

**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 

Keala Pono Archaeological Consulting, LLC • PO Box 1645, Kaneohe, HI 96744 • Phone 808.381.2361



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Honolulu, Hawaii 96813

**Prepared By:**

Windy Keala McElroy, PhD  
Dietrix Duhaylonsod, BA  
and  
Joey J. Condit, MA

December 2016





## **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‘olauloa 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.



# CONTENTS

MANAGEMENT SUMMARY .....	I
FIGURES .....	iv
TABLES .....	iv
INTRODUCTION .....	1
Project Location .....	1
Description of the Project.....	1
Physical Environment.....	7
BACKGROUND .....	9
<i>Inoa ‘Āina</i> : Place Names .....	9
‘ <i>Ōlelo No ‘eau</i> .....	9
<i>Mo ‘olelo</i> .....	9
Land Use and Subsistence .....	10
The Region in the Historic Period.....	11
Māhele Land Tenure and Historic Land Use.....	11
Historic Maps .....	12
Post-Māhele Land Use.....	12
Previous Archaeology .....	15
Kualoa .....	15
Ka ‘a ‘awa.....	23
Summary and Settlement Patterns.....	25
Anticipated Finds and Research Questions .....	25
METHODS .....	27
RESULTS .....	29
Community Consultation .....	29
Pedestrian Survey .....	29
Subsurface Testing .....	31
Laboratory Analysis .....	42
Summary of Findings .....	45
SUMMARY AND RECOMMENDATIONS.....	46
GLOSSARY .....	47
REFERENCES .....	49
APPENDIX A: SHPD EMAIL CORRESPONDENCE .....	55

## FIGURES

Figure 1. Project locations on an aerial image.....	2
Figure 2. Project locations on a 1:2400 USGS Kahana 1992 quadrangle map. ....	3
Figure 3. TMK plat (1) 4-9-004 (May 1937), showing the Palikū and the Kualoa Headquarters.....	4
Figure 4. TMK plat (1) 4-9-005 (May 1937), showing the Palikū and Kualoa Headquarters.....	5
Figure 5. TMK plat (1) 5-1-001 (Oct. 1937), showing the Ka‘a‘awa survey block.....	6
Figure 6. Soils in the vicinity of the project areas. ....	8
Figure 7. Portion of a Hawaii Territory Survey map of Hakipu‘u (Wall 1880).....	13
Figure 8. Portion of a Hawaii Territory Survey O‘ahu map (Wall 1902) .....	14
Figure 9. Previous archaeological studies and archaeological sites in Kualoa.....	16
Figure 10. Previous archaeological studies and archaeological sites in Ka‘a‘awa.....	17
Figure 11. Excavation of TR 4 with mini excavator .....	28
Figure 12. A portion of the Kualoa Ranch Headquarters survey block.....	29
Figure 13. A portion of the Kualoa Ranch Headquarters survey block.....	30
Figure 14. The Ka‘a‘awa survey block, showing no traces of the former ditch.....	30
Figure 15. View from the Palikū survey block.....	31
Figure 16. Location of trenches excavated in Ka‘a‘awa. ....	32
Figure 17. Location of the trenches excavated in the Palikū and Kualoa Headquarters.....	33
Figure 18. TR 1 east face profile drawing (left) and photo (right). ....	35
Figure 19. TR 2 east face profile drawing (left) and photo (right). ....	37
Figure 20. TR 3 north face profile drawing (left) and photo (right). ....	37
Figure 21. TR 4 north face profile drawing (left) and photo (right). ....	38
Figure 22. TR 5 northwest face profile drawing (left) and photo (right).....	38
Figure 23. TR 6 west face profile drawing (left) and photo (right). ....	39
Figure 24. TR 7 northwest face profile drawing (left) and photo (right).....	39
Figure 25. TR 8 west face profile drawing (left) and photo (right). ....	40
Figure 26. TR 9 south face profile drawing (left) and photo (right). ....	41
Figure 27. TR 10 southeast face profile drawing (left) and photo (right). ....	41
Figure 28. TR 11 west face profile drawing (left) and photo (right). ....	42
Figure 29. TR 12 east face profile drawing (left) and photo (right). ....	43
Figure 30. TR 13 northeast face profile drawing (left) and photo (right).....	43
Figure 31. Artifacts 1 and 2, recovered from TR 4. ....	44
Figure 32. Artifact 3, recovered from TR 1 (front and back shown).....	44

## TABLES

Table 1. LCAs in the Vicinity of the Project Areas.....	12
Table 2. Previous Archaeological Projects in the Vicinity of the Study Area, Kualoa .....	18
Table 3. Archaeological Sites in the Vicinity of the Kualoa Project Area .....	20
Table 4. Previous Archaeological Projects in the Vicinity of the Study Area, Ka‘a‘awa .....	24
Table 5. Archaeological Sites in the Vicinity of the Ka‘a‘awa Project Area .....	24
Table 6. Sediment Descriptions.....	34
Table 7. Collected Artifacts.....	44

## 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‘olauloa 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

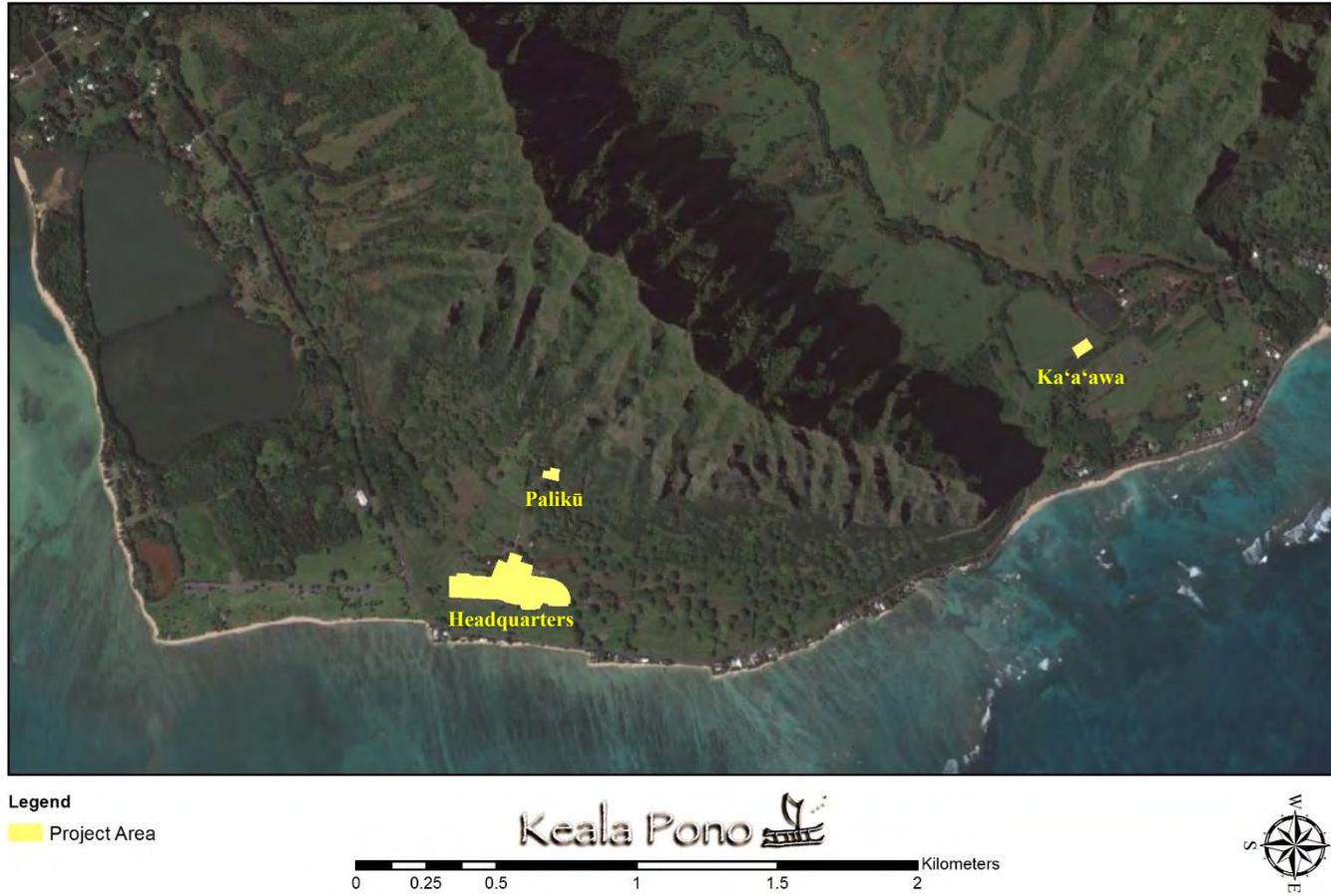
The project area consists of three discontinuous survey blocks: Palikū, Kualoa Ranch Headquarters, and Ka‘a‘awa (Figures 1 and 2). These are situated within three *ahupua‘a* and two districts: Kualoa 1 and 2 Ahupua‘a in Ko‘olaupoko District, and Ka‘a‘awa Ahupua‘a in Ko‘olauloa District. The survey areas 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.**



