

**FINAL—Archaeological Assessment for Improvements to
Kualoa Ranch, Kualoa 1 and 2 Ahupua‘a, Ko‘olaupoko
District, and Ka‘a‘awa Ahupua‘a, Ko‘olauloa District, Island
of O‘ahu, Hawai‘i**

Portions of TMK: (1) 4-9-004:002, (1) 4-9-005:001, and (1) 5-1-001:001



Prepared For:

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

December 2016

Keala Pono 

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MANAGEMENT SUMMARY

An archaeological inventory survey was conducted for portions of TMK: (1) 4-9-004:002 and (1) 4-9-005:001 in Kualoa 1 and 2 Ahupua'a, Ko'olaupoko District, and TMK: (1) 5-1-001:001 in Ka'a'awa Ahupua'a, Ko'olaupoko District on the island of O'ahu. Due to negative findings, the AIS results are presented as an archaeological assessment (AA). The survey was done in preparation for ground disturbance associated with improvements to Kualoa Ranch. The archaeological work included a pedestrian survey that covered 100% of the project areas, as well as test excavations consisting of 13 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. The only find consisted of three historic artifacts. Given the negative findings, archaeological monitoring is not recommended for the majority of the project area. Monitoring is recommended only in the lower elevations of the Kualoa Ranch Headquarters, where sandy deposits were encountered.

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INTRODUCTION

At the request of Group 70 International, Keala Pono Archaeological Consulting conducted an archaeological inventory survey (AIS) for portions of TMK: (1) 4-9-004:002, and (1) 4-9-005:001 in Kualoa 1 and 2 Ahupua'a, Ko'olaupoko District, and TMK: (1) 5-1-001:001 in Ka'a'awa Ahupua'a, Ko'olaupoko District on the island of O'ahu. Due to negative findings, the AIS results are presented as an archaeological assessment (AA). Kualoa Ranch is planning improvements to selected areas within these parcels. The survey was designed to identify any historic properties that may be located in the improvement areas in anticipation of the proposed construction.

This report is drafted to meet the requirements and standards of state historic preservation law, as set out in Chapter 6E of the Hawai'i Revised Statutes and the State Historic Preservation Division's (SHPD's) draft *Rules Governing Standards for Archaeological Inventory Surveys and Reports*, §13–276. Due to negative findings, the AIS results are presented as an archaeological assessment per HAR §13–275.

The report begins with a description of the project area and a historical overview of land use and archaeology in the region. The next section delineates methods used in the fieldwork, followed by the results of the archaeological 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

The project area consists of three discontinuous survey blocks: Palikū, Kualoa Ranch Headquarters, and Ka'a'awa (Figures 1 and 2). These are situated within three *ahupua'a* and two districts: Kualoa 1 and 2 Ahupua'a in Ko'olaupoko District, and Ka'a'awa Ahupua'a in Ko'olaupoko District. The survey areas are located on portions of TMK: (1) 4-9-004:002, (1) 4-9-005:001, and (1) 5-1-001:001 (Figures 3–5). The parcels are all owned by Kualoa Ranch, Inc., with Anna Simeona listed as a multclaimant for TMK: (1) 4-9-005:001.

Within these TMK parcels, the project area covers 4.522 ha (11.174 ac.) in total: .187 ha (.461 ac.) in Palikū; 4.103 ha (10.138 ac.) at the Kualoa Ranch Headquarters; and .233 ha (.575 ac.) in Ka'a'awa.

Description of the Project

Kualoa Ranch plans to improve the Ranch Headquarters area with a new main entrance, visitor center, All-Terrain Vehicle (ATV) depot and storage, offices, maintenance area, and farmers market. The existing visitor center will be converted primarily to food service, where the current kitchen and café will be expanded. The parking lot will also be expanded, increasing the number of parking spaces to 246 standard, 7 Americans with Disabilities Act (ADA), and 12 for coach buses. Landscaped berms will front the parking areas and the driveway to shield the views of parked cars from Kamehameha Highway.

The Ranch will add a ceremonial meeting house in Palikū, renovate the former gun range, and create an improved driveway access to the Palikū area will be created. The other existing buildings in the Palikū vicinity will remain as they are. Landscaped berms will front the parking areas and the driveway to shield the views of parked cars from Kamehameha Highway. The landscaping here will be improved to reflect a Hawaiian theme.

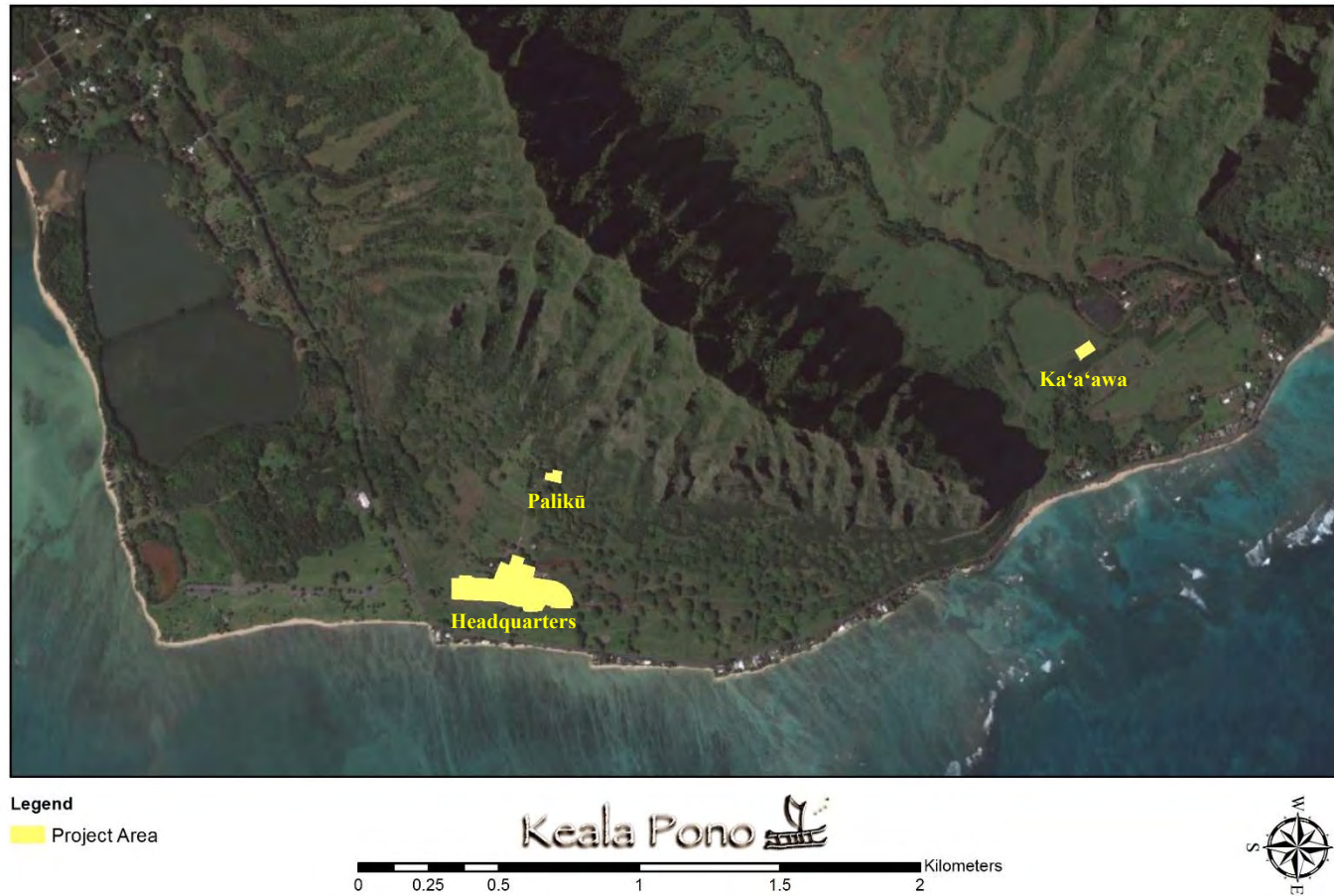


Figure 1. Project locations on an aerial image.

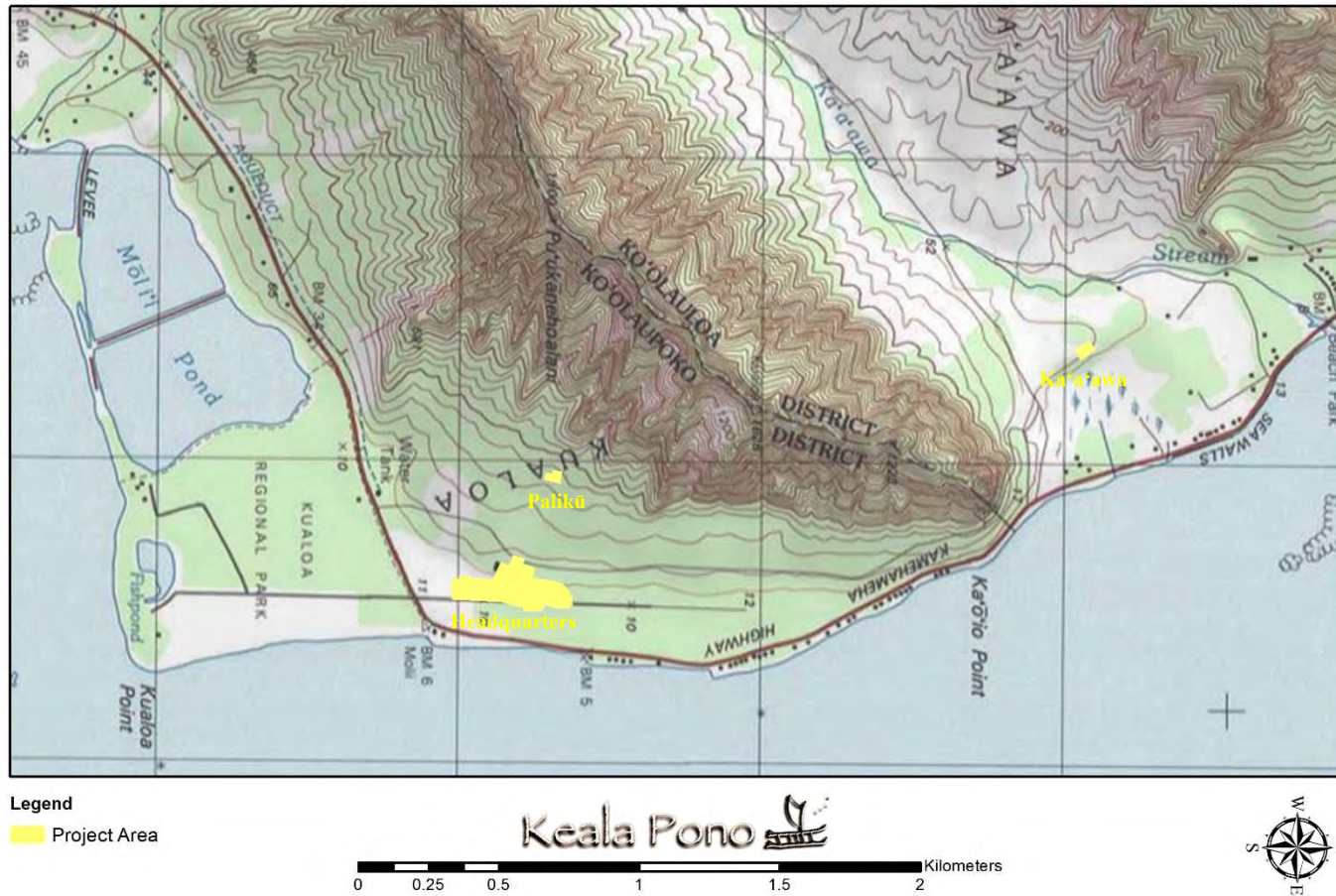


Figure 2. Project locations on a 1:2400 USGS Kahana 1992 quadrangle map.

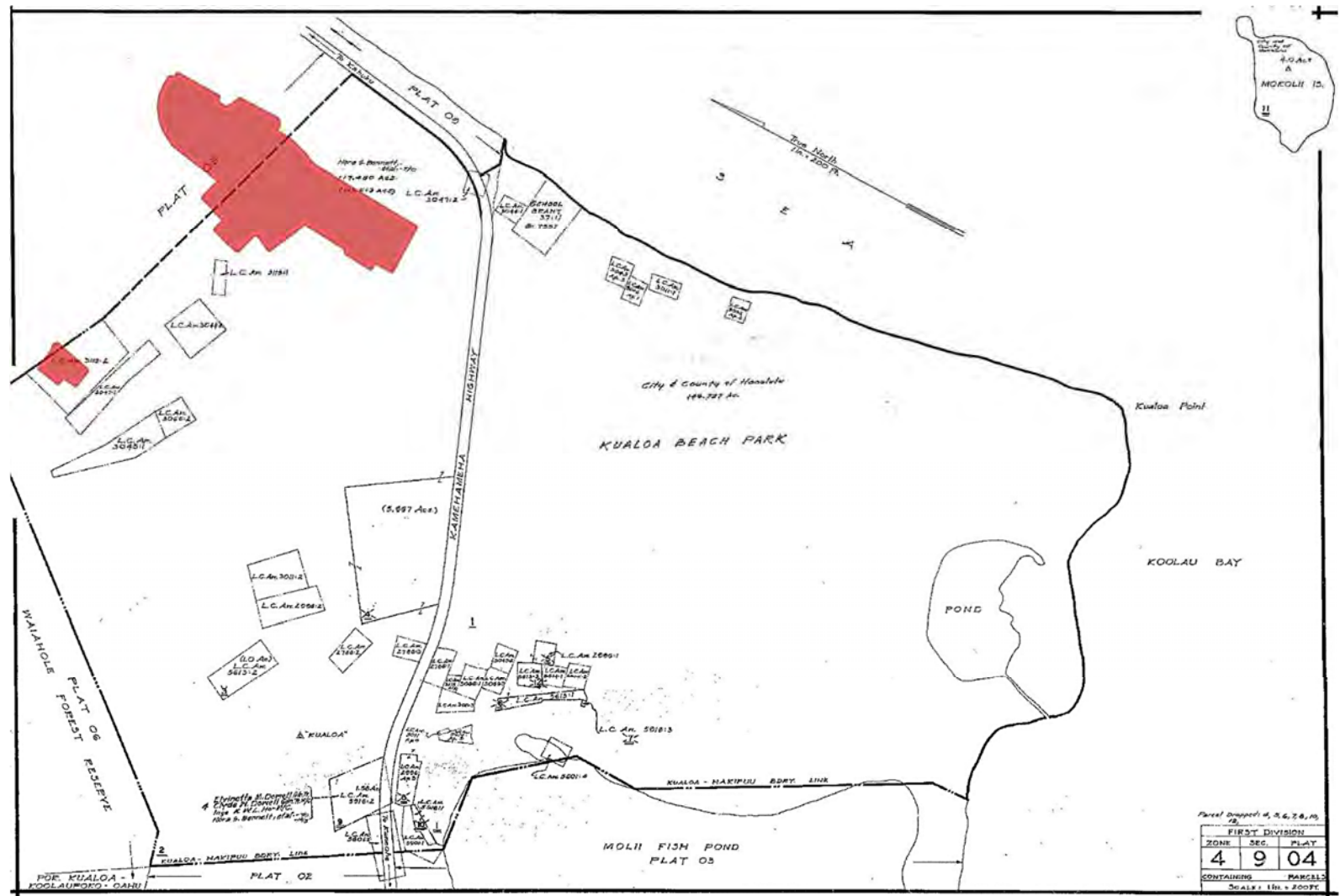


Figure 3. TMK plat (1) 4-9-004 (May 1937), showing the Palikū and the Kualoa Ranch Headquarters survey blocks in red.

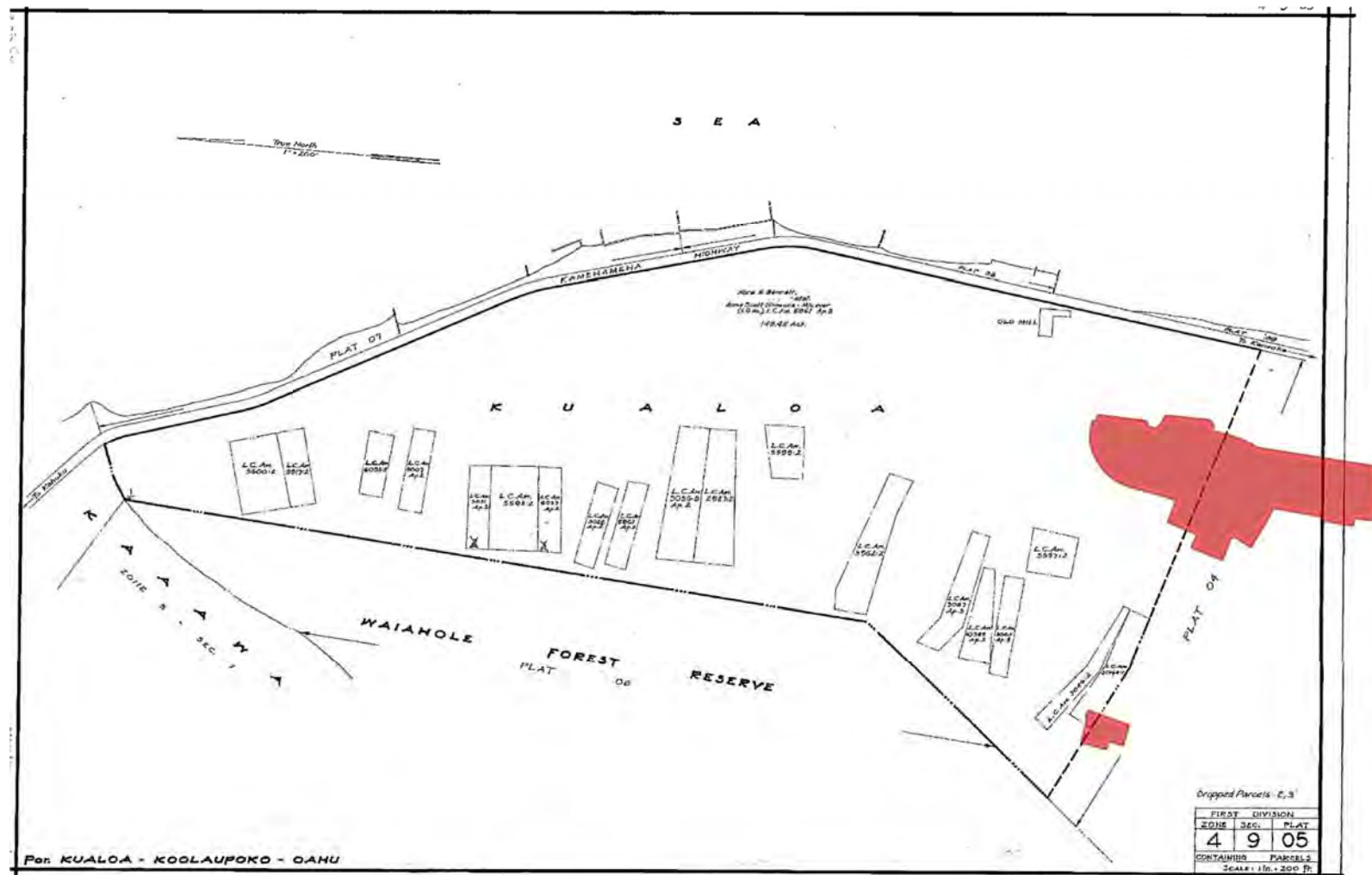


Figure 4. TMK plat (1) 4-9-005 (May 1937), showing the Palikū and Kualoa Ranch Headquarters survey blocks in red.

An agricultural products processing and group facility will be created in Ka‘a‘awa, replacing the current pavilion. The facility will be housed in a new structure that includes a lanai, prep kitchen, storage area for tables, and restrooms.

Physical Environment

The project area ranges from .18 km (.11 mi.) from the coast at the Ranch Headquarters to .65 km (.40 mi.) from the coast at Palikū. The survey blocks are situated between 2–47 m (5–155 ft.) above mean sea level. Terrain is relatively flat to moderately sloping.

