

FINAL—Archaeological Assessment for Sea Life Park in Waimānalo Ahupua‘a, Ko‘olaupoko District, Island of O‘ahu

TMK: (1) 4-1-014:004 (por.)



Prepared For:

Sea Life Park
41-202 Kalaniana‘ole Hwy.
Waimānalo, Hawai‘i 96795

November 2023



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Prepared By:

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MANAGEMENT SUMMARY

An archaeological inventory survey was conducted at TMK: (1) 4-1-014:004 (por.) in Waimānalo Ahupua‘a, Ko‘olaupoko District on the island of O‘ahu. This was done in preparation for ground disturbance associated with construction and renovation at Sea Life Park. The archaeological work consisted of a pedestrian survey that covered 100% of the 18 ac. (7.28 ha) project area, as well as test excavations consisting of 16 trenches.

The property has 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. Due to negative findings, the AIS results are presented as an archaeological assessment per HAR §13–275. Although this survey produced no findings, archaeological monitoring is recommended during construction because part of the former Kaupō Village is located beneath Sea Life Park.

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INTRODUCTION

At the request of G70 on behalf of Sea Life Park, Keala Pono Archaeological Consulting conducted an archaeological inventory survey of TMK: (1) 4-1-014:004 (por.) in Waimānalo Ahupua‘a, Ko‘olaupoko District, on the island of O‘ahu. Sea Life Park plans to construct, renovate, expand, and relocate exhibits and facilities to improve the living conditions of the animals and guest experience. The archaeological inventory survey was designed to identify any historic properties that may be affected by the project 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 §275-5(b)(5)(A).

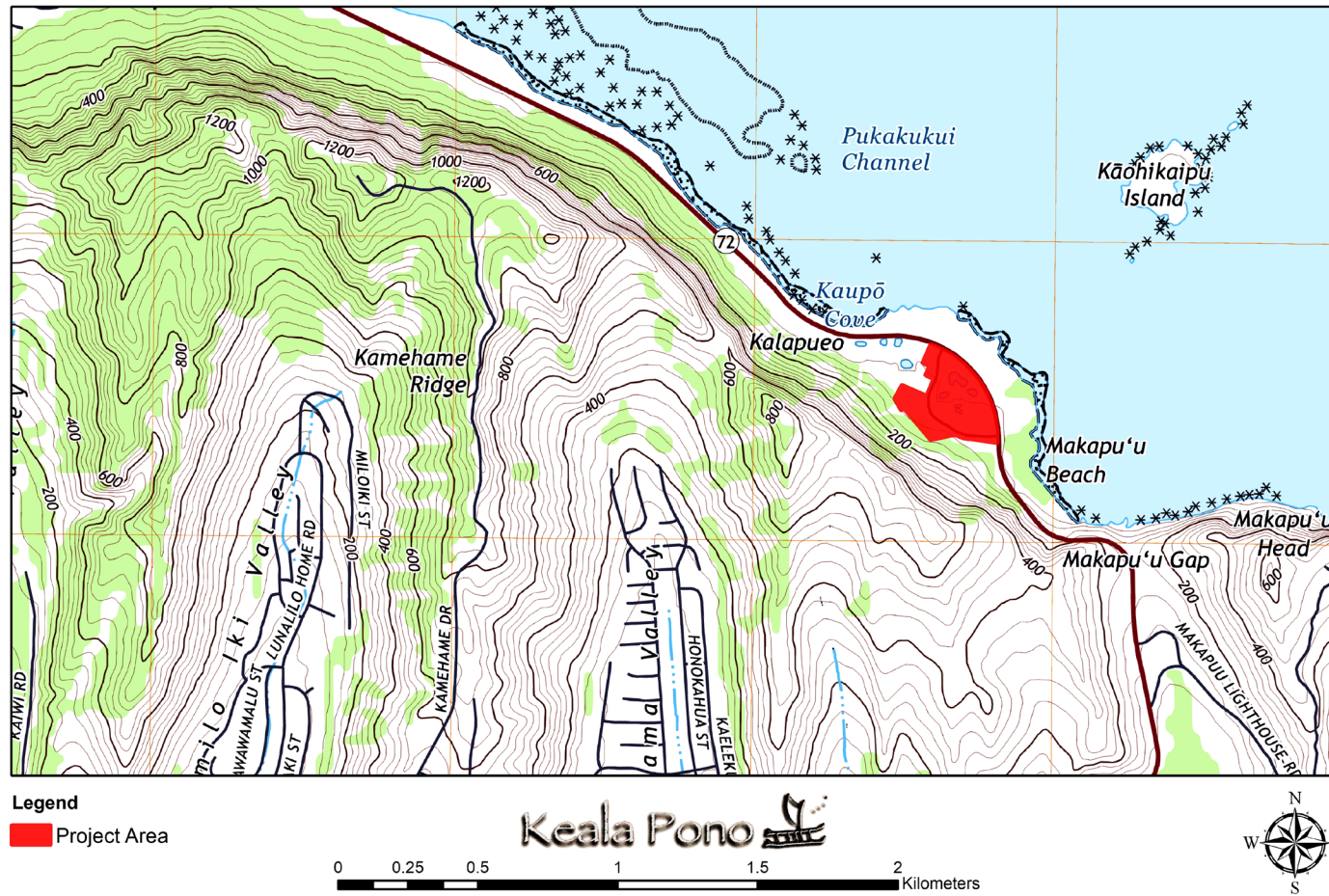
The report begins with a description of the project area and a historical overview of land use and archaeology in the area. The next section delineates methods used in the fieldwork, followed by the results of the archaeological survey. Project results are summarized and recommendations are made in the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

The Project Location and Environment

The project area is located on the island of O‘ahu in the district of Ko‘olaupoko, in the ahupua‘a of Waimānalo. Waimānalo is bounded on the north and east by the Pacific Ocean, south by the ahupua‘a of Maunalua, and west by Kailua. The Ko‘olau Mountain Range runs along the ahupua‘a from Kailua to Makapu‘u Point. TMK: (1) 4-1-014:004 is a 106-acre (42.9-ha) parcel owned by the State of Hawai‘i. The project area consists of 18 ac. (7.28 ha) on this parcel, bounded by the Ko‘olau Mountains on the southwest, Kalaniana‘ole Highway to the north and east, and an undeveloped parcel to the northwest (Figures 1 and 2).

The project area is situated in the eastern-most part of O‘ahu below the slopes of the Ko‘olau Mountains, at an elevation of roughly 12 m (40 ft.). The Ko‘olau volcano is relatively old, having ceased activity approximately one million years ago (Macdonald et al. 1983:298). However, the Kaupō flow, which built the Kaupō Peninsula, is one of the youngest flows of O‘ahu, thought to be only 32,000 years old (Macdonald et al. 1983:448). Several landmarks in the project vicinity are collectively known as the Koko fissure volcanics (Macdonald et al. 1983:448). These include Koko Head, Hanauma Bay, the Kalama cinder cone, the Kaupō vent, as well as the islands of Kāohikaipu and Mānana.

The region has a mean annual rainfall of approximately 72 cm (28 in.) per year (Giambelluca et al. 2013). Sea Life Park is approximately 200 m (656 ft.) from the Makapu‘u coastline. The nearest stream is on the opposite side of the Ko‘olau Mountains in Maunalua Ahupua‘a. This is Napaia Stream, a non-perennial watercourse, the head of which lies approximately 900 m (.56 mi.) from Sea Life Park as the crow flies. Topography in the project area is mostly flat to gently sloping, and vegetation consists of landscaped plants and grasses within the park, and scrub brush such as kiawe and koa haole in undeveloped areas.



Layer Credits: USGS Topographical Koko Head Quadrangle Map 2017

Figure 1. Project area on a 7.5 minute USGS Koko Head quadrangle map (USGS 2017).



Soils of the project area consist mostly of Fill land, mixed (FL) and Rock land (rRK), with Rock outcrop (rRO) at the base of the Koʻolau Mountains (Figure 3). Fill land, mixed “consists of areas filled with material dredged from the ocean or hauled from nearby areas, garbage, and general material from other sources” (Foote et al. 1972:31). Rock land consists of places where exposed rock covers 25–90% of the ground surface, while Rock outcrop is where bedrock is exposed over more than 90% of the surface (Foote et al. 1972:119). Also in the vicinity are Beaches (BS), Kaena stony clay 2–6% slopes (KaeB), Kawaihapai stony clay loam 2–6% slopes (KlaB), Kawaihapai stony clay loam 0–15% slopes (KlbC), Lualualei stony clay 0–2% slopes (LuA), and Lualualei stony clay 2–6% slopes (LvB).

The Project

The project will involve construction, renovation, expansion, and relocation of exhibits and facilities at Sea Life Park (Figure 4). These include ticketing, retail, the Hawaiʻi Ocean Theater, Shark Cave, restaurant, splash play area, lūʻau area, indoor aquarium, and conservation center. Renovation and expansion will occur for the Honu Conservation and Education Center. The Penguin Exhibit, Seabird Sanctuary, and Hale Manu Aviary will be relocated and upgraded along with the seawater life support delivery system.

The parking lot will also be renovated and expanded to accommodate the increase in facility floor area and visitors. Vehicle access and circulation will be upgraded to include pedestrian safety measures. There will be improved signage and landscaping throughout the park. The expansion will accommodate an anticipated visitor increase and create a new identity for the park where kamaʻāina and visitors to Oʻahu can experience marine wildlife and the culture of the islands. Completion of the project is anticipated for 2025.

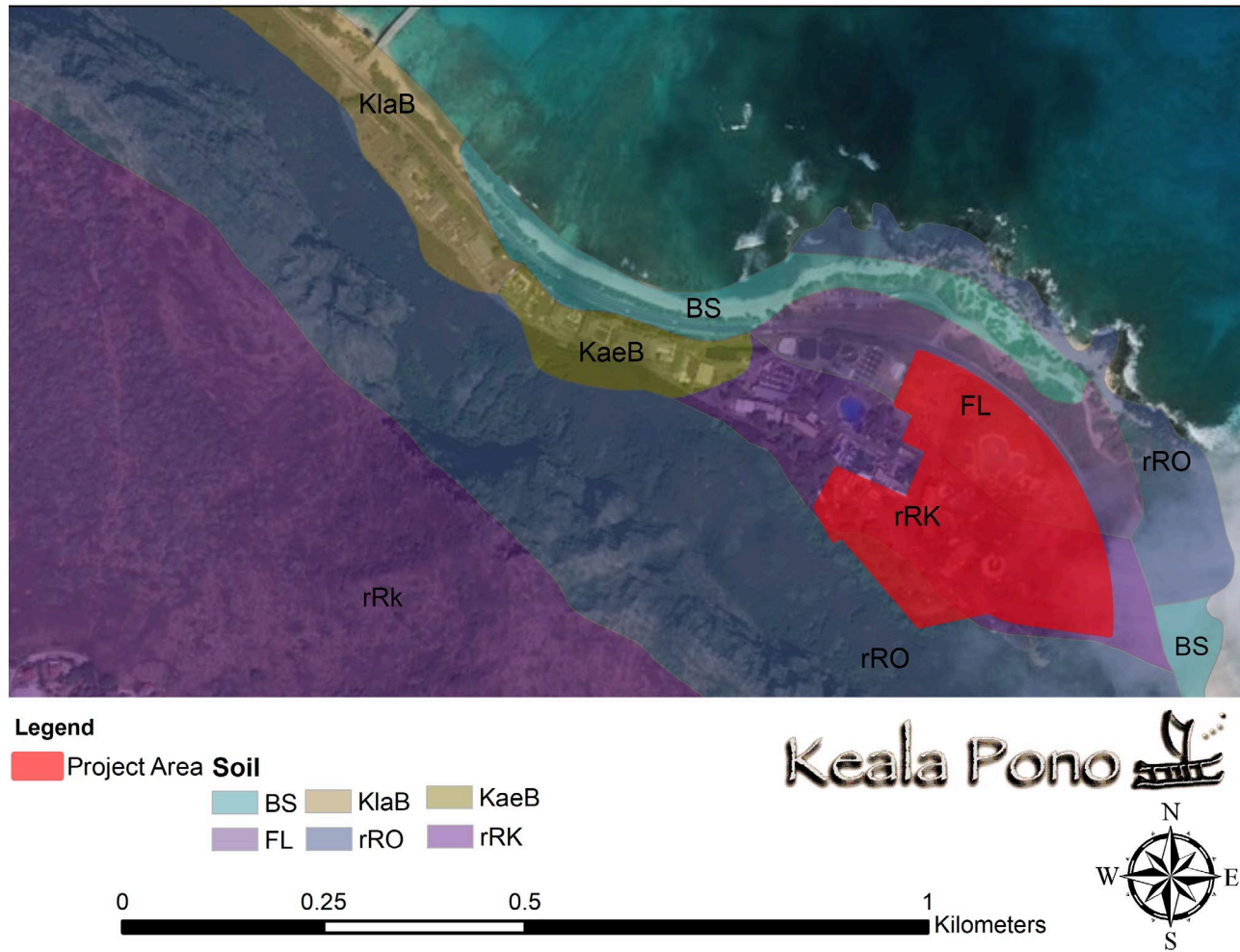


Figure 3. Soils in the vicinity of the project area.



Improvement Areas

Renovation Plan
05/07/2019

0-5

Figure 4. Plans for proposed renovations and improvement at Sea Life Park dated May 07, 2019 (G70 2019).

BACKGROUND

A brief historic review of Waimānalo 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 (e.g., traditional and historic archaeological sites) and intangible (e.g., 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, and Ulukau databases. Archaeological reports and historical reference books were among the materials examined.

Waimānalo in The Pre-Contact Era

Information compiled for the pre-contact era includes data on place names, land use, and subsistence, as well as several mo‘olelo, mele, and ‘ōlelo no‘eau. Together, they give us an idea of what life may have been like in the past.

Subsistence and Traditional Land Use

Waimānalo, whose name means “Potable Water,” was an area of abundance in traditional times. Kalo was grown along the main watercourse, Puhā Stream, as well as in the back of the valley, watered by natural springs (Handy et al. 1991:457). ‘Uala was also grown in the drier regions of the ahupua‘a, marine resources were plentiful, and turtles were kept in an offshore pond for ali‘i consumption (Handy et al. 1991:458–459). Charles Alona and McAllister (1933) both describe the enclosure called Pahonu. It is located next to present day Kaiona Beach Park:

There was once a chief who was so fond of turtle meat that he ordered a sea wall built to keep captured turtles from escaping. Every turtle caught by a fisherman was put into this enclosure. No one else was allowed to partake of turtle meat under penalty of death. No one dared to eat turtle as long as the old chief lived. (Alona 1939 in Sterling and Summers 1978:249)

Alona also mentions many ko‘a throughout Waimānalo, suggesting a thriving fish population. Out on the offshore island of Mānana, he saw old burials eroding out of the cliffside and two fishing shrines. The fishing shrines were erected for ‘āholehole and moi, which flourished in the area (Alona 1939 in Sterling and Summers 1978:256). Alona also references Kini Ko‘a, which drew schools of akule and ‘ō‘io, and Kaluahine Ko‘a, which was probably destroyed (Alona 1939 in Sterling and Summers 1978:249, 251). Both are located near Makai Pier, not far from the current project area.

In the book *Native Planters*, Waimānalo is used as an example to explain the traditional planting of bananas, next to the native houses; around the taro terraces; and along the edge of the forest.

Bananas have been from prehistoric times until today planted by Hawaiians in clumps around their dwellings and on the well-watered banks of flooded taro terraces... On the lower forest fringe the native varieties were planted in small protected gulches, as along the base of the cliffs at Waimanalo, Oahu... (Handy et al. 1991: 161–162)

Fresh water springs were abundant in Waimānalo, and some of these potable water sources were important in understanding the settlement patterns in the area:

At Olomana above the sugar mill there was a fine old spring. This area was then thickly populated. There was another spring across the road from what is now Bellows Air Force

Base. Near this is Maha'ilua, another thickly populated place with a good water supply in earlier days. (Handy et al. 1991:458)

Much of the population was concentrated around Puhā Stream, now referred to as Waimānalo Stream, but several coastal villages are also known to have existed in the vicinity of the project area. Ka'alapueo, or "The Rallying of the Owls," was a small settlement consisting of a few fishermen's houses. It was located near Makapu'u Point (Handy et al. 1991:459).

