

# **FINAL—Archaeological Monitoring Report for Flood Control Levee Borings in Kaunakakai Ahupua‘a, Kona District, Island of Moloka‘i, Hawai‘i**

**TMK: (2) 5-3-005:003 (por.), :006 (por.), :008 (por.), :010 (por.), and :011 (por.), (2) 5-3-003:015 (por.), (2) 5-3-002:024 (por.), and :049 (por.)**



**Prepared For:**

HDR, Inc.  
1132 Bishop Street, Suite 1200  
Honolulu, Hawai‘i 96813-2822



June 2015

Keala Pono 



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## **MANAGEMENT SUMMARY**

Archaeological monitoring was conducted for borings at TMK: (2) 5-3-005:003 (por.), :006 (por.), :008 (por.), :010 (por.), and :011 (por.), (2) 5-3-003:015 (por.), (2) 5-3-002:024 (por.), and :049 (por.) in Kaunakakai Ahupua'a, Kona District, on the island of Moloka'i. The borings were performed in anticipation of potential modifications to the Kaunakakai levee system. A total of 18 borings were monitored and no archaeological deposits or materials were encountered.



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## INTRODUCTION

At the request of HDR, Inc., Keala Pono Archaeological Consulting conducted archaeological monitoring for soil borings at TMK: (2) 5-3-005:003 (por.), :006 (por.), :008 (por.), :010 (por.), and :011 (por.), (2) 5-3-003:015 (por.), (2) 5-3-002:024 (por.), and :049 (por.) in Kaunakakai Ahupua‘a, Kona District, on the island of Moloka‘i. The County of Maui is preparing to bring the levee system into compliance with Federal Emergency Management Agency (FEMA) flood protection regulations, and has retained HDR to provide engineering services related to this effort. The primary focus of the archaeological monitoring was on the identification and appropriate treatment of historic properties that might be affected by boring activities that were performed in anticipation of the levee modification.

This report is drafted to meet the requirements and standards of both federal and state historic preservation law. These include Sections 106 and 110 of the National Historic Preservation Act of 1966, as amended, Chapter 6e of the Hawai‘i Revised Statutes, and SHPD’s draft *Rules Governing Standards for Archaeological Monitoring Studies and Reports* (§13–279).

The report begins with a description of the project area and an 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 monitoring. Project results are summarized and recommendations are made in the final section. Hawaiian words, flora and fauna, and technical terms are defined in a glossary at the end of the document.

### **Project Location and Environment**

The project area consists of 18 boring holes located in Kaunakakai, Kona District, on the island of Moloka‘i. The project area covers very small portions of eight TMK parcels: (2) 5-3-005:003, :006, :008, :010, and :011, (2) 5-3-003:015, (2) 5-3-002:024, and :049 (Figure 1).

TMK: (2) 5-3-005:003 is a 63.15-acre parcel owned by Molokai Properties, Ltd. It is bounded by Maunaloa Highway to the south, undeveloped land to the north and west, and Makaena Place to the east. Borings B-4 through B-7 are located within this parcel.

TMK: (2) 5-3-005:006 is a 23.792-acre parcel owned by the Reverend Leonard Kimokeo Kapahulehua Living Trust. It is bounded by the shoreline on the south, Maunaloa Highway to the north, and County of Maui lands to the east and west. Borings B-14 through B-17 are located on this parcel.

TMK: (2) 5-3-005:008 is a 13.721-acre property owned by Molokai Properties, Ltd. It is bounded by TMK: (2) 5-3-005:010 to the south, another Molokai Properties parcel to the north, and residential lots to the east and west. Borings B-1 and B-2 lie within this parcel.

TMK: (2) 5-3-005:010 is a 10.631-acre parcel owned by the State of Hawai‘i. It is bounded by Maunaloa Highway on the south, TMK: (2) 5-3-005:008 to the north, Makaena Place to the west, and another State-owned property to the east. Borings B-3, B-10, B-12, and B-13 are located within this parcel.

TMK: (2) 5-3-005:011 is a .715-acre property owned by the Shirley K. Rawlins Trust. It is bounded by Maunaloa Highway to the south, State of Hawai‘i land to the west, private parcels to the north, and Ala Malama Avenue to the west. Boring B-18 lies within this parcel.

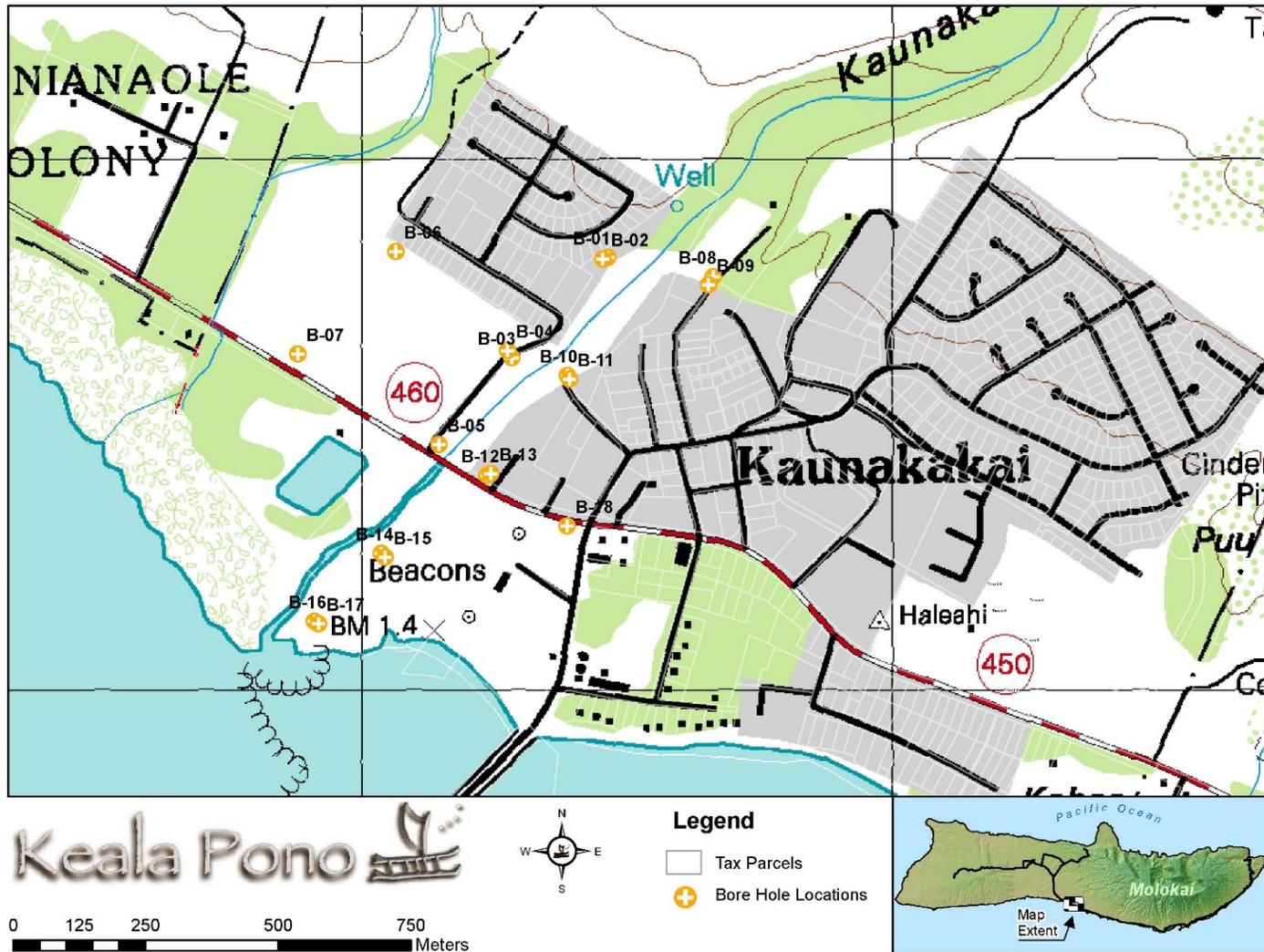


Figure 1. Project areas on a USGS Kaunakakai quadrangle map with TMK overlay.

TMK: (2) 5-3-003:015 is a 3.73-acre parcel owned by Molokai Properties, Ltd. It is bounded by TMK: (2) 5-3-002:024 to the south, and undeveloped land to the north, west, and east. Boring B-8 lies within this parcel.

TMK: (2) 5-3-002:024 is a .94-acre property owned by Lynne N. Takata. It is bounded by residential lots to the south, undeveloped land to the north and west, and Hotel Lane to the east. Boring B-9 is located on this parcel.

TMK: (2) 5-3-002:049 is a .7362-acre parcel owned by Diane Elizabeth Medeiros. It is bounded by Makaena Place to the south and other private properties on the other sides. Boring B-11 lies within this parcel.

The project area is situated between 0 and 15 feet (0–5 m) in elevation. Rainfall is sparse, averaging roughly 0–15 inches (0–40 cm) per year (Juvik and Juvik 1998). Vegetation is relatively scarce, consisting predominantly of introduced grasses, with some areas of *kiawe* trees. Topography is mostly flat, with the strip of land between the levees significantly lower than the surrounding ground surface. Soils consist mostly of Kealia silt loam (KMW) and Mala silty clay, 0–3% slopes (MmA), with smaller sections of Pulehu clay loam, 0–3% slopes (PsA) and Very stony land, eroded (rVT2) in the *mauka* sections (Figure 2) (Foote et al. 1972).

Significant coastline progradation has been documented in the vicinity of the project area. Historic maps show that between 1882 and 1924, the shoreline accretion rate was approximately 8 feet (2.4 m) per year (Shun 1982:5). However, the shoreline showed little change after 1924 (Shun 1982:5).

### **The Undertaking**

Potential modifications are planned for the Kaunakakai levees so that they are in compliance with FEMA flood protection regulations. The exact modifications have not been determined yet, and an alternatives analysis is underway. Ground disturbing work will be conducted in two phases, geotechnical boring and construction. The borings were completed in December 2014 (the monitoring of which is reported herein), while the construction will not occur for another two to three years. A total of 18 borings were drilled. The construction phase of the undertaking will likely include the modification of the levees in order to provide the necessary freeboard above the water surface. This will probably include the building up of the levee banks with earthen material to meet the required flood protection criteria to be consistent with FEMA flood protection requirements.



## BACKGROUND

This section of the report presents background information as a means to provide a context through which one can examine the cultural and historical significance of the project environs and the *ahupua'a* of Kaunakakai. Information is provided for both the traditional Hawaiian period and the historic era. This is followed by a summary of previous archaeological research in the vicinity of the project area and a discussion of settlement patterns of the region.

### Traditional Cultural Background

Traditionally Moloka'i was divided into two districts: Ko'olau and Kona. Ko'olau District was composed of the wet valleys on the northern coast of the island as well as Kalaupapa Peninsula, also on the northern coast, while Kona District included the rest of the island. Located in Kona District, Kaunakakai encompasses 5,310 acres roughly in the center of the island and includes a stretch of coastline on the south shore. It is bordered by Kalama'ula Ahupua'a on the west, Kahanui Ahupua'a on the north, Kapa'akea Ahupua'a on the east, and the Pacific Ocean on the south.

Information obtained for the traditional Hawaiian period includes a history of the naming of Kaunakakai, a wind name, *'ōlelo no'eau, mo'olelo*, a discussion of subsistence patterns, and an examination of warfare and the presence of *ali'i* in the region. Throughout this report, "traditional" refers to the period before 1778 Western contact, and "historic" denotes the time after 1778.

