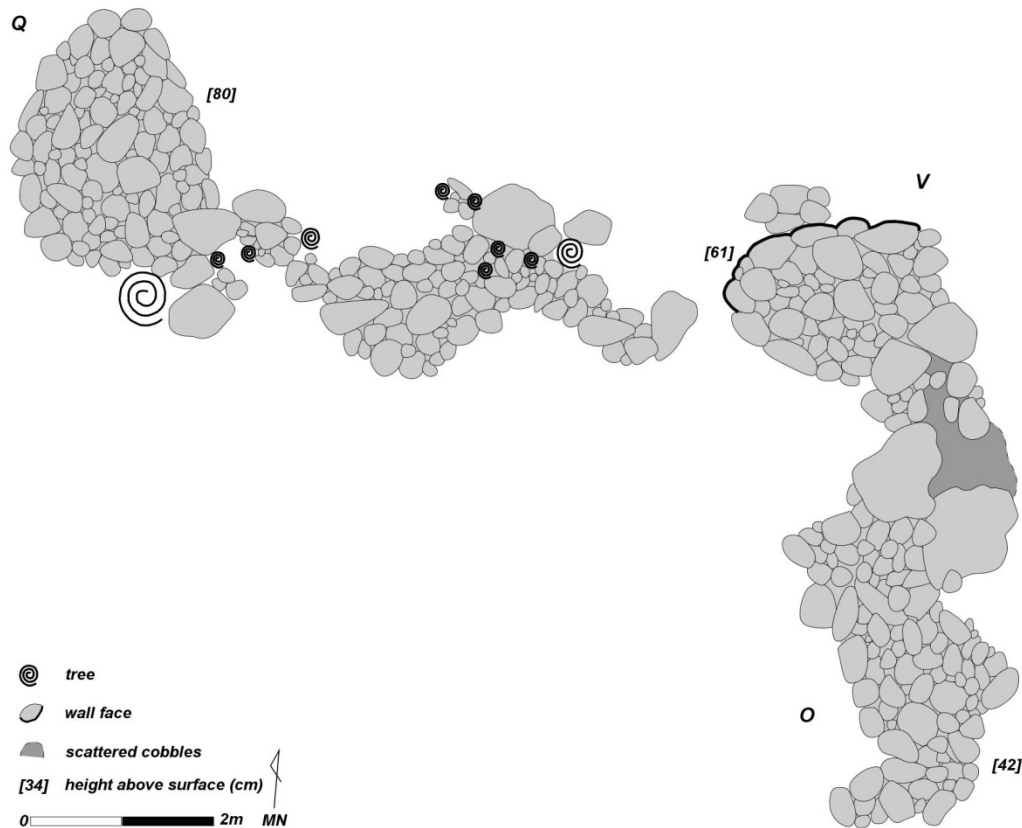


Figure 49. Current plan view drawing of Features O, Q, and V.

A single unit, EU-173, was placed in the center of the cairn. It is a 1-x-1 m unit that was used as a control measure in dismantling the feature to examine construction features. While clearing the cobbles and small boulders, three more small on-edge slabs were encountered, each slightly leaning into the center of the cairn. The base of the cairn was resting on and around a sharp, pointed limestone bedrock outcrop that was surrounded by a soil deposit roughly 15 cm deep. No cultural materials were recovered from [sic] this unit.

Current assessment:

Feature P is in poor condition, still defined but suffering from erosion (Figure 50). No stacking or other formal construction is visible (see Figure 39). Today the feature looks more like a low piled mound than a cairn. It is overgrown with grass and small trees and has been disturbed by previous excavation (see Figure 38). It measures 2.4 m long, 2.1 m wide, and 47 cm tall.

Site 1725 Feature Q

Feature description (Beardsley 2001:IV.62):

Function: cairn, possible agriculture

Dimensions: 1.8 x 1.7 x 1 m

Condition: good

Integrity: unaltered

This is a square-shaped cairn constructed on bedrock. It is the termination point of the northern leg of a U-shaped structure, Feature O. It is domed in profile, and is constructed entirely of limestone cobbles and boulders, the largest of which was about 1 m in length. A single excavation unit, EU-176, was placed in the center of the feature. It is a 1-x-1 m unit that was used as a control measure in dismantling, rather than excavating, the feature to examine its construction features. It was dismantled in a single layer, 95 cmad to datum, or ground surface. Within the feature were two on-edge slabs that were not readily visible. These, as well as another seen in plan view, probably added to the structural support of the feature. No cultural materials were recovered from this unit.

Current assessment:

Feature Q is in poor condition, overgrown and partially collapsed (Figure 51). Today the feature looks more like a piled mound than a formally-constructed cairn (see Figure 49), although dismantling from previous excavation likely contributed to its current form. No formal stacking is evident, and the feature is obscured by grass. The cairn measures 3.6 m long, 2.2 m wide, and 61 cm tall.

Site 1725 Feature S

Feature description (Beardsley 2001:IV.62):

Function: platform, possible agriculture

Dimensions: 2.3 x 2.3 x .5 m

Condition: good

Integrity: unaltered

Radiocarbon Date: 630 ± 80 BP, cal AD 1260-1435 (Beta-85074)

A low platform built over an elevated bedrock outcropping with limestone cobbles and boulders, some up to 60 cm in size. The overall shape is amorphous. At the northwestern end, cobbles are arranged to form a flat surface. The area is outlined by boulders. To the south-southwest and east, boulders (about 40 cm in size) are scattered randomly across the surface; they were probably part of the feature at one time. Fire-cracked limestone and a broken WW II era bottle were noted. Excavation into the feature revealed that the architectural elements were slightly embedded into the upper soil layer, Layer II.

A single excavation unit, EU-177, was placed in the center of the platform. It was a 1-x-1 m unit excavated in two layers to 43 cmbd, where it was terminated upon encountering bedrock. The upper layer consisted mostly of architectural materials; the lower layer contained both faunal material and the historical artifacts. A total of 23 historic era artifacts were recovered. A single radiocarbon date was run on a sample of “charred material” recovered from Layer II (3); dates quoted above are at the 2 sigma range.

Stratigraphy, west wall profile:

- I 33 cmad - 12 cmbd, 5 to 43 cm thick; limestone cobbles and boulders; clear, wavy boundary; architectural.
- II 10-43 cmbd, 0 to 31 cm thick; black (10YR 2/1, moist) to very dark brown (10YR 2/2, dry); gravelly, fine sandy loam; moderate, medium crumb structure; soft, friable, non-sticky, non-plastic consistency; many medium tubular roots; cultural.



Figure 50. Feature P cairn, facing northeast.



Figure 51. Feature Q cairn, facing east.

Current assessment:

Feature S is in fair condition. It is relatively well defined, although overgrown with grass (Figure 52). The boulder outline and portions of paving are intact, however the structure has been disturbed by previous excavation (Figure 53). Large trees in the area appear to have not impacted the feature, although a few small trees have grown up through the paving. It measures 4 m long, 3.5 m wide, and 38 cm tall (Figure 54).

Site 1725 Feature U

Feature description (Beardsley 2001:IV.63):

Function: C-shaped wall, temporary habitation

Dimensions: 4 x 2.5 x .7 m

Condition: poor

Integrity: altered

This feature is part of a compound feature that includes a terrace (Feature K) and a cairn (Feature P). All three walls of this C-shaped alignment have nearly collapsed. It is constructed with limestone cobbles and boulders on top of a very thin soil horizon and partially exposed bedrock. The opening in the wall is on the southwest side, directly southeast from the paved terrace of Feature K. The two longer sections of the wall are aligned southwest/northeast, with the shortened connecting wall aligned southeast/northwest. Only four on-end limestone slabs were located in the rubble; however, their presence suggests their use in forming at least the outer walls, retaining a central core filled with rubble.

Its function, inferred as a habitation structure, is based solely on its [sic] comparability to other, similar structures in Hawaiian sites.

Current assessment:

Feature U is in very poor condition. It is completely overtaken by grass and difficult to define, even beneath the vegetation (Figure 55). The feature has deteriorated significantly from when it was recorded in 2001. The c-shaped morphology of the wall is no longer visible, and the feature now looks more like a piled mound with no formal construction apparent (see Figure 38). It measures 4.3 m long, 2.4 m wide, and up to 62 cm tall.

Site 1725 Feature V

Feature description (Beardsley 2001:IV.63):

Function: cairn, possible agriculture

Dimensions: 2.7 x 2 x .7 m

Condition: fair

Integrity: unaltered

This feature is a roughly circular cairn constructed entirely of limestone cobbles and boulders, the largest of which is an on-edge slab roughly 80 cm in length and placed on the north side of the rock mound. The feature is part of a compound feature that includes a U-shaped wall (Feature O) and another cairn (Feature Q). Within this frame, it is placed at northernmost U corner [sic]; whereas the Feature Q rests at the termination point of one of the legs of the U. An excavation near this feature and within the area defined by



Figure 52. Feature S platform, facing south.

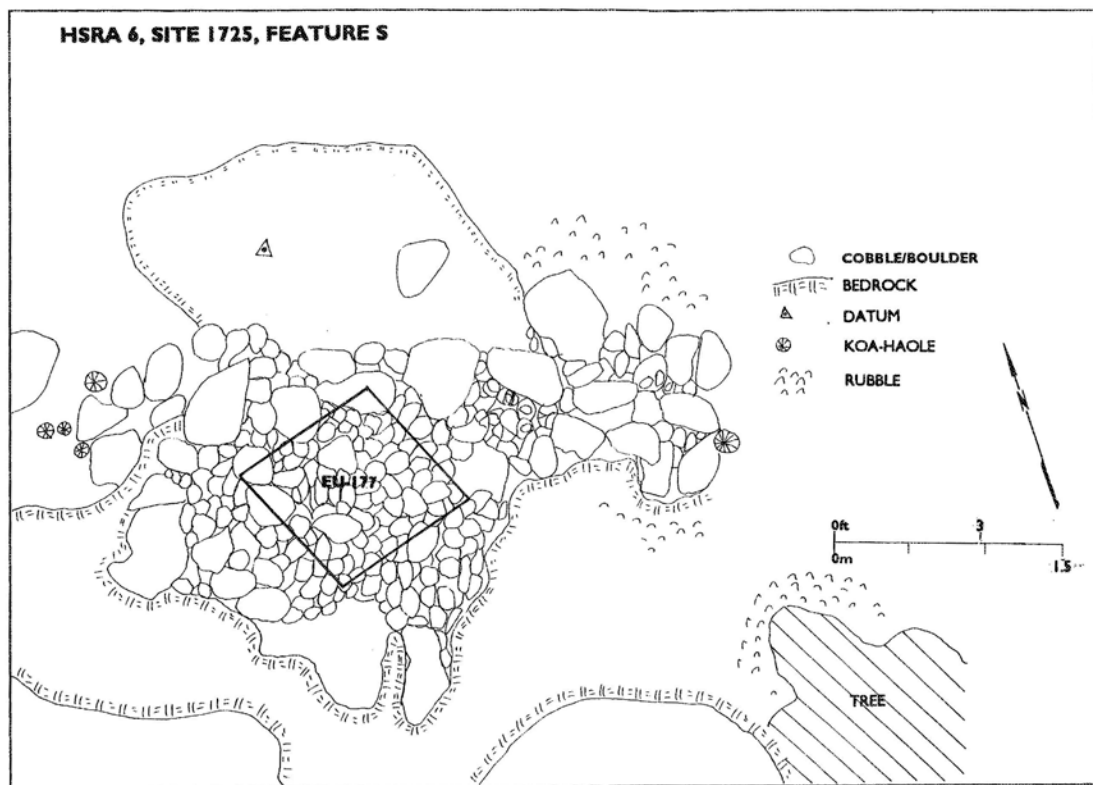


Figure IV-46. Site 1725, Feature S

Figure 53. Feature S, as mapped and excavated by Beardsley (2001).