The project area receives a good amount of rainfall, approximately 150–200 cm (60–80 in.) annually (Juvik and Juvik 1998). Several major watercourses are nearby, including Hakipu‘u Stream and Ka‘a‘awa Stream, both perennial waterways. Vegetation before human settlement is thought to have been lowland dry and mesic forests, woodlands, and scrublands (Juvik and Juvik 1998). Today however, the survey blocks are dominated by landscaped plants and lawn grass.

Soils within the project area are mostly of the Lolekaa-Waikane association, with some zones of the Kaena-Waialua association (Foote et al. 1972). The former are well-drained soils with mostly fine textured subsoil, while the latter are poorly to excessively drained soils with fine to coarse textured subsoils. Three specific soil types occur within the survey blocks, as depicted in Figure 6 (data from Foote et al. 1972):

Palikū

Waialua very stony silty clay, 12–20% slopes (WmD)

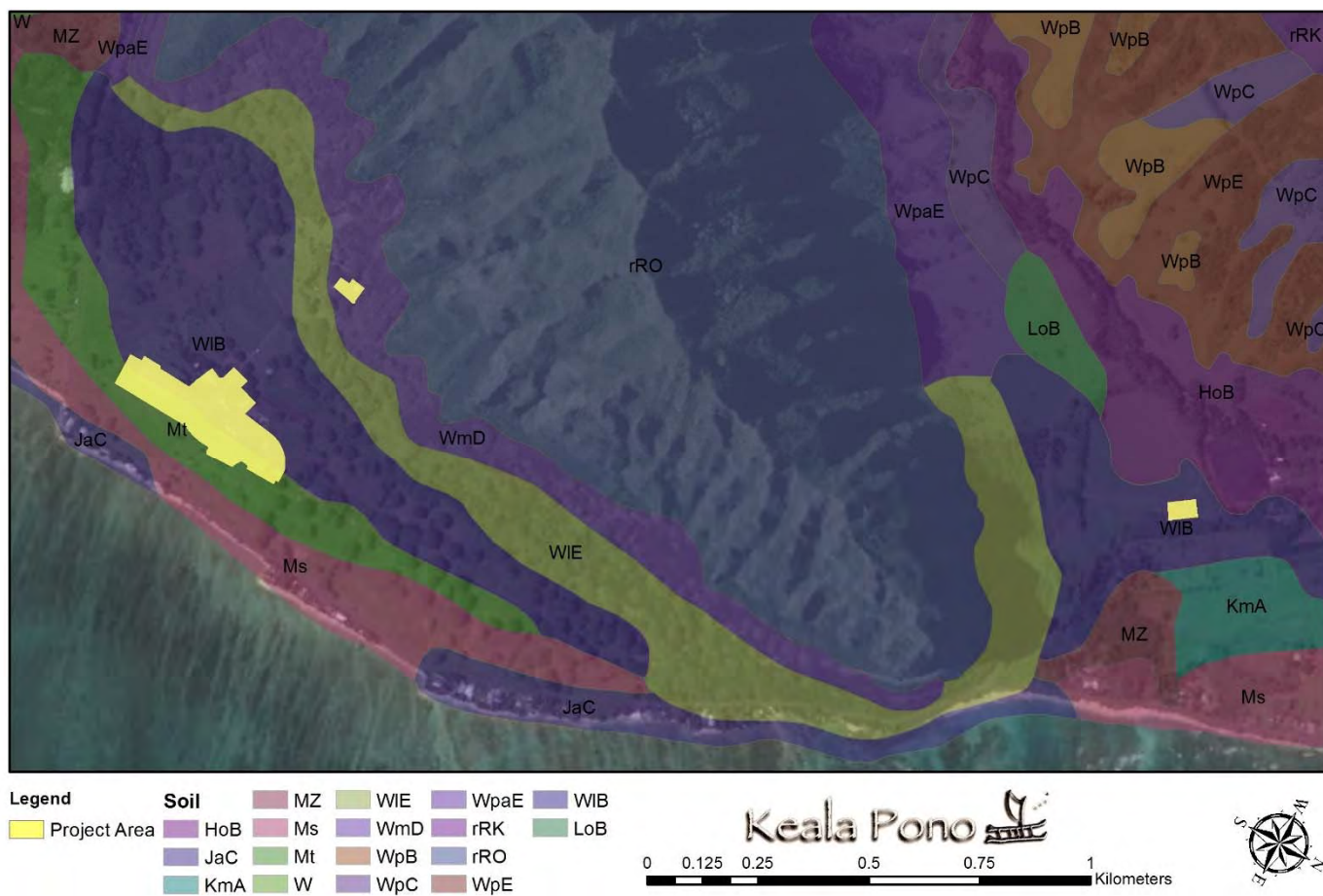
Kualoa Ranch Headquarters

Waialua stony silty clay, 3–8% slopes (WIB)

Mokuleia clay loam (Mt)

Ka‘a‘awa

Waialua stony silty clay, 3–8% slopes (WIB)



BACKGROUND

This chapter presents traditional and historic background information for the project region, including place names, Hawaiian proverbs and *mo‘olelo*, land use, Māhele land tenure data, historic maps, and a summary of previous archaeological research.

Inoa ‘Āina: Place Names

Place names often shed light on traditional views of an area and can provide important contextual information. Most of the *ahupua‘a* names in the project region are associated with natural attributes of the place. Kualoa translates to “long back” (Pukui et al. 1974:119), and Ka‘a‘awa means “the wrasse fish” (Pukui et al. 1974:59). Palikū is an ancient name for Kualoa and is also the name of the ridge between Ko‘olaupoko and Ko‘olaupoko. It literally means “vertical cliff” (Pukui et al. 1974:177).

Other important places are Mokoli‘i, Koholālele, Moli‘i, Kānehoalani, and ‘Āpua. Mokoli‘i is the islet off of Kualoa that is sometimes called Chinaman’s Hat. Mokoli‘i translates to “little *mo‘o*” (Pukui et al. 1974:154), for it is said that the islet is the form of a slayed dragon (see *Mo‘olelo* Section). Koholālele is a fishpond nearby whose name means “leaping whale” (Pukui et al. 1974:115). Moli‘i is another fishpond in the area. Its name means “small section” (Pukui et al. 1974:156). Kānehoalani is the mountain ridge behind Kualoa. Translating to “Kāne royal companion,” it was named for an ancestor of Pele (Pukui et al. 1974:84). ‘Āpua refers to the flats of Kualoa as well as a fishpond there. It literally means “fish basket” (Pukui et al. 1974:13), probably referring to the abundance of fish at that location.

‘Ōlelo No‘eau

‘Ōlelo no‘eau, or Hawaiian proverbs and poetical sayings, provide further insight to traditional beliefs and practices of the area. Four *‘ōlelo no‘eau* were identified for Kualoa and Ka‘a‘awa.

Ho‘olalau ka helena i Kualoa, pi‘i ana i ka pali o Kānehoalani.

In wandering about Kualoa, he ascends the cliff of Kānehoalani.

He goes off his course and thereby gets nothing. On the cliff of Kānehoalani stands a phallic stone, a symbol of bad luck when seen in a dream. (Pukui 1983:117)

Ka limu lana o Kawahine.

The floating seaweed of Kawahine.

A term applied to the *kauwā* who were drowned at Kualoa, O‘ahu, before serving as sacrifices. (Pukui 1983:156)

He kai ‘a‘ai ko Ka‘a‘awa

Ka‘a‘awa has a sea that wears away the land. (Pukui 1983:73)

He moe kai no Ka‘a‘awa

A sleeper in the sea of Ka‘a‘awa.

Applied to a lawbreaker who was to be put to death. When Kualī‘i was ruler of O‘ahu, he punished lawbreakers by drowning them in the sea of Ka‘a‘awa. (Pukui 1983:90)

Mo‘olelo

The region of study was renowned in *mo‘olelo*, with Kualoa being so sacred that canoes had to lower their sails when passing by (Fornander 1969 [1880]:278). Kualoa was formerly known as Palikū and was the home of Wākea and his wife Haumea, progenitors of the human race.

An important saga involving the project lands is that of Hi‘iaka’s journey across the islands to save Lohiau, the lover of her sister, Pele. Handy et al. (1991:446–447) provide a review of the events that took place on the windward side of O‘ahu, culminating in the slaying of the dragon Mokoli‘i, which created the islet of that name:

Passing the shores of Waikane (the original name was Wai-a-Kane, Water-of-Kane), [Hi‘iaka] explained to her companion, Wahine-oma‘o, that here Kane first dug for water at a place called Poliuli (Dark breast), creating the Wai‘ola-li which was male and the Wai‘ola-la, which was female...These waters were also named in the Kumulipo creation chant as the progenitors of many subsequent generations...It was in the waters of Hakipu‘u, in fact but a short distance from the Moli‘i Fishpond, that Hi‘iaka encountered and slew her first, formidable adversary on Oahu, the reptile Mokoli‘i...It is the stumpy tail of this evil creature that to this day protrudes from the waters as the rocky islet Mokoli‘i (Little Reptile)...As their canoe sailed on past the land of Kualoa at Kanehoalani’s feet, “Hi‘iaka said to Wahine-o-mao...‘this is the sacred land of Haloa” (*Hoku o Hawaii*, January 1, 1926) the first man, and progenitor of the human race.

As the saga continues, the distinctive cliffs of Ka‘a‘awa were formed (Emerson 1978). The *kupua* named Kauhi was one of Pele’s followers that came from Kahiki. He was stationed on the cliffs of Ka‘a‘awa and could not leave. When Hi‘iaka arrived he longed to travel with her and when she politely refused, he attempted to rise. Kauhi could only get to a crouching position however, and there he became fixed, forming the cliff that is shaped like a crouching man.

A famous cave is said to be located on the cliff between Kualoa and Ka‘a‘awa (Kamakau 1991:38–39). The cave was on the cliffside at Kanehoalani and it was named Pohukaina. A second entrance was at the spring, Ka‘ahula. The cave extended through the Ko‘olau Mountains where other openings were at Moanalua, Kalihi, Puiwa, Waipahu, and Kahuku. There were many watercourses within the cave, along with man-made decorations.

Kualoa also marks the boundary of Ko‘olaupoko and Ko‘olauloa Districts. It was here that tribute from each *ahupua‘a* was amassed at the end of the *makahiki* circuit (Kamakau 1991:20–21). Tribute collected included items such as food animals, *poi*, *kapa*, fishing nets, feathers, woven mats, pearls, ivory, and adzes (Kamakau 1991:21). If the tribute from a given *ahupua‘a* was deemed unworthy, that *ahupua‘a* would be plundered (Kamakau 1991:21).

Kualoa was also designated as a *pu‘uhonua*, or place of refuge:

The *pu‘uhonua* in ancient times was an *ahupua‘a* portion of a district (*ahupua‘a ‘okana*), like Kailua and Waikane for Ko‘olaupoko district on Oahu, and also Kualoa, which was a very sacred land and a true *pu‘uhonua*, where persons marked for death were saved if they entered it. (Kamakau 1991:18)

Land Use and Subsistence

Kualoa has no streams and is generally not suited for the cultivation of wetland taro. Nevertheless, Koholālele Pond in ‘Āpua may have been made from an abandoned *lo‘i* (Handy et al. 1991:444), although some say that the pond was built by *menehune*, while others assert that the pond was excavated in the historic period (McAllister 1933; Morgan 1964 in Sterling and Summers 1978:180–181). Agriculturally, Kualoa was known for the cultivation of *wauke* to make *kapa* (Handy et al. 1991:444). Kualoa was rich in coastal resources, enhanced by man-made fishponds:

...This land had been very rich in the olden days and even to the present, because of running schools of mullet from Kaihuopalaai, the awa fish and mullets that had been kept and fattened in ponds. These good things of the land are long past. (Apuakehau 1919 in Sterling and Summers 1978:117)

Ka‘a‘awa relied heavily on the ocean for its resources and once supported a fishing village. At least one *ko‘a* is known for the area (now destroyed), attesting to the importance of fishing (McAllister 1933). The valley’s stream

created two passages in the reef, however, that make the beach not well protected. Ka‘a‘awa was not a good location for wetland taro, although there were some agricultural terraces on either side of the stream and in places that have turned into swamplands (Handy et al. 1991:444). Handy et al. remark on the productivity of the region:

Ka‘a‘awa and Makaua must have been good only for sweet potatoes and no doubt there were coconut trees along the shore. There is hardly any beach, but a high shore and a well-protected lagoon make this a good fishing locality. (1991:445)

The Region in the Historic Period

The historic period (post-1778) saw widespread changes throughout the islands as a result of the arrival of foreigners to Hawai‘i’s shores. Though far from the central port of Honolulu, Kualoa and Ka‘a‘awa were not immune to these changes.

Māhele Land Tenure and Historic Land Use

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 parcels 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.

The Land Commission Awards (LCAs) that are on or in the immediate vicinity of the project areas can be seen in Figures 3–5. Data for these can be found in Table 1.

For the Kualoa Headquarters and Palikū project areas, one of the survey blocks overlaps with LCA 3048:1 and 3118:2, while four other LCAs are nearby. LCA 3048 was awarded to Kekihe, and *kula*, potatoes, beans, *wauke*, and a house lot were mentioned in the testimony. LCA 3118 was awarded to Haole, and *lo‘i*, *kula*, and a house lot were once there. Testimony for the four LCAs in the vicinity note the occurrence of *lo‘i*, *kula*, potatoes, *wauke*, and house lots.

A small portion of LCA 8188:1 overlaps with the Ka‘a‘awa survey block, and another four LCAs are located nearby. LCA 8188 was awarded to Heana, and *lo‘i*, *kula*, potatoes, melons, tobacco, a wooded upland, and a house lot were once there. Testimony for the nearby lots mentions *lo‘i*, *kula*, potatoes, wooded uplands, *kai*, a fishery, and house lots. A *pali kao* is also noted, although it is unclear what this refers to. The 1937 TMK map for Ka‘a‘awa also shows a ditch running through the project area (see Figure 5). No other information could be found for the ditch.

In sum, all of the LCA awards mention *lo‘i*, *kula*, and/or house lots, indicating that people were living and cultivating parcels on and near the survey areas in the mid-19th century. Other resources noted were melons, potatoes, *wauke*, beans, wooded uplands, a fishery, and *kai*. Clearly, a diverse array of subsistence practices was taking place in the region.

Table 1. LCAs in the Vicinity of the Project Areas (the highlighted LCAs are within the survey blocks, while the others are nearby)

| LCA | Claimant | Ahupua'a | Ili | Land Use |
|------|---------------|----------|------------------|---|
| 3045 | Keliiokahonua | Kualoa | | <i>lo'i</i> , house lot |
| 3046 | Kamanu | Kualoa | | <i>kula</i> , potatoes, house lot near shore |
| 3047 | Kauaiwahine | Kualoa | | <i>kula</i> , house lot |
| 3048 | Kekihe | Kualoa | | <i>kula</i> , potatoes, beans, <i>wauke</i> , house lot |
| 3066 | Kae | Kualoa | | <i>lo'i</i> , <i>kula</i> , <i>wauke</i> , house lot |
| 3118 | Haole | Kualoa | | <i>lo'i</i> , <i>kula</i> , house lot |
| 3885 | Pohue | Ka'a'awa | Nohomalu, Kaiaka | <i>lo'i</i> , <i>kula</i> , potatoes, wooded upland, house lot |
| 4402 | Kauiki | Ka'a'awa | Nohomalu, Kuahu | <i>lo'i</i> , <i>kula</i> , potatoes, wooded upland, house lot, <i>kai</i> |
| 4408 | Kaumu | Ka'a'awa | Nohomalu | <i>lo'i</i> , <i>kula</i> , potatoes, house lot, large upland, fishery |
| 4420 | Kaloena | Ka'a'awa | Noholoa | <i>lo'i</i> , <i>kula</i> , house lot, upland, <i>pali kao</i> |
| 8188 | Heana | Ka'a'awa | Nohomalu | <i>lo'i</i> , <i>kula</i> , potatoes, melons, tobacco, wooded upland, house lot |

Historic Maps

Historic maps help in visualizing what the project area was like in times past and illustrate the changes that have taken place in the region over the years. Two maps from the late 19th and early 20th centuries are presented below.

An early map from the Hawaii Territory Survey titled “Hakipuu, Koolau, Oahu,” is dated February 1880 (Figure 7). The map notes read, “The total area of the AHUPUAA is 1165.5 acres, of which area there remains to the KANAINA ESTATE 924.5 acres, comprising 10 acres of RICE LAND, the FISHPOND of 124.5 acres and 790 acres of GRAZING and MOUNTAIN LAND.” Yet in contrast to this text, the map shows two separate land grant parcels belonging to A.S. Cooke; another fairly large land grant labeled “Pahalona,” and a smaller parcel labeled “Nohonanahopu” which has a schoolhouse on it. There is one parcel of 56 acres which is labeled as the “Kanaina Estate,” and there is a very small piece of property, wedged between some *kuleana* lands and the 124-acre fishpond, which is labeled as the remnant estate of Kanaina. All of the land grants and Kanaina’s estate are along the coast within Hakipu’u Ahupua’a, and most of them straddle the coastal road which is labeled as the “Gov’t Road.” A “Loko” (pond) and a lone coconut tree are illustrated in Kualoa.

The second map is titled “Oahu, Hawaiian Islands” and is dated 1902 (Figure 8). The map illustrates the *moku*, *ahupua'a*, and smaller land districts and features across the entire island of O’ahu. A close-up of the region of interest shows the registered numbers of several land grants and LCAs. Interestingly, the map specifies only two land owners in this area by name: A.S. Cooke in Hakipu’u; and Judd, who appears to have received former Crown Lands in Kualoa. Also, the Moli’i Fishpond is illustrated near the Hakipu’u-Kualoa boundary.

Post-Māhele Land Use

Rice and sugarcane cultivation were practiced after the Māhele in the project lands, and military and ranching interests also made large scale changes to the landscape. Rice cultivation began as early as the 1860s in Ko’olaupoko and was undertaken mostly by Chinese immigrant farmers.

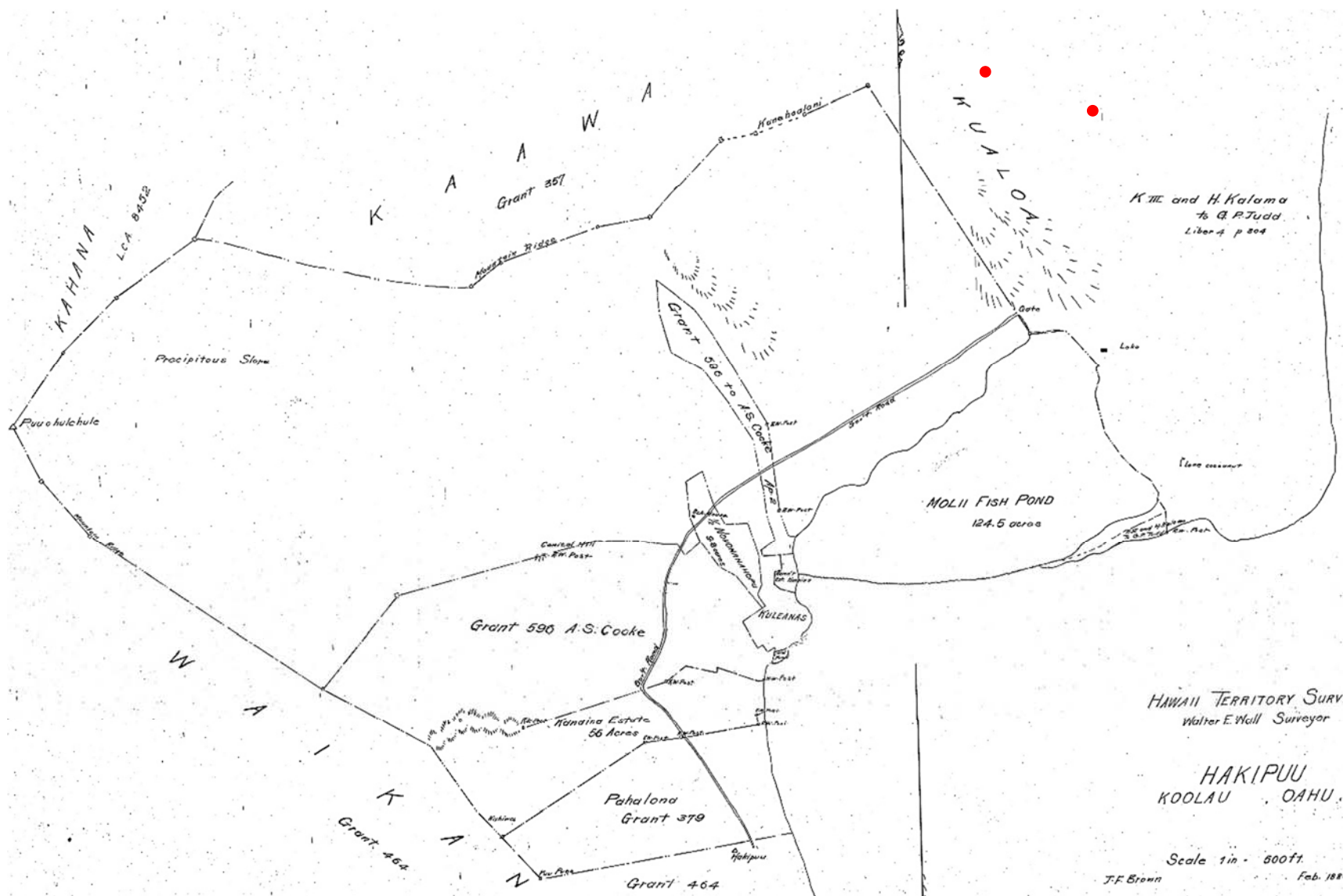


Figure 7. Portion of a Hawaii Territory Survey map of Hakipuu (Wall 1880). The approximate locations of the Palikū and Ranch Headquarters survey blocks are shown as red dots (the Ka'a'awa survey block is off the map).