Kaupō Village stood within the project area at the present location of Sea Life Park. Translated as "Landing of Canoes at Night" (Pukui et al. 1974:96), Kaupō is thought to have been established by Hawaiians fleeing Honolulu as a result of an 1853 smallpox epidemic (McAllister 1933; Stump 1981). The disease eventually ravaged the village and it was abandoned. Excavation of one of the Kaupō Village features, however, indicates greater antiquity for the site, with occupation beginning in the pre-contact period and continuing into the historic era (Gormley et al. 1971). Kaupō was originally known as Ko'onāpou, or "staff posts," named for the posts that held up the thatched roofs of the houses (Pukui et al. 1974:117). Another source states that the village was named after a kahuna whose house was reinforced by posts to secure it against the strong wind coming in from the sea (Handy et al. 1991:459). The kahuna was a renowned healer and this is the reason that the villagers populated the area during the epidemic. The spring that watered the village dried up after the death of the kahuna, and the remains of his house and a nearby ko'a were destroyed during World War II (Handy et al. 1991:459).

Farther west, across from Waimānalo Beach Park, was the village of Pu'u o Moloka'i (Handy et al. 1991:458). The village was established by settlers from Moloka'i who kept themselves distinct from others, for if a resident married someone from elsewhere in Waimānalo they were banished from Pu'u o Moloka'i (Handy et al. 1991:458).

Kaiona Beach Park is said to have been named after one of Pele's family members, a kind goddess of the Wai'anae Mountains (Pukui et al. 1974:70). "*Nani ke kula a Kaiona i ka ho'ola'i a nā 'iwa*" is an old adage that translates to "The plain of Kaiona is pretty as the frigate birds soar" (Pukui et al. 1974:70).

Makapu'u, the famous surfing beach, was named for an idol located in a cave called Ke-ana-o-ke-akua-pōloli (Pukui et al. 1974:103, 142). Ke-ana-o-ke-akua-pōloli, or "The Cave of the Hungry God," was visible only from the ocean. It is said that a goddess lived in the cave but the area was too dry to cultivate crops.

Place Names

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).

Many place names for Waimānalo and the current project area are listed in *Place Names of Hawaii* along with their meanings and/or other comments about the specific locales:

Kaiona. Beach park...said to be named for a benevolent relative of Pele...(Pukui et al. 1974:70)

Kākalaioa. Rock in the sea off Makapu'u, O'ahu. *Lit.*, gray nickers (a rough bramble; the rocks here are as sharp as *kākalaioa* thorns). (Pukui et al. 1974:71)

Kāohikaipu. Islet (a tuff cone, 11 acres, 40 feet elevation) near Rabbit Island, O'ahu. A native reports that the island was formerly called Mokuhope (island behind), and that a rock that projects at low tide was Kāohikaipu (hold back the container), so called because the rock blocked sea-swept matter. (Pukui et al. 1974:86)

Kaupō...A peninsula and once a fishing village northwest of Makapu'u Point, O'ahu, now the site of a beach park and of Sea Life Park. The point of land was formed by lava which flowed to the sea from a vent about 200 feet up the cliffside; this was perhaps the most recent of the secondary eruptions on O'ahu...See Ko'o-nā-pou. *Lit.*, landing [of canoes] at night. (Pukui et al. 1974:96)

Keanaokeakuapōloli. A cave at Makapu'u, O'ahu, visible only from the sea...*Lit.*, the cave of the hungry god. (A goddess lived here; the area was too dry to grow food.) (Pukui et al. 1974:103)

Ko'olau Poko. District, southern windward O'ahu. *Lit.*, short Ko'olau. (Pukui et al. 1974:117)

Ko'onāpou. Old name for Kaupō, Waimānalo, O'ahu. *Lit.*, staff posts (posts supported thatched roofs of the stone houses in this village). (Pukui et al. 1974:117)

Makapu'u... *Lit.*, hill beginning *or* bulging eye (the name of an image said to have been in a cave known as Keanaokeakuapōloli.) (Pukui et al. 1974:142)

Mānana. Offshore island, also known as Rabbit Island, a tuff cone (67 acres, 200 feet elevation)... (Pukui et al. 1974:145)

Mokuhope. See Kāohikaipu. *Lit.*, island behind. (Pukui et al. 1974:155)

Muliwai'ōlena. Stream, Waimānalo, O'ahu. *Lit.*, turmeric river *or* yellow river. (Pukui et al. 1974:158)

Puhā. Stream, Waimānalo, O'ahu. *Lit.*, a hollow (as in a tree). (Pukui et al. 1974:192)

Pu'uokona. Peak (2,200 feet high), above Waimānalo, O'ahu. *Lit.*, hill of leeward. (Pukui et al. 1974:204)

Pu'uomoloka'i. Hill, Waimānalo, O'ahu. *Lit.*, hill of Moloka'i. (Pukui et al. 1974:204)

Waimānalo... *Lit.*, potable water. (Pukui et al. 1974:225)

Mo'olelo

The well-known epic surrounding Pele and Hi'iaka details the travels of the two goddesses who landed on O'ahu at Makapu'u:

As they [Hi'iaka and her companion Malei] traveled on, Makapu'u and its neighbor hills passed out of sight. Arriving at Ka-ala-pueo, they caught view of the desolate hill Pohaku-loa, faint, famished, forlorn...*'It [southeastern Waimānalo] is indeed a barren land. Fish is the only food it produces. Our vegetables come from Waimanalo. When the people of that district bring down bundles of food we barter for it with our fish.'* (Emerson 1997:89)

Ka Leo o Ka Lāhui, a Hawaiian language newspaper published the legend of Hi‘iaka I Ka Poli O Pele in 1893. In this story Hi‘iaka continues her journey through Waimānalo where she overheard ‘Āpuakea compare herself to Hi‘iaka’s beauty. ‘Āpuakea and her mother Muliwai‘ōlena were eventually killed for this comment:

They traveled past Kuhui (Kukui?) and Pahonu where the people shouted at the beauty of Hiiaka. The news reached the ears of Apuakea and she said to her mother, Muliwaiolena, “Oh, Muliwaiolena, go and take a look at the women whose beauty the people are shouting about and see if they are as beautiful as I am.” Muliwaiolena came out and looked. Never had she seen anything on O‘ahu to equal the beauty of these women. Turning to Apuakea she said, “Daughter, your beauty does not compare with their great beauty. You are like the soles of their feet.” Hearing this, the expression on Apuakea’s face changed and she fainted away.

Hi‘iaka overheard the words of the woman to her daughter and she uttered this chant:

O Apuakea-nui, you beautiful woman, Comparisons have been made of your charms,
You are beautiful, beautiful indeed.

Muliwaiolena then called out to Hi‘iaka and her friend, “Come in, eat and drink and when you are full then continue on your long journey.” But the travelers did not accept as they did not like the embarrassing comparison that had been made between themselves and the young girl, Apuakea.

As the travelers went off Muliwaiolena suddenly fell dead. Shortly afterwards Apuakea died...(*Ka Leo o Ka Lāhui* 1893 in Sterling and Summers 1978:248–249)

‘Āpuakea was once the name for the coastal region of central Waimānalo where Waimānalo Beach Park is today (Alona 1939 in Sterling and Summers 1978:245). Kapu‘a, the setting of the tale, is thought to be located at Muliwai‘ōlena Stream, which runs to the ocean near Waimānalo Beach Park.

Not far from the project area at Kaupō Beach Park is a black stone named Pōhaku Pa‘akiki. The stone is said to have once been higher up and supported by another stone, but has since fallen. Pōhaku Pa‘akiki is linked to the human-eating shark god Kamohoali‘i who lived in the area:

Near Kalaekiona lived a man who liked to catch sharks and annoyed Kamohoali‘i by chopping off the tails and bringing them to this spot [Pōhaku Pa‘akiki] to throw into the sea...The shark god caught him fishing one day and began to devour him, beginning at his feet. He kept on chewing all the way up to the buttocks. The smell of excrement in his bowels nauseated Kamohoali‘i and so he swore an oath never again to hurt nor allow any other shark to hurt any person from Makapu‘u to Kalaeokaoia. From that time on, no shark has ever eaten human flesh at Waimānalo. (Alona 1939 in Sterling and Summers 1978:252)

Around the same area is a spot called Kaluahine. A ko‘a is said to be in this location, where fishermen once offered their first catch of the day. The name Kaluahine means old woman and may refer to a beautiful girl who lived here. It is said that even though she was young, she had the wrinkly face of an old woman, yet was still eerily beautiful (Alona 1939 in Sterling and Summers 1978:251). Just beyond Kaluahine is Kalaekiona, which housed an ‘alaea deposit used in medicinal practices.

Kaupō Village at Sea Life Park is the setting for a story about a talented chanter and healer named Kapoi. He built a wall and thatched roof in the area, but there was no potable water. After praying to the gods, a spring began flowing and Kapoi was able to live off the land. People came from across the islands for his renowned ability to heal the sick. Some of those he cured stayed at Kaupō and lived alongside Kapoi, turning the area into a small village. One day when Kapoi's wife was away, he committed adultery and later had a dream prophesying his death. Soon after, smallpox killed many villagers including Kapoi, and the springs dried up leaving Kaupō Village abandoned (Alona 1939 in Sterling and Summers 1978:254).

Oli

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. Waimānalo's rightful place in Hawaiian history is bolstered by its appearance in traditional chants. 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 appears in Hi'iaka's saga mentioned earlier. In this chant Hi'iaka calls out to Makapu'u upon her arrival to O'ahu, and Makapu'u replies in answer. The account is described in Emerson's *Pele and Hiiaka: A Myth From Hawaii*, and depicts the Makapu'u area of Waimānalo as a barren and desolate place:

Hiiaka's adventurous tour of Moloka'i ended at Kaunakakai from which place she found no difficulty in obtaining the offer of transportation to Oahu... It was a question with Hiiaka whether to follow the Koolau or the Kona side of the island. The consideration that turned the scale in favor of the Koolau route was that thus she would have sight of a large number of aunts and uncles, members of the Pele family whose ghosts still clung to the dead volcanic cones and headlands which stood as relics of their bygone activities, and where they eked out a miserable existence. The region was thickly strewn with these skeleton forms. Hiiaka first addressed herself to Makapu'u:

Noho ana Makapu'u i ka lae,

He wahine a ke Akua Pololi:

Pololi, ai ole, make i ka pololi, e!

Makapu'u dwells at the Cape,

Wife to the god of Starvation:

Hunger and death from starvation!

To this Makapu'u answered: "We love the place, the watchtower, from which we can see the canoes, with their jibing triangular sails, sailing back and forth between here and Moloka'i." To this she added a little chant:

E Makapu'u nui, kua ke au e!

Na mauu moe o Malei, e,

I ai na maua, i ai na maua, e!

Oh Makapu'u, the famous,

Back pelted by wind and by tide,

Oh the withered herbs of Malei!

Oh give us some food for us both! (Emerson 1997:86–88)

Soon after Hi'iaka's visit Makapu'u, she addresses the kupua Malei. In historic times, a stone ki'i was found in a cave in the area and was said to be that of Malei. Here is Hi'iaka's chant to Malei:

O wau e hele i na lae ino o Koolau,
I na alae makakai o Moeau;
E hele ka wahine auhula ana o ka pali,
Nana uhu ka'i o Makapu'u
He i'a ai na Malei, na ka wahine
E noho ana i ka ulu o ka makani.
I Koolau ke ola, i ka huaka'i malihini,
Kanaenae i ka weuwe'u,
Ola i ka pua o ka mauu.
E Malei e, e uwe kaua;
A e Malei e, aloha ino no, e.
*I walk your stormy capes, Koolau,
The wave-beaten capes of Moeau,
Watchtowers, where the women who brave the sea
May see the uhu coursing by
Meat for the woman who faces the gale,
Seafood for the woman Malei;
For her living comes from Koolau,
From pilgrim hands that pass her way;
Yet we bless the herbs of the field,
Whose bud and flower is meat for Malei;
We pity and weep for Malei.*

You are quite right," answered Malei: "the only food to be had in this desolate spot is the herbage that grows hereabouts; and for clothing we have to put up with such clouts as are tossed us by travelers. When the wind blows one has but to open his mouth to get his belly full. That has been our plight since your sister left us two old people here. Cultivate this plain, you say; plant it with sweet potatoes; see the leaves cover the hills; then make an oven and so relieve your hunger. Impossible..." (Emerson 1997:88-89).

‘Ōlelo No‘eau

Waimānalo's place from pre-contact Hawaiian history has also been preserved in 'ōlelo no'eau or traditional proverbs and wise sayings. 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).

Although there are no 'ōlelo no'eau specifically listed for Waimānalo, there is one which refers to Makapu'u. This proverb suggests that Makapu'u was a known fishing ground for uhu, or parrotfish. There is another, which refers to the Ko'olau region in general. This proverb suggests

that Waimānalo and other windward ahupua‘a are lush and verdant. Here are the two ‘ōlelo no‘eau as they appear in Pukui’s book:

Ka pali nānā uhu ka‘i o Makapu‘u.

The uhu-observing cliff of Makapu‘u.

The sea surrounding Makapu‘u Point, O‘ahu, is the favorite haunt of the uhu (parrotfish). (Pukui 1983:165)

Nā pali hāuliuli o ke Ko‘olau.

The dark hills of Ko‘olau.

The hills and cliffs of the windward side of O‘ahu are always dark and beautiful with trees and shrubs. (Pukui 1983:249)

Waimānalo in the Historic Era

During the early historic era, Waimānalo was an important site of passage to and from the island of O‘ahu. Waimānalo was an area relatively cut off from the rest of the island by land, however the long lengths of sandy beaches provided easy access by sea. King Kamehameha took advantage of this during his conquest to unite the Hawaiian Islands. He sent a runner to the O‘ahu chief, Kahekili, and later ordered a portion of his fleet to disembark at Makapu‘u:

Ki-kane, Kamehameha’s messenger to Kahekili, threw down two maika stones, this stone (the white) brings life through farming and fishing, rearing men, and providing them with food; this other stone (the black) brings war. Let the reader ponder the meaning of this answer. Kahekili asked, Is Kamehameha coming to O‘ahu to fight? ‘Yes’ answered Ki-Kane. What harbor will he choose? It was Kiko‘o’s counsel to make Waimanalo the harbor and battle site. ‘It is too low there to cast sling stones to reach the heights. It is good only for food and fish...’ (Kamakau 1961:150)

Upon taking control of O‘ahu, King Kamehameha I allocated portions of the island to his chiefs, keeping the Waimānalo Ahupua‘a and other regions for himself. The ahupua‘a of Waimānalo stayed within the monarchy’s private lands until it was passed down to Kauikeaouli, Kamehameha III (Hawaii Commission of Public Lands 1929:28).

Changes in Land Tenure

With such foreign influence during Kamehameha III’s reign, sweeping changes were made to the traditional land tenure system. The first big change came with the Māhele of 1848 where the ahupua‘a of Waimānalo was awarded to Victoria Kamāmalu. The Kuleana Act of 1850 immediately followed and Kamāmalu leased 6,970 acres of Waimānalo Ahupua‘a for \$350 a year to Thomas Cummins, husband of High Chiefess Kaumakaokane, a cousin of Kamehameha I (Harland Bartholomew and Associates 1959).

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 need not be interpreted as a selfish act that alienated the maka‘āinana from the land. The reciprocal relationships between the commoners and the chiefs continued to exist, and for this

reason, perhaps the chiefs were expected to better care for the commoners' rights than the commoners themselves who arguably might not have been as well versed in 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 hoa'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 land commission awards 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.

Most of the LCAs in Waimānalo are situated in the northwestern portion of the ahupua'a, along Waimānalo Stream, with a few LCAs scattered along the coast. In Waimānalo, it was common for a coastal LCA to have an associated upland lot, the upland parcel used for taro cultivation and the coastal property for fishing (Alona 1939 in Sterling and Summers 1978:246). There are no LCAs located in the vicinity of the project area. The closest LCA is in the vicinity of Pahonu Pond to the northwest. This is LCA 3265:2, granted to Lauheai (see Figure 7).