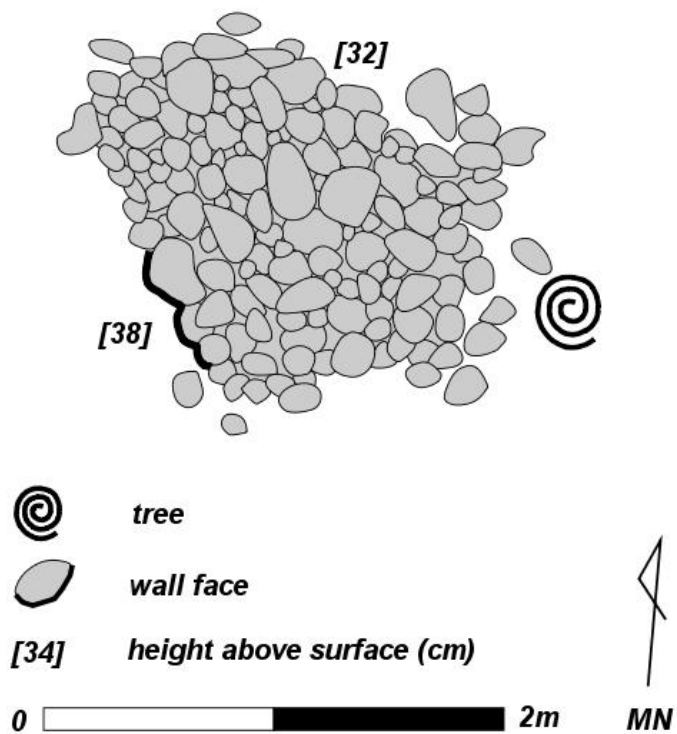


Figure 54. Current plan view drawing of Feature S.



Figure 55. Feature U, facing northwest.

Feature O demonstrates that the Feature V cairn is built atop a thin cultural soil layer. Its function as an agricultural feature is inferred from analogies drawn from other Hawaiian cairns; although it could also serve as some sort of marker or perhaps even a field clearance mound.

Current assessment:

Feature V is in poor condition (Figure 56). It is well defined, but only a few portions of stacking remain and the structure has collapsed so that the top surface is now sloping inward (see Figure 49). It is overgrown with grass, although large trees in the area do not appear to contribute to its deterioration. It currently measures 2.5 m long, 2.3 m wide, and .61 m tall.

Site NL-25

Site NL-25 is described in a single report (Tuggle 1983), which could not be located. Attempts were made to find the report at the State Historic Preservation Division library, the Department of the Navy, and International Archaeological Research Institute, Inc. The site is briefly mentioned in a later cultural resource summary (Tuggle and Tomonari-Tuggle 1994:62):

Two sites are recorded in this area. One (1725) is a Hawaiian complex, with a possible 19th century component. The second (NL-25) is a 20th century homestead.

The Hawaiian features of 1725 are in excellent condition and the site should be mapped and tested. In addition the features recorded by Tuggle (1983) need to be incorporated into the overall site boundary.

The homestead should be mapped and photographed.

A more recent report provides no new information in a general description of Site 1725 (Beardsley 2001:IV.56):

Two sites are recorded in this 350-by-250 m area: a Hawaiian complex with a possible 19th century component, Site 1725, and a 20th century homestead, Site NL-25. The area is west of the main naval air station and adjacent to the Campbell Industrial Park. It is fairly disturbed in parts of the area, relatively undisturbed in others. This Hawaiian site is of principal interest in the current project work; the second site was noted but no additional work was completed on it.

Current Assessment:

Site NL-25 was not located. It may have been covered in thick vegetation or destroyed by activity on the parcel in the 30 years since it was described. Alternatively, it is possible that Site NL-25 corresponds with one of the newly identified features recorded during the current survey. However, given the lack of information on the site, with no description, precise location, maps, or photographs, it is very difficult to determine if one of the newly identified features is indeed Site NL-25. Possible candidates are the Feature 1 trash pit and the Feature 3 enclosure complex, both of which contain 20th century cultural material.



Figure 56. Feature V, facing northeast.

Newly Identified Features

A total of ten features were identified that were not previously recorded. These are all in the vicinity of Site 1725 and should be included within the boundary of that site (see Figure 17). The new features were numbered arbitrarily, in numerical format, to distinguish them from the previously recorded features, which were assigned alphabetical designations. Four of the new features were excavated, indicating that two of them were likely used in the early 1900s.

Feature 1

Function: sinkhole, trash disposal

Dimensions: 8.5 x 8.5 x 1.4 m deep

Condition: poor

Integrity: unaltered

Feature 1 is a trash-filled sinkhole located 43 m south of the Feature Q cairn. The feature is composed of a sinkhole partially covered by a concrete foundation and metal beams (Figure 57). The concrete measures 8.5 x 8.5 m square and the surface of the trash lies as deep as 1.4 m below the concrete foundation. Four metal beams cross over the pit, as if once supporting a structure (Figure 58). The concrete is cracked and falling apart, with portions fallen into the sinkhole. Items within the sinkhole include remnants of a mattress and a washing machine, a bed pan, glass bottles, ceramics, and old Hawaii license plates (Figure 59). Based on the colors and layout, the license plates possibly date to 1929 and 1957–60 (License Plates of the World 2012).

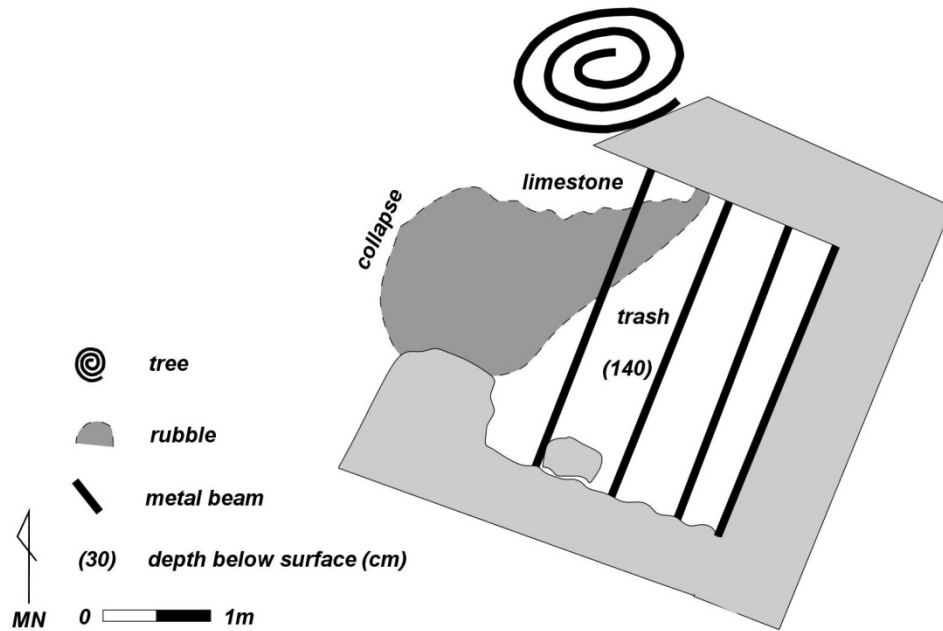


Figure 57. Feature 1 trash-filled sinkhole, plan view drawing.



Figure 58. Feature 1 trash-filled sinkhole, facing northeast.



Figure 59. An assortment of material from the Feature 1 trash-filled sinkhole.

Feature 2

Function: platform, function undetermined

Dimensions: 5 x 4 x .3 m

Condition: fair

Integrity: unaltered

Feature 2 is a platform located 18 m south of the Feature S platform. It is constructed of stacked and piled limestone cobbles and stones (Figure 60). Two courses of stacking are evident. The structure is roughly oval in plan, with a slightly convex surface (Figure 61). It measures 5 m long, 4 m wide, and .3 m high. The feature is in fair condition. It is relatively well defined but overgrown with grass. Construction style similar to surrounding traditional features suggests a traditional age for the platform, although its function is undetermined.

