

# **FINAL—Archaeological Assessment for Improvements to Campbell High School, Honouliuli Ahupua‘a, ‘Ewa District, Island of O‘ahu**

**TMK: (1) 9-1-001:002 (por.)**



**Prepared For:**

Group 70 International  
925 Bethel Street, 5th Floor  
Honolulu, Hawaii 96813



Keala Pono 

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April 2017





## **MANAGEMENT SUMMARY**

An archaeological inventory survey was conducted at TMK: (1) 9-1-001:002 (por.) in Honouliuli Ahupua‘a, ‘Ewa District, on the island of O‘ahu, in anticipation of improvements to Campbell High School. The archaeological work included a pedestrian survey that covered 100% of the project area, as well as test excavations consisting of six trenches. The properties have been extensively disturbed by modern use, and no archaeological remains were found on the surface. Likewise, no subsurface cultural features or deposits were encountered during trenching. Fill deposits were generally shallow, above a basal coral shelf. Archaeological monitoring is not recommended.



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## INTRODUCTION

At the request of Group 70 International, Keala Pono Archaeological Consulting conducted an archaeological inventory survey (AIS) of TMK: (1) 9-1-001:002 (por.) in Honouliuli Ahupua'a, 'Ewa District, on the island of O'ahu. The Department of Education is planning the development of new classrooms and associated infrastructure on the James Campbell High School campus.

This report meets the requirements and standards of state historic preservation law, specifically Chapter 6E of the Hawai'i Revised Statutes (HRS), and the State Historic Preservation Division's *Rules Governing Standards for Archaeological Inventory Surveys and Reports* Hawai'i Administrative Rules (HAR) (§13-276). Due to negative findings, the AIS results are presented as an archaeological assessment per HAR §13-275-5(b)(5)(A).

The report begins with a description of the project area and a 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 at Campbell High School in Honouliuli Ahupua'a, 'Ewa District, on the island of O'ahu (Figure 1). The project property is recorded as TMK: (1) 9-1-001:002 and consists of 1.21 ha (2.98 ac.), of which approximately .61 ha (1.5 ac.) will be developed with five new buildings and associated parking improvements (Figure 2). This .61 ha project area currently includes the school's agriculture garden and adjacent lawns on the northeast and southwest, as well as a paved roundabout on the southwest side.

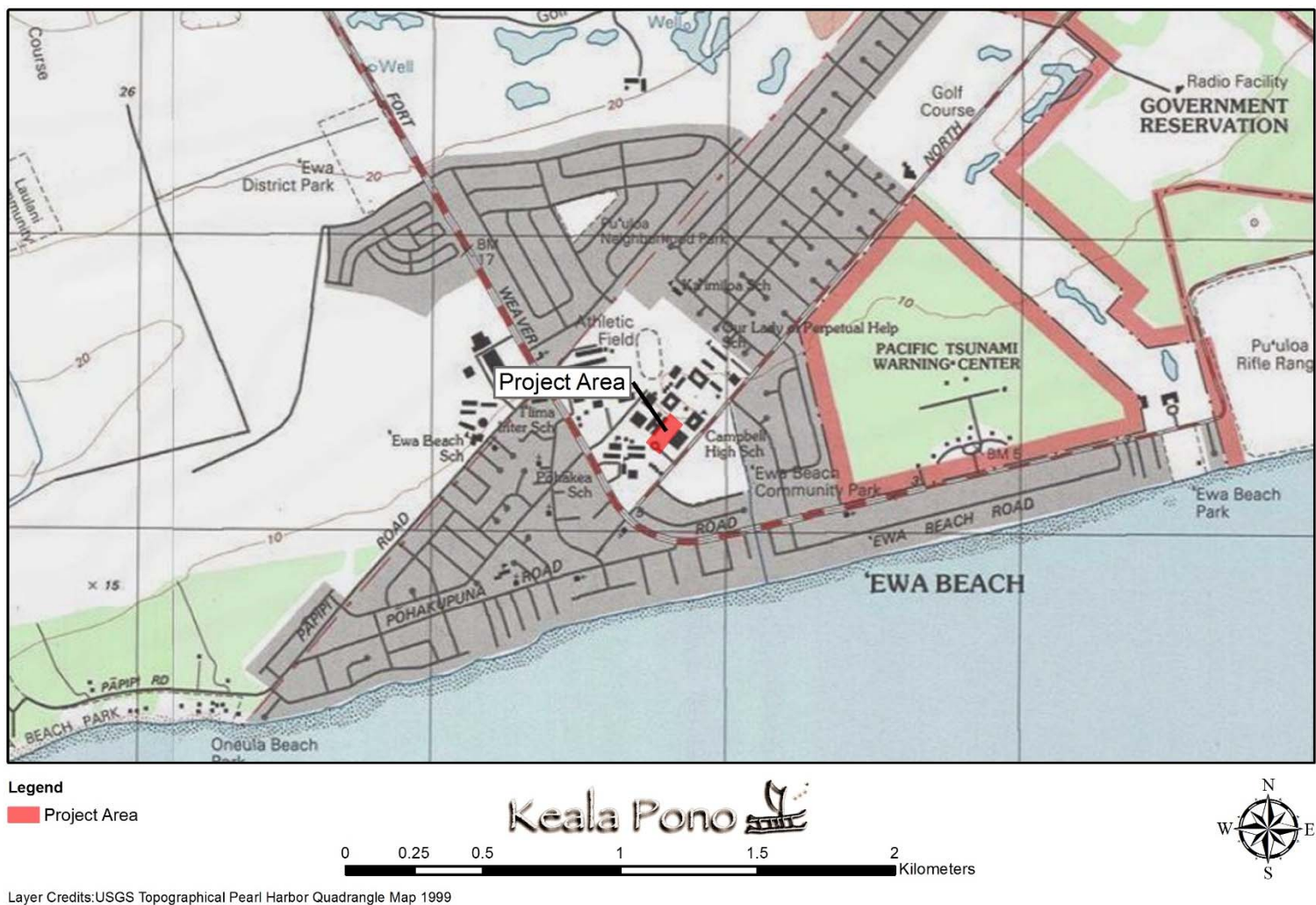
The parcel is owned by the City and County of Honolulu and is situated at roughly 3 m (10 ft.) above means sea level (amsl). Campbell High School is located at 91-980 North Road, 'Ewa Beach, Hawai'i. The project area is at the agriculture garden of the high school, which is bounded by Building J to the northwest, The 'Ewa Beach Public and School Library and parking lot to the southeast, a grassy lawn to the southwest, and portable buildings to the northeast (Figure 3). The agriculture garden is enclosed completely by a chainlink fence.

Rainfall is sparse in the vicinity, averaging roughly 46–64 cm (18–25 in.) per year (Juvik and Juvik 1998). Honouliuli Stream is the only 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 of grass lawns outside the school's agriculture garden, and agricultural plants within the garden (e.g., aloë, kalo, fruit trees).

The project area lies 570 m (.35 mi.) from the coast and topography is generally flat, with an upraised coral limestone ground surface. Generally, 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.

Specifically, soils within the project area consist entirely of coral outcrop (CR) (Figure 4). In pre-Contact times, the coral outcrop was likely more exposed, with the openings of pit caves (also known as sinkholes) on the surface.