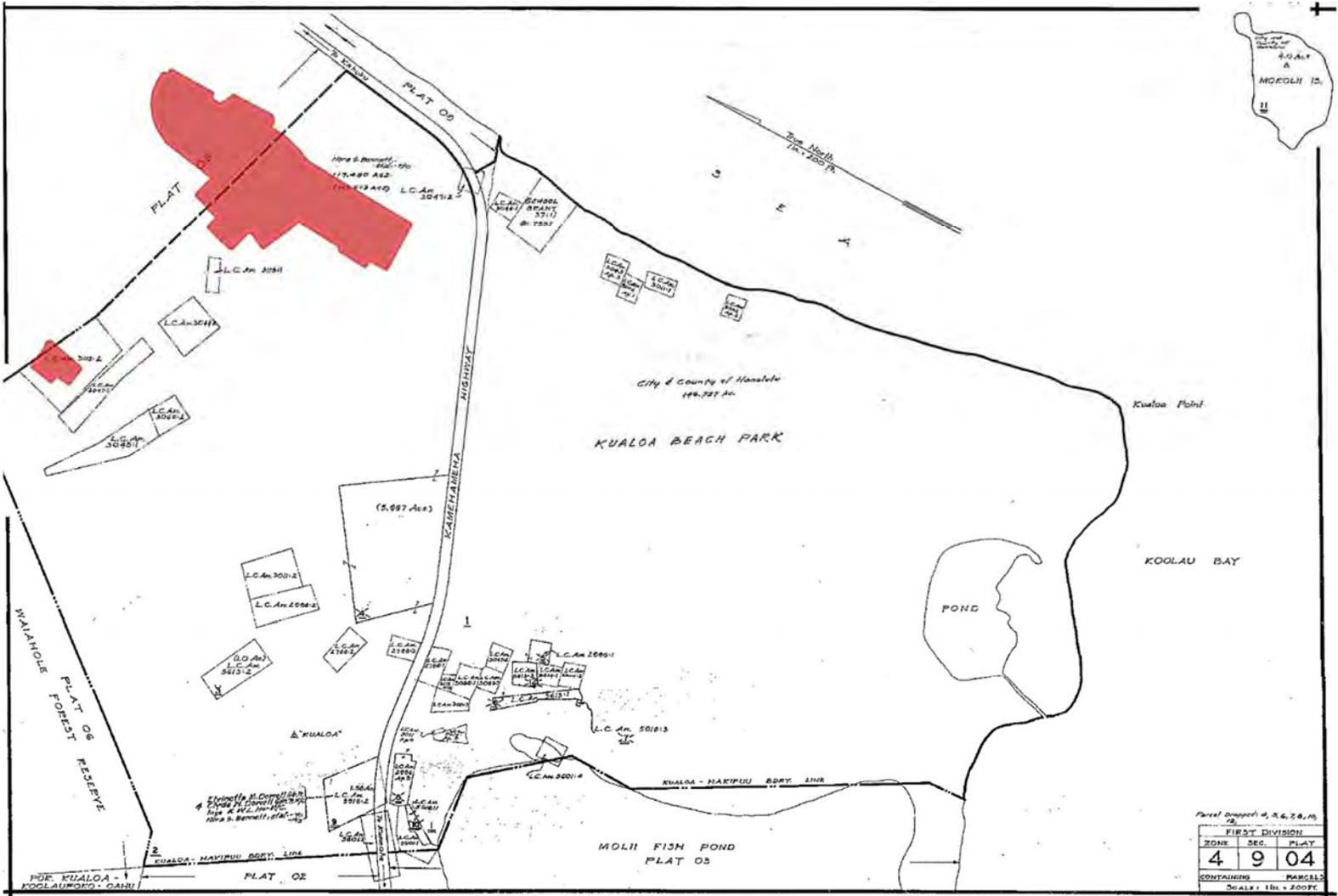


Figure 3. TMK plat (1) 4-9-004 (May 1937), showing the Palikū and the Kualoa Ranch Headquarters survey blocks in red.





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)