#### "Kaunakahakai"

The evolution of the name of Kaunakakai has been attributed to several sources which offer insight into different aspects of the inherent nature of the area. In numerous *mo'olelo*, several which are presented in the current study, one can see multiple Hawaiian language sources which refer to the area of study as "Kaunakahakai."

According to Mary Kawena Pukui, the original, Kaunakahakai, is translated as "resting-on-the-beach" or "beach-landing" as it was a landing place for the fishing canoes which were attracted by the multitude of fish in the area (Pukui et al. 1986:95). George Cooke, former manager of Molokai Ranch provides the meaning of "Kaunakahakai" as "to go along in the company of four" (Cooke 1949:83).

Another explanation for the name is provided by Harriet Ne who describes the name as a homage to a foreigner assisting Chief Kapuāiwa (Kamehameha V). This sunburned foreigner who helped manage the chief's finances gave the chief the idea to dig paddies where sea water could enter during high tide, and dry during low tide, thus creating salt flats. When naming the village, the foreigner asked the chief how one would say "current," and the chief named the place Kaunakahakai, or "current of the sea." At the same time Chief Kalaimoku remarked that the term "kauna" can also refer to the foreigner who they regarded as a "count" and person of nobility (Ne 1981:23-24).

#### *Ka Makani o Kaunakakai*

The wind of Kaunakakai is known as Hauali'ali'a and is noted in the *mo'olelo* of Paka'a and the wind gourd of La'amaomao, "...Hauali'ali'a ko Kaunakakai..." (Nakuina 1990:70).

#### *'Ōlelo No'eau and Mo'olelo*

Four *'ōlelo no'eau* relating to the southern shore of Moloka'i and Kaunakakai were identified and are presented below.

Moloka‘i ko‘o lā‘au.

*Moloka‘i of the canoe-poler.*

The reef at the southern shore of Moloka‘i extends out as far as one-half mile in some places. At low tide the water is no more than eight feet deep. Because it is so shallow, the people could propel their canoes with poles. (Pukui 1983:238)

Hele i Kaunakakai i Hikauhi.

*Go to Kaunakakai to seek Hikauhi.*

Go to seek that which is lost. One day, when a man of Moloka‘i was fishing, his wife felt the beginning of labor pains and went to the upland to seek help from her mother. When the husband returned, he searched everywhere in Kaunakakai for his wife. After a time she returned with their daughter, whom they named Hikauhi. (Pukui 1983:82)

I Hikauhi, i Kaumanamana.

*At Hikauhi, at Kaumanamana.*

A man and his wife lived at Kaunakakai, Moloka‘i. While he was gone fishing one day, she felt the beginning of labor pains and went to her mother’s home in another village. When the husband arrived home and his wife was not there, he began to search for her. After he searched fruitlessly for several days, his wife returned with their baby daughter, whom they named Hikauhi. Ever since that day, hikauhi has meant “in vain,” and when a person loses something and goes in search, one says, “I Hikauhi, i Kaumanamana.” (Pukui 1983:126–127)

Wā ‘ōlelo i Kaunakakai.

*Loud talking at Kaunakakai.*

Said of much boisterous talking. The chiefs liked to play games such as kōnane at Kaunakakai, and their shouts and laughter could be heard for some distance. (Pukui 1983:319)

Kaunakakai is also mentioned in numerous *mo‘olelo*. According to the *mo‘olelo* of Aiai recorded in Martha Beckwith’s *Hawaiian Mythology*, Aiai, the son of the fishing god Ku‘ula, was known to kick “mullet spawn ashore with his foot at Kaunakakai,” a reference to the abundance of fish in the waters of the area (Beckwith 1970:22).

In the epic of Hi‘iaka-i-ka-poli-o-Pele, Hi‘iaka, the sister of Pele, traverses the Hawaiian island chain from Hawai‘i Island to Kaua‘i on a mission to bring Lohiau, Pele’s lover, to her home. The *mo‘olelo* describes this voyage of Hi‘iaka, along which she stops on Moloka‘i after crossing Maui. Following adventures on the north shore of Moloka‘i, Hi‘iaka and the accompanying women depart from Kaunakakai and head to O‘ahu (Beckwith 1970:175).

In a *mo‘olelo* recounted by Fornander, Maniholokuaua, known for his “great strength and fleetness,” lived in Kaunakakai, while his *mo‘o* grandmother, Kalama‘ula, lived in the neighboring *ahupua‘a* with which she shared the name. When the fastest runner of O‘ahu, Keliimalolo, arrived on the beach of Kaunakakai, he was warned of the thief who would steal his canoe. Sure enough, Maniholokuaua lifted the canoe onto his back and carried it to a cave, for which Keliimalolo could not find the opening. After traveling to Kaua‘i in search of fast runners who would help him retrieve his canoe, Keliimalolo found Kamaakamikioi and Kamaakauluohia. Once again, as the canoe landed, Maniholokuaua was there to steal it. Ignoring their warning to not take the canoe, Maniholokuaua put it on his back and ran to his cave of treasures. Ultimately, Kamaakamikioi caught up with Maniholokuaua, and as he demanded the cave to open, Kamaakamikioi ordered the cave to close, crushing Maniholokuaua and the canoe. Inside the cave, Kalama‘ula was dead, and the Moloka‘i residents entered the cave to retrieve all of their precious belongings stolen by Maniholokuaua (Fornander 1918–1919:166).

Kaunakakai is also the setting for the *mo'olelo* of Halemano. While running from Aikanaka, king of O'ahu, Halemano, his beautiful wife, Kamalalawalu, and grandmother, Kaealii, headed to Kaunakakai. There they "remained for some time farming, and when their crops were almost ripe they set out for Lele, Maui, where they sojourned for a time" (Fornander 1918–1919:238). Later in the *mo'olelo*, Kamalalawalu landed in Kaunakakai from Kaluako'i as she searched for her husband (Fornander 1918–1919:260).

In the *mo'olelo* of Moikeha, his son, Kila, who became the chief of Waipi'o, sent food to his 'ohana on Kaua'i during a famine. However, during the voyage the canoe was only able to go as far as Kaunakakai, where the food was squandered. These men then proceeded to tell Kila that the food indeed made it to Kaua'i. This happened several times, each time, the men repeating the same lie.

During the voyage of Palila, the *mo'olelo* describes Kaunakakai as seen from the rise of Hanauma, where Palila "stood and looked at the heat as it ascended from the *pili* grass at Kaunakakai, Molokai" (Fornander 1918–1919:148). The Hawaiian translation reads, "Hele aku la ia a luna o Hanauma, nana aku la i ka enaena o ke pili o Kaunakahakai, i Molokai..." (Fornander 1918–1919:149). [Note the use of the name "Kaunakahakai" before it was changed to the modern name of "Kaunakakai."

In a brief story of Kamehameha, the young *ali'i* lived at Kaunakahakai and sent a messenger to Kahekili asking to bring back 'ulu maika to amuse himself with. Giving Kahekili a calabash of feathers as *makana* offended him and he sent Kamehameha a message telling him to move back to Hawai'i Island and wait for him to die before he attempts to conquer the kingdom (Keakaloloa in Fornander 1918–1919:689-688).

### **Traditional Subsistence**

The south shore of Moloka'i is known for its many fishponds, and these likely played a major role in the subsistence economy of Kaunakakai. The pond nearest the project area is Kaloko'eli Fishpond, which lies approximately 2.3 km (1.4 mi.) to the east. Kaunakakai was also famous for a shrimp-like crustacean known as the *aloalo*, or squilla, which was delicious to eat with *poi* (Handy and Handy 1991:520). Growing up to four inches in length, *aloalo* were drawn out of their small holes in coral with a small fish on a string. Only the male *aloalo* were caught, as they were recognized by their jerky motion, while the females moved in a smooth, gliding manner (Handy and Handy 1991:520).

Handy and Handy note that sweet potato was planted on the southern shore of Moloka'i, while the only areas of wetland taro cultivation were located in the swamps below Manawainui Gulch, approximately 4.8 km (3 mi.) northwest of Kaunakakai (1991:515). Handy and Handy also mention the cultivation of dryland taro on the slopes upland of the village at Kaunakakai. Other crops were grown in the vicinity near Malama, the retreat of Kamehameha V (Cooke 1949:110). One such area was located near a spring that "bubbled up through an eight-inch vent and ran as a stream to the shore. Along the banks of the stream sugar cane, bananas, and taro flourished. There were many shrimp in the spring" (Cooke 1949:110).

### **Warfare and *Ali'i* Presence in Kaunakakai**

In the time of Hawai'i island chief Alapa'i Nui, it became known to him that the ruling chiefs of O'ahu were waging war against the Moloka'i chiefs, who were largely descendants of Keawe of the island of Hawai'i. Alapa'i sailed from Maui to Moloka'i and landed at Puko'o. The Hawai'i fleet was encamped from Waialua to Kalua'aha with the battle ensuing at Kamalo'o (Kamalō) and Kapualei. O'ahu chief Kapi'iohookalani stationed himself in Kalama'ula, while the other O'ahu chiefs and warriors camped along the area stretching from Nā'iwa to Kaunakakai. On the fifth day

of battle, Moloka‘i and Hawai‘i warriors surrounded and defeated O‘ahu’s forces in Kamiloloa (Kamakau 1992:70–71).

Kamehameha I was known to have landed in Kaunakakai with Ke‘eaumoku, Keaweaeulu, Kame‘eiamoku, and Kamanawa, where they went to Kalama‘ula to visit with Kalola Kapupukaohonokawailani on her deathbed. Kalola, the former wife of Kamehameha’s uncle Kalaniōpu‘u, then married Ka‘opuiki. Kalola granted Kamehameha permission, upon her death, to take his “royal daughter” and sisters to Hawai‘i island where they would rule as chiefs. When Kalola died, Kamehameha “wailed and chanted dirges, and some were put to sleep with the dead....Kamehameha was also tattooed [along with some of the chiefs] and had his eyeteeth knocked out, and the chiefs and commoners acted like madmen” (Kamakau 1992:149).

It is also recorded that around 1795 Kamehameha and his warriors stayed at Kaunakakai prior to their invasion of O‘ahu (Beckwith 1970:11). When Kaua‘i chief, Ka‘eokulani, and his war party landed in Kaunakakai and saw the size of the ovens and camp left by Kamehameha’s army, he stated, “Where the big squid digs itself a hole, there crab shells are heaped at the opening” (Kamakau 1992:159).

Kaunakakai was the landing location of the canoes of Kualī‘i, *ali‘i nui* of O‘ahu, who traveled to Moloka‘i to assist the people of Kekaha, the Kona region, who were in conflict with the people and chiefs of the Ko‘olau side. Kualī‘i stayed in Kaunakakai briefly while meeting with the leeward Moloka‘i chiefs prior to his assisting them in their fight against the windward Moloka‘i chiefs.

The strife started sometime in the beginning half of the 1700s, when the windward, or Ko‘olau, chiefs began fighting the leeward, or Kekaha, chiefs over the rich fishing grounds of Kekaha along the south side of Moloka‘i. Kualī‘i was residing in Hilo at the time and heard of the trouble on Moloka‘i. He set out for the island and after arriving in Kamalō was redirected to Kaunakakai, where the Kekaha chiefs were encamped nearby. A council was held in Kaunakakai between Kualī‘i and the Kekaha chiefs after which they left for the Ko‘olau side of Moloka‘i, fighting the men around west Moloka‘i by canoe and the chiefs directly overland. The engagement began at Kalaupapa and ended at Pelekunu, both places being along the Ko‘olau side of the island. The Ko‘olau chiefs were defeated and Moloka‘i went to Kualī‘i, the O‘ahu king. Kualī‘i re-divided the lands of Moloka‘i and left Paepae and his wife Manau as *ali‘i ‘aimoku* over Moloka‘i and under himself as *ali‘i nui* (Fornander 1916:416–421).