**Figure 1. Project area on a 1999 USGS Pearl Harbor quadrangle map.**

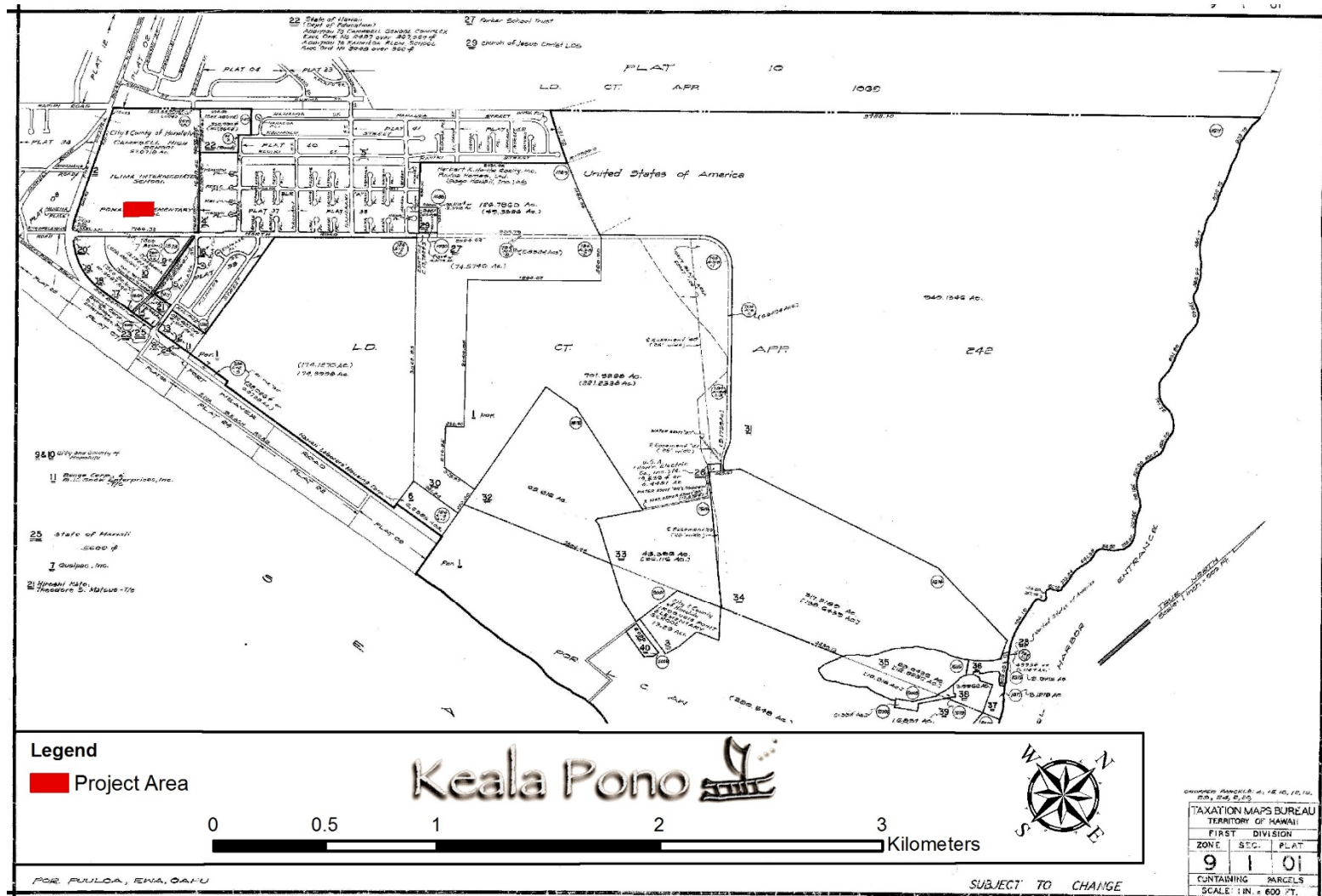


Figure 2. Project area on TMK: (1) 9-1-001 plat.





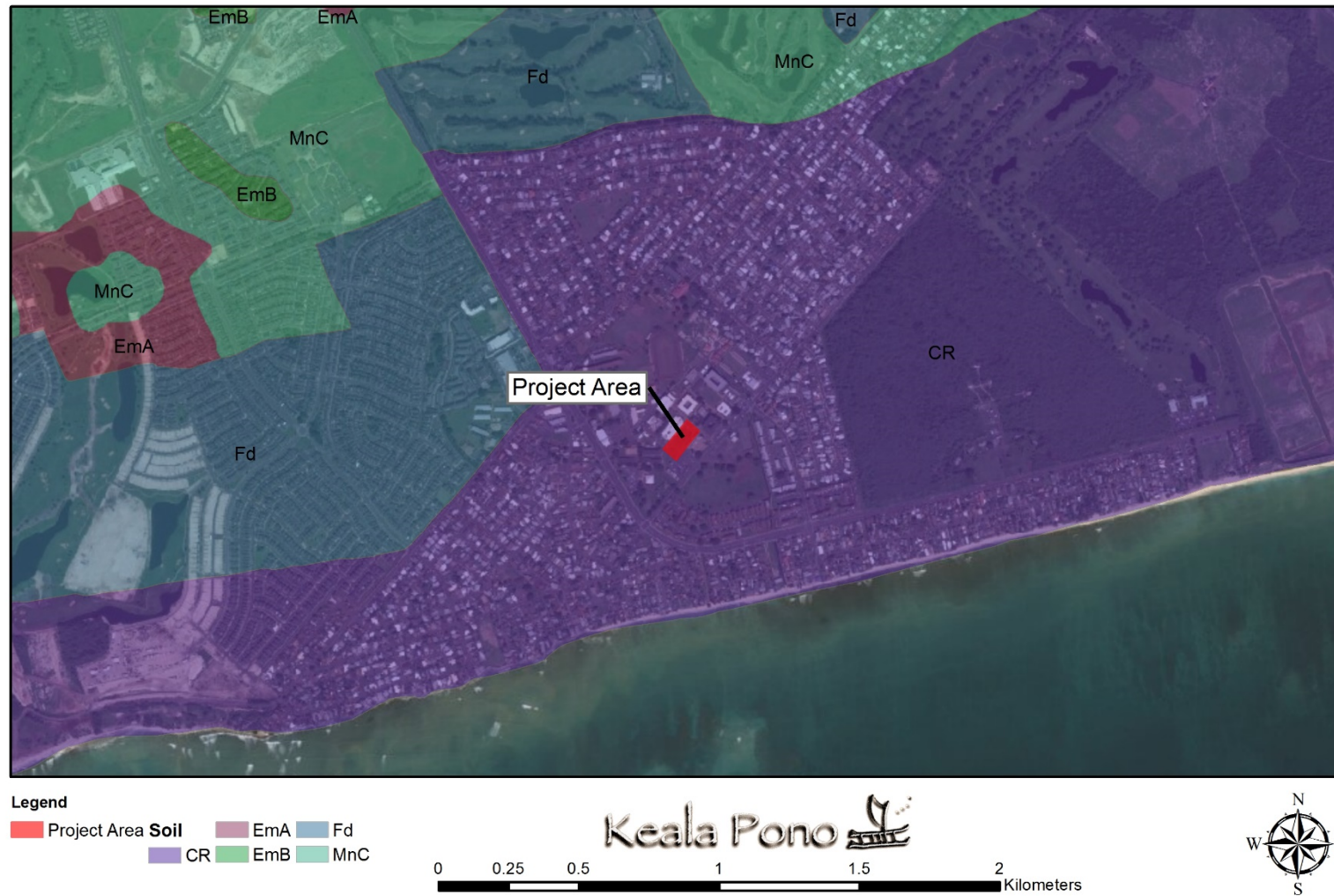


Figure 4. Soils in the vicinity of the project area (data from Foote et al. 1972).

**The Project**

The Department of Education is constructing five new classroom buildings connected by walkways and providing parking improvements to accommodate the space needs of James Campbell High School's large student body. The new 58,000 square foot classroom building complex will include 20 classrooms, five science labs, a culinary arts lab, a Hawaiian Studies classroom, two faculty centers, and support spaces. The project will repave the existing turnaround to provide additional tandem parking and a three-bus loading area. The driveway will also be extended to improve connectivity between parking lots. The new classroom buildings will meet the guidelines for Hawai'i Collaborative for High Performance Schools (HI-CHPS) for designing energy efficient, healthy, sustainable schools, and will have infrastructure suitable for photovoltaic installations.

## 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, Hawai'i State Library, the State Historic Preservation Division, as well as online at databases such as the Hawai'i Department of General Accounting map database, Ulukau, and Waihona 'Aina. Historical maps, archaeological reports, and historical reference books were among the materials examined.

### 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 5 and 6. Note that the project area in Figure 6 is off the map to the east. The following places are in the Honouliuli region:



**Figure 5. Place names of Honouliuli, showing the current project area in red (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 Kalaeloa is named Hani-o...” (Beckwith 1970:23)

### ***Kalaeloa***

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).

### ***Pu'u o Kapolei***

Located to the north of the current project area, “it is here that Kamauluniho (Kamaununiho) lived with her grandson, Kekeleaiuku, 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, Kamaununiho as queen, taking her to Pu'u o Kapolei. 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 Kamaununiho's house, as well as her grave, were still present before the turn of the 20<sup>th</sup> century. However, with the expansion of sisal and cane activities at the base of Pu'u o Kapolei, stones may have been removed for making walls (Nakuina 1904:50 in Sterling and Summers 1978:34).

Pu'u o Kapolei is also noted as an important landmark which marked the season of Ho'oilo:

...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 (oilo) the season of Ho'oilo. (Kamakau n.d.:23 in Sterling and Summers 1978:34)

A legendary fisherman, Nihooleki, lived at Kuukuua on Pu'u o Kapolei under the name of Keahia-ikiaholeha. Born at Keauhou in Kona, he became a ruling chief of Wai'anae. Wielding his famous aku-attracting pearl fishhook named Pahuhu, Keahia-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)

### **‘Ewa and Honouliuli in the Pre-Contact Era**

The project area is located in the ‘Ewa District, the largest land district on O‘ahu, situated on the southern shore of the island. 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, 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 only one ‘ōlelo no‘eau was found referring to Honouliuli and one for Pu‘uloa. The following Hawaiian proverbs and poetical sayings provide further insight to traditional beliefs and practices of these lands.