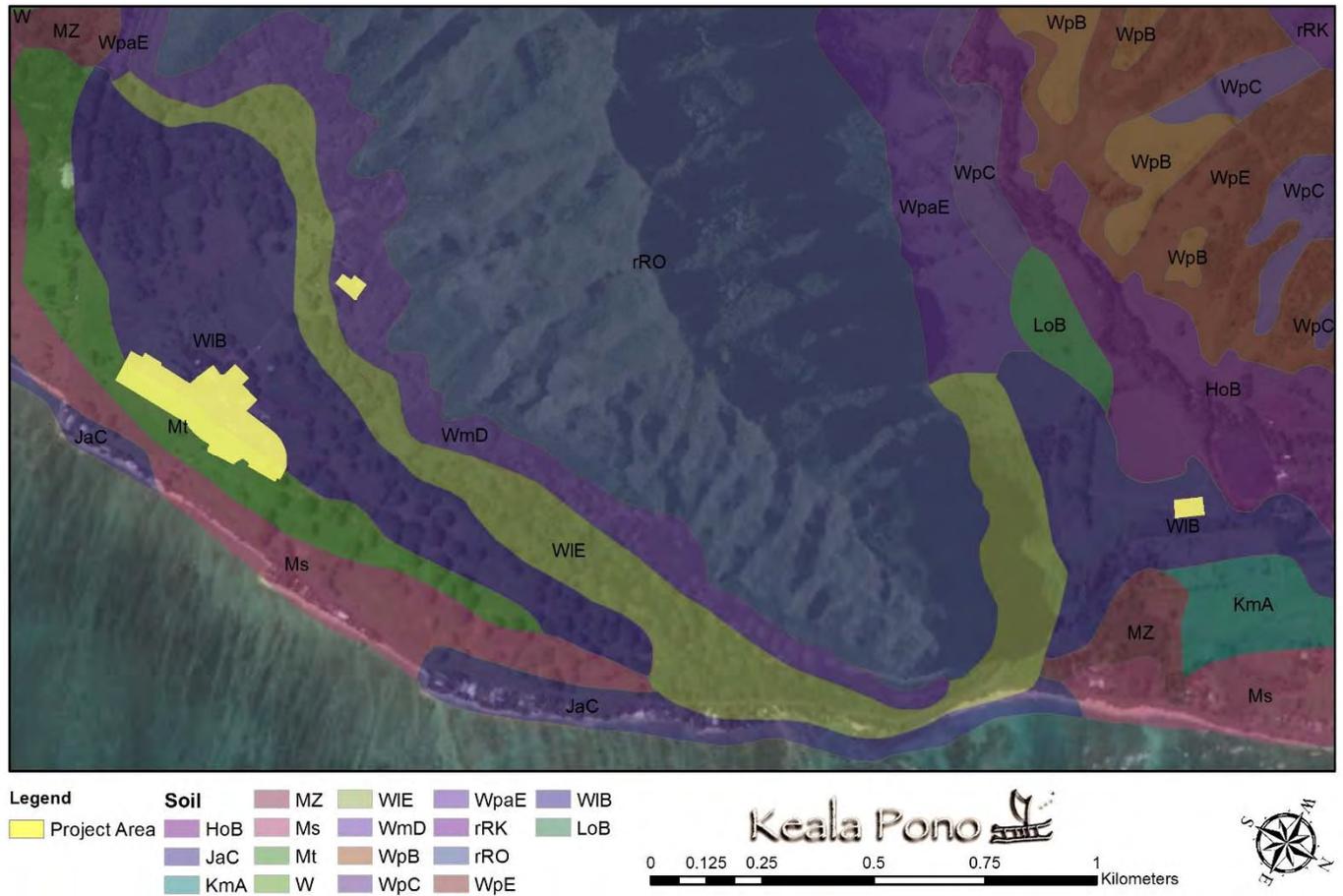


Figure 6. Soils in the vicinity of the project areas.

## 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'olauloa. 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 Kualii'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-19<sup>th</sup> 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	Keliikahonua	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 19<sup>th</sup> and early 20<sup>th</sup> 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.



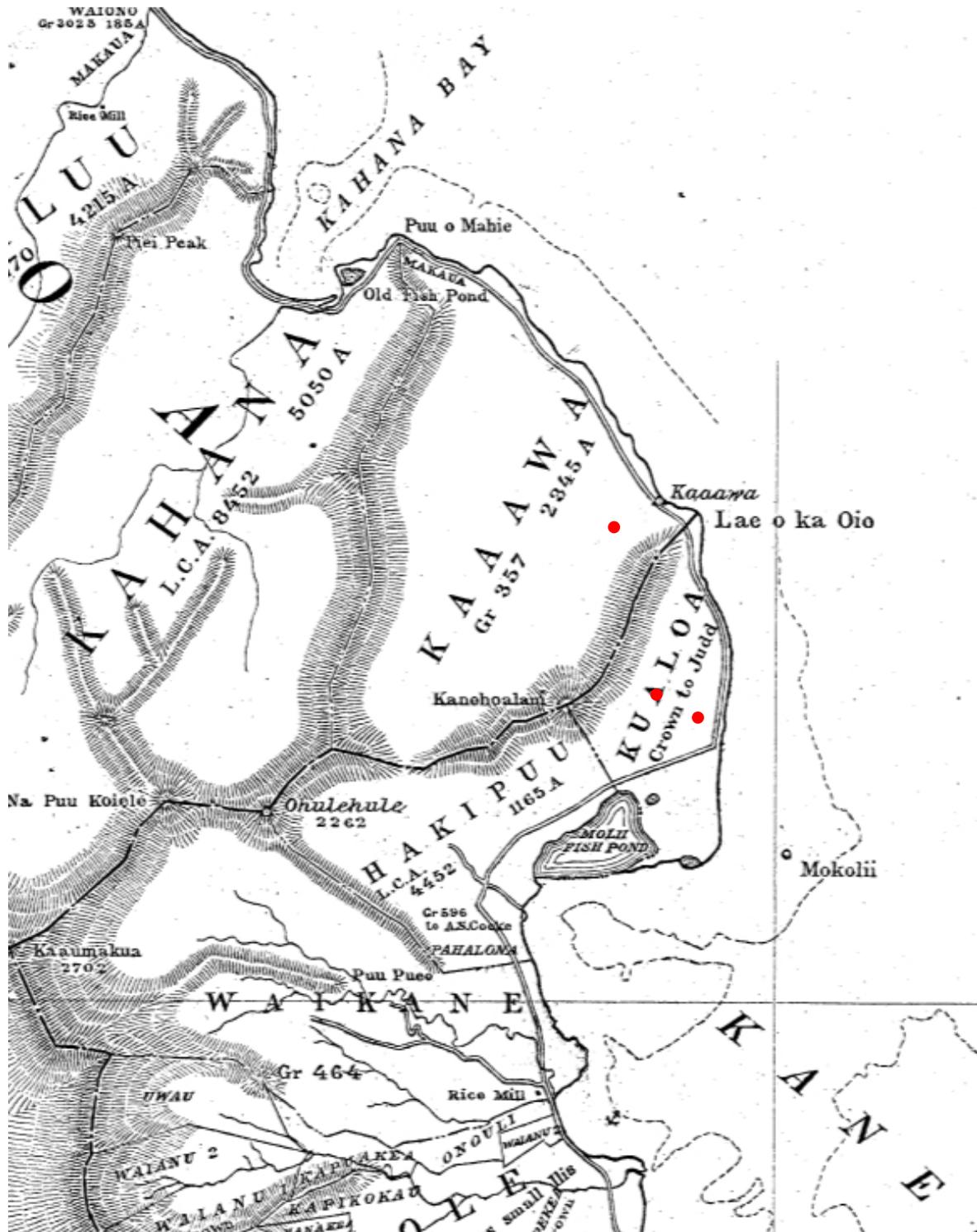


Figure 8. Portion of a Hawaii Territory Survey O‘ahu map (Wall 1902). The approximate locations of the survey areas are shown as red dots.

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.

