

**FINAL—Archaeological Assessment for the University of  
Hawai‘i at Mānoa William S. Richardson School of Law,  
Waikīkī Ahupua‘a, Kona District, Island of O‘ahu, Hawai‘i**

**TMK: (1) 2-8-029:001 (por.)**



**Prepared For:**

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



July 2016

Keala Pono 

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## **MANAGEMENT SUMMARY**

An archaeological inventory survey was conducted for TMK: (1) 2-8-029:001 (por.) in Mānoa. Waikīkī Ahupua‘a, Kona District, on the Island of O‘ahu. This was done in preparation for construction at the University of Hawai‘i at Mānoa William S. Richardson School of Law. Due to negative findings, the survey results are presented as an archaeological assessment per HAR §13–275.

The archaeological work included a pedestrian survey that covered 100% of the project area, as well as test excavations consisting of four trenches. The entire project area has been disturbed by modern development, such as the construction of buildings, walkways, and a parking lot. Stratigraphy consisted of several layers of fill atop compacted boulders. No archaeological materials or deposits were found, and no further work is recommended.

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## INTRODUCTION

At the request of Group 70 International, Keala Pono Archaeological Consulting conducted an archaeological inventory survey (AIS) of TMK: (1) 2-8-029:001 (por.) in Mānoa, Waikīkī Ahupua‘a, Kona District, on the island of O‘ahu. The University of Hawai‘i at Mānoa (UHM) Office of Capital Improvements is planning improvements to the William S. Richardson School of Law, located within the parcel. The archaeological inventory survey was designed to identify any historic properties that may be located in the project area 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 (HRS) and Hawai‘i Administrative Rules (HAR) §13-275 (government projects) and §13-276 (standards for archaeological inventory surveys and reports). The report begins with a description of the project area and a historical overview of land use and archaeology in the area. The next section 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. Due to negative findings, the AIS results are presented as an archaeological assessment per HAR §13-275.

### Project Location and Environment

The project area is situated on the lower campus of the University of Hawai‘i at Mānoa (Figures 1 and 2). This campus is located at the mouth of the valley of Mānoa, which is in the ahupua‘a of Waikīkī in the larger district or moku of Kona (Kanahale 1995). In modern times, the Kona district of O‘ahu has been renamed the district of Honolulu, and therefore, the project area is also located in Mānoa, Honolulu, O‘ahu. The valley of Mānoa sits on the southwestern flanks of the Ko‘olau mountain range. To the south of Mānoa is another area of Waikīkī ahupua‘a called Mō‘ili‘ili, and beyond Mō‘ili‘ili, is Waikīkī proper, situated at the coastline. To the east of Mānoa Valley is the valley of Pālolo with the ridges and gulches of Paliluahine, Wa‘ahila, and Kalaepōhaku separating the two valleys. To the west of Mānoa Valley is the valley of Makiki with the ridges and gulches of Pu‘u O Mānoa, ‘Ualaka‘a, and Pu‘u Kākea separating the two valleys. Adjacent to and east of the project area, also on the flat lands at the mouth of Mānoa Valley, is a locale known for its underground water source, called Kānewai. Adjacent to and west of the project area, also on the flat lands at the mouth of Mānoa Valley, is another locale known for its underground water source, called Kapunahou.

TMK: (1) 2-8-029:001 is a 35.61 ha (88 ac.) parcel owned by the State of Hawai‘i. The project area covers 1.8 ha (4.45 ac.) of the northern section of the parcel that currently houses the UHM William S. Richardson School of Law. It currently consists of two buildings: the School of Law Classroom and Office Building (west wing) and the School of Law Library (east wing), as well as the Zone 17 parking lot. A campus pedestrian plaza leading to the lower campus parking structure is located between the two buildings. The Law School is bounded by Dole Street to the north and Lower Campus Road to the west, a vertical drop of the quarry rock wall face on the south side, a multi-story parking structure south of the quarry wall, and Johnson Hall which is a three-story student dormitory building to the east. Vegetation consists of landscaped plants and grasses, including hedges and large trees.

The Kona district in general, has been known since ancient times to be one of O‘ahu’s “richest in natural resources and most pleasant for abundant and comfortable living,” and except for periodical winter storms, the district was known for its “trade winds sweeping through low gaps in the Ko‘olau range at the top of Moanalua, Kalihi, Nu‘uanu and Manoa Valleys... [with] abundant rain, ever flowing streams, springs, pools, verdant interior valleys, broad slopes and well-watered lowlands,

fishpond areas, harbors, beaches, and lagoons” (Handy et al. 1991:473, 474). Mānoa Valley in particular sees a good amount of rainfall, varying from about 406 cm (160 in.) annually at the head of the valley to 89 cm (35 in.) at its mouth (Bouslog et al. 1994).

The study area lies 2.6 km (1.6 mi.) from the coast at an elevation of approximately 30 m (100 ft.). The closest perennial stream to the project area is Mānoa Stream, which is roughly 400 m (1,312 ft.) to the east.

The specific project area in Mānoa has soils of the Makiki Series, namely, the Makiki stony clay loam, or MIA (Figure 3). The Makiki series are “well-drained soils on alluvial fans and terraces... formed in alluvium mixed with volcanic ash and cinders. They are nearly level [with elevations] from 20 to 200 feet.” (Foote et al. 1972:92).

The soil survey conducted by the USDA Soil Conservation Service further defines the project area’s soil type:

Makiki stony clay loam, 0 to 3 percent slopes (MIA).

This soil is similar to Makiki clay loam, 0 to 2 percent slopes, except that there are enough stones to hinder cultivation. These stones are angular and make up about 15 percent of the soil by volume. The depth to basalt or cinders varies from 20 to 60 inches. Basalt outcrops are common. The soil is neutral to slightly acid. This soil is almost entirely in urban use. (Capability classification IIIs, nonirrigated) (Foote et al. 1972:92).

The characteristics of the subclassification of IIIs, nonirrigated soils are also further described:

Class III soils have severe limitations that reduce the choice of plants, require special conservation practices, or both.

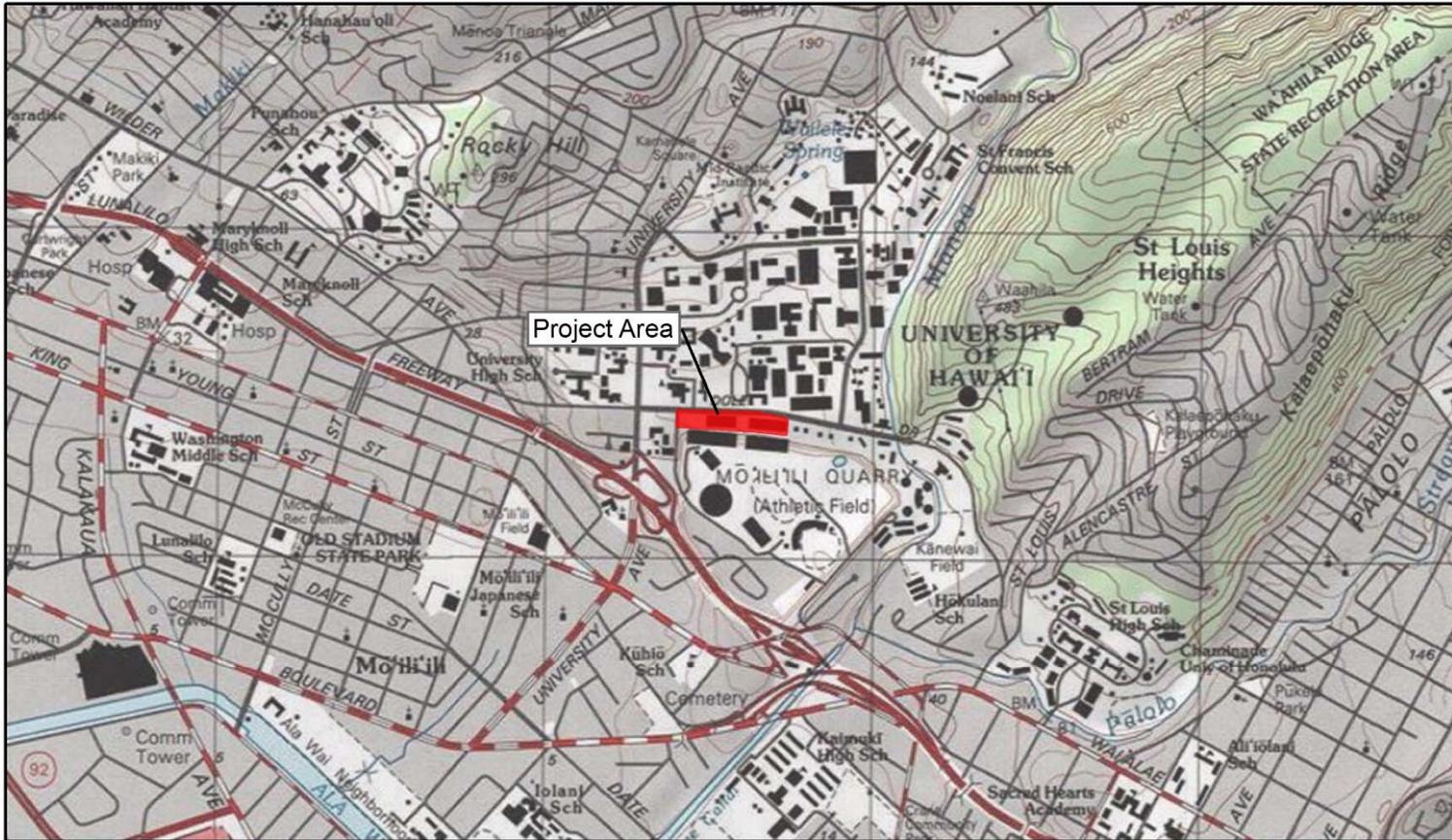
Subclass IIIs soils have severe limitations because of stoniness, unfavorable texture, shallowness, or low water-holding capacity. The soils are well-drained, are more than 51 cm (20 in.) deep, and have slopes of 0 to 8%(Foote et al. 1972:154).

## **The Project**

The William S. Richardson School of Law is located on the lower campus of the University of Hawai‘i at Mānoa. After 40 years in service, the Law School facilities no longer have the capacity to support the growth in Law School faculty, students, and programs especially multidisciplinary and clinical programs. The Master Plan’s objectives are to address the space needs and implement the long-term visions of the School by proposing the following improvements:

- Expand the east wing and addition of second floor structure
- Construct an indoor/outdoor cafe at the east wing
- Construct a two-story Community Legal Outreach Center (CLOC) on a portion of the Zone 17 parking lot, with a connector bridge to the existing west wing
- Construct a connector bridge between the two existing buildings
- Improve and modernize public entry facing Zone 17 parking lot to give a new “face” to the Law School
- Create a secure, attractive, dignified entry and a welcoming drop-off and reception area
- Selective interior and exterior renovations of both Law School buildings

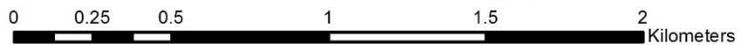
- Landscape improvements to include large monkeypod shade trees planted along Dole Street and Lower Campus Road, as integral shade elements along a walkable Dole Street and to help mark this as primary entry to lower campus



Legend

█ Project Area

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Layer Credits: USGS Topographical Honolulu Quadrangle Map 1998

Figure 1. Project area on a 7.5 minute USGS 1998 Honolulu quadrangle map.

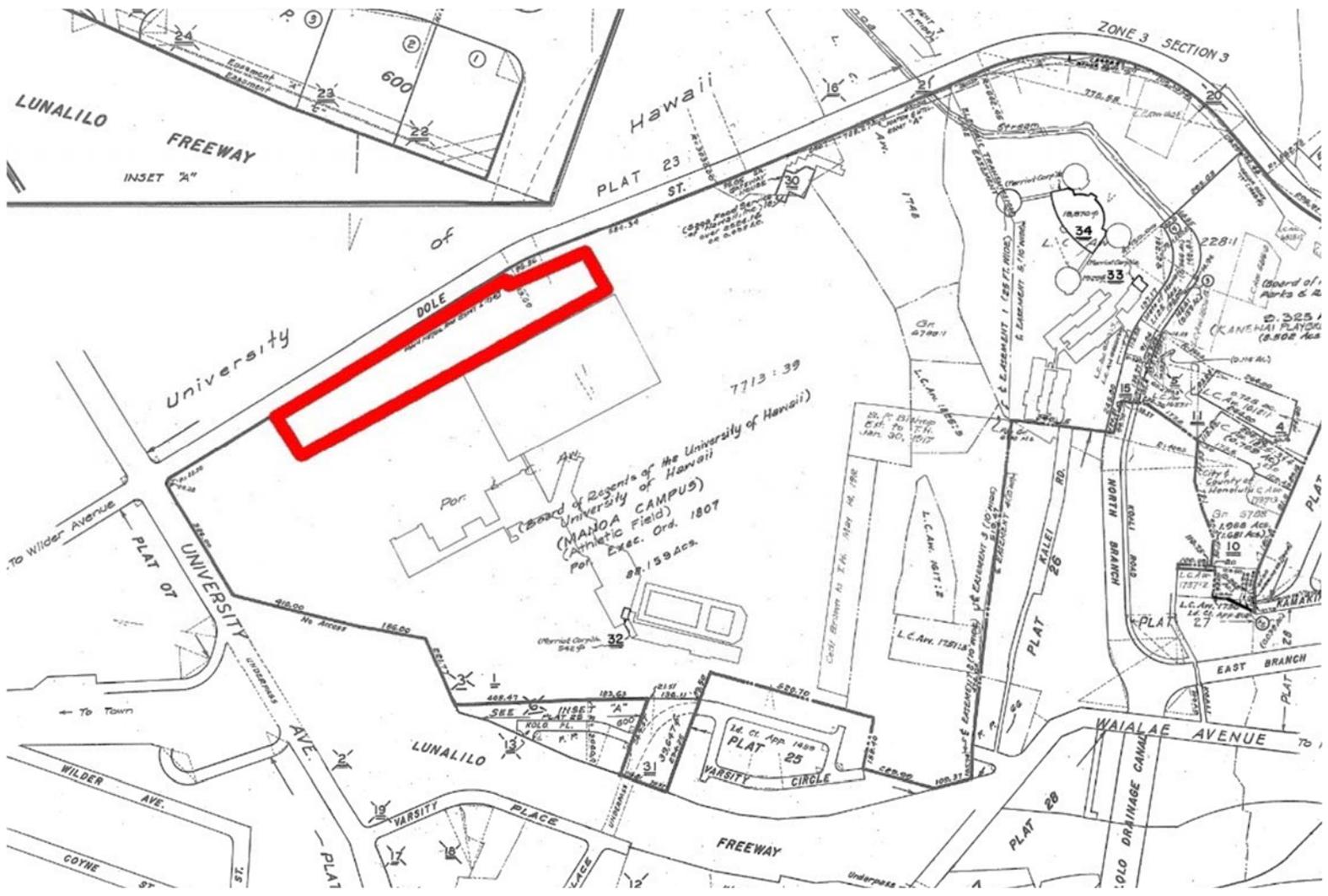


Figure 2. Project area (in red) on portion of a 1932 plat map for TMK: (1) 2-8-029.