Historic Land Use

Thomas Cummins leased the ahupua'a of Waimānalo from Victoria Kamāmalu for 50 years starting in 1850 when he turned the area into a large ranch named Mauna Rose (Harland Bartholomew and Associates 1959). His son John later leased parts of it to Chinese rice farmers. Soon the Chinese farmers began cultivating sugarcane and John Cummins established a sugar mill and the Waimanalo Landing. A railroad was also built, linking the Cummins ranch to the landing:

Kamehameha V often visited the [Cummins'] plantation. When he grew too heavy to make the trip over the Pali on horseback, he is said to have acquired a small steamboat to transport him around the southern tip of Oahu to Waimanalo. A railroad track was laid to carry the rotund monarch from the landing to the Cummins home. (Thomas 1983:77)

The Cummins' ranching operations were detrimental to the delicate Hawaiian environment and ignored traditional ways of life. Farm animals roamed freely trampling native plants, and kuleana lots. An account published in *Kuokoa*, a Hawaiian language newspaper describes the landscape of Waimānalo before and after Cummins ranch:

At that time, it seemed that the valley was filled with breadfruit, mountain apples, kukui and coconut trees. There were taro patches, with banks covered with ti and wauke plants. Grass houses occupied the dry lands, a hundred of them here and sweet potatoes and sugar cane were much grown. It was a great help toward their livelihood...The whole ahupua'a of Waimanalo was leased to white men except the native kuleanas and because the cattle wandered over them, they were compelled to build fences for protection. The

taro patches that were neatly built in the time when chiefs ruled over the people and the land, were broken up. The sugar cane, ti and wauke plants were destroyed. The big trees that grew in those days, died because the roots could not get moisture. The valley became a place for animals. (*Kuokoa* 1906 in Sterling and Summers 1978:244)

By 1890 Cummins controlled the Waimanalo Sugar Company, which bought cane from Chinese farmers until the turn of the century when the company cultivated most of its own sugar. The Waimanalo Sugar Company later fell into the hands of C. Brewer & Company, and production of sugar ceased in 1947 (Harland Bartholomew and Associates 1959).

South of the project area, a Federal Aviation Administration communications center with several radio towers stood where the Hawaii Kai Golf Course is now. The Makapu‘u Lighthouse was constructed in 1906 after the luxury ocean liner Manchuria ran aground on the Makapu‘u reef (Stump 1981), and the Makapu‘u Military Reservation was established in the lighthouse area in 1922. In 1932 Bishop Estate trustee Alan Davis leased 600 acres of land for cattle ranching near Queen’s Beach (Stump 1981). The area would later come to be known as “Alan Davis.” A 1946 tsunami destroyed Davis’ ranch along with many coastal sites in the ahupua‘a.

West of the project area, the 1,510-acre Bellows Field was set aside for military use in 1917, and is still operating today. Kalaniana‘ole Highway was opened in 1924, providing easier access into the region. The next year, 90 acres of beachfront property was sold to private bidders as the Waimanalo Beach Lots adjacent to Waimānalo Beach Park (Harland Bartholomew and Associates 1959). Also in 1925 the Hawaiian Homes Commission established the Waimanalo Homestead, awarding lots to native Hawaiians mauka of Kalaniana‘ole Highway roughly from Waimanalo Landing to Waimanalo Beach Park.

Historic Maps

Historic maps help to paint a picture of Waimānalo 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 1833 (Figure 5). It depicts O‘ahu in its entirety and labels the locations of Waimānalo, Makapu‘u, and Awaialalu in the mountain pass. One island in the waters off of the project area is also portrayed.

The second map is dated 1880, and it specifically shows the “Southside of O‘ahu” (Figure 6). In Waimānalo near the project area, Makapu‘u Point and four offshore Islands: Manana I, Black Rock, Mokuohope I, and Chickens Rocks are illustrated. To the northwest, a sugar house, mill, and cane fields are clearly depicted. A railroad is labeled as “Tramway,” and Waimānalo town appears more developed, with more structures and a “Road to Honolulu” shown.

The next map labeled “Waimānalo Ko‘olaupoko, O‘ahu,” was compiled in 1916 from surveys done by G.E.G. Jackson in 1884, and M.D. Monsarrat in 1880 (Figure 7). The map outlines Waimānalo Ahupua‘a bounded by the Ko‘olau Mountain Range and depicts Wailea Point on the northwest, Makapu‘u Point on the southeast, as well as Waimānalo Bay, the Waimānalo Beach Lots, the U.S. Military Reservation, and Olomana. “Executive Order No. 197, Sept. 9, 1925 Public Park” is marked at the Sea Life Park project area. The ocean directly offshore is labeled as having a depth of 9 feet, and three islands: Manana, Black Rock, and Mokuohope are shown. Down the coast to the northwest is LCA 3265:2, granted to Lauheai. Farther west is a semi-circle of rocks on the shoreline depicting Pahonu, with what appear to be house lots behind it. The landing is visible farther to the northwest with a railroad track leading mauka from it, along with a “pipe line to light-house.” The Waimānalo Beach Lots are shown in this vicinity on the coast, and sugarcane land is inland. A “proposed Kamehameha Highway” segment is also in the vicinity, near the sugar mill.

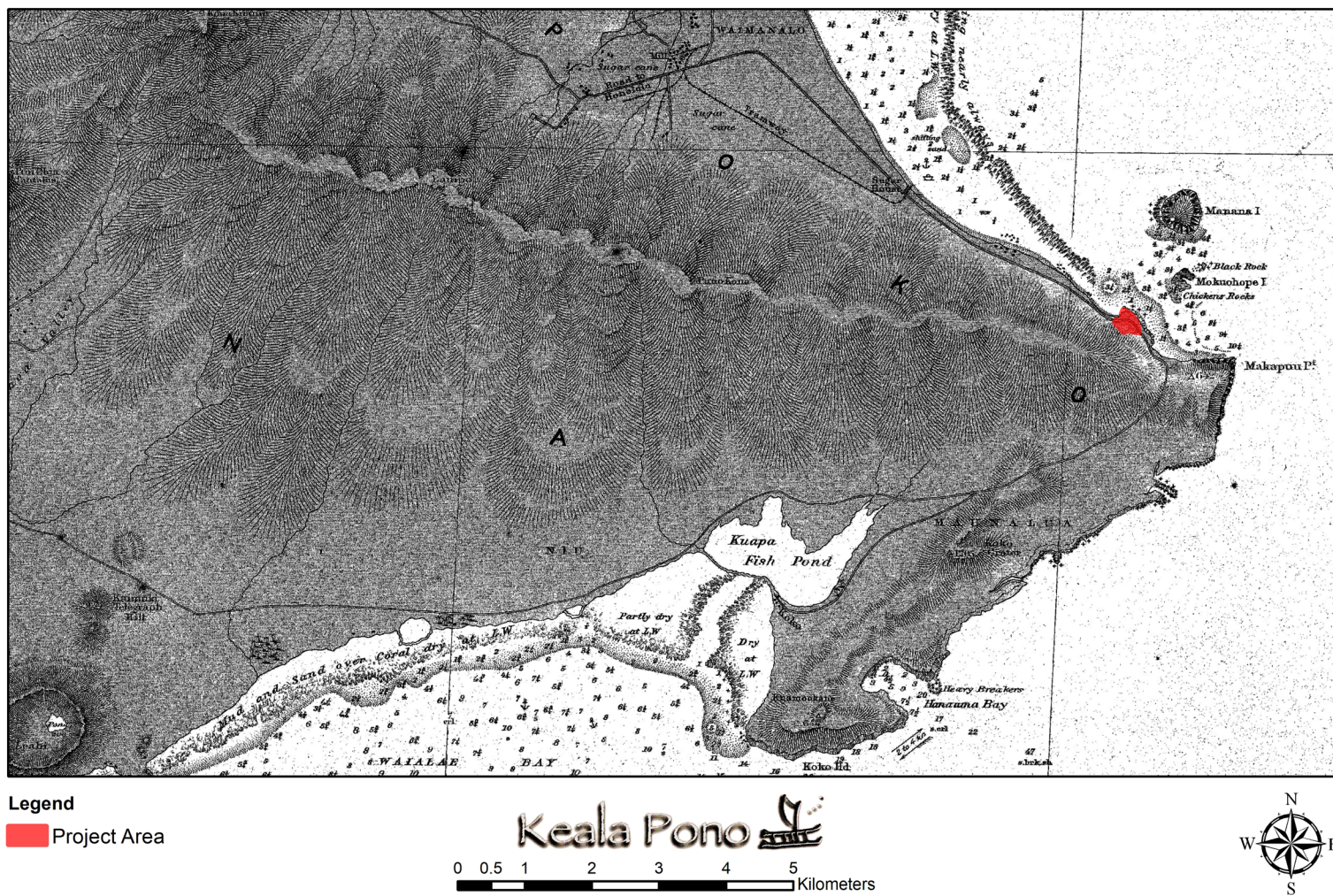


Figure 6. Portion of a map of the south side of O'ahu (de Krafft 1880).

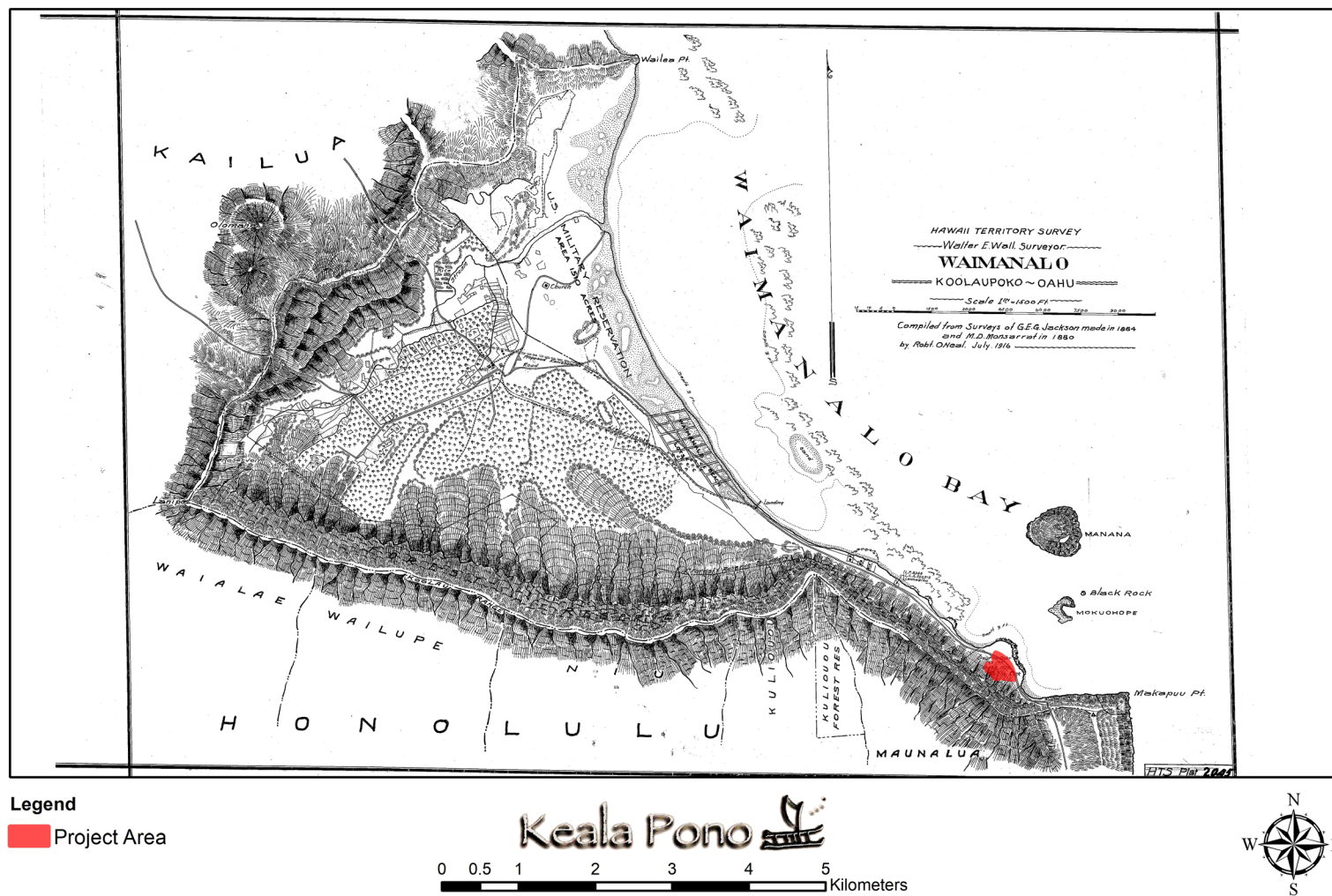


Figure 7. Early map of Waimānalo [ONeal 1916 (compiled from surveys in 1880 and 1884)].

A 1902 map of O‘ahu depicts Waimānalo in green, which is designated as public lands (Figure 8). A large tract in the west of the ahupua‘a is outlined in red and labeled “Waimanalo Sugar Co.” This area is also designated as crown lands. A sugar mill is depicted roughly in the center of the ahupua‘a, alongside a red and blue dot, which signify a post office and school, respectively. Railroad tracks can be seen running from the landing at the coast to the sugar mill. A road skirts the coast in the Makapu‘u area, where Kalaniana‘ole Highway is today. Offshore islets are labeled “Manana (or Rabbit Is)” and “Kaohikaipu Island.” In the ocean outside of the landing is a bench of shifting sand.

Contemporary History

Within a few decades after the Māhele, much of the land throughout Hawai‘i (though not necessarily in the project area) was owned by foreign businessmen. The turn of the century found these foreigners running the government in Hawai‘i after the monarchy was overthrown. As the decades continued, agriculture strengthened as the main industry throughout the Hawaiian Islands, and a market for tourism began to grow. The prominence of agriculture and tourism remained strong throughout the 20th century until today. Tourism on O‘ahu was centered on the southwest shore of Waikīkī and Honolulu.

Waimānalo was left for residential development, and in 1921 following the Hawaiian Homes Commission Act signed by President Warren Harding, construction of Hawaiian homesteads began. As mentioned above, Hawaiian Homestead lots were first awarded in Waimānalo in 1925. By 1940 the first set of 88 houses was constructed, and by 1958 a second set of 108 homes and a third set of 30 homes were completed (Harland Bartholomew and Associates 1959). The newest homestead subdivision, Kaka‘ina is currently in construction in the northwestern part of Waimānalo (Department of Hawaiian Homelands 2017).

Sea Life Park

The Pacific Foundation for Marine Research leased the land around Makapu‘u in 1960 for marine education, science, and ocean industry operations. Sea Life Park became its own entity in 1972 and was acquired by the Mexican company, Dolphin Discovery in 2005 before quickly changing ownership again in 2008 to Palace Entertainment. Palace Entertainment is the U.S. subsidiary of Parques Reunidos, which together operates more than 80 amusement parks, zoos, water parks, entertainment centers, and marine animal parks throughout the world.

Today, Sea Life Park Hawaii features marine habitats and exhibits, an aviary, sea bird sanctuary, animal shows, lū‘au, and ocean animal encounters such as swimming with dolphins and sea lions. The enterprise also rents indoor and outdoor venues for weddings and special events.

Previous Archaeology

Previous archaeological surveys offer significant information regarding traditional and historic land use. Several studies have been conducted in and around the study area (Figure 9 and Table 1). The following discussion summarizes the findings of archaeological studies in the Sea Life Park vicinity, based on reports found at the SHPD Kapolei library. State Inventory of Historic Places (SIHP) numbers are prefixed by 50-80-15, unless otherwise noted (Figure 10).