## **Historic Cultural Background**

Information found for the historic period includes accounts by early visitors, a selection of maps of the area, Māhele land tenure data, and descriptions of an *ali‘i* residence in Kaunakakai. This is followed by a timeline of the history of Kaunakakai Wharf that includes various recollections, photographs, and a newspaper article.

### **Early Historic Accounts**

During Captain James Cook’s expedition of 1778, the first written description of the island is provided by Captain King:

Morotoi is only two leagues and a half from Mowee to the West North West. The South Western coast, which was the only part near which we approached, is very low; but the land rises backward to considerable height; and, at the distance from which we saw it, appeared to be entirely without wood. Its produce, we were told, consists chiefly of yams. It may, probably, have fresh water, and, on the South and West sides, the coast forms

several bays that promise good shelter from the tradewinds (Cook 1785 in Summers 1971:21)

In 1792, Captain Vancouver provided an early description of Moloka‘i’s southern shore:

The country from Crynoa [Kalaeloa] rises from the sea by an ascent, uninterrupted with chasms, hills or vallies, this uniform surface, on advancing to the westward, exhibited a gradual decrease in population; it discovered an uncultivated barren soil, and a tract of land that gave residence only to a few of the lower orders of the islanders, who resort to the shores for the purpose of taking fish, with which they abound. Those so employed are obliged to fetch their fresh water from a great distance; none but which is brackish being attainable on the western parts of Morotoi. This information I had before gained from several chiefs at Mowee, and was now confirmed in it by Tomohomoha, who was accompanying us to Woahoo; and who also acquainted me, that along the shores of this south side, which are chiefly composed of a sandy beach, anchorage would be found on a clear sandy bottom. But as there were no projecting points for shelter, I did not think a further examination worth the time it would employ, and therefore proceeded to the bay at the west end of the island, for the purpose of seeing if, contrary to my former observations, it was commodious for the refitting of vessels, as it had been reported. ...The contrary [west end] had the same dreary and barren appearance as that noticed on the south side, and I was informed it was equally destitute of water (Vancouver 1798 in Summers 1971:21–22).

## Maps

An examination of historic maps of Kaunakakai offers an important look into the past. Information provides knowledge of cultural resources such as land use and settlement, socio-political boundaries, as well as traditional and historic cultural sites. The following section offers a review of several historic maps of the project area environs.

One of the most notable early maps of Kaunakakai was that drawn by G.E.G. Jackson in 1882 (Figure 3). Labeled as a “Hawaiian Government Survey,” this map portrays the extent of the natural harbor which is located within a section of the fringing reef outside of Kaunakakai Village. Much of the water surrounding the land consists of mud and sand flats which are “partially dry” or “dry” during low tides. This map shows a rectangular-shaped, gated compound along the seashore, labeled as the “Kamehameha Property,” within which is a building marked as “Ruth’s House” This refers to Princess Ruth Ke‘elikōlani, an important figure in the Kamehameha *‘ohana* and the history of Hawai‘i. There are a total of 15 structures within this area. To the northwest of the Kamehameha property is also a woodhouse, two navigational lights (an outer and an inner light), a cattle pen, a store, and a slaughterhouse. *Mauka* of this area lies a village with numerous structures, as well as a schoolhouse and Protestant church. Inland of the Kamehameha property, the area is labeled as “grasslands” while the region to the west of the map, toward Kalama‘ula reads “Low level sterile land, swampy in rainy weather.”

A survey by E. Pope on behalf of the American Sugar Company (ASCO) performed in May of 1900 depicts Kaunakakai and “vicinity” highlighting “improvements” made by the aforementioned company (Figure 4). The largest difference in this map to the previous is the presence of the Kaunakakai Wharf and railroad. Other additions include water features associated with efforts of obtaining and transporting water to agricultural fields. This map denotes Kaunakakai Village as “Native Village” and shows a “Japanese Camp.” To the northeast of the wharf, along the shoreline, areas seen as “Salt Marsh” and “Pond” are also noted. A feature labeled “Stone Fence” is present





Figure 4. American Sugar Co. map of Kaunakakai (Pope 1900).

and surrounds all of Kaunakakai Village, likely associated with the protection of trees and plants from ungulates such as deer and goats, which were released to the wild by Kamehameha IV and V in the 1850s and '60s. Interestingly, this particular map does not show any structures associated with the royal encampment of the Kamehameha '*ohana*.

A 1901 U.S. Coast and Geodetic Survey map shows Kaunakakai Harbor and recorded the various depths and attributes of the ocean floor and shallows (Figure 5). Adjacent to the west of the Kaunakakai Wharf is also the older wharf. Additional information could not be found regarding this wharf, however, extant today are the remains of this structure which consists of stacked basalt boulders. There are numerous structures depicted along the coast, none of which are labeled except for the "Front Range Light" and "Rear Range Light."

The U.S. Coast and Geodetic Survey office produced another map in 1916 which further shows the depths of Kaunakakai's waters as well as industrial growth of the town (Figure 6). Details of this map present a height of 118 feet for a structure labeled "RADIO" to the east of the mole as well as the frequency which the navigational range lights flash and occult. The area surrounding the wharf is covered with algaroba, or *kiawe* trees. To the west of the wharf, large areas noted as "salt pans" are recorded, and further west toward "Lamaula" (Kalama'ula), the Kapuāiwa Coconut Grove is also depicted.

In 1924, J. Jorgensen's map of Kaunakakai shows the development of the town, with numerous businesses, churches and even a jail recorded. This map depicts the extended route of the railroad and the building within which Mr. Hagemann operated the wireless station (Figure 7).

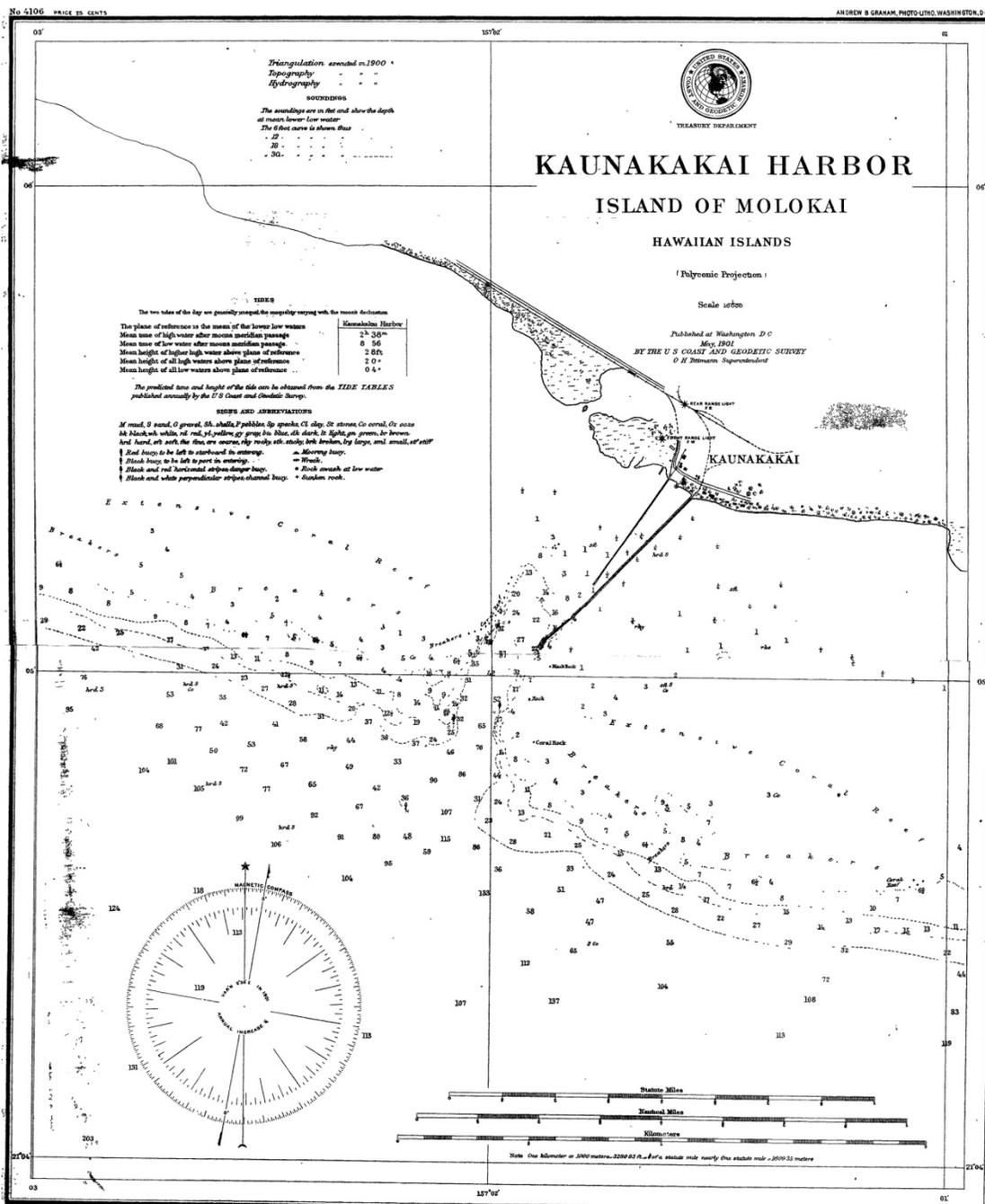
Chart 4121, mapped by an unknown surveyor, shows a small section of Kaunakakai. Handwritten notes on this chart read "Surveys to 1925." This map depicts the radio station, a church and spire, the navigational range lights, the railroad track route from the wharf to the town, and various unnamed structures (Figure 8).

While the date for a more recent map is unknown, it presents the locations and functions of numerous structures of Kaunakakai including the salt pans and "old salt warehouse," Maui County's Kaunakakai Park, Cooke Hall, a dispensary, a honey warehouse, a building labeled "Hawaiian Board," and several private landowners (Figure 9). The salt pans appear to have been located in the vicinity of where the Kaunakakai levees are today. This map exemplifies the expanding Kaunakakai community and diversifying commercial enterprises of the time.

### **Māhele Land Tenure**

The change in the traditional land tenure system in Hawai'i began with the appointment of the Board of Commissioners to Quiet Land Titles by Kamehameha III in 1845. The Great Māhele took place during the first few months of 1848 when Kamehameha III and more than 240 of his chiefs worked out their interests in the lands of the Kingdom. This division of land was recorded in the Māhele Book. The King retained roughly a million acres as his own as Crown Lands, while approximately a million and a half acres were designated as Government Lands. The Konohiki Awards amounted to about a million and a half acres, however title was not awarded until the *konohiki* presented the claim before the Land Commission.