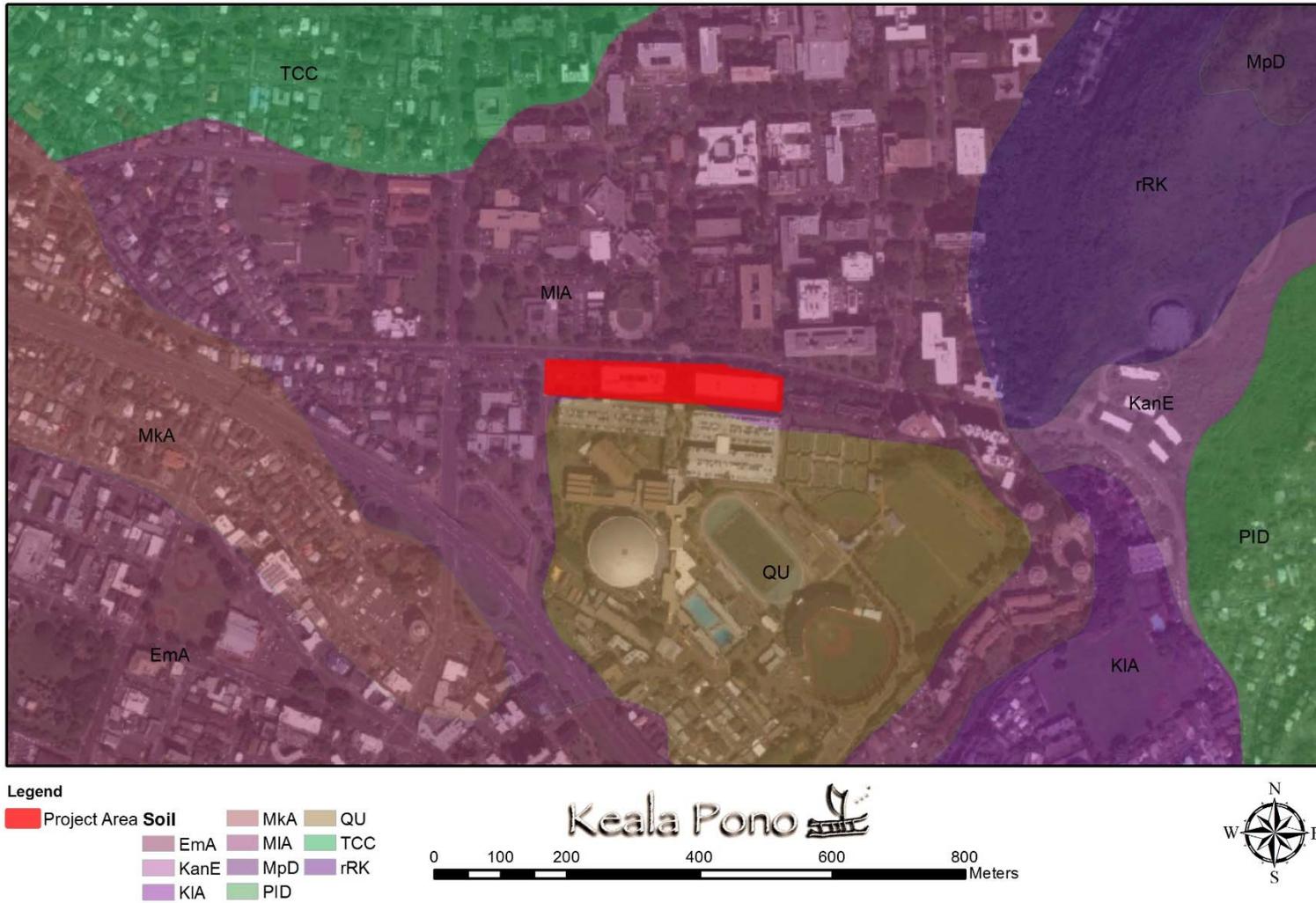


Figure 3. Soils in the vicinity of the project area.

## BACKGROUND

A brief historic review of Mānoa is provided below, to offer a better holistic understanding of the use and occupation of the project area. In the attempt to record and preserve both the tangible (i.e., traditional and historic archaeological sites) and intangible (i.e., mo‘olelo, ‘ōlelo no‘eau) culture, this research assists in the discussion of anticipated finds. Research was conducted at the Hawai‘i State Library, the University of Hawai‘i at Mānoa libraries, the SHPD library, and online on the Office of Hawaiian Affairs website and the Waihona Aina, Huapala, and Ulukau databases. Archaeological reports and historical reference books were among the materials examined.

### **Mānoa in the Pre-Contact Era**

Native traditions describe the formation (literally the birth) of the Hawaiian Islands and the presence of life on and around them, in the context of genealogical accounts... As this Hawaiian genealogical account continues, we find that these same god-beings, or creative forces of nature who gave birth to the islands, were also the parents of the first man (Hāloa), and from this ancestor, all Hawaiian people are descended. It was in this context of kinship, that the ancient Hawaiians addressed their environment. (Maly and Maly 2003)

The history of Mānoa begins with the history of O‘ahu Island:

O‘ahu is also a new name, given in memory of an ancestor of the people of O‘ahu. Lolo-i-mehani, Lalo-waia, and Lalo-oho-aniani were the ancient names of O‘ahu. O‘ahu was the child of Papa and Lua... and because O‘ahu was a good chief and the people lived harmoniously after the time of Wākea *mā*, O‘ahu’s descendants gave the name of their good chief to the island --- O‘ahu-a-Lua. (Kamakau 1991:129)

According to Kanahale (1995), the first major migrations by Pacific Islanders to O‘ahu probably occurred around A.D. 300. Although initial settlement of the island was focused on the windward side, by A.D. 600 permanent settlements appeared on the leeward side of the Ko‘olau Mountains, in the ahupua‘a of Waikīkī, of which Mānoa is a subdivision. While the coastal waters of the ahupua‘a provided an abundance of marine resources, the original inhabitants of Waikīkī Ahupua‘a also depended upon the natural resources harvested from the inland valleys such as Mānoa. These upland resources included pili grass for house thatching; mamaki for clothing; naio for timber; kukui for food, medicine, and lamp oil; lama, ‘ōhi‘a ‘ai and uhiuhi for timber; ‘olonā for cordage; ‘ie‘ie for weaving; and the ‘ōhi‘a lehua for house building and weapon making. In more recent research, Kirch looked at the dating and re-dating of sites in Hawai‘i and elsewhere across the Pacific, and suggested that the earliest settlements in Hawai‘i occurred somewhere around A.D. 800 to 1000 (Kirch 2010:126–127).

The earliest settlements of the ahupua‘a were patriarchal and centered around the family unit. Many generations later, after immense population growth, there was the need for strong societal organization under a chiefly class (Kanahale 1995). One of the most famous of the early O‘ahu chiefs, Kūali‘i, who reigned as king over the entire island in the 1700s, had a temple, or heiau, named Kukaoo in Mānoa. It is said that the Kukaoo temple had originally been built by the legendary menehune people who once controlled all of Mānoa Valley. “After Kualii obtained possession [of Kukaoo], he made it the principal temple fort of a system of heiaus” (Sterling and Summers 1978:286). Besides Kukaoo, at least four other heiau are recorded for Mānoa. They are Puuhonua, Hipawai, Kawapopo, and Hakika (Sterling and Summers 1978). Although these heiau were situated at various locations throughout the valley, and not necessarily at the current project site, their collective presence is a testament to the significance of Mānoa as a whole.

Since Mānoa is rarely mentioned in the writings of Hawai‘i’s earliest historians, much of pre-contact Mānoa is inferred by reading the historical records describing Honolulu or Waikīkī. One early Hawaiian historian who did specifically mention Mānoa in his writings, was John Papa ‘Ī‘Ī. ‘Ī‘Ī illustrated the well-known trails that people used on O‘ahu (Figure 4). His description of the trail that connected Mānoa to the rest of Honolulu was published in the 1800s, but it is safe to assume that such an important and widely used path pre-dated the arrival of the Westerners in the late 1700s:

Our description of the trails of the royal town [Honolulu] is finished, but we have not yet told of the trails going to lower Waikiki, Kamoiliili, and Manoa. A trail went on to Kalia. From Kalia it ran eastward along the borders of the fish ponds and met the trail from lower Waikiki. At Kawaiahao a trail passed in front of the stone house of Kaina, late father of Kikaha. The trail went above Kalanipuu’s place, along the stream running down from Poopoo to the sea, close by Kaahee in Makiki, to Puu o Manoa, then below Puupueo, where a trail branched off to go to upper Kaaipu and Kahoiwai, and another to go below Kaahulue, to Kapulena and Kolowalu.

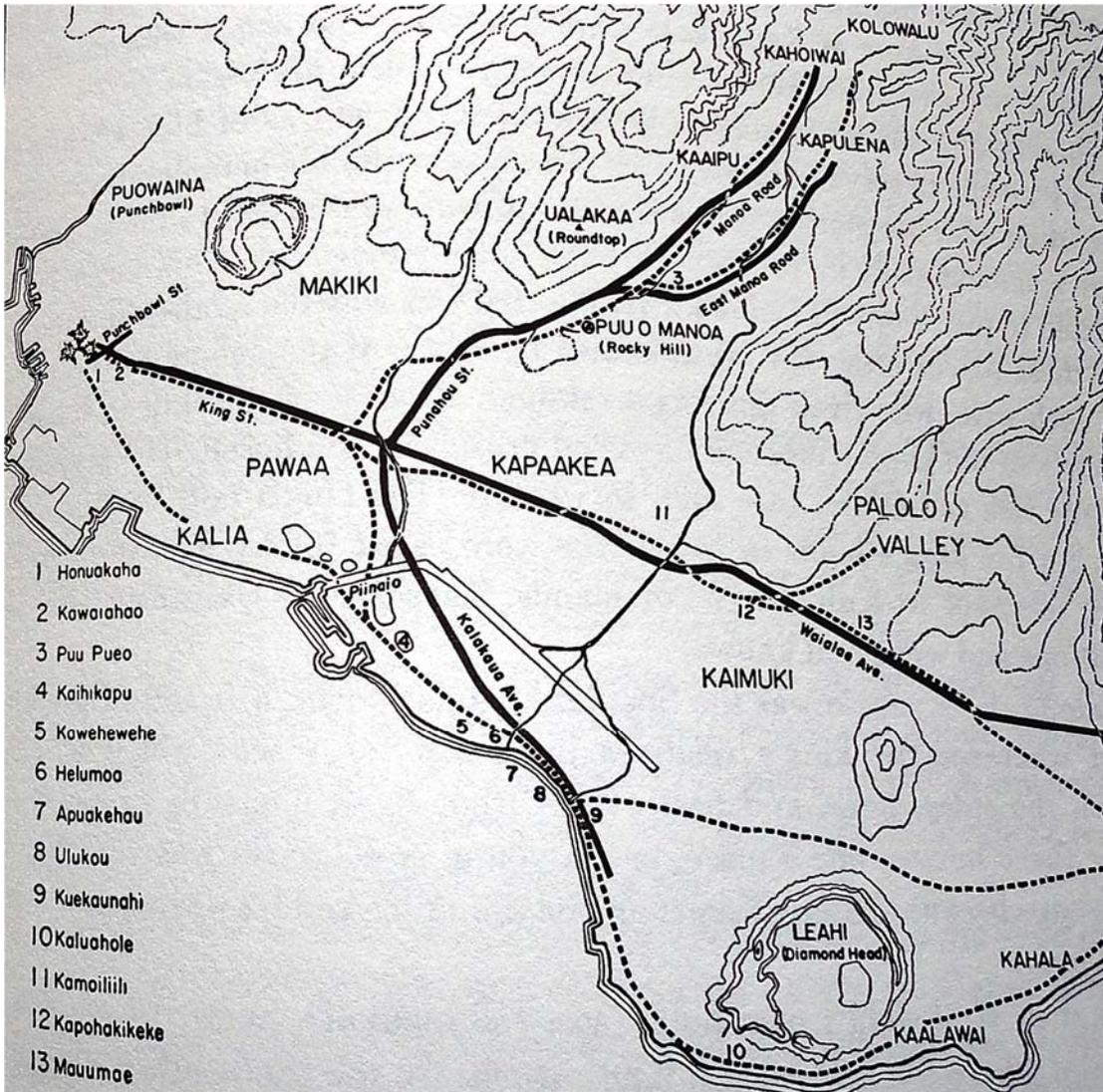


Figure 4. Trails in the vicinity of the project area. Adopted from ‘Ī‘Ī (1959:93).

Besides the chronicles of the early Hawaiian historians, there are other means by which Hawai‘i’s history has been preserved. One often overlooked source of history is the information embedded in the Hawaiian landscape. Hawaiian place names “usually have understandable meanings, and the stories illustrating many of the place names are well known and appreciated... The place names provide a living and largely intelligible history” (Pukui et al. 1974:xii).

The current project area and the places around it are listed in *Place Names Of Hawaii* (Pukui et al. 1974:72, 73, 85, 142, 146, 153, 178, 194, 197, 201, 204, 208, 212, 214, 218, 223), along with the meanings of their names, as follows (Figure 5):

Ka-lae-pōhaku... Area in Honolulu... and gulch. *Lit.*, the stone promontory.

Kāne-wai... underground pool... Mānoa, Honolulu. *Lit.*, water [of] Kāne.

Makiki... stream, valley, and section... of Honolulu... probably named for a type of stone used as weights for octopus lures.

Mānoa... Land section, stream, waterfall, valley, field... of Honolulu... Part of the floor of Mānoa valley was covered with a lava flow from Sugarloaf cone 10,000 to 20,000 years ago. The Mānoa campus of the University of Hawai‘i is built on this flow... *Lit.*, vast.

Mānoa-ali‘i. Land division on the ‘Ewa side of Mānoa Valley (west of a line from Pu‘uluahine to Rocky Hill). Honolulu. *Lit.*, royal Mānoa (chiefs lived here).

\*NOTE: The dividing line is defined as a line from Rocky Hill to Paliluahine, not Pu‘uluahine (Sterling and Summers 1978).

Mānoa-kanaka. Land opposite Mānoa-ali‘i, Honolulu. *Lit.*, commoners’ Mānoa (commoners lived here).

Mō‘ili‘ili... section... of Honolulu... Kama-pua‘a chased two beautiful women here. They vanished and he rooted; water burst forth, almost drowning him... Formerly, Ka-mō‘ili‘ili... *Lit.*, pebble lizard. (*Mō-* is short for *mo‘o*, a lizard destroyed by Pele’s younger sister, Hi‘iaka; his body was cut to pieces and formed a hill across from Kū-hiō School.)

Pālolo. Section... of Honolulu... stream, valley... *Lit.*, clay.

Puna-hou... section... of Honolulu... formerly called Ka-puna-hou... *Lit.*, new spring. (The god Kāne thrust his staff into the ground here to get water. According to another story, an old couple lived by a pandanus tree and each dreamed of a spring; when the man offered red fish and pulled up the pandanus tree, water oozed out.)

Pu‘u-Kākea. Cinder cone on the Ko‘olau range on west side of Mānoa Valley, Honolulu, named for a storm wind associated with Mānoa; also called Sugarloaf.

Pu‘u-luahine... Hill at the head of Mānoa Valley, Honolulu, named for a *mo‘o* woman called Luahine (old woman), who moved here from Haha‘i-one with her two sons, Kūmauna (mountain upright) and Pae-hala (pandanus row). The sons were turned to stone, the mother into the hill. \*NOTE: On at least one map, there is only a hill named Paliluahine annotated, but not Pu‘uluahine. It is not clear if these two names are interchangeable for the same hill.

Pu‘u-o-Mānoa. Old name for Rocky Hill, Puna-hou, Honolulu... *Lit.*, Hill of Mānoa.

Rocky Hill. Hill behind Puna-hou School, Honolulu, formerly known as Pu‘u-o-Mānoa.

Sugarloaf. Mountain behind Honolulu. See Pu‘u-Kākea.

‘Uala-ka‘a. Old name for Round Top... Puna-hou section, Honolulu. *Lit.*, rolling sweet potato (a rat bit a sweet potato, causing it to roll downhill and sprout; Kamehameha I planted many sweet potatoes here, which, on being dug, rolled downhill).