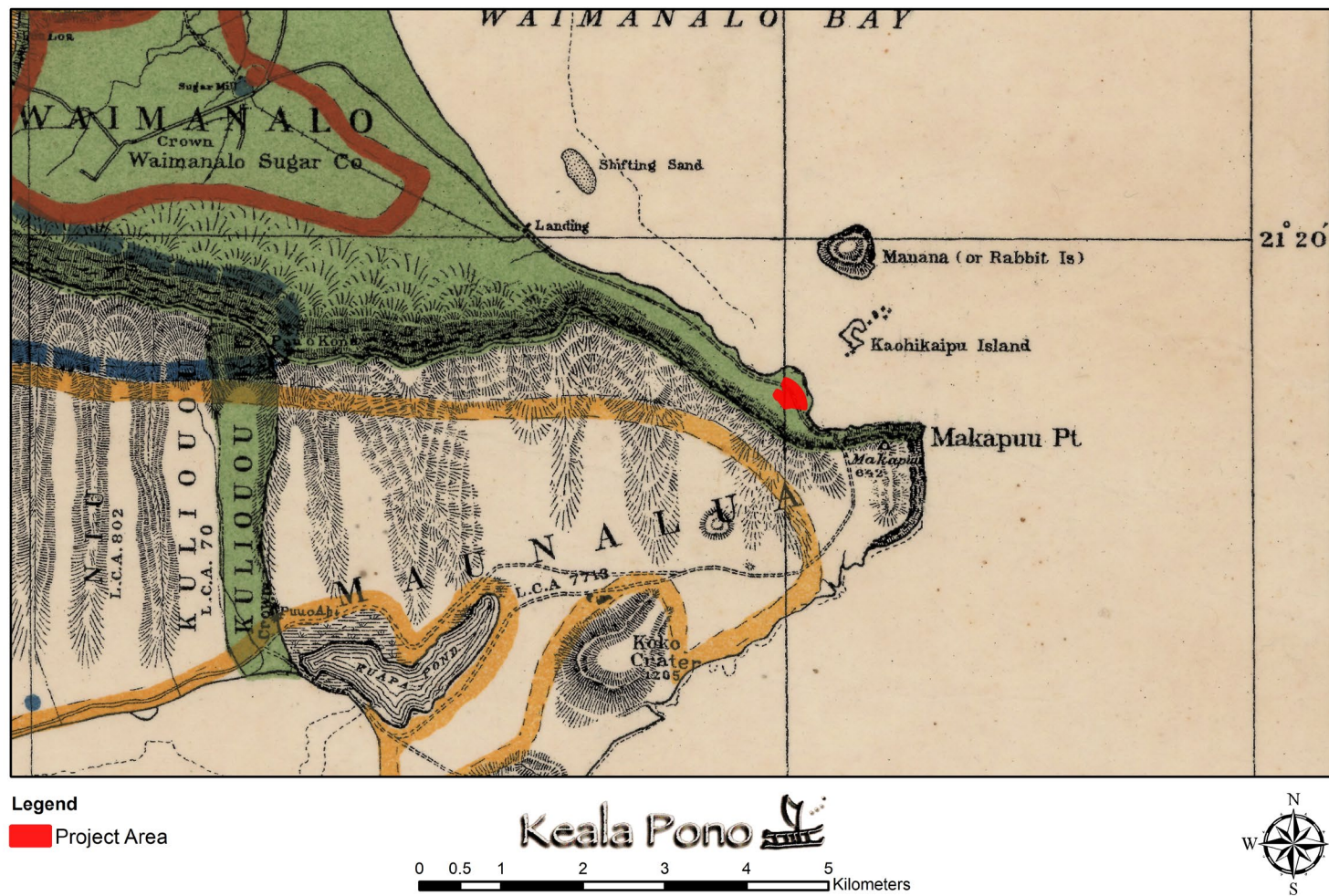


Figure 8. Portion of an O'ahu land use map (Wall 1902).

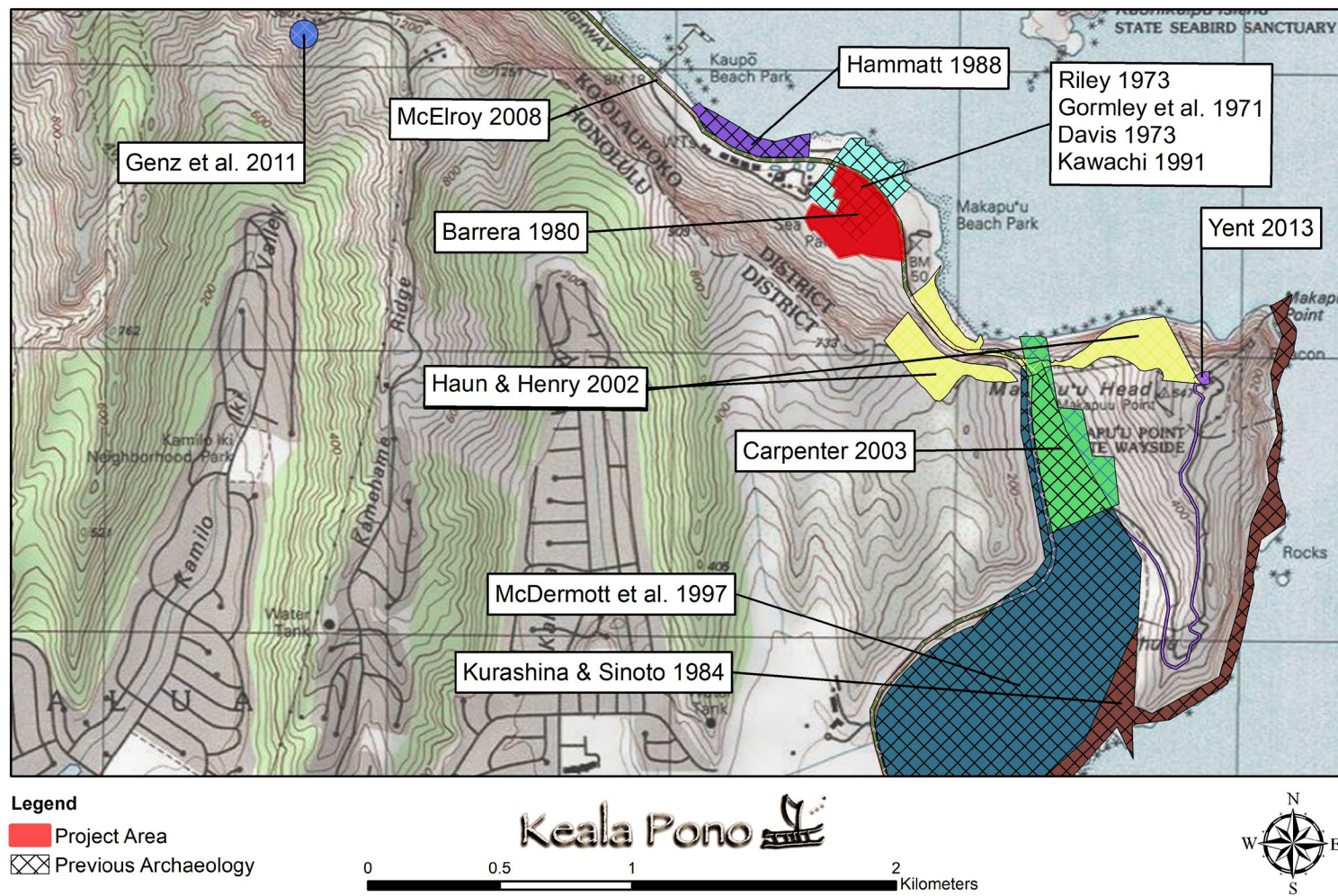
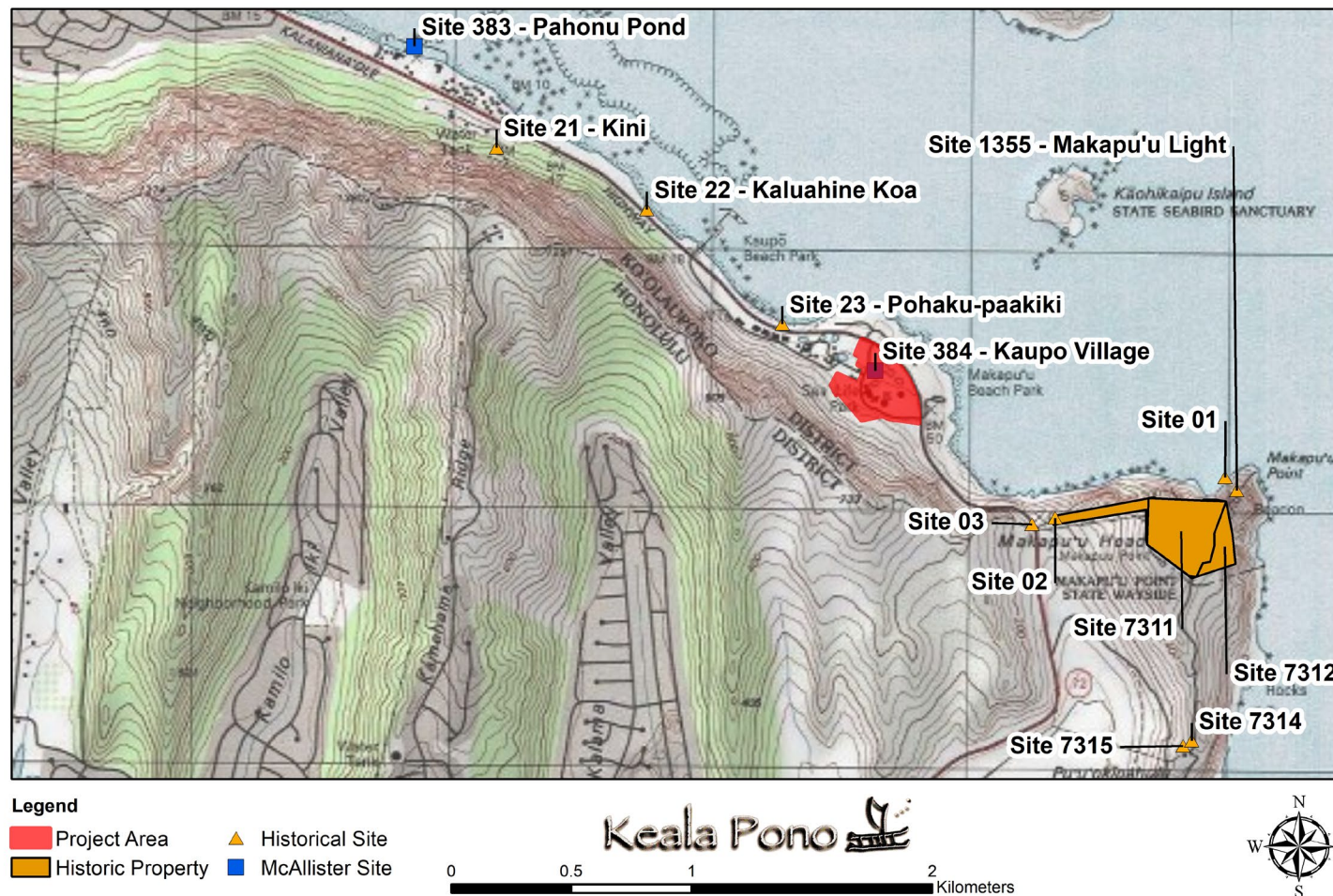


Figure 9. Previous archaeological work in the vicinity of the project area.



Layer Credits: USGS Topographical Koko Head Quadrangle Map 1999

Figure 10. Recorded archaeological sites in the vicinity of the project area. Sites 21–23 are described by Sterling and Summers (1978). Each site number is a SIHP site number and is prefixed by 50-80-15. Kealakipapa Road, may possibly have crossed Sea Life Park.

Table 1. Previous Archaeology at and Near Sea Life Park

| Author/Year | Location | Study | Results |
|---------------------------|---|---|---|
| McAllister 1933 | Island-Wide | Survey | Identified five sites within approximately 1 km of the project area: Site 1 (Malei Stone), 2 (Stone Pile), 3 (Kealakipapa Valley Road), 383-A (Pahonu Pond), and 384 (Kaupo Village). |
| Gormley et al. 1971 | Kaupō Village | UH Field School | Excavated a lava tube shelter and platform, Bishop Museum Site 50-Oa-3000. |
| Davis 1973 | Kaupō Village | Artifact Analysis | Analyzed 203 traditional and 60 historic artifacts from UH field school excavations. |
| Riley 1973 | Kaupō Village | Site Report | Produced an edited volume on various aspects of Kaupō Village, such as its history, photo-mosaics, and artifact analyses. |
| Sterling and Summers 1978 | Kaupō Village to Pahonu Pond | Synthesis of Archaeological Information | Noted three sites not recorded by McAllister (1933): Site 21 (Kini), 22 (Kaluahine Ko'a), and 23 (Pōhaku Pa'akikī). |
| Barrera 1980 | Sea Life Park | Reconnaissance | None. |
| Kurashina and Sinoto 1984 | Queen's Beach Park to Kealakipapa Valley | Reconnaissance | Recorded four sites in the Makapu'u area: McAllister's Sites 1 and 2; a road segment, possibly McAllister's Site 3; and a newly-identified cave. |
| Hammatt 1988 | Oceanic Institute | Reconnaissance | None. |
| Kawachi 1991 | Kaupō Beach Park | Burial Removal/ Subsurface Testing | At SIHP 384, Kaupō Village, two individuals were removed; several others were noted. |
| Carpenter 1992 | Kealakipapa Valley Road | Field Check | Two remnants of Kealakipapa Valley Road (SIHP 03) were recorded. |
| McDermott et al. 1997 | Queen's Beach Park to Kealakipapa Valley | Archaeological Inventory Survey | Identified a remnant of Kealakipapa Valley Road (SIHP 03). |
| Major and Carpenter 1999 | Kealakipapa Valley Road | Preservation Plan & Field Check | Preservation recommended. |
| Haun and Henry 2002 | Makapu'u Point | Survey | None. |
| Carpenter 2003 | Kealakipapa Valley Road | Data Recovery & Preservation Plan | Preservation recommended. |
| McElroy 2008 | Kalaniana'ole Hwy. from Nakini St. to Sandy Beach | Archaeological Monitoring | No findings near Sea Life Park. |
| Genz et al. 2011 | Kamehame Ridge | Cultural Impact Assessment | Conducted background research and interviewed three community members. |

Table 1. (Continued)

| Author/Year | Location | Study | Results |
|--------------------|---------------------------------|-----------------------------------|--|
| Yent 2012, 2013 | Kaiwi State Scenic Shoreline | Preservation & Monitoring Plan | Delineated preservation measures for sites associated with the Makapu'u Lighthouse (SIHP 1355), Makapu'u Road (7310), Makapu'u Point Light Station (7311), and Makapu'u Point Military reservation (7312, 7314, 7315). Also notes SIHP 3989, a cave. |

McAllister's (1933) early archaeological survey recorded one site that lies within the project area. Site 384 constitutes the remains of Kaupō Village, which was partially at the current location of Sea Life Park (Figure 11). Archaeological remains included many enclosures, platforms, lava tube shelters, a roadway, a wall, a ko'a, and part of a platform thought to have been a heiau (McAllister 1933:193–195). McAllister questions the antiquity of the site and notes that it went by a different name:

Mr. Chalmers, Manager of the Waimanalo Sugar Company, was told years ago that the village was built about 1853 during the disastrous smallpox epidemic, when the Hawaiians attempted to escape the quarantine. On the official map of the Bishop Estate the area is indicated as "Koanapou." "Kaupo" is undoubtedly incorrect. (McAllister 1933:193)

McAllister (1933:193) cites two early 19th century accounts of travelers that visited the region and did not mention the village. In 1820, M.S. Loomis walked from Maunaloa to Kailua and made no note of Kaupō Village. In 1821, G.F. Mathison entered Waimānalo from the Nu'uanu Pali and walked to the Makapu'u side of Kohelepelepe (near the present Sandy Beach). Mathison's local guide was not familiar with the area and led the party through Makapu'u over a difficult and precarious route. McAllister (1933:193) posits that if in fact a village was located in Kaupō, its inhabitants would have directed the party to the Kealakipapa trail, which leads through a gap in the cliffs, a much easier route.

McAllister believed that the most important features of the site (and probably older than the smallpox epidemic habitation) were located close to the coast in the vicinity of the fishing shrine (Figure 12). He listed these in order of importance: Features o, j, b, k, n, and e (McAllister 1933:195). The fishing shrine, Feature o, was built just off the coast so that at high tide it was surrounded by the ocean (Figure 13). It lacked coral pieces that are typical of ko'a in other parts of Hawai'i, and is thought to have once been paved to form a level platform.

Feature j is the remnant of a possible heiau, only a corner of which remained at the time of McAllister's (1933:195) survey. McAllister stated that the construction of Kalaniana'ole Highway destroyed the rest of the heiau. Feature b was a lava tube with a modified entrance and partially paved floor. Within the tube, excavation of a small enclosure yielded bone and pearl buttons and bone fragments, possibly both human and animal.

Feature k was a cattle pen that may have formerly been a heiau. It is a large rectangular enclosure with two adjacent smaller enclosures. Another large rectangular enclosure is just to the south, and open to the cattle pen. Feature n is a possible house site, and Feature e is an old roadway.



Figure 11. 1926 photo of Kaupō Village (courtesy of Maunalua.net).

If Feature f on McAllister's (1933) map corresponds to Kalaniana'ole Highway, then Features c, d, e, and g were located where Sea Life Park is today. Feature c is a lava bubble with a sand floor that was used as a shelter. Feature d consists of a series of enclosures. As mentioned above, Feature e was the old road. It was partially paved with lava slabs and bordered with 2 foot-tall walls. Feature g was a 3 foot-tall wall composed of lava rock.