Ka i‘a hali a ka makani.  
*The fish fetched by the wind.*  
The ‘*anaeholo*, a fish that travels from Honouliuli, 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)

Kālele ka uwahi o Pu‘uloa  
The smoke of Pu‘uloa leans over.  
Said in amusement of one who leans over, intent on his work. (Pukui 1983:156)

## 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 humans, 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 of 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 Pele's domain of Kīlauea, Hawai'i, from Hā'ena, Kaua'i where she was to fetch Pele'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 kanahele  
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 Pōhākea 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 Namakaokapao'o, is about a boy with that name, 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. Namakaokapao'o's mother was Pōka'i. The couple met in 'Ewa, in a place called Hō'ae'ae. Shortly after Namakaokapao'o was conceived, Kauluakahai returned to his own land. Pōka'i then met a man named Puali'i who was from Līhu'e [Wahiawā, O'ahu] and was fishing at Honouliuli. The couple resided at the plains of Keahumoa where Puali'i had two large potato patches. One day, while Puali'i was gone, Namakaokapao'o pulled up Puali'i's potato plants. Upon his return, Puali'i attempted to kill Namakaokapao'o with his axe, but ended up cutting off his own head. Namakaokapao'o 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. Kawelo's teacher was a fish kupua, or demi-god, Uhu maika'ika'i, who lived at Pōhaku 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'āina, 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'uloa 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 (*momī*), 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 ('ōpae huna) and spiked shrimp ('ōpae 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 Haupu'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‘olaupoko, 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)

### **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 opportunity 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, nahaweke, kupekala, and 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 mai‘a and uhi. 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 18<sup>th</sup> to 20<sup>th</sup> 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 the highly fertile soils which are heavily cultivated in kalo and sugarcane:



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, a salt works and “watering place,” and stone wall are located to the east of the project area (Figure 7). It appears that a small community was located in this area. 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 8). 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.

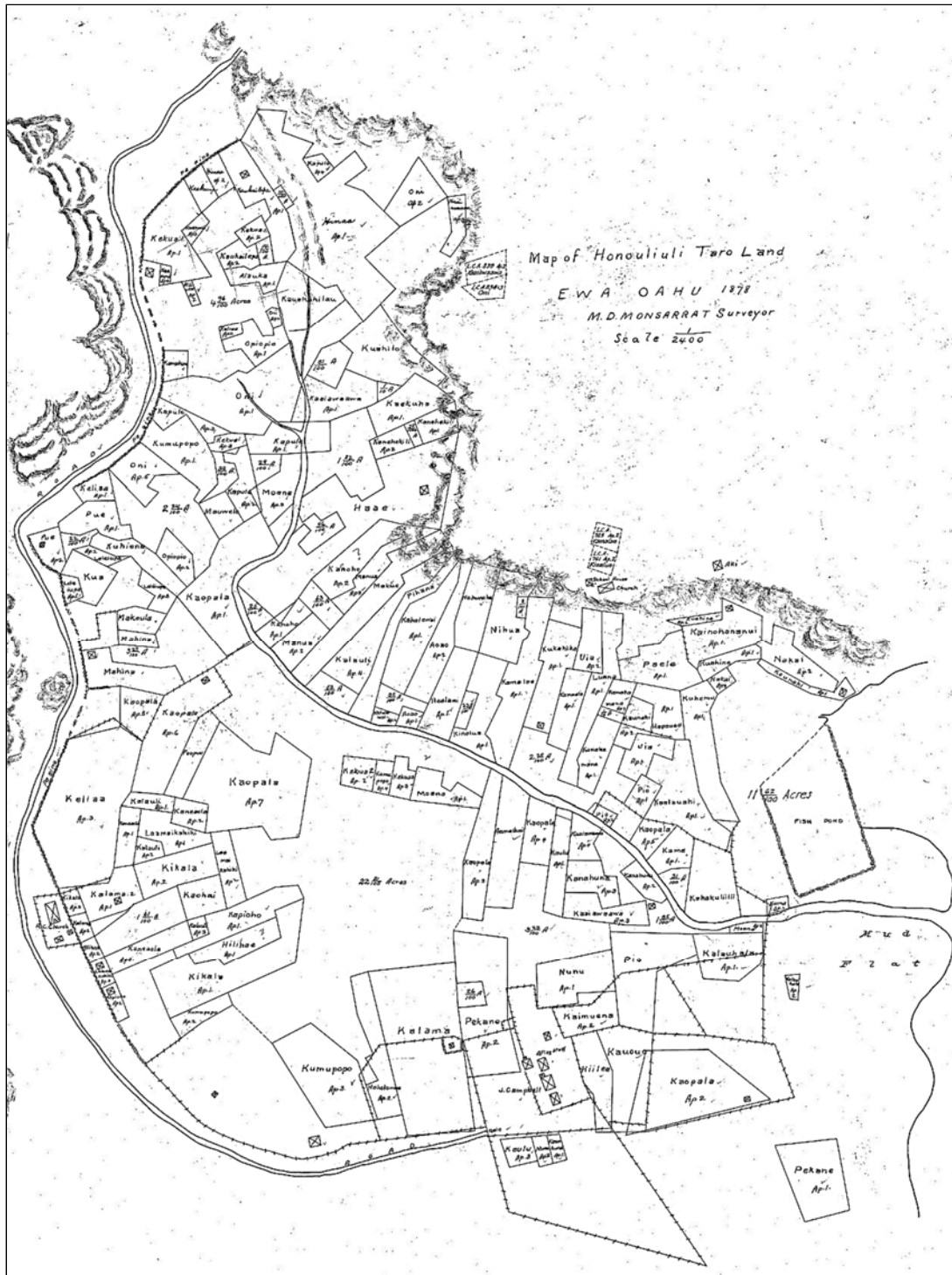
A 1902 map of O‘ahu shows an “old wall” to the east of the project area (Figure 9). This is likely the same wall depicted in the 1873 map. The place names Oneula and Keahi are labeled to the west and east of the project site, respectively. The salt works in Pu‘uloa is also shown.

### **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. One such example is the unfought battle of the Keahumoa Plain which involved Kualī‘i (ca. 1650) who was a celebrated chief, skilled, and victorious in the art of warfare. This bloodless “battle” instigated by brothers Kapa‘ahulani and Kamaka‘aulani 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‘ī, Mā‘ilikūkahi. Fornander offers a genealogy of ali‘i preceding Mā‘ilikūkahi and follows with an account of the battle:





**Figure 8. Map of Honouliuli Taro Lands (Monsarrat 1878). North on the map is toward the top of the page. The project area could not be identified on this map.**