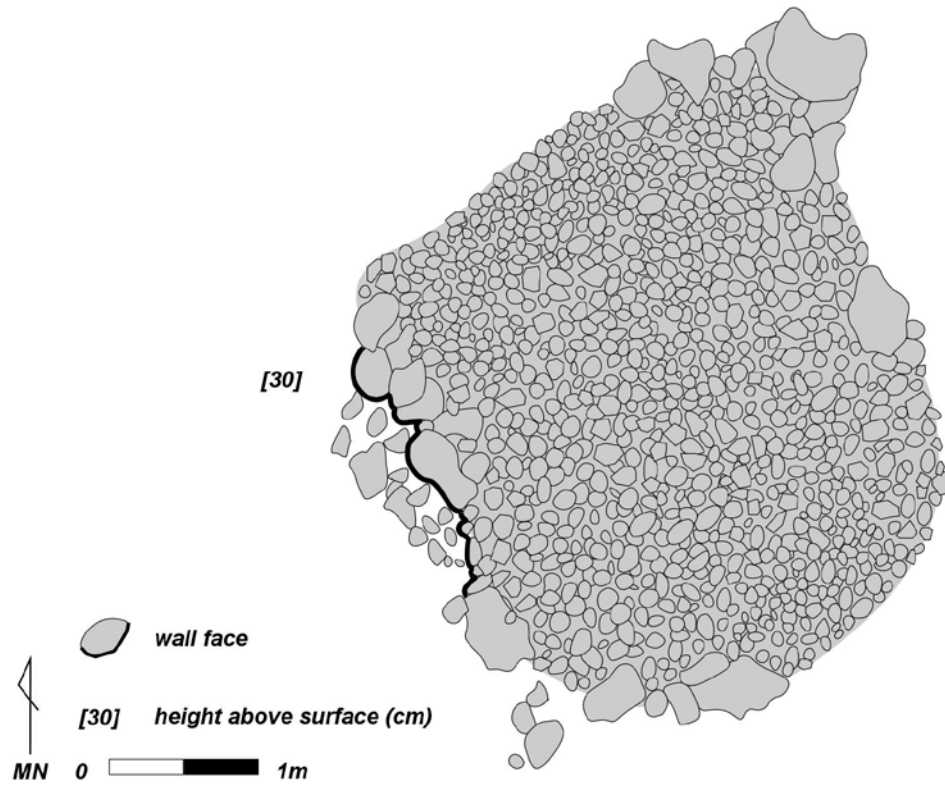


Figure 60. Feature 2 platform, plan view drawing.



Figure 61. Feature 2 platform, facing west.

Feature 3

Function: enclosure complex, habitation/agriculture

Dimensions: 31 x 22.5 x .83

Condition: poor

Integrity: altered (missing walls)

Feature 3 consists of two mounds and several walls that form three partial enclosures, located 15 m northwest of the Feature S platform. The partial enclosure on the southwest side of the complex has a north and east wall (Figure 62). It measures 17 m long and 13 m wide. The walls are composed of cobbles, stones, and boulders stacked four courses to .8 m high, with at least two on-edge limestone slabs incorporated into the construction. A trail or walkway is on the east, formed by two walls, one associated with this enclosure and the other with the central enclosure (Figure 63). A 2 m-diameter mound lies within the enclosure. It is composed of cobbles and stones piled to .4 m high. An accumulation of cobbles and stones within the enclosure might represent a former paving or wall fall. This accumulation measures 11 by 5 m and is located near the east wall.

The central enclosure is on the opposite side of the double alignment. Its west wall forms the trail or walkway noted earlier (17 m long) and its north wall is 8.5 m long and .6 m tall.

The largest enclosure is on the north. Its south wall is shared with the latter two enclosures and measures 22.5 m long. The east wall is 9 m long, .7 m high, and incorporates two on-edge limestone slabs in its construction (Figure 64). The trail or walkway leads into this enclosure from the south. A 3 m-diameter mound sits just off the east wall (Figure 65). The mound is composed of cobbles piled to a height of .8 m. A large tree grows out of the center of the mound.

The feature is in poor condition, with parts of the walls collapsed, and portions of the enclosures missing or poorly defined. The structures are overgrown with grass and impacted by large trees. Bottle glass incorporated within the walls could not be correlated with feature construction (see Figure 62 for bottle locations). Feature 3 likely functioned as a habitation or agricultural area.

A single excavation unit, TU 1, was placed in the interior corner of the northwestern enclosure. It was a 50-x-50 cm unit excavated in three layers to 30 cmbs (cm below surface), where it was terminated upon encountering tightly packed limestone. The upper layer consisted of surface detritus and silt containing an historic artifact; the second layer contained architectural material, and the lowest layer was sterile (Figure 66). The architectural material consisted of cobbles and stones that may have been associated with wall construction. They were less tightly packed than the rock within Layer III, which is thought to have been naturally deposited.

Stratigraphy, northeast wall profile:

- I 0–10 cmbs, 10YR 3/1 silt; 30% coral gravel; historic material; smooth, abrupt boundary; cultural.
- II 10–20 cmbs, 10YR 3/3 silt; 50% coral gravel; smooth, abrupt boundary; architectural.
- III 20–30 cmbs, 10YR 3/4 silt; 50% coral gravel; base of excavation; sterile.

A single artifact was found within Layer I. This was a pre-WWI-era metal first aid kit cover (Figure 67). Text embossed on the cover reads as follows, indicating a manufacture date of 1918 in Chicago:

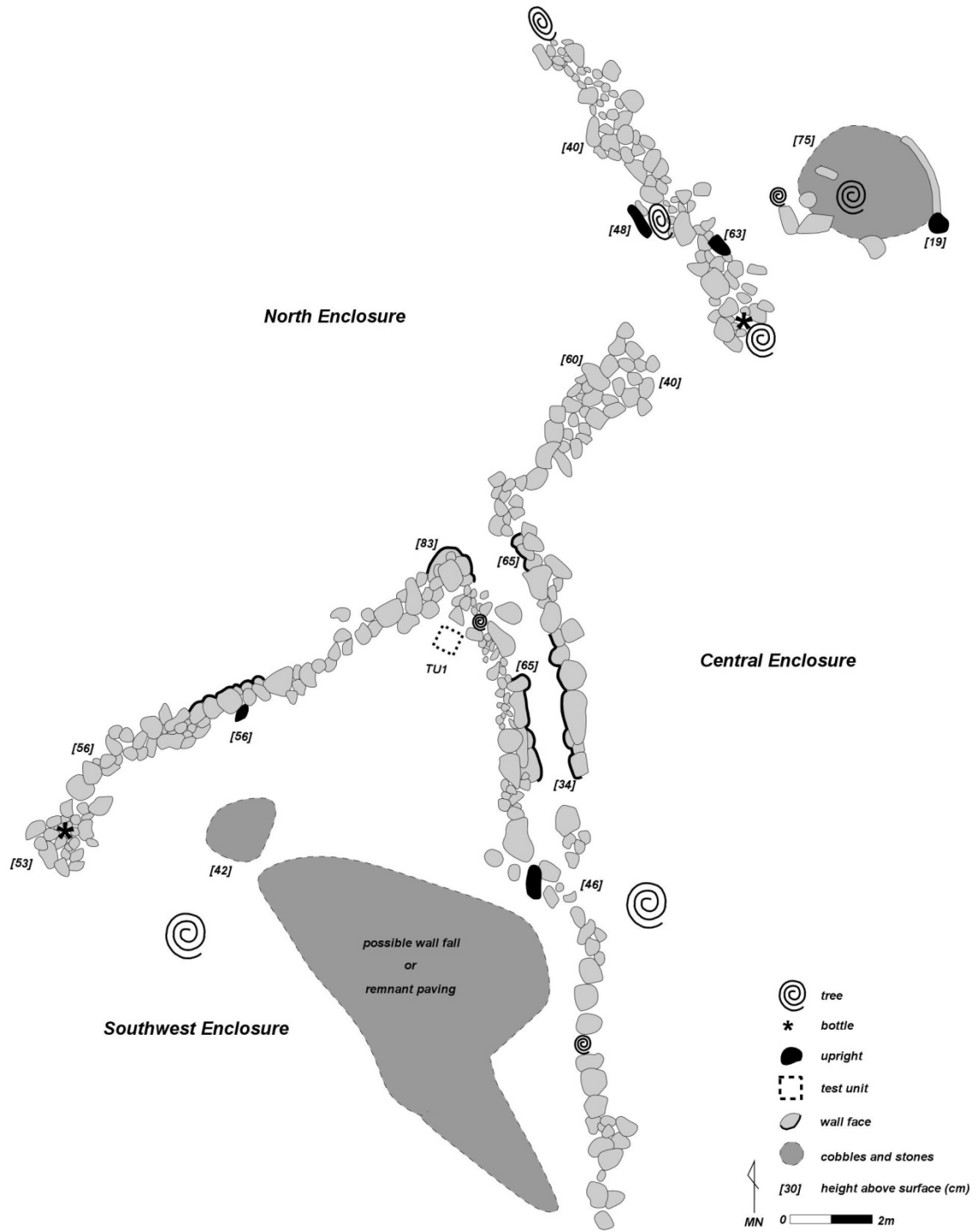


Figure 62. Feature 3 enclosure complex, plan view drawing.



Figure 63. Feature 3 walls of the southwest enclosure (left) and central enclosure (right), facing south.



Figure 64. Feature 3, east wall of the north enclosure. Orientation is to the north.



Figure 65. Feature 3, mound outside north enclosure. Orientation is to the north.

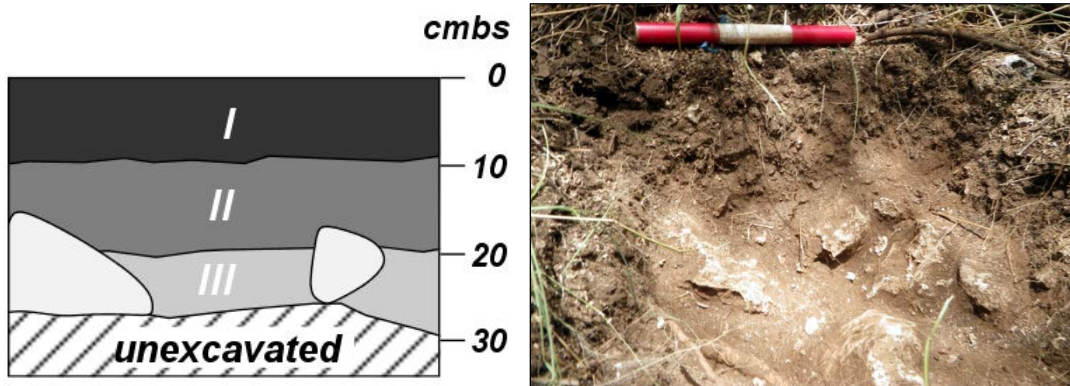


Figure 66. TU 1 northeast face profile drawing and photo.



Figure 67. First aid kit cover dated to 1918, found in TU 1 at the Feature 3 enclosure complex.

FIRST AID PACKET—U.S.
 CONTRACT AUG. 1918
 BAUER & BLACK
 CHICAGO U.S.A.
 TO OPEN PULL RING

PATENT APPLIED FOR

An identical item was found online (Figure 68). However, where this piece states “U.S. ARMY,” on the piece found in excavation, the lettering that follows “U.S.” cannot be deciphered. The WW2 US Medical Research Center website describes the Bauer & Black medical kit:

This dressing, already developed in 1904, and subsequently introduced in 1906, was supplied to the troops in a sealed brass casing, to protect the bandage inside against gas attacks, and to also ensure that it remained sterile. Early examples of these First Aid packets were opened by pulling a metal D-ring, which separated the two halves of the packaging, revealing the paper-sealed bandage within (contents consisted of 3 separate items: one sterile bandage, another sterile bandage, and two large safety pins). As medical advances and discoveries were made, it was found that the First Aid Packet was inadequate for dealing with front line casualties and wounds (nevertheless, millions were produced during World War 1).