In the fall of 1850 legislation was passed allowing citizens to present claims before the Land Commission for lands that they were cultivating within the Crown, Government, or Konohiki lands. By 1855 the Land Commission had made visits to all of the islands and had received testimony for





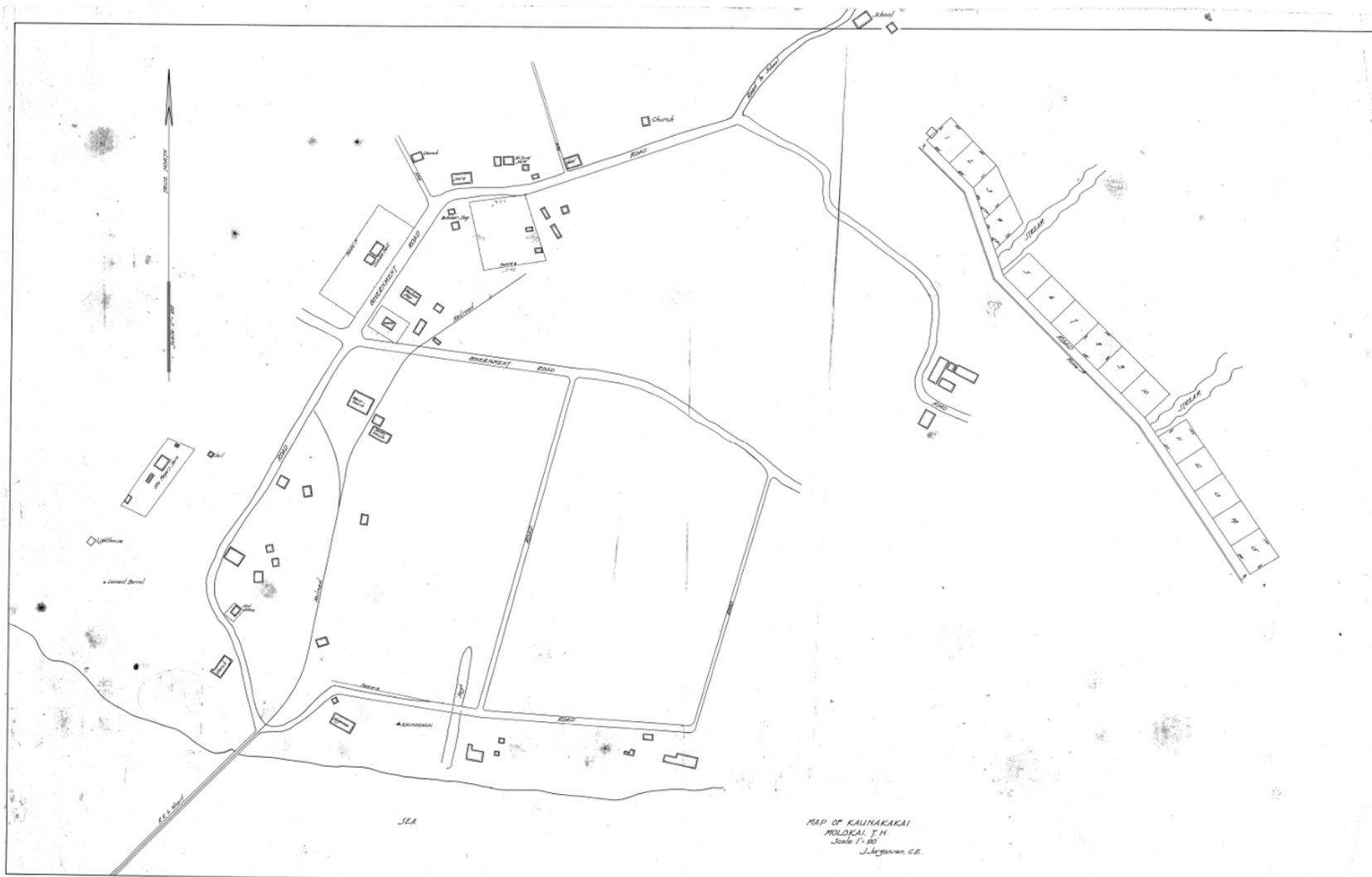


Figure 7. Map of Kaunakakai (Jorgensen 1924).

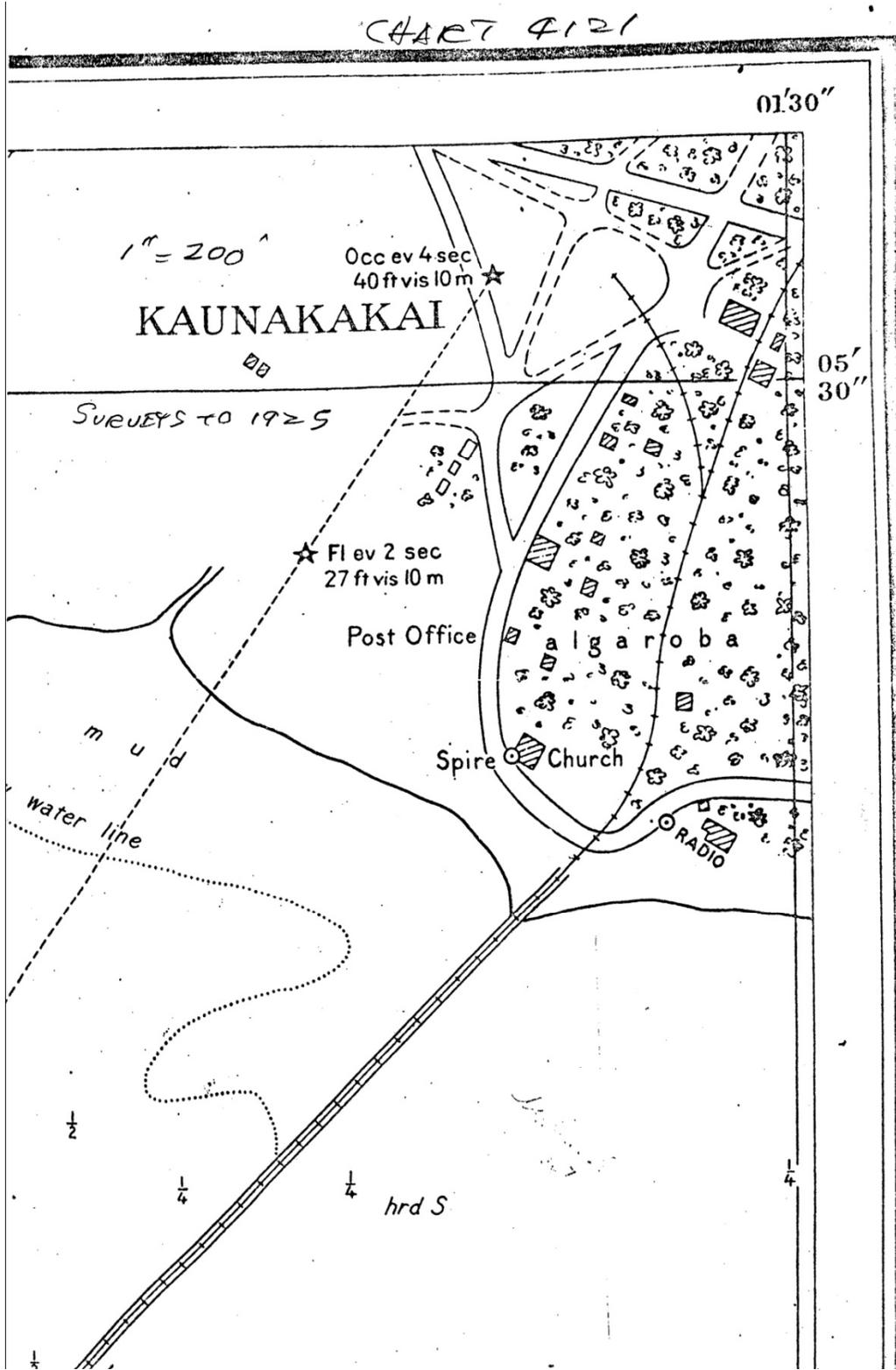


Figure 8. Portion of map showing Kaunakakai post-1925 (Unknown n.d.a).



Figure 9. "Land of Kaunakakai" (Unknown n.d.b).

about 12,000 land claims. This testimony is recorded in 50 volumes that have since been rendered on microfilm. Ultimately between 9,000 and 11,000 *kuleana* land claims were awarded to *kama'āina* totaling only about 30,000 acres and recorded in ten large volumes.

There are no legal Māhele documents referring to the ownership of Kaunakakai Ahupua'a and no *kuleana* claims were awarded. There are, however, letters to the Interior Department dating to 1852 and 1854 in which Abner Pākī states that he owns the *ahupua'a* (Int. Dept. Letter 1852 and 1854 in Hammatt et al. 2010).

Kaunakakai fell into the hands of Lot Kapuāiwa (Kamehameha V) in 1855 when the *ahupua'a* was "conveyed" to him for a sum of two hundred dollars (Int. Dept. Letter 1855 in Hammatt et al. 2010). Lot Kapuāiwa's brother Alexander Liholiho (Kamehameha IV) would later establish a sheep station in Kaunakakai. Kapuāiwa inherited the station upon Liholiho's death and added deer to the animal population of Moloka'i.

When Lot Kapuāiwa died in 1872, Kaunakakai was bequeathed to Ruth Ke'elikōlani. Upon her passing in 1883, most of her land holdings were transferred to Bernice Pauahi Bishop, but Kaunakakai was not included among these. When Pauahi died in 1884, however, the trustees of her estate petitioned for and received Kaunakakai.

Hammatt et al. report a dispute in the claim for ownership of Kaunakakai, although Bishop Estate was eventually confirmed as the owner:

An Interior Department letter of 11/15/1889 indicates that Kaunakakai was owned by Kalani Pueo in 1843, "from whom Mrs. Bishop inherited same," though as mentioned previously, (Interior Dept. Letters, 852 & 1854) Abner Pākī, Bernice Pauahi Bishop's father, indicated he owned Kaunakakai. The relationship of "Kalani Pueo" to Abner Pākī and Bernice Pauahi Bishop is not known to us at this time. (Hammatt et al. 2010:9)

In 1897 large expanses of Moloka'i were purchased to form the Molokai Ranch by a group who would later become ASCO (Summers 1971:24). This prompted the construction of the Kaunakakai Wharf:

A good harbor was imperative so they built a mole one-half mile long over the shores of Kaunakakai to a natural harbor formed by a break in the reef. They built a railroad from the end of the mole up through Palaau and Iloli to the middle of the Hoolehua plateau. Locomotives were imported, and a huge coal dump was formed at Kaunakakai to supply fuel. A large camp was constructed... (Judd IV 1936 in Summers 1971:24)

Kaunakakai became the urban center of the island due to its proximity to the wharf. The ASCO was unsuccessful, however, and the reason for its downfall was the subject of speculation:

...in the construction of the railroad from the mill to the dock at Kaunakakai, the railroad builders had disturbed a heiau ...since the railroad builders at American Sugar Company had not only used the heiau stones in building roadbed, but had also routed the railroad directly through the center of the temple site, the whole organization was doomed to disaster. ... (Condé and Best 1973 in Hammatt et al. 2010:9).

Hammatt et al. (2010:9, 13) examine the premise further:

This may have been the time of the destruction of Kamalae Heiau as reported by John Stokes. The reported *heiau* location, when plotted on the 1924 Land Court App. 632

map...puts it within the vicinity of Lot 6 which includes walls and a flume. The construction of the walls and flume may have been the agents of destruction. However, the 1886 map, which John Stokes utilized during his 1909 survey does not show a structure (stone or wooden framed) in the locus of the *heiau*, possibly indicating the *heiau* was not there at that time, though such structures as *heiau* were not routinely plotted by Monsarrat anyway. It is also possible that the reference to *heiau* destruction was to Mahinahina Heiau (Site 131), otherwise said to have been located 500 ft NE of the pier at Kaunakakai.