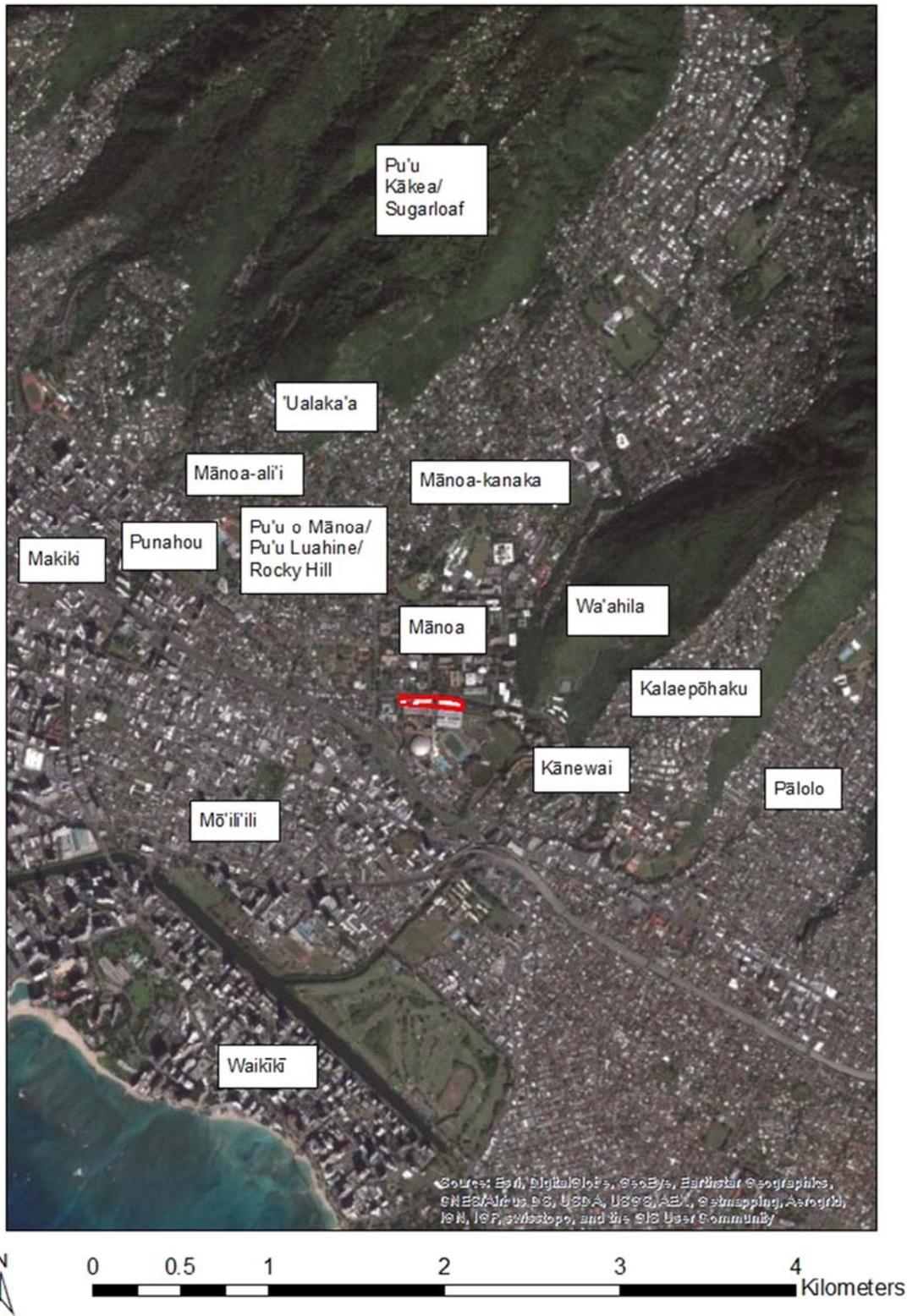


Figure 5. Place names near Mānoa. The project area is shown in red.

Wa'ahila... ridge separating Mānoa and Pālolo valleys... Also the name of a beneficent Mānoa rain, and of a chiefess who excelled in a dance named for her.

Wai-kīkī... beach, park... Honolulu. *Lit.*, spouting water (said to be named for swamps later drained to form Ala Wai Canal; also the name of a chiefess.

### **Subsistence and Traditional Land Use**

As mentioned earlier, Mānoa contained several temples, and it was a land of significant natural resources. “Extensive taro cultivation in Mānoa Valley indicates that the region supported a large population of Hawaiians” in the pre-contact (pre-1778) era (Bouslog et al. 1994:10).

By the time the first haole (foreigners) arrived at the end of the eighteenth century, the vast floor was covered with scattered hale pili (grass houses), and lo'i fed by 'auwai (irrigation ditches) leading from the streams. The banks of the lo'i were covered with ti, sugar cane and sweet potatoes. Other plantings would be often found in small gullies and along the lower mountain slopes: more bananas, wauke (the paper mulberry) and yams, as well as other food and utilitarian crops. In the hanging valleys along the ridges defining the valley, the light green of the candlenut or kukui trees would have been conspicuous. A view from 'Ualaka'a (Round Top) would have shown a patchwork quilt pattern --- the mirror-like water of the flooded, unplanted lo'i interspersed with the pale green of young growing taro; the dark green of full-grown taro; and the brown of drained, unplanted lo'i. (Bouslog et al. 1994:9)

The high productivity of the district was directly related to its abundance of water resources. Sterling and Summers (1978) mention five well-known Mānoa springs/streams by name: Kanewai, Kumulae, Kapunahou, Kawaiakeakua, and Kahaiamano. And at least seven waterfalls in Mānoa are known by name, as shared by Mānoa matriarch, Maka Woolsey: Wai'ihiki, Wai'ihinui, Luaaulaia, Nāniuapō, Wa'aloa, Kahuwaiiki, and Waiakekua (Bouslog et al. 1994:6). Indeed, the harnessing of these water resources provides the context for this district being called “the great wet-taro lands of Manoa” (Handy et al. 1991:270). A brief snapshot is given to describe the agricultural engineering used to water the Mānoa taro fields:

The preferred method of wet-taro cultivation, wherever terrain and running water permitted, was in terraces (lo'i) irrigated from streams by means of carefully engineered ditch systems. In small lo'i the water flows from one terrace into the next below, but each large lo'i, especially on flat land, requires a separate ditch, which allows the water to enter through openings (puka wai) in the lo'i bank... Separate small tunnels from the main ditches are typical of Manoa on Oahu, and of Ke'anae on Maui, where the level of the terraces over a large area is almost constant. (Handy et al. 1991:92)

### **Mo'olelo**

As mentioned earlier, Hawaiian place names were connected to traditional stories through which the history of the places was preserved. These stories were referred to as “mo'olelo, a term embracing many kinds of recounted knowledge, including history, legend, and myth. It included stories of every kind, whether factual or fabulous, lyrical or prosaic. Mo'olelo were repositories of cultural insight and a foundation for understanding history and origins, often presented as allegories to interpret or illuminate contemporary life... Certainly many such [oral] accounts were lost in the sweep of time, especially with the decline of the Hawaiian population and native language” (Nogelmeier 2006:429, 430). Still, a number of traditional stories managed to be recorded as Hawaiian society transitioned from an oral culture to a written one, and among these were several versions of stories connected to the Mānoa area.

Perhaps one of the most telling aspects of the mo‘olelo of Mānoa is that they enshrine some of the exploits of the gods Kāne and Kanaloa. These two deities are credited with going around O‘ahu at the dawn of time and securing new water sources which would provide sustenance to future generations of Hawaiians. It’s no wonder that Kāne and Kanaloa are woven into the prehistory of Mānoa with the numerous streams, springs, pools and waterfalls that the district is known for. Two of these water sources, Kapunahou and Kawaiakeakua, are directly attributed to the workings of Kāne and Kanaloa:

There was a famous terraced area below what is now the Punahou School campus. The water for lo‘i here came from Ka Punahou, “The new spring.” This was one of the springs opened by Kane at the behest of his brother Kanaloa. “Kauawaahila afterwards made some kalo patches [there], and people attracted by the water and consequent fertility of the place came and settled about... More and more kalo patches were excavated and the place became a thriving settlement. The spring became known as Ka Punahou, and gave its name to the surrounding place” (Nakuina in Handy et al. 1991:480)

Here is Manoa, Kane and Kanaloa found most excellent awa, and Kanaloa cried, “O my brother, this is awa surpassing any other we have found; but where shall I go to find water?” Kane replied, “Here in this hill side is water.” So he took his staff and struck it fiercely against the precipice by which they had found awa. Rapidly the rocks were broken off. The precipice crept back from the mighty strokes of the god and a large pool of clear, cool water nestled among the great stones which had fallen. There they mixed awa and water and drank again and again until they sleep of the drunkard came and they rested by the fountain they had made. This pool is still at the head of Manoa Valley, and to this day is called Ka-Wai-a-ke-Akua (The water provided by a god). The servants of hundreds of chiefs have borne water from this place to their thirsty masters. (Sterling and Summers 1978:288, 289)

Another deity associated with fresh water resources is the demi-god Kamapua‘a. He, too, is incorporated in the mo‘olelo of Mānoa. According to the story, Kamapua‘a rooted the earth at Kamō‘ili‘ili near the mouth of Mānoa Valley, and because of that, the people of that locale had access to the fresh water stream which flowed underground:

At Kamoiliili Kamapuaa saw two beautiful women coming from the stream which flows from Manoa Valley. He called to them, but when they saw his tattooed body and rough clothing made from pigskins they recognized him and fled. He pursued them, but they were counted as goddesses, having come from divine foreign families as well as Kamapuaa. They possessed miraculous powers and vanished when he was ready to place his hands upon them. They sank down into the earth. Kamapuaa changed himself into the form of a great pig and began to root up the stones and soil and break his way through the thick layer of petrified coral through which they had disappeared. He first followed the descent of the woman who had been nearest to him. This place was the Honolulu side of the present Kamoiliili church. Down he went through the soil and stone after her, but suddenly a great flood of water burst upward through the coral almost drowning him. The goddess had stopped his pursuit by turning an underground stream in to the door which he had thrown open.

After this narrow escape Kamapuaa rushed toward Manoa Valley to the place where he had seen the other beautiful woman disappear. Here also he rooted deep through earth and coral, and here again a new spring of living water was uncovered. He could do nothing against the flood, which threatened his life. The goddesses escaped and the two wells have supplied the people of Kamoiliili for many generations, bearing the name, “The wells, or fountains, of Kamapuaa.” (Sterling and Summers 1978:282)

Another mo‘olelo about Mānoa is the story of Kahalaopuna, a girl whose family is immortalized in the natural features of Mānoa Valley. Beckwith illustrates how the story of Kahalaopuna is manifested in the Mānoa landscape:

The parents of Kahalaopuna are the twin brother and sister Ka-au-kuahine [Ka ua Kuahine?] (The rain of the mountain ridge) and Ka-hau-kani (which names the Manoa wind), and children of Akaaka and Na-lehua-akaaka, names of a projecting spur of the ridge back of Manoa and the red lehua bushes that grow upon it. Rainbows still play about her former home and Manoa girls are said to inherit her beauty. She lives under tapu in a house called Kahaimano [stream?] on the way to the spring of the Water-of-the-gods [Kawaiakeakua?]. (Beckwith 1970:152)

Mary Kawena Pukui added that when Kahalaopuna died, “Her mother melted into the rain called Luahine-o-Manoa [Kuahine?]. . . [and] her father became two things, a hau tree and the wind in that valley [Kahaukane or Kahaukani?] (Sterling and Summers 1978:289).

### **Oli and Mele**

The noteworthiness of specific locales in Hawaiian culture is further bolstered by their appearances in traditional chants. An oli refers to a chant that is done without any accompaniment of dance, while a mele refers to a chant that may or may not be accompanied by a dance. These expressions of folklore have not lost their merit in today’s society. They continue to be referred to in contemporary discussions of Hawaiian history, identity, and values.

One such chant that has been documented is the prayer of Kihanuilūmoku-wahine and her supernatural retinue of menhune and mermaids. Kihanuilūmoku-wahine had a garden in Mānoa Valley, and the people of Mānoa would hear the chanting of the supernatural beings. The significance of this chant is that it portrays the land of Mānoa as being a land of agricultural abundance. In English, the chant of Kihanuilūmoku-wahine is shared:

[Kihanuilūmoku-wahine and her entourage] would plant taro, sweet potatoes, bananas, hō‘i‘o bamboo, ki, hala, ginger, lehua and other trees. The maidens frolicked in the pool. Cleansed, they chanted a prayer to the gods for abundant growth. The kanaka down the valley could hear the songs and they would say, “Kiha is planting in her garden.” This is the prayer [chant]:

O moon of the night of Hua,  
that brings fruit and food to the plants  
Here is the kalo plant,  
The life of the land,  
I give to the earth, Honua;  
Here is the sweet potato branch  
I plant for thee and me;  
Here is the shoot of sugar cane,  
So sweet to taste and eat,  
The emblem of desire’s success;  
I place it in the earth, Mother Earth.  
O moon of the night of Hua,  
Keep the plants green and alive  
Until Māhealani, the Full Moon, comes;  
For when Māhealani is here,  
Kulu, the Moon of Moisture will follow  
And the plants will show a bud.  
The comes Kaloukūlua, thy companion,

To the plants they will bring two shoots,  
And help thee, Hua, to bear the fruit.  
So, Kāne, God of Water,  
And Hina, Mother of Mists,  
Send your aloha down to us in moonlit mists.  
Let it sweep along the hillside,  
Keep the new growth a-growing  
That your people from the night will live (Bouslog et al. 1994:213, 214).

### ‘Ōlelo No‘eau

Like oli and mele, traditional proverbs and wise sayings, known as ‘ōlelo no‘eau, have been another means by which the history of Hawaiian places has been recorded. In 1983, Mary Kawena Pukui published a volume of close to 3,000 ‘ōlelo no‘eau that she collected throughout the islands. The introductory chapter of that book reminds us that if we could understand these proverbs and wise sayings well, then we would understand Hawai‘i well (Pukui 1983).

Many ‘ōlelo no‘eau that reference Mānoa have been recorded. Three of these depict the characteristics of the rains and winds of Mānoa. Another points out the boundaries of the chiefly lands and the commoners’ lands within Mānoa. And finally, the last ‘ōlelo no‘eau hints at the traditional association of Mānoa and the greater district of Waikīkī. The sayings are presented below as they appear in Pukui’s publication (Pukui 1983:13, 35, 36, 74, 169, 170, 233).

Ako Nu‘uanu i ka hālau loa a ka makani; ‘āko Mānoa i ka hale a ke ehū.

*Gathered in Nu‘uanu is the longhouse of the wind; gathered in Mānoa is the house of rainy sprays.*

E ho‘i ka u‘i o Mānoa, ua ahiahi.

*Let the youth of Mānoa go home, for it is evening.*

Refers to the youth of Mānoa who used to ride the surf at Kalehuawehe in Waikīkī. The surfboards were shared among several people who would take turns using them. Those who finished first often suggested going home early, even though it might not be evening, to avoid carrying the boards to the hālau where they were stored. Later the expression was used for anyone who went off to avoid work.

He Kākea, ka makani kulakula‘i kauhale o Mānoa.

*It is the Kākea, the wind that pushes over the houses of Mānoa.*

Applied to one who goes about shoving others around. The Kākea was the strongest wind of the valley.

Ka ua Kuahine o Mānoa.

*The Kuahine rain of Mānoa.*

The rain is famed in the songs of Mānoa. According to an old legend, Kuahine was a chiefess, the wife of Kahaukani. Their daughter Kahalaopuna was so beautiful that rainbows appeared wherever she was. Once, two gossiping men claimed they had made love to her. This so angered her betrothed husband that he beat her into unconsciousness. She was revived by an owl god, but after hearing more gossip, her betrothed killed her. In grief, her mother became the Kuahine rain. Her father adopted two forms --- the wind Kahaukani and a hau tree. It was said that this tree moaned in grief whenever a member of royalty died.

Mānoa ali'i, Mānoa kānaka.

*Mānoa of the chiefs, Mānoa of the commoners.*

In ancient days an invisible line was drawn from the center of the low, green hill, Pu'u Luahine, at the head of Mānoa Valley, to the center of Rocky Hill back of Punahou School. Looking up into the valley, Mānoa of the commoners was on the right side. Here lived the commoners and here too, the excreta of the chiefs was secretly buried by the kahu moka (protector and keeper of the excreta). This was an important position, for if any of the excreta fell into the hands of an enemy, the chief might die through sorcery. On the left side of the valley lied the chiefs and their retainers

## **Mānoa In The Historic Era**

When the first Westerners arrived in the Hawaiian archipelago in 1778, the islands were not yet united under one sovereign. At that time, Mānoa and the entire island of O'ahu were under the rule of Chief Kahahana. In 1783, Chief Kahahana's reign was ended with the invasion and victory of Chief Kahekili of Maui. This would forever be the end of O'ahu's independence as a separate island kingdom. When Chief Kahekili died in 1794, control of O'ahu went to his son Kalanikūpule. The following year, Chief Kamehameha of Hawai'i Island invaded O'ahu to engage Kalanikūpule in battle. Kamehameha overwhelmed Kalanikūpule's warriors, effectively gaining control of all the islands from Hawai'i to O'ahu. Eventually, Kamehameha would make a peaceful agreement with Chief Kaumuali'i of Kaua'i, bringing that island and Ni'ihau into the fold and thereby uniting the Hawaiian archipelago under one rule (Kamakau 1996; Kanahale 1995).