Following the Great War, millions of **First-Aid Packet – U.S. Army** (manufactured by Bauer & Black, Chicago, U.S.A.) containing small sterile dressings and carried by each soldier in a pouch attached to his pistol or cartridge belt, were still available packed and sealed in their little brass Olive-Drab container. Notwithstanding the general policy to utilize existing stocks first, the Medical Equipment Laboratory (part of the Medical Field Service School, Carlisle Barracks, Pennsylvania) started investigating methods to improve existing medical equipment and explore the possibility of introducing new products. Studies were started in 1922 which would ultimately lead to a new First-Aid Packet, U.S. Government, Carlisle Model (new metal container with improved contents).

The 1927 Depression and budget restrictions would however hold up manufacture, although its characteristics were widely known to the US Army authorities, with the 'new' item being designated First-Aid Packet, New Style.



Figure 68. Bauer & Black first aid kit, showing front and back, similar to the one found in TU 1 (WW2 Medical Research Center 2012).

Feature 4

Function: c-shape, temporary habitation, military

Dimensions: 3.2 x 1.6 x 1 m

Condition: good

Integrity: unaltered

Feature 4 is a c-shaped structure located 30 m northwest of Feature 3. It is composed of six courses of stones stacked to 1 m high on the east side (Figure 69). The west side is also stacked but is 60 cm lower than the east side. This feature is in good condition, appearing to not be affected by the surrounding grass and trees. It is well defined and mostly intact (Figure 70). Based on construction style and data collected during excavation, the structure was likely used first for traditional Hawaiian temporary habitation then later reused in the early 20th century as a military fortification.

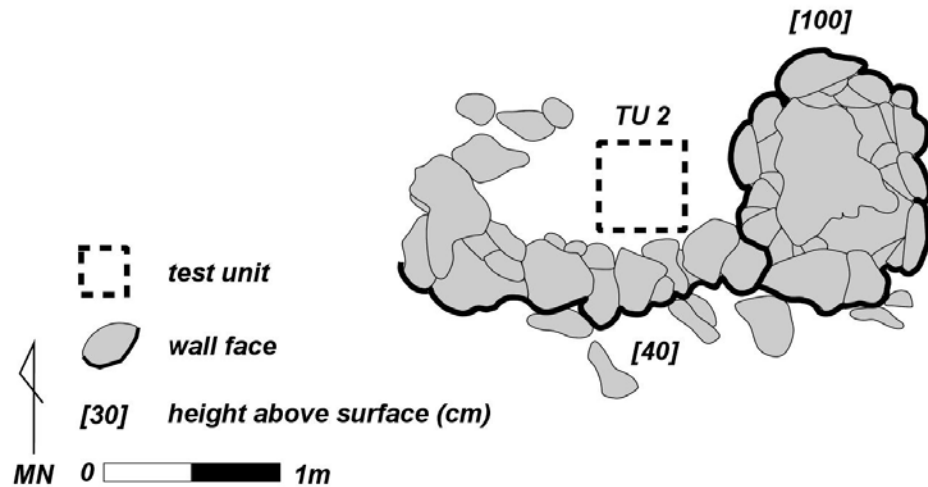


Figure 69. Feature 4 c-shape, plan view drawing.



Figure 70. Feature 4 c-shape, showing intact area of stacking. View is to the northwest.

A single excavation unit, TU 2, was placed within the c-shape. It was a 50-x-50 cm unit excavated in one layer to 25 cmbs, where it was terminated upon encountering bedrock. The single layer of stratigraphy consisted of surface detritus and silt containing historic refuse and scattered charcoal (Figure 71). Charcoal was collected from 10–25 cmbs.

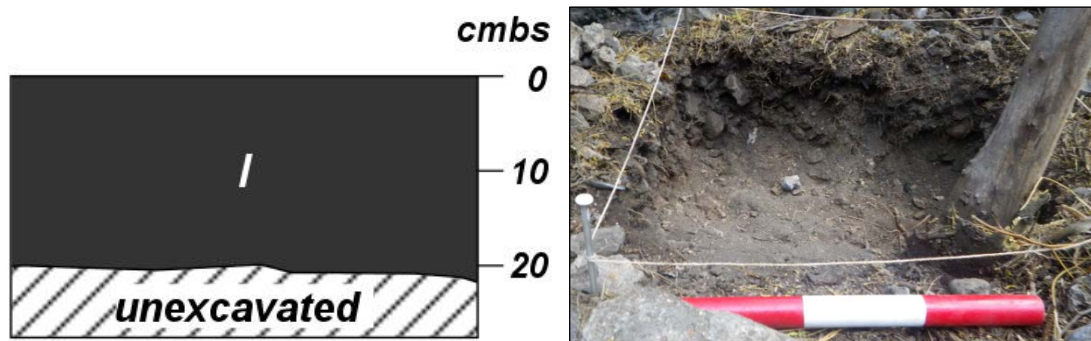


Figure 71. TU 2 south face profile drawing and photo.

Stratigraphy, south wall profile:

- I 0–25 cmbs, 10YR 2/1 silt; 40% coral gravel; historic material, charcoal; base of excavation; cultural.

The excavation yielded an abundance of broken glass and metal. Pieces that might be diagnostic were collected for analysis. These consist of glass fragments, two metal nails, a metal button, and six brass discs. The discs were the only materials for which information could be found. They are stamped with numbers, but only one has readable letters: “U.S. NAVY YARD PEARL HARBOR, T.H.” (Figures 72 and 73). Numbers are also visible on the backs, and on at least two discs, an anchor symbol is barely perceptible. A similar item was found online, with an anchor symbol on the back (Figure 74). This is described by The Coin Guy, Hawaii (2012) as:

US NAVY YARD PEARL HARBOR TERRITORY OF HAWAII “BANGO” TOOL
CHECK TAG, VERY RARE ACTUALLY SURVIVED THE JAPANESE BOMBING
Dec. 7th 1941 SUPER HISTORICAL ITEM WWII COLLECTIBLE

Bango tags were used during the plantation era in Hawai‘i as a way to keep track of foreign laborers as early as 1905 (Lo 2004):

BANGO is the Japanese word for NUMBER, and the plantations used bango tags to simplify record-keeping-related matters.

Oahu Sugar Co. started issuing bango tags to the sugar laborers in 1905 as a solution to the difficulty of keeping track of hundreds of workers with names that were strange, hard to spell, and hard to pronounce. To the Hawaiian, Chinese, Filipino, Japanese, Portuguese, Puerto Rican, Spanish, Korean and all the other ethnic groups brought to Hawaii to work for the sugar plantations, the identity tags and numbers were part of plantation life for half a century.



Figure 72. Bango tags found in TU 2 at the Feature 4 c-shape. Front shown.



Figure 73. Bango tags found in TU 2 at the Feature 4 c-shape. Back shown.



Figure 74. Similar item found online, labeled as “bango tool check tag” (The Coin Guy, Hawaii 2012). Front depicts Pearl Harbor lettering and back shows anchor symbol.

Initially, the tags were made of metal...the number on the tag became an employee's identification number. The bango tag was presented to the paymaster on paydays, to the timekeeper when the laborer checked in for work and checked out at pau hana. And the bango tags were used at the plantation stores for purchases.

Produced at the blacksmith shops of the plantations, the brass or aluminum tags, by their shape, indicated ethnicity, sex, and other characteristics. Like military “dog tags,” bango tags were worn on chains around the neck...

The bango tags found in excavation were used at Pearl Harbor, as opposed to the plantation bango tags described above. The Pearl Harbor tags might have been utilized for checking out tools and equipment, as noted earlier. The “T.H.” engraving, or “Territory of Hawaii,” indicates that the tags were manufactured before Hawai‘i became a state in 1959. The Pearl Harbor Navy Yard was constructed in 1908 (NAVSEA 2012), thus the tags were used within a roughly 50 year time period from 1908–1959.

Feature 5

Function: wall, boundary

Dimensions: 33 x .8 x .6 m

Condition: poor

Integrity: unaltered

Feature 5 is a wall located just north of the Feature U c-shape. The wall is composed of low-piled stones with several on-edge limestone slabs incorporated into the construction (Figure 75). It measures 33 m long, .8 m wide and up to .6 m high. The wall is discontinuous, with many collapsed or missing segments. For this reason, the wall is in poor condition. A 2.5 m gap occurs near the center of the wall and several small gaps occur throughout its length. The wall is more defined in portions where the on-edge slabs remain in place, but is overgrown with grass and difficult to discern in other less intact segments (Figure 76). The wall might have been used traditionally to mark a boundary.



Figure 75. Feature 5 wall, plan view drawing.



Figure 76. Feature 5, center portion of the wall, facing south.

Feature 6

Function: platform, possible habitation

Dimensions: 2.7 x 2 x .4 m

Condition: fair

Integrity: unaltered

Feature 6 is a platform located 25 m west of the Feature 4 c-shape. The platform is composed of piled cobbles and stones, measuring 2.7 m long, 2 m wide, and .4 m tall (Figure 77). It is roughly rectangular in plan and flat on top (Figure 78). Feature 6 is in fair condition, well defined but overgrown with grass. Based on construction style, it may have been used as a traditional habitation site.

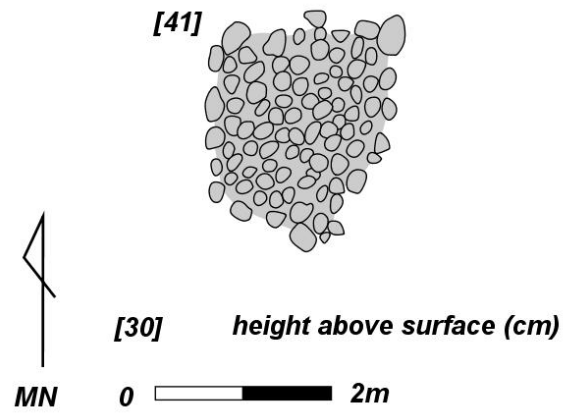


Figure 77. Feature 6 platform, plan view drawing.