Summers also lists a *heiau* in Kalama‘ula (adjacent to Kaunakakai on the west) for which stones were used to build a pier for ASCO, probably referring to the Kaunakakai Wharf (1971:85):

SITE 123. PU‘UPAPAI HEIAU, KALAMA‘ULA

Located near the crest of the plateau, this heiau is about 1500 ft from the sea. From Kakalahale it bears 51° 28’; 12,775 ft. Originally it was probably three enclosures. It is said...to have been dedicated to Kane and Kanaloa, that is was a platform, for human sacrifice, and that the drums were not heard at night (Stokes, n.d.a:1).

In another account, Stokes wrote further about this heiau.

Puupapai was a very important heiau of the sacrificial class. It was torn down about 15 years ago [1899] and the stones used to build a pier about 300 yards long, 20 feet wide and 19 feet high. The natives say that only the stones of this heiau were used, and that the subsequent failure of the company [American Sugar Co.] carrying out the operations was due to the sacrilege of tearing down the sacred structure (Stokes n.d.h.).

### **A Royal Enclave**

Said to have been the favorite island of Kapuāiwa, or Kamehameha V, the monarch frequented the island of Moloka‘i and built a “country estate” for himself on the shores of Kaunakakai (Summers 1971:23). Born in 1830, Kapuāiwa ruled the Kingdom of Hawai‘i from 1863 until his death in 1872. According to G.P. Judd IV, Kamehameha V “bought up land and cattle from the resident Hawaiians and used Molokai as a vacation ground from the cares of the State” (Judd IV 1936:10 in Summers 1971:23). The house was built ca. 1859 and by 1888, it was highly deteriorated. The structure could be seen until 1908 (Hammatt et al. 2010:20). According to Cooke, the house was eventually “moved to the village, and the property of Wm. Kamakana” (Cooke 1949:151).

An article published in an 1870 edition of the Hawaiian-language newspaper *Ke Au ‘Oko ‘a*, offers a detailed and poetic description of the king’s vacation home, which was known as Malama.

It is close to the edge of the sand and if the tide is very high, the murmuring wavelets wash up and whisper to the grains of earth which were rubbed off the royal feet at the threshold of the entrance leading up to the lanai.

It is a grass hut, skillfully thatched, having a lanai all around, with floors covered with real Hawaiian mats. The house has two big rooms. The parlor is well furnished, with glass cases containing books in the English language... This is a very good vacation house for the king, in spite of that sun baked area.

On the northwest side of the house is a large grass house, and it seems to be the largest one seen to this time. The house is divided into rooms and appears to be a place in which to receive the king’s guests. There are four other fine, big houses, mostly thatched. These are surrounded by the houses of those who wait on him and some are houses used for storage.

The royal residence is set apart from the rest by a wooden fence that encloses it on all sides except the sea side. The king’s yard covers about three acres and is planted with trees,

mostly coconuts, that are thriving nicely. Another reason why we admire it so is that we saw no faucets since we left Honolulu, but when we got there we saw “the water that sleeps in the houses of men” (Holoholopinaau 1870 in Summers 1971:23).

Brigham also provides further detail about the king’s Malama residence, as well as insight into his attitudes and preferences:

When the photograph was taken in 1888 the house was in ruin and quite uninhabitable; were it not for the bars across the lanai openings, cattle might have entered this deserted fishing lodge of the king who, like all his family, was so fond of fishing that he often deserted his court in Honolulu and was paddled to this place where he remained for weeks at a time, out of the reach of the foreigners who he liked none too well. The enclosed corner of the lanai or verandah was very foreign, however, and so were the partitions found within the house. (Brigham 1908:112)

A photograph of Malama appeared in W.T. Brigham’s *The Ancient Hawaiian House* (1908:111) (Figure 10). According to George Cooke’s memoirs, the beach fronting Malama was reserved strictly for the use of the *ali‘i* who enjoyed sunbathing on a sandy spit named Ka Lae o Ka Manu after the *kōlea* (plover) which would return there each year (Cooke 1949:151).

Kala‘iakamanu Church was built on top of Malama Platform. As it is not certain whether the church was named after the place Ka Lae o Ka Manu, the name of this church has been presented in a few ways. Pukui and Elbert (1986) refer to it as Kala‘iakamanu, and another report refers to the church as Ka Lae Ka Manu Hou (Athens 1983), although the “Hou” was probably given to the church’s name when it moved to its present location. The date of its construction is unknown, but an interviewee in a previous study, Walter Kiawe, noted that it was built of *‘ōhi‘a* wood. The church was moved off the foundation to a nearby location in the 1920s. And because of the 1946 tsunami, the church was moved again to its present location *mauka* of Maunaloa Highway (Athens 1983:24).

Approximately 50 feet to the west of the Kamehameha V house, the King built a residence for Governor John Dominis and Colonel Charles Judd. Although ultimately succumbing to fire, retainers’ houses once stood where the Standard Oil Company’s fuel tanks currently (Figure 11). In that area, there was also a canoe house, which was at the location of the present-day County Park. It was also noted in Cooke’s recollections that small boats from steamers would later come to shore to ship sugar and molasses from the Meyer family’s operations, and a shed was used to store this sugar (Cooke 1949:110, 151).

### **Communications, Navigation, and Transportation at Kaunakakai Wharf**

With freshwater springs limiting coral growth, Kaunakakai Harbor was formed by a natural break in the fringing reef off the southern shore of Moloka‘i (Cooke 1949:75). Its initial use was by the Hawaiian people, who, according to *mo‘olelo* and historic accounts, frequently utilized the break in the reef as a point of entry and departure for their canoes—whether it be for fishing, exchanging goods, traveling, or warring. The following section presents a timeline of events associated with Kaunakakai Wharf and its environs. Also included in this timeline are firsthand accounts of the wharf, various recollections of the area and a newspaper article, followed by historic photographs.

Ca. 1874– The interisland steamer, *Kilauea*, was making monthly stops to the reefs outside of Kaunakakai. “Because of the abrupt shoaling, only barges or shallow-draft craft could enter the harbor. Cargo was transferred from larger vessels, anchored in deep water, to lighters, which then carried goods and passengers to shore” (Grace and Nishimoto 1974:86 in Dean 1991:89).



**Figure 10. Photograph of Malama, Kamehameha V's residence (Brigham 1908:111).**



**KING KAMEHAMEHA V'S RETAINERS' HOUSE, KAUNAKAKAI**  
(Torn down in 1940)

**Figure 11. Kamehameha V's retainer's home (adopted from Cooke 1949:111).**

According to George Cooke's recollections:

The harbor was used by small coasting schooners in transporting supplies and island produce. The original method of handling freight was to take ox-carts over the shoals until they reached water deep enough for the shore boats from the schooners to row alongside. The shoal water continues for another several hundred yards from the shore. (Cooke 1949:75)

1880– By request of the minister of the Interior, H.A.P. Carter, Moloka'i resident Rudolph W. Meyer was asked to select sites for front and rear range lights to assist vessel's navigation. The lights themselves were kerosene lamps mounted on wooden spars which could be seen five to seven miles at sea. The lights were lit every night and manned by Kaleimamo from 1880 to 1889, followed by Samuel Kainali from 1889 to 1903 and Joseph Uahinui (Meyer 1880, 1881 in Dean 1991:89).

1897– Molokai Ranch was formed by a group of men and began acquiring lands of Moloka'i. Much of the area which they obtained had been previously owned by Kamehameha V, followed by Princess Ruth Ke'elikōlani in 1872 and Princess Bernice Pauahi Bishop. Upon her death, much of Pauahi's Moloka'i lands were sold to Molokai Ranch by trustees of the Bishop Estate. In 1898, the Molokai Ranch established ASCO, which in the same year constructed the wooden wharf in Kaunakakai.

1898– The original, wooden Kaunakakai Wharf was built by ASCO (Figure 12).

...When I [George Cooke] first visited Molokai [in 1899], we landed from shore boats on a small pier of kiawe piles leeward of the present mole. The mole, which is one-half mile long, was obtained from a heiau (temple) which is the side of the upper house of the Hawaiian Homes Commission, above their well in Kalamaula, called Oloolo. During construction the loaded cars, running on tracks, carried the rock by gravity to the mole. The wharf itself was constructed of wood on wooden piles, and it was completed by the contractor DeFries before the mole was finished. Large sailing vessels could tie up against this wharf to bring plantation supplies and coal for the pumps. (Cooke 1949:71–72)

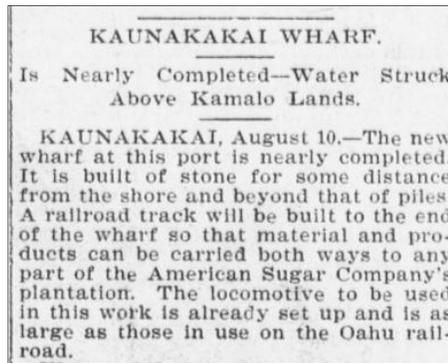


Figure 12. Article from *The Hawaiian Star*, published on August 11, 1899.

1903– Harbor navigational lights were replaced and the lanterns were mounted on posts, the front post being 40 feet high and the rear post reaching 45 feet high. The front light was changed to a fixed white, and the rear, a fixed red (United States Department of Commerce and Labor 1904:286 in Dean 1991:90).

1907– The front navigational marker of the harbor was lowered to 36 feet and triangular shapes were affixed to the markers to assist vessels in approaching and entering the harbor during the day (United States Department of Commerce and Labor 1912:90–91 in Dean 1991:90). The lights became automated in 1912 and elevated on “wooden skeleton towers” with the front tower erected on the roof of a house (Dean 1991:90).

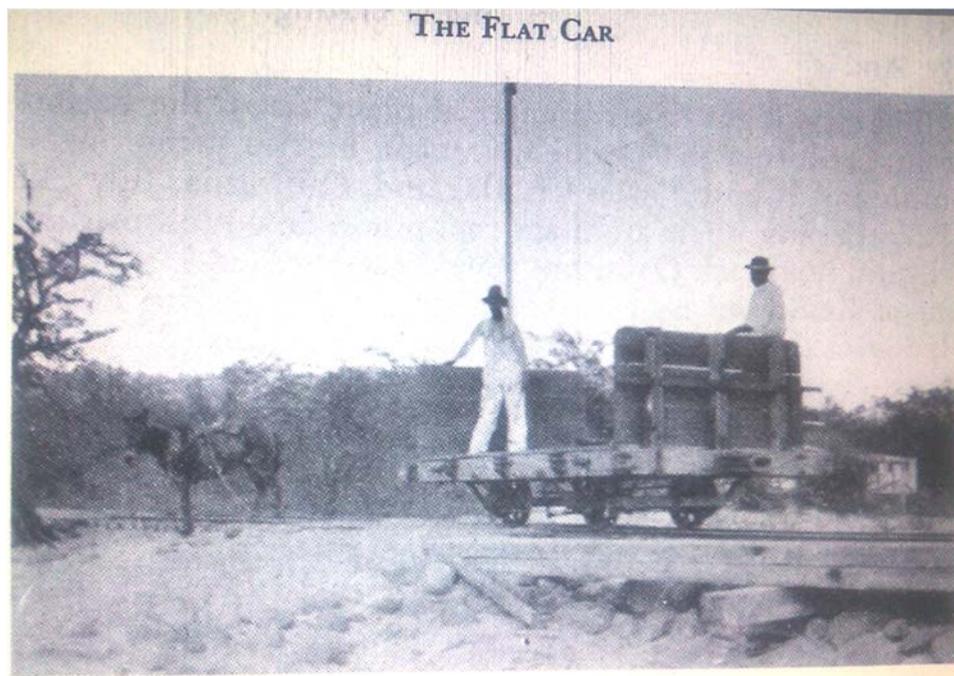
1908– “When I [George Cooke] moved to Molokai [in 1908] the mole was just wide enough for one railroad track. All freight was carried over the wharf by flat cars drawn by mules. This track extended inland as far as Chang Tung’s store. ASCO maintained the wharf and the public was allowed free use of it” (Cooke 1949:72). The flat car is shown in Figure 13.