### **Early Historical Accounts of Land Use in the Mānoa Area**

The written history of the Hawaiian Islands in the historic era shows that at least from the time of Kamehameha's unification of the islands to the overthrow of the monarchy, many royals favored the lands of Mānoa. 'Ī'i (1959) suggests that Kamehameha the Great farmed and lived part of the time in Mānoa near 'Ualaka'a, and Kamakau explains the reason why Kamehameha valued these lands:

Ua lako loa 'o Kamehameha i nā mea kaua haole, a pēlā nō ho'i i nā ali'i a pau. 'A'ohe makemake nui 'ia 'o ke dālā a me ka lole. A 'ike 'o Kamehameha, 'o ka 'uala ka 'ai i makemake nui 'ia e ka haole, a 'o ka uhi kahi, no Laila, mahi ihola 'o Kameahmeha i ka 'uala a nui, 'o ia ho'i 'o 'Ualaka'a ma Mānoa a ma Makiki. A mahi ihola i ka uhi ma Ka'akopua, a ma Honolulu, 'o ia ho'i 'o Kapāuhi, a kū'ai akula me nā haole. (Kamakau 1996:168)

*Kamehameha was well-supplied with foreign weapons and equipment for war, as were all of the chiefs. There was no great desire for money or clothing. Kamehameha knew that sweet potatoes were the crop that the foreigners really liked, and yams too, so Kamehameha cultivated a lot of land with sweet potatoes, that was at 'Ualaka'a and Mānoa and Makiki. And he farmed yams at Ka'akopua and Honolulu, indeed at Kapāuhi (which means "the enclosure of yams"), and he bought and sold with the foreigners. (Translation by D. Duhaylonsod)*

As ruler over O'ahu, Kamehameha gave Mānoa Valley to one of his loyal warrior chiefs, Kame'eiamoku. When Kame'eiamoku died, his son Hoapili inherited the valley. Following Hoapili's death, Mānoa Valley went to Hoapili's daughter, the Chiefess Liliha, who married Chief Boki (Bouslog et al. 1994).

It was during Liliha and Boki's ownership of Mānoa that Punahou School was started there. "Boki gave to the missionaries that section of land called New Spring (Kapunahou) for the founding of the Punahou school" (Sterling and Summers 1978:282). Also during Liliha and Boki's ownership, Mānoa saw some of the first commercial agriculture ventures in the islands:

In 1825, Boki and his British partner John Wilkinson began to raise seven acres of sugar cane in Mānoa Valley atop the Punahou hill. A decade ahead of the oncoming plantation system. Wilkinson also was reputed to have planted just above Ka‘aipū the first coffee nursery in the Islands with plants he brought from Rio de Janeiro. John Kidwell later [in 1885] added pineapple, as well as coffee, to the original sugar plantings. Thus were Hawai‘i’s three most important commercial crops first harvested in Mānoa. (Bouslog et al. 1994:15)

When Boki and his associates converted their sugar mill into a distillery, the high chiefess and wife of the late Kamehameha the Great, Ka‘ahumanu commanded that Boki’s Mānoa fields be destroyed (Bouslog et al. 1994). Boki died in 1829 while on a trip to the south Pacific, and the chiefesses Liliha and Ka‘ahumanu remained in opposition until their deaths, their discord stirred by the Christian-vs.-traditionalist conflict. Ka‘ahumanu died in her home in Mānoa in 1832 (‘Ī‘ī 1959), and after her death and the death of Liliha, portions of Mānoa were given to the ali‘i, Kana‘ina, the father of future King Lunalilo. Other royals who had homes in Mānoa were King Kamehameha III, Queen Lili‘uokalani, and Prince Tute of Tahiti (Bouslog et al. 1994).

### **Historic Maps**

Historic maps help to paint a picture of Mānoa in times past and illustrate the changes that have taken place in the region over the years. The earliest map found for this area is dated 1847 (Figure 6). It shows the subdivision of the lands of Mānoa and names the owners of these parcels. The largest landowner in Mānoa at the time appears to have been Charles Kana‘ina, the father of King Lunalilo. Other royals who owned land in Mānoa at that time include Kekūanā‘a, Kalama, Paki, and Prince Tute, who was originally from Tahiti. Although this map was produced before the Māhele allowed foreigners to purchase land in Hawai‘i, it shows that by that time, Metcalf already occupied two Mānoa parcels, one at the front of the valley and the other in the back of the valley.

The next map is dated 1882 and labeled “Manoa Valley” (Figure 7). This map illustrates that after the Māhele, the Mānoa lands were further subdivided, and many more people became landowners in Mānoa. By that time, Metcalf expanded his land holdings in Mānoa, and the number of foreigners buying land in the area increased, including names such as Lyons, Castle and Cooke, and Claus Spreckles. Also on the 1882 map, the land grant for Punahou School is clearly labeled.

A map titled “Honolulu, Hawaiian Islands” is dated 1897 (Figure 8). Although the ancient names of the smaller land divisions of Mānoa are still being used throughout, Mānoa is but one area out of many which make up the greater Honolulu region. The project area appears to be in lands labeled as “Paakea.”

The next map is from a Hawaii Territory survey in 1913 (Figure 9). It is titled “Honolulu, Showing Mountain Section,” and as the name suggests, the map shows the portions of Honolulu near the Ko‘olau Mountains. To the east of Mānoa are the valleys of Pālolo and Wai‘alae, and to the west of Mānoa are the valleys of Makiki and Pauoa. By this time, there is a network of roads crisscrossing the mouth of Mānoa Valley, testifying to the development of this area.

And finally, the last map is dated 1943 and is titled “University of Hawaii Campus and Grounds, Manoa Valley, Honolulu, Oahu” (Figure 10). The blueprint of the campus is drawn in detail, not only laying out the school’s structures, but also depicting such things as water lines, fire hydrants, lamp posts, and even sewer manholes. Also on this map, University Avenue and Dole Street are clearly marked. Notice that the university complex has not yet developed makai of Dole Street, in the vicinity of the current project area. According to the map, the lands of the current project area are associated with Princess Victoria Kamāmalu.

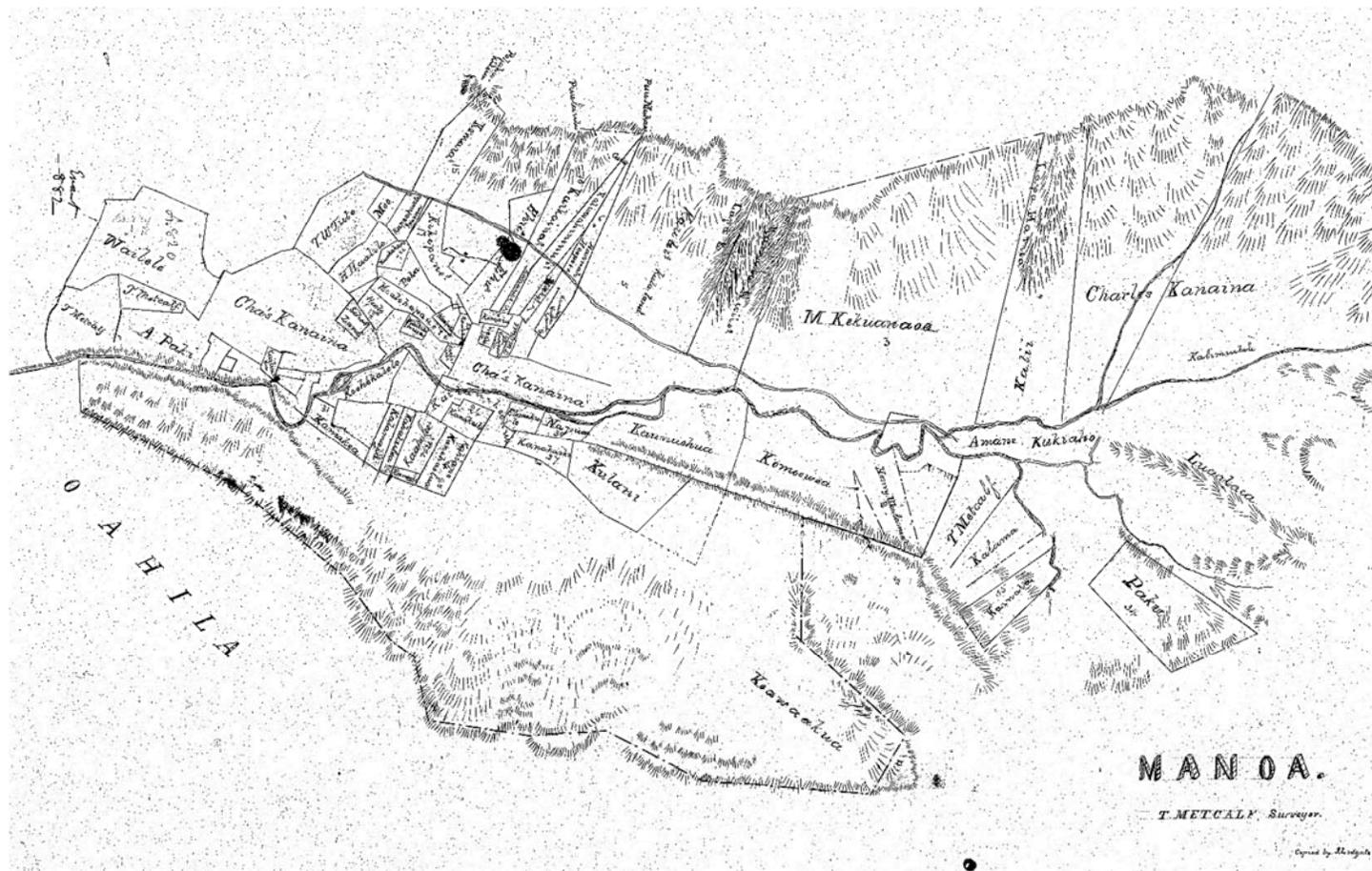
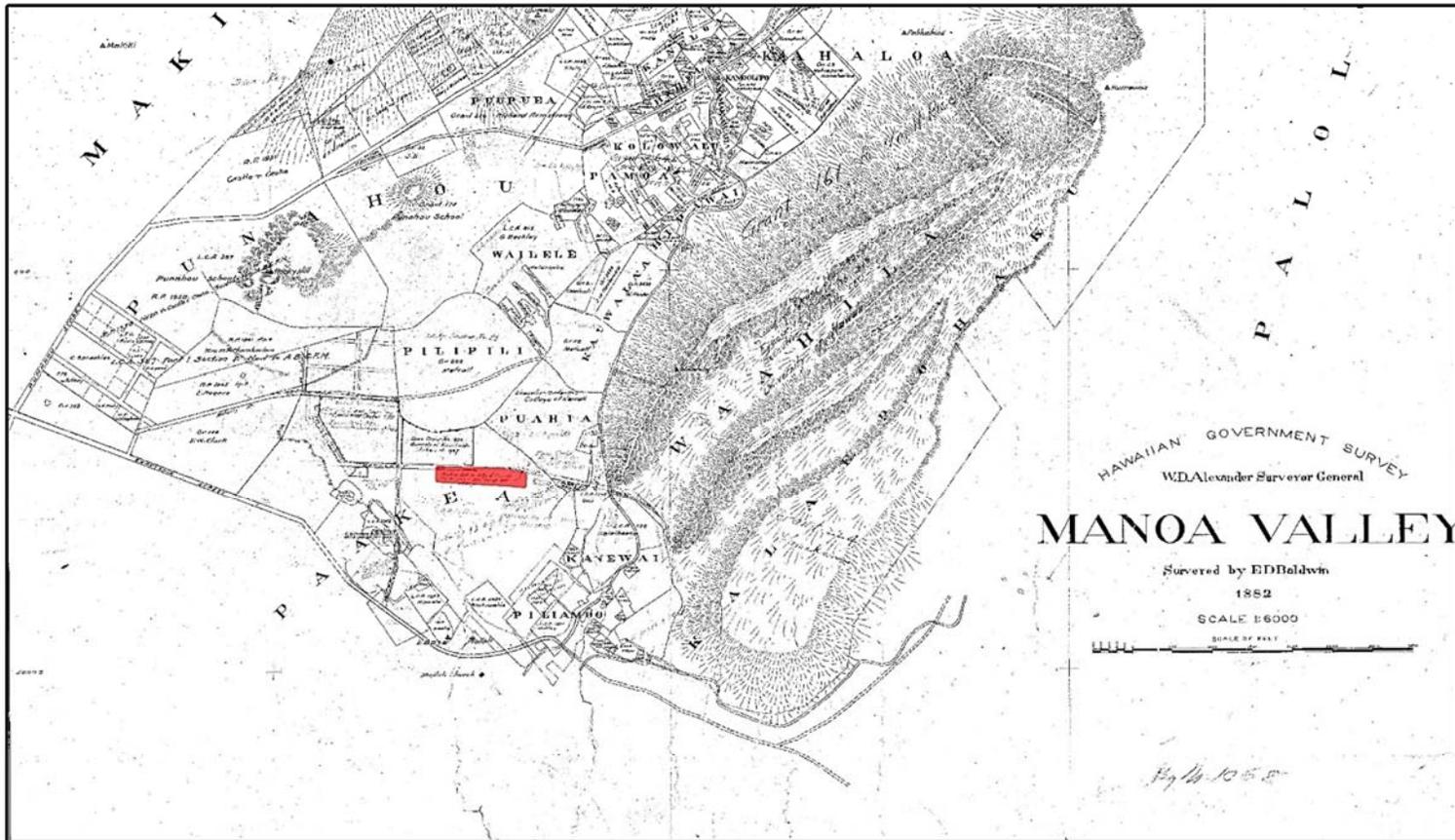


Figure 6. Early map of Mānoa (Metcalf 1847). It is unclear where the project area is located, and north is not indicated on this map. Scale 4.4 sq. ft. = 21 in. x 30 in.



Legend  
■ Project Area

Keala Pono

0 0.25 0.5 1 1.5 2 Kilometers



Figure 7. Portion of an early map of Mānoa Valley (Baldwin 1882).

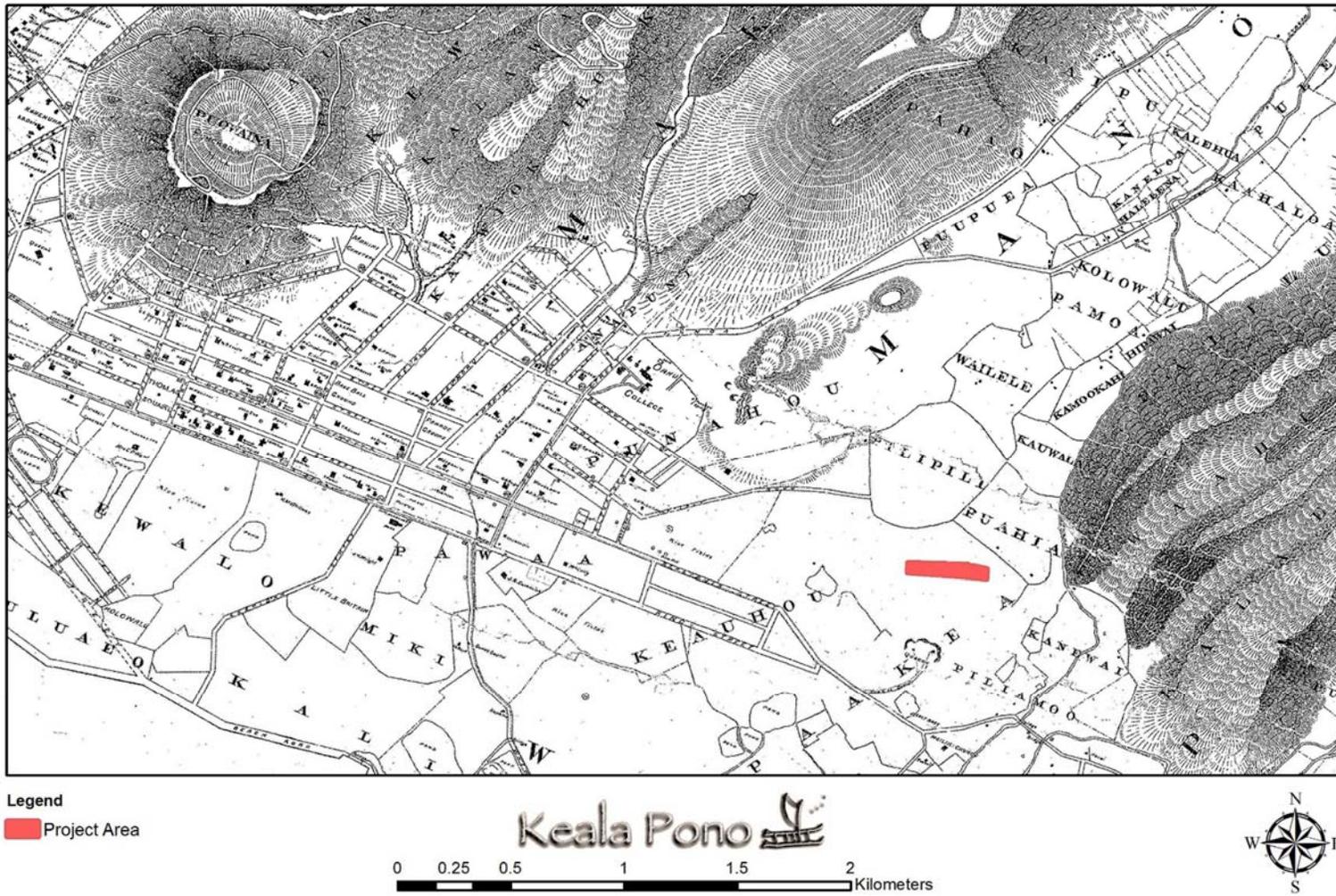


Figure 8. Portion of an early map of Honolulu (Monsarrat 1897).