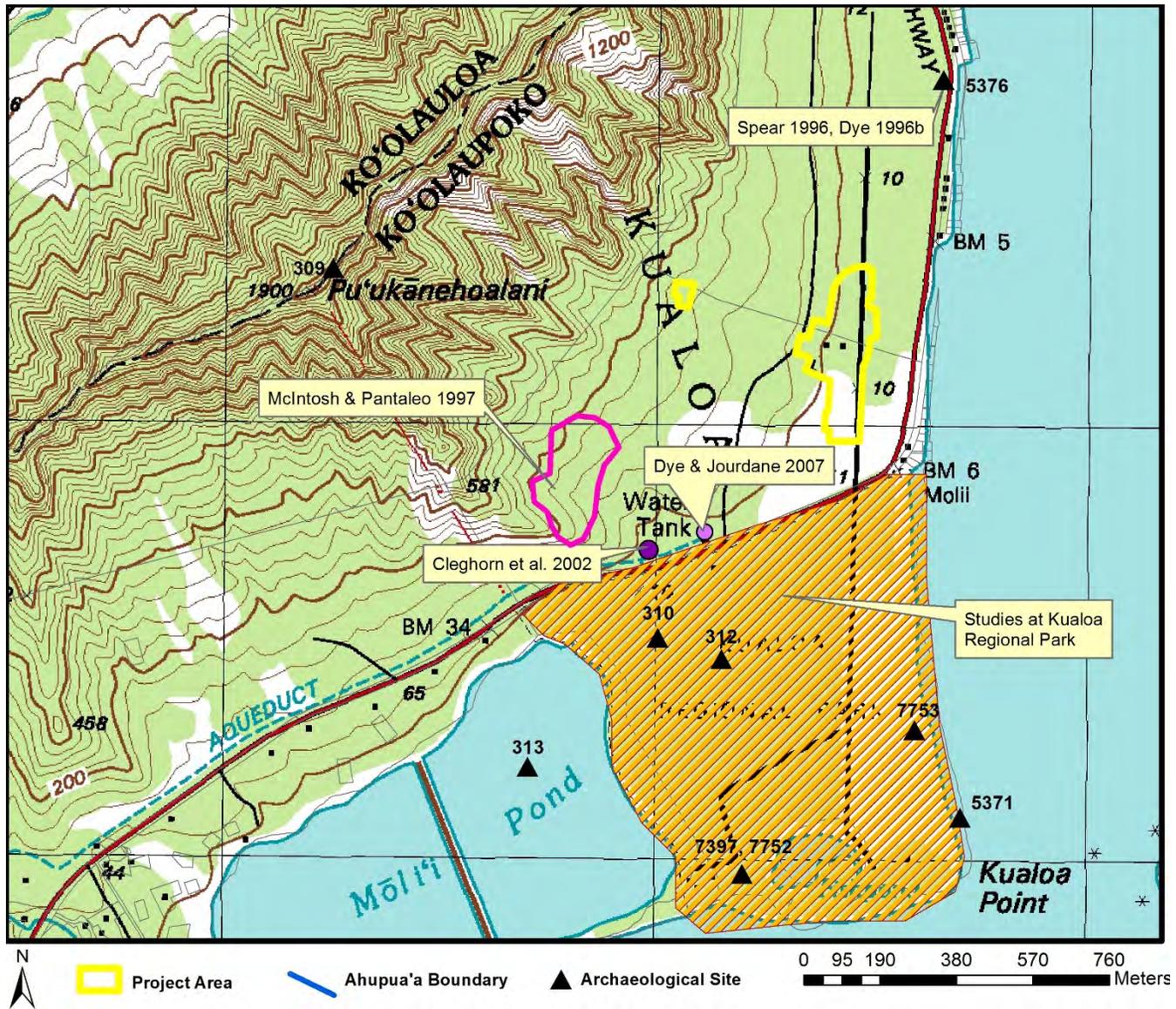


Figure 9. Previous archaeological studies and archaeological sites in Kualoa.

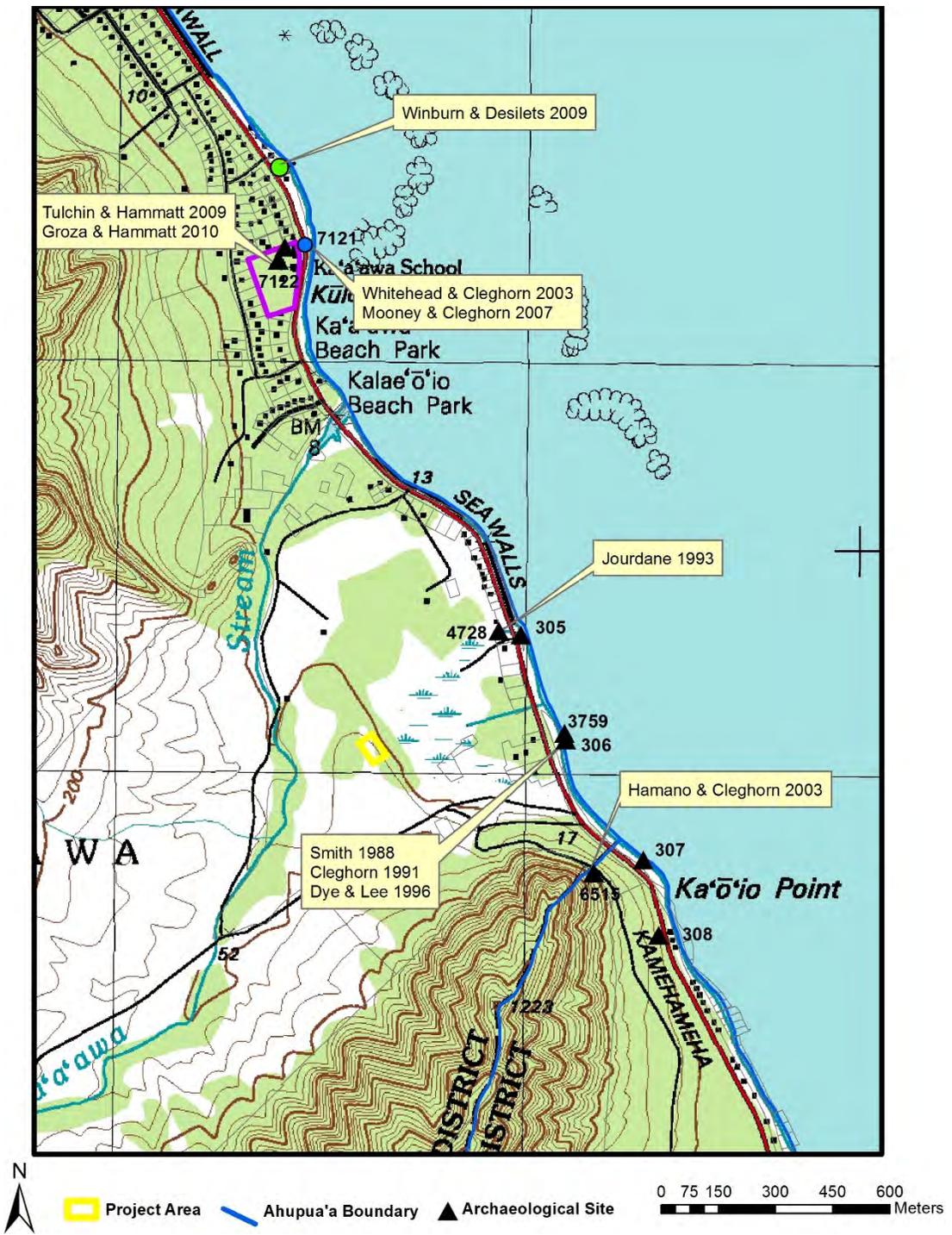


Figure 10. Previous archaeological studies and archaeological sites in the vicinity of the Ka'a'awa project area.

**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.)**

<b>Author &amp; Year</b>	<b>Location</b>	<b>Work Completed</b>	<b>Findings</b>
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 & Jourdane 2007	Kualoa Ranch	Historic Properties Assessment	None.

**Table 2. (Cont.)**

<b>Author &amp; Year</b>	<b>Location</b>	<b>Work Completed</b>	<b>Findings</b>
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.
Morriss & 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**

<b>Site</b>	<b>Location</b>	<b>Description</b>	<b>Reference</b>
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	Morriss and Hammatt 2015
7752	Kualoa Regional Park	Cultural Layer	Morriss and Hammatt 2015
7753	Kualoa Regional Park	Cultural Layer	Morriss 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-15<sup>th</sup> 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 20<sup>th</sup> 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 m<sup>2</sup> 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 (Morriss 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 19<sup>th</sup> 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