Kaupō Village was also designated Site 50-Oa-3000 by the Bishop Museum and further investigated by a University of Hawai'i archaeological field school (Gormley et al. 1971; Davis 1973; Riley 1973). Excavation of a lava tube shelter and associated platform produced abundant marine shell midden, fish and animal bone, as well as traditional and historic artifacts, including fishing gear, tools, ornaments, and debitage (Gormley et al. 1971; Davis 1973). A later reconnaissance of the Sea Life Park parking lot produced no findings (Barrera 1980). These previous archaeological studies investigated the Kaupō Village portion of Sea Life Park.

Many years later, human remains eroding out of a gully bank after heavy rain were found at Kaupō Beach Park (Kawachi 1991). During removal of the first individual and part of a second individual, it became apparent that the remains were part of a larger burial area. A total of 21 shovel test pits were excavated, eight of which yielded human remains or evidence of a burial pit. The point of a two-piece bone fishhook was found near one of the pit stains. Plans were made for preservation of the burial site, designated as part of SIHP 384, Kaupō Village.

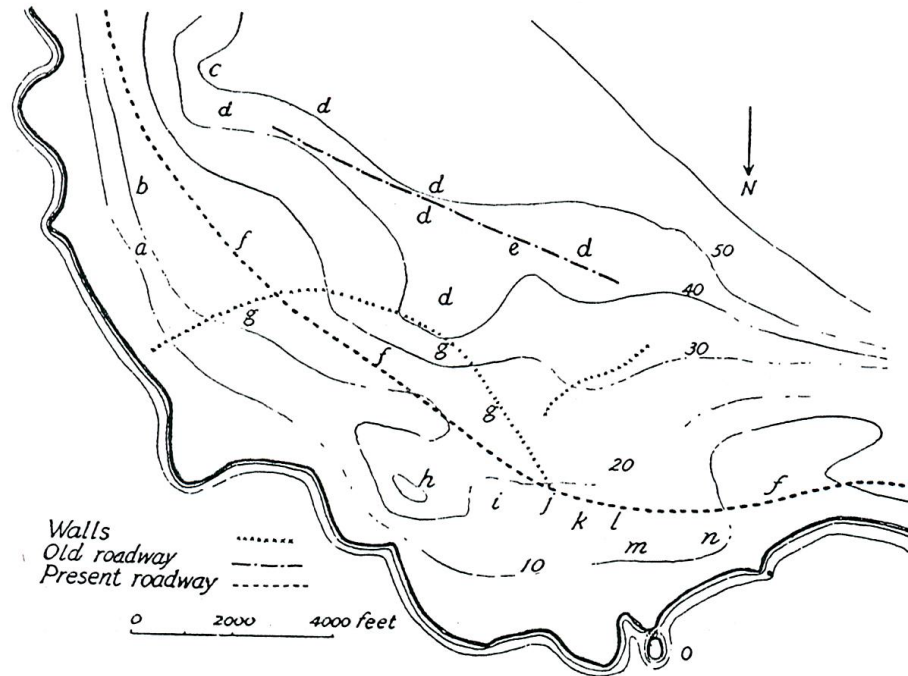


FIGURE 67.—Map of the so-called “Kaupo Village” ruins, eastern end of Waimanalo, showing contour at intervals of 10 feet: *a*, well-preserved sand-floored inclosure 5 by 14 paces, with two wide entrances in walls which are 3 to 4 feet high, lava tube near inland end 15 feet long and 2 to 3 feet high, adjoining clear area 25 by 30 feet marked by line of stones; *b*, ruins centered about a lava tube (pl. 7, *B*) 15 feet long, 4 feet high, floor 10 feet wide, entrance faced with stones leads to floor down three steps, surrounding wall 1 to 4 feet high incloses an area about 24 by 35 feet, in corner of which is a small inclosure 6 by 7 feet, in the wall a cache (pl. 7, *C*) 2.5 feet wide, 2 feet deep and 1.1 feet high is concealed by a circular slab of lava, east of tube is another small inclosure, and adjoining this site are many walls; *c*, lava bubble used as shelter, sanded floor 37 feet in diameter, dome-like top 6 feet high, center opening 14 feet in diameter, on floor are bits of ash, charcoal, *opihi* and cowrie shells; *d*, many inclosures varying in size and workmanship; *e*, portion of old roadway 14 feet wide bordered by walls 2 feet high, part of it paved with flat slabs of lava; *f*, present roadway; *g*, irregular narrow semi-circular wall 3 feet high made of blocks of lava; *h*, area 20 by 95 feet inclosed by low walls on all but inland side with inner wall separating eastern third; *i*, well-built platform 3 feet high on seaward side, paved with small rough fragments of lava, rocks at base of wall placed on end; *j*, corner of platform 5 feet high built of lava blocks evenly fitted to form the faces, adjoining is an old weathered coral wall 3 feet high; *k*, rectangular inclosure 79 by 110 feet and 5 feet high before its top stones had been removed; *l*, small platform surrounded by large lava blocks on end and paved with small fragments of lava and coral; *m*, two inclosures each 5 by 10 feet with walls 3 to 4 feet high and 2 feet thick, east of it an outlined rectangle 30 by 60 feet and west of it a similar one; *n*, slightly elevated area 10 by 20 feet with low walls on three sides, probably house site; *o*, fishing shrine (*ko'a*) (pl. 6, *C*) about 10 feet high and made of a pile of stones with an uneven surface 15 by 25 feet.

Figure 12. Archaeological features of Kaupō Village documented by McAllister (1933:194).



Figure 13. 1923 photo of the ko'a in the ocean at Kaupō Village (courtesy of Maunalua.net).

A second archaeological site may have been located within the project area. Site 3, Kealakipapa Valley Road was first documented in detail by McAllister (1933). The road wound through Waimānalo Gap to the Makapu'u Lighthouse Road and on through Kaupō Village. In 1992, two segments of the road were recorded during a field check (Carpenter 1992). Both segments were located to the east of Sea Life Park, and both were slated for preservation. One section of the road borders Kalaniana'ole Highway from the Makapu'u Lighthouse Road to the lookout, and the second remnant starts at the lookout and crosses the gap into Maunalua. The road was again documented during an extensive archaeological inventory survey of the Queen's Beach area (McDermott et al. 1997). It was noted that the road had been impacted by ground clearing and removal of moss rock, and that it was no longer significant. A preservation plan was drawn up in 1999 that proposed passive preservation of the road remnants (Major and Carpenter 1999). A second preservation plan preceding construction of the Makapu'u lookout, roads, and parking areas called for two forms of mitigation: data recovery and preservation of the site (Carpenter 2003).

In addition to the two sites within the Sea Life Park area, McAllister (1933) recorded three sites nearby. Site 1, located above the Makapu'u Lighthouse, is a legendary stone that Hi'iaka addressed as the kupua Malei. At one point the stone was removed and was in the possession of ranching and sugar magnate John Cummins (McAllister 1933:57–58). Upon his death, Cummins wanted the stone to be displayed at the Bishop Museum, however it was returned to Makapu'u Point and cemented to the cliffside. At the time of McAllister's (1933) study, only the cement base remained, and the stone itself had disappeared.

Site 2, located near the Makapu'u Lighthouse Road, was recorded as a stone pile. Coral was incorporated in with the rocks, and it was said that from a distance, the pile resembled a wall (McAllister 1933:59). This site, the cement base for the Malei stone, and an old road segment were identified during a later archaeological reconnaissance, along with a newly-identified cave site (Kurashina and Sinoto 1984).

Pahonu Pond, Site 383-A, is located a little over one mile from the project area on the shoreline east of Kaiona Beach Park. This pond was 152 m (500 ft.) long and 15 m (50 ft.) wide and held turtles for ali'i consumption (McAllister 1933:192). Sterling and Summers (1978:249) note that the pond visible in the 1960s (likely the pond that stands today) was a restoration constructed upon the foundation of the original structure.

Sterling and Summers (1978) noted an additional three sites in the vicinity that were not recorded by McAllister (1933). Kini (Site 21) is to the east of Pahonu Pond. This site is a stone with a depression where 'awa was poured before setting out to fish, and the first catch left after a successful fishing expedition. The stone was later moved during construction of a road in the area.

Farther east is a ko'a (Site 22), made up of piled stones, where fishermen would leave their first catch. And even farther to the east is Pōhaku Pa'akikī (Site 23), a stone once used to offer 'awa to the shark deity Kamohoali'i. The stone was located on the northwest side of Kaupō Village.

Archaeological reconnaissance was conducted for a 3.9-acre parcel at the current Oceanic Institute site adjacent to the project area to the west (Hammatt 1988). The parcel was heavily disturbed, and no evidence of surface archaeological remains was found.

An archaeological inventory survey for improvements to Kalaniana'ole Highway was conducted at Makapu'u Point on the southeast side of Waimānalo Ahupua'a (Haun and Henry 2002). No archaeological remains were found. Also on Kalaniana'ole Highway, archaeological monitoring during construction for an underground telecommunications system produced no findings near the Sea Life Park area (McElroy 2008).

An archaeological preservation and monitoring plan was drawn up for improvements made to the Makapu'u lighthouse trail located to the east of the project area (Yent 2013). During the inventory survey, 10 new sites were found and assigned SIHP numbers (Yent 2012). Preservation measures were defined for the Makapu'u Lighthouse (SIHP 1355), Makapu'u Road (SIHP 7310), Makapu'u Point Light Station (SIHP 7311), and Makapu'u Point Military reservation (SIHP 7312, 7314, 7315). Also noted was SIHP 3989, a cave.

A cultural impact assessment was conducted for a radio facility project located on the summit of Kamehame Ridge above the project area (Genz 2011). Background research on the Waimānalo and Maunaloa Ahupua'a was compiled and three community members were interviewed.

In sum, the results of previous archaeological investigation identified several traditional and historic sites and notable features shown on Table 1. McAllister (1933) noted several important features of Kaupō Village in the vicinity of Sea Life Park, such as a fishing shrine (Feature o), a heiau (Feature j), a lava tube (Feature b), a cattle pen formerly a heiau (Feature k), a house site (Feature n), and an old roadway (Feature e). Features documented by McAllister (1933) potentially located where Sea Life Park is today are a lava bubble with sand floor used as a shelter (Feature c), a series of enclosures (Feature d), an old roadway (Feature e), and a 3 foot-tall wall composed of lava rock (Feature g). The Kaupō Village was further documented by Gormley et al. (1971) and Riley (1973) as consisting of many archaeological features from human remains, lava tubes shelters, platforms, marine shell middens, fish and animal bone, fishing gear, tools, and ornaments. Kealakipapa Valley Road was first documented by McAllister (1933) who suggested that the road may run through project area and later was further documented by McDermott et al. (1997). East of the project area are other archaeological sites that include a legendary stone, a rock pile, a cave, and a historic feature associated with the Makapu'u Lighthouse and military reservation. The previous archaeological investigations identified in the vicinity of Sea Life Park shows remnants of traditional and historical activities.

Community Consultation

Sea Life Park Improvements were presented by G70 to the Waimānalo Neighborhood Board (NB) #32 on November 18, 2019, and the Hawai'i Kai NB #1 on November 26, 2019. Recommendations made at the Waimānalo NB at the November 18, 2019 meeting included beautifying the landscape edge along the highway, and a recommendation for no traffic signals or stop lights. A question was raised as to whether the traffic study analyzes impacts by tour buses, of which was answered yes; and they were included in the forecast calculations and are in fact part of traffic mitigation. There is a need for a crosswalk at the entrance to the beach park, as many beachgoers are getting off at the City bus stop located at Sea Life Park and then walking to the beach park across the highway. This will be discussed with the State Department of

Transportation. It was asked if Sea Life Park leases from Department of Hawaiian Home Lands, but it does not. The lease is through the Department of Land and Natural Resources. In addition, a request was made for the park to conduct environmental outreach. This is what Sea Life Park currently does within the park with the exhibits, signage, and opportunities for educational interactions with the animals, as well as providing outreach to local elementary schools, Boy Scouts and Girl Scouts, and unpaid internship opportunities. The planned improvements will continue to provide educational opportunities to raise public awareness and appreciation for the importance and value of Hawai‘i’s unique natural resources, history, and culture.

During the Hawai‘i Kai NB Meeting on November 26, 2019, concerns raised were primarily about traffic. A question was asked similar to the one mentioned above regarding whether the traffic study analyzes the possible increase in large tour bus traffic. While it does, additional information as to where this information was used, and its specific impact will be further detailed in the Final Environmental Assessment. Board members made suggestions to alert oncoming vehicular traffic about the cars and buses entering or leaving the park, including using appropriate traffic signs, possibly installing flashing lights for drivers to slow their speed, and possibly cutting back the vegetation along the roadway to increase visibility on the approach to the park entry. It was also suggested that the entry road be widened if possible and appropriate. These suggestions will be reviewed with the traffic consultant and considered.

A cultural impact assessment was also conducted for the project (McElroy and McElroy 2019). Three ethnographic interviews were done in person in November 2018 by Keala Pono Ethnographer, Kālenalani McElroy, MA. People consulted were Wilson Kekoa Ho of the Waimānalo Neighborhood Board, Ann Marie Kirk of Maunaloa.net, and Harold “Bunny” Ahuna, a longtime resident of Waimānalo. The goal of the cultural impact assessment was to identify cultural resources and practices within the project area, determine if there would be impacts to those practices, and provide mitigation to the impacts. While the interviewees did not know of any traditional gathering practices occurring in the project area, they did mention several archaeological sites. Archaeological sites that may lie within the Sea Life Park project area are Kaupō Village, a possible heiau, and human burials. Keala Pono recommended an archaeological inventory survey to determine if vestiges of these or other sites remain on the property. The results of the archaeological inventory survey are presented in this report.

Summary and Settlement Patterns

With its bountiful coastline and verdant streams, Waimānalo was thought to be well populated in ancient times. Taro was farmed in wet areas of Waimānalo, sweet potato was grown in the drier regions, and a series of fishing villages lined the coast. One of these, Kaupō Village was located partially within the project area. The village is thought to have originated in pre-contact times and was later modified into a settlement for those afflicted by smallpox in the 1850s. The historic period brought other changes to the area, with large tracts of land converted to cattle ranches and sugarcane fields, as Waimānalo became increasingly developed.

The ahupua‘a of Waimānalo has been well studied archaeologically. Kaupō Village is a main archaeological site at Sea Life Park, and human remains have been found in the coastal portion of the village, across the street from the current project area. The village consisted of many archaeological features, including a unique ko‘a that was surrounded by water at high tide, as well as a lava tube shelter, the excavation of which yielded an abundance of cultural material and midden. Kealakipapa Valley Road may have also run through the project area. Road remnants have been documented to the east, in the Waimānalo Gap area. Other sites in the vicinity to the east include a legendary stone, a rock pile, a cave, and historic features associated with the Makapu‘u Lighthouse and military reservation. To the northwest were stones used for offerings, a ko‘a, and Pahonu Pond, which kept turtles for the ali‘i to eat.

Anticipated Finds and Research Questions

Previous research has identified a wide range of activities that were carried out traditionally and historically in Waimānalo, including fishing, agriculture, habitation, ritual, burial, military, and cattle ranching. It follows that a variety of archaeological remains may be found during the current survey. These might include traditional agricultural features such as stone terraces and mounds, enclosures, temporary or permanent shelters, trails, human burials, or religious structures. Historic-era archaeological resources might include vestiges of cattle ranching, such as the remains of ranch houses, animal pens, cattle walls, faunal remains, and/or ceramic, glass, and metal artifacts; or military use, such as cement bunkers and ammunition.

As the project area is heavily developed with the buildings and infrastructure for Sea Life Park, it is likely that surface remains will only be found on the outskirts of the park where development has not occurred. Within the park itself, subsurface remains are more likely to be found. Two archaeological sites are known for the project area: Kaupō Village and Kealakupapa Valley Road. It is unclear if vestiges of these sites remain within the project area today.

Research questions will broadly address the identification of the above archaeological resources and will focus on locating the previously recorded archaeological sites on the property. Initial research questions are as follows:

1. Have any archaeological remains survived the disturbance of the parcel since Sea Life Park was constructed in the 1960s?
2. If so, what are the nature of these remains and where are they located?

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 on the parcel.