Figure 78. Feature 6 platform, facing southeast.

Feature 7

Function: c-shape, temporary habitation

Dimensions: 8 x 5.5 x .6 m

Condition: fair

Integrity: unaltered

Feature 7 is an elongated c-shaped structure located 50 m northwest of Feature 5. It is composed of piled stones, with some on-edge limestone slabs incorporated in the construction (Figure 79). Low alignments extend from the apex of the c-shape, so that the feature measures 5.5 m northwest/southeast and 8 m north/south. The structure is tallest at the apex, where upright slabs rise to .6 m high (Figure 80). Feature 7 is in fair condition. The structure is overgrown with grass but is well defined at the apex, with several uprights still standing. The elongated arms of the c-shape are collapsed and less defined. It likely functioned as a traditional temporary habitation shelter.

A single excavation unit, TU 3, was placed in the interior apex of the c-shape. It was a 50-x-50 cm unit excavated in four layers to 35 cmbs, where it was terminated upon encountering bedrock. The upper layer consisted of surface detritus and silt containing isolated, scattered charcoal fragments; the second layer contained a single *pipipi* shell (*Nerita picea*), and the lower two layers were sterile (Figure 81).

Stratigraphy, northeast wall profile:

- I 0–8 cmbs, 10YR 2/2 silt loam; 40% coral gravel; isolated, scattered charcoal; smooth, abrupt boundary; cultural.
- II 8–18 cmbs, 10YR 3/4 sandy loam; 40% coral gravel; smooth, abrupt boundary; cultural.
- III 18–25 cmbs, 10YR 5/4 silt loam; 10% coral gravel; smooth, abrupt boundary; sterile.
- IV 25–35 cmbs, 10YR 7/3 silt loam; 10% coral gravel; base of excavation; sterile.

Feature 8

Function: mound, possible burial

Dimensions: 3.5 x 1 x .4 m

Condition: good

Integrity: unaltered

Feature 8 is a mound located 4 m southwest of the Feature 7 c-shape (see Figure 79). The mound is oval in plan and is composed of piled stones with two on-edge limestone slabs incorporated into its construction along the east edge (Figure 82). The mound measures 3.5 m long, 1 m wide, and .4 m high, and a low alignment extends another 1.5 m from the east end. Feature 8 is in good condition, relatively intact, with the uprights still standing, although overgrown with grass. Construction style of this feature is more formal than an agricultural mound, suggesting that the structure may mark a traditional burial. Nothing found in excavation supports this hypothesis, however, as the area beneath the mound was not excavated so any possible remains would not be disturbed.

A single excavation unit, TU 4, was placed along the east edge of the mound, against the uprights. It was a 50-x-50 cm unit excavated in two layers to 32 cmbs, where it was terminated upon encountering bedrock (Figure 83). The upper layer consisted of surface detritus and silt; with no cultural material; the second layer contained a single *turbo* shell (*Turbo sandwicensis*). Given the absence of cultural material in this basal layer, it is likely that the shell was deposited naturally.

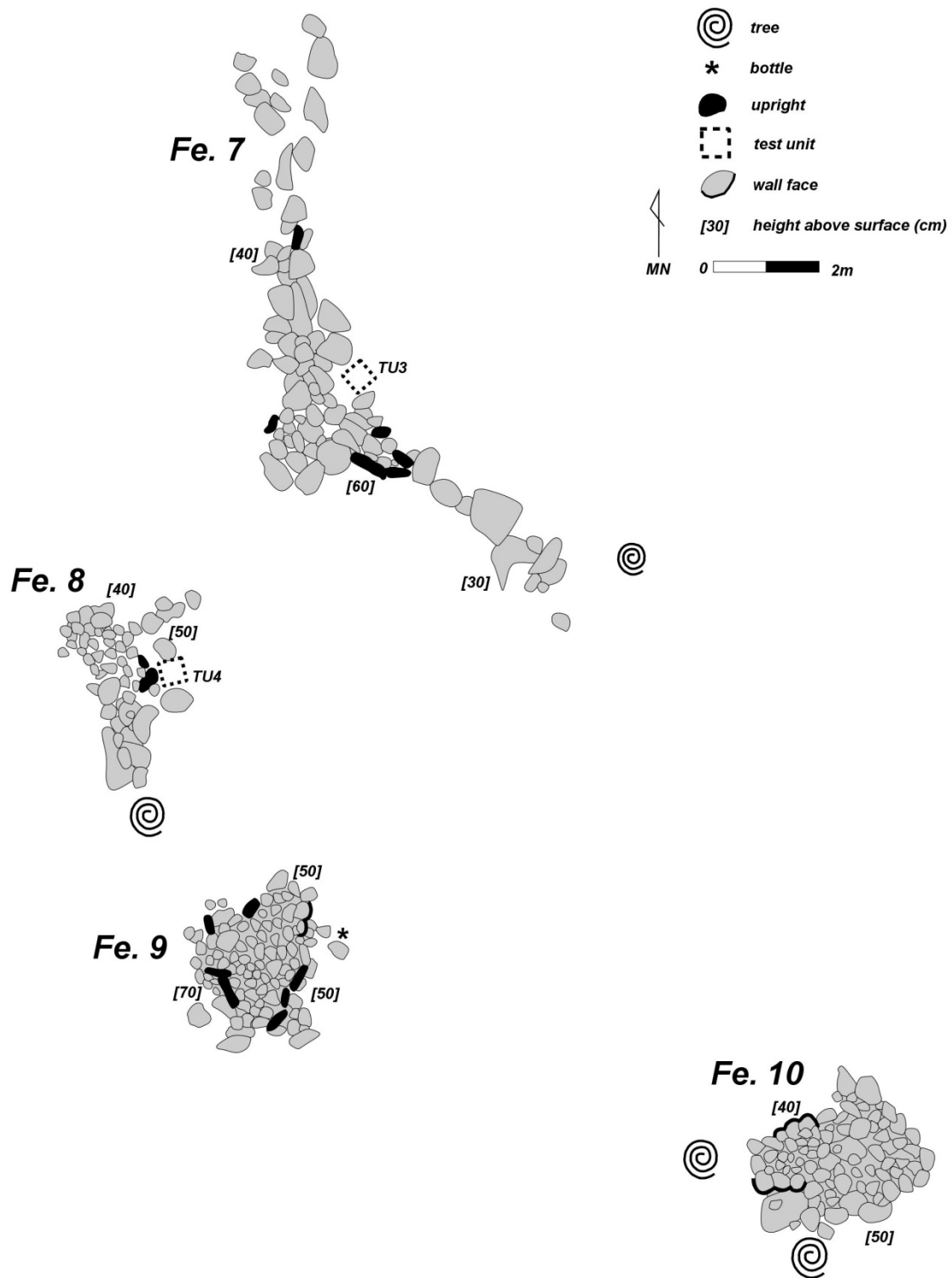


Figure 79. Features 7–10, plan view drawing.



Figure 80. Feature 7 c-shape, at apex. Orientation is to the northwest.

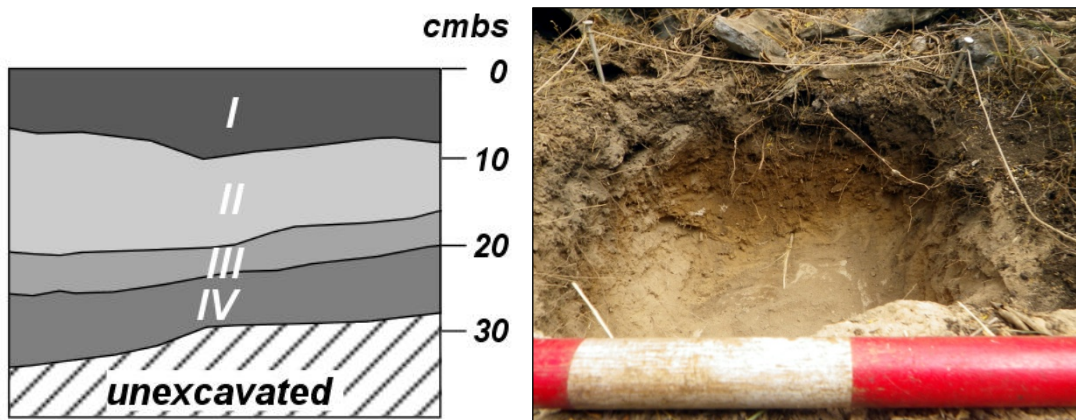


Figure 81. TU 3 northeast face profile drawing and photo.

Stratigraphy, northeast wall profile:

- I 0–8 cmbs, 10YR 2/1 silt loam; 20% coral gravel; isolated, scattered charcoal; smooth, abrupt boundary; sterile.
- II 8–32 cmbs, 10YR 4/4 silt loam; 10% coral gravel; base of excavation; sterile.



Figure 82. Feature 8 mound, facing west.

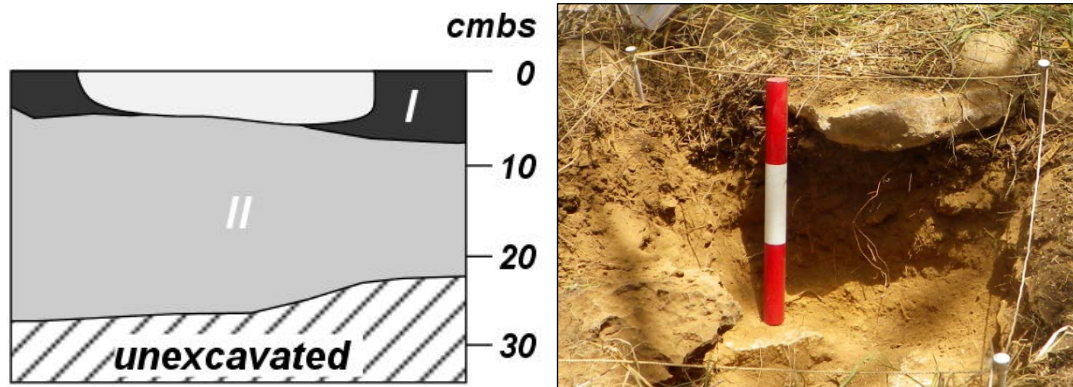


Figure 83. TU 4 northeast face profile drawing and photo.