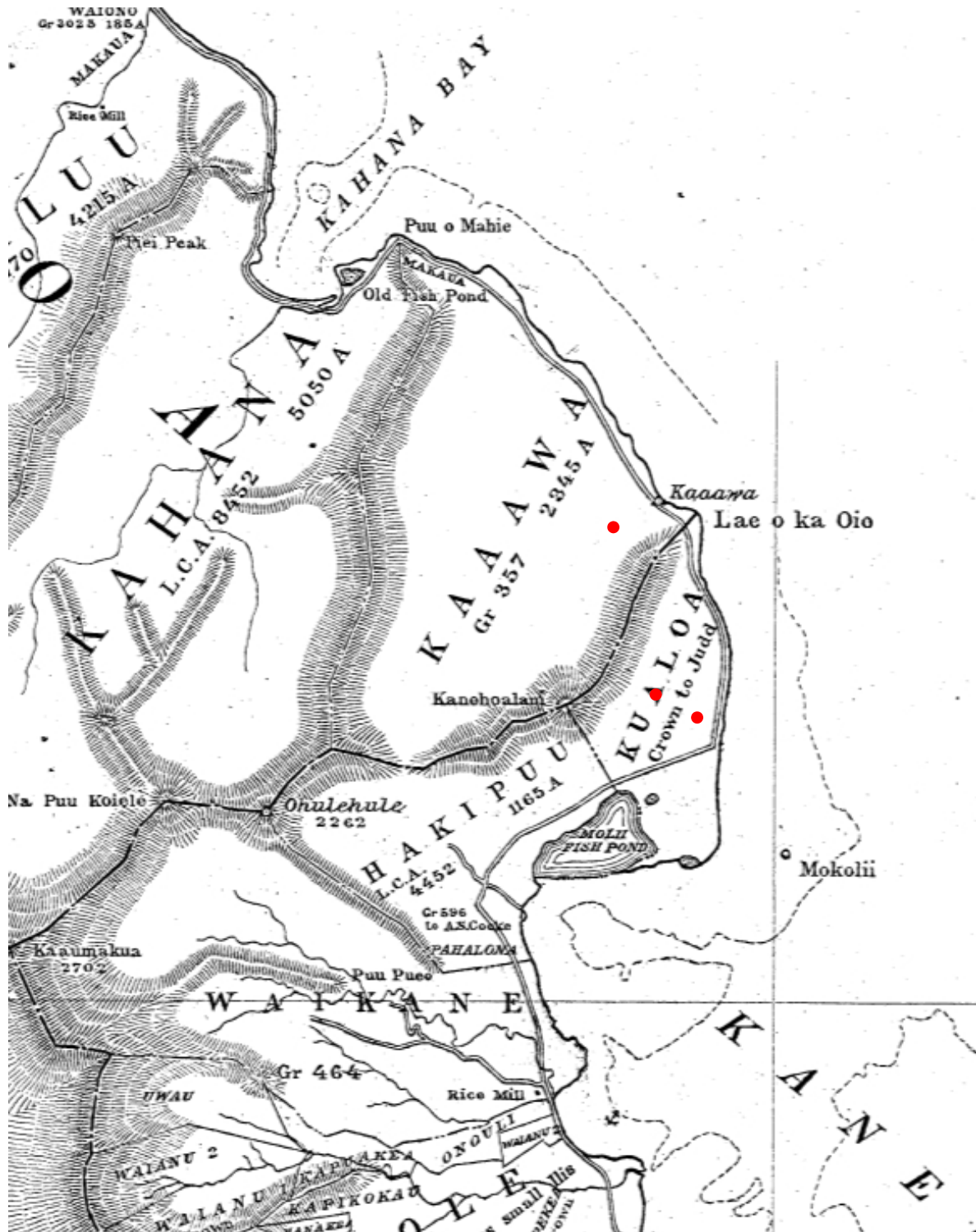


Figure 8. Portion of a Hawaii Territory Survey O'ahu map (Wall 1902). The approximate locations of the survey areas are shown as red dots.

In Kualoa, sugarcane was grown as early as the 1860s by C.H. Judd and his son-in-law S.G. Wilder (Gunness 1993:53). The two also constructed a sugar mill on the *mauka* side of the highway in Kualoa, the remains of which are still visible today. By 1871, the operation was shut down and the area was turned into a ranch. At Kualoa Regional Park, an airfield was built during World War II, with a 6,000 x 150 foot strip bulldozed, graded, and filled for this endeavor (Gunness 1986:9). The park road was later constructed atop the airfield. Other military efforts in the region include construction of cement bunkers and pillboxes, particularly along the cliffs above Kamehameha Highway from Kualoa to Ka‘a‘awa.

Previous Archaeology

Many archaeological projects have been carried out in the vicinity of the project areas. The following paragraphs summarize the studies found in the SHPD Kapolei library that are within Kualoa and Ka‘a‘awa Ahupua‘a, 1.5 km away from the project areas or closer. Project locations are illustrated in Figures 9 and 10.

Kualoa

The entire *ahupua‘a* of Kualoa was placed on the National Register of Historic Places (NRHP) in 1973 for its mythological, legendary, and political importance. It was designated as State Inventory of Historic Places (SIHP) 50-80-06-528. Moli‘i Fishpond is also listed on the NRHP because of its excellent state of preservation and interpretive potential. It was designated as SIHP 50-80-06-313. An early island-wide survey identified four sites in the project vicinity: Site 309 rock formations representing a woman and two children, Site 310, Niuolaa Heiau; Site 312, Koholālele Pond; and Site 313, Moli‘i Pond (McAllister 1933). For Niuolaa Heiau, McAllister reported that “nothing remains of the site” (1933:167).

Many prior studies have been conducted at Kualoa Regional Park (Tables 2 and 3). Among the earliest work was a preliminary investigation that focused on subsurface testing (Barrera 1974). A total of 51 1x1 m test pits were excavated throughout the East Beach area of the park. A subsurface cultural deposit was identified in the north end, thought to be associated with Site 50-Oa-G1-22 which had been recorded by the Bishop Museum. In all, 35 distinct archaeological features were identified, including pits, post holes, and a human burial. A wide range of artifacts were recovered, such as fishing gear, adzes and other tools, basalt and volcanic glass flakes, midden, and historic items.

Subsequent work aimed to “determine the nature and extent of archaeological remains” recorded by Barrera (1974) and to “enhance the cultural and environmental significance of the park through archaeological research and interpretive inputs” (Clark and Connolly 1975:i). Excavations at the South Beach of the park uncovered a fishpond wall thought to be associated with ‘Āpua Pond. Pre-contact artifacts were also recovered from reef areas. A later report proposed recommendations for interpretive programs (Clark and Connolly 1978). Sites with high interpretive value included East Beach, Mokoli‘i Island, ‘Āpua Fishpond, Moli‘i Fishpond, Koholālele Pond, a submerged fishpond wall, a stone house and pig burial area, and a stone platform in the northwest corner of the park that may be Niuolaa Heiau.

An archaeological reconnaissance survey was conducted for proposed beach replenishment between East and South Beach (Gunness 1978). A literature review, pedestrian survey, and test trenching did not identify historic properties, as the area had been extensively disturbed.

Subsurface testing was conducted at the East Beach of Kualoa Regional Park (Ahlo 1980). Most of the project area was found to be previously disturbed, however remnants of cultural deposits were identified below the surface in several locations.

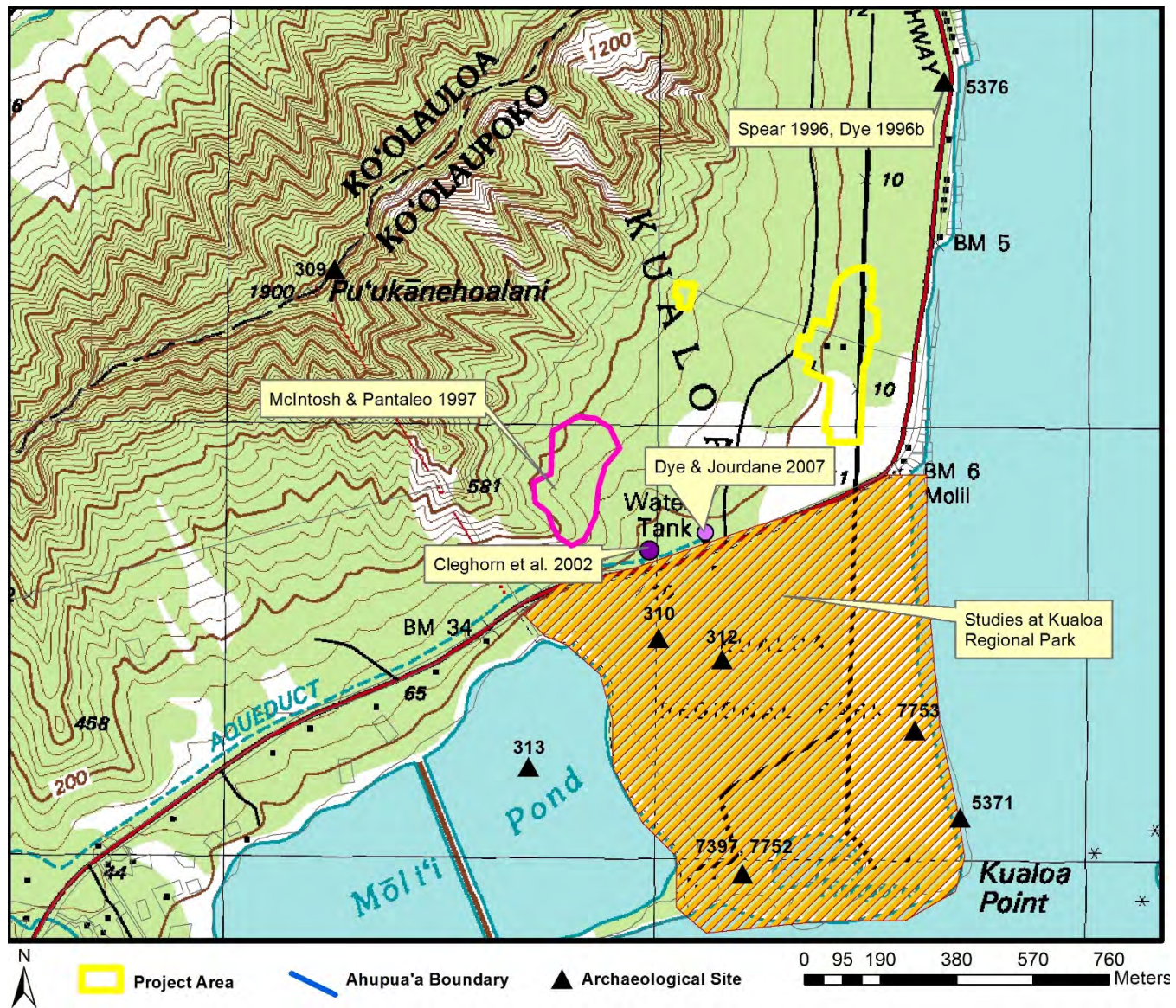


Figure 9. Previous archaeological studies and archaeological sites in Kualoa.

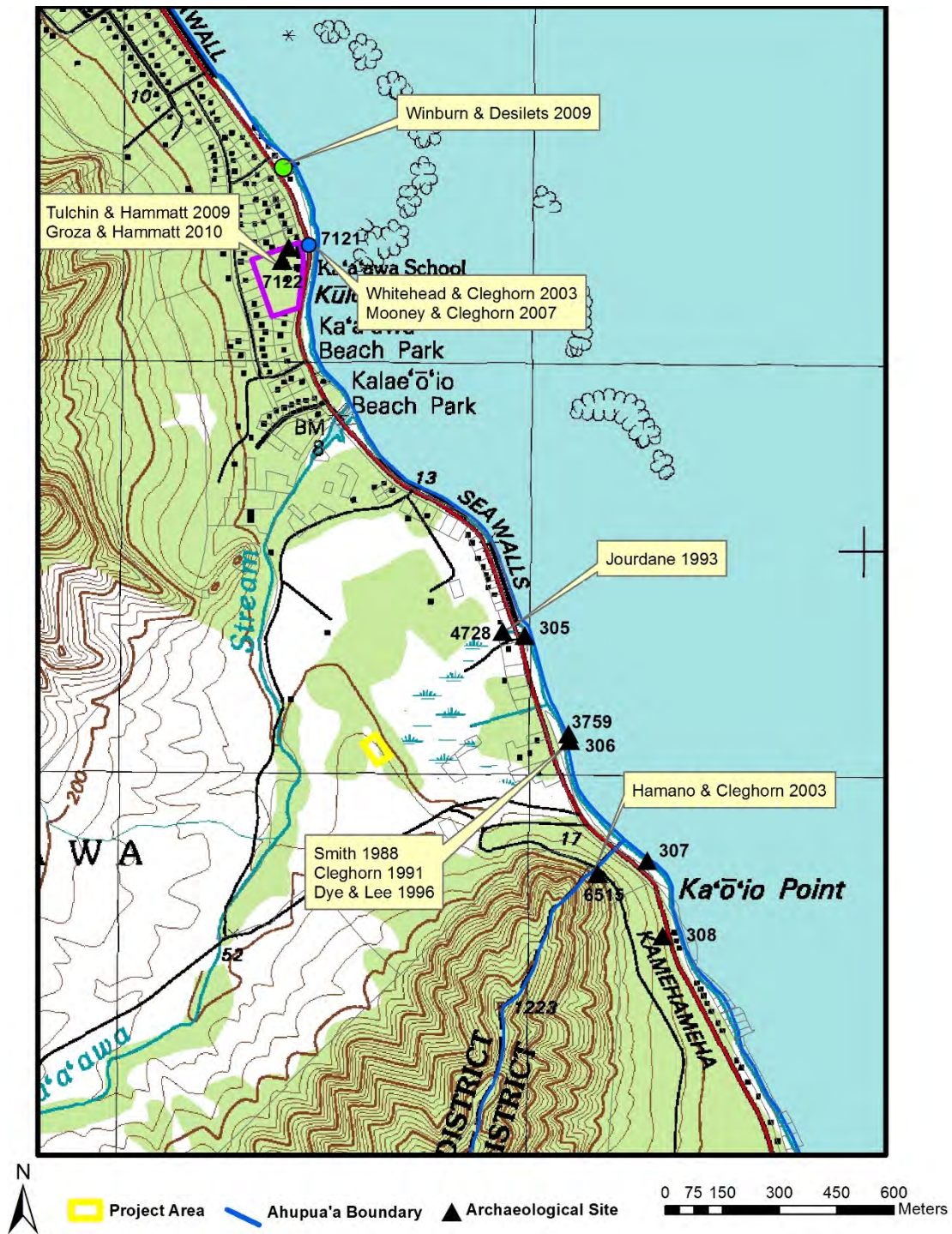


Figure 10. Previous archaeological studies and archaeological sites in the vicinity of the Ka'a'awa project area.

Table 2. Previous Archaeological Projects in the Vicinity of the Study Area, Kualoa Ahupua'a

| Author & Year | Location | Work Completed | Findings |
|--------------------------------------|--|---|---|
| McAllister 1933 | Island-Wide | Survey | Identified four sites near the Kualoa project area: Site 309, rock formations; Site 310, Niuolaa Heiau (reported destroyed); Site 312, Koholālele Pond; and Site 313, Moli'i Fishpond. |
| Barrera 1974 | Kualoa Regional Park, East Beach | Subsurface Testing | Cultural deposit with pits, postholes, traditional and nontraditional artifacts, midden, and a human burial. |
| Clark & Connoly 1975 | Kualoa Regional Park, East Beach | Survey, Subsurface Testing | Buried fishpond wall; traditional artifacts on the reef. |
| Clark & Connoly 1978 | Kualoa Regional Park | Archaeological Recommendations | Proposed recommendations for interpretive programs. |
| Gunness 1978 | Kualoa Regional Park | Reconnaissance | None. |
| Ahlo 1980 | Kualoa Regional Park, East Beach | Subsurface Testing | Most of the project area previously disturbed, but remnants of cultural deposits were found below the surface. |
| Gunness 1984 | Kualoa Regional Park, South Beach | Subsurface Testing | Recorded 98 subsurface features and roughly 3,500 traditional artifacts near the South Beach access road. Features included pits, post holes, a human burial, and a dog burial. A stone bath house, whole pig offering, and fishpond wall were recorded in other areas. |
| Gunness 1985a, 1985b | Kualoa Regional Park | Subsurface Testing, Archaeological Assessment | Recorded an <i>imu</i> surrounded by post holes and a large assemblage of traditional artifacts. |
| Hammatt 1985 | Kualoa Ranch | Reconnaissance | None. |
| Rutkowski 1988 | Kualoa Regional Park | Burial Report | A skull and "several other bones" found near second bathroom. |
| Omori 1989 | Kualoa Regional Park | Burial Report | Two individuals identified, one of which was a young Hawaiian female. |
| Pietrusewsky & Douglas 1989 | Kualoa Regional Park | Burial Report | Analyzed 42 sets of remains, 41 of which were traditional Hawaiian and one post-contact. |
| Douglas 1990; Kawachi & Johnson 1990 | Kualoa Regional Park | Burial Report | Identified one adult female, two adult males, one child, and two unassociated bone fragments. |
| Douglas 1991 | Kualoa Regional Park | Burial Report | One adult male recovered from the south side of East Beach |
| Goodman & Cleghorn 1991 | Kualoa Regional Park, East & South Beaches | Monitoring & Salvage Excavations | Two human burials, a historic rock wall, a row of post holes, and a small artifact assemblage were documented. |
| Meeker 1991 | Kualoa Regional Park | Monitoring | Identified a disturbed midden deposit, two pits, and two post holes. |
| Somer 1991 | Kualoa Regional Park | Burial Report | One adult male recovered from a pit feature. |

Table 2. (Cont.)