The Kaunakakai mole, between the wharf and the shore, was too narrow for ordinary road vehicles. To overcome this disadvantage, a railroad flat-car on tracks was drawn by a reliable, “flea-bitten” grey mule named Hattie, who was replaced later by a brown mule named Hannah. The mule and flat-car hauled freight and passengers from steamer to shore. All freight was handled at least six times between suppliers in Honolulu and its destination on the ranch (Cooke 1949: 87).

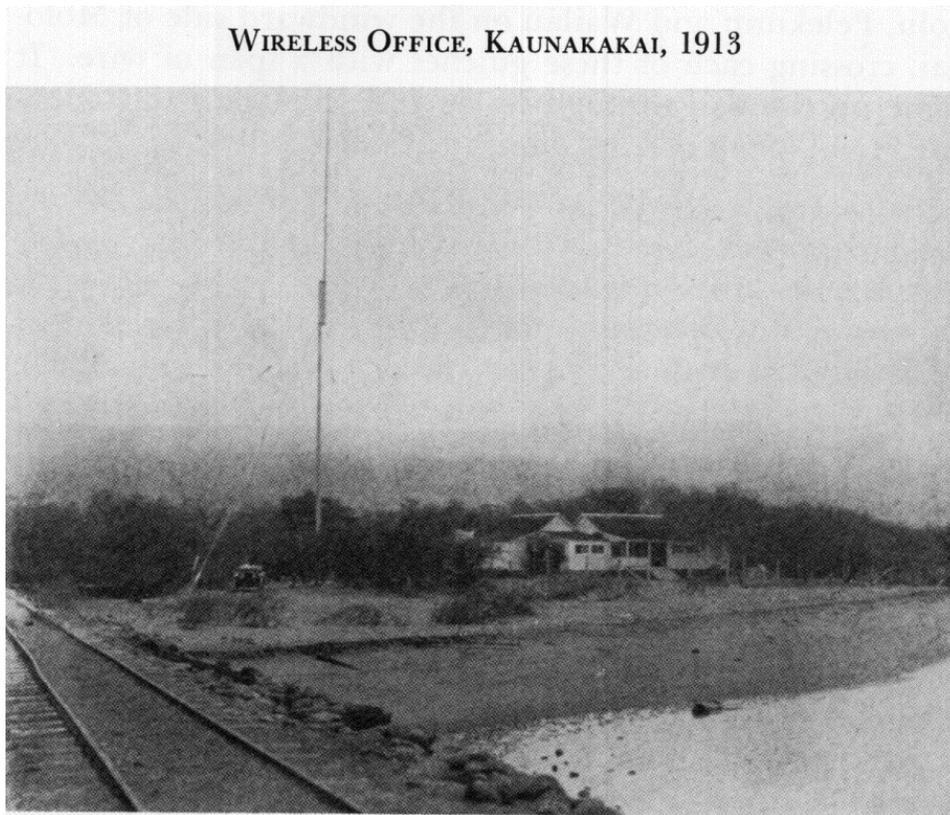
1910– The Mutual Telephone Company moved their wireless station from the village of Kamalō to Kaunakakai. It was housed in a building rented to them for one dollar per year by Molokai Ranch (Cooke 1949:82) (Figure 14).

1921– An article from the *Maui News* reports that “under the provisions of House Bill No. 193, Presented by Representative Kalua, the American Sugar Company wharf at Kaunakakai, Molokai, will be acquired by the Harbor Board for public wharf uses” (*Maui News* 1921).

1923– The N.R.A. contracted the Hawaiian Dredging Company for approximately \$120,000 to dredge the harbor to a depth of at least 23 feet (7 m) (Cooke 1949:75).



**Figure 13. Photo of the flat car at the Kaunakakai wharf (adopted from Cooke 1949:87).**



**Figure 14. Wireless office in Kaunakakai (adopted from Cooke 1949:82).**

1925– Because of increased sugarcane and cattle operations as well as homesteading developments, the need for fuel became critical. As a result of this demand, The Standard Oil Company built a storage and distribution station at Kaunakakai with Molokai Ranch acting as its agent. This same year, Molokai Ranch lands of Kaunakakai were granted a Land Court title by Judge Banks (Cooke 1949:75).

1926– With funds appropriated by the Territory, the first section of macadam road was paved starting at Kaunakakai and heading toward Ho‘olehua (Cooke 1949:74) Repairs also began during this year by the Harbor Board. These repairs consisted of widening the mole and taking up the old tracks “pending the reconstruction authorized by the appropriation of one hundred twenty-five thousand dollars by the 1923 Legislature” (Cooke 1949:73). The old wooden wharf is shown in Figure 15.

1928– Replacing the wooden wharf with a concrete one, E.J. Lord was awarded a contract from the Territory of Hawaii in 1927, the work being completed in 1928 (Figure 16). A subsequent sum was awarded to contractor Ralph Wooley who was charged with the extension of this wharf in 1929 (Cooke 1949:15).

1932– One of the Standard Oil tanks at Kaunakakai caught fire, killing one employee and severely injuring another. Due to lack of equipment to fight the fire, additional equipment had to be brought by tug and barge from Honolulu (Cooke 1949:15–16).

1935– The Molokai Ranch’s Manager’s Annual Report for that year stated:

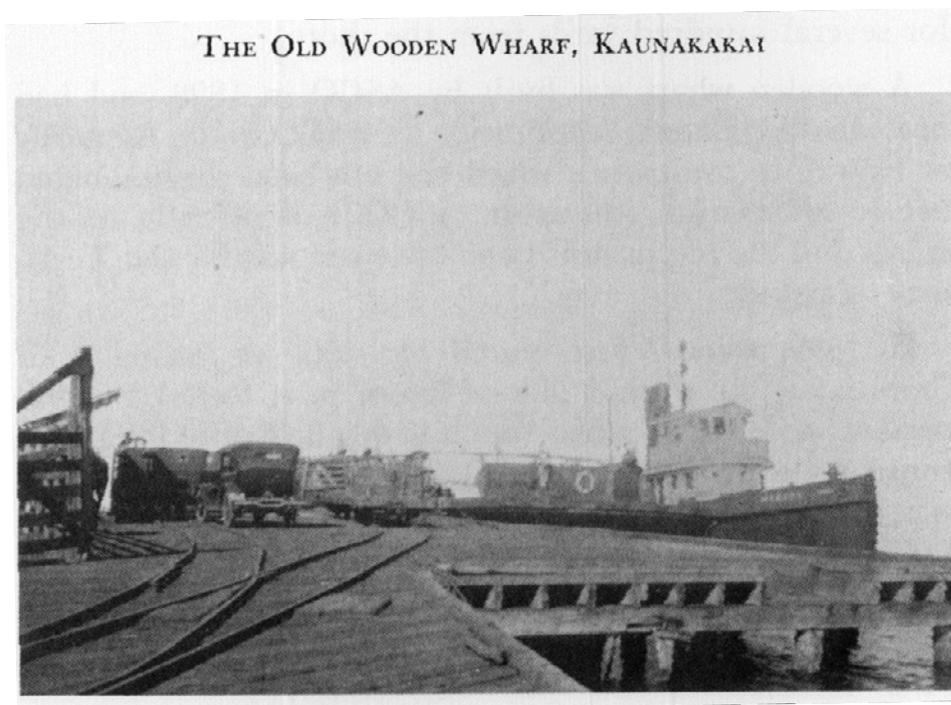
Delegate King has introduced a bill for an appropriation to survey Kaunakakai Harbor, looking forward to making this harbor available for direct shipment to and from the coast. The present plans call for a turning basin of one thousand fifty feet with a slip dredge for the Inter-Island boats, and the whole harbor and entrance dredged to a depth of thirty-five feet. (The last dredging was to a depth of twenty-three feet.) Should this project be approved by the United States Engineers, it may take from five to ten years before an appropriation in the Rivers and Harbors Bill could be obtained. (Cooke 1949:75)

1936– The Tax office and District Court were moved from Pūko‘o to Kaunakakai, and a “wireless telephone system” was installed by the Mutual Telephone Company, Limited via ‘Ulupalakua, Maui (Cooke 1949:20, 84).

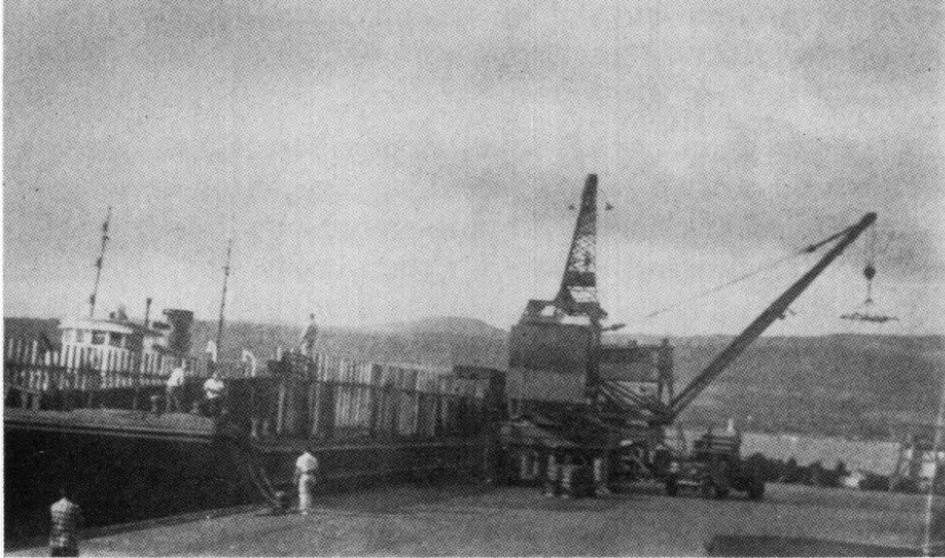
1940– From the Manager’s Annual report for 1940:

Indications are that in 1941 the seventy-five thousand dollar loan fund appropriation will be expended in enlarging the deck of the present wharf at Kaunakakai. The plans call for extending the wharf inland from the present wharf and relieve much of the congestion. It will allow the loading and unloading of barges to take place on the inland side of the wharf and leave the outer end for steamers and ships that may call for passengers and freight” (Cooke 1949:75).

1950s– Two photographs were found of the Kaunakakai Wharf in the Hawai‘i State Archives (Figures 17 and 18). The date on the back of the photos reads “pre-1980s,” however, based on the vehicles pictured, the photos likely date to the 1950s. The wharf itself appears much the same as it does today.



**Figure 15. The wooden Kaunakakai Wharf (adopted from Cooke 1949:72).**



KAUNAKAKAI WHARF, 1928  
(of concrete)

**Figure 16. The new concrete wharf (adopted from Cooke 1949:74).**



**Figure 17. Kaunakakai Wharf, ca. 1950s (photo courtesy of the Hawaii State Archives).**



Figure 18. Kaunakakai Wharf ca. 1950s (photo courtesy of the Hawaii State Archives).

### Previous Archaeology

Numerous archaeological studies were performed in Kaunakakai and provide significant data regarding traditional and historic land use and settlement patterns (Table 1). The following section presents previous archaeological investigations in the *ahupua'a* of Kaunakakai. Studies located in the vicinity of the project area are summarized below and depicted in Figure 19; known archaeological sites are shown in Figure 20.