METHODS

Pedestrian survey was conducted on March 27, 2019 by Trisha Drennan, MA and Arleen Garcia-Herbst, CPhil and on December 20, 2019 by Jeffrey Lapinad and Kālenalani McElroy, MA. The number of labor hours expended for the pedestrian survey was 25 hours. Subsurface testing took place on November 18–22 and 26, 2019. Archaeologists participating in the subsurface testing included Windy McElroy, PhD; Jeffrey Lapinad; Ilikea McElroy; Max Pinsonneault, MA; and Danielle Shemesh, BA. The number of labor hours expended for subsurface testing was 53 hours. Because of disturbance to the park, some of the subsurface testing had to be conducted at night. This consisted of the excavation of four trenches: Trench (TR) 4a, 8a, 8b, and 9a. Windy McElroy was present for all of the subsurface testing, along with one archaeologist, for a total of two archaeologists present per work day/night. Dr. 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. Of the 18 ac. (7.28 ha) survey area, 100% was covered on foot. Vegetation was relatively sparse throughout the survey area, and did not limit the survey effort in most places. In addition, much of the survey area has been built upon, paved, or landscaped (Figure 14). In places of high visibility, the spacing between archaeologists was relatively wide, approximately 5–8 m apart. Two areas in particular were heavily vegetated and visibility was poor. These are west corner of the survey area, north of mauka parking lot and the north corner of the survey area, inside a chain link fence that demarcates the park boundary (Figures 15 and 16). In these two areas, archaeologists were spaced 2–3 m apart and penetrated the vegetation wherever possible to observe the ground surface.

A total of 16 trenches were excavated to determine the presence or absence of subsurface archaeological deposits or material using a mini excavator. Excavations were monitored to identify change in layers but in some instances layers were not discernable until careful profile documentation took place. Representative profiles were drawn and photographed. Profile locations were recorded with a 3 m-accurate Garmin 62st GPS unit. An iPhone Xs-Max camera was used to take digital photos of the excavations and stratigraphy. Soils were described using Munsell Soil Color Charts, a soil texture flow chart (Thien 1979), and the U.S. Department of Agriculture soil survey manual.

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 cultural material was collected; field notes and photo logs are being curated at the Keala Pono office in Kapolei, Hawai‘i.



Figure 14. Example of a landscaped area on the north side of the project area. View is to the northeast.



Figure 15. West corner of the survey area north of mauka parking lot. View is to the northwest.



Figure 16. North corner of the survey area, just inside chain link fence. View is to the north.

RESULTS

Pedestrian survey and subsurface testing were conducted in the 18 ac. (7.28 ha) project area. No historic properties were found. Excavation of 16 test trenches did not yield any evidence of subsurface archaeological deposits or features. Stratigraphy generally consisted of fill layers above natural soils.

Pedestrian Survey

The surface survey included 100% of the 18 ac. (7.28 ha) project area. The majority of the survey area was open with landscaped vegetation and pavement (Figure 17), although there were a few areas with heavy vegetation and poor visibility (see Figures 15 and 16). 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 (e.g., Figure 17).

Subsurface Testing

The subsurface testing strategy was approved by SHPD before testing began (Table 2). A total of 16 trenches were excavated to determine the presence or absence of subsurface archaeological deposits or material (Figures 18–19 and Table 3). All trenches were excavated to bedrock or a compacted layer of saprolitic rock, unless otherwise noted. Sea Life Park is riddled with buried utility lines, and where these crossed the trenches they were pedestalled so that no excavation occurred beneath them. No archaeological deposits were found, and stratigraphy generally consisted of fill atop a natural deposit.

TR 1a was excavated between the gift shop and Reef Tank (see Figure 19). This trench had to be shortened because of the occurrence of buried utilities in the vicinity. The trench measured 3.8 m long and 50 cm wide and was excavated to 140 cm below surface (cmbs). Stratigraphy consisted of a layer of fill with natural soil below (Figures 20 and 21). The fill layer was 5YR 2.5/2 (dark reddish brown) sandy clay loam, while the natural layer was 5YR 4/6 (yellowish red) clay. No archaeological deposits or cultural material were identified.

TR 1b was placed to the southeast gift shop (see Figure 19). This trench also had to be shortened because of the occurrence of buried utilities in the vicinity. The trench measured 6.5 m long, 60 cm wide and was excavated to 70 cmbs. Excavation could not proceed deeper because of the buried utilities. Stratigraphy consisted of a single layer of fill (Figures 22 and 23). The fill layer was 5YR 2.5/2 (dark reddish brown) sandy clay loam. Utility lines were found at 20 and 30 cmbs. No archaeological deposits or cultural material were identified.



Figure 17. Portion of the survey area near TR 9b. View is to the southwest.

TR 1c was excavated outside the gift shop entrance that fronts the restaurant (see Figure 19). This trench also had to be shortened because of the occurrence of buried utilities in the vicinity. The trench measured 6.2 m long and 50 cm wide and was excavated to 64 cmbs. Stratigraphy consisted of the current paved walkway, a layer of fill, and natural soil below (Figures 24 and 25). The pavement was composed of asphalt, while fill layer was 10YR 3/3 (dark brown) sandy loam, and the natural layer was 7.5YR 3/2 (dark reddish brown) sandy clay. No archaeological deposits or cultural material were identified.

TR 2 was placed in an area slated for parking renovations (see Figure 19). The trench measured 7.6 m long and 48 cm wide and was excavated to 115 cmbs. Stratigraphy consisted of two fill layers above a lower natural layer (Figures 26 and 27). The upper fill layer was 5YR 3/2 (dark reddish brown) sandy clay loam; the lower fill layer was 2.5YR 3/4 (dark reddish brown) sandy clay loam; the basal natural deposit consisted of 5YR 4/6 (yellowish red) silt loam. No archaeological deposits or material were identified.

TR 3 was located at the Sea Life Park entry sign area (see Figure 19). The trench measured 10.2 m long and 60 cm wide and was excavated to 195 cmbs. Stratigraphy consisted of three fill layers above a lower natural layer (Figures 28 and 29). The upper fill layer was 10YR 3/3 (dark brown) sandy loam; the second fill layer was 2.5YR 7/3 (light reddish brown) marine sand; the lowest fill layer was 2.5YR 2.5/2 (very dark red) loam; and the basal natural deposit consisted of 5YR 4/6 (yellowish red) sandy loam. Utility lines were encountered at 24 and 30 cmbs. No archaeological deposits or material were identified.

Table 2. Subsurface Testing Strategy Approved by SHPD

| | Project | Type of Improvement | Trench No. |
|----------|--|---|-----------------------|
| Renovate | Snack Bar | Renovation | n/a |
| | Conservation Center and Museum | Interior Renovation | n/a |
| | Shark Cave | Interior Renovation | n/a |
| | Beach Boy Lanai | Interior Renovations and Roof Deck Installation | n/a |
| | Parking | Paving and Expansion, Fire Hydrant Installations | TR 2 |
| Replace | Entry Feature | Replace sign with rock wall at a foundation depth of 3' | TR 3 |
| | Hawai'i Ocean Theatre | Renovation to existing dolphin pool, seating area and roof; no ground disturbance. | n/a |
| | Entry Concierge and Gift Shop | Replace existing building with new; footings reach a maximum depth of 12' | TR 1a, 1b, 1c |
| | Honu Conservation and Education Center | Building Renovation and 2 Honu pools approximately 5' deep at the lowest point. Located in approximately the same area as existing pools | n/a |
| New | Menehune Island Splash Play Area | Two splash pools in this area will be very shallow, ~1' deep at most | n/a |
| | Seabird Sanctuary | Low rock wall (~36" high) with foundations and new rehabilitation building with concrete slab on grade | TR 4a and 4b |
| | Hale Manu Aviary | Foundations 3' deep and 18" diameter with poles at perimeter of netted area and at the columns for the covered pavilion area | TR 5a and 5b |
| | Penguin Cove | Above-ground penguin pool with footings and slabs, similar to a typical building slab on grade condition | TR 6 |
| | Kaupō Fishing Village and Lū'au Support Facilities | Most likely slab on grade foundations at the new building footprint. Utilities will likely be located in the roadway or connected from the existing stage area | TR 7a and 7b |
| | Ocean Oddities Indoor Aquarium | Typical building foundations with thickened concrete slabs below the larger aquarium exhibits. Some level changes within the buildings with an overall depth of 3' for building finish floors. Utilities will likely come from the adjacent shark cave building area or the driveway side of the building | TR 8a, 8b, 9a, and 9b |

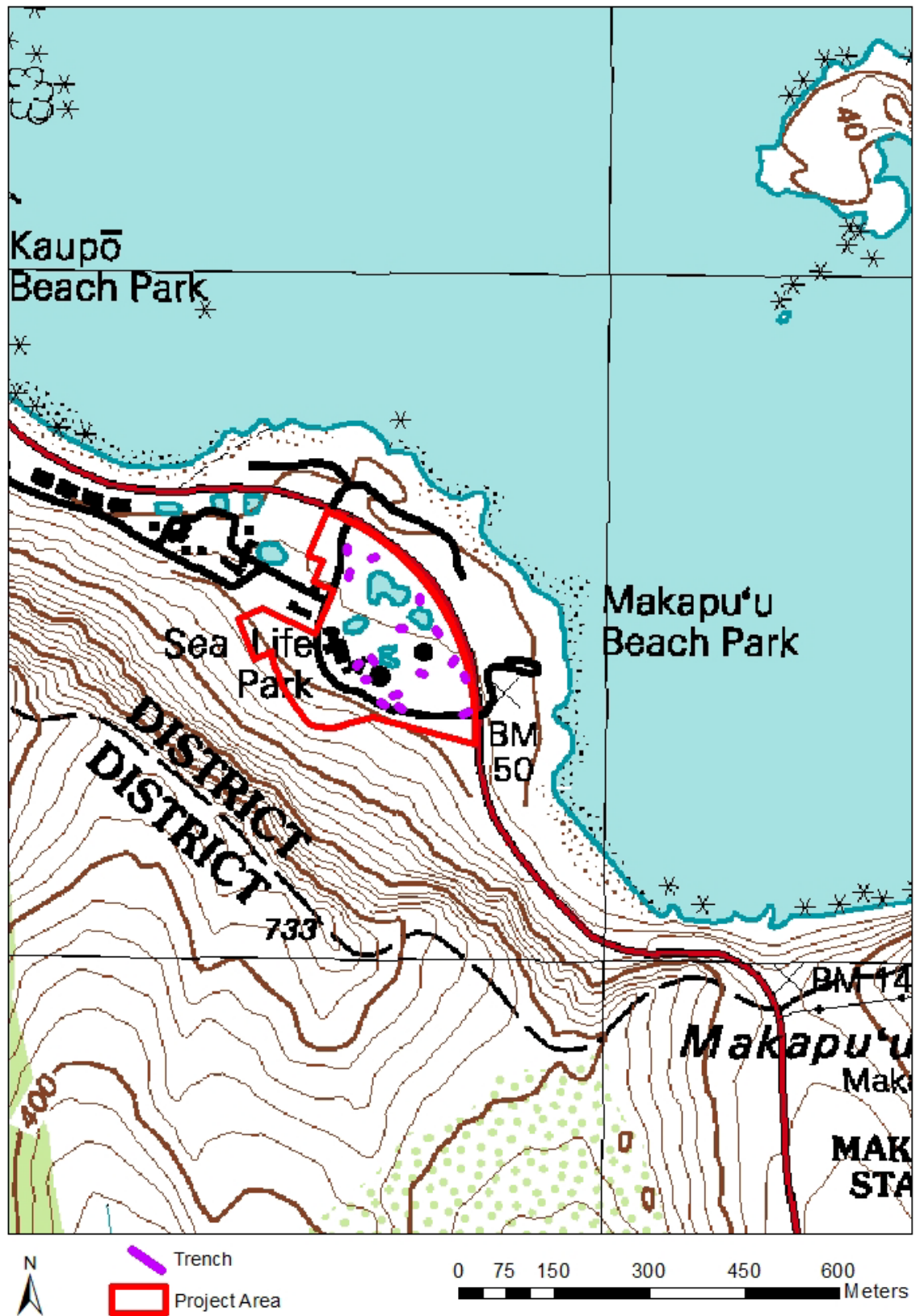


Figure 18. Location of trenches, wide view on a USGS topographic map (USGS 2017).



Figure 19. Location of trenches, closer view on aerial imagery.

Table 3. Soil Descriptions

| Trench | Layer | Depth (cmbs) | Color | Description | Interpretation |
|---------------|--------------|-------------------------|-------------------------------|--|-----------------------|
| TR 1a | I | 0–50 | 5YR 2.5/2 dark reddish brown | Sandy clay loam; wet; moderately plastic; slightly sticky; 3% roots, 10% rocks; modern debris; smooth, very abrupt boundary. | Fill |
| | II | 50–140+ | 5YR 4/6 yellowish red | Clay; wet; very plastic; very sticky; no roots, 50% saprolitic rock; no cultural material; base of excavation. | Natural |
| TR 1b | I | 0–70+ | 5YR 2.5/2 dark reddish brown | Sandy clay loam; dry; moderately plastic; slightly sticky; 20% roots, 40% rocks; modern debris, utility lines; base of excavation. | Fill |
| TR 1c | I | 0–10 | N/A | Asphalt; smooth, very abrupt boundary. | Current pavement |
| | II | 10–48 | 10YR 3/3 dark brown | Sandy loam; dry; slightly plastic; slightly sticky; no roots, 70% rocks; modern debris; smooth, gradual boundary. | Fill |
| | III | 48–64+ | 7.5YR 3/2 dark brown | Sandy clay; dry; very plastic; slightly sticky; no roots, 20% rocks; no cultural materials; base of excavation. | Natural |
| TR 2 | I | 0–50 | 5YR 3/2 dark reddish brown | Sandy clay loam; wet; moderately plastic; slightly sticky; 5% roots, 20% rocks; no cultural materials; smooth, abrupt boundary. | Fill |
| | II | 50–80 | 2.5YR 3/4 dark reddish brown | Sandy clay loam; wet; moderately plastic; slightly sticky; 2% roots, 30% rocks; no cultural materials; smooth, abrupt boundary. | Fill |
| | III | 80–115+ | 5YR 4/6 yellowish red | Silt loam; wet; slightly plastic; slightly sticky; 2% roots, 30% rocks; no cultural materials; base of excavation. | Natural |
| TR 3 | I | 0–64 | 10YR 3/3 dark brown | Sandy loam; wet; slightly sticky; slightly plastic; 20% roots, 5% rocks; modern debris, utility lines; smooth, abrupt boundary. | Fill |
| | II | 40–70 | 2.5YR 7/3 light reddish brown | Marine sand, medium grain; wet; nonsticky; nonplastic; 2% roots; 1% rocks; no cultural materials; broken, abrupt boundary. | Fill |
| | III | 40–75 | 2.5YR 2.5/2 very dark red | Loam; wet; slightly sticky; slightly plastic; 2% roots, 10% rocks; no cultural materials; broken, abrupt boundary. | Fill |
| | IV | 67–195+ | 5YR 4/6 yellowish red | Sandy loam; wet; slightly sticky; slightly plastic; 2% roots, 15% rocks; no cultural materials; base of excavation. | Natural |
| TR 4a | I | 0–63+ | 10YR 2/2 very dark brown | Sandy loam; wet; slightly sticky; slightly plastic; 5% roots, 40% rocks; modern debris, utility line; base of excavation. | Natural |