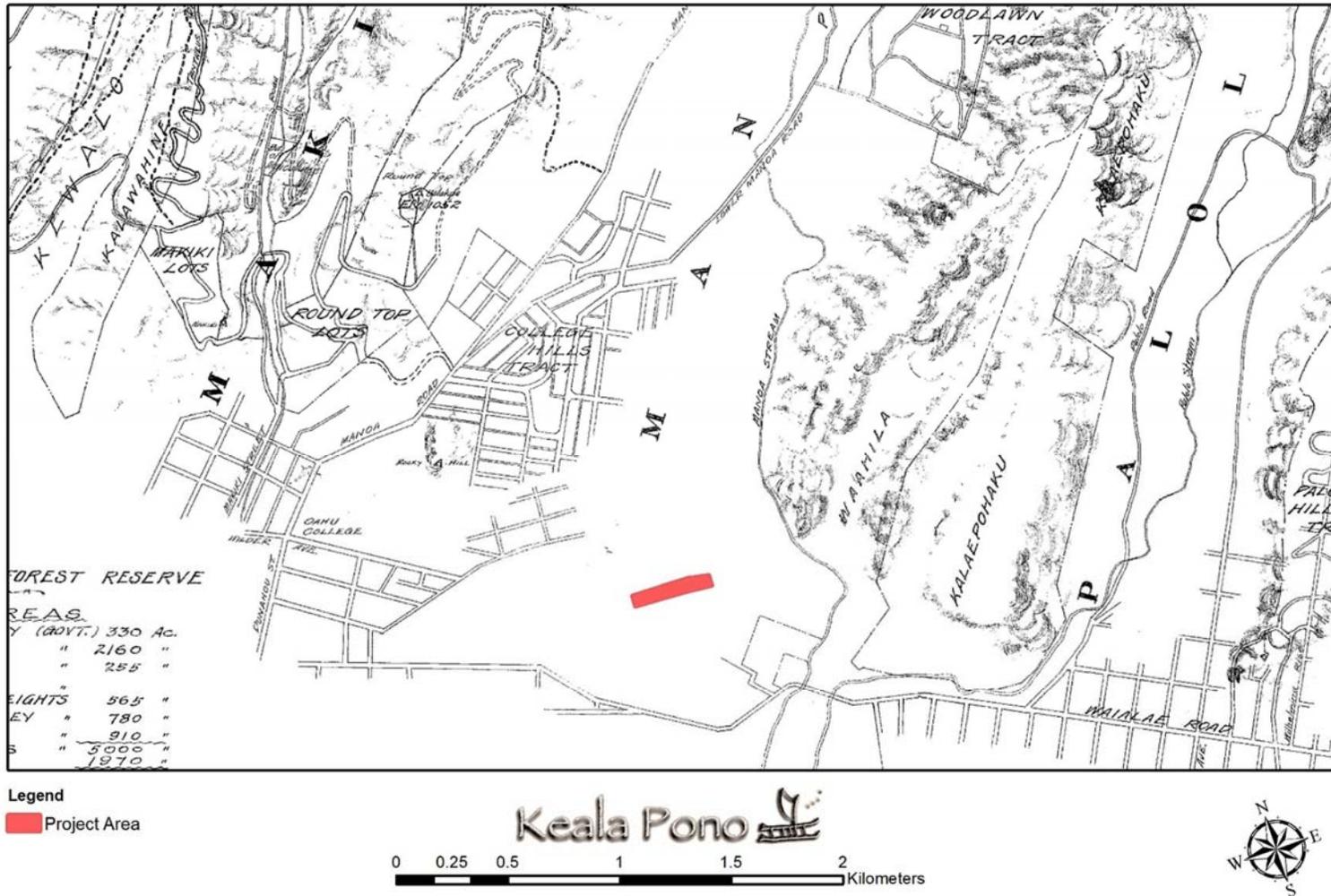


Figure 9. Portion of an early map of Honolulu (Wall 1913).

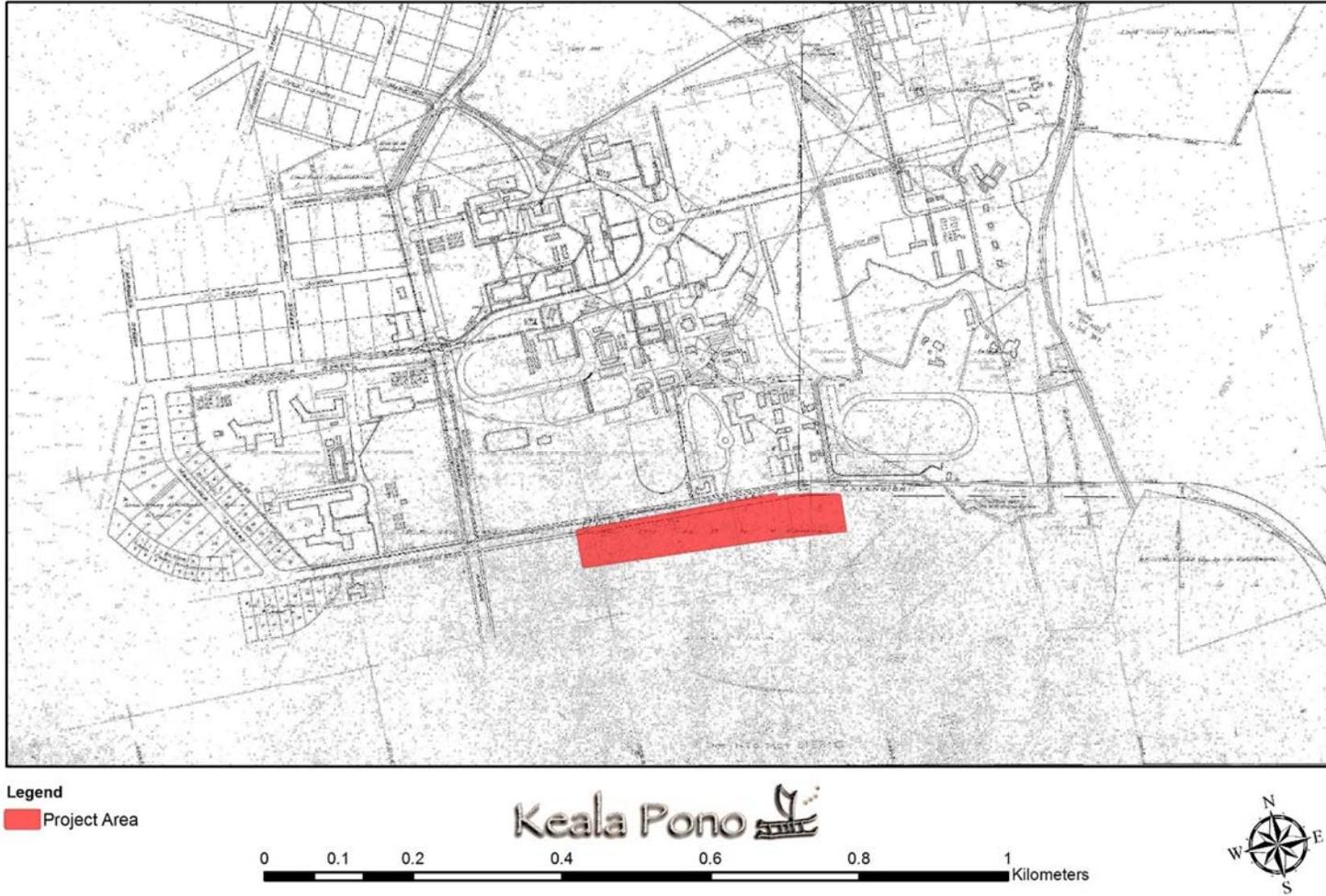


Figure 10. Portion of UH Mānoa campus map (Watt 1943).

## **Mānoa and the Changes in Land Tenure**

It was during the reign of Kamehameha III, in the mid-1800s, as the Hawaiian kingdom became increasingly exposed to outside influences, that the Hawaiian monarchy faced a crossroads of major change. Dr. David Keanu Sai describes the predicament that King Kamehameha III faced:

Kamehameha III's government stood upon the crumbling foundations of a feudal autocracy that could no longer handle the weight of geo-political and economic forces sweeping across the islands. Uniformity of law across the realm and the centralization of authority had become a necessity. Foreigners were the source of many of these difficulties. (Sai 2008:62)

“Several legislative acts during the period 1845–1855 codified a sweeping transformation from the centuries-old Hawaiian traditions of royal land tenure to the western practice of private land ownership” (Moffat and Fitzpatrick 1995). Most prominent of these enactments was the Māhele of 1848 which was immediately followed by the Kuleana Act of 1850.

The Mahele was an instrument that began to settle the undefined rights of three groups with vested rights in the dominion of the Kingdom --- the government, the chiefs, and the *hoā'āina*. These needed to be settled because it had been codified in law through the Declaration of Rights and laws of 1839 and the Constitution of 1840, that the lands of the Kingdom were owned by these three groups... Following the Mahele, the only group with an undefined interest in all the lands of the Kingdom were the native tenants, and this would be later addressed in the Kuleana Act of 1850. (Beamer 2008:194, 195)

Although the Māhele had specifically set aside lands for the King, the government, and the chiefs, this did not necessarily alienate the *maka'āinana* from their land. On the contrary, access to the land was fostered through the reciprocal relationships which continued to exist between the commoners and the chiefs. Perhaps the chiefs were expected to better care for the commoners' rights than the commoners themselves who arguably might have been less familiar with foreign land tenure systems. Indeed, the *ahupua'a* rights of the *maka'āinana* were not extinguished with the advent of the Māhele, and Beamer points out that there are “numerous examples of *hoā'āina* living on Government and Crown Lands Post-Mahele which indicate the government recognized their rights to do so” (Beamer 2008:274).

*Hoā'āina* who chose not to acquire allodial lands through the Kuleana Act continued to live on Government and Crown Lands as they had been doing as a class previously for generations. Since all titles were awarded, “subject to the rights of native tenants.” The *hoā'āina* possessed habitation and use rights over their lands. (Beamer 2008:274)

For those commoners who did seek their individual land titles, the process that they needed to follow consisted of filing a claim with the Land Commission; having their land claim surveyed; testifying in person on behalf of their claim; and submitting their final Land Commission Award (LCA) to get a binding royal patent. However, in actuality, the vast majority of the native population never received any LCAs recognizing their land holdings due to several reasons such as their unfamiliarity with the process, their distrust of the process, and/or their desire to cling to their traditional way of land tenure regardless of how they felt about the new system. In 1850, the king passed another law, this one allowing foreigners to buy land. This further hindered the process of natives securing lands for their families.

Five LCA parcels were awarded in the vicinity of the current project area (Table 1, see Figure 2). Of these, LCA 1748 and 1825:5 are closest to the project area, which are approximately 300 m and 400 m away, respectively.

**Table 1. LCA Awards Near the Project Area**

<b>LCA</b>	<b>Awardee</b>	<b>‘Ili</b>
1459	Kuihewa	Kamookahi, Hamohamo
1617:2	Kenao	Piliamoo
1748	Ono	Kanewai
1751:3	Aea	Piliamoo
1825:5	Kuewa	Kaluaolohe

LCA 1748 was awarded to Ono in the ‘ili of Kanewai. It included a house lot with three houses on it. No lo‘i or other agricultural resources were reported, but the lot was partially enclosed. Testimony is as follows:

**No. 1748, Ono**  
**N.R. 238v3**

The Land Commissioners, House of the Privy Council, Greetings: I, the undersigned, hereby state my claim for a house lot in the ‘ili of the konohiki, Kalama, and Maneo is also konohiki of this house lot. My house lot is between the ‘ilis of these konohikis. I got this house lot in 1839. It is bounded on the north by the land of Nika, on the east and south by the land of Kalama, on the west by Maneo’s land. This is what I have to tell you concerning my house lot claim.

ONO X, his mark  
December 3, 1847, Kanewai

**F.T. 174v3**  
**No. 1748, Ono**

Lehuanui, This is in Kanewai, Waititi, house lot, 3 houses of Ono’s, fenced.

Mauka, stream & Kaluhinenui

Waiialae, Kalama

Makai, Kauo

Honolulu, my land.

Claimant had this land from Kalama in time of Kinau, and has held it undisputed to this time.

Kawelo, confirmed the above.

**N.T. 500v3**  
**No. 1748, Ono, October 25, 1849**

Lehuanui, sworn, I have seen his land at Kanewai, Waikiki. 1 house lot, Ono has three houses, which are half enclosed and the boundaries are:

Mauka by Kaluahinenui

Waiialae by Kalama

Makai by Kauo

Honolulu by my place.

Ono's place is from Kalama given before the year 1839; no one has objected to the present time.

Kawelo, sworn, Our testimonies are similar; no one has objected.

LCA 1825:5 was awarded to Kuewa in the 'ili of Kaluaolohe. LCA 1825 included five 'apana. A house lot, six lo'i and a kula land were mentioned in Māhele testimony, although it is unclear which of these resources, if any were located upon 'Apana 5, which is near the subject property:

**No. 1825, Kuewa**

**N.R. 270v3**

'Ili of Kaluaolohe, Waikiki, Island of Oahu. I have six small lo'i, four are on the north and two are on the south of the land. Of the two lo'i on the south, one is dry, on the south of the taro lo'i. These lo'is were given me again by the konohiki. The four lo'is on the north are an old right, /and/ one house lot and one small kula.

KUEWA X

**F.T. 195v3**

**No. 1825, Kuewa**

Kahulupi, sworn, this is in Kaluaolohe, Waititi, kula and kalo, 4 patches and 2 houses on it.

Mauka, Keone Ana

Waialae, Kahauaumaikai

Makai, same

Honolulu, also.

Claimant had this from Kaluahinenui in time of Kinau & has held it undisputed.

Kihele, sworn, confirmed the testimony above.

**N.T. 523v3**

**No. 1825, Kuewa**

Kahulupii, sworn, I have seen his place at Kaluaolohi in Waikiki.

4 taro patches, pasture, 2 houses in the pasture:

Mauka, John Young

Waialae, Makai

Honolulu also, Kahanaumaikai.

Kuewa received this land from Kaluahinenui during Kinau's time and has lived peacefully without objections to this time.

Kihele, sworn, Hulupii's testimony is the same as mine; no objections.

**N.T. 101102v10**

**No. 1825, Kuewa, (from page 523, Vol. 3), 17 February 1852**

Kailianu, sworn, I have seen Kuewa's interest in Kaluaolohe 'ili land in Waikiki, Kona, Oahu 2 land sections.

Section 1: 4 patches and house site.

Mauka, Moku's land

Waialae, Hanaumaikai's land

Makai, Kahulupii's land

Honolulu, Keolaloa's (Sumner)'s land

Land from Kaluahinenui at the time of Kaahunanu. No objections to this day.

(Question): To Kailianu, Have you known that Kuhela's patch had been a koele?

(Answer): Kailianu: I have not known the koele that Kuhela has, has been a koele since 1840 to this day, I have never seen it as a koele.

Kahulupii, sworn, I have known about Kuewa's claim in the same way as Kailianu has stated here.