Feature 9

Function: mound, possible burial

Dimensions: 3.5 x 3.3 x .7 m

Condition: good

Integrity: unaltered

Feature 9 is a mound located 3 m south of the Feature 8 mound (see Figure 79). It is composed of piled and stacked cobbles and stones with a series of several on-end limestone slabs defining the perimeter of the mound (Figure 84). The structure is circular in plan, measuring 3.5 m long, 3.3 m wide, and .7 m high. The stacked portion is on the east end and is comprised of three courses of stone. A relatively modern machine-made clear bottle lies on the surface on the east side of the mound. Feature 9 is in good condition, with uprights still standing, although overgrown with grass. Construction style, more formal than an agricultural mound, suggests that this feature might have functioned as a traditional burial structure, although no subsurface testing was conducted to confirm this hypothesis.

Feature 10

Function: mound, possible burial

Dimensions: 3.5 x 2.4 x .5 m

Condition: good

Integrity: unaltered

Feature 10 is a mound located 10 m southeast of the Feature 9 mound (see Figure 79). It is constructed with stacked and piled stones, with three courses of stacking evident on the west side. The structure is rectangular in plan, measuring 3.5 m long, 2.4 m wide, and .5 m high (Figure 85). Feature 10 is in good condition, well defined but overgrown with grass. Construction style, more formal than an agricultural mound, suggests that this feature might have functioned as a traditional burial structure, although no subsurface testing was conducted to confirm this hypothesis.

Sinkholes

In addition to the Feature D and Feature 1 sinkholes described above, two other sinkholes are located on the property. They were inspected for human modification and cultural remains, and none were found, thus they are not considered archaeological sites.

Sinkhole 1 is located near the southwest corner of the property (Figure 86). It is protected by a concrete barricade (Figure 87). The sinkhole consists of a depressed area 16 m long and 4 m wide. There are two small openings that lead to overhanging caves. The opening on the east is 2.7 m long, .6 m high, and leads to a low cave that extends 4.1 m from the opening (Figure 88). An entire small mammal skeleton, possibly a mongoose, lies inside. The opening on the west is 1.3 m long, .5 m high and leads to a 2 m-long cave. Nothing was observed inside the cave (Figure 89).

Sinkhole 2 is located near the center of the property, 60 m northwest of the Feature 6 platform. There is a single opening, and it measures 1.2 m long, .7 m wide, and the cave beneath extends to 1.8 m deep (Figure 90). Nothing was observed inside.

Modern Disturbance

Signs of modern disturbance were observed throughout the parcel, with zones of bulldozer push near the northern and southern ends of the property (see Figure 86). Smaller refuse piles are scattered throughout, and two roads run across the northern reaches of the parcel. The



Figure 84. Feature 9 mound, facing west.



Figure 85. Feature 10 mound, facing southeast.

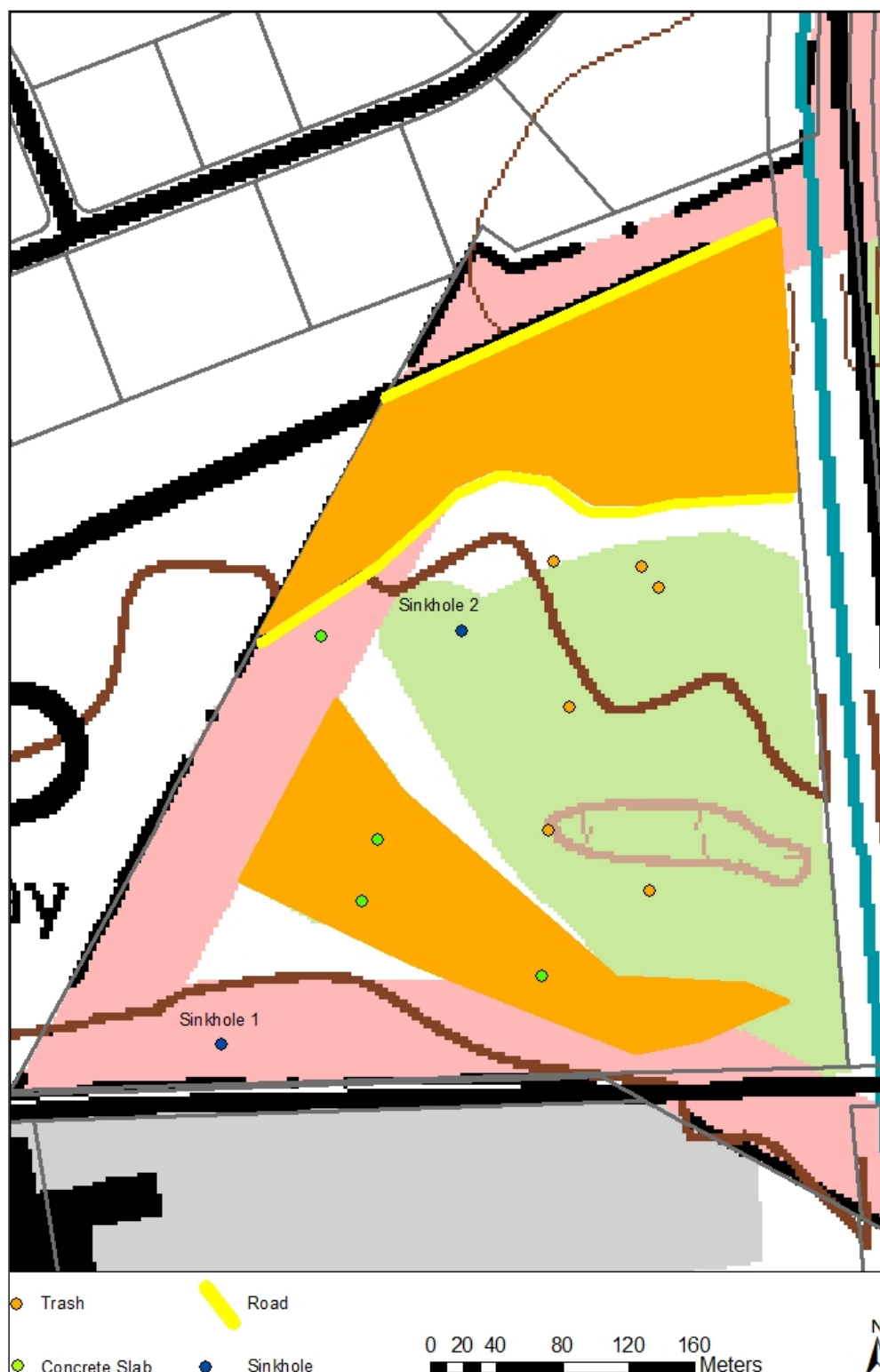


Figure 86. Location of sinkholes and modern disturbance on the property.



Figure 87. Concrete barricade surrounding Sinkhole 1. Orientation is to the east.



Figure 88. Eastern opening of Sinkhole 1. Orientation is to the east.



Figure 89. Western opening to Sinkhole 1. Orientation is to the northwest.



Figure 90. Opening to Sinkhole 2, facing north.

northernmost road is the end of the quarter mile track of the former Hawaii Raceway Park. Tires and other modern debris are strewn about in this area (Figure 91). Several concrete slabs were noted throughout the survey area as well (Figure 92).

Summary of Findings

Two archaeological sites were previously recorded on TMK: (1)9-1-013:001. These include Site 1725, a pre-Contact to early historic habitation/agriculture/burial/ranching complex, and Site NL-25, a 20th century homestead. Site 1725 included 17 previously recorded components and all were found. An additional ten features were identified and are subsumed within the 1725 site number. Very little information for Site NL-25 could be obtained, and the site was not located.

Of the ten newly identified features of Site 1725, all were described, mapped, and photographed, and GPS positions were obtained. Subsurface testing indicates that the Feature 4 c-shaped structure was likely used in the early-20th century as a military fortification. Construction style of the structure suggests that it may have been built earlier, during traditional Hawaiian times. The other three excavated features did not yield any material to determine age or function. The WW II-era artifact found within the Feature 3 enclosure could not be correlated to the age of the structure, although bottle glass incorporated within the walls of the enclosures may indicate an historic age of construction.

Much of the property was found to be disturbed with large trash piles, bulldozer push piles, concrete slabs, and paved roads. Two unmodified sinkholes were also noted within the parcel.

Historic Properties Discussion

A total of 27 features of Site 50-80-12-1725 occur on TMK: (1)9-1-013:001 (Table 2). Of these, 17 were previously recorded (Beardsley 2001) and ten are newly identified. Letter designations were given to previously recorded features, while number designations were given to newly identified features. The following paragraphs discuss the data collected for each feature.

Feature B was previously identified as a traditional agricultural terrace. The feature has deteriorated significantly since it was originally recorded. Nevertheless, based on morphology and construction style, the original age and functional assessment appear to be accurate.

Feature C was previously identified as an historic boundary wall. Large portions of the feature have deteriorated, although some sections remain intact. Location along the property's edge and construction style support the original age and functional assessment. The age of Feature C remains indeterminate, however, as further work is needed to determine if the wall is historic in age based on construction materials, methods, and stratigraphic association.

Feature D is an historic trash pit. It appears today as originally described. Surface artifacts and morphology of the feature support the previous age and functional assessment.

Feature G is a wall with possible uses for traditional agriculture or as a boundary marker. Today this feature is so badly deteriorated that these original assessments cannot be confirmed.

Feature H is an enclosure that was used traditionally for agriculture. Like Feature G, it is so badly deteriorated that these original assessments cannot be confirmed.

Feature I is an enclosure utilized traditionally for habitation. The feature appears as it was originally described. Morphology, size, and construction style confirm the age and functional assessment.



Figure 91. End of Hawaii Raceway Park's quarter mile track, showing an accumulation of derelict tires. Orientation is to the northeast.



Figure 92. Concrete slab in southern portion of the project area. Bulldozer push is visible in the background. Orientation is to the west.