| Author & Year | Location | Work Completed | Findings |
|----------------------------------|--------------------------------------|----------------------------------|--|
| Cleghorn 1994 | Kualoa Regional Park, East Beach | Burial Report | One individual identified at East Beach. |
| Lee 1994 | Kualoa Regional Park | Artifact Report | Reported on an adze exposed by erosion. |
| Colin, Borthwick, & Hammatt 1995 | Kualoa Regional Park | Burial Report | Removed one individual. |
| Colin, Heidel et al. 1995 | Kualoa Regional Park | Data Recovery | Documented fire features and post holes and collected basalt flakes and midden. |
| Dye 1995 | Kualoa Regional Park, East Beach | Burial Report | One coffin burial recorded. |
| Dye 1996a | Kualoa Regional Park | Burial Report | One individual recovered from the south side of East Beach, Site 5371. |
| Spear 1996; Dye 1996b | Kamehameha Hwy. outside Kualoa Ranch | Monitoring; Burial Report | Identified Site 5376, a human burial and cultural layer. |
| Colin & Hammatt 1997 | Kualoa Regional Park | Literature Review and Excavation | Cultural layer containing fragments of human bone. |
| McIntosh & Pantaleo 1997 | Kualoa Ranch | Survey | Identified two historic rock walls. |
| Bush & Hammatt 1998 | Kualoa Maintenance Yard | Monitoring | None. |
| Borthwick et al. 1999 | Kualoa Regional Park | Monitoring | None. |
| Hammatt & Shideler 1999 | Kualoa Regional Park | Assessment | Literature review completed, archaeological monitoring recommended. |
| Hammatt & Shideler 2000 | Kualoa Regional Park, East Beach | Investigation of Bulldozing | Three midden deposits and a trash pit. |
| Perzinski et al. 2000 | Kualoa Regional Park | Monitoring | Documented a cultural layer with midden. |
| Hammatt & Shideler 2001 | Kualoa Regional Park | Monitoring | Midden and a ceramic sherd collected. |
| Cleghorn et al. 2002 | Kualoa Ranch | Assessment | None. |
| Rohrer 2005 | Kualoa Regional Park | Monitoring | None. |
| Carson & Athens 2006 | Kualoa Regional Park | Monitoring and Data Recovery | Provided further documentation for the subsurface cultural deposit known for the area. |
| Dye & Jourdan 2007 | Kualoa Ranch | Historic Properties Assessment | None. |

Table 2. (Cont.)

| Author & Year | Location | Work Completed | Findings |
|------------------------|---|--|---|
| Colin & Hammatt 2008 | Kualoa Regional Park, East Beach and Kualoa Point | Assessment and Subsurface Testing | Testing at East Beach uncovered a cultural layer with scattered bone fragments, some of them human. |
| Tulchin & Hammatt 2013 | Kualoa Regional Park | Pedestrian Inspection and Subsurface Testing | Documented traditional artifacts and human remains. |
| Moriss & Hammatt 2015 | Kualoa Regional Park | Data Recovery | Encountered Site 7397, a previously identified cultural layer, and Sites 7752 and 7753, newly identified cultural layers. |

Table 3. Archaeological Sites in the Vicinity of the Kualoa Project Area

| Site | Location | Description | Reference |
|------|-----------------------------------|-----------------|-------------------------|
| 309 | Pu‘u Kānehoalani Ridge | Rock Formations | McAllister 1933 |
| 310 | Kualoa Regional Park | Niuolaa Heiau | McAllister 1933 |
| 312 | Kualoa Regional Park | Koholālele Pond | McAllister 1933 |
| 313 | Kualoa Regional Park | Moli‘i Pond | McAllister 1933 |
| 528 | Kualoa Ahupua‘a | Entire Ahupua‘a | National Register 1973 |
| 5371 | Kualoa Regional Park | Human Remains | Dye 1996a |
| 5376 | Kualoa Ranch near Kamehameha Hwy. | Human Remains | Spear 1996, Dye 1996b |
| 7397 | Kualoa Regional Park | Cultural Layer | Moriss and Hammatt 2015 |
| 7752 | Kualoa Regional Park | Cultural Layer | Moriss and Hammatt 2015 |
| 7753 | Kualoa Regional Park | Cultural Layer | Moriss and Hammatt 2015 |

Additional work was conducted at South Beach (Gunness 1984). Excavations at a stone bath house revealed a variety of traditional artifacts, post holes, and a whole pig skeleton. As the pig was not eaten, it is thought to have been placed as an offering at the *ahupua‘a* boundary. Dates obtained from volcanic glass in this area suggested an age of the mid-15th century AD, although the method of dating volcanic glass has since been deemed unreliable (e.g., Graves and Ladefoged 1991). An area near the South Beach access road had been bulldozed without an archaeologist present, and a cultural layer with a large number of artifacts was disturbed. A total of 98 features were identified within seven test excavations. They consisted of pits, post holes, a human burial, a dog burial, and roughly 3,500 artifacts, including worked bone and pearl shell, a *niho palaoa*, coral abraders, a range of basalt tools, 589 pieces of volcanic glass, and more than 1,500 basalt flakes. A fishpond wall was also found, although only 20th century historic material was recovered from that area.

Subsurface testing was conducted prior to road improvements throughout the park (Gunness 1985a, 1985b). Heavy disturbance was noted in most areas, although an intact *imu* surrounded by post holes was found. Thousands of basalt flakes and a variety of other traditional artifacts were associated with the feature. Items collected include adzes, awls, hammerstones, an *'ulu maika*, coral abraders, and a *poi* pounder.

Archaeological monitoring and salvage excavations were carried out on the East and South Beaches of the park for tree removal and replanting (Goodman and Cleghorn 1991). Two human burials were excavated. One was located on East Beach and the other in the tree nursery near the maintenance building. A historic rock wall and row of post holes were also identified in the tree nursery. A small selection of traditional and historic artifacts was also recovered.

Archaeological monitoring was conducted for sand replenishment and tree removal and replanting activities at the park (Meeker 1991). Midden, charcoal flecks, basalt debitage, and fire cracked rock were observed along the edge of an old farm road near Moli'i Pond. The area was found to be heavily disturbed. Four subsurface features were noted within tree removal holes, consisting of two pits and two post holes. A few years later, an adze was found eroding out of the sand at Kualoa Regional park (Lee 1994). The adze and an associated cultural layer were exposed during high tide.

Data recovery excavations were carried out at five subsurface features in the park (Colin, Heidel, et al. 1995). The features consisted of fire pits and post holes, and basalt flakes and midden were collected. The area was heavily disturbed by historic and modern activity. A set of human remains was also disinterred (Colin, Borthwick, and Hammatt 1995).

A review of the archaeological literature was conducted and two 1.0 m² test units were excavated at a central location of the East Beach at Kualoa Park (Colin and Hammatt 1997). The test units demonstrated layers of fill over an intact cultural layer that contained small bone fragments, some of which were later determined to be human. Beneath the cultural layer was only sterile sand.

Archaeological monitoring was completed for the removal of contaminated soil at the maintenance yard in the park (Bush and Hammatt 1998). No cultural material or deposits were encountered. A year later, a literature review was completed for reconstruction of the wastewater system at the park (Hammatt and Shideler 1999). Archaeological monitoring for percolation test pits associated with the wastewater reconstruction reported no findings (Borthwick et al. 1999).

Several areas of bulldozing within Kualoa Regional Park were inspected, and surface collection and sampling were completed for three midden scatters and a trash pit (Hammatt and Shideler 2000). A range of traditional and historic artifacts were documented, the latter consisting of material dating from 1815 to the early 1900s.

Archaeological monitoring was conducted for ADA improvements to the park (Perzinski et al. 2000). Two midden concentrations and a cultural layer were identified. Among the cultural material collected were 350 g of midden, a 1920s–1930s era glass bottle, and a few basalt artifacts.

Archaeological monitoring was completed for soil testing at the proposed multipurpose building in the park (Hammatt and Shideler 2001). Marine shell midden and a single ceramic sherd were the only materials recorded. A few years later, archaeological monitoring was carried out for a water line break at the second bathroom at the park (Rohrer 2005). No findings were reported.

Archaeological monitoring and data recovery were completed during road realignment and landscaping (Carson and Athens 2006). A previously recorded cultural layer was further documented. A variety of traditional artifacts and midden were recovered, and post holes, fire pits, and stone pavings were recorded. Radiocarbon dating from the base of the cultural layer placed the earliest occupation at ca. AD 1040–1280. A canal that linked Koholālele Pond to the sea was also found.

A literature review and subsurface testing were conducted for an erosion control project (Colin and Hammatt 2008). Two test units excavated at East Beach revealed a subsurface cultural layer that contained scattered bone fragments, some of them human.

A pedestrian inspection and subsurface testing were completed at Kualoa Regional Park near Kualoa Point (Tulchin and Hammatt 2013:82). The project area was situated in a previously developed area of the park that contained asphalt roads, parking lots, concrete walkways, and comfort stations. As a result, no surface historic properties were identified. Subsurface testing revealed previously disturbed traditional Hawaiian artifacts including an *'ulu maika*, a micro-adze, lithic debitage, volcanic glass, and marine shell midden. In addition, an isolated human cranial fragment was discovered during excavations in a sandy fill layer. The sand layer was likely derived from the park during previous grading, however the original primary burial context could not be determined.

Recent work at the park included data recovery at SIHP 50-80-06-7397 and 50-80-06-7752, two subsurface cultural layers (Morris and Hammatt 2015). The former was previously recorded, but 13 new pits and a selection of midden and traditional artifacts were identified. The latter included nine pits and fragmented human remains.

Kualoa Regional Park has a long history of human remains being exposed by erosion, and a number of burial reports have been filed. Those reports found in the SHPD library in Kapolei are summarized in the following paragraphs.

A skull and “several other bones” were found *makai* of the second bathroom in the park (Rutkowski 1998:1). They were taken to the police station and then transferred to the City and County Morgue. Remains were later found at an undisclosed location in the park and taken to the Honolulu Medical Examiner’s Facility in Honolulu (Omori 1989). At least two individuals were represented, one of which was a young Hawaiian female.

A large assemblage of human remains from Kualoa Regional Park were analyzed (Pietruszewsky and Douglas 1989). Of the 42 sets of remains, 41 were traditional Hawaiian and one was post-contact (dating to after 1778). Of these, roughly two-thirds were adults, and 14 were female and 11 male. All age groups were represented, from fetuses to older adults of 50+ years in age. Many of the males died as young adults. Skeletal modification was identified in the form of cranial deformation, defleshing cut marks, and burial vandalism.

Several sets of remains were found eroding out of the sand at SIHP 50-80-06-528 and examined at SHPD (Douglas 1990, Kawachi and Johnson 1990). One adult female, one adult male, and one child were identified in the first burial, an adult male was found in a second burial, and two unassociated bone fragments were also recovered. Another set of remains was documented on the south side of East Beach (Douglas 1991). They were identified as an adult male. Yet another set of remains was collected after being exposed by erosion (Somer 1991). The remains were excavated from a pit feature and identified as an adult male.

Again, one individual was found eroding out of the sand at East Beach (Cleghorn 1994). The individual was in a flexed position within a burial pit and designated as part of SIHP 50-80-06-528. A coffin burial was found near the historic burial identified during earlier work by Gunness (1984) (Dye 1995). It was posited that the two burials are related and associated with the LCA parcel belonging to Kaneakalau (Dye 1995). Another burial was later identified eroding from the sand on the south side of East Beach (Dye 1996a). It consisted of one individual in a burial pit with no grave goods. The burial was designated as SIHP 50-80-06-5371.

A few previous studies have been conducted at Kualoa Ranch and along Kamehameha Highway. An archaeological reconnaissance was carried out between Moli‘i Pond and the highway (Hammatt 1985). The project site was previously graded and no surface archaeological remains were observed. Subsequent archaeological monitoring for another project identified a human burial and cultural deposit at Kualoa Ranch along Kamehameha Highway (Spear 1996, Dye 1996b). The remains were left in place at “approximately 400

feet [on the] Ka‘a‘awa side of the old sugar mill” near telephone pole #179 (Spear 1996:1). The burial was designated as SIHP 50-80-06-5376. A basalt awl and fragmented human remains were encountered in other excavations. Two historic rock walls were located during an archaeological survey at Kualoa Ranch (McIntosh and Pantaleo 1997). The systematic survey led to the identification of the basalt cobble and boulder walls (T-1 and T-2) and took place on a 10.48 acre area at the base of the Ko‘olau Mountains.

An archaeological assessment was completed for a telecommunications facility just *mauka* of the highway across the street from Kualoa Regional Park (Cleghorn et al. 2002). There were no findings. Finally, a historic properties assessment was completed for a proposed cell antenna at Kualoa Ranch, just *mauka* of the highway in the vicinity of the paintball field (Dye and Jourdane 2007). The project area was located in a previously disturbed area with no surface archaeological remains.

Ka‘a‘awa

Several archaeological studies have been conducted in the vicinity of the project area in Ka‘a‘awa (Tables 4 and 5). McAllister’s island-wide survey identified four sites near Kamehameha Highway. These consist of Site 305, a *ko‘a* at Kalai o Kuonopuaa Point; Site 306, a burial near Lae o ka Oio, Site 307 a legendary cave; and Site 308 a terrace that had been damaged by floods. The cave is named Pohokaina, Pohukaina, or Pahukaina, and it is said to have many entrances, the most famous of which is at the boundary of Kualoa and Ka‘a‘awa.

An archaeological survey was proposed for the existing and future locations of Board of Water Supply well sites to assess the potential impact of the wells on archaeological resources (Barrera 1984). Due to lack of permission to access the areas, a literature review was conducted instead. The cave Pohukaina was mentioned as rumored to exist between Kualoa and Ka‘a‘awa Valley. Potential agricultural sites were also noted that Handy (1940:93) proposed were probable terracing for taro cultivation. It was concluded that archaeological resources would likely be found in the area.

A number of human burials have been found near Kamehameha Highway in Ka‘a‘awa. SIHP 50-80-06-3759 includes several burials and an associated cultural layer (Smith 1988, Cleghorn 1991, Dye and Lee 1996). SIHP 4728 is a single burial located on the *mauka* side of the highway (Jourdane 1993).

Archaeological monitoring was conducted for a telecommunications facility at Kaoia Point, *mauka* of the highway (Hamano and Cleghorn 2003). SIHP 50-80-06-6515 was recorded, consisting of a human burial and two charcoal concentrations. The human remains were left in place.

A three day archaeological inventory survey was conducted at Ka‘a‘awa Beach Park (Whitehead and Cleghorn 2003). Due to the developed nature of the areas in question the survey consisted of subsurface testing, which resulted in no archaeological finds. Archaeological monitoring was later conducted during the Ka‘a‘awa Beach Park Comfort Station and Parking Area improvements (Mooney and Cleghorn 2007). One feature and seven artifacts were encountered during monitoring, but they were not designated as significant per National Register of Historic Places criteria.

An archaeological assessment was conducted for wastewater improvements to Ka‘a‘awa Elementary School (Tulchin and Hammatt 2009). There were no findings. Another archaeological assessment of a private lot produced no findings (Winburn and Desilets 2009). Later archaeological monitoring at Ka‘a‘awa Elementary School identified SIHP 50-80-06-7121, a human burial; and 50-80-06-7122, a cultural layer with pit features, dog remains, midden, and sparse traditional artifacts (Groza and Hammatt 2010).

Table 4. Previous Archaeological Projects in the Vicinity of the Study Area, Ka‘a‘awa Ahupua‘a

| Author & Year | Location | Work Completed | Findings |
|---|---|--------------------|---|
| McAllister 1933 | Island-Wide | Survey | Identified 4 sites near the highway: 305, a <i>ko‘a</i> ; 306, a human burial; 307 a cave; and 308 a terrace. |
| Barrera 1984 | Ka‘a‘awa, <i>mauka</i> of Kamehameha Hwy. | Literature Review | Noted Pohukaina burial cave and probable agricultural sites could be found in the area. |
| Smith 1988, Cleghorn 1991, Dye & Lee 1996 | Coastal Ka‘a‘awa | Burial Report | Recorded Site 3759, human burials. |
| Jourdane 1993 | Coastal Ka‘a‘awa | Burial Report | Documented Site 4728, a human burial. |
| Hamano & Cleghorn 2003 | Kualoa Ranch, foot of the ridge | Monitoring | Identified Site 6515, a human burial and two charcoal concentrations. |
| Whitehead & Cleghorn 2003 | Ka‘a‘awa Beach Park | Subsurface Testing | None. |
| Mooney & Cleghorn 2003 | Ka‘a‘awa Beach Park | Monitoring | One feature and seven artifacts found but deemed not significant. |
| Tulchin & Hammatt 2009 | Ka‘a‘awa Elementary School | Assessment | None. |
| Winburn & Desilets 2009 | TMK: (1) 5-1- 002:004 | Assessment | None. |
| Groza & Hammatt 2010 | Ka‘a‘awa Elementary School | Monitoring | Recorded Site 7121, a human burial; and Site 7122, a cultural layer. |

Table 5. Archaeological Sites in the Vicinity of the Ka‘a‘awa Project Area

| Site | Location | Description | Reference |
|------|---|----------------|---|
| 305 | Coastal Ka‘a‘awa | Ko‘a | McAllister 1933 |
| 306 | Coastal Ka‘a‘awa | Human Remains | McAllister 1933 |
| 307 | Coastal Ka‘a‘awa | Cave | McAllister 1933 |
| 308 | Foot of the ridge, <i>mauka</i> side of Kamehameha Hwy. | Terrace | McAllister 1933 |
| 3759 | Coastal Ka‘a‘awa | Human Remains | Smith 1988, Cleghorn 1991, Dye & Lee 1996 |
| 4728 | Coastal Ka‘a‘awa | Human Remains | Jourdane 1993 |
| 6515 | Kualoa Ranch, foot of the ridge | Human Remains | Hamano & Cleghorn 1993 |
| 7121 | Ka‘a‘awa Elementary School | Human Remains | Groza & Hammatt 2010 |
| 7122 | Ka‘a‘awa Elementary School | Cultural Layer | Groza & Hammatt 2010 |

Summary and Settlement Patterns

The project lands were rich in natural resources such as fresh water, agricultural areas, and coastal resources. Because of this, the region likely supported a sizeable population. Wetland taro was likely not abundant in Kualoa and Ka‘a‘awa, but these areas had plentiful fishing grounds. The fishponds in Kualoa added to the abundance of the region. Settlement patterns would have seen fishing villages along the coast, where fishponds and other marine resources played a major role in subsistence. *Ko‘a* would have been located along the coast, where fishing was important. Wetland agriculture would have been focused along the streams to take advantage of the fresh water, and habitation areas may have been situated nearby. Dryland agriculture and exploitation of upland resources took place on the valley slopes and further inland, and *heiau* and cave shelters were also located in this upland zone.

The study area is steeped in tradition, particularly Kualoa, which was so sacred that canoes would have to lower their sails when passing by. Kualoa was also where tribute from each *ahupua‘a* was amassed at the end of the *makahiki* circuit. The region also figures prominently in the Hi‘iaka and Lohiau epic, with Mokoli‘i Islet formed when Hi‘iaka slew a dragon.

Three LCAs were located within the survey areas and several others occur nearby. Data for these claims indicate that *lo‘i*, *kula*, and house lots were common, and diversified agriculture and fishing were practiced during the 19th century. A former ditch was also depicted on a 1937 Ka‘a‘awa TMK map, running through the survey block.

The historic period brought about widespread changes to the region. Sugarcane agriculture was short lived in Kualoa, but the remains of a sugar mill along Kamehameha Highway are a silent testament to the endeavor. Military interests also affected the landscape with an airstrip constructed at Kualoa and various bunkers established along the cliffs.

Previous archaeological projects have identified a wide range of archaeological sites, features, and cultural material near the areas of study. The entire *ahupua‘a* of Kualoa is a NRHP site, and a wide variety of archaeological remains have been documented there, particularly at Kualoa Regional Park, *makai* of Kualoa Ranch. Most notable are cultural layers with fire pits, post holes, and abundant traditional artifacts and midden; a large number of human burials; fishpond remains; and a whole pig burial. Radiocarbon dating from the base of one of the cultural layers placed the earliest occupation at ca. AD 1040–1280. Cultural material and human remains continue to be exposed from erosion at Kualoa Regional Park. Fewer studies have been conducted at Kualoa Ranch, although rock walls and human remains have been found. Archaeological work in Ka‘a‘awa has identified a *ko‘a*, a legendary cave, a cultural layer, and several human burials.

Anticipated Finds and Research Questions

Background research indicates that a wide variety of archaeological remains may be encountered during the survey. As for traditional sites, subsurface cultural layers, traditional artifacts, and human burials might be expected in Kualoa and Ka‘a‘awa. Post-contact sites may also be present and may consist of agricultural, ranching, or military structural remains and cultural material.

The survey areas are located on and near former LCA parcels. In Ka‘a‘awa, a former ditch or other agricultural remains, and/or vestiges of previous habitation might occur. In Palikū, remnants of agricultural fields and/or structures associated with the former house lots might be found.