(Question): To Kahulupii, Have you known positively that this patch has been a koele or has it been a tenants patch?

(Answer): Kakulupii: I have not know whether it has been a koele or for the tenants because I had not lived there long.

Kuewa vs. Kekuainulama, the konohiki, 26 February, 1852

Nakai, sworn, Kuhela's patch in the claim of Kuewa, in Kaluaolohe of Waikiki, 'ili which Kekuainulama has now is a koele like Kahomikaiku.

Kuewa, has lived on that land recently, Just after the return of Kuakini to Hawaii. The land had been for Pohaku under Kaluahinenui and after Pohaku the living rights was inherited by Kuewa.

This patch of Kuhela will be separated by the konohiki. Kaluahinenui had placed Kuewa, as work foreman for the land, he was asked to care for the patch, to plant and sell and the monies to be divided between the both of them. It had been that way until Kailianu had become overseer and now the patch has become a claim.

Kekuamanaole, sworn, I have seen that patch as a koele, my father Kamaikona did koele together with the tenants of Kaluaolohe.

Kahanaumaikai did koele here again.

Kuhela, Kahanaumaikai's wife: I have seen it as a koele, later Kaluahinenui had the land. What he and Kuewa, have done there, I have not known, I had gone to Heeia and have lived there for ten years.

Postponed: Work to be resumed next Tuesday.

As foreigners were afforded the opportunity to buy land in Hawai'i, so too did portions of Mānoa transfer out of native Hawaiian ownership and into the hands of foreigners. In particular, by the 1880s much of what is currently the University of Hawai'i at Mānoa belonged to the estate of Theophilus Metcalf, an Englishman who was a government surveyor, marshall of the Honolulu fort, and sugarcane investor (Pukui et al. 1974:150).

The 19<sup>th</sup> century ended with the overthrow of the Hawaiian monarchy and the subsequent annexation of the Hawaiian Islands by the United States of America. Thus Mānoa saw great changes within that century. Its population was transformed from a native Hawaiian society under a monarchy to an increasingly multiethnic populace as a territory of the United States government. Its landscape reflected the changes, going from one primarily made up of kalo and other important native Hawaiian plants to one that added sugarcane, coffee, pineapple, rice, and other fruits and vegetables brought by newcomers. By the end of the 19<sup>th</sup> century, ranching and dairy operations also found a foothold in Mānoa (Bouslog et al. 1994).

## **Contemporary History**

The 20<sup>th</sup> century saw an unmistakable urbanization of Mānoa as a whole. By the 1930s, much of the former agricultural lands were mostly converted to residences, and although about 100 lo‘i were still in operation, “these represented less than a tenth of the area that was once planted by Hawaiians” (Handy et al. 1991:480).

Specifically, lands of and around the current project area were slated for the College of Hawaii and the Mō‘ili‘ili Quarry. The College of Agriculture and Mechanic Arts of the Territory of Hawaii shortened its name to the College of Hawaii, and began its classes in Mānoa in 1912. In 1920, it was formally established as the University of Hawai‘i. For a brief time, during the World War II years, portions and buildings of the university were taken over by the military to support the war effort. After the war, the military left the campus, and the school has continued to grow and expand into the 21<sup>st</sup> century.

The quarry, operated by Honolulu Construction and Draying Company, Ltd. (HC&D) which later became Ameron HC&D, started in lower Mānoa but moved its operations to Kailua in 1951. The former quarry land eventually became incorporated into the makai campus of the University of Hawai‘i at Mānoa.

The university continues to be a prominent part of the Mānoa community. It attracts students from across the state, throughout the Pacific, and around the world. And Mānoa contributes greatly to the social fabric of modern Honolulu with its many neighborhoods and numerous parks, churches, schools, and businesses.

## **Previous Archaeology**

Numerous archaeological studies have been conducted in Mānoa. The following discussion provides information on archaeological investigations that have been carried out in the vicinity of the project area, based on reports found in the SHPD library in Kapolei, Hawai‘i (Figure 11, Table 2).

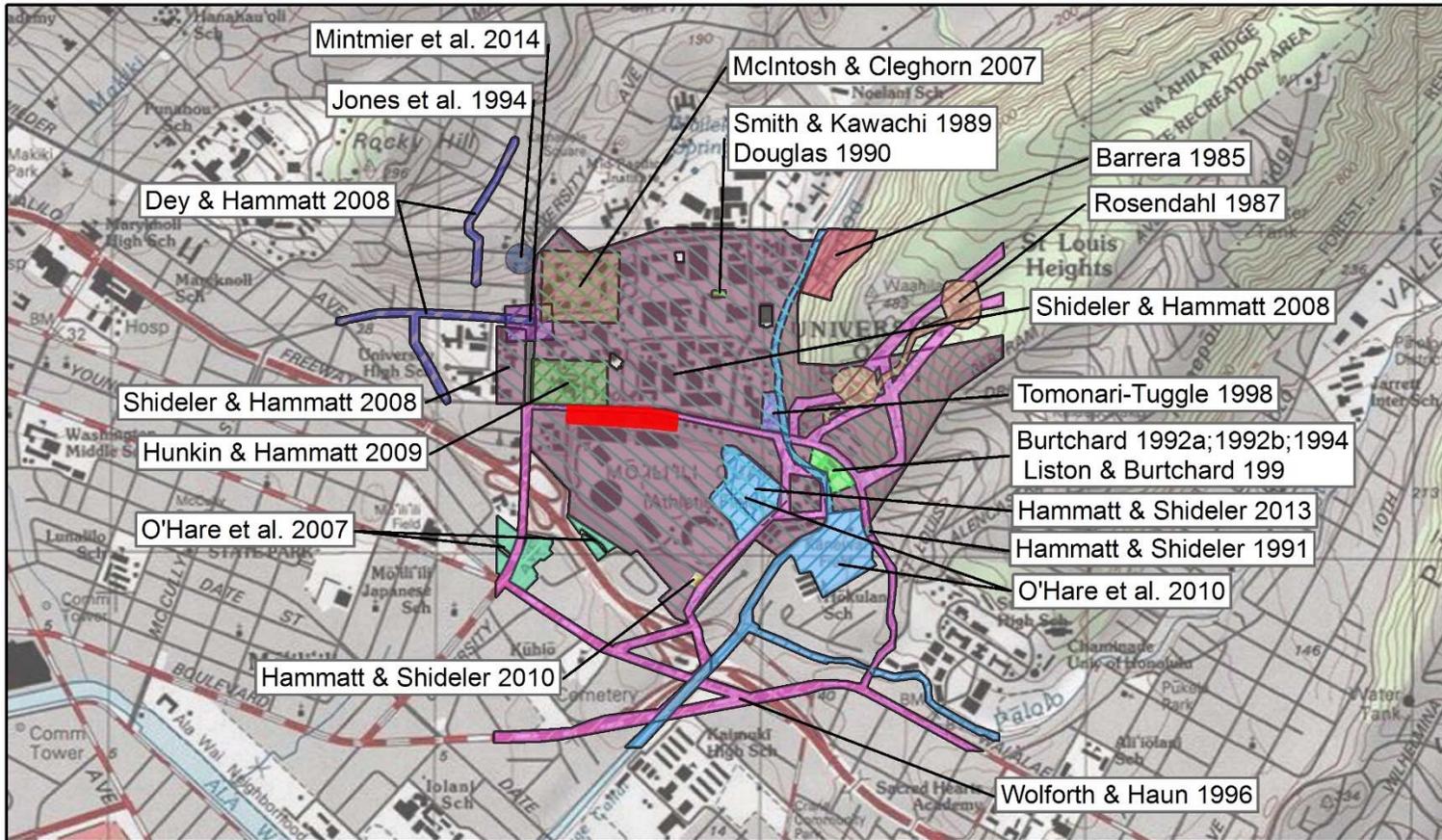
The first documentation of archaeological sites in Mānoa was compiled by Thrum in his series of publications from 1892 to 1909. Thrum recorded five heiau in the area: Kūka‘ō‘ō, Kawapōpō, Hakika, Hipawai, and Mau‘oki. Only Mauoki Heiau is in the general vicinity of the current project area, approximately 600 m (.37 mi.) to the southeast (Figure 12). However, Mauoki Heiau was destroyed in 1883 (Thrum 1892:112–113; 1906 44–45).

By the 1930s, when McAllister (1933) did his island-wide survey of O‘ahu, he could only identify two of these seven heiau listed for Mānoa: Kūka‘ō‘ō and Hipawai, neither of which are near the project area. McAllister did record a petroglyph site in Mō‘ili‘ili, approximately 1.1 km (.68 mi.) southeast of the study area. The site consists of two petroglyph groups, although they were already very worn and difficult to distinguish in the 1930s (Emory in McAllister 1933:78).

In 1985, archaeological survey and testing was conducted at the Manoa Hillside subdivision. An “old road bed” was recorded there (Barrera 1985).

In 1987, a reconnaissance survey was conducted along the edge of Wa‘ahila Ridge. No sites were identified, and no further work was recommended (Rosendahl 1987).

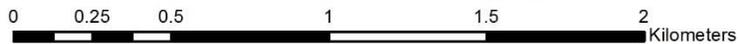
In 1989, human remains were removed from the UH Mānoa campus near Keller Hall. The remains were designated as Site 50-80-14-4191. They were found both in situ and in backdirt that had been



**Legend**

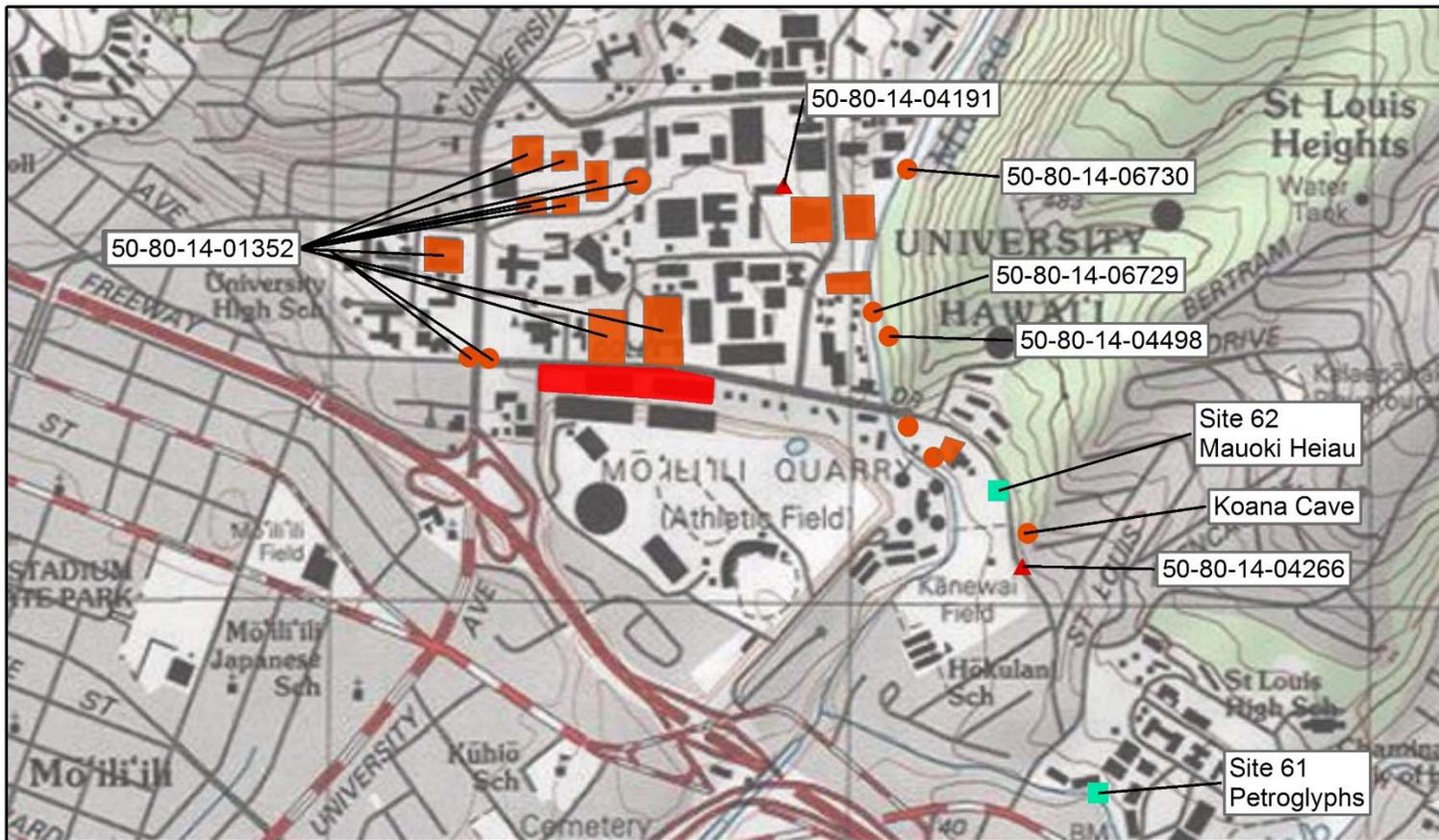
- Project Area
- Previous Archaeology

Keala Pono 



Layer Credits: USGS Topographical Honolulu Quadrangle Map 1998

**Figure 11. Location of previous archaeological studies in the vicinity of the project area.**



**Legend**

- Project Area
- Historic Property
- Burials
- McAllister (1933) Sites



Layer Credits: USGS Topographical Honolulu Quadrangle Map 1998

**Figure 12. Location of recorded archaeological sites in the vicinity of the project area.**

**Table 2. Previous Archaeology in Mānoa**

<b>Author, and Year</b>	<b>Location</b>	<b>Study</b>	<b>Findings</b>
Thrum 1892–1909	Islandwide	Heiau Documentation	Recorded five heiau in Mānoa.
McAllister 1933	Islandwide	Survey	Noted petroglyphs in Mō‘ili‘ili.
Barrera 1985	Manoa Hillside	Survey and Testing	Recorded an old road.
Rosendahl 1987	Wa‘ahila Ridge	Reconnaissance	None.
Smith & Kawachi 1989; Douglas 1990	UH Mānoa near Keller Hall	Investigation of Human Remains	Identified human remains found near Keller Hall.
Hammatt & Shideler 1991	Dole St. near Kanewai Park	Investigation of Human Remains	Identified 18 sets of human remains near Kanewai Park.
Burtchard 1992a; Burtchard 1992b; Burtchard 1994; Liston & Burtchard 1996	Kāpapa Lo‘i o Kanewai	Data Recovery	Subsurface ‘auwai identified; lo‘i dated to A.D. 1443–1681.
Jones et al. 1994	UH Mānoa School of Architecture	Monitoring	None.
Wolforth & Haun 1996	UH Mānoa	Archaeological Inventory Survey	Recorded historic buildings.
Tomonari-Tuggle 1998	National Marine Fisheries Service Honolulu Laboratory	Assessment	Identified previous agriculture and habitation in the area.
O’Hare et al. 2007	Kamehameha Schools University parcels & Varsity Theater	Literature Review & Field Inspection	Identified previous agriculture in the area.
McIntosh & Cleghorn 2007	UH Mānoa	Monitoring	None.
Shideler & Hammatt 2008	UH Mānoa	Literature Review & Field Inspection	Recorded five sites.
Dey & Hammatt 2008	West of University Ave.	Monitoring	None.
Hunkin & Hammatt 2009	UH Mānoa Bachman Hall	Monitoring	None.
Hammatt & Shideler 2010	UH Quarry	Literature Review & Field Inspection	None.
O’Hare et al. 2010	Ala Wai Watershed	Cultural Resources & Ethnographic Study	Noted Kanewai lo‘i and a possible agricultural terrace.
Hammatt & Shideler 2013	UH Mānoa Football and Soccer Fields	Literature Review & Field Inspection	None.
Mintmier et al. 2014	University Ave. at Metcalf St.	Monitoring	Recovered nine historic artifacts.

removed by backhoe. The in situ remains were found between 28 and 43 cmbs (cm below surface). The UH Mānoa Director of Public Affairs requested that the remains be returned for reinterment (Smith and Kawachi 1989). In 1990, there was an osteological investigation of the human remains found at Site 4191. The remains were incomplete and extremely fragmented, but they were determined to be that of an adult male (Douglas 1990).