Table 2. Historic Properties Data for Site 50-80-12-1725

Feature	Type	Current Condition	Age	Function
B	Terrace	Very Poor	Traditional	Possible Agriculture
C	Wall	Poor to Good	Undetermined	Possible Boundary
D	Sinkhole	Good	Historic	Trash Disposal
G	Wall	Very Poor	Traditional	Possible Agriculture or Boundary
H	Enclosure	Very Poor	Traditional	Possible Agriculture
I	Enclosure	Fair	Traditional	Habitation
J	Cairn/Platform	Fair	Traditional	Habitation
K	Terrace	Fair	Traditional	Habitation
L	Enclosure	Fair	Traditional	Habitation and Burial
M	Cairn	Fair	Traditional	Possible Agriculture
N	Cairn	Fair	Traditional	Possible Agriculture
O	Wall	Fair	Traditional	Possible Agriculture
P	Cairn	Poor	Traditional	Possible Agriculture
Q	Cairn	Poor	Traditional	Possible Agriculture
S	Platform	Fair	Traditional	Possible Agriculture
U	Wall	Very Poor	Traditional	Habitation
V	Cairn	Poor	Traditional	Possible Agriculture
1	Sinkhole	Poor	Historic	Trash Disposal
2	Platform	Fair	Traditional	Undetermined
3	Enclosure Complex	Poor	Traditional	Habitation/Agriculture
4	C-Shape	Good	Traditional with Historic Re-Use	Habitation
5	Wall	Poor	Traditional	Boundary
6	Platform	Fair	Traditional	Habitation
7	C-Shape	Fair	Traditional	Habitation
8	Mound	Good	Traditional	Possible Burial
9	Mound	Good	Traditional	Possible Burial
10	Mound	Good	Traditional	Possible Burial

Feature J is a cairn or platform that was used traditionally for habitation. The feature appears today as it was originally described, and the age and functional assessments are accurate based on morphology, size, and construction style.

Feature K is a terrace that was used traditionally for habitation. The feature remains today as it was originally described, and the age and functional assessments appear to be accurate based on morphology, size, and construction style.

Feature L is an enclosure used for traditional habitation and burial. The feature appears as it was originally described and mapped, aside from the fact that there is currently very little slope in the area. Age and functional assessments are accurate based on morphology, construction style, and the discovery of an infant burial in previous excavation.

Feature M is a cairn used traditionally for agriculture. The cairn is now partially collapsed, but the original age and functional assessments are likely accurate based on morphology and construction style.

Feature N is a cairn used traditionally for agriculture. The feature appears as it was originally described and mapped, aside from the fact that there is currently very little slope in the area. Previous age and functional assessments are likely accurate based on morphology and construction style.

Feature O is a wall that was used traditionally, possibly for agriculture. It connects to the Feature Q and V cairns. Today the wall appears as previously described. The original age and functional assessments are confirmed by morphology and construction style.

Feature P was originally described as a cairn that was used traditionally, possibly for agriculture. Affected by erosion, today the feature looks like a low piled mound. Because of the deterioration of the feature over time, it is difficult to confirm previous age and functional assessments.

Feature Q was originally described as a cairn that was used traditionally, possibly for agriculture. Like Feature P nearby, this cairn has been affected by erosion, and currently looks like a low piled mound. Because of the deterioration of the feature over time, it is difficult to confirm previous age and functional assessments.

Feature S is a platform used traditionally, possibly for agriculture. Today it appears as originally described. Morphology, size, and construction style confirm the age and functional assessment.

Feature U was originally described as a c-shaped wall used traditionally for habitation. The feature has deteriorated significantly since it was first recorded and today looks like a piled mound. Because of the deterioration of the feature over time, it is difficult to confirm previous age and functional assessment.

Feature V is a cairn that was used traditionally, possibly for agriculture. Today it has collapsed so that the surface now slopes inward. Nevertheless, based on morphology and construction style, the original age and functional assessment appear to be accurate.

Feature 1 is a sinkhole that was used in the historic era as a trash pit. Refuse was left in the pit and remnants of a concrete foundation and metal beams are on the surface. Age and functional assessments are based on the remains left in and around the pit.

Feature 2 is a platform, likely traditional in age, with an undetermined function. Construction style similar to surrounding traditional Hawaiian features suggests a traditional age for the platform, but function could not be determined.

Feature 3 is a complex of three partial enclosures, likely used for habitation and/or agriculture. Bottle glass is incorporated within the structure, although no data exists to relate the bottle glass to the time of wall construction. Construction materials, methods, and testing data suggest that the complex is traditional Hawaiian, while size and morphology suggest a habitation or agricultural function.

Feature 4 is a c-shaped structure likely built in traditional times and re-used in the historic era. Based on construction style and data collected during excavation, the structure was likely used first for traditional Hawaiian temporary habitation then later reused in the early 20th century as a military fortification.

Feature 5 is a traditional boundary wall. Construction style and morphology are consistent with traditional Hawaiian architecture, and the location amidst habitation and agricultural features suggests a boundary marker of some kind.

Feature 6 is a platform that was likely used traditionally for habitation. Based on construction style, it may have been used as a traditional habitation site.

Feature 7 is a c-shaped structure that was likely used traditionally for habitation. Construction style of the feature is consistent with this assessment.

Features 8–10 are mounds that may mark traditional burials. Construction style of the mounds is consistent with traditional Hawaiian architecture. They are more formally constructed than agricultural features, exhibiting upright slabs or faced portions. For this reason and because a human burial was found in the area (Feature L), the mounds are thought to be burial markers. Subsurface testing did not confirm this hypothesis, however.

SUMMARY AND RECOMMENDATIONS

In sum, archaeological inventory survey was conducted on TMK: (1)9-1-013:001 in Honouliuli Ahupua'a, Ewa District, island of O'ahu in anticipation of construction of a proposed solar farm. Pedestrian survey covered 100% of the 43-acre property, although heavy vegetation made it difficult to see the ground surface in many areas.

Two previously recorded archaeological sites are located on the parcel: Site 1725, a traditional to early-historic multi-use complex, and Site NL-25, a 20th century house site. All of the 17 features that make up Site 1725 were re-located, and ten new features were found. Given the proximity to the previously recorded features, it is recommended that the ten new features are added to Site 1725, and the site boundaries redrawn to encompass the new features. The previously recorded features were assessed for condition, and most were severely dilapidated.

Scant information was found for Site NL-25, the historic homestead, and it was not re-located. The site might have been hidden beneath dense vegetation or deteriorated significantly in the 30 years since it has been recorded. Alternatively, Site NL-25 might correspond to one of the newly recorded features. With no maps, photographs, or descriptions of the site, however, this is very difficult to determine.

Subsurface testing was conducted at four of the newly identified features. This indicated that the Feature 4 c-shaped structure was likely used in the early-20th century as a military fortification. Construction style of the structure suggests that it may have been built earlier, during traditional Hawaiian times. The other three excavated features, an enclosure complex, a c-shape and a mound, yielded no material to determine age or function. A WW II-era artifact found within the Feature 3 enclosure complex and bottle glass within the walls of the enclosures could not be correlated to the age of the structure.

In general, the parcel was found to be widely disturbed, with trash mounds, bulldozer push piles, concrete slabs, and roads throughout. Two unmodified sinkholes were also noted.

Significance Determinations

To determine if a historic property is "significant" under Hawaii Administrative Rules (HAR) for historic preservation, or is eligible for NRHP listing, it must be assessed for significance according to HAR §13-284-6(b) and National Register Bulletin 15, respectively. According to Bulletin 15:

The quality of significance in American history, architecture, archaeology, and culture is present in districts, sites, buildings, structures, and objects that possess integrity of location, design, setting, materials, workmanship, feeling, and association, and:

A. That are associated with events that have made a significant contribution to the broad patterns of our history; or

B. That are associated with the lives of persons significant in our past; or

C. That embody the distinctive characteristics of a type, period, or method of construction or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction; or

D. That has yielded, or may be likely to yield, information important in prehistory or history.

(National Park Service 1990:2)

To this set of criteria, HAR §13-284-6(b) adds Criterion E, which states that a property may be significant if it has:

an important value to the native Hawaiian people or to another ethnic group of the state due to associations with cultural practices once carried out, or still carried out, at the property or due to associations with traditional beliefs, events, or oral accounts – these associations being important to the groups history and cultural identity.

One archaeological site was found on the property, Site 1725. It includes 17 previously recorded components and ten new features. Site 1725 is significant under criterion D of HAR §13-284-6(b) for the information it may yield on history and prehistory and criterion E as it is important to native Hawaiian people because of the presence of an infant burial (Table 3).

It is recommended that Site 1725 is preserved in its entirety, as it will not be affected by construction of the solar facility (Figure 93). Although some individual features lack integrity, the site as a whole has integrity and should be preserved as an intact traditional Hawaiian habitation/agriculture/burial site. Several features are recommended for data recovery for further information they may provide (Figure 94; Table 4). Of the 27 features of Site 1725, data recovery is proposed for four features, preservation is recommended for 17 features, partial preservation/partial data recovery is recommended for one feature, and no further work is recommended for five features. These recommendations are based on feature condition, location, and possible function.

Features 2 and 8–10 will be preserved because they might contain human burials. This inference is based on construction style, as they are more formally constructed than agricultural features, exhibiting upright slabs or faced portions. Given that a burial has already been documented in another part of Site 1725 (Feature L), these features will be treated with caution and will be preserved in place instead of being further excavated to determine if burials are present. Also slated for preservation are Features J–Q, U, and V, which make up the core of Site 1725, with a high density of features within a relatively small area. Feature L was included within this group of features to be preserved because of the presence of the infant burial. A 75 m-long segment of the Feature C wall close to this cluster of features will also be preserved (see Figure 94). This segment is in the best condition of the 270 m-long wall. The Feature D sinkhole will be preserved as well, because of its location adjacent to the Feature C preservation area. Feature I is also slated for preservation as it is relatively well preserved with multiple courses of stacking buttressed by a perimeter of upright limestone slabs.

Data recovery is proposed for Features 3, 4, 6, S, and parts of C (see Figure 94). These are located away from the core area of Site 1725 and are more spread out in their distribution. Although several of these features have already been test excavated (Features 3, 4, and S), data recovery might yield further information regarding their age and/or function before they are mitigated.

No further work is recommended for Features 1, 5, B, G, and H (see Figure 94). These are all in poor to very poor condition and lack integrity. Any information that might be gleaned from these features has already been collected.

Table 3. Significance Determination

Site	Description	Criteria	Justification	Recommendation
1725	Multi-Purpose Complex with traditional and historic components	D & E	May yield information on history and prehistory	preserve portions



Figure 93. Location of Site 1725 (outlined in yellow) with respect to solar facility construction plans.

Further Recommendations

In accordance with §13-278 of the Hawaii Administrative Rules, a data recovery plan should be prepared for all features slated for further work. The plan should be in place before further work occurs and should be used as a guiding document during data recovery.

In accordance with §13-277 of the Hawaii Administrative Rules, a preservation plan should be composed for all archaeological features that will be preserved. The plan should be in place before construction on the parcel begins and should be used as a guiding document for treatment of the features before, during, and after construction.

Given the presence of cultural resources on the parcel, full-time archaeological monitoring is recommended for all ground disturbing work. Archaeological monitoring will ensure proper treatment of the recorded archaeological features and will identify any unrecorded cultural resources, including subsurface features, that may be located on the parcel.