Table 3. (Continued)

| Trench | Layer | Depth (cmbs) | Color | Description | Interpretation |
|---------------|--------------|-------------------------|--|--|-----------------------|
| TR 4b | I | 0–60+ | 7.5YR 2.5/2 very dark brown | Sandy loam; wet; slightly sticky; slightly plastic; 30% roots, 40% rocks; modern debris; base of excavation. | Fill |
| TR 5a | I | 0–110+ | 10YR 3/4 dark yellowish brown | Sandy loam; wet; slightly sticky; slightly plastic; 1% roots, 20% rocks; modern debris, utility line; base of excavation. | Fill |
| | II | 53–65 | 10YR 7/3 very pale brown | Marine sand, coarse grain; wet; nonsticky; nonplastic; no roots, no rocks; utility line; broken, very abrupt boundary. | Fill for utility line |
| TR 5b | I | 0–90+ | 5YR 2.5/2 dark reddish brown | Sandy loam; wet; slightly sticky; slightly plastic; 30% roots, 30% rocks; modern debris, utility lines; base of excavation. | Fill |
| TR 6 | I | 0–44 | N/A | Basalt gravel; modern debris; broken, very abrupt boundary. | Fill |
| | II | 44–60 | 5YR 3/2 dark reddish brown | Sandy loam; wet; slightly sticky; slightly plastic; 2% roots, 20% rocks; no cultural materials; smooth, abrupt boundary. | Fill |
| | III | 60–97+ | 7.5YR 3/4 dark brown | Sandy loam; wet; slightly sticky; slightly plastic; 1% roots, 5% rocks; basalt gravel lens; no cultural materials; base of excavation. | Fill |
| TR 7a | I | 0–112 | 7.5YR 2.5/3 very dark brown | Sandy clay loam; wet; moderately plastic; slightly sticky; 5% roots, 30% rocks; modern debris; wavy, abrupt boundary. | Fill |
| | II | 112–140+ | 7.5YR 5/8 strong brown | Sandy loam; wet; slightly sticky; slightly plastic; no roots, 50% saprolitic rock; no cultural materials; base of excavation. | Natural |
| TR 7b | I | 0–220+ | 7.5YR 2.5/3 very dark brown | Sandy loam; dry; slightly sticky; slightly plastic; 10% roots, 70% rocks; modern debris, utility line; base of excavation. | Fill |
| TR 8a | I | 0–20 | 7.5YR 3/3 dark brown | Loamy sand; dry; nonsticky; nonplastic; 3% roots, 20% rocks; modern debris; smooth, abrupt boundary. | Fill |
| | II | 20–52 | 10YR 7/6 yellow, mottled with 10YR 7/3 very pale brown | Loamy sand; dry; nonsticky; nonplastic; 3% roots, 60% rocks; modern debris, utility line; smooth, abrupt boundary. | Fill |
| | III | 52–90 | 10YR 7/2 light gray | Marine sand, fine grain; dry; nonsticky; nonplastic; 2% roots, 2% rocks; utility line; smooth, abrupt boundary. | Fill for utility line |
| | IV | 90–151+ | 7.5YR 2.5/3 very dark brown | Silty clay loam; dry; moderately sticky; moderately plastic; 2% roots, 10% saprolitic rock; no cultural materials; base of excavation. | Natural |

Table 3. (Continued)

| Trench | Layer | Depth (cmbs) | Color | Description | Interpretation |
|---------------|--------------|-------------------------|--|--|-----------------------|
| TR 8b | I | 0–15 | N/A | Asphalt; smooth, very abrupt boundary. | Current pavement |
| | II | 15–58 | 10YR 4/4 dark yellowish brown | Sandy clay loam; wet; moderately plastic; slightly sticky; no roots, 40% rocks; utility line; base of excavation. | Fill for utility line |
| | III | 15–20 | 10YR 3/2 very dark grayish brown | Sandy loam; wet; slightly sticky; slightly plastic; no roots, 30% rocks; no cultural materials; smooth, abrupt boundary. | Fill |
| | IV | 20–35 | 10YR 4/6 dark yellowish brown | Crushed coral; wet; nonsticky; nonplastic; no roots, 80% rocks; utility line; smooth, abrupt boundary. | Fill |
| | V | 35–129+ | 10YR 4/2 dark grayish brown | Sandy clay loam; wet; moderately plastic; slightly sticky; no roots, 30% rocks; no cultural materials; base of excavation. | Natural |
| TR 9a | I | 0–20 | 7.5YR 3/3 dark brown | Loamy sand; dry; nonsticky; nonplastic; 3% roots, 20% rocks; modern debris, utility line; smooth, abrupt boundary. | Fill |
| | II | 20–50 | 10YR 7/6 yellow, mottled with 10YR 7/3 very pale brown | Loamy sand; dry; nonsticky; nonplastic; 3% roots, 60% rocks; modern debris, utility line; smooth, abrupt boundary. | Fill |
| | III | 50–90 | 10YR 7/2 light gray | Marine sand, fine grain; dry; nonsticky; nonplastic; 2% roots, 2% rocks; utility line; smooth, abrupt boundary. | Fill for utility line |
| | IV | 90–175+ | 7.5YR 2.5/3 very dark brown | Silty clay loam; dry; moderately sticky; moderately plastic; 2% roots, 10% saprolitic rock; no cultural materials; base of excavation. | Natural |
| TR 9b | I | 0–147 | 5YR 3/3 dark reddish brown | Sandy clay loam; dry; moderately plastic; slightly sticky; 3% roots, 50% rocks; utility line; smooth, abrupt boundary. | Fill |
| | II | 28–60 | 10YR 6/4 light yellowish brown | Marine sand, medium grain; dry; nonsticky; nonplastic; no roots, 2% rocks; utility lines; broken, very abrupt boundary. | Fill |
| | III | 147–167+ | 7.5YR 2.5/3 very dark brown | Silty clay; dry; moderately sticky; very plastic; no roots, 10% rocks; no cultural materials; base of excavation. | Natural |

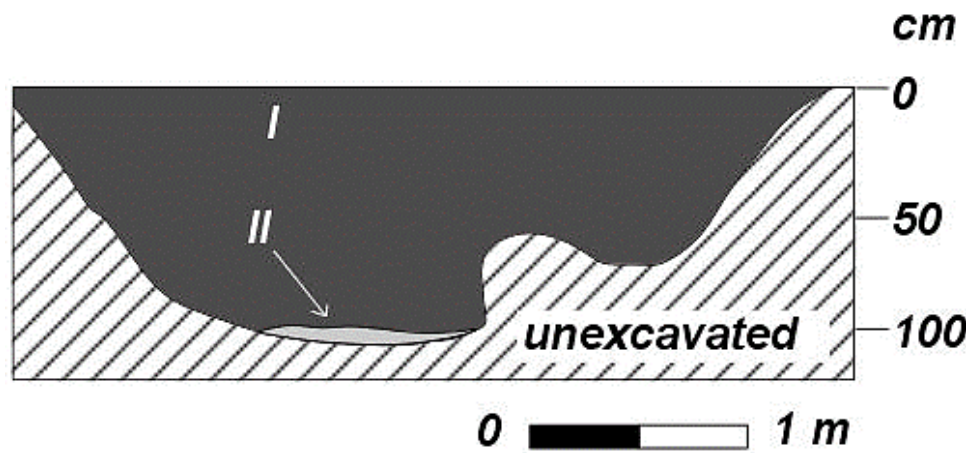


Figure 20. TR 1a south face profile drawing.



Figure 21. TR 1a south face profile photo.

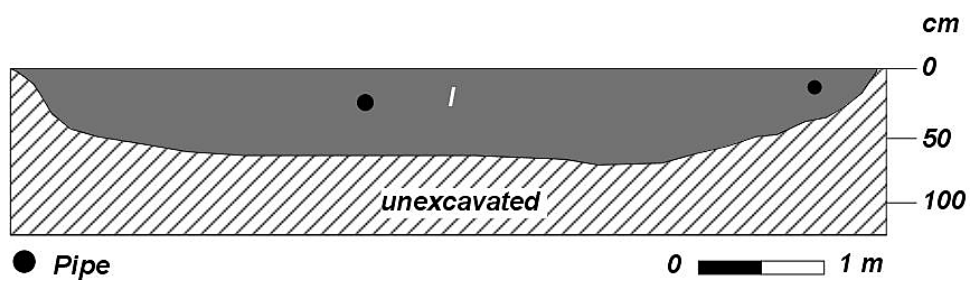


Figure 22. TR 1b northeast face profile drawing.



Figure 23. TR 1b northeast face profile photo.

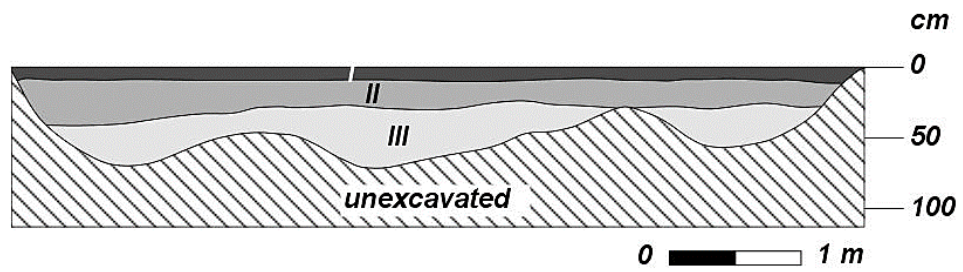


Figure 24. TR 1c southeast face profile drawing.



Figure 25. TR 1c southeast face profile photo.

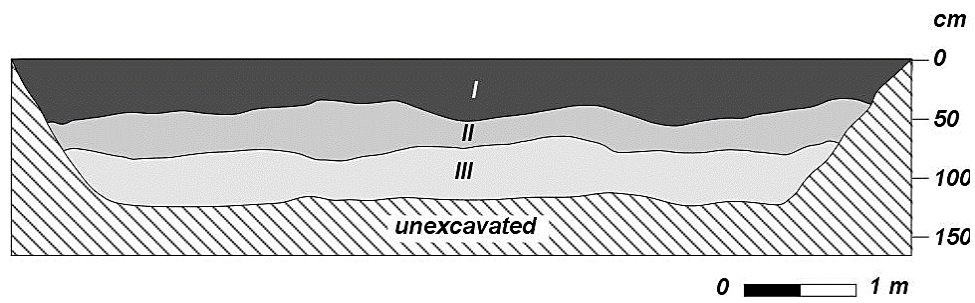


Figure 26. TR 2 east face profile drawing.



Figure 27. TR 2 east face profile photo.

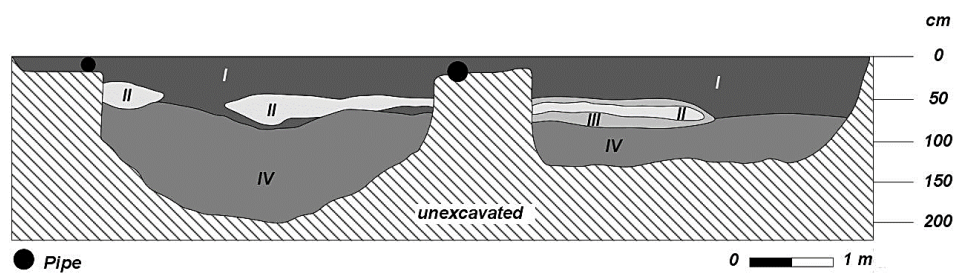


Figure 28. TR 3 south face profile drawing.



Figure 29. TR 3 south face profile photo.

TR 4a was placed on the north side of the proposed Seabird Sanctuary (see Figure 19). The trench measured 7.4 m long, 80 cm wide, and was excavated to 63 cmbs. Stratigraphy consisted of a single natural layer (Figures 30 and 31). This layer consisted of 10YR 2/2 (very dark brown) sandy loam. A utility line was found at 20 cmbs. No archaeological deposits were identified.

TR 4b was placed on the west side of the proposed Seabird Sanctuary (see Figure 19). The trench measured 8.6 m long and 62 cm wide and was excavated to 60 cmbs. Stratigraphy consisted of a single natural layer of 7.5YR 2.5/2 (very dark brown) sandy loam (Figures 32 and 33). No archaeological deposits or material were identified.

TR 5a was located on the north side of the proposed Hale Manu Aviary (see Figure 19). The trench measured 7.9 m long and 75 cm wide and was excavated to 110 cmbs. Stratigraphy was composed of a layer of fill with an isolated deposit that served as fill for a utility line (Figures 34 and 35). The main fill layer consisted of 10YR 3/4 (dark yellowish brown) sandy loam, while the utility line fill was 10YR 7/3 (very pale brown) marine sand. The utility line was found at 65 cmbs. No archaeological deposits or material were identified.

TR 5b was located on the south side of the proposed Hale Manu Aviary (see Figure 19). The trench measured 7 m long and 50 cm wide and was excavated to 90 cmbs. Stratigraphy was composed of a single layer of fill (Figures 36 and 37). This consisted of 5YR 2.5/2 (dark reddish brown) sandy loam. The utility lines were found at 4 and 15 cmbs. No archaeological deposits or material were identified.

TR 6 was excavated at the Penguin Cove (see Figure 19). The trench measured 8.8 m long and 55 cm wide and was excavated to 97 cmbs. Stratigraphy consisted of three layers of fill (Figures 38 and 39). The uppermost layer was basalt gravel; below that was 5YR 3/2 (dark reddish brown) sandy loam; and below that was 7.5YR 3/4 (dark brown) sandy loam. No archaeological deposits or material were identified.

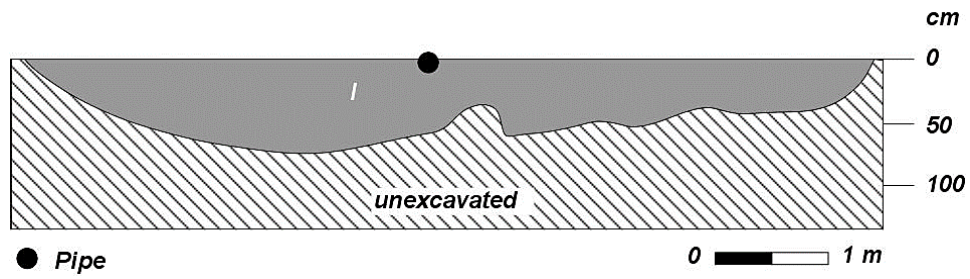


Figure 30. TR 4a south face profile drawing.



Figure 31. TR 4a south face profile photo.

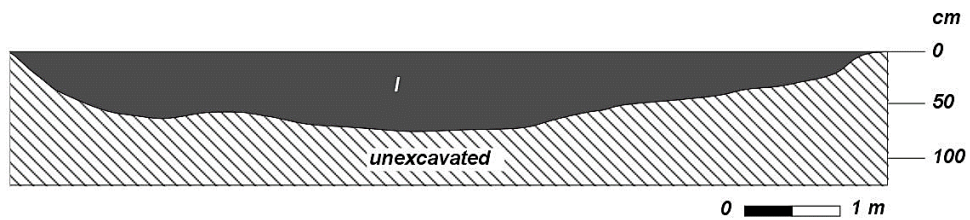


Figure 32. TR 4b west face profile drawing.



Figure 33. TR 4b west face profile photo.

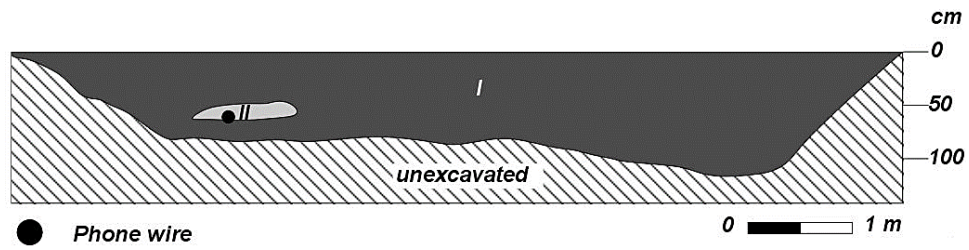


Figure 34. TR 5a east face profile drawing.



Figure 35. TR 5a east face profile photo.

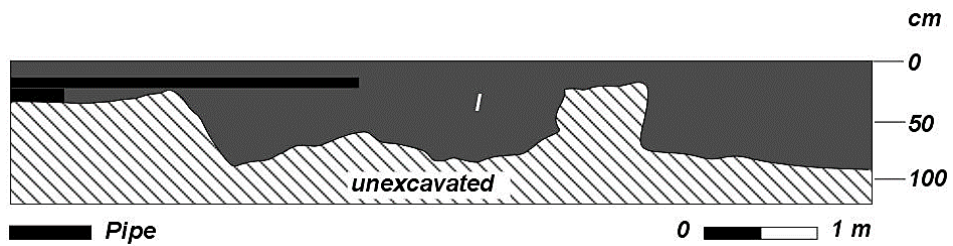


Figure 36. TR 5b north face profile drawing.



Figure 37. TR 5b north face profile photo.

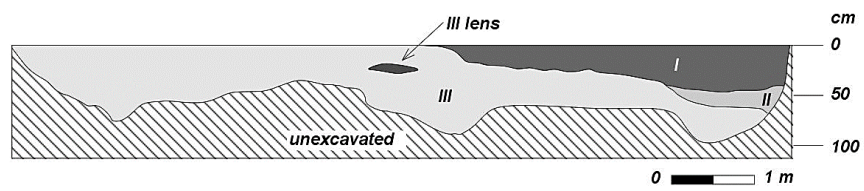


Figure 38. TR 6 south face profile drawing.



Figure 39. TR 6 south face profile photo.