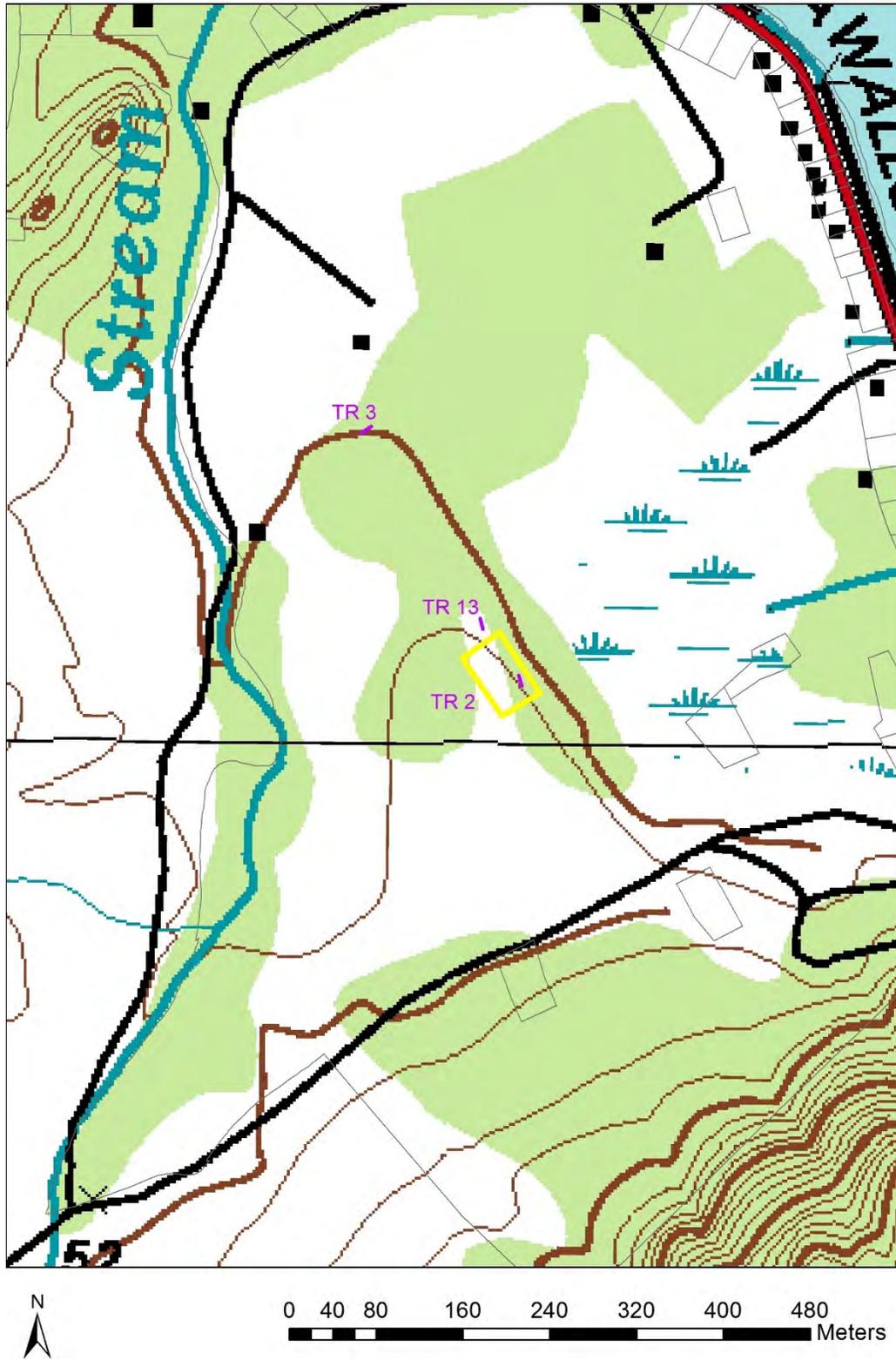


Figure 16. Location of trenches excavated in Ka'a'awa.