In 1991, human remains were identified on Dole Street in front of Kānewai Park. A total of 18 individuals were identified and the site was registered as Site 50-80-14-4266. The burials were located between 120 and 160 cmbs, and a hearth feature was also discovered. An osteological investigation was conducted and included in the report. The dating of charcoal samples suggested that all of the burials may date to the 15<sup>th</sup> century A.D. (Hammatt and Shideler 1991).

In 1992, a report was generated for the Kāpapa lo‘i ‘o Kānewai, Site 50-80-14-4498, regarding backhoe trench placement and schedule for data recovery. The same year, a separate report was produced for the archaeological data recovery for that project. Pre-contact ‘auwai were identified in three of four trenches, and a shallow sedimentary core sample confirmed pre- and post-contact use of the agricultural site. Letters were submitted to SHPD discussing the mitigation of adverse effects from construction at the lo‘i (Burtchard 1992a, Burtchard 1992b). Phase II archaeological data recovery and fieldwork for the construction at the Kāpapa lo‘i ‘o Kānewai was completed in 1994. Findings revealed that the pre-contact agricultural irrigation system there was in use between A.D. 1443–1681. No cultural material was identified (Burtchard 1994). In 1996, the final report was submitted for the archaeological study conducted at Kāpapa lo‘i ‘o Kānewai. No further work was recommended (Liston and Burtchard 1996).

Also in 1994, archaeological monitoring for construction at the School of Architecture at UH Mānoa revealed no archaeological features or materials. No further work was recommended (Jones et al. 1994).

And also in 1996, an archaeological inventory survey was conducted for a project for power transmission line alignments in Mānoa. A site including several historic buildings and Kānewai Cultural Garden was identified at UH Mānoa (Site 50-80-14-1352). Another historical-architectural site was identified near the Church of the Crossroads, not near the current project area (Wolforth and Haun 1996).

In 1998, historic research was undertaken to assess the archaeological potential of the site of the National Marine Fisheries Service Honolulu Laboratory. It was concluded that although the site was probably utilized for agriculture and habitation both in the pre-contact and post-contact eras, previous construction in the 1950s probably destroyed any surface archaeological resources and disturbed any subsurface deposits. Subsurface testing was recommended prior to any future construction activity (Tomonari-Tuggle 1998).

In 2007, an archaeological literature review and field inspection were completed for the Kamehameha Schools University parcels and also the Varsity Theater parcel. It was concluded that portions of these areas were utilized for taro cultivation in the pre- and post-contact eras and that portions were also used for rice cultivation in the post-contact era (O’Hare et al. 2007).

Also in 2007, archaeological monitoring was conducted for trenching at the UH Mānoa Old Quadrangle Install Chilled Water Loop project. No archaeological features or materials were identified, and no further work was recommended (McIntosh and Cleghorn 2007).

In 2008, an archaeological literature review and a field inspection covered various sites at UH Mānoa, including Sites 50-80-14-1352, -4191, -4498, the Koana Cave, and the site of Hipawai Heiau

(Shideler and Hammatt 2008). The Koana Cave was found to have surface midden and thought to be a habitation site.

Also in 2008, archaeological monitoring was carried out for the Punahou Water Systems Improvements in Mānoa. No archaeological features or materials were identified. It was recommended that SHPD should be consulted on whether or not future work in the area would require archaeological monitoring (Dey and Hammatt 2008).

In 2009, archaeological monitoring was conducted for construction activity at UH Mānoa's Bachman Hall. No cultural deposits were identified, and no further work was recommended (Hunkin and Hammatt 2009).

In 2010, an archaeological literature review was undertaken and a field inspection was conducted for the Hawaiian Electric Company substation in the UH quarry. No sites were identified (Hammatt and Shideler 2010).

Also in 2010, a cultural resources and ethnographic study was completed for the Mānoa portion of the Ala Wai Watershed Project. In addition to noting the lo'i system at Kānewai (Site 4498), a possible agricultural terrace (Site 6729) was identified near the East-West Center on the west bank of the Mānoa Stream (O'Hare et al. 2010).

In 2013, an archaeological literature and cultural history review was conducted along with a field inspection of the UH Mānoa football field and soccer field areas. It was determined that although this location was used extensively for habitation and agriculture in the pre- and post-contact periods, the subsequent operation of a quarry probably destroyed any remnant cultural materials. No further archaeological work was recommended (Hammatt and Shideler 2013).

In 2014, archaeological monitoring was conducted for construction activity associated with traffic infrastructure improvements at the intersection of Metcalf Street and University Avenue. Thirteen stratigraphic layers were identified of which nine were layers of fill deposits. Also, nine glass and metal artifacts from the historic era were identified. Archaeological monitoring was recommended for future work due to the past recovery of known iwi in the vicinity (Mintmier et al. 2014).

### **Summary and Settlement Patterns**

Archaeological evidence and traditional sources advance the theory that the district of Waikīkī, of which Mānoa is a part of, was one of the first places that Polynesians settled on O'ahu after the initial occupation of the Ko'olaupoko area. The first arrivals to Hawai'i probably came around A.D. 300, and the settlement of Waikīkī likely occurred around A.D. 600 (Kanahele 1995). The healthy population of the district was sustained by an abundance of marine resources off of its shore, well-stocked fish ponds along its coast, and well-irrigated wetlands where taro was bountifully harvested. The inland valleys and ridges of Mānoa and other areas provided further natural resources for additional foods, clothing, housing, cordage, and other necessities. While the earliest form of society in the region centered on extended family units headed by a number of patriarchs, as the population expanded, it evolved into a strict hierarchal class-society ruled by divine chiefs. It is suggested that Hawai'i's organization under divine chiefdoms probably first appeared around A.D. 800 (Kanahele 1995).

The Hawaiian Islands consisted of several sovereign island kingdoms independent of each other for almost 1,000 years. During this time, different islands were consolidated under one ruler, and at other times, the chiefdoms consisting of several islands were splintered, all of this fluidity due to inter-island wars and alliances. For much of this portion of Hawaiian history, the ahupua'a of Waikīkī not only remained part of the O'ahu kingdom, it was the very seat of power for the O'ahu

king. Toward the end of the 18<sup>th</sup> century when O‘ahu was first conquered by Maui, and about a decade later when O‘ahu was conquered by Hawai‘i Island, Waikīkī remained the seat of political power. The unified Hawaiian Islands continued to be ruled out of Waikīkī under King Kamehameha the Great until he moved his seat of government to Honolulu. Throughout it all, Waikīkī was still a place reserved for Hawaiian royalty to live, worship, and play. This was reflected in the uplands of the district, in Mānoa, where there was a dividing line, and the royalty had one side of the valley reserved for them. Even after King Kamehameha III’s sweeping enactment of the Māhele of 1848 which allowed for private ownership of land, Waikīkī Ahupua‘a continued to be associated with the Hawaiian royals, and parcels of Mānoa lands eventually stayed with such notable figures as Kamehameha, Lili‘uokalani, Kana‘ina, Liliha, Boki, Pahi, Kekūānā‘a, Kalama, and Ka‘ahumanu.

The 19<sup>th</sup> century closed with the overthrow of the Hawaiian monarchy by foreigners backed by the United States and the move to incorporate Hawai‘i as an American territory. As the U.S. military and other planners drained and filled the district’s wetlands and developed it into an area of prime real estate, the district’s uplands, particularly in Mānoa, were also being converted from agricultural to residential purposes. By the mid-20<sup>th</sup> century, Mānoa was clearly a post-territorial multiethnic community. Residential development has continued to grow throughout the decades making Mānoa blend into the cityscape of modern Honolulu. In addition, the state’s major university, the University of Hawai‘i at Mānoa, has been firmly established there, and it has evolved into a prosperous center for higher learning with its surrounding college community today.

### **Anticipated Finds and Research Questions**

Previous research has identified a wide range of activities that were carried out traditionally and historically in Mānoa, including agriculture, habitation, and human burial. Evidence for these kinds of activities may be found within the project area. Previous archaeological research has in fact identified several burials not far from the area of study. Historic-era archaeological resources might be associated with historic habitation or agriculture, considering that there were LCAs nearby. Given the use of the UH Mānoa campus during World War II, military-related sites or items may also be found. Since the project area is completely developed, it is not likely that any vestiges of these activities remain on the surface. Subsurface remains may consist of buried walls, pavements, fire pits, agricultural deposits, traditional or historic artifacts, or human burials.

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

1. Is there any evidence of pre-contact use of the project area and what is the nature of that use? Possible use of the study area may be related to agriculture, habitation, and/or human burial.
2. Are there vestiges of historic use of the properties? Remnants of historic-era land use would likely be to related habitation, agriculture, and/or the military.
3. What time periods are represented by the archaeological remains on the properties? If fire pits or other datable archaeological features are encountered, radiocarbon dating may inform on the period of use for the area. Wood taxa identification should be performed prior to dating, and only material suitable for dating should be submitted for analysis. Historic occupation may be dated by material remains such as bottles or ceramics.

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

## METHODS

Pedestrian survey and subsurface testing were conducted on January 9, 2016 by Windy McElroy, PhD and Jeffrey Lapinad. McElroy served as Principal Investigator, overseeing all aspects of the project. For the pedestrian survey, the ground surface was visually inspected for surface archaeological remains, with transects walked for the entire project area. Archaeologists were spaced approximately 5–10 m apart. Of the 1.8 ha (4.45 ac.) survey area, 100% was covered on foot. Vegetation was very light, consisting of landscaped plants on the outskirts of pavements and buildings, and did not affect visibility (Figure 13).

Test trenches (TR) were excavated in four locations in the current Zone 17 parking lot on the west side of the UH William S. Richardson School of Law. The excavation strategy and trench locations were approved by SHPD. Trenching focused on the open parking lot, as the areas within and adjacent to the existing law buildings had been significantly impacted during construction of the buildings. A mini excavator was used for digging of the trenches (Figure 14). Vertical provenience was measured from the surface, and trenches were excavated to a layer of compacted boulders. Profiles were drawn and photographed, and sediments were described using Munsell soil color charts, a sediment texture flowchart (Thien 1979), and the U.S. Department of Agriculture soil manual. Trench locations were recorded on both ends with a 3 m-accurate Garmin GPSmap 62st, and all trenches were backfilled after excavation and the parking lot was re-paved in the trenched areas.

Digital photographs were taken of the project area and the work in progress. The scale in all field photographs is marked in 10 cm increments. The north arrow on all maps points to magnetic north. Throughout this report rock sizes follow the conventions outlined in *Field Book for Describing and Sampling Soils*: Gravel <7 cm; Cobble 7–25 cm; Stone 25–60 cm; Boulder >60 cm (Schoeneberger et al. 2002:2–35). No material was collected, and no laboratory analyses were conducted.



**Figure 13. The project area, showing landscaped plants on the periphery of the parking lot. Orientation is to the northeast.**



**Figure 14. Excavation of TR 2 with mini excavator. Orientation is to the northwest.**

## RESULTS

Pedestrian survey and subsurface testing were conducted in the 4.45-ac. project area. No historic properties were found. Excavation of four test trenches did not yield any evidence of subsurface archaeological deposits or features.

### **Pedestrian Survey**

The surface survey included 100% of the 4.45-ac. project area. The project area is completely developed, consisting of buildings, paved walkways, a paved parking lot, and small landscaped areas with grass, hedges, and large trees. No surface archaeological remains were observed within the project area.

### **Subsurface Testing**

A total of four trenches were excavated in the parking lot to determine the presence or absence of subsurface archaeological deposits or material (Figures 15 and 16, Table 3). None were found, and fill layers underlain by compacted boulders were found in every trench.

TR 1 was excavated on the southeast side of the parking lot (see Figure 15). The trench measured 6 m long and 68 cm wide. The trench was excavated to 58 cmbs, where further excavation was hindered by compacted boulders. Stratigraphy consisted of asphalt at the surface and three fill layers (Figures 17 and 18). No archaeological deposits or material were identified.

TR 2 was placed in the northern portion of the parking lot (see Figure 15). The trench measured 5 m long and 68 cm wide. It was excavated to 180 cmbs, where the compacted boulders were encountered. Stratigraphy consisted of asphalt at the surface and three fill layers (Figures 19 and 20). No archaeological material or deposits were found.

TR 3 was placed on the northwest side of the parking lot (see Figure 15). It measured 6.9 m long and 68 cm wide. The trench was excavated to 125 cmbs, where excavation could not continue further because of the compacted boulders. Stratigraphy consisted of asphalt at the surface and two fill layers (Figures 21 and 22). No archaeological deposits or material were identified.

TR 4 was located near the center of the parking lot (see Figure 15). It measured 2.5 m long, 68 cm wide, and 113 cm deep. Excavation could not continue vertically because of the compacted boulders. Stratigraphy consisted of asphalt at the surface and two fill layers (Figures 23 and 24). No archaeological deposits or material were found.

### **Summary of Findings**

Pedestrian survey of TMK: (1) 2-8-029:001 (por.) did not yield any evidence of former use of the project area. The entire area is disturbed by modern use, such as construction of the buildings, walkways, and parking lot. Subsurface testing was conducted in four locations within the parking lot to determine the presence or absence of subsurface cultural material or deposits, and none were found. Stratigraphy consisted of asphalt and fill layers, with boulders below. The research questions developed at the onset of the project were all answered negatively, as no surface or subsurface archaeological remains were found.

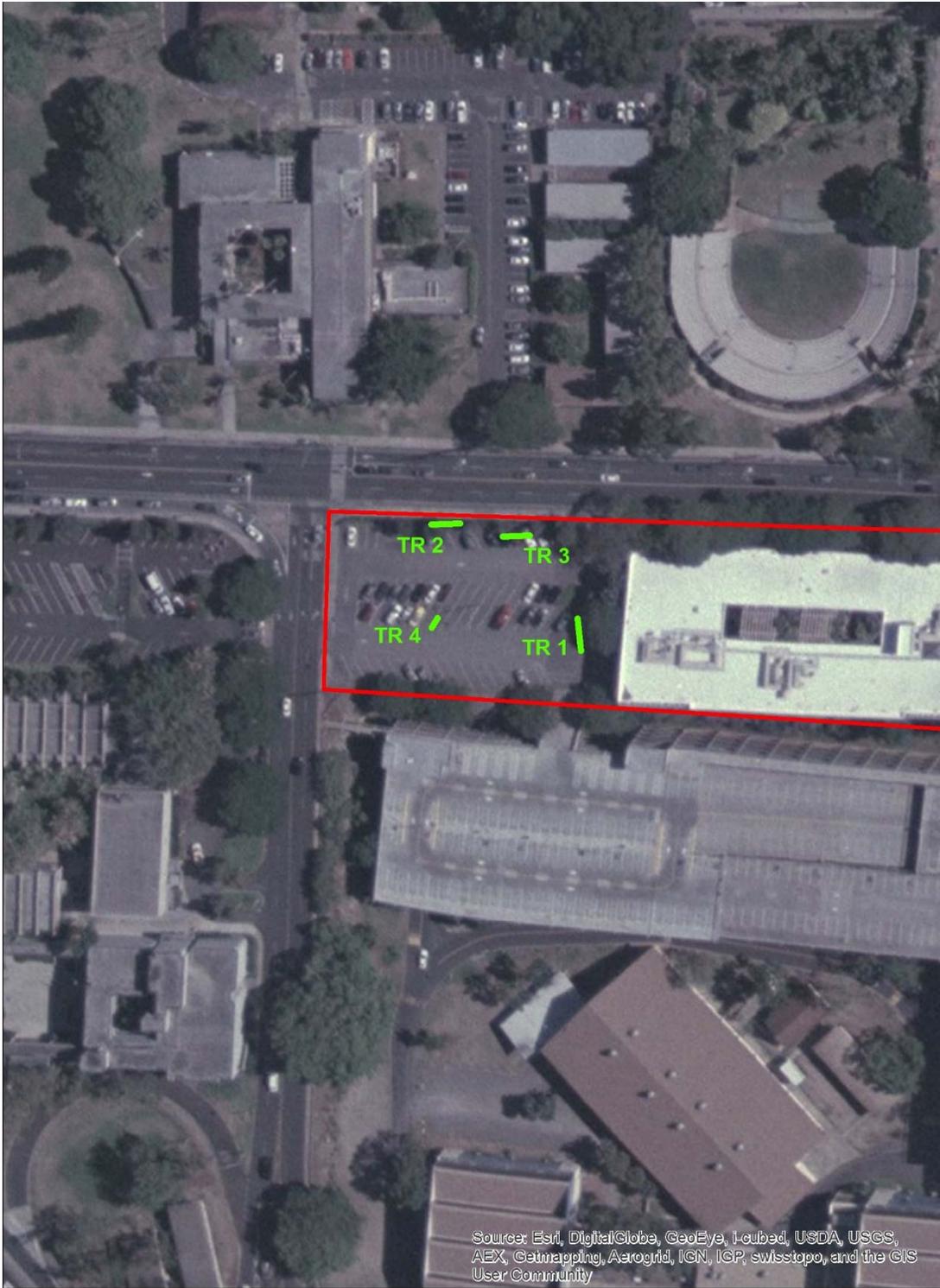


Figure 15. Location of Trenches 1–4 on aerial imagery. The project area is depicted in red.