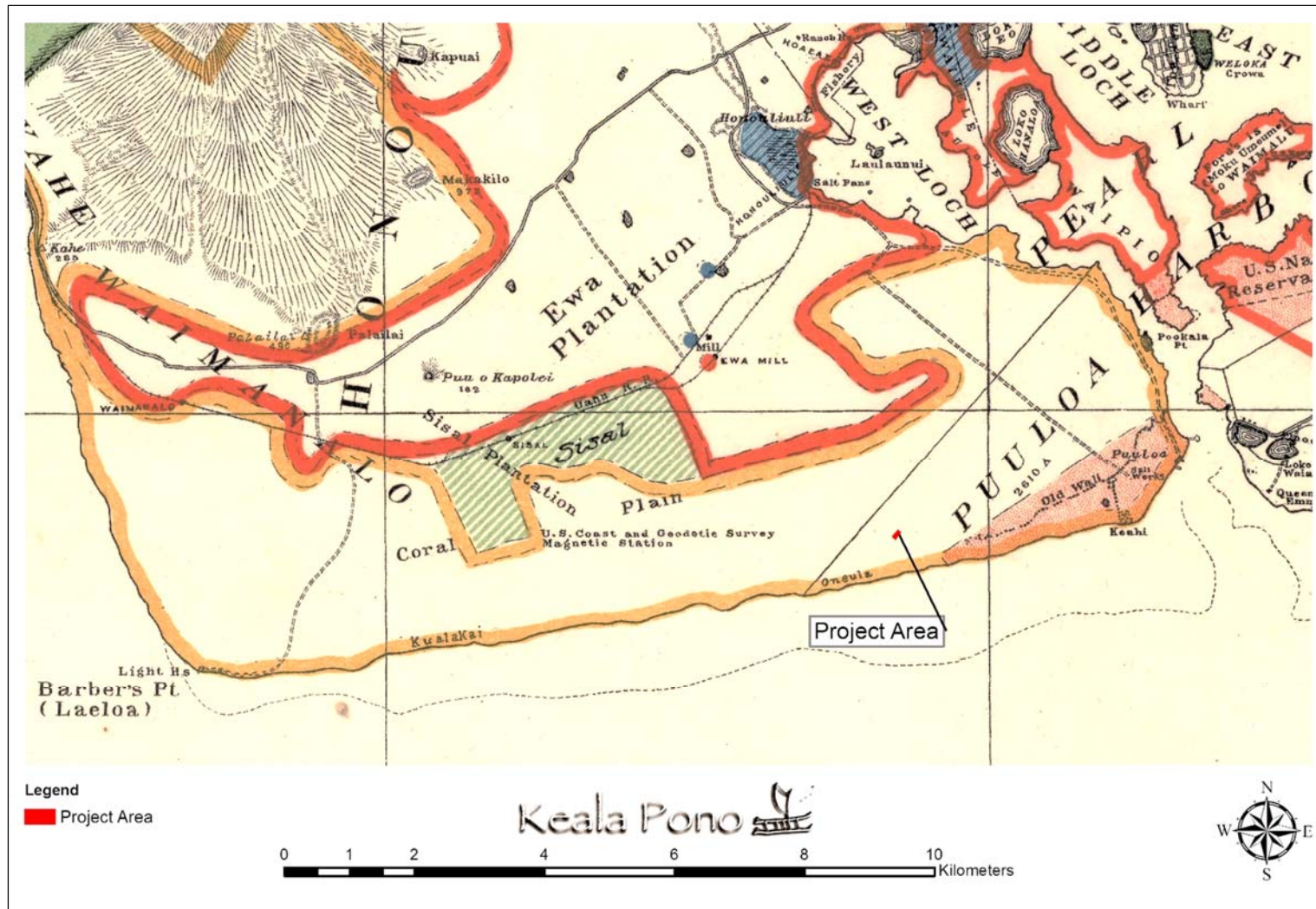


Figure 9. Portion of a 1902 map of O'ahu (Alexander 1902).

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 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 legislation 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. This is likely the salt works illustrated in an 1873 map (see Figure 7).

Land also changed hands when Kekau'onohi's widower, 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.

### **The Military and More Recent Development**

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 the Campbell Estate. This era brought much development of the area's infrastructure and capital improvements and included the creation of 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. 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, electricity, gas, housing units, and general bulldozing and grading in surrounding areas (Hammatt 1984; Kelly 1991; Tuggle and Tomonari-Tuggle 1995).

James Campbell High School was built in 1962 in the current location of ‘Ilima Intermediate School and the athletic fields. That same year, Pōhākea Elementary School was constructed on the Campbell High School campus.

A *Hawaii Reporter* article states that the Campbell High School football field was filled using soil containing human remains, although a search of the SHPD library found no documentation of human remains on the school grounds. Portions of the article are quoted below, as published in the independent online news source:

The dirt that was used to build the football field was gotten from an old Waipahu Cemetery on Waikele Road in the vicinity of Waipahu Elementary School...

Families of those buried at the cemetery were contacted to remove their loved one’s remains. It was suggested the new Mililani Cemetery be the place for reburial.

Those remains, which were not repatriated, were dug up along with the soil and trucked to the site of the new James Campbell High School football field that was at the time also under construction.

I recall as a teenager seeing the field as it was being constructed.

After the soil was graded level to create the new athletic field, I remember seeing a pile of approximately fifty to seventy grave headstones and wooden cross markers with human bones sticking out bulldozed in a pile of dirt at the far Honolulu side of the new field.

This would be in the area of the present day Honolulu sideline bleachers... (Arakaki 2012)

Campbell High School held its first graduation in 1964, two years after its opening. The elementary school was moved southwest to its current Fort Weaver Road location in 1974.

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 named the Kalaeloa Community Development District (Hawai‘i Community Development Authority 2012).

### **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 within the vicinity of the project area (Figure 10). Table 1 lists archaeological studies for the larger ‘Ewa Plain region. State Inventory of Historic Places (SIHP) numbers are prefixed with 50-80-13.

The first formal archaeological work in the vicinity of the project area was part of McAllister’s island-wide survey (1933). McAllister identified five sites in the general area, although none are located at Campbell High School or its immediate environs. Sites 142–144 are fishing-related sites on the Waipi‘o Peninsula. They consist of Kapamuku Fishpond, Okiokilepe Fishpond, and unnamed fishtraps and an associated ko‘a. Site 145 is the location in Pu‘uloa where it is said that ‘ulu was first planted in Hawai‘i. Site 146 includes a variety of sites scattered throughout the ‘Ewa Plain.

McAllister specifically mentions ranching walls, as well as soil-filled pits that were formerly used for agriculture (1933:109).

The next archaeological work in the area did not occur until many years later, with a survey at Kaimiloa Elementary School (McCoy 1972). Fragmented walls and partial enclosures were mentioned, but no SIHP numbers were assigned.

Several studies were conducted for the Ewa Marina Community Project. The earliest surveys documented more than 100 features thought to be part of a late pre-Contact/early post-Contact habitation area (Davis 1979; Jourdane 1979). Two later studies yielded no findings (Hommon and Ahlo 1983; Davis and Burtchard 1991), although an archaeological and paleontological assessment identified possible traditional enclosures as well as historic ranching and military sites (Hammatt and Shideler 1989). Archaeological survey and test excavation documented two additional sites, SIHP 4293, a mound and C-shape complex; and SIHP 3208, a platform (Dunn and Haun 1991).

A number of archaeological studies were completed at the 'Ewa-Pu'uloa Golf Course. An early reconnaissance identified 20 surface features and five possible features (Davis 1983). They included c-shaped structures, cairns, modified sinkholes, a collapsed wall, and a probable habitation enclosure. SIHP or Bishop Museum numbers were not assigned at the time of the reconnaissance. Later work in the same project area identified "no less than fifty (50) sites," although no site numbers were reported (Kennedy 1988:6). An archaeological inventory survey identified 72 sites, most of which were later deemed no longer significant (Kennedy et al. 1992). Sites were listed as significant are SIHP 3770, 3775, 3876, 3782, 3877, 3898, 3899, 3901, 3910, 3911, 3914, 3916, 3917, 3921, and 3927. Data recovery further investigated ten of these sites and recommended 12 sites for preservation: SIHP 3775, 3876, 3782, 3877, 3898, 3899, 3901, 3911, 3914, 3916, 3917, and 3927. (Kennedy and Denham 1992). One of the major findings was a decline in avian remains from the 12<sup>th</sup>-13<sup>th</sup> centuries. An increase in marine midden followed this decline. Ranching, quarrying, and military training took place in the historic period.

In 1987 human remains and a subsurface cultural layer were discovered during construction activity at Iroquois Point (Athens 1987). Although the remains were disturbed by the construction, they were identified as a young Polynesian female. The burial and cultural layer were designated as SIHP 50-80-13-3703. A later survey at Iroquois Point produced negative findings (Dye and Jourdane 2006a).

A 1995 reconnaissance at Lualualei Naval Ammunition Depot documented 281 sites (Jensen and Head 1995). These included agricultural, military, and ranching areas. A later survey at the Ewa High Frequency Transmitter Station produced no findings (Hammatt and Borthwick 1997). Two large scale studies were conducted for corridors on the 'Ewa Plain, although there were no findings near the Campbell High School area (Hammatt and Chiogioji 1997; Moore and Kennedy 2002).

A supplemental archaeological survey was conducted for the Marina Channel and Kalo'i Drainage Channel (Corbin 2004). The survey consisted of excavation of 53 backhoe trenches and three hand-excavated units. Although human burials were previously found in the area, this extensive subsurface testing yielded no archaeological findings, suggesting that the burials were isolated instances and not part of a larger burial zone.

An archaeological inventory survey identified six sites at Iroquois Point (Carson 2007). SIHP 5878 is a historic survey marker, and SIHP 6906 is a gun mount used in Fort Weaver ca. 1932-1950. SIHP 5875, 6905, 6907, and 6908 are late pre-Contact to post-Contact subsurface midden deposits. Material within the deposits included charcoal, animal bone, and marine shell. Postmolds, small pits, and pebble pavings were also associated with the deposits.