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. Are there subsurface cultural deposits or evidence of human burial areas within the survey blocks? Where are they located and what time period do they belong to?
2. Is there any evidence of agriculture or habitation in the survey areas, particularly where LCAs were located? Where in the survey blocks were the resources mentioned in the Māhele claims?
3. Is the former ditch identifiable in the Ka‘a‘awa survey block? Is it associated with any other features, such as terraces or subsurface deposits? Is it a traditional or historic ditch?
4. Are there any vestiges of historic-era use of the project area, including ranching and/or rice or sugarcane cultivation, and/or military use?

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 occur in the project areas.

METHODS

Pedestrian survey was conducted on April 13, 2015 by Jeffrey Lapinad, Dietrix Duhaylonsod, BA, and Kathryn Burns, BA. Subsurface testing was carried out on April 13, 2015 by Windy McElroy, PhD, and on April 14 and 17, 2015 by Jeffrey Lapinad. On July 23, 2015, McElroy and Lapinad completed one additional day of pedestrian survey and subsurface testing, as project areas had been slightly changed since the earlier fieldwork. 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 each survey block. Archaeologists were spaced approximately 5 m apart. Of the 4.522 ha (11.174 ac.) survey area, 100% was covered on foot. Vegetation was generally very light, consisting of landscaped grass, and did not affect visibility. Archaeological sites and their boundaries were identified visually, with any feature possibly made or used by humans and more than 50 years old considered a site, although none were found.

Test trenches (TR) were excavated in 13 locations, both in areas proposed for construction and outside the construction footprints. The excavation strategy was approved by SHPD's Lead O'ahu Archaeologist beforehand via email. A mini excavator (Figure 11) or a backhoe were used for excavation of the trenches. Vertical provenience was measured from the surface, and trenches were excavated to sterile deposits, water table, or as deep as safely 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). A few artifacts were collected and are temporarily being curated at the Keala Pono office in Kāne'ohe, Hawai'i. They will be returned to Kualoa Ranch upon acceptance of this report. No other laboratory analyses were conducted.

SHPD correspondence was conducted via email and telephone from April–July 2015. Appendix A provides a copy of the email communication. At least three telephone calls were made between Windy McElroy of Keala Pono and Susan Lebo of SHPD. The proposed testing strategy was discussed in the first of these calls. Two trenches were planned for the Ka'a'awa location; six at the Kualoa Headquarters; two at Palikū; and one at Abad's/Hakipu'u. This latter survey area was taken out of the scope of work at a later time. Dr. Lebo agreed with the proposed testing strategy and indicated that subsurface testing should be conducted both within and outside the proposed construction footprints and to check with her again once testing is completed to determine if additional testing is necessary. The second phone call was a follow up to the first, to notify Dr. Lebo that there were no significant findings aside from a structure that may or may not be historic. Dr. Lebo recommended consulting with the SHPD architectural historian, which was done in May 2015. The historian indicated that an RLS inventory form should be filled out. This was not done at that time because it was unclear if the building in question was more than 50 years old. Also during this time, the project area boundaries changed slightly. Another phone call was made to Dr. Lebo in July 2015, in which she stressed that the entire project area (100%) must be surveyed on foot, and additional trenches should be excavated. This was done in July 2015, with 100% pedestrian survey completed for the revised project area and three additional trenches excavated: one at Ka'a'awa, one at Kualoa Headquarters, and one at Palikū. Between November 2015 and January 2016, the SHPD architectural historian was again consulted. It was determined that the one building over 50 years old had lost its integrity and no further documentation would be necessary.



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

RESULTS

Pedestrian survey and subsurface testing were conducted in the 4.522 ha (11.174 ac.) project area. No historic properties were found. Excavation of 13 test trenches did not yield any evidence of subsurface archaeological deposits or features. Two metal artifacts and one ceramic sherd were collected; they are likely historic.

Community Consultation

Community consultation is currently underway in the form of a cultural impact assessment (McElroy et al. in prep.). At the time of writing, four ethnographic interviews were completed. The completed interviews were done in person between April and July, 2015 by Keala Pono Ethnographer, Dietrix Duhaylonsod, BA. People consulted were Kualoa Ranch President John Morgan, and community members/cultural practitioners Cy Bridges, Winona Kaniho, and Robert Kealoha Domingo, with the latter two individuals interviewed together. An additional interview with cultural practitioner Frank Kawaikapuokalani Hewett was completed via email.

Mr. Morgan was able to provide information on the age of several structures within the project area, none of which are historic. The rain shelter structure in the Ka‘a‘awa survey block was constructed between 1992 and 1993, and the structures in the ATV area of the Ranch Headquarters survey block were built between 2003 and 2004. He also mentioned that a World War II-era airfield was once located in the vicinity of the Ranch Headquarters survey block. The other interviewees did not know of specific cultural resources within the survey areas and requested a site visit, one of which was completed at the time of writing.

Pedestrian Survey

The surface survey included 100% of the 4.522 ha (11.174 ac.) project area. Several of the Kualoa Ranch Headquarters survey blocks currently house structures (e.g., Figures 12 and 13). The rest of the project area consists of landscaped lawns, which are relatively flat and covered in short grass (e.g., Figures 14 and 15). Archaeologists were careful to look for signs of the ditch that may have been located within the Ka‘a‘awa survey block. This ditch was depicted on a 1937 TMK map (see Figure 5), but no other information could be found. The ditch could not be seen within the survey area (see Figure 14). No surface archaeological remains were observed within any of the survey blocks; any archaeological features that may have once been present are no longer there because of the extensive modern use of the project areas.



Figure 12. A portion of the Kualoa Ranch Headquarters survey block. Orientation is to the north.



Figure 13. A portion of the Kualoa Ranch Headquarters survey block. Orientation is to the south.



Figure 14. The Ka'a'awa survey block, showing no traces of the former ditch, which would have run right to left through the photo. Orientation is to the northeast.



Figure 15. View from the Palikū survey block. Orientation is to the southeast.

Subsurface Testing

A total of 13 trenches were excavated in the three survey blocks to determine the presence or absence of subsurface archaeological deposits or material (Figures 16–17 and Table 6). Three trenches were located in Ka‘a‘awa; three trenches at Palikū, and seven trenches at the Kualoa Ranch Headquarters area. Note that the survey area boundaries changed several times throughout the project planning process so some of the trenches were excavated outside the current project footprint before the boundaries were finalized (see Figures 16 and 17) (see Methods Section).

No archaeological deposits were found, and stratigraphy generally consisted of natural deposits or fill atop natural deposits. Two metal items were collected from one of the trenches in Palikū, and one ceramic fragment was recovered from the Kualoa Ranch Headquarters survey area.

TR 1 was excavated in the southeast corner of the Kualoa Ranch Headquarters survey block (see Figure 17). The trench measured 8 m long and 70 cm wide and was excavated to 145 cm below surface (cmbs). Stratigraphy consisted of a topsoil layer, two layers of fill, and natural sand (Figure 18). The topsoil was 10YR 5/3 (very dark grayish brown) coarse sand with 2% roots. The upper fill layer was 10YR 8/2 (very pale brown) medium sand with sparse modern debris; the lower fill layer was 5YR 3/4 (dark reddish brown) sandy clay loam with 5% basalt cobbles. The basal natural layer was 10YR 8/2 (very pale brown) medium sand. A small, plain ceramic fragment was collected from Layer II. No archaeological deposits were identified.

Ka'a'awa

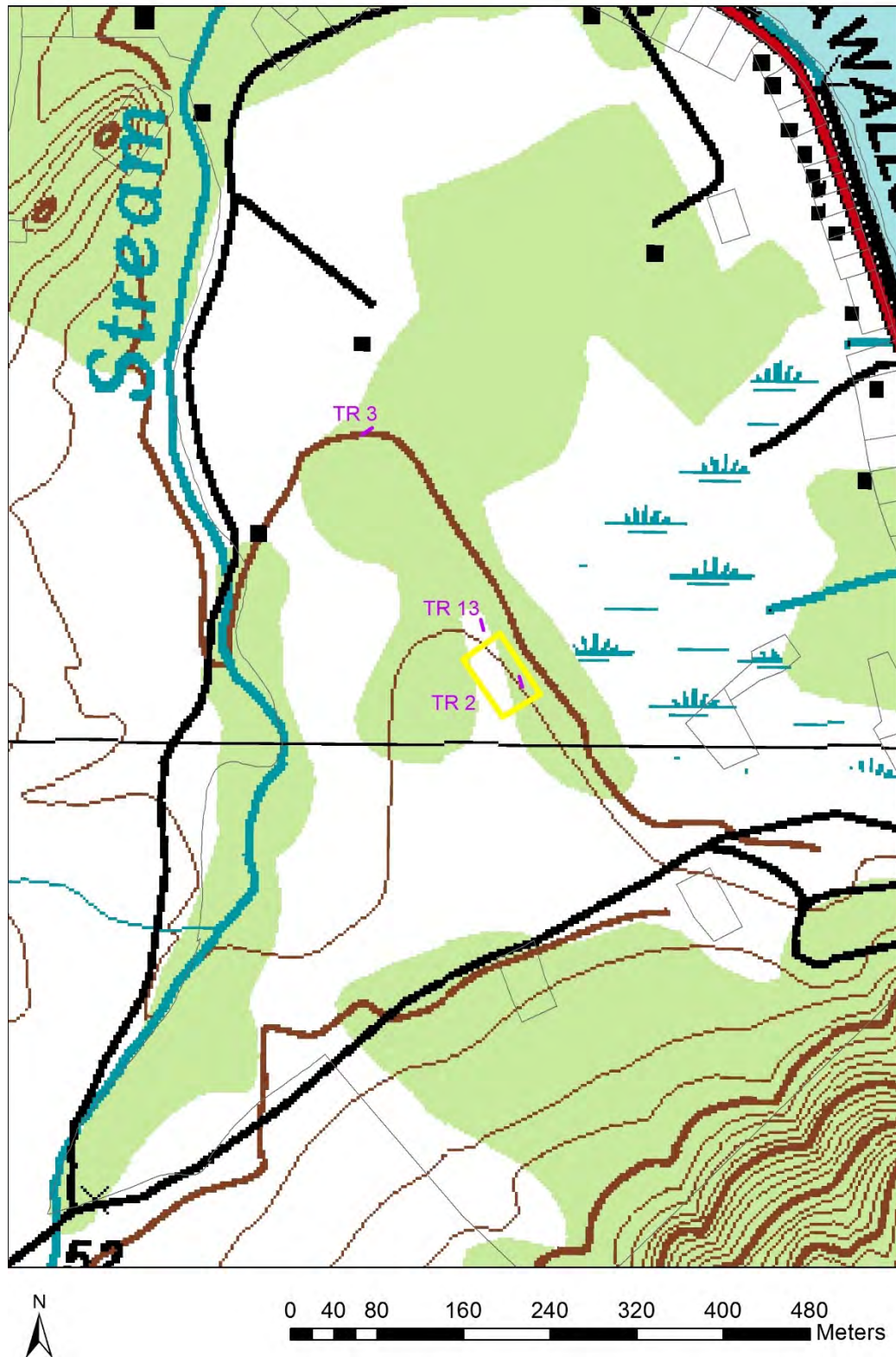


Figure 16. Location of trenches excavated in Ka'a'awa.

Palikū & Ranch Headquarters

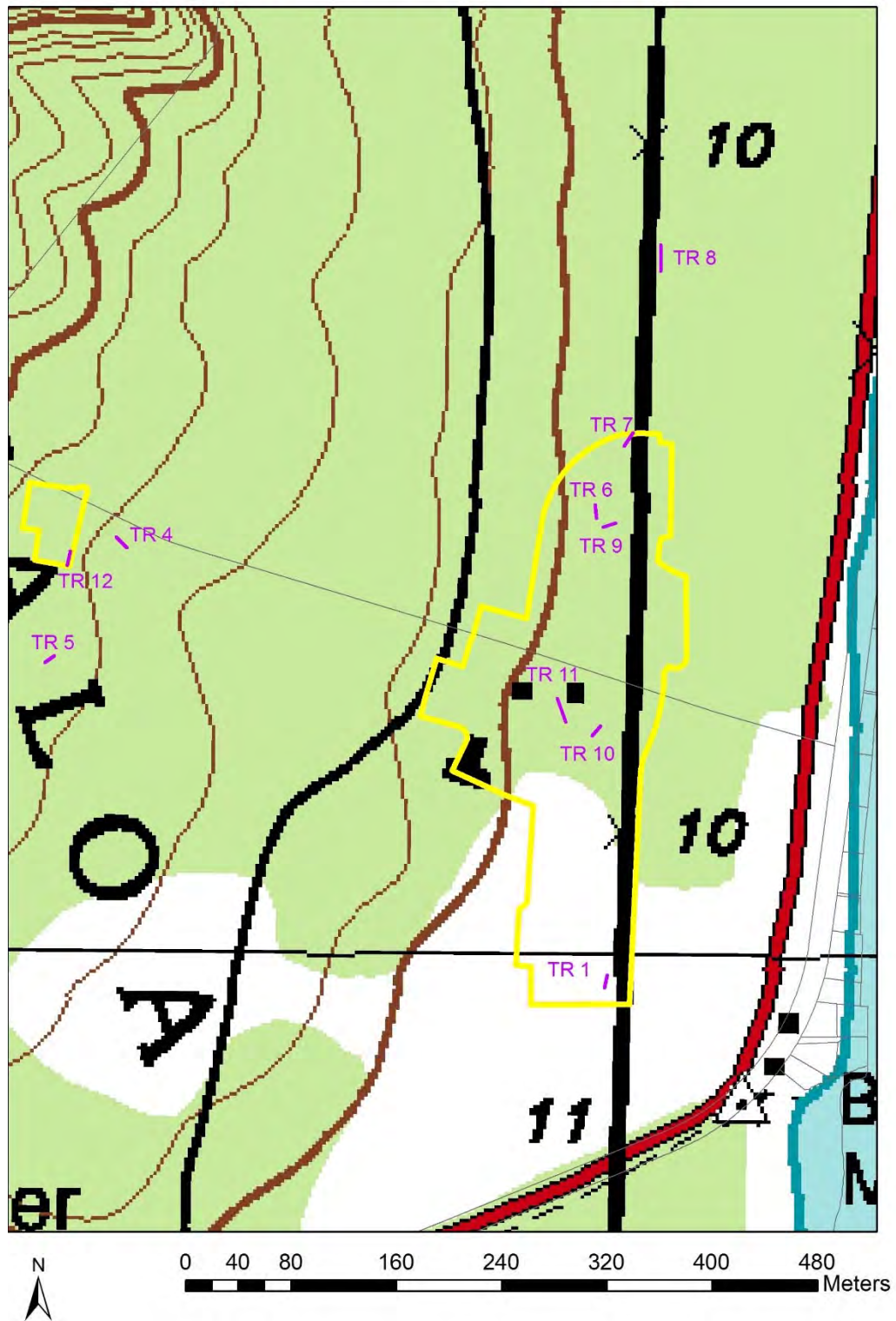


Figure 17. Location of the trenches excavated in the Palikū (left) and Kualoa Ranch Headquarters (right) areas.

Table 6. Sediment Descriptions

| Location | Layer | Depth (cmbs) | Color | Description | Interpretation |
|----------|-------|--------------|-------------|--|----------------|
| TR 1 | I | 0–16 | 10YR 5/3 | Coarse sand; 2% roots; smooth, clear boundary. | Topsoil |
| | II | 16–42 | 10YR 8/2 | Medium sand; modern debris; smooth, very abrupt boundary. | Fill |
| | III | 42–55 | 5YR 3/4 | Sandy clay loam; 5% basalt cobbles; smooth, very abrupt boundary. | Fill |
| | IV | 55–145+ | 10 YR 8/2 | Medium sand; water table at 140 cmbs; base of excavation. | Natural |
| TR 2 | I | 0–28 | 10YR 3/2 | Silty clay loam; 20% roots, 10% basalt cobbles; smooth, abrupt boundary. | Topsoil |
| | II | 28–125+ | 7.5YR 3/4 | Silty clay loam; 2% roots, 50% basalt cobbles; base of excavation. | Natural |
| TR 3 | I | 0–33 | 10YR 3/2 | Silty clay loam; 10% roots, 2% basalt cobbles; wavy, abrupt boundary. | Topsoil |
| | II | 33–130+ | 7.5YR 3/3 | Silty clay; 2% roots, 5% basalt cobbles; base of excavation. | Natural |
| TR 4 | I | 0–115+ | 10YR 3/2 | Sandy clay loam; 10% roots, 60% basalt of all sizes; historic material in upper 20 cm; base of excavation. | Natural |
| TR 5 | I | 0–120+ | 10YR 3/2 | Sandy loam; 2% roots, 40% basalt and coral cobbles and gravel, sparse modern debris; base of excavation. | Fill |
| TR 6 | I | 0–110+ | 10YR 3/2 | Sandy clay loam; 10% roots, 50% basalt of all sizes; base of excavation. | Fill |
| TR 7 | I | 0–110 | 5YR 3/1 | Sandy clay loam; 1% roots, 80% basalt cobbles; wavy, abrupt boundary. | Fill |
| | II | 110–140+ | 5YR 2.5/2 | Sandy clay; 5% basalt cobbles; base of excavation. | Natural |
| TR 8 | I | 0–15 | 10YR 2/2 | Sandy clay loam; 2% roots, 40% basalt cobbles; smooth, very abrupt boundary. | Fill |
| | II | 15–34 | 10YR 6/6 | Medium sand; 80% coral gravel; smooth, very abrupt boundary. | Fill |
| | II | 34–60 | 7.5YR 2.5/2 | Sandy clay loam; 10% basalt cobbles; smooth, abrupt boundary. | Fill |
| | IV | 60–160+ | 2.5Y 8/1 | Medium sand; water table at 155 cmbs; base of excavation. | Natural |
| TR 9 | I | 0–50 | 10YR 2/2 | Sandy loam; 1% roots, 40% basalt cobbles; modern debris; smooth, very abrupt boundary. | Fill |
| | II | 50–73 | 10YR 2/1 | Sandy loam; 1% roots, 30% basalt cobbles; modern debris; smooth, very abrupt boundary. | Fill |
| | III | 73–120+ | 10YR 3/2 | Sandy loam; 40% basalt cobbles; base of excavation. | Natural |

Table 6. (Cont.)

| Location | Layer | Depth (cmbs) | Color | Description | Interpretation |
|----------|-------|--------------|----------|--|----------------|
| TR 10 | I | 0–48 | 10YR 2/2 | Sandy loam; 2% roots, 15% basalt cobbles; smooth, very abrupt boundary. | Fill |
| | II | 48–80 | 10YR 5/8 | Medium sand; 1% roots, 80% coral gravel; smooth, very abrupt boundary. | Fill |
| | II | 80–109 | 10YR 2/2 | Sandy loam; 1% roots, 5% basalt cobbles; smooth, abrupt boundary. | Fill |
| | IV | 109–170+ | 10YR 8/2 | Medium sand; 10% basalt cobbles; base of excavation. | Natural |
| TR 11 | I | 0–70 | 10YR 2/1 | Sandy loam; 10% roots, 15% basalt cobbles; modern debris; smooth, abrupt boundary. | Fill |
| | II | 70–170+ | 10YR 2/2 | Sandy loam; 10% basalt cobbles; base of excavation. | Natural |
| TR 12 | I | 0–69+ | 10YR 3/1 | Sandy clay loam; 5% roots, 50% basalt of all sizes; base of excavation. | Natural |
| TR 13 | I | 0–43 | 10YR 3/2 | Silty clay loam; 5% roots, 2% basalt cobbles; smooth, gradual boundary. | Topsoil |
| | II | 43–135+ | 10YR 3/3 | Silty clay loam; 2% basalt cobbles; base of excavation. | Natural |

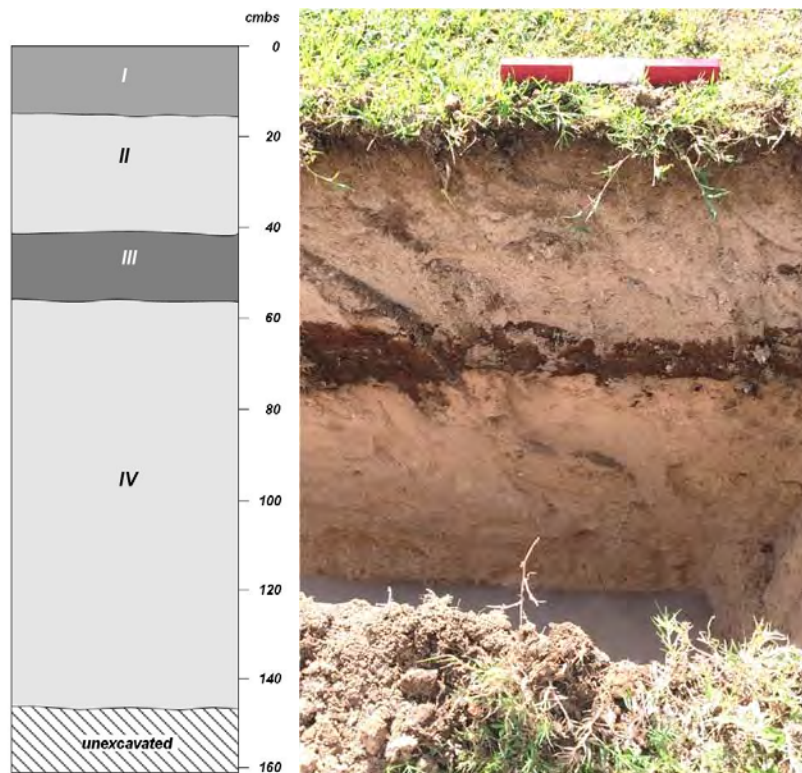


Figure 18. TR 1 east face profile drawing (left) and photo (right).