One of the earliest archaeological surveys was conducted by Catherine Summers. Her island-wide study produced her book, *Molokai: A Site Survey*, which records five sites located in Kaunakakai, three of which were given site numbers. After a brief description of Kamehameha V's Malama residence platform, she goes on to describe Sites 129, 130, 131, and a *kahua maika* believed to be located in Kaunakakai. The saltworks, visible on several of the historic maps, were situated just east of the current project area. It is also believed that Mahinahina Heiau was located at the same place as Kamehameha V's residence, Malama. The following is an excerpt from Summers' book (1971:87–88):

West of the approach to Kaunakakai wharf is a platform that was part of Kamehameha V's home, Malama (see p. 23). The beach in front of this site was used exclusively by the *ali'i* for sun bathing. There formerly was a spit of sand in front of here called *Ka Lae O Ka Manu*, so named because the plover used to settle here. At the site of the County Park was a canoe shed (Cooke 1949:110, 151).

#### Site 129. Saltworks, Kaunakakai

Located at the site of the Kaunakakai dump in 1961, the salt pans were made "something like a taro patch." Sea water was run into the pans at high tide, and when the tide ebbed, some of the water remained. The water was allowed to stand from one to three weeks, after which the salt was gathered and dried. The salt formed here was not as salty as the salt formed by waves from the deep sea—"Our salt here is not too sour, the salt is white" (Tape n.d.d.).

**Table 1. Previous Archaeological Studies in the Vicinity of the Project Area**

<b>Author and Year</b>	<b>Location</b>	<b>TMK</b>	<b>Type of Study</b>	<b>Findings</b>
Summers 1971	Moloka'i	Multiple	Survey	Sites recorded within Kaunakakai include Kamehameha V's home, Malama; Site 129, Kaunakakai Saltworks; Site 130, Kamalae Heiau; Site 131, Mahinahina Heiau; and a <i>kahua maika</i> believed to be located in Kaunakakai.
Shun 1981	Kaunakakai, Sewage Treatment Facility	(2) 5-3-005:002	Archaeological Investigations	Three sites were recorded within the 19-acre area of study, of these three, SIHP 50-60-03-129 and -631 were given site numbers. Radiocarbon dating was also performed.
Shun 1982	Kaunakakai, Wastewater Treatment Facilities	(2) 5-3-005:002	Reconnaissance Survey and Test Excavations	This study recorded historic parallel mounds as well as a subsurface cultural deposit dated to AD 1819 ± 50.
Komori 1983	Kaunakakai	(2) 5-3-001:002	Reconnaissance Survey and Historical Research	On Lots 521 and 522, one site was found: SIHP 50-60-03-630, a subsurface midden deposit consisting of shellfish and fish bone as well as traditional and historic artifacts.
Athens 1983	Kaunakakai, Kaunakakai Place and Hio Place	(2) 5-3-001:002	Archaeological and Historical Investigations	As a continuation of Komori's study of the same year, radiocarbon dating revealed dates of AD 1230–1340 and AD 1435–1665.
Landrum 1984	Kaunakakai, U.S. Coast Guard Harbor Range Lights Facility	(2) 5-3-001:003	Reconnaissance Survey	Within a 3.6-acre area, one site, SIHP 50-60-03-632, a subsurface traditional cultural deposit was recorded. An historic foundation was also present but was not recorded.
Kennedy 1988	Kaunakakai	(2) 5-3-001:077	Survey and Subsurface Testing	No additional sites recorded.
Weisler 1989	Kaunakakai, Ranch Camp	(2) 5-3-001	Survey and Excavation	Within an approximately 115-acre area, four sites were recorded and include agricultural complexes with shelter features, stacked rock wall alignments and mounds, as well as a "massive boundary wall," SIHP 50-60-03-886, -887, -888, and -889. At time of publication, Sites 886, 887, and 888 collectively were the largest agricultural complex in leeward Moloka'i, covering an area of 34.6 acres. Radiocarbon dating was also conducted, the earliest date being AD 1280 for a dryland agricultural feature.
Tuggle 1993	Kaunakakai, Malama Platform	(2) 5-3-001:002	Excavations	Investigations were conducted at SIHP 50-60-03-630, 50-60-03-890 and 50-60-03-1030.

**Table 1. (cont.)**

<b>Author and Year</b>	<b>Location</b>	<b>TMK</b>	<b>Type of Study</b>	<b>Findings</b>
Borthwick and Hammatt 1994	Kaunakakai, Within portion of Drainage System A	(2 )5-030-01, -002, -006 & -007	Inventory Survey	Within a 2.18-acre area of study associated with the corridor of Drainage A, two sites were identified, SIHP 50-60-03-895, an enclosure with pavements and -896, a stacked boulder wall.
Collins 1994	Kaunakakai	(2) 5-3-003:001	Field Check	Three sites recorded and found as part of field checks for Soil Conservation Service in area proposed for use as Molokai Community Pasture Project and include SIHP 50-60-03-996, -997, and -998.
Heidel et al. 1998	Kaunakakai, Within portion of Drainage System A	(2) 5-3-002: por. 072; -063 :por. 001; -009: por. 017	Data Recovery	At same location as Borthwick and Hammatt (1994) and McGuire and Hammatt (2000). Investigations consisted of cross-trenching of historic cattle wall (SIHP 50-60-03-896) and areal excavations at SIHP 50-60-03-895.
Titchenal 1998	Kaunakakai, Malama Cultural Park	(2) 5-3-001: por. 002, 005, 097, 099, 100	Monitoring	Five subsurface features were encountered during monitoring, and included four features of historic age (19 <sup>th</sup> & 20 <sup>th</sup> centuries) and one of indeterminate age in the SIHP 50-60-03-630 area.
McGerty and Carson 1999	Kaunakakai, Within portion of Drainage System A	(2) 5-3-002:072; -063: 001; -009:017	Inventory Survey	This supplemental survey recorded additional features of SIHP 50-60-03-895, all of which were determined to be no longer significant through completion of the survey.
McGuire and Hammatt 2000	Kaunakakai, Within portion of Drainage System A	(2) 5-3-002: por. 072; -003: por. 001; -005: por. 008; -009: por. 006, 007, 017, 018, & 022	Monitoring	An expanded location from Borthwick and Hammatt (1994) and Heidel et al. (1998). No additional sites or deposits were found during monitoring of drainage installation.
Cordy 2001	Kaunakakai <i>mauka</i>	Multiple	Reconnaissance Survey	Student training project conducted reconnaissance-level survey of 500 acres of upland slopes; 12 sites were described, two of which had been previously identified.
Dye and Jourdane 2006	Kaunakakai	(2) 5-3-003:014	Archaeological Assessment	No findings.
McGerty and Spear 2006	Kaunakakai Fire Station	(2) 5-3-003:015	Archaeological Assessment	No findings.

**Table 1. (cont.)**

<b>Author and Year</b>	<b>Location</b>	<b>TMK</b>	<b>Type of Study</b>	<b>Findings</b>
Hammatt 2008	Kaunakakai Elementary School	(2) 5-3-002:052	Literature Review and Field Check	No sites were found, although the school's establishment in 1908 qualifies the campus as an historic property.
Madeus 2010	Kaunakakai Elementary School	(2) 5-3-002:052	Monitoring	No findings.
Desilets 2011	60 Maluolu Place	(2) 5-3-002:073	Monitoring	No findings.
Medrano and Dega 2013	Duke Maliu Field	(2) 5-3-003:012	Monitoring	No findings.
McElroy et al. 2013	Duke Maliu Field	(2) 5-3-003:012	Archaeological Assessment	Recorded two mid-20 <sup>th</sup> century glass fragments.
McElroy and Elison 2014	Kaunakakai Wharf	(2) 5-3-001:005 and :011	Monitoring	Identified two sites: SIHP 2514, an historic wall, and 2523, possibly a tie beam for the original Kaunakakai Wharf.
McElroy and Eminger 2015	Kaunakakai Levees	multiple	Inventory Survey	Identified two sites: SIHP 2563, the historic Kaunakakai Levees themselves, and SIHP 896, a wall that is part of a previously recorded complex.

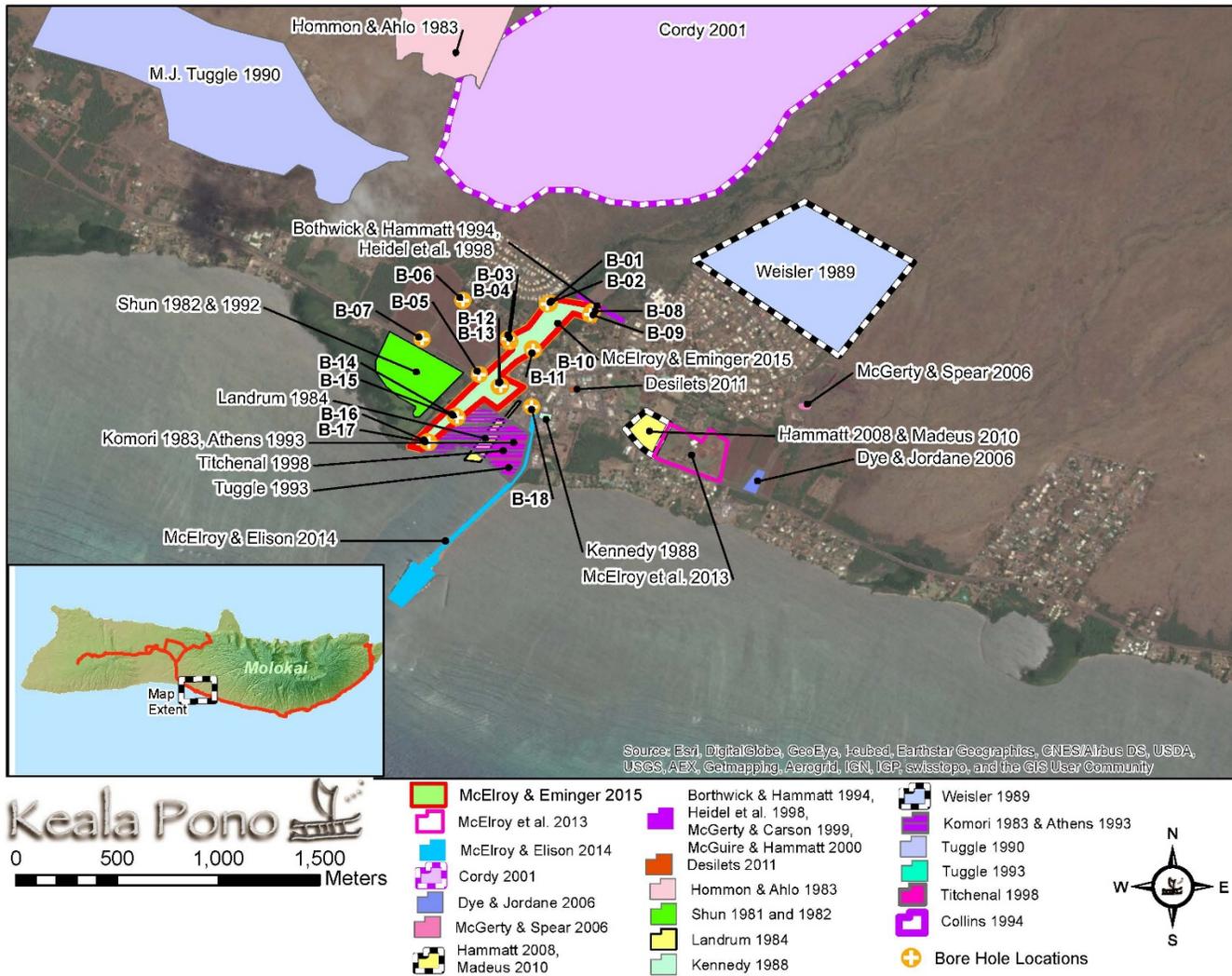


Figure 19. Location of previous archaeological studies near the project area.