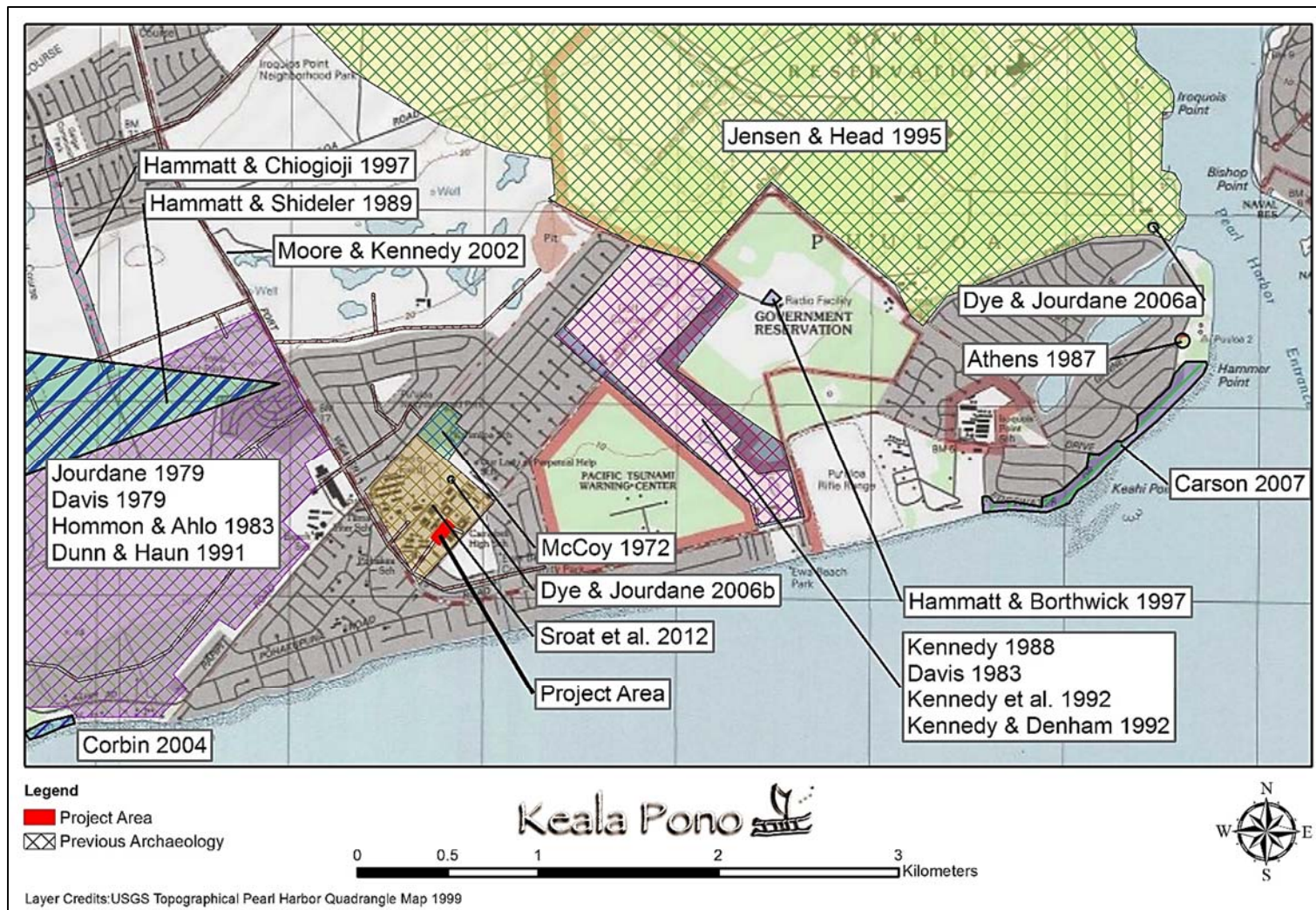


Figure 10. Previous archaeological studies in the vicinity of the project area.

**Table 1. Previous Archaeology on the ‘Ewa Plain**

<b>Author and Year</b>	<b>Location</b>	<b>Work Completed</b>	<b>Findings</b>
McAllister 1933	Island-wide	Survey	Identified five sites in the general vicinity of the project area: 142, 143, 144, 145, and 146.
McCoy 1972	Kaimiloa Elementary School	Archaeological Inventory Survey	Noted fragmented walls and partial enclosures. No SIHP numbers were assigned.
Jourdane 1979	Ewa Marina Community	Reconnaissance	Limited survey noted archaeological sites in the area of undetermined number and age.
Davis 1979	Ewa Marina Community	Archaeological Inventory Survey	Documented 107 features that are part of a late pre-Contact/early post-Contact habitation area.
Davis 1983	Pu‘uloa Golf Course	Reconnaissance	Identified 20 surface architectural features and 5 possible features. SIHP or Bishop Museum numbers were not assigned.
Hommon and Ahlo 1983	Ewa Marina Community	Subsurface Testing	None.
Athens 1987	Iroquois Point	Inadvertent Discovery of Human Remains	Identified disturbed human burial remains and a cultural layer (SIHP 3703).
Kennedy 1988	Pu‘uloa Golf Course	Reconnaissance	Noted approximately 50 archaeological sites, including c-shaped structures, agricultural areas, walls, mounds, modified sinkholes, platforms, ahu, and midden. Site numbers were not assigned.
Hammatt and Shideler 1989	Ewa Marina Community	Archaeological and Paleontological Assessment	Identified possible traditional enclosures as well as post-Contact ranching and military sites.
Dunn and Haun 1991	Ewa Marina Community	Archaeological Survey and Test Excavation	Documented two sites, SIHP 4293, a mound and C-shape complex; and SIHP 3208, a platform.
Kennedy et al. 1992	Pu‘uloa Golf Course	Archaeological Inventory Survey	Documented 72 sites, although only 15 sites were listed as significant after the survey: SIHP 3770, 3775, 3876, 3782, 3877, 3898, 3899, 3901, 3910, 3911, 3914, 3916, 3917, 3921, and 3927.

**Table 1. (Continued)**

<b>Author and Year</b>	<b>Location</b>	<b>Work Completed</b>	<b>Findings</b>
Kennedy and Denham 1992	Pu‘uloa Golf Course	Data Recovery	Further investigated ten sites and recommended 12 sites for preservation: SIHP 3775, 3876, 3782, 3877, 3898, 3899, 3901, 3911, 3914, 3916, 3917, and 3927. Found a decline in avian remains from the 12 <sup>th</sup> 13 <sup>th</sup> centuries. An increase in marine midden followed this decline. Ranching, quarrying, and military training took place in the historic period.
Jensen and Head 1995	Lualualei Naval Ammunition Depot	Reconnaissance	Documented 281 sites, including agricultural, military, and ranching structures.
Hammatt and Borthwick 1997	Ewa High Frequency Transmitter Station	Archaeological Inventory Survey	None.
Hammatt and Chiogioji 1997	North-South Road Corridor	Reconnaissance	No findings near the current project area.
Moore and Kennedy 2002	Multiple Waterline Corridors	Literature Review	No findings near the current project area.
Corbin 2004	Marina Channel and Kalo‘i Drainage	Subsurface Testing	None.
Dye and Jourdane 2006a	Iroquois Point	Archaeological Inventory Survey	Results reported as an archaeological assessment.
Dye and Jourdane 2006b	Campbell High School	Archaeological Inventory Survey	Results reported as an archaeological assessment.
Carson 2007	Iroquois Point	Archaeological Inventory Survey	Identified SIHP 5875, 5878, and 6905-6908. They consist of two historic sites and four subsurface late pre-Contact and post-Contact midden deposits.
Sroat et al. 2012	Campbell High School	Literature Review and Field Inspection	Identified two filled-in sinkholes. SIHP numbers were not assigned.

Finally, two studies were conducted on the Campbell High School campus. An archaeological assessment yielded no findings (Dye and Jourdan 2006b). A literature review and field inspection identified two small filled-in sinkholes, although SIHP numbers were not assigned (Sroat et al. 2012). The two sinkholes are not located within the current project area.

### **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) O'ahu sociopolitical model, Beardsley (2001:III-8, III-9) summarizes the following settlement pattern for Honouliuli:

***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-19<sup>th</sup> 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, Anticipated Finds, and Research Questions**

An examination of traditional and historic land-use for Honouliuli as demonstrated in mo'olelo, historic literature, and archaeological investigations, shows that this area was once a land rich in natural, as well as cultural resources. Mo'olelo and 'ōlelo no'ēau 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.

No archaeological resources are known to occur within the current project boundaries, although archaeological sites do occur nearby. The lack of surface finds within the project area is likely due to the extensive historic alterations, modifications, and land use changes that have taken place around Campbell High School over the last several decades. Previous archaeological studies express the complexity of Hawaiian settlement of the 'Ewa Plain through the diversity and range of site types, which include modified sinkholes utilized for habitation and burial, religious sites such as heiau and ko'a, agricultural sites, walls, mounds, enclosures, iwi kūpuna, as well as the remains of extinct animal species. These were all found outside the project boundaries in areas that were not as heavily disturbed as the vicinity of the school. Subsurface features are not known for the project area but may include cultural and paleontological deposits, particularly within sinkholes. It has been reported that human remains are located within the fill of the Campbell High School football field, outside the project area to the north. Also found on the 'Ewa Plain are historic resources associated with cattle ranching, sugar and sisal plantations, transportation, and military use.

Research questions will broadly address the identification of the above archaeological resources and may become more narrowly focused based on the kinds of resources that are found. Initial research questions are as follows:

1. Is there any evidence of pre-Contact use of the project area and what is the nature of that use?
2. Are there vestiges of historic use of the project area, such as military or ranching remnants?
3. Are there sinkholes that might contain paleontological or other remains within the project area?
4. Did the fill from the football field extend into the project area?
5. If cultural resources are found, how do they relate to the settlement pattern of the wider 'Ewa Plain region?

Once these basic questions are answered, additional research questions may be developed in consultation with SHPD, tailored to the specific kinds of archaeological resources that were identified.



## METHODS

Pedestrian survey and subsurface testing were conducted on June 28, 2016 by Windy McElroy, PhD and Dietrix Duhaylonsod, BA. McElroy served as Principal Investigator, overseeing all aspects of the project.