TR 2 was placed near the southeast corner of the Ka'a'awa survey block (see Figure 16). The trench measured 4.9 m long and 70 cm wide and was excavated to 125 cmbs. Stratigraphy consisted of an upper topsoil layer and a lower natural layer (Figure 19). The upper layer was 10YR 3/2 (very dark grayish brown) silty clay loam with 20% roots and 10% basalt cobbles; the lower layer was a more compact 7.5YR 3/4 (dark brown) silty clay with 2% roots and 50% basalt cobbles. No archaeological deposits or material were identified.

TR 3 was located north of the Ka'a'awa survey block, in an area no longer within the project footprint (see Figure 16). The trench measured 5.6 m long and 65 cm wide and was excavated to 130 cmbs. Stratigraphy consisted of an upper topsoil layer and a lower natural layer (Figure 20). The upper layer was 10YR 3/2 (very dark grayish brown) silty clay loam with 10% roots and 2% basalt cobbles; the lower layer was a more compact 7.5YR 3/3 (dark brown) silty clay with 2% roots and 5% basalt cobbles. No archaeological deposits or material were identified.

TR 4 was placed east of the Palikū survey block, in an area no longer within the project footprint (see Figure 17). The trench measured 5.5 m long and was excavated to 115 cmbs. The width of the trench was as great as 155 cm because of large natural boulders that were removed during excavation. Stratigraphy consisted of a single rocky, natural layer (Figure 21). This layer was 10YR 3/2 (very dark grayish brown) sandy clay loam with 10% roots and 60% basalt rock of all sizes. Two historic artifacts were found within the upper 20 cm of this layer. No archaeological deposits were identified.

TR 5 was located south of the Palikū survey block, in an area no longer within the project footprint (see Figure 17). The trench measured 3.7 m long and 70 cm wide and was excavated to 120 cmbs. Stratigraphy was composed of a single layer of fill (Figure 22). This consisted of 10YR 4/2 (dark grayish brown) sandy loam with 20% roots, 40% basalt and coral cobbles and gravel, and sparse modern debris. No archaeological deposits or material were identified.

TR 6 was excavated on the east side of the proposed ATV Depot in the Kualoa Ranch Headquarters survey block (see Figure 17). The trench measured 4 m long and 80 cm wide and was excavated to 110 cmbs. Stratigraphy consisted of a single layer of fill (Figure 23). This was 10YR 3/2 (very dark grayish brown) sandy clay loam with 10% roots and 50% basalt rocks of all sizes. No archaeological deposits or material were identified.

TR 7 was placed on the north side of the proposed administrative building in the Kualoa Ranch Headquarters survey block (see Figure 17). The trench measured 6.4 m long and 84 cm wide and was excavated to 140 cmbs. Stratigraphy was composed of an upper fill layer and a lower natural layer (Figure 24). The upper layer consisted of 5YR 3/1 (very dark gray) sandy clay loam with 1% roots and 80% basalt cobbles; the lower layer was 5YR 2.5/2 (dark reddish brown) sandy clay with 5% basalt cobbles. No archaeological deposits or material were identified.

TR 8 was placed 50 m north of the proposed warehouse, outside the Kualoa Ranch Headquarters survey block (see Figure 17). The trench measured 6.4 m long and 80 cm wide and was excavated to 160 cmbs. Stratigraphy consisted of three layers of fill atop natural sand (Figure 25). The uppermost fill layer was 10YR 2/2 (very dark brown) sandy clay loam with 2% roots and 40% basalt cobbles; the next fill layer was 10YR 6/6 (brownish yellow) medium sand with 80% coral cobbles; the lowest fill layer was 7.5YR 2.5/2 (very dark brown) sandy clay loam with 10% basalt cobbles; the basal layer was 2.5Y 8/1 (yellow) medium sand. The water table was encountered at 155 cmbs. No archaeological deposits or material were identified.

TR 9 was located on the west side of the proposed administrative building in the Kualoa Ranch Headquarters survey block (see Figure 17). The trench measured 5 m long and 80 cm wide, and was

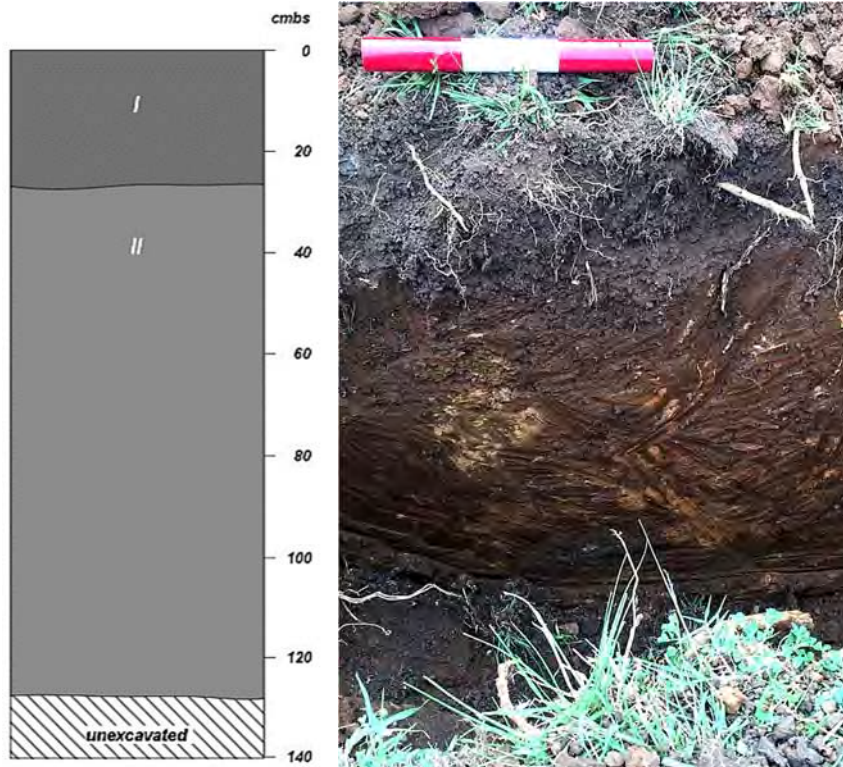


Figure 19. TR 2 east face profile drawing (left) and photo (right).

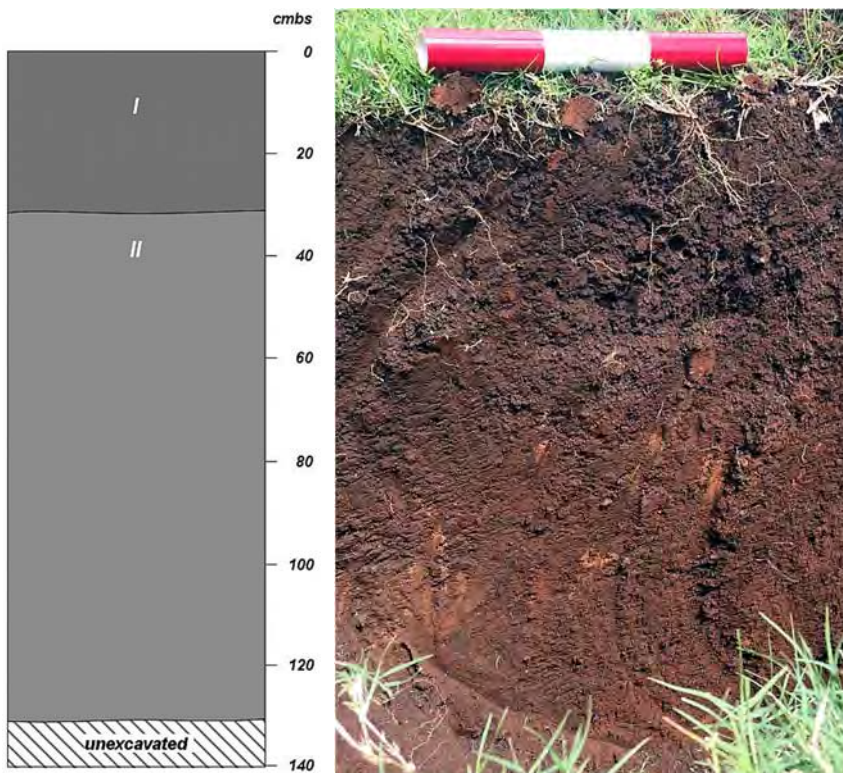


Figure 20. TR 3 north face profile drawing (left) and photo (right).

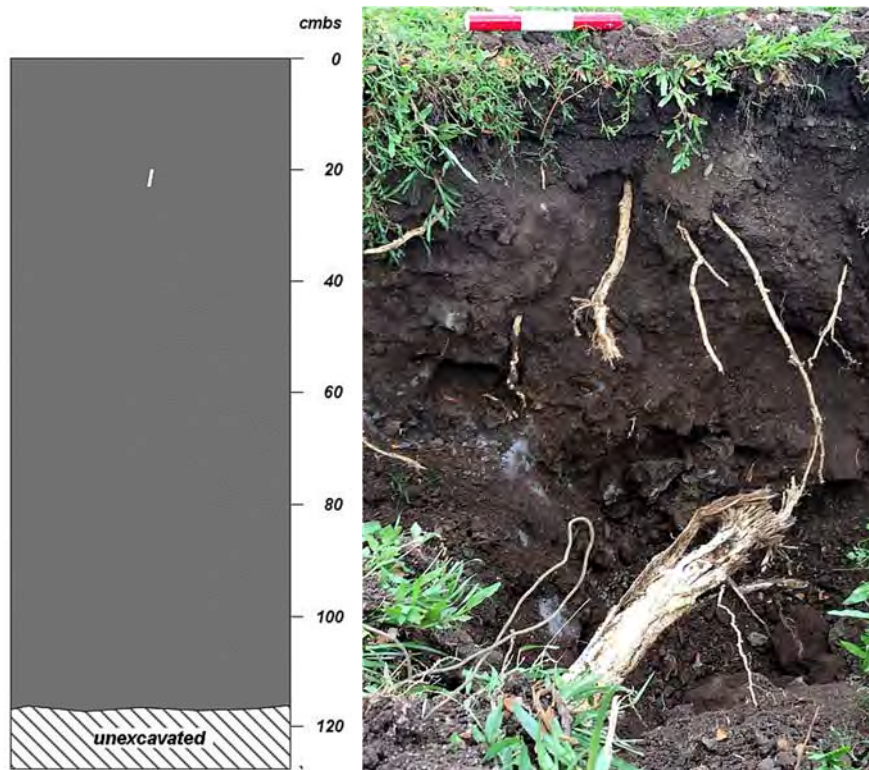


Figure 21. TR 4 north face profile drawing (left) and photo (right).



Figure 22. TR 5 northwest face profile drawing (left) and photo (right).

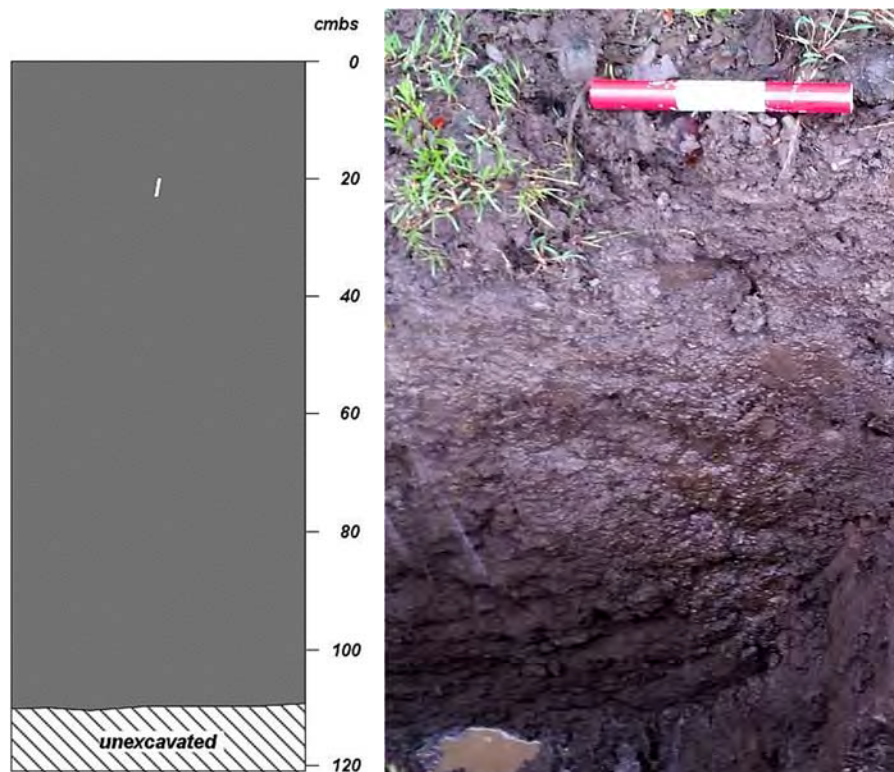


Figure 23. TR 6 west face profile drawing (left) and photo (right).

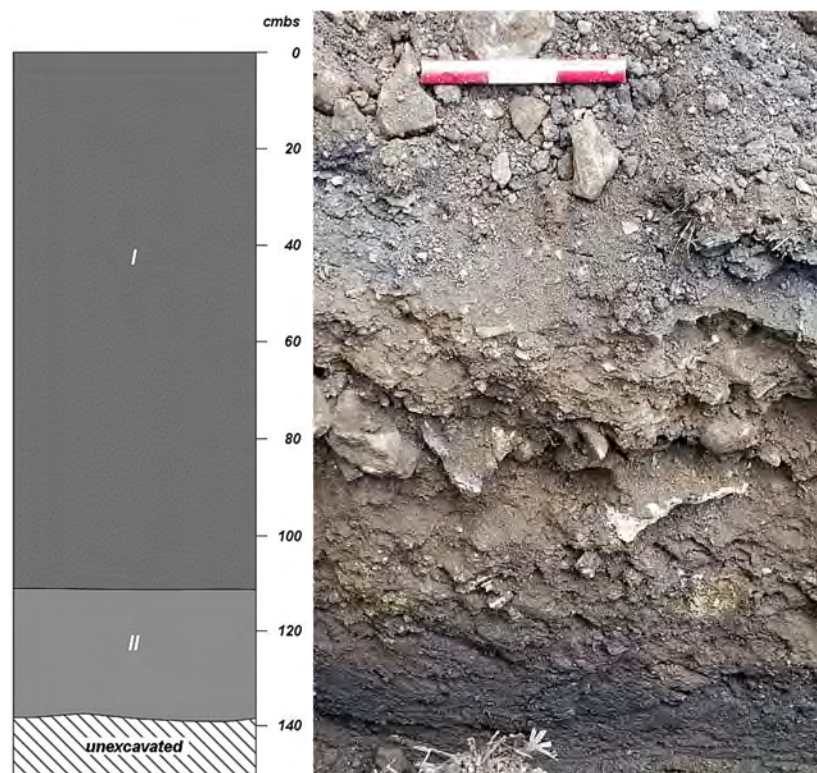


Figure 24. TR 7 northwest face profile drawing (left) and photo (right).

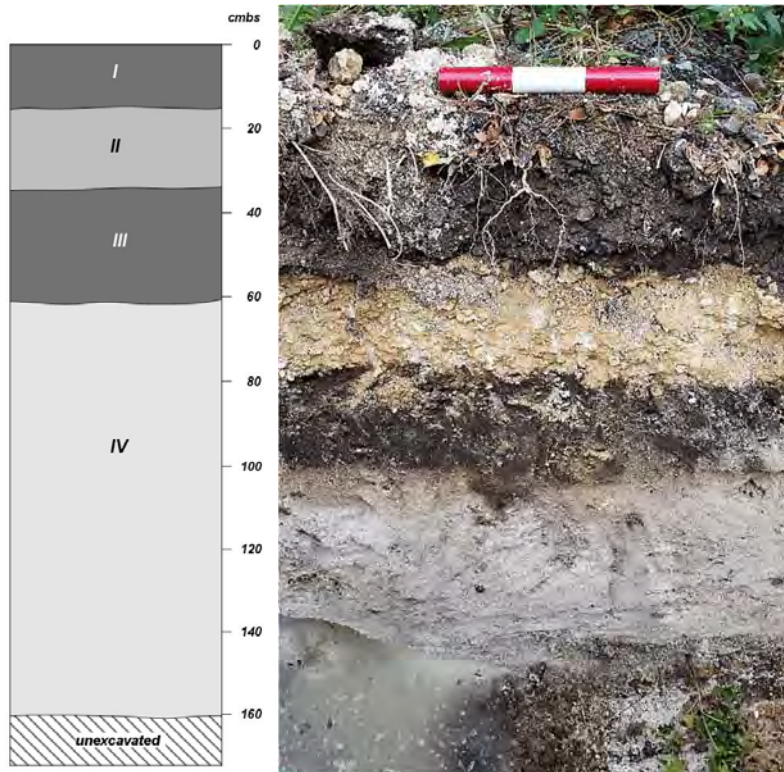


Figure 25. TR 8 west face profile drawing (left) and photo (right).

excavated to 170 cmbs. Stratigraphy was composed of two fill layers above a natural layer (Figure 26). The upper fill layer was 10YR 2/2 (very dark brown) sandy loam with 1% roots and 40% basalt cobbles; the lower fill layer consisted of 10YR 2/1 (black) sandy loam with 1% roots and 30% basalt cobbles; the basal layer was 10YR 3/2 (very dark grayish brown) sandy loam with 40% basalt cobbles. No archaeological deposits or material were identified.

TR 10 was excavated on the east side of the proposed visitor center at the Kualoa Ranch Headquarters survey block, which is also the southwest side of the current parking lot (see Figure 17). The trench measured 6 m long and 80 cm wide and was excavated to 170 cmbs. Stratigraphy consisted of three layers of fill atop natural sand (Figure 27). The uppermost fill layer was 10YR 2/2 (very dark brown) sandy loam with 2% roots and 15% basalt cobbles; the next fill layer was 10YR 5/8 (yellowish brown) medium sand with 1% roots and 80% coral cobbles; the lowest fill layer was 10YR 2/2 (very dark brown) sandy loam with 1% roots and 5% basalt cobbles; the basal layer consisted of 10YR 8/2 (very pale brown) medium sand. No archaeological deposits or material were identified.

TR 11 was located on the west side of the proposed visitor center at the Kualoa Ranch Headquarters survey block (see Figure 17). The trench measured 6 m long and 65 cm wide and was excavated to 170 cmbs. Stratigraphy was composed of a fill layer atop a natural layer (Figure 28). The fill was 10YR 2/1 (black) sandy loam with 10% roots, 15% basalt cobbles, and modern debris; the natural layer was 10YR 2/2 (very dark brown) sandy loam with 10% basalt cobbles. No archaeological deposits or material were identified.