TR 7a was placed on the southeast side of the proposed Kaupō Village and Lū'au Support Facility (see Figure 19). The trench measured 8.7 m long and 70 cm wide and was excavated to 140 cmbs. Stratigraphy was composed of an upper fill layer and a lower natural layer (Figures 40 and 41). The upper layer consisted of 7.5YR 2.5/3 (very dark brown) sandy clay loam; the lower layer was 7.5YR 5/8 (strong brown) sandy loam. No archaeological deposits or material were identified.

TR 7b was situated on the northwest side of the proposed Kaupō Village and Lū'au Support Facility (see Figure 19). The trench measured 8 m long and 70 cm wide and was excavated to 220 cmbs. Stratigraphy was composed of a single layer of fill (Figures 42 and 43). This consisted of 7.5YR 2.5/3 (very dark brown) sandy loam. A utility line was encountered at 70 cmbs. No archaeological deposits or material were identified.

TR 8a was placed on the southwest side of the proposed Ocean Oddities Indoor Aquarium (see Figure 19). The trench measured 7.6 m long and 60 cm wide and was excavated to 151 cmbs. Stratigraphy consisted of three layers of fill atop a natural deposit (Figures 44 and 45). The uppermost fill layer was 7.5YR 3/3 (dark brown) loamy sand; the next fill layer was 10YR 7/6 (yellow) loamy sand with mottling; the lowest fill layer was 10YR 7/2 (light gray) marine sand; the basal layer was 7.5YR 2.5/3 (very dark brown) silty clay loam. Utility lines were encountered at 35 and 60 cmbs. No archaeological deposits or material were identified.

TR 8b was placed roughly in the center of the proposed Ocean Oddities Indoor Aquarium (see Figure 19). The trench measured 8.2 m long and 48 cm wide and was excavated to 129 cmbs. Stratigraphy consisted of modern pavement at the surface with three layers of fill and a natural deposit below (Figures 46 and 47). The pavement was composed of asphalt, while the uppermost fill layer was 10YR 3/2 (very dark grayish brown) sandy loam; the next fill layer was 10YR 4/6 (dark yellowish brown) crushed coral; the natural layer was 10YR 4/2 (dark grayish brown) sandy clay loam. In addition, a third fill layer cut through all the upper layers and extended into the natural layer in a section where an electric line crossed the trench. This third fill layer represents the pit that was dug when the electric line was installed. It consists of 10YR 4/4 (dark yellowish brown) sandy clay loam. Utility lines were encountered at 31 and 47 cmbs. No archaeological deposits or material were identified.

TR 9a was located on the southeast side of the proposed Ocean Oddities Indoor Aquarium (see Figure 19). The trench measured 8.3 m long and 60 cm wide and was excavated to 175 cmbs. Stratigraphy consisted of three layers of fill atop a natural deposit (Figures 48 and 49). The uppermost fill layer was 7.5YR 3/3 (dark brown) loamy sand; the next fill layer was 10YR 7/6 (yellow) loamy sand with mottling; the lowest fill layer was 10YR 7/2 (light gray) marine sand; the basal layer was 7.5YR 2.5/3 (very dark brown) silty clay loam. Utility lines were encountered at 9, 30, 57, and 62 cmbs in various parts of the trench. No archaeological deposits or material were identified.

TR 9b was placed on the northeast side of the proposed Ocean Oddities Indoor Aquarium (see Figure 19). The trench measured 7.2 m long and 64 cm wide and was excavated to 167 cmbs. Stratigraphy consisted of two layers of fill atop a natural deposit (Figures 50 and 51). The uppermost fill layer was 5YR 3/3 (dark reddish brown) sandy clay loam; the next fill layer was 10YR 6/4 (light yellowish brown) marine sand; the basal layer was 7.5YR 2.5/3 (very dark brown) silty clay. Utility lines were encountered at 21, 72, and 90 cmbs. No archaeological deposits or material were identified.

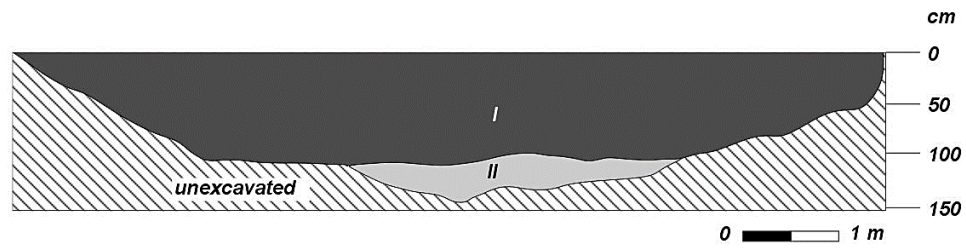


Figure 40. TR 7a west face profile drawing.



Figure 41. TR 7a west face profile photo.

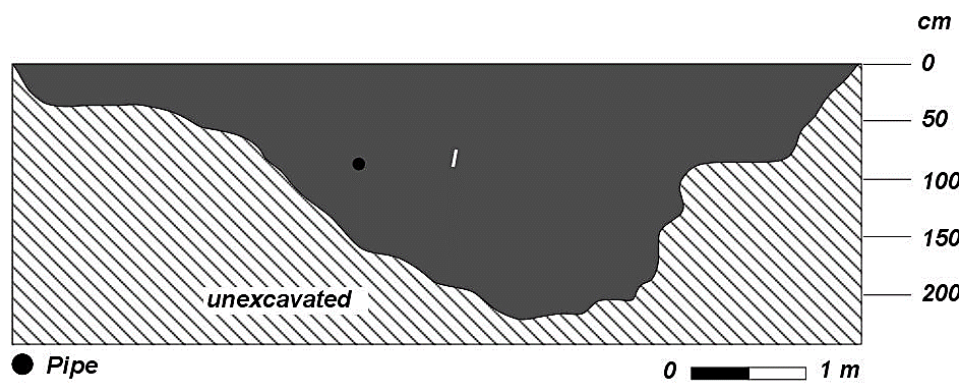


Figure 42. TR 7b southeast face profile drawing.



Figure 43. TR 7b southeast face profile photo.

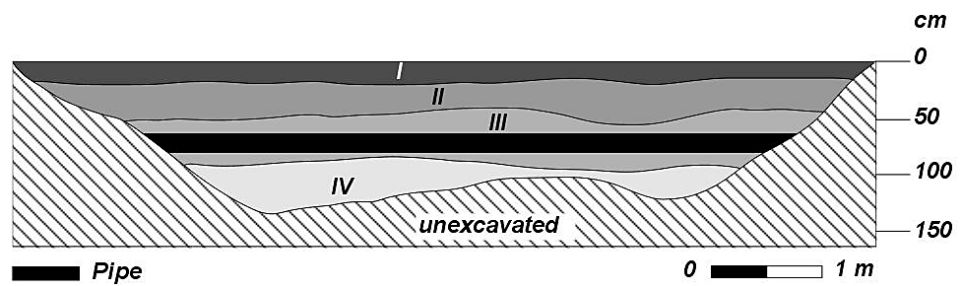


Figure 44. TR 8a north face profile drawing.



Figure 45. TR 8a north face profile photo.

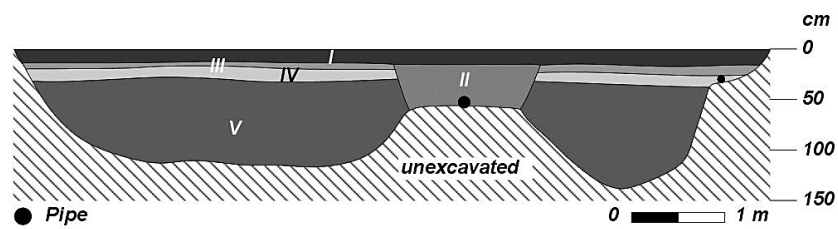


Figure 46. TR 8b north face profile drawing (entire trench).



Figure 47. TR 8b north face profile photo (west end of trench).

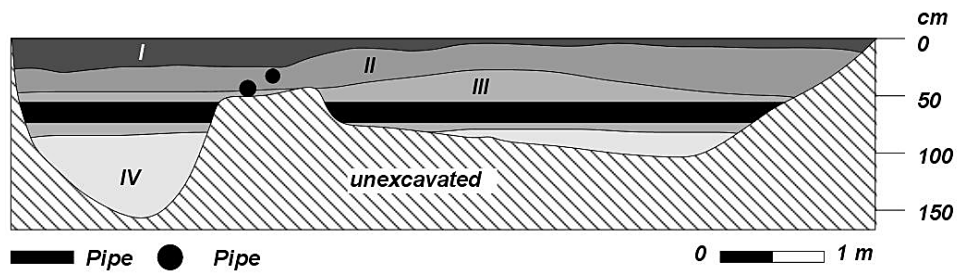


Figure 48. TR 9a north face profile drawing.



Figure 49. TR 9a north face profile photo.

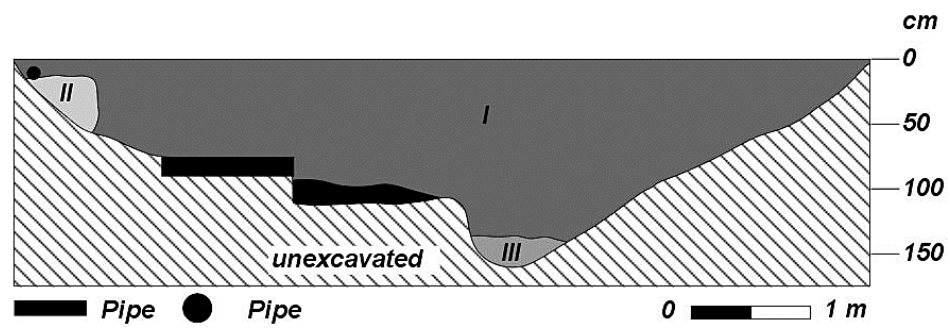


Figure 50. TR 9b south face profile drawing.



Figure 51. TR 9b south face profile photo.

Summary of Findings

The previous archaeological investigations in the vicinity of Sea Life Park verified remnants of traditional and historical features. Our research questions to aid in the identification of previously discovered archaeological resources for this project are as follows: 1) Have any archaeological remains survived the disturbance of the parcel since Sea Life Park was constructed in the 1960s and 2) If so, what are the nature of these remains and where are they located?

The results of our findings yielded no surface or subsurface archaeological remains and deposits. The pedestrian survey of 18 ac. (7.28 ha) on a portion of TMK: (1) 4-1-014:004 in Waimānalo Ahupua‘a yielded no evidence of surface archaeological remains. Much of the project area was built over by the current Sea Life Park, which consists of facilities, pavements, and landscaping. The subsurface testing, consisting of 16 trenches, did not identify any subsurface cultural deposits or features. Stratigraphy generally consisted of fill atop a natural deposit. Many of the trenches exhibited previous disturbance as evidenced by buried utility lines.

The project area is well-developed with the buildings and infrastructure for Sea Life Park. It is likely that surface archaeological features will only be found on the outskirts of the park where development has not occurred. Within the park itself, subsurface remains are more likely to be found. Two archaeological sites are known in the project area: Kaupō Village and Kealakipapa Valley Road. However, it is unclear if vestiges of these sites remain within the project area today.

SUMMARY AND RECOMMENDATIONS

An archaeological inventory survey was conducted at Sea Life Park for proposed construction and renovation to the park. This is located on TMK: (1) 4-1-014:004 (por.) in Waimānalo Ahupua‘a, Ko‘olaupoko District, on the island of O‘ahu. The archaeological work included pedestrian survey that covered 100% of the 18 ac. (7.28 ha) project area, as well as test excavations consisting of 16 trenches. Due to negative findings, the AIS results are presented as an archaeological assessment per HAR §13-275-5(b)(5)(A).

No surface archaeological remains were found during pedestrian survey of the project area. Much of the area has been constructed over by Sea Life Park with the current facilities, pavements, and landscaping. Subsurface testing did not yield any evidence of subsurface archaeological features or deposits. Stratigraphy generally consisted of fill above a natural deposit.

Although this survey produced no findings, archaeological monitoring is recommended during construction and after preparation of an archaeological monitoring plan and its acceptance by SHPD because part of the former Kaupō Village is located beneath Sea Life Park. Features thought to be located beneath the park include 1) a lava bubble with a sand floor that was used as a shelter; 2) a series of enclosures; 3) an old road that was partially paved with lava slabs and bordered walls; and 4) a wall composed of lava rock.

It is possible that remnants of Kaupō Village, other subsurface archaeological features, or human remains may be discovered during construction activities, even though no such evidence was found during the survey. An archaeological monitoring plan should be prepared for the property in accordance with HAR §13-279-4. Should human burial remains be discovered during construction activities, work in the vicinity of the remains should cease immediately and the SHPD should be contacted.

GLOSSARY

| | |
|--------------------|---|
| ‘āholehole | Young stage of the Hawaiian flagtail fish. |
| ahupua‘a | Traditional Hawaiian land division usually extending from the uplands to the sea. |
| akule | Big-eyed or goggled-eyed scad fish (<i>Trachuroops crumenophthalmus</i>). |
| ‘alaea | Red ocher. |
| ali‘i | Chief, chiefess, monarch. |
| ‘awa | The shrub <i>Piper methysticum</i> , or kava, the root of which was used as a ceremonial drink throughout the Pacific. |
| boulder | Rock 60 cm and greater. |
| breadfruit | The Polynesian-introduced tree <i>Artocarpus altilis</i> , or ‘ulu in Hawaiian. |
| cobble | Rock fragment ranging from 7.6 cm to less than 25 cm. |
| coconut | The palm tree <i>Cocos nucifera</i> , or niu in Hawaiian. |
| gravel | Rock fragment less than 7.6 cm. |
| hale | House. |
| heiau | Place of worship and ritual in traditional Hawai‘i. |
| hoa‘āina | Native tenants that worked the land. |
| honu | The general name for a turtle or tortoise. |
| kahuna | An expert in any profession, often referring to a priest, sorcerer, or magician. |
| kākalaioa | An indigenous thorny vine, <i>Caesalpinia major</i> , commonly known as gray nickers. The seeds were traditionally used for lei and powdered into medicine. |
| kalo | The Polynesian-introduced <i>Colocasia esculenta</i> , or taro, the staple of the traditional Hawaiian diet. |
| kama‘āina | Native-born. |
| ki‘i | Image, drawing, idol, petroglyph. |
| ko‘a | Fishing shrine. |
| kukui | 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. |
| kuleana | Right, title, property, portion, responsibility, jurisdiction, authority, interest, claim, ownership. |
| kupua | Demigod, hero, or supernatural being below the level of a full-fledged deity. |
| lū‘au | Hawaiian feast, named for the taro tops always served at one; this is not an ancient name, but goes back to at least 1856. |
| Māhele | The 1848 division of land. |
| maka‘āinana | Common people, or populace; translates to “people that attend the land.” |
| makai | Toward the sea. |

| | |
|-----------------------|--|
| mauka | Inland, upland, toward the mountain. |
| mele | Song, chant, or poem. |
| midden | A heap or stratum of refuse normally found on the site of an ancient settlement. In Hawai‘i, the term generally refers to food remains, whether or not they appear as a heap or stratum. |
| moi | The threadfish <i>Polydactylus sexfilis</i> , a highly prized food item. |
| mo‘olelo | A story, myth, history, tradition, legend, or record. |
| mountain apple | The tree ‘ōhi‘a ‘ai, or <i>Eugenia malaccensis</i> , that produces edible fruit. |
| ‘ō‘io | Ladyfish, bonefish (<i>Albula vulpes</i>). |
| ‘ōlelo no‘eau | Proverb, wise saying, traditional saying. |
| oli | Chant. |
| pōhaku | Rock, stone. |
| stone | Rock fragment ranging from 25 cm to less than 60 cm. |
| sugarcane | The Polynesian-introduced <i>Saccharum officinarum</i> , or kō, a large grass traditionally used as a sweetener and for black dye. |
| ti (kī) | The plant <i>Cordyline terminalis</i> , whose leaves were traditionally used in house thatching, raincoats, sandals, whistles, and as a wrapping for food. |
| ‘uala | The sweet potato, or <i>Ipomoea batatas</i> , a Polynesian introduction. |
| uhu | An adult parrotfish, one of two genera of the <i>Scaridae</i> family known to occur in Hawai‘i. |
| wauke | The paper mulberry, or <i>Broussonetia papyrifera</i> , which was made into tapa cloth in traditional Hawai‘i. |

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