## Palikū & Ranch Headquarters

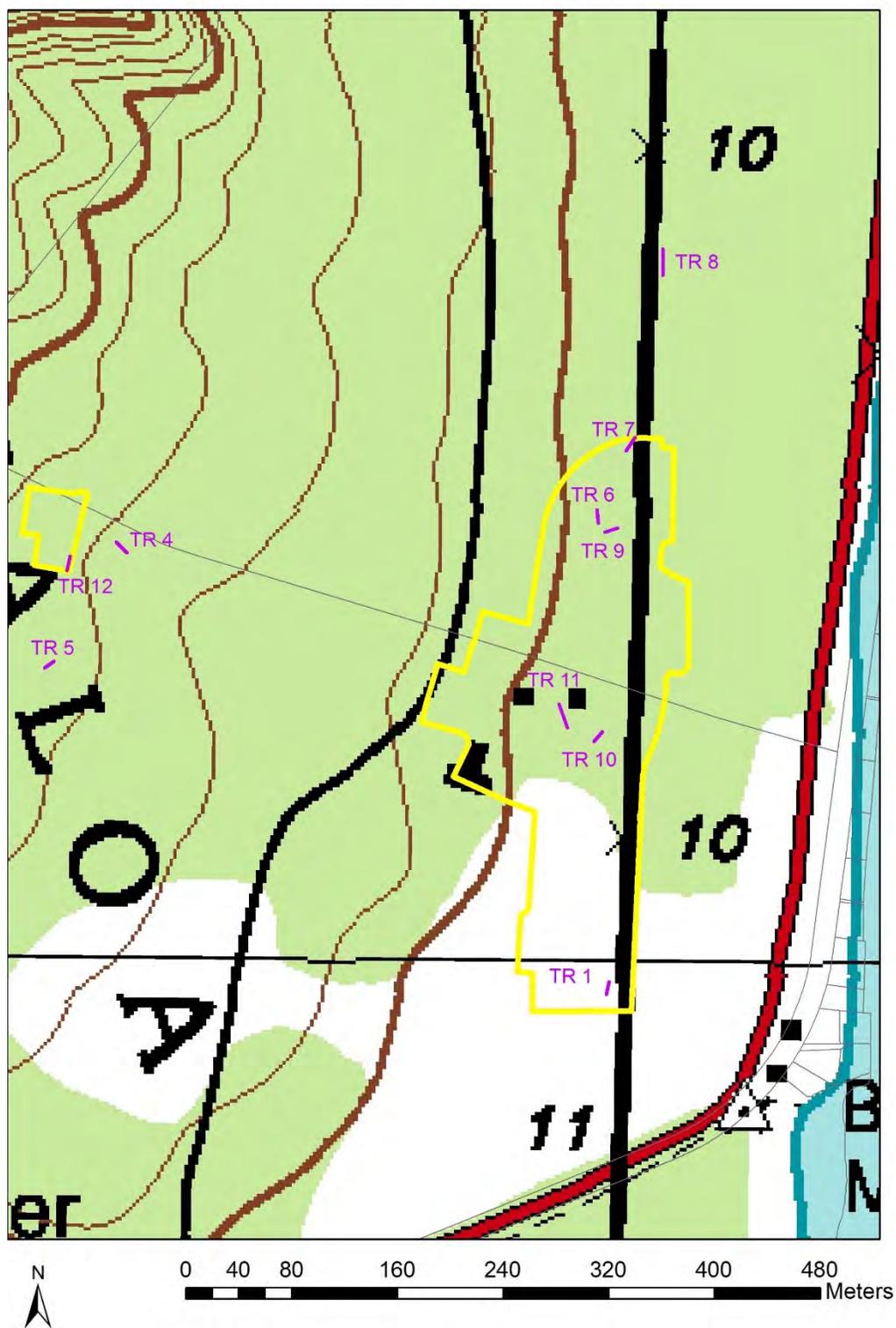


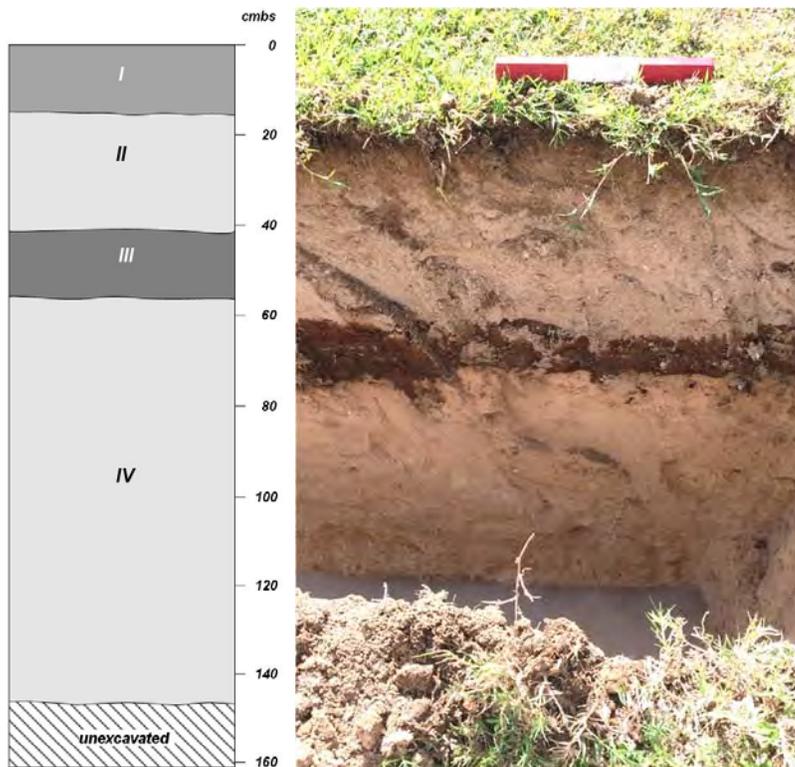
Figure 17. Location of the trenches excavated in the Palikū (left) and Kualoa Ranch Headquarters (right) areas.

**Table 6. Sediment Descriptions**

<b>Location</b>	<b>Layer</b>	<b>Depth (cmbs)</b>	<b>Color</b>	<b>Description</b>	<b>Interpretation</b>
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).

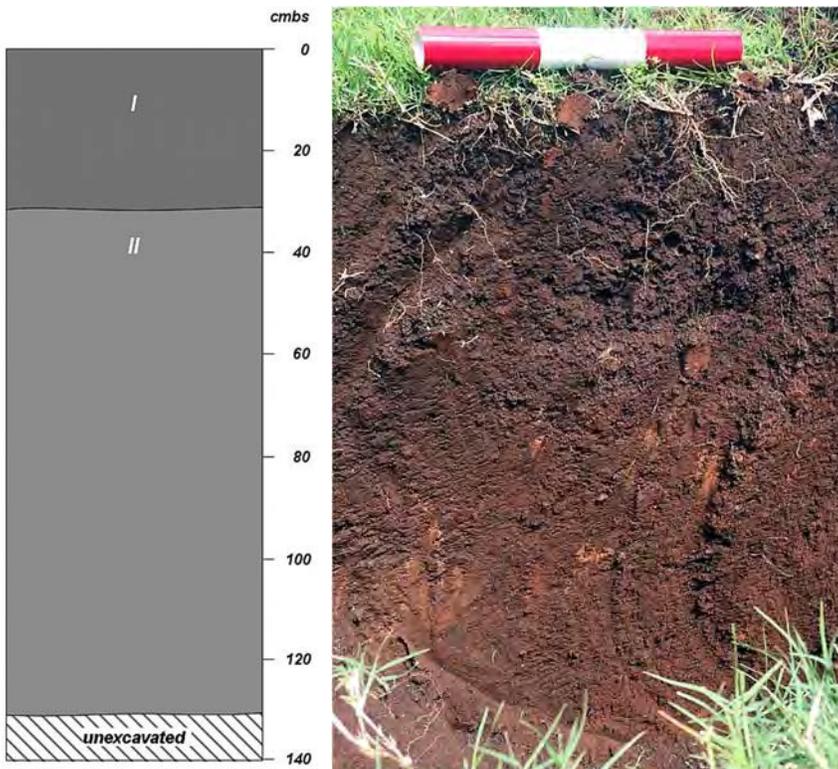


Figure 20. TR 3 north face profile drawing (left) and photo (right).



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



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

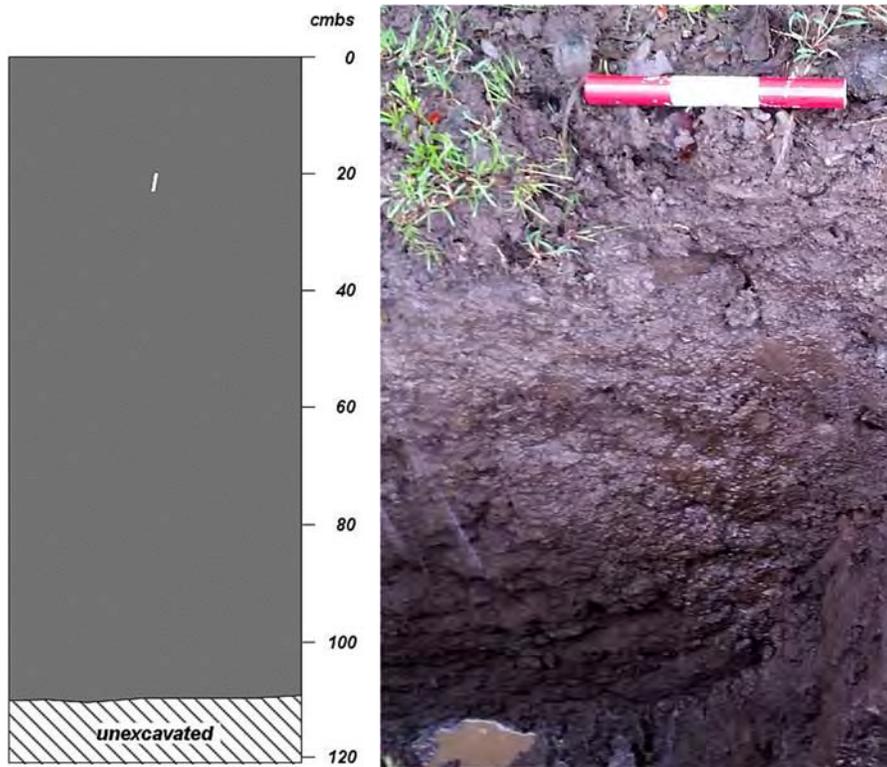


Figure 23. TR 6 west face profile drawing (left) and photo (right).