TR 12 was placed on the southeast corner of the Palikū survey block (see Figure 17). The trench measured 5.1 m long and 72 cm wide and was excavated to 69 cmbs, where further excavation was

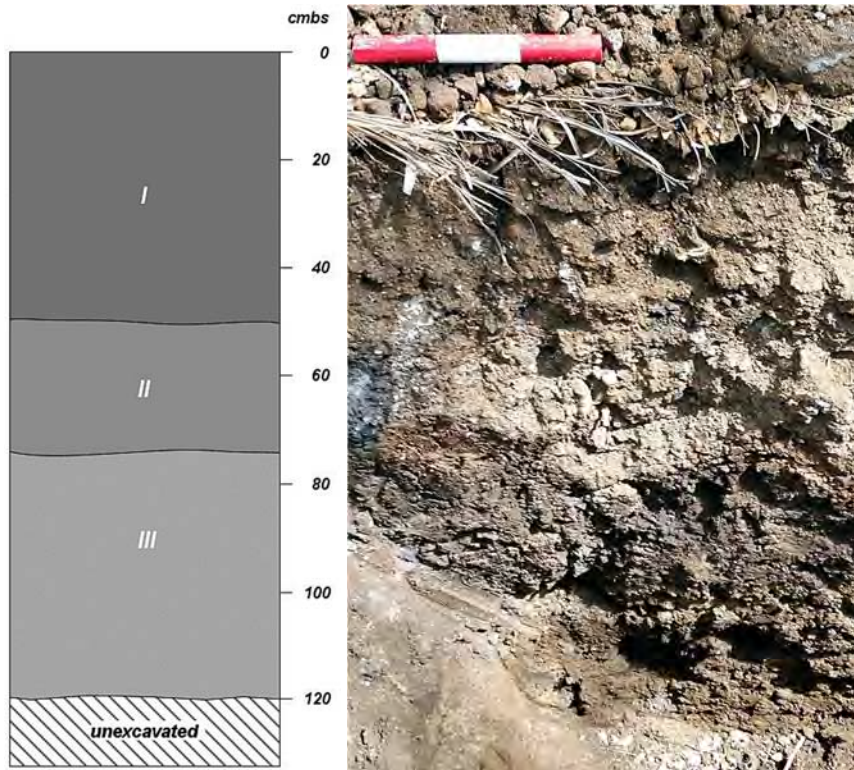


Figure 26. TR 9 south face profile drawing (left) and photo (right).

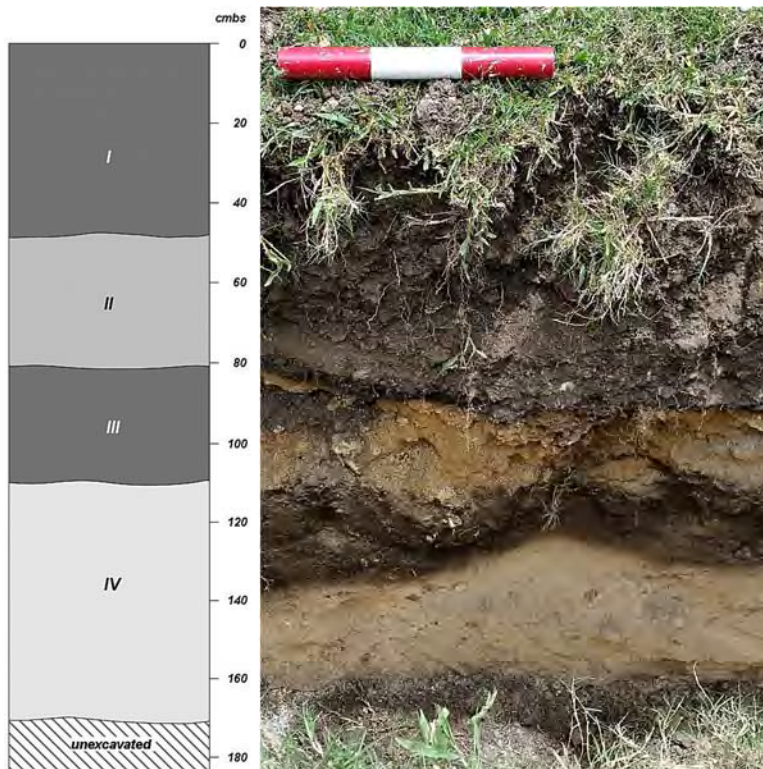


Figure 27. TR 10 southeast face profile drawing (left) and photo (right).



Figure 28. TR 11 west face profile drawing (left) and photo (right).

impeded by large boulders. Stratigraphy was composed of a single rocky natural layer (Figure 29). This was 10YR 3/1 (very dark gray) sandy clay loam with 5% roots, 50% basalt cobbles. No archaeological deposits or material were identified.

TR 13 was located on the northeast side of the Ka'a'awa survey block (see Figure 16). The trench measured 6.2 m long and 72 cm wide and was excavated to 135 cmbs. Stratigraphy was composed of a layer of topsoil above a natural layer (Figure 30). The topsoil was 10YR 3/2 (very dark grayish brown) silty clay loam with 5% roots and 2% basalt cobbles; the natural layer was a more compact 10YR 3/3 (dark brown) silty clay loam with 2% basalt cobbles. No archaeological deposits or material were identified.

Laboratory Analysis

Three historic artifacts were collected during subsurface testing (Table 7). Two of these came from TR 4 from approximately 0–20 cmbs. The third came from TR 1 from 16–42 cmbs. Given the location of the finds, they could be ranching -related.

Artifact 1 appears to be the head of a hammer (Figure 31, left). It measures 124 cm long and 110 cm wide and is quite heavy, weighing 427.8 g. The hammer head is made of metal and has a flat face and pointed peen rather than a claw. The item resembles a farrier's hammer for shoeing horses, although farrier's hammers usually have a claw and this specimen does not. The rusty, deteriorated condition of the artifact suggests a historic age, although this could not be confirmed.

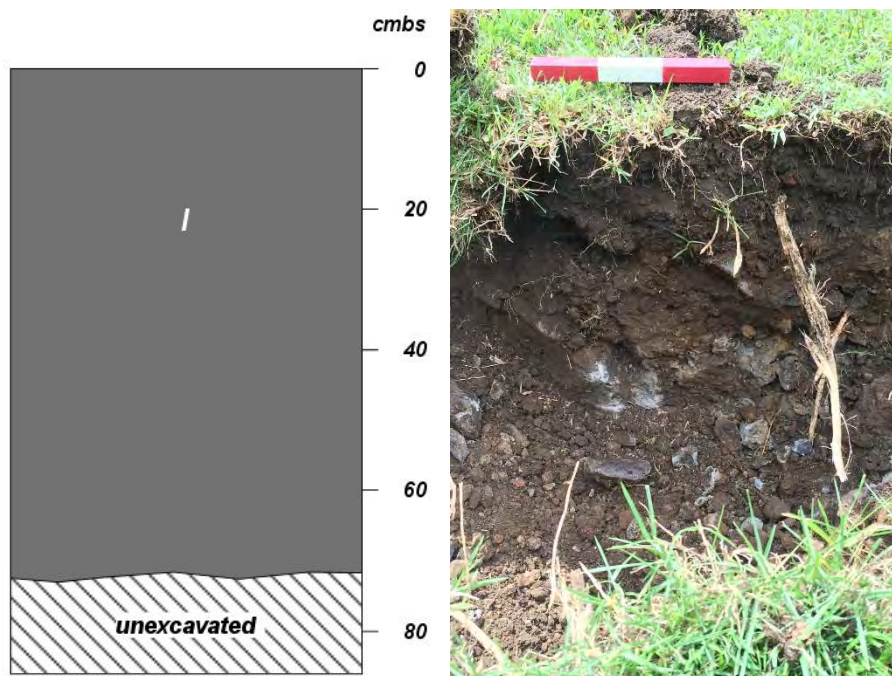


Figure 29. TR 12 east face profile drawing (left) and photo (right).

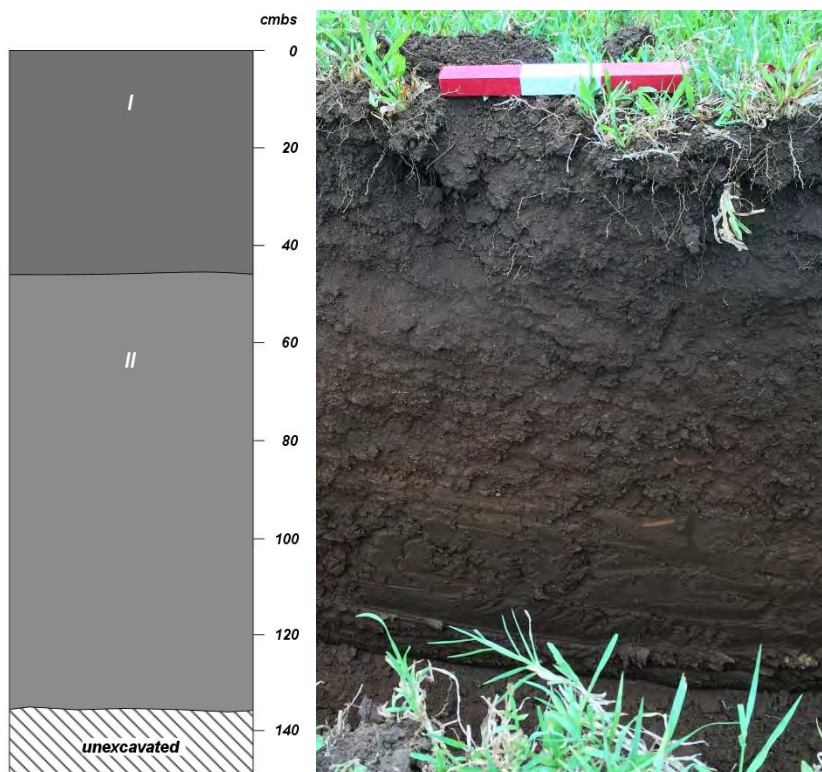


Figure 30. TR 13 northeast face profile drawing (left) and photo (right).

Artifact 2 is a metal harness buckle (Figure 31, right). It measures 7.2 cm long and 4.3 cm wide and weighs 17.6 g. The buckle is rectangular with two openings for a strap to thread through. The buckle is likely ranching related, as it was part of a harness. Like the hammer head, its rusty, deteriorated condition suggests a historic age, although this could not be confirmed.

Artifact 3 is a small ceramic plate rim fragment (Figure 32). The sherd is a common refined earthenware, whiteware, with a raised line design along the rim. It is likely historic.

Table 7. Collected Artifacts

| Artifact No. | Length x Width (cm) | Weight (g) | Function | Age |
|--------------|---------------------|------------|-----------|-------------------|
| 1 | 124 x 110 | 427.8 | Hammer | Possibly Historic |
| 2 | 7.2 x 4.3 | 17.6 | Buckle | Possibly Historic |
| 3 | 3.5 x 2.2 | 4.1 | Tableware | Possibly Historic |



Figure 31. Artifacts 1 and 2, recovered from TR 4.

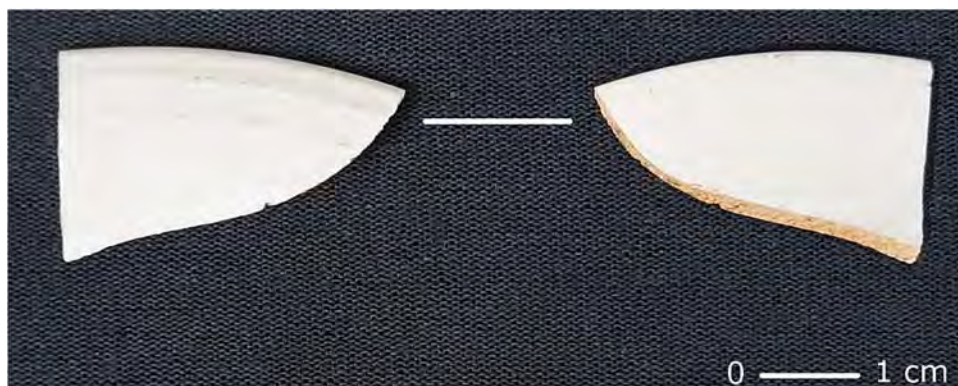


Figure 32. Artifact 3, recovered from TR 1 (front and back shown).

Summary of Findings

Pedestrian survey of 4.522 ha (11.174 ac.) in Kualoa 1 and 2, and Ka‘a‘awa Ahupua‘a yielded no evidence of surface archaeological remains. A 1937 TMK map showed that a ditch once ran through one of the Ka‘a‘awa survey blocks, but no traces of the ditch were found. Several structures are located within the survey boundaries, and consultation with Kualoa Ranch President, John Morgan indicated that they are less than 50 years of age.

Subsurface testing, consisting of 13 trenches, did not identify any subsurface cultural deposits or features. Stratigraphy generally consisted of natural deposits or fill atop natural deposits. Two artifacts were collected from TR 4 in Palikū and one artifact was recovered from TR 1 at the Ranch Headquarters. They are likely historic items related to ranching in the area.

SUMMARY AND RECOMMENDATIONS

An archaeological inventory survey was conducted for TMK: (1) 4-9-004:002, and (1) 4-9-005:001 in Kualoa 1 and 2 Ahupua'a, Ko'olaupoko District, and TMK: (1) 5-1-001:001 in Ka'a'awa Ahupua'a, Ko'olaupoko District on the island of O'ahu. Due to negative findings, the AIS results are presented as an archaeological assessment. The project area consists of three discontinuous survey blocks: Palikū, Kualoa Ranch Headquarters, and Ka'a'awa, which cover a total of 4.522 ha (11.174 ac.). Kualoa Ranch is planning improvements to selected areas within the survey blocks. The archaeological work included pedestrian survey that covered 100% of the project areas, as well as test excavations consisting of 13 trenches. Due to negative findings, the AIS results are presented as an archaeological assessment per HAR §13-275.

No surface archaeological remains were found during pedestrian survey of the parcel. The entire property has been disturbed by modern activity at the ranch, including landscaping of the lawns and construction of buildings. Likewise, subsurface testing did not yield any evidence of subsurface archaeological features or deposits. Stratigraphy generally consisted of natural deposits or fill atop natural layers. Two possible historic artifacts were recovered from one of the trenches in the Palikū survey area, and one from a trench in the Kualoa Ranch Headquarters area. Considering the former usage of the region, they are likely ranching or military-related. Several structures are located within the survey boundaries, and consultation with Kualoa Ranch President, John Morgan indicated that they are less than 50 years of age.

Given the negative findings, archaeological monitoring is not recommended for the majority of the project area. Monitoring is recommended only in the lower elevations of the Kualoa Ranch Headquarters, where sandy deposits were encountered. This recommendation is proposed because of the possibility of encountering human burials in intact beach sand deposits. It is possible that human remains may be discovered during construction activities, even though no such evidence was found during the survey. Should human burial remains be discovered during construction activities, work in the vicinity of the remains should cease and the SHPD should be contacted.

In sum, archaeological survey was conducted on 11.174 ac. in Kualoa 1 and 2 and Ka'a'awa Ahupua'a. No archaeological sites, features, or deposits were found. The only findings were three possible historic artifacts. Within the surveyed areas, improvements to Kualoa Ranch will have no effect on historic properties because no historic properties occur there. Nevertheless, archaeological monitoring is recommended for the lower elevations of the Kualoa Ranch Headquarters survey block, where sandy deposits occur.

GLOSSARY

| | |
|--------------------------------------|---|
| <i>ahupua‘a</i> | Traditional Hawaiian land division usually extending from the uplands to the sea. |
| <i>‘auwai</i> | Ditch, often for irrigated agriculture. |
| <i>awa</i> | The milkfish, or <i>Chanos chanos</i> , often raised in fishponds in ancient times. |
| boulder | Rock 60 cm and greater. |
| cobble | Rock fragment ranging from 7 cm to less than 25 cm. |
| debitage | Waste by-products of stone tool manufacture. |
| <i>hala</i> | The indigenous pandanus tree, or <i>Pandanus odoratissimus</i> , which had many uses in traditional Hawai‘i. Leaves were used in mats, house thatch, and basketry; flowers were used for their perfume; keys were utilized in lei and as brushes; roots and leaf buds were used medicinally; and wood was fashioned into bowls and other items. |
| <i>heiau</i> | Place of worship and ritual in traditional Hawai‘i. |
| <i>humuhumunukunukuāpua‘a</i> | A triggerfish of the genus <i>Rhinecanthus</i> , either <i>R. aculeatus</i> or <i>R. rectangulus</i> . |
| <i>‘ili</i> | Land division, next in importance to <i>ahupua‘a</i> and usually a subdivision of an <i>ahupua‘a</i> . |
| <i>imu</i> | Underground pit or oven used for cooking. |
| <i>inoa</i> | Name, term, title. |
| <i>kahakai</i> | Beach, seashore, coast. |
| <i>Kahiki</i> | A far away land, sometimes refers to Tahiti. |
| <i>kahua</i> | Open place for sports, such as <i>‘ulu maika</i> . |
| <i>kahuna</i> | An expert in any profession, often referring to a priest, sorcerer, or magician. |
| <i>kai</i> | Sea, sea water; area near the sea, seaside, lowlands; tide, current in the sea; insipid, brackish, tasteless. |
| <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>kapa</i> | Tapa cloth. |
| <i>kapu</i> | Taboo, prohibited, forbidden. |
| <i>ko‘a</i> | Fishing shrine. |
| <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>kula</i> | Plain, field, open country, pasture, land with no water rights. |
| <i>kuleana</i> | Right, title, property, portion, responsibility, jurisdiction, authority, interest, claim, ownership. |
| <i>kupua</i> | Demigod, hero, or supernatural being below the level of a full-fledged deity. |
| <i>lo‘i, lo‘i kalo</i> | An irrigated terrace or set of terraces for the cultivation of taro. |

| | |
|-----------------------------|--|
| <i>loko</i> | Inside, interior. Pond, lake, pool. |
| Māhele | The 1848 division of land. |
| <i>makahiki</i> | A traditional Hawaiian festival starting in mid October. The festival lasted for approximately four months, during which time there was a <i>kapu</i> on war. |
| <i>makai</i> | Toward the sea. |
| <i>mauka</i> | Inland, upland, toward the mountain. |
| <i>menehune</i> | Small people of legend who worked at night to build structures such as fishponds, roads, and <i>heiau</i> . |
| midden | 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. |
| <i>moku</i> | District, island. |
| <i>mo‘o</i> | Lizard, dragon, water spirit. |
| <i>mo‘olelo</i> | A story, myth, history, tradition, legend, or record. |
| <i>muliwai</i> | River mouth, estuary, or pool near the mouth of a stream, enlarged by ocean water left there at high tide. |
| mullet | <i>Mugil cephalus</i> , or ‘ <i>ama‘ama</i> , a very choice indigenous fish. |
| <i>niho palaoa</i> | Pendant fashioned from whale tooth worn by Hawaiian royalty. |
| <i>‘ōlelo no‘eau</i> | Proverb, wise saying, traditional saying. |
| <i>poi</i> | A staple of traditional Hawai‘i, made of cooked and pounded taro mixed with water to form a paste. |
| post-contact | After A.D. 1778 and the first written records of the Hawaiian Islands made by Captain James Cook and his crew. |
| pre-contact | Prior to A.D. 1778 and the first written records of the Hawaiian Islands made by Captain James Cook and his crew. |
| <i>pu‘uhonua</i> | Place of refuge. |
| 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>‘ulu maika</i> | Stone used in the <i>maika</i> game, similar to bowling. |
| <i>wauke</i> | The paper mulberry, or <i>Broussonetia papyrifera</i> , which was made into tapa cloth in traditional Hawai‘i. |

REFERENCES

- Ahlo, H.M., Jr.
1980 *Archaeological Subsurface Testing Along Portions of the East Beach Site, Kualoa Regional Park, Oahu, Hawaii*. Hawaii Marine Research.
- Barrera, W., Jr.
1974 *Preliminary Archaeological Investigations at Kualoa, Oahu, Hawaii*.