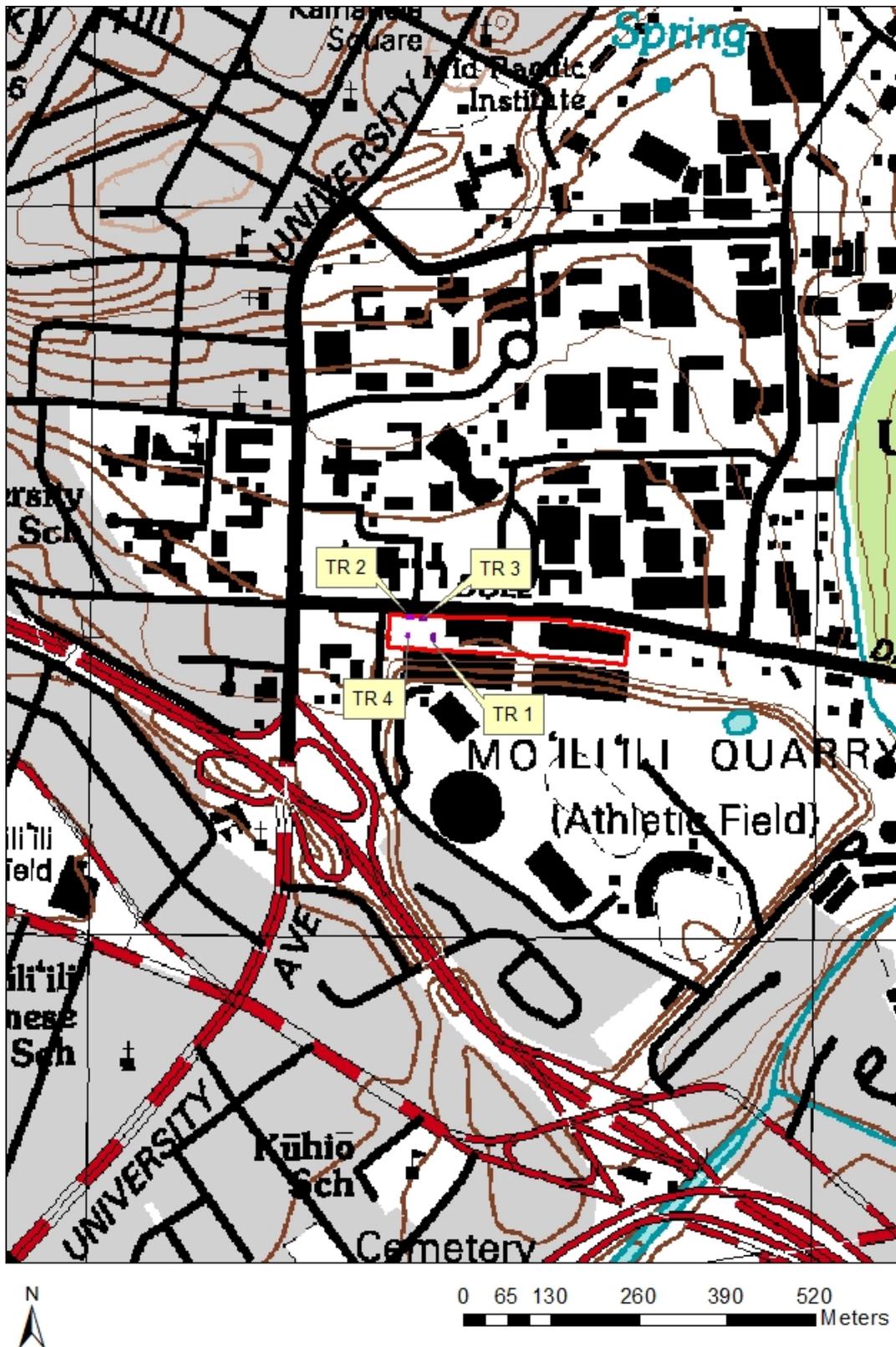


Figure 16. Location of Trenches 1–4 on USGS topographic map. The project area is depicted in red and the trenches are drawn in purple.

**Table 3. Sediment Descriptions**

<b>Location</b>	<b>Layer</b>	<b>Depth (cmbs)</b>	<b>Color</b>	<b>Description</b>	<b>Interpretation</b>
TR 1	I	0–6	N/A	Asphalt; smooth, very abrupt boundary.	Parking Lot Surface
	II	6–11	7.5YR 3/2	Clay loam; 40% basalt cobbles and pebbles; smooth, very abrupt boundary.	Fill
	III	11–18	10YR 8/2	Crushed coral; 30% coral cobbles and pebbles; smooth, very abrupt boundary.	Fill
	IV	18–58+	7.5YR 2.5/3	Silty clay loam; 80% basalt cobbles and pebbles; base of excavation at boulders.	Fill
TR 2	I	0–20	N/A	Asphalt; smooth, very abrupt boundary.	Parking Lot Surface
	II	20–25	10YR 8/2	Crushed coral; 30% coral cobbles and pebbles; smooth, very abrupt boundary.	Fill
	III	25–84	10YR 3/4	Silty clay loam; 30% basalt cobbles and pebbles; smooth, very abrupt boundary.	Fill
	IV	84–180+	10YR 4/4 to 5Y 7/8 (mottled)	Basalt gravel; base of excavation at boulders.	Fill
TR 3	I	0–15	N/A	Asphalt; smooth, very abrupt boundary.	Parking Lot Surface
	II	15–18	10YR 8/2	Crushed coral; 25% coral cobbles and pebbles; smooth, very abrupt boundary.	Fill
	III	18–125+	7.5YR 2.5/3	Clay; 80% basalt cobbles and pebbles; base of excavation at boulders.	Fill
TR 4	I	0–10	N/A	Asphalt; smooth, very abrupt boundary.	Parking Lot Surface
	II	10–18	10YR 8/2	Crushed coral; 25% coral cobbles and pebbles; smooth, very abrupt boundary.	Fill
	III	18–113+	10YR 3/3	Clay; 80% basalt cobbles and pebbles; base of excavation at boulders.	Fill
	IIIa	30–113+	2.5Y 7/8	Gravel pockets within Layer III; base of excavation at boulders.	Fill

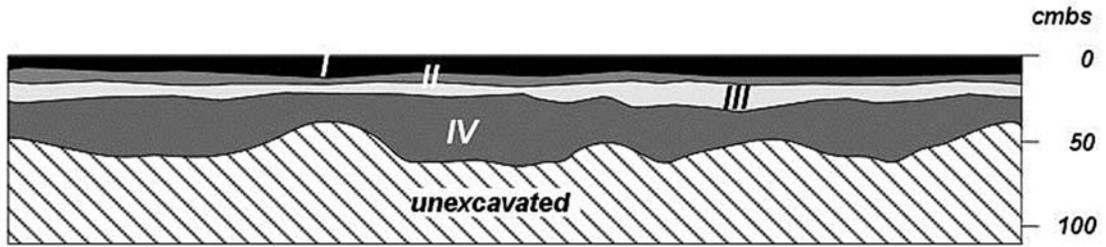


Figure 17. TR 1 west face profile drawing.



Figure 18. TR 1 photo, facing west.

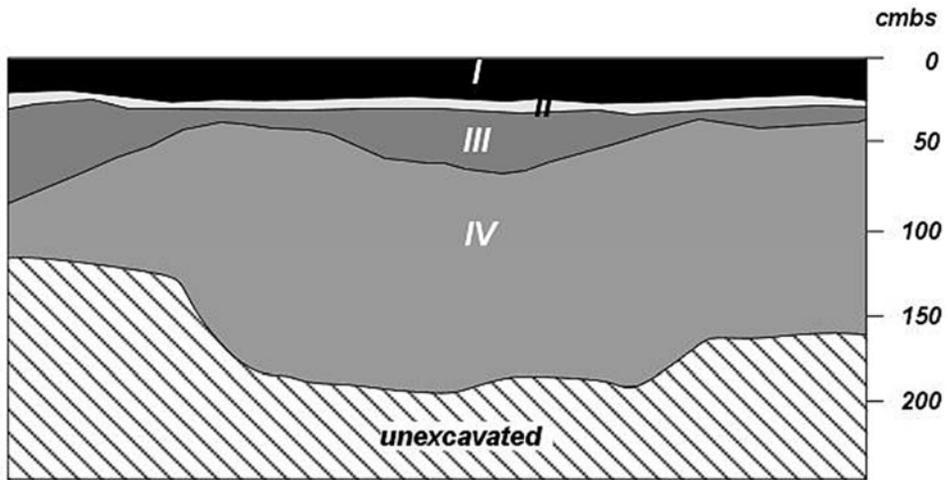


Figure 19. TR 2 north face profile drawing.



Figure 20. TR 2 photo, facing north.

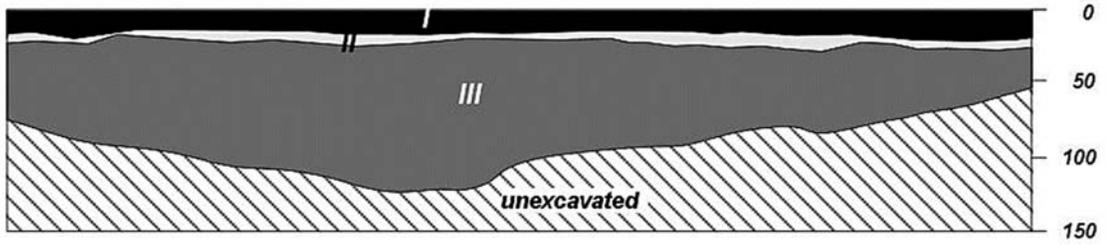


Figure 21. TR 3 north face profile drawing.



Figure 22. TR 3 photo, facing north.

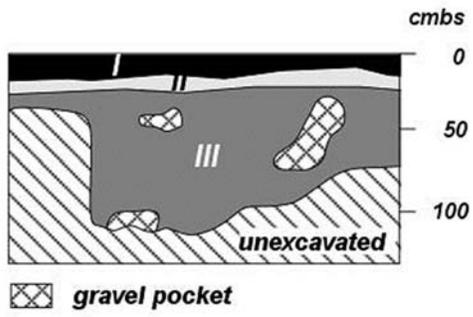


Figure 23. TR 4 southeast face profile drawing.



Figure 24. TR 4 photo, facing southeast.

## SUMMARY AND RECOMMENDATIONS

An archaeological inventory survey was conducted for TMK: (1) 2-8-029:001 (por.) in Mānoa, Waikīkī Ahupua‘a, Kona District, on the Island of O‘ahu. The University of Hawai‘i at Mānoa is planning improvements to the William S. Richardson School of Law, located within the parcel. Due to negative findings, the survey results are presented as an archaeological assessment per HAR §13–275.

The archaeological work included a pedestrian survey that covered 100% of the project area, as well as test excavations consisting of four trenches. No surface archaeological remains were found during the pedestrian survey. The entire project area has been disturbed by development, including construction of the current buildings, walkways, and parking lot. Likewise, subsurface testing did not yield any evidence of subsurface archaeological material or deposits. Stratigraphy consisted of several layers of fill atop compacted boulders.

In sum, an archaeological inventory survey was conducted on TMK: (1) 2-8-029:001 (por.) in Mānoa, and no archaeological remains were found. Improvements to the William S. Richardson School of Law will have no effect on historic properties because no historic properties occur there. No further work is recommended. However, in the event that human burial remains be discovered during construction activities, work in the vicinity of the remains should cease and the SHPD should be contacted.

## GLOSSARY

<b>ahupua‘a</b>	Traditional Hawaiian land division usually extending from the uplands to the sea.
<b>ali‘i</b>	Chief, chiefess, monarch.
<b>‘āpana</b>	Piece, slice, section, part, land segment, lot, district.
<b>‘auwai</b>	Ditch, often for irrigated agriculture.
<b>‘awa</b>	The shrub <i>Piper methysticum</i> , or <i>kava</i> , the root of which was used as a ceremonial drink throughout the Pacific.
<b>boulder</b>	Rock 60 cm and greater.
<b>cobble</b>	Rock fragment ranging from 7 cm to less than 25 cm.
<b>gravel</b>	Rock fragment less than 7 cm.
<b>hau</b>	The indigenous tree <i>Hibiscus tiliaceous</i> , which had many uses in traditional Hawai‘i. Sandals were fashioned from the bark and cordage was made from fibers. Wood was shaped into net floats, canoe booms, and various sports equipment and flowers were used medicinally.
<b>heiau</b>	Place of worship and ritual in traditional Hawai‘i.
<b>hoa‘āina</b>	Native tenants that worked the land.
<b>hōlua</b>	Traditional Hawaiian sled used on grassy slopes.
<b>‘ie‘ie</b>	The vine <i>Freycinetia arborea</i> , an endemic, woody branching climber that grows at altitudes of 300–600 m. In ancient Hawai‘i, vines were considered sacred and used in basketry and for ceremonial purposes.
<b>‘ili</b>	Traditional land division, usually a subdivision of an ahupua‘a.
<b>iwi</b>	Bone.
<b>kalo</b>	The Polynesian-introduced <i>Colocasia esculenta</i> , or taro, the staple of the traditional Hawaiian diet.
<b>Kanaloa</b>	A major god, typically associated with Kāne.
<b>Kāne</b>	The leading of the traditional Hawaiian deities.
<b>kō‘ele</b>	Small land unit farmed by a tenant for the chief.
<b>kukui</b>	The candlenut tree, or <i>Aleurites moluccana</i> , the nuts of which were eaten as a relish and used for lamp fuel in traditional times.
<b>kula</b>	Plain, field, open country, pasture, land with no water rights.
<b>lama</b>	The native tree, <i>Diospyros sandwicensis</i> , that had many uses in traditional Hawai‘i. Fruit was eaten, wood was fashioned into fish traps and sacred structures within heiau. Lama wood was also crushed and used for medicinal purposes.
<b>lo‘i, lo‘i kalo</b>	An irrigated terrace or set of terraces for the cultivation of taro.
<b>Māhele</b>	The 1848 division of land.
<b>maka‘āinana</b>	Common people, or populace; translates to “people that attend the land.”
<b>makai</b>	Toward the sea.

<b>māmaki</b>	<i>Piptarus spp.</i> , a small native tree. Fiber from its bark was used to make a kind of coarse tapa. Sometimes spelled mamake in old texts.
<b>mele</b>	Song, chant, or poem.
<b>menehune</b>	Small people of legend who worked at night to build structures such as fishponds, roads, and heiau.
<b>moku</b>	District, island.
<b>mo‘o</b>	Lizard, dragon, water spirit.
<b>mo‘olelo</b>	A story, myth, history, tradition, legend, or record.
<b>‘ōhi‘a ‘ai</b>	The mountain apple tree, <i>Eugenia malaccensis</i> , a forest tree that grows to 50 ft. high.
<b>‘ōhi‘a lehua</b>	The native tree <i>Metrosideros polymorpha</i> , the wood of which was utilized for carving images, as temple posts and palisades, for canoe spreaders and gunwales, and in musical instruments.
<b>‘ōlelo no‘eau</b>	Proverb, wise saying, traditional saying.
<b>oli</b>	Chant.
<b>olonā</b>	The native plant <i>Touchardia latifolia</i> , traditionally used for making cordage.
<b>pili</b>	A native grass, <i>Heteropogon contortus</i> .
<b>stone</b>	Rock fragment ranging from 25 cm to less than 60 cm.
<b>uhiuhi</b>	The endemic tree <i>Mezoneuron kauaiense</i> , a legume with pink or red flowers and winged pods. It produces a hard, heavy wood that was used for hōlua sleds, spears, digging sticks, and house posts in ancient times.

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