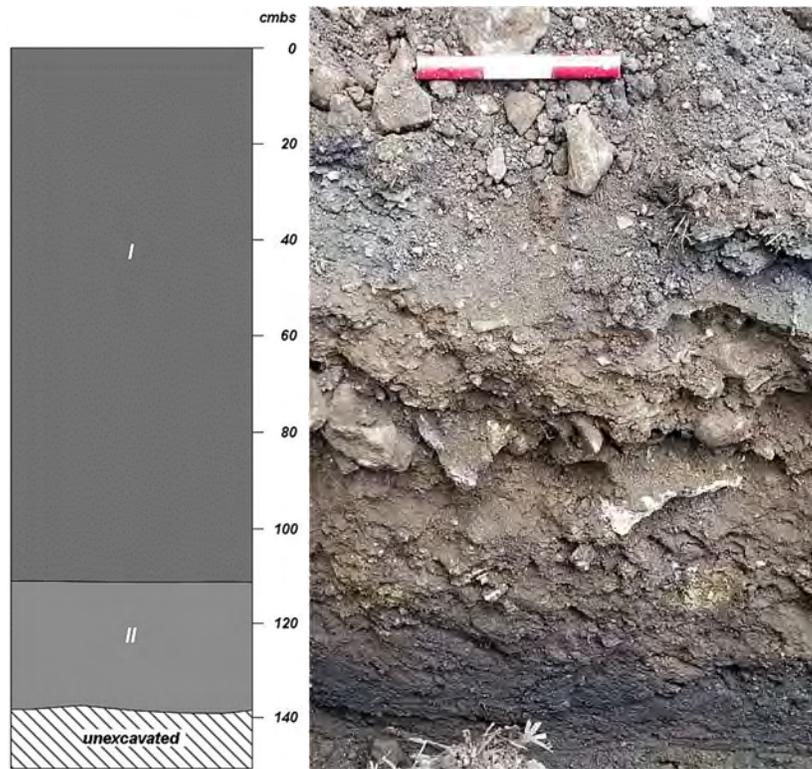
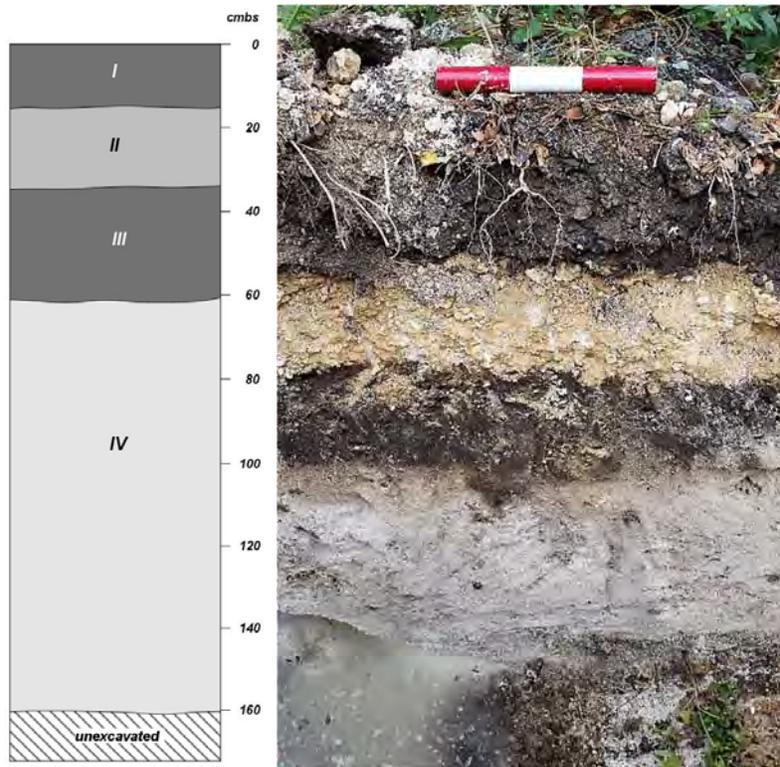


Figure 24. TR 7 northwest face profile drawing (left) and photo (right).



**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

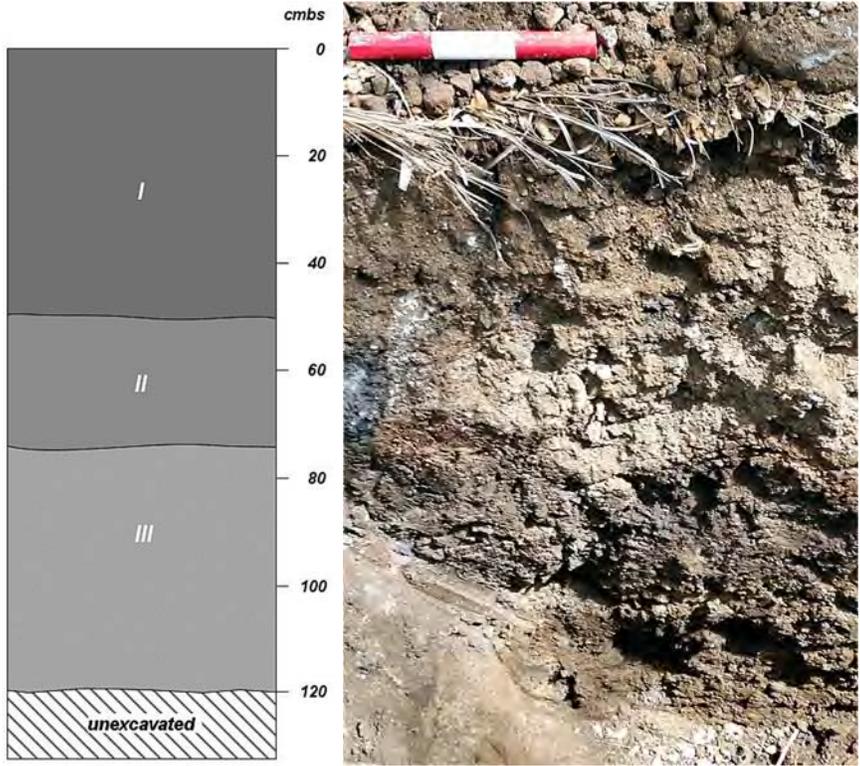


Figure 26. TR 9 south face profile drawing (left) and photo (right).

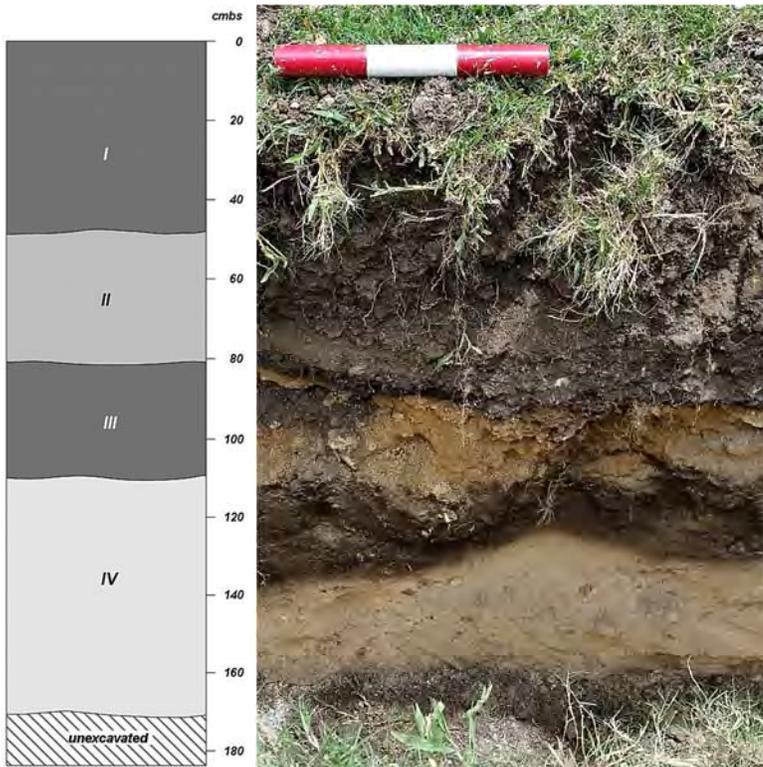


Figure 27. TR 10 southeast face profile drawing (left) and photo (right).



**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.

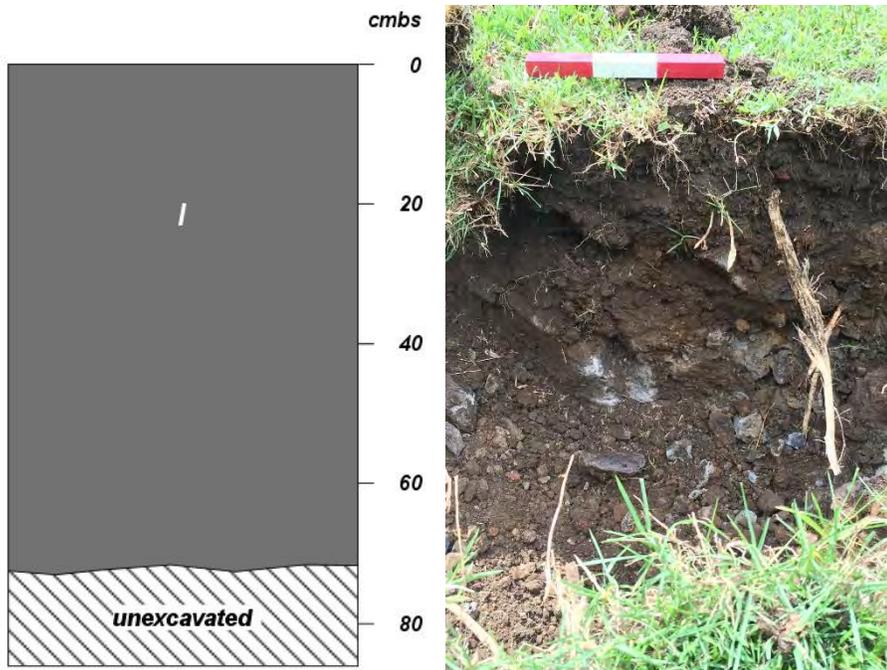


Figure 29. TR 12 east face profile drawing (left) and photo (right).