For the pedestrian survey, the ground surface was visually inspected for surface archaeological remains, with transects walked for the entire area. Archaeologists were spaced approximately 10 m apart. Of the .61 ha (1.5 ac.) survey area, 100% was covered on foot. Vegetation was very light, consisting of grass outside the school's agriculture garden, and agricultural plants within the garden (e.g., aloe, kalo, fruit trees). The vegetation did not affect visibility of the ground surface. Archaeological sites and their boundaries were identified visually.

Test trenches (TR) were excavated in six locations across the project area. The excavation strategy was approved by SHPD beforehand via email. A mini excavator was used for excavation of the trenches (Figure 11). Vertical provenience was measured from the surface, and trenches were excavated to the basal coral shelf where possible. Profiles were drawn and photographed, and sediments were described using Munsell soil color charts and a sediment texture flowchart (Thien 1979). Trench locations were recorded with a 3 m-accurate Garmin GPSmap 62st, and all trenches 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 et al. 2002:2–35). No materials were collected and no laboratory analyses were conducted.



**Figure 11. Excavation of TR 4 with mini excavator. Orientation is to the south.**

## **RESULTS**

Pedestrian survey and subsurface testing were conducted in the .61 ha (1.5 ac.) project area. No archaeological resources were found. Excavation of six test trenches did not yield any evidence of subsurface archaeological deposits or features.

### **Community Consultation**

A cultural impact assessment (CIA) is currently being conducted. The CIA is being prepared simultaneously with this AA report, and three interviews with community members are planned. Two interviews have been completed thus far, with community members, Earl Arakai and Tesha Malama interviewed.

Earl Arakaki stated that soil from a former graveyard in Waipahu was used to construct the football field area of Campbell High School. He remembers seeing the tombstones piled up at one end of the field. He noted that the rest of the campus had dirt brought in to cover the coral but he does not know if the other parts of the campus used the same graveyard soil.

Tesha Malama feels that money could be better spent on acquiring one of the adjacent elementary schools, repurpose their buildings for the high school, focus money on Campbell's athletic and performing arts programs, and redistrict the area's children to the remaining elementary schools. But if the current plan goes through, she wants air conditioning for the classrooms and a plan that allows for traffic to go from the current project area and across campus to the gym. She also stated that a monument at the current roundabout within the project area might be more than 50 years old.

### **Pedestrian Survey**

The surface survey included 100% of the .61 ha (1.5 ac.) project area. No surface archaeological remains were observed within any part of the project area; any archaeological features that may have once been present are no longer there because of the extensive modern use of these lands. The entire project area has been disturbed by recent construction. An effort was made to locate the monument described by Tesha Malama. The monument was once located at the current roundabout, although it is no longer there today.

### **Subsurface Testing**

A subsurface testing plan was approved by SHPD before trenching began. The six trenches were excavated within the project area to determine the presence or absence of subsurface archaeological deposits or material (Figures 12–13 and Table 2). No archaeological resources were found, and stratigraphy consisted of topsoil above a coral shelf.

TR 1 was located between Building J and the roundabout (see Figure 12). The trench measured 7.8 m long and 70 cm wide. It was excavated to 85 cm below surface (cmbs), where a coral shelf was encountered. This shelf was shallower on the northeast end of the trench, where it was found at 20 cmbs. Above the coral shelf, stratigraphy consisted of a layer of fill above a deposit mixed with fill and weathered coral (Figures 14 and 15, see Table 2). No archaeological deposits or materials were identified.



**Figure 12. Location of trenches on aerial imagery. The project area is outlined in red.**



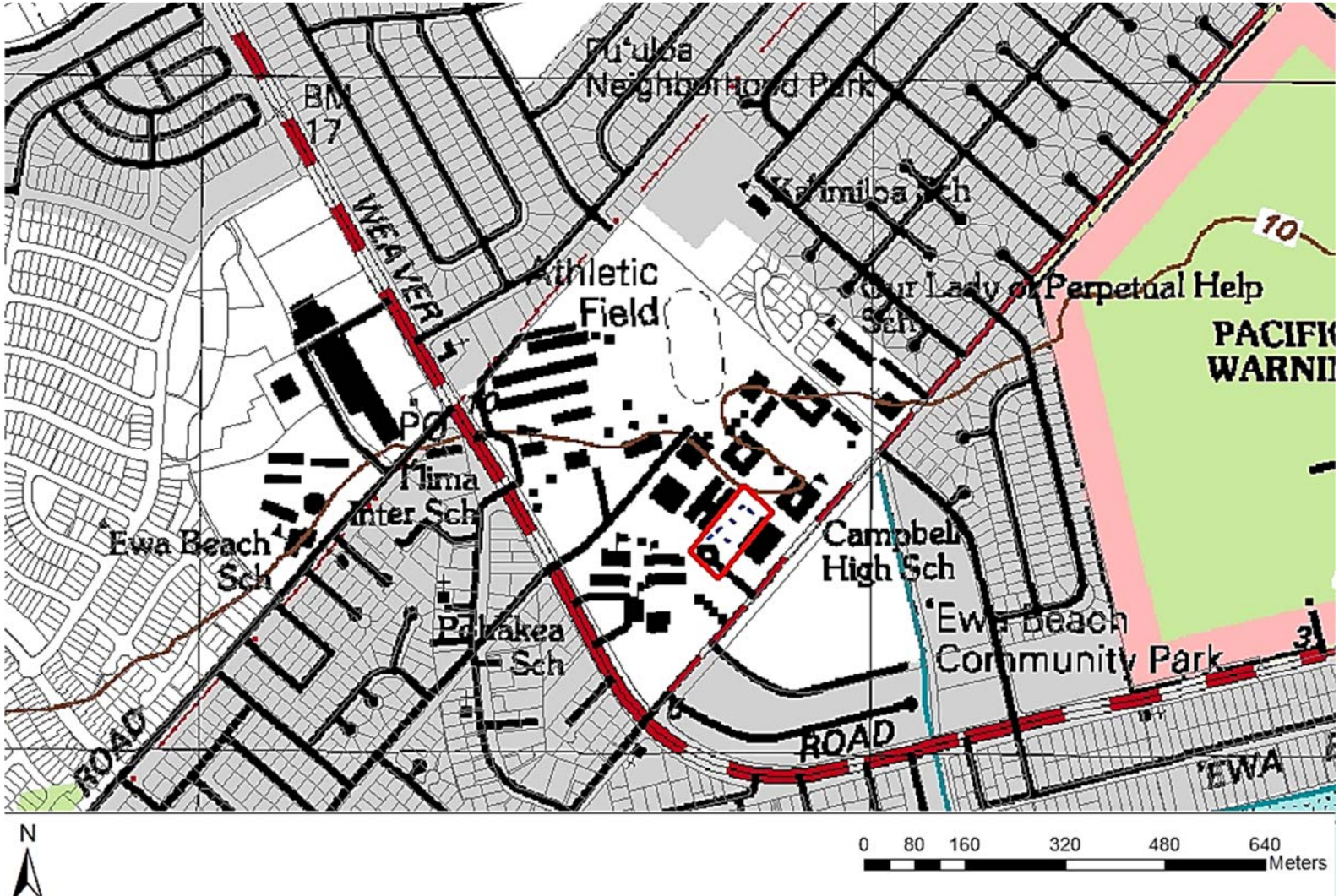
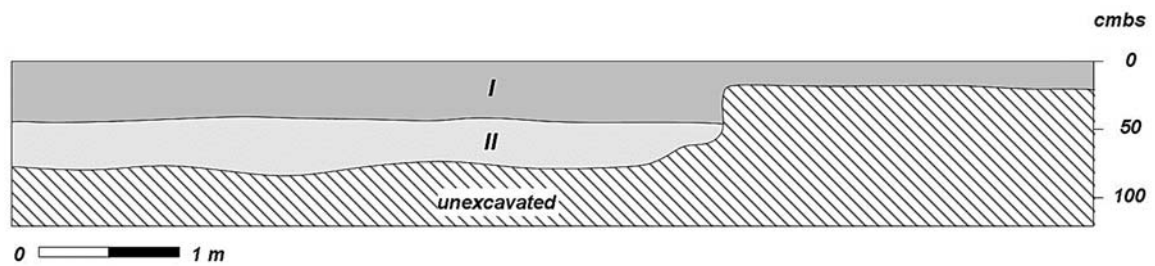


Figure 13. Wider view of trench locations (in blue) on a 1999 USGS Pearl Harbor quadrangle. The project area is outlined in red.