1984 *Kaaawa, Oahu: Archaeological Survey at Proposed Well Locations*. Chiniago Inc., Honolulu.
- Borthwick, D.F., D.W. Shideler, and H.H. Hammatt
1999 *Archaeological Monitoring Report for the Percolation Test Pits for the Upgrading of the Kualoa Regional Park Wastewater System Kualoa, Ko'olaupoko, O'ahu (TMK: 4-9-04:01)*. Cultural Surveys Hawaii, Kailua, Hawai'i.
- Bush, T. and H.H. Hammatt
1998 *Archaeological Monitoring Report for the Kualoa Maintenance Yard Contaminated Soils Removal at Kualoa, Ko'olaupoko, O'ahu (TMK: 4-9-04:01)*. Cultural Surveys Hawaii, Kailua, Hawai'i.
- Carson, M.T. and J.S. Athens
2006 *Archaeological Monitoring and Data Recovery at Kualoa Regional Park, Kualoa Ahupua'a, Ko'olaupoko District, O'ahu Island, Hawai'i O'ahu Island Tax Map Key (TMK) 4-9-4:01*. International Archaeological Research Institute, Inc., Honolulu.
- Clark, S.D. and R.D. Connolly
1975 *Progress Report of Archaeological Investigations at Kualoa Regional Park Island of Oahu TMK: (1) 4-9-4:1*.

1978 *A Report on Inputs for Interpretive Programs at Kualoa Regional Park Island of Oahu*.
- Cleghorn, J.
1991 *Disinterment of Eroding Burial at Kanelu Beach, Ka'a'awa, Ko'olaupoko, O'ahu, Site 50-80-06-3759*. State Historic Preservation Division, Honolulu.
- Cleghorn, P.
1994 *Eroding Burial from East Beach at Kualoa Park*. Biosystems Analysis, Kailua, Hawai'i.
- Cleghorn, P.L., C. Cesario, and B. Whitehead
2002 *Archaeological Assessment of the Proposed Voicestream Telecommunications Facility at Kualoa Ranch, O'ahu (TMK 4-9-4:02)*. Pacific Legacy, Inc., Kailua, Hawai'i.
- Colin, B.L., M.J. Heidel, D.F. Borthwick, and H.H. Hammatt
1995 *Archaeological Report on Data Recovery of a Reported Imu Feature Kualoa Regional Park, Kualoa, Koolaulupoko, Oahu*. Cultural Surveys Hawaii, Kailua, Hawai'i.
- Colin, B.L., D.F. Borthwick, and H.H. Hammatt
1995 *Report on Disinterment of a Human Burial Kualoa Regional Park, Kualoa, Koolaulupoko, Oahu*. Cultural Surveys Hawaii, Kailua, Hawai'i.

- Colin, B.L. and H.H. Hammatt
 1997 *Archaeological Assessment and Sub-surface Testing for the Kualoa Erosion Control Project, Kualoa Regional Park, Kualoa, Oahu*. Cultural Surveys Hawaii, Kailua, Hawai'i.
- 2008 *Archaeological Assessment and Sub Surface Testing for the Kualoa Erosion Control Project, Kualoa Regional Park, Kualoa, Oahu*. Cultural Surveys Hawaii, Kailua, Hawai'i.
- Douglas, M.T.
 1990 *Report on Human Skeletal Remains Recovered at Kualoa Beach Park, May 1990*.
- 1991 *Report on Human Skeletal Remains Recovered from Kualoa Regional Park, O'ahu*.
- Dye, T.
 1995 *Coffin Burial Recovered at the Eroding East Beach of Kualoa Regional Park*. State Historic Preservation Division.
- 1996a *Inadvertent Discovery of Human Remains at Kualoa Park Kualoa, Ko'olaupoko, O'ahu*. State Historic Preservation Division.
- 1996b *Inadvertent Discovery of Human Remains, Hawaiian Electric Company (HECO) Pole Relocation Excavation, Kualoa, O'ahu Site 50-80-06-5376*. State Historic Preservation Division.
- Dye, T. and M. Lee
 1996 *Disinterment of Inadvertently Discovered Human Remains at Ka'a'awa, Ko'olaupoko, O'ahu*. State Historic Preservation Division, Honolulu.
- Dye, T.S. and E.H.R. Jourdane
 2007 *Historic Properties Assessment for the Proposed T-Mobile Kualoa Ranch Cell Site (#HIC01199A) Kualoa Ranch, 49-560 Kamehameha Highway Kualoa, Ko'olaupoko, O'ahu TMK:(1)4-9-004:002 por*. T.S. Dye & Colleagues, Honolulu.
- Emerson, N.B.
 1978 *Pele and Hiiaka: A Myth from Hawaii* (First Edition 1915). Charles E. Tuttle Company, Tokyo.
- Foote, D., E. Hill, S. Nakamura, and F. Stephens
 1972 *Soil Survey of the Islands of Kauai, Oahu, Maui, Molokai, and Lanai, State of Hawaii*. United States Department of Agriculture, Soil Conservation Service. Published in cooperation with the University of Hawaii Agricultural Experiment Station, Washington, D.C.
- Fornander, A.
 1969 [1880] *An Account of the Polynesian Race*. Vol. 2, Tuttle and Co., Rutland, VT.
- Goodman, W. and P.L. Cleghorn
 1991 *Archaeological Monitoring and Salvage Excavations at Kualoa Regional Park O'ahu, Hawai'i*. Applied Research Group, B.P. Bishop Museum, Honolulu.
- Graves, M.W. and T.N. Ladefoged
 1991 The Disparity between Radiocarbon and Volcanic Glass Dates: New Evidence from the Island of Lana'i, Hawai'i. *Archaeology in Oceania* 26:70-77.

Groza, R. and H.H. Hammatt

2010 *Archaeological Monitoring Report for Ka'a'awa Elementary school, Ka'a'awa Ahupua'a, Ko'olaupoko District, O'ahu Island TMK: [1] 5-1-002:018*. Cultural Surveys Hawaii, Kailua, Hawai'i.

Gunness, J.

1978 *Archaeological Reconnaissance Report for Kualoa Beach Sand Replenishment Project Kualoa Regional Park Island of Oahu*. Department of Parks and Recreation City and County of Honolulu.

1984 *An Interim Report on Archaeological Testing in the South Beach Area of Kualoa Regional Park, Oahu Island, Hawaii*.

1985a *Interim Report on Archaeological Testing for the Kualoa Regional Park Road Improvements Project*.

1985b *Archaeological Assessment of the Proposed Kualoa Residential Park "Road Improvements" Project*.

1986 *Final Report on Archaeological Testing prior to the Kualoa Regional Park Road Improvements Project*.

1993 "The Kualoa Archaeological Research Project, 1975–1985: A Brief Overview." *Hawaiian Archaeology* (2) 50–71.

Hamano, L. and P.L. Cleghorn

2003 *Archaeological Monitoring of the Voicestream Wireless Telecommunications Facility at the Kualoa Bunkers Site, Kualoa Ranch, O'ahu (TMK 5-1-1:1)*. Pacific Legacy, Inc., Kailua, Hawai'i.

Hammatt, H.

1985 *Archaeological Reconnaissance Survey at Kualoa Ranch Land, Kualoa, Oahu*. Cultural Surveys Hawaii, Kailua, Hawai'i.

Hammatt, H.H. and D.W. Shideler

1999 *Archaeological Assessment for Reconstruction of Wastewater Systems at Kualoa Regional Park, Kualoa Ahupua'a, Ko'olaupoko, O'ahu, Hawai'i (TMK 4-9-04:1)*. Cultural Surveys Hawaii, Kailua, Hawai'i.

2000 *Archaeological Investigations of Recent Bulldozing at Kualoa Regional Park Kualoa, Ko'olaupoko, O'ahu*. Cultural Surveys Hawaii, Kailua, Hawai'i.

2001 *Archaeological Monitoring Report Addressing Soil Testing in Support of the Proposed Kualoa Regional Park Multipurpose Building Kualoa Regional Park Kualoa, Ko'olaupoko, O'ahu (TMK: 4-9-04:01)*. Cultural Surveys Hawaii, Kailua, Hawai'i.

Handy, E. S. Craighill.

1940 *The Hawaiian Planter*. Volume I. Bernice P. Bishop Museum Bulletin 161, Honolulu.

Handy, E.S., E.G. Handy, and M.K. Pukui

1991 *Native Planters in Old Hawaii; Their Life, Lore, and Environment*. Revised edition. Bernice P. Bishop Museum Bulletin 23, Bishop Museum Press, Honolulu.

- Jourdane, E.
1993 *Inadvertent Discovery of Human Remains at 51-170 Kamehameha Highway, Ka'a'awa, Ko'olaupoko, O'ahu TMK 5-1-001:001, Site 50-80-06-4728*. State Historic Preservation Division, Honolulu.
- Juvik, S. and J. Juvik (editors)
1998 *Atlas of Hawai'i* (Third ed.). University of Hawai'i Press, Honolulu.
- Kamakau, S.M.
1991 *Ka Po'e Kahiko The People of Old*. B.P. Bishop Museum Special Publication No. 51. Bishop Museum Press, Honolulu.
- Kawachi, C. and C. Johnson
1990 *Eroding Beach Burials at Kualoa Beach Park, Kualoa, Koolau-poko, O'ahu*. State Historic Preservation Division.
- Lee, M.
1994 *Report on Archaeological Find at Kualoa Regional Park*. State Historic Preservation Division.
- McAllister, J.G.
1933 *Archaeology of O'ahu*. Bishop Museum, Bulletin 104, Honolulu.
- McElroy, W.K., D. Duhaylonsod, and J. Condit
in prep. *Cultural Impact Assessment for Improvements to Kualoa Ranch Kualoa 1 and 2 Ahupua'a, Ko'olaupoko District, and Ka'a'awa Ahupua'a, Ko'olaupoko District, Island of O'ahu, Hawai'i*. Keala Pono Archaeological Consulting, Kane'ohe, Hawai'i.
- McIntosh, J. and J. Pantaleo
1997 *Archaeological Survey of Sites For A Recreational Camp, Ranch House, And Relocated Shooting Range, Kualoa Ahupuaa, Koolau-poko District, Island of Oahu*. Garcia and Associates, Kailua, Hawai'i.
- Meeker, V.
1991 *Archaeological Monitoring Sand Replenishment Project, Kualoa Regional Park, Ko'olaupoko, O'ahu*. International Archaeological Research Institute, Inc., Honolulu.
- Mooney, K.M. and P.L. Cleghorn
2007 *Archaeological Monitoring for the Proposed Ka'a'awa Beach Park Comfort Station and Parking Area Improvements, Ka'a'awa, Ko'olaupoko District, Island of O'ahu*. Pacific Legacy, Inc., Kailua, Hawai'i.
- Morriss, V. and H.H. Hammatt
2015 *End of Fieldwork Letter for Data Recovery at SIHP # 50-80-09-7397 in Support of a Reconstructed Wastewater Systems and Bathhouse Replacement Project at Kualoa Regional Park, Kualoa Ahupua'a, Ko'olaupoko District, O'ahu, TMK: [1] 4-9-004:001 (por.)*. Cultural Surveys Hawaii, Kailua, Hawai'i.

- Omori, A.I.
1989 *Police and Medical Examiner's Reports: Kualoa Skeletal Remains Site No. 80-06-528*. Department of the Medical Examiner, City and County of Honolulu.
- Perzinski, M., D. Shideler, and H. Hammatt
2000 *Archaeological Monitoring Report for Americans with Disabilities Act (ADA) Improvements at Kualoa Regional Park Kualoa, Ko'olaupoko, O'ahu (TMK: 4-9-04:01)*. Cultural Surveys Hawaii, Kailua, Hawai'i.
- Pietrusewsky, M. and M.T. Douglas
1989 *An Osteological Study of Human Remains Recovered from Kualoa Regional Park, Windward O'ahu Island, Hawai'i*.
- Pukui, M.K.
1983 *Ōlelo No'eau; Hawaiian Proverbs and Poetical Sayings*. Bernice P. Bishop Museum Special Publication No. 71. Bishop Museum Press, Honolulu.
- Pukui, M.K., S.H. Elbert and E.T. Mookini
1974 *Place Names of Hawai'i*. University of Hawaii, Honolulu.
- Rohrer, S.
2005 *Letter Report: Archaeological Monitoring Water Line Break, Kualoa Beach Park, Kualoa Ahupua'a, Ko'olaupoko District, O'ahu (TMK 4-9-04:1)*. Cultural Surveys Hawaii, Kailua, Hawai'i.
- Rutkowski, L.A.
1988 *Medical Examiner's Report: Kualoa Beach Park Burial*. Department of the Medical Examiner, City and County of Honolulu.
- Schoeneberger, P.J., D.A. Wysocki, E.C. Benham, and W.D. Broderson (editors)
2002 *Field Book for Describing and Sampling Soils, Version 2.0*. Natural Resources Conservation Service, National Soil Survey Center, Lincoln, Nebraska.
- Smith, M.
1988 *Inspection of Kaaawa Burial Site 50-80-06-3759, Kaaawa, Ko'olaupoko, O'ahu TMK 5-1-12:11*. State Historic Preservation Division, Honolulu.
- Somer, L.
1991 *Excavation of Burial 68 at Kualoa Regional Park, Kualoa, Ko'olaupoko, O'ahu*. B.P. Bishop Museum, Honolulu.
- Spear, R.
1996 *Letter Report Concerning the Monitoring of Telephone Pole Locations and Human Remains along Kamehameha Hwy at Kualoa*. Scientific Consultant Services, Honolulu.
- Sterling, E.P. and C.C. Summers
1978 *Sites of O'ahu*. Dept. of Anthropology, B.P. Bishop Museum, Honolulu.
- Thien, S.
1979 A Flow Diagram for Teaching Texture-By-Feel Analysis. *Journal of Agronomic Education* 8:54-55.

Tulchin, J. and H.H. Hammatt

2009 *Archaeological Assessment for Ka‘a‘awa Elementary School, Ka‘a‘awa Ahupua‘a, Ko‘olaupoko District, O‘ahu Island TMK: [1] 5-1-002:018*. Cultural Surveys Hawaii, Kailua, Hawai‘i.

2013 *Archaeological Inventory Survey for Reconstructed Wastewater Systems and Bathhouse Replacement at Kualoa Regional Park, Kualoa Ahupuaa, Koolau District, Island of Oahu*. Cultural Surveys Hawaii, Kailua, Hawai‘i.

Wall, W.E.

1880 *Hakipuu Koolau Oahu*. Hawaii Territory Survey. Scale 500 feet = 1 inch. February 1880. Register Map 0328.

1902 *Oahu Hawaiian Islands*. Hawaii Territory Survey. Scale 5000 feet = 1 inch. Register Map 2374.

Whitehead, B. and P.L. Cleghorn

2003 *Archaeological Inventory Survey for the Proposed Ka‘a‘awa Beach Park Comfort Station and Parking Area Improvements, Ka‘a‘awa, Ko‘olaupoko District, Island of O‘ahu*. Pacific Legacy, Inc. Kailua, Hawai‘i.

Winburn, M. and M. Desilets

2009 *Archaeological Assessment Report for Proposed Footing Locations at Property of James Oellien, Ka‘a‘awa Ahupua‘a, Ko‘olaupoko District, O‘ahu, Hawai‘i TMK (1) 5-1-002:004*. Garcia and Associates, Kailua, Hawai‘i.

APPENDIX A: SHPD EMAIL CORRESPONDENCE

Subject: Fw: Kualoa Ranch AIS
From: Susan.A.Lebo@hawaii.gov
Date: Fri, Apr 10, 2015 9:39 am
To: wkm@keala-pono.com, "Barbara Natale" <bnatale@group70int.com>

Hello Windy,

Thank you for discussing this project with us this morning. Your proposed testing looks good. Please consult with us before you complete the testing so we may discuss your field findings and whether additional testing is needed based on those initial findings.

Sincerely,

Susan

Susan A. Lebo, PhD
Oahu Lead Archaeologist
Acting Archaeology Branch Chief
State Historic Preservation Division
Kakuhihewa Building
601 Kamokila Blvd., Suite 555
Kapolei, Hawaii 96707
Susan.A.Lebo@hawaii.gov
(808) 692-8019

----- Forwarded by Susan A Lebo/DLNR/StateHiUS on 04/10/2015 09:37 AM -----

From: "Windy Keala McElroy" <wkm@keala-pono.com>
To: Susan.A.Lebo@hawaii.gov,
Cc: "Barbara Natale" <bnatale@group70int.com>
Date: 04/08/2015 09:14 AM
Subject: Kualoa Ranch AIS

Aloha Susan,

We are conducting an AIS and CIA for improvements to Kualoa Ranch on behalf of Group 70. I've attached a short project summary. We are planning to begin fieldwork for the AIS on Monday, with a 100% pedestrian survey and test trenching. Two trenches will be excavated at the Ka'a'awa location; six at the Kualoa Headquarters; two at Paliku; and one at Abad's/Hakipu'u. Is this enough information for you so that we can get started on Monday or do you need a more detailed excavation plan?

Mahalo,
Windy

Subject:

Re: Kualoa Ranch historic building

From: Jessica.L.Puff@hawaii.gov
Date: Tue, May 05, 2015 11:46 am
To: "Windy Keala McElroy" <wkm@keala-pono.com>

Aloha Windy,

Thank you for your email. Instead of modifying your Archaeological Assessment, would you fill out the attached RLS Inventory form for us? It'll help me to determine if the building retains its significance. Additionally, could you provide me with any photographs of the surrounding area and additional photos of the structure?

Thanks,

Jess

Jessica Puff
Architectural Historian
Hawaii State Historic Preservation Division
601 Kamokila Blvd. Suite 555
Kapolei, HI 96707
#: 808.692.8023
@: jessica.l.puff@hawaii.gov

From: "Windy Keala McElroy" <wkm@keala-pono.com>
To: jessica.l.puff@hawaii.gov,
Cc: Susan.A.Lebo@hawaii.gov
Date: 05/04/2015 09:48 AM
Subject: Kualoa Ranch historic building

Aloha Jessica,

We conducted an archaeological inventory survey for selected areas of Kualoa Ranch. There are several structures within our project area, but there's only one that we think may be historic- the building in the attached photo which likely dates to the 1950s. The building is slated for demolition, to be replaced by a new visitor center. We had no other findings so we were going to submit the report as an archaeological assessment. Does it need to change to an AIS because of the building? What other steps do we need to take to document it in our report? If you would like to come out for a site visit I'd be happy to meet you there one day next week if that will work for you.

Mahalo,
Windy

Subject: RE: Kualoa Ranch historic buildings

From: "Broverman, Anna E" <anna.e.broverman@hawaii.gov>
Date: Wed, Jan 06, 2016 9:54 am
To: Windy Keala McElroy <wkm@keala-pono.com>
Cc: "Lebo, Susan A" <susan.a.lebo@hawaii.gov>, Barbara Natale <bnatale@group70int.com>

Aloha Wendy,

We do not need any additional information on the buildings. The only one of 50 years old has lost its integrity.

Sorry for the delay and thanks for your patience!

Anna

From: Windy Keala McElroy [mailto:wkm@keala-pono.com]
Sent: Wednesday, January 06, 2016 9:32 AM
To: Broverman, Anna E <anna.e.broverman@hawaii.gov>
Cc: Lebo, Susan A <susan.a.lebo@hawaii.gov>; Barbara Natale <bnatale@group70int.com>
Subject: RE: Kualoa Ranch historic buildings

Hi Anna, we would like to wrap up our report revisions. Can you let us know how we should proceed with regard to the historic buildings?

Mahalo,

Windy

Windy Keala McElroy, PhD
Keala Pono Archaeological Consulting
808.381.2361
<http://keala-pono.com>

----- Original Message -----

Subject: Re: Kualoa Ranch historic buildings
From: "Broverman, Anna E" <anna.e.broverman@hawaii.gov>
Date: Fri, November 13, 2015 11:27 am
To: Windy Keala McElroy <wkm@keala-pono.com>

Aloha Wendy,

The bunker is over 50 years old so it is a historic property. We may need more information regarding the operations as we can't definitely say it is 50 years old. I'll read the AIS to see if the properties are significant and retain their integrity. I will try to get back to you Monday.

Thanks!
Anna
Sent from my iPhone

On Nov 12, 2015, at 10:46 AM, Windy Keala McElroy <wkm@keala-pono.com> wrote:

Aloha Anna,

We completed an archaeological inventory survey at Kualoa Ranch (project area map attached) and need to consult with you regarding possible historic buildings. The attached table lists the structures within our project area, two of which may be of interest; they are highlighted in the table. The first is the operations building; we don't know its age but it was moved to the property in 1969. The second is a WWII bunker but it is no longer visible, as it was covered over by the patio of a later structure in 1987. Do either of these structures meet the definition of a historic property, and if they do, what documentation is needed?

Thanks so much,
Windy