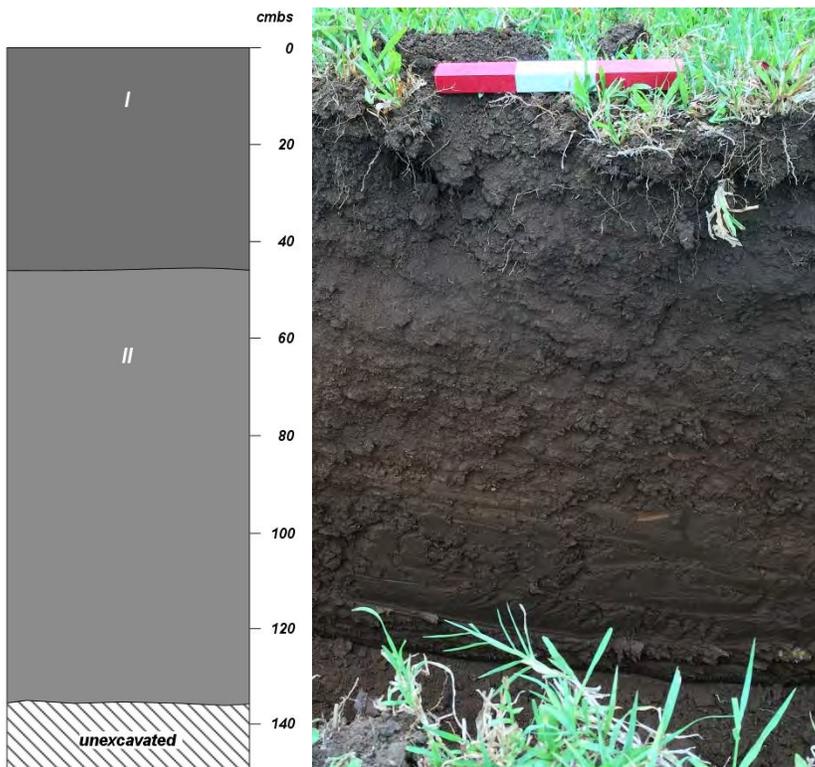


Figure 30. TR 13 northeast face profile drawing (left) and photo (right).

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.

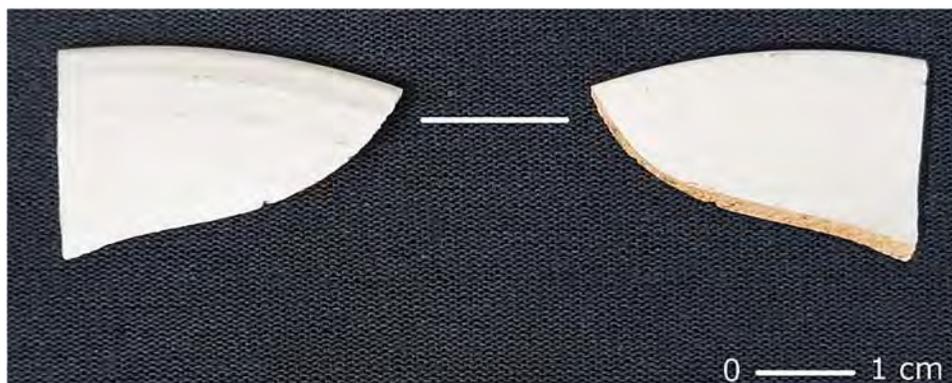
Artifact 3 is a small ceramic plate rim fragment (Figure 32). The sherd is a common refined earthenware, whiteware, with a raised line design along the rim. It is likely historic.

**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

<b><i>ahupua‘a</i></b>	Traditional Hawaiian land division usually extending from the uplands to the sea.
<b><i>‘auwai</i></b>	Ditch, often for irrigated agriculture.
<b><i>awa</i></b>	The milkfish, or <i>Chanos chanos</i> , often raised in fishponds in ancient times.
<b>boulder</b>	Rock 60 cm and greater.
<b>cobble</b>	Rock fragment ranging from 7 cm to less than 25 cm.
<b>debitage</b>	Waste by-products of stone tool manufacture.
<b><i>hala</i></b>	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.
<b><i>heiau</i></b>	Place of worship and ritual in traditional Hawai‘i.
<b><i>humuhumunukunukuāpua‘a</i></b>	A triggerfish of the genus <i>Rhinecanthus</i> , either <i>R. aculeatus</i> or <i>R. rectangulus</i> .
<b><i>‘ili</i></b>	Land division, next in importance to <i>ahupua‘a</i> and usually a subdivision of an <i>ahupua‘a</i> .
<b><i>imu</i></b>	Underground pit or oven used for cooking.
<b><i>inoa</i></b>	Name, term, title.
<b><i>kahakai</i></b>	Beach, seashore, coast.
<b><i>Kahiki</i></b>	A far away land, sometimes refers to Tahiti.
<b><i>kahua</i></b>	Open place for sports, such as <i>‘ulu maika</i> .
<b><i>kahuna</i></b>	An expert in any profession, often referring to a priest, sorcerer, or magician.
<b><i>kai</i></b>	Sea, sea water; area near the sea, seaside, lowlands; tide, current in the sea; insipid, brackish, tasteless.
<b><i>kalo</i></b>	The Polynesian-introduced <i>Colocasia esculenta</i> , or taro, the staple of the traditional Hawaiian diet.
<b><i>kama‘āina</i></b>	Native-born.
<b><i>kapa</i></b>	Tapa cloth.
<b><i>kapu</i></b>	Taboo, prohibited, forbidden.
<b><i>ko‘a</i></b>	Fishing shrine.
<b><i>konohiki</i></b>	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.
<b><i>kula</i></b>	Plain, field, open country, pasture, land with no water rights.
<b><i>kuleana</i></b>	Right, title, property, portion, responsibility, jurisdiction, authority, interest, claim, ownership.
<b><i>kupua</i></b>	Demigod, hero, or supernatural being below the level of a full-fledged deity.
<b><i>lo‘i, lo‘i kalo</i></b>	An irrigated terrace or set of terraces for the cultivation of taro.

<i>loko</i>	Inside, interior. Pond, lake, pool.
<b>Māhele</b>	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> .
<b>midden</b>	A heap or stratum of refuse normally found on the site of an ancient settlement. In Hawai‘i, the term generally refers to food remains, whether or not they appear as a heap or stratum.
<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.
<b>mullet</b>	<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.
<b>post-contact</b>	After A.D. 1778 and the first written records of the Hawaiian Islands made by Captain James Cook and his crew.
<b>pre-contact</b>	Prior to A.D. 1778 and the first written records of the Hawaiian Islands made by Captain James Cook and his crew.
<i>pu‘uhonua</i>	Place of refuge.
<b>stone</b>	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.

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**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

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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

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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