**Table 2. Sediment Descriptions**

Location	Layer	Depth (cmbs)	Color	Description	Interpretation
TR 1	I	0–42	5YR 3/4	Clay loam; 2% roots, 5% coral cobbles; smooth, very abrupt boundary.	Fill
	II	42–85+	10YR 7/3	Sandy loam; 50% coral cobbles; base of excavation.	Fill Mixed with Weathered Coral
TR 2	I	0–22	5YR 3/4	Clay loam; 2% roots, 5% coral cobbles; sparse modern debris; smooth, very abrupt boundary.	Fill
	II	22–73+	7.5YR 4/3	Sandy loam; 50% coral cobbles; base of excavation.	Fill Mixed with Weathered Coral
TR 3	I	0–22	5YR 3/4	Clay loam; 2% roots, 5% coral cobbles; sparse modern debris; smooth, very abrupt boundary.	Fill
	II	22–64+	7.5YR 4/3	Sandy loam; 50% coral cobbles; base of excavation.	Fill Mixed with Weathered Coral
TR 4	I	0–30	5YR 3/4	Clay loam; 2% roots, 5% coral cobbles; sparse modern debris; smooth, very abrupt boundary.	Fill
	II	30–78+	10YR 4/2	Sandy loam; 50% coral cobbles; base of excavation.	Fill Mixed with Weathered Coral
TR 5	I	0–20	5YR 3/4	Clay loam; 2% roots, 5% coral cobbles; 50% basalt gravel in upper 20 cm of north end of trench; sparse modern debris; smooth, very abrupt boundary.	Fill
	II	20–74+	10YR 6/3	Sandy loam; 50% coral cobbles; base of excavation.	Fill Mixed with Weathered Coral
TR 6	I	0–28	5YR 3/4	Clay loam; 2% roots, 5% coral cobbles; 50% basalt gravel in upper 20 cm of northeast side of trench sparse modern debris; smooth, very abrupt boundary.	Fill
	II	28–64+	10YR 6/2	Sandy loam; 50% coral cobbles; base of excavation.	Fill Mixed with Weathered Coral

**Figure 14. TR 1 northwest face profile drawing.**





**Figure 15. TR 1 northwest face photo.**

TR 2 was placed within the school's agriculture garden, southeast of Building J (see Figure 12). The trench measured 8.8 m long and 70 cm wide. It was excavated to 73 cmbs, where a coral shelf was encountered. This shelf was shallower on the northeast end of the trench, where it was found at 40 cmbs. Above the coral shelf, stratigraphy consisted of a layer of fill above a deposit mixed with fill and weathered coral (Figures 16 and 17, see Table 2). No archaeological deposits or material were identified.

TR 3 was excavated in the south corner of the school's agriculture garden (see Figure 12). The trench measured 7.9 m long and 70 cm wide. It was excavated to 64 cmbs, where a coral shelf was encountered. This shelf was shallower in various places within the trench, where it was found at 20–30 cmbs. Above the coral shelf, stratigraphy consisted of a layer of fill above a deposit mixed with fill and weathered coral (Figures 18 and 19, see Table 2). No archaeological deposits or material were identified.

TR 4 was placed in the center of the school's agriculture garden (see Figure 12). The trench measured 7.6 m long and 70 cm wide. It was excavated to 78 cmbs, where a coral shelf was encountered. This shelf was shallower on the northwest side of the trench, where it was found at 40 cmbs. Above the coral shelf, stratigraphy consisted of a layer of fill above a deposit mixed with fill and weathered coral (Figures 20 and 21, see Table 2). No archaeological deposits or material were identified.

TR 5 was located in the northwest corner of the school's agriculture garden (see Figure 12). The trench measured 5.5 m long and 70 cm wide. It was excavated to 74 cmbs, where a coral shelf was encountered. This shelf was shallower on the east side of the trench, where it was found at 30 cmbs. Above the coral shelf, stratigraphy consisted of a layer of fill above a deposit mixed with fill and weathered coral (Figures 22 and 23, see Table 2). There was also an abundance of basalt gravel at the surface on the east side of the trench, extending to 20 cmbs. A set of abandoned wires was found protruding from the north and south faces of the trench, just below the upper fill layer. No archaeological deposits or material were identified.

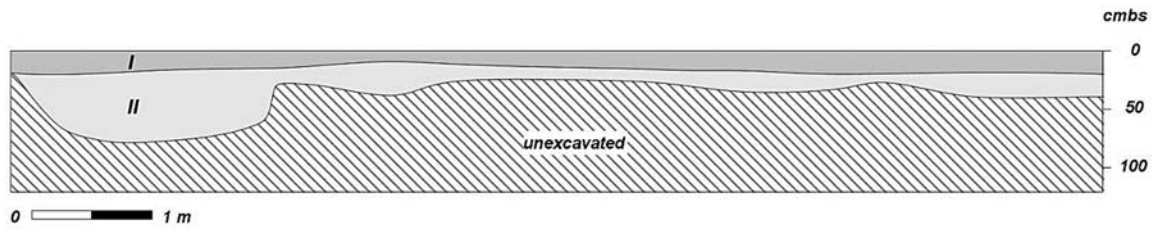


Figure 16. TR 2 northwest face profile drawing.



Figure 17. TR 2 northwest face photo.

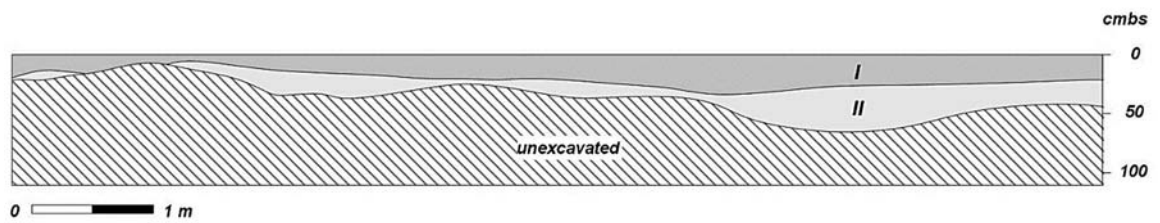


Figure 18. TR 3 south face profile drawing.





Figure 19. TR 3 south face photo.

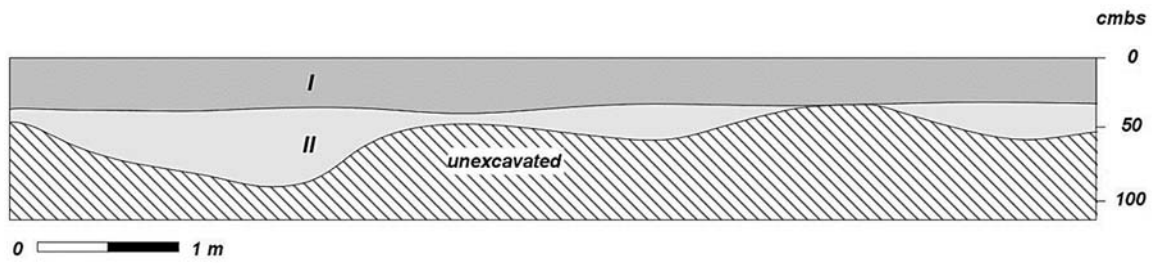


Figure 20. TR 4 southwest face profile drawing.



Figure 21. TR 4 southwest face photo.



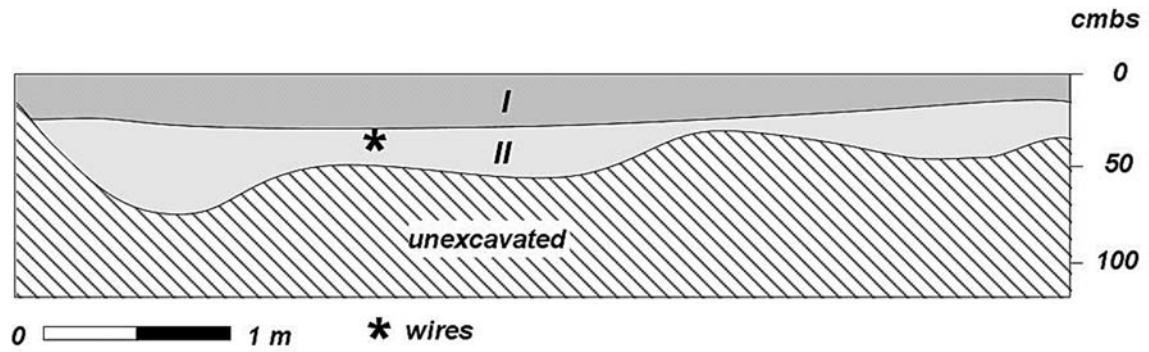


Figure 22. TR 5 north face profile drawing.



Figure 23. TR 5 north face photo.

TR 6 was placed just outside the agriculture garden's fence, on the northeast side (see Figure 12). The trench measured 7.9 m long and 70 cm wide. It was excavated to 64 cmbs, where a coral shelf was encountered. This shelf was shallower on the southeast side of the trench, where it was found at 30 cmbs. Above the coral shelf, stratigraphy consisted of a layer of fill above a deposit mixed with fill and weathered coral (Figures 24 and 25, see Table 2). Rebar pieces and basalt gravel were found within the upper fill layer of the trench, likely remnants from a former parking lot in this area. No archaeological deposits or material were identified.