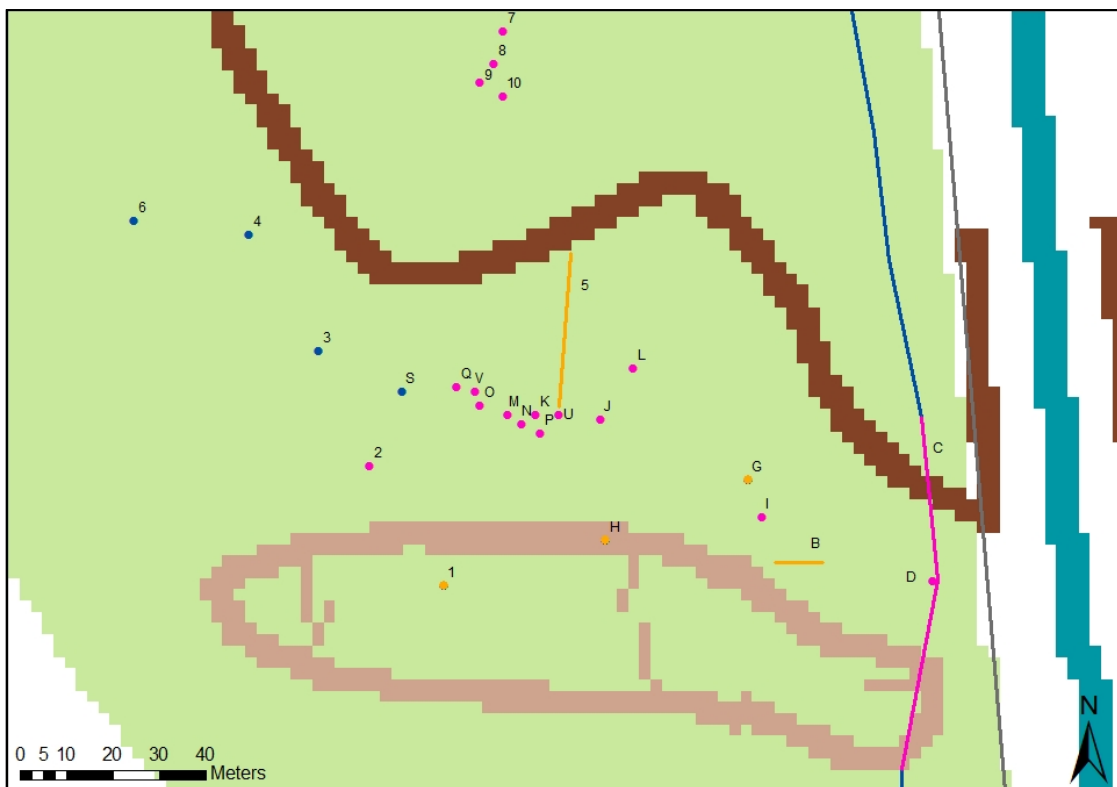


Figure 94. Recommendations for features of Site 1725. Pink indicates features to be preserved, blue indicates features slated for data recovery, and no further work is recommended for features in orange.

Table 4. Recommendations

Feature	Type	Condition	Recommendation	Notes
1	Sinkhole	Poor	No Further Work	
2	Platform	Fair	Preserve	
3	Enclosure Complex	Poor	Data Recovery	
4	C-Shape	Good	Data Recovery	
5	Wall	Poor	No Further Work	
6	Platform	Fair	Data Recovery	
7	C-Shape	Fair	Preserve	
8	Mound	Good	Preserve	Possible Burial
9	Mound	Good	Preserve	Possible Burial
10	Mound	Good	Preserve	Possible Burial
B	Terrace	Very Poor	No Further Work	
C	Wall	Poor to Good	Partial Preservation/Partial Data Recovery	Historic Boundary Wall
D	Sinkhole	Good	Preserve	
G	Wall	Very Poor	No Further Work	
H	Enclosure	Very Poor	No Further Work	
I	Enclosure	Fair	Preserve	
J	Cairn/Platform	Fair	Preserve	
K	Terrace	Fair	Preserve	
L	Enclosure	Fair	Preserve	Infant Burial
M	Cairn	Fair	Preserve	
N	Cairn	Fair	Preserve	
O	Wall	Fair	Preserve	
P	Cairn	Poor	Preserve	
Q	Cairn	Poor	Preserve	
S	Platform	Fair	Data Recovery	
U	Wall	Very Poor	Preserve	
V	Cairn	Poor	Preserve	

GLOSSARY

<i>ahu</i>	A shrine or altar.
<i>ahupua‘a</i>	Traditional Hawaiian land division usually extending from the uplands to the sea.
<i>aku</i>	The bonito or skipjack (<i>Katsuwonus pelamis</i>), a prized eating fish.
<i>akule</i>	Big-eyed or Goggled-eyed scad fish (<i>Trachurrops crumenophthalmus</i>).
<i>ali‘i</i>	Chief, chiefess, monarch.
<i>‘ama‘ama</i>	The mullet, or <i>Mugil cephalus</i> , a prized indigenous fish.
<i>‘awa</i>	The shrub <i>Piper methysticum</i> , or <i>kava</i> , the root of which was used as a ceremonial drink throughout the Pacific.
<i>banana</i>	The <i>mai‘a</i> , or <i>Musa</i> sp., whose fruit was eaten and leaves used traditionally as a wrapping for cooking food in earth ovens.
<i>boulder</i>	Rock 60 cm and greater.
<i>cobble</i>	Rock fragment ranging from 75 cm to less than 25 cm.
<i>gravel</i>	Rock fragment less than 7 cm.
<i>heiau</i>	Place of worship and ritual in traditional Hawai‘i.
<i>iwi</i>	Bone.
<i>Kahiki</i>	A far away land, sometimes refers to Tahiti.
<i>kalo</i>	The Polynesian-introduced <i>Colocasia esculenta</i> , or taro, the staple of the traditional Hawaiian diet.
<i>kama‘āina</i>	Native-born.
<i>kauhale</i>	A group of houses that comprise the traditional Hawaiian homestead. Often included are a sleeping house, men's eating house, women's eating house, cooking house, and canoe house.
<i>kia‘i</i>	Guard, caretaker; to watch or guard; to overlook, as a bluff.
<i>kiawe</i>	The algarroba tree, <i>Prosopis</i> sp., a legume from tropical America, first planted in 1828 in Hawai‘i.
<i>ko‘a</i>	Fishing shrine.
<i>koa haole</i>	The small tree <i>Leucaena glauca</i> , historically-introduced to Hawai‘i.
<i>konohiki</i>	The overseer of an <i>ahupua‘a</i> ranked below a chief; land or fishing rights under control of the <i>konohiki</i> ; such rights are sometimes called <i>konohiki</i> rights.
<i>kuapā</i>	Wall of a fishpond.

<i>kukui</i>	The candlenut tree, or <i>Aleurites moluccana</i> , the nuts of which were eaten as a relish and used for lamp fuel in traditional times.
<i>kuleana</i>	Right, title, property, portion, responsibility, jurisdiction, authority, interest, claim, ownership.
<i>kupekala</i>	A bivalve of Pearl Harbor, possibly <i>Chama</i> spp.
<i>kupua</i>	Demigod, hero, or supernatural being below the level of a full-fledged deity.
<i>lehua</i>	The native tree <i>Metrosideros polymorpha</i> , the wood of which was utilized for carving images, as temple posts and palisades, for canoe spreaders and gunwales, and in musical instruments.
<i>limu</i>	Refers to all sea plants, such as algae and edible seaweed.
<i>lo‘i, lo‘i kalo</i>	An irrigated terrace or set of terraces for the cultivation of taro.
<i>loko, loko i‘a</i>	Pond, lake, pool.
<i>lua</i>	The ancient style of fighting involving the breaking of bones, dislocation of joints, and inflicting pain by applying pressure to nerve centers.
<i>mahamoe</i>	Sleek, as a plump animal, attractive; smooth; also the name of an edible bivalve.
<i>Māhele</i>	The 1848 division of land.
<i>māmaki</i>	<i>Piptarus</i> spp., a small native tree. Fiber from its bark was used to make a kind of coarse tapa. Sometimes spelled <i>mamake</i> in old texts.
<i>ma‘o</i>	<i>Gossypium sandvicense</i> , or native cotton, a shrub in the hibiscus family that bears yellow flowers and seed cases containing brown cotton.
<i>mauka</i>	Inland, upland, toward the mountain.
<i>mele</i>	Song, chant, or poem.
<i>mō‘ī</i>	King.
<i>moku</i>	District, island.
<i>mo‘olelo</i>	A story, myth, history, tradition, legend, or record.
<i>nehu</i>	The anchovy, <i>Stolephorus purpureus</i> , used for eating and as a chum for bonito.
<i>‘ōkupe</i>	A method of digging holes using a stick, to prod the earth aside, as for taro; to stumble or trip; err or go astray morally; the name for the bivalve <i>Spondylus tenebrosus</i> .
<i>oli</i>	Chant.
<i>olonā</i>	The native plant <i>Touchardia latifolia</i> , traditionally used for making cordage.
<i>‘owā‘owaka</i>	A bivalve, possibly of the family <i>Isognomonidae</i> .
<i>pāpa‘i</i>	General term for crabs.
<i>pāpaua</i>	The clam <i>Isognomon</i> , a bivalve.

<i>pipi</i>	<i>Pinctada radiata</i> , the Hawaiian Pearl Oyster. In songs this is referred to as the <i>i‘a hāmau leo o ‘Ewa</i> , or ‘Ewa's silent sea creature, as it was believed that speaking would cause a breeze to ripple the ocean and scare the <i>pipi</i> .
<i>pipipi</i>	A marine shell, <i>Nerita picea</i> , common in the intertidal zone.
<i>puka</i>	Hole, void, space, entrance.
<i>pu‘uone</i>	Pond near the seashore, as at the end of a stream.
stone	Rock fragment ranging from 25 cm to less than 60 cm.
<i>‘ulu</i>	The Polynesian-introduced tree <i>Artocarpus altilis</i> , or breadfruit.
<i>wao</i>	A general term for inland areas, usually forested and uninhabited.
<i>wauke</i>	The paper mulberry, or <i>Broussonetia papyrifera</i> , which was made into tapa cloth in traditional Hawai‘i.
yam	<i>Dioscorea alata</i> , known as <i>uhi</i> in Hawaiian, commonly grown for food.

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