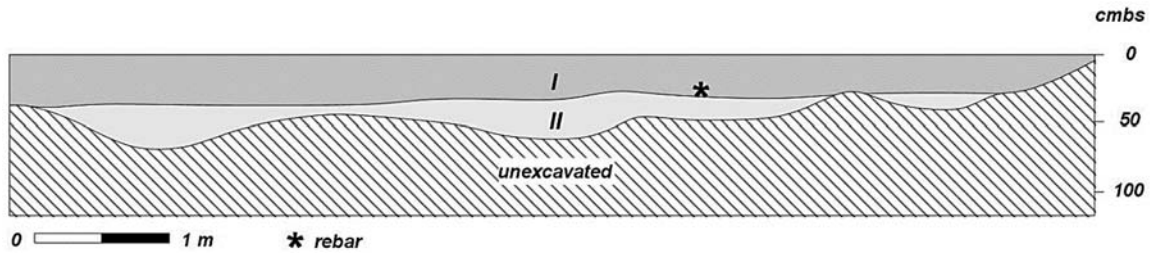


Figure 24. TR 6 southwest face profile drawing.



Figure 25. TR 6 southwest face photo.

### Summary of Findings

Pedestrian survey of .61 ha (1.5 ac.) at Campbell High School yielded no findings. The entire project area has been disturbed by modern development, such as the landscaping of lawns, the installation of utility lines, preparation of the agriculture garden, construction of the road and roundabout to the southwest of the garden, and construction of the former parking lot to the northeast of the garden. Subsurface testing, consisting of six trenches, did not identify any subsurface cultural deposits or features. Stratigraphy consisted of fill above a coral shelf.

## CONCLUSION AND RECOMMENDATIONS

An archaeological inventory survey was conducted at James Campbell High School on TMK: (1) 9-1-001:002 (por.) in Honouliuli Ahupua‘a, ‘Ewa District, on the island of O‘ahu. The Department of Education is planning the development of new classrooms and associated infrastructure on campus. The archaeological work included pedestrian survey that covered 100% of the .61 ha (1.5 ac.) project area, as well as test excavations consisting of six trenches. Due to negative findings, the AIS results are presented as an archaeological assessment per HAR §13-275-5-(b)(5)(A).

No surface archaeological remains were found during pedestrian survey of the parcels. The entire area has been disturbed by modern activity, particularly preparation of the school’s agriculture garden, which encompasses most of the project area. Likewise, subsurface testing did not yield any evidence of subsurface archaeological features or deposits. Stratigraphy consisted of fill above a coral shelf.

Given the lack of findings and the shallow depth of the coral shelf, archaeological monitoring is not recommended. However, even though human remains were not found during the survey, it is still possible that they may be unearthed during construction. Should human burial remains be discovered during construction activities, work in the vicinity of the remains should cease and the SHPD should be immediately contacted.



## GLOSSARY

<b>ahu</b>	A shrine or altar.
<b>ahupua‘a</b>	Traditional Hawaiian land division usually extending from the uplands to the sea.
<b>aku</b>	The bonito or skipjack ( <i>Katsuwonus pelamis</i> ), a prized eating fish.
<b>akule</b>	Big-eyed or Goggled-eyed scad fish ( <i>Trachurops crumenophthalmus</i> ).
<b>ali‘i</b>	Chief, chiefess, monarch.
<b>aloe</b>	The <i>Aloe vera</i> plant, used as a skin moisturizer, for healing burns, and to detoxify the body.
<b>‘ama‘ama</b>	The mullet, or <i>Mugil cephalus</i> , a prized indigenous fish.
<b>‘awa</b>	The shrub <i>Piper methysticum</i> , or kava, the root of which was used as a ceremonial drink throughout the Pacific.
<b>banana</b>	The mai‘a, or <i>Musa</i> sp., whose fruit was eaten and leaves used traditionally as a wrapping for cooking food in earth ovens.
<b>heiau</b>	Place of worship and ritual in traditional Hawai‘i.
<b>iwi</b>	Bone.
<b>Kahiki</b>	A far away land, sometimes refers to Tahiti.
<b>kalo</b>	The Polynesian-introduced <i>Colocasia esculenta</i> , or taro, the staple of the traditional Hawaiian diet.
<b>kama‘āina</b>	Native-born.
<b>Kanaloa</b>	A major god, typically associated with Kāne.
<b>Kāne</b>	The leading of the traditional Hawaiian deities.
<b>kauhale</b>	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.
<b>kia‘i</b>	Guard, caretaker; to watch or guard; to overlook, as a bluff.
<b>kiawe</b>	The algarroba tree, <i>Prosopis</i> sp., a legume from tropical America, first planted in 1828 in Hawai‘i.
<b>ko‘a</b>	Fishing shrine.
<b>koa haole</b>	The small tree <i>Leucaena glauca</i> , historically-introduced to Hawai‘i.
<b>konohiki</b>	The overseer of an ahupua‘a ranked below a chief; land or fishing rights under control of the konohiki; such rights are sometimes called konohiki rights.
<b>kuapā</b>	Wall of a fishpond.
<b>kukui</b>	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.
<b>kuleana</b>	Right, title, property, portion, responsibility, jurisdiction, authority, interest, claim, ownership.
<b>kupekala</b>	A bivalve of Pearl Harbor, possibly <i>Chama</i> spp.
<b>kupua</b>	Demigod, hero, or supernatural being below the level of a full-fledged deity.

<b>kupuna</b>	Grandparent, ancestor; kūpuna is the plural form.
<b>lehua</b>	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.
<b>limu</b>	Refers to all sea plants, such as algae and edible seaweed.
<b>lo‘i, lo‘i kalo</b>	An irrigated terrace or set of terraces for the cultivation of taro.
<b>loko, loko i‘a</b>	Pond, lake, pool.
<b>lua</b>	The ancient style of fighting involving the breaking of bones, dislocation of joints, and inflicting pain by applying pressure to nerve centers.
<b>mahamoe</b>	Sleek, as a plump animal, attractive; smooth; also the name of an edible bivalve.
<b>Māhele</b>	The 1848 division of land.
<b>mai‘a</b>	The banana, or <i>Musa</i> sp., whose fruit was eaten and leaves used traditionally as a wrapping for cooking food in earth ovens.
<b>māmaki</b>	<i>Piptarus spp.</i> , a small native tree. Fiber from its bark was used to make a kind of coarse tapa. Sometimes spelled mamake in old texts.
<b>ma‘o</b>	<i>Gossypium sandvicense</i> , or native cotton, a shrub in the hibiscus family that bears yellow flowers and seed cases containing brown cotton.
<b>mauka</b>	Inland, upland, toward the mountain.
<b>mele</b>	Song, chant, or poem.
<b>midden</b>	A heap or stratum of refuse normally found on the site of an ancient settlement. In Hawai‘i, the term generally refers to food remains, whether or not they appear as a heap or stratum.
<b>mō‘ī</b>	King.
<b>moku</b>	District, island.
<b>mo‘olelo</b>	A story, myth, history, tradition, legend, or record.
<b>nahaweale</b>	Bivalves of the family <i>Isognomonidae</i> or <i>Brachiodontes</i> , the purse shell and mussel, respectively.
<b>nehu</b>	The anchovy, <i>Stolephorus purpureus</i> , used for eating and as a chum for bonito.
<b>nuku</b>	Beak, snout, tip, end; spout, beak of a pitcher; mouth or entrance, as of a harbor, river, or mountain pass or gap.
<b>‘ōkupe</b>	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> .
<b>oli</b>	Chant.
<b>olonā</b>	The native plant <i>Touchardia latifolia</i> , traditionally used for making cordage.
<b>‘ōpae</b>	Shrimp.
<b>‘owā‘owaka</b>	A bivalve, possibly of the family <i>Isognomonidae</i> .
<b>pāpa‘i</b>	General term for crabs.
<b>pāpaua</b>	The clam <i>Isognomon</i> , a bivalve.

<b>pipi</b>	<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> .
<b>pipipi</b>	A marine shell, <i>Nerita picea</i> , common in the intertidal zone.
<b>post-contact</b>	After A.D. 1778 and the first written records of the Hawaiian Islands made by Captain James Cook and his crew.
<b>pre-contact</b>	Prior to A.D. 1778 and the first written records of the Hawaiian Islands made by Captain James Cook and his crew.
<b>puka</b>	Hole, void, space, entrance.
<b>pu‘uone</b>	Pond near the seashore, as at the end of a stream.
<b>uhi</b>	The yam <i>Dioscorea alata</i> , commonly grown for food.
<b>‘ulu</b>	The Polynesian-introduced tree <i>Artocarpus altilis</i> , or breadfruit.
<b>wao</b>	A general term for inland areas, usually forested and uninhabited.
<b>wauke</b>	The paper mulberry, or <i>Broussonetia papyrifera</i> , which was made into tapa cloth in traditional Hawai‘i.

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