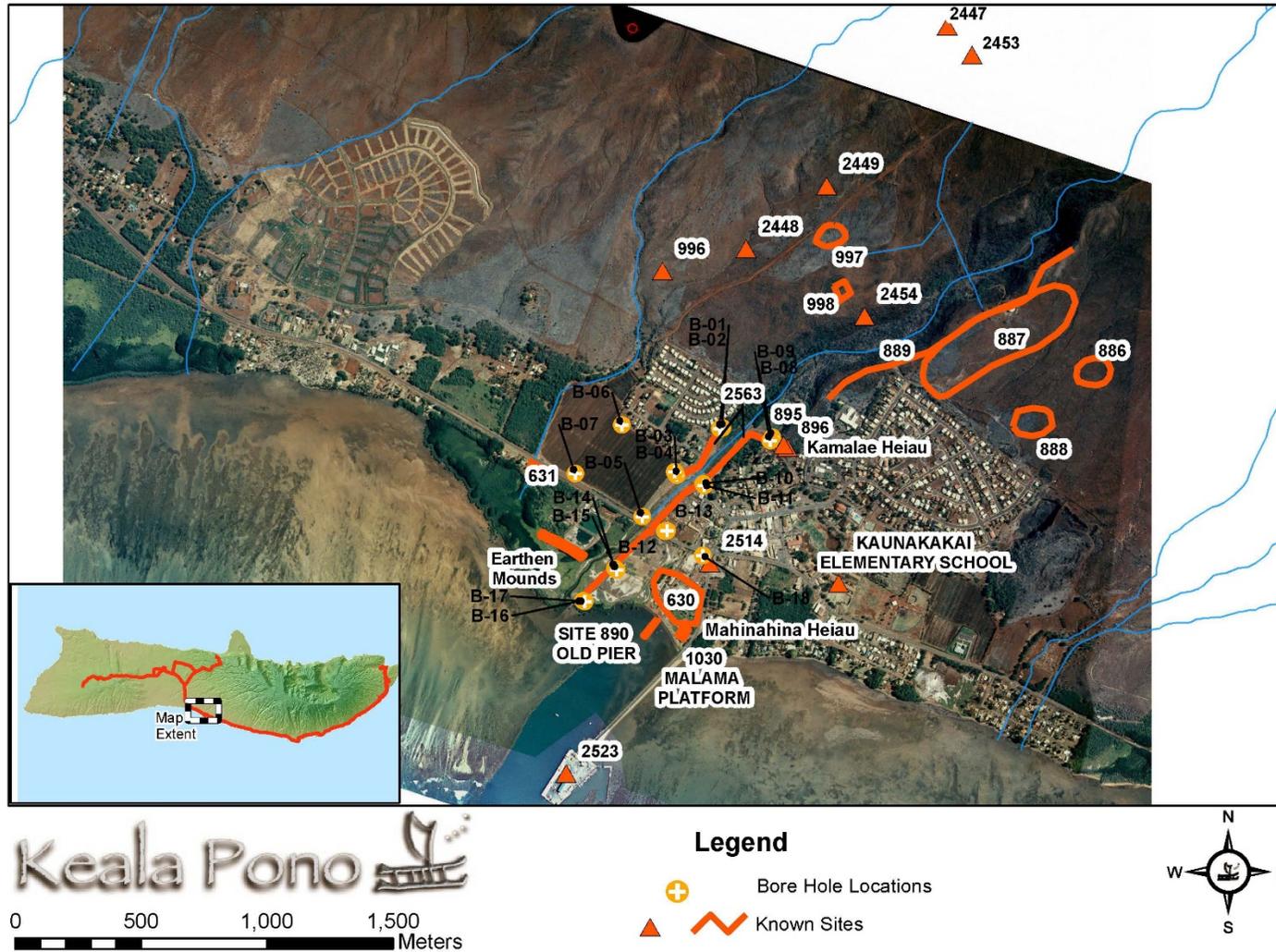


Figure 20. Location of known archaeological sites near the project area.

Site 130. Kamalae Heiau, Kaunakakai

Located behind Kaunakakai Village, the site of the heiau is at the foot of the median ridge. From Kakalahale [triangulation symbol] it bears 35°29'30"; 12,890 ft. Stokes wrote of it, "Heiau entirely destroyed. It is said to have been for human sacrifice, and that the drums were heard at night" (n.d.a:1).

Site 131. Mahinahina Heiau, Kaunakakai

This heiau is located 500 ft NE of the pier at Kaunakakai. According to Stokes, "The site pointed out was a low platform lined with ala, on which a church stood... Said to have been for human sacrifice, and that the drums were heard at night" (n.d.a:).

Kahua Maika, Kaunakakai (?)

N.B. Emerson said that he saw a curved *kahua maika* "...on the plains back of Kaunakakai" (Malo 1951:221, note 2).

Several archaeological studies were carried out at the location of the Kaunakakai Wastewater Treatment Facility by Shun (1981, 1982). During investigations located west of the current area of study, the Bishop Museum identified three sites. Shun's study recorded post-Contact parallel mounds as well as a subsurface cultural deposit dated to AD 1819.

In 1983, two studies were performed at Kaunakakai Place and Hio Place, to the east of the current project area. The first investigations were conducted by Komori (1983). This reconnaissance survey revealed a subsurface midden deposit consisting of shellfish and fish bone as well as historic artifacts. This site was later designated as State Inventory of Historic Places (SIHP) 50-60-03-630. The second study of this area was conducted by Athens (1983) who excavated four test pits and 26 trenches, obtaining dates of AD 1230–1340 and AD 1435–1665. Historic material dating to the time of Kamehameha V's residence in the area was also noted. Subsurface cultural deposits were either disturbed or absent in the east side of their project area, closest to the wharf.

A reconnaissance survey at the U.S. Coast Guard Harbor Range Lights Facility was conducted by Landrum (1984). Within a 3.6-acre area, one site, SIHP 50-60-03-632, a subsurface traditional cultural deposit, was recorded. An historic foundation and artifacts were noted but not fully documented.

To the east of the current project area, two archaeological studies were done at the Malama site. Tuggle (1993) excavated eleven test trenches around the platform and one trench that bisected the platform. While it is believed that the location of Kamehameha V's residence was constructed on Mahinahina Heiau, subsurface excavations were unable to confirm this. Titchenal (1998) conducted archaeological monitoring at Malama Cultural Park, within which is Malama Platform, and also the former location of Kala'iakamanu Church. This is near Site 50-60-03-890, the remains of the former Kaunakakai Pier. Five subsurface features were encountered during monitoring, and included four features of historic age (19<sup>th</sup> and 20<sup>th</sup> centuries) and one of indeterminate age.

Previous oral history studies presented in Athens' 1983 report provide important information which may not be present in the archaeological record or on historic maps. According to informants, the area across from Kaunakakai Place hosted a variety of tenants in the 1940s, from the military to E.K. Fernandez circus, and in the 1950s, the Libby, McNeil, & Libby Pineapple Co. Athens notes that some military structures still stand today in this area (1983:24). The pineapple company built the cement truck weigh station along the eastern side of the property, which remains today as a quiet reminder of Moloka'i's pineapple heyday.

Several archaeological studies were carried out within a corridor associated with Drainage "A," the first being an inventory survey by Borthwick and Hammatt (1994). In their study, two sites were

identified, SIHP 50-60-03-895, an enclosure with pavements and SIHP 50-60-03-896, a stacked boulder wall. Heidel et al. (1998) conducted data recovery investigations which consisted of cross-trenching of an historic cattle wall (SIHP 50-60-03-896) and areal excavations at SIHP 50-60-03-895. McGerty and Carson (1999) carried out a supplemental survey that recorded additional features of SIHP 50-60-03-895, all of which were determined to be no longer significant through completion of the survey. Archaeological monitoring by McGuire and Hammatt (2000) did not reveal further sites.

In 2006, a survey was completed on a 5-acre parcel where the Kaunakakai Fire Station is currently located (McGerty and Spear 2006). This area was once a part of Molokai Ranch pasturelands and straddles the boundary of Kaunakakai and Kapa'akea Ahupua'a. No identifiable archaeological features were present due to past alteration of the landscape.

An archaeological assessment was conducted for the addition of the Verizon Wireless H12 Kaunakakai Cell site, located in the vicinity of the Moloka'i Education Center (Dye and Jourdan 2006). No significant sites were recorded during past construction of the Moloka'i Education Center and the assessment yielded no surface or subsurface historic properties within the vicinity.

An archaeological study including an historic literature review was completed for the improvement to a wastewater system for the Kaunakakai Elementary School (Hammatt 2008). No archaeological surface features were identified during the study. In addition, the establishment of the school's campus in 1908 qualified it as an historic property. In 2010, archaeological monitoring concluded that no significant historical sites were observed (Madeus 2010).

Archaeological monitoring was carried out for soil boring at 60 Maluolu Place, in Kaunakakai Town (Desilets 2011). No findings were reported, and the area was found to be heavily disturbed.

Archaeological monitoring was recently performed for improvements to portions of Duke Maliu Field (Medrano and Dega 2013). Ground disturbing work included excavations for fence posts, sprinklers, drains, and a building foundation, as well as tree removal and paving. No findings were reported. An archaeological assessment was later conducted for the entire park in anticipation of park improvements, including expansion of the parking lot and replacement of lights on the softball field (McElroy et al. 2013). The assessment consisted of a pedestrian survey and excavation of nine test trenches. Two isolated glass fragments were found that were likely part of mid-20<sup>th</sup> century bottles. Aside from these glass fragments, no cultural material, deposits, or surface architecture were recorded.

Archaeological monitoring was conducted for improvements to the Kaunakakai Wharf, on the wharf itself and within a corridor of Kaunakakai Place (McElroy and Elison 2014). Two archaeological sites were found. SIHP 50-60-03-2514 is an historic wall located on Kaunakakai Place, across the street from the Molokai Burger driveway. The site may be associated with pursuits of the American Sugar Co., which was active in the region during the early 20<sup>th</sup> century. SIHP 50-60-03-2523 is an historic wall buried below the Kaunakakai Wharf. It is thought to be a tie beam that functions as structural support for the wharf and may date to 1928, when the old wooden wharf was replaced with a concrete one.

An archaeological inventory survey was completed as a precursor to the current project (McElroy and Eminger 2015). Two historic properties were found within the survey area that surrounded the Kaunakakai Levees: SIHP 50-60-03-2563, which consists of the levees themselves, and SIHP 50-60-03-896, a wall that is part of complex that was previously recorded by Borthwick and Hammatt (1994). Archaeological monitoring was recommended for Site 2563, while avoidance was recommended for Site 896.

## Settlement Pattern

Research on pre-contact Kaunakakai reveals that the coastal region was frequently used as a safe and protected canoe landing and launching point. With fresh water springs preventing the growth of coral, a natural harbor was formed. Most of the *mo'olelo* as well as early historic references to Kaunakakai present it as a destination for those traveling by boat.

Subsistence likely focused on coastal resources, as the region is too dry for wetland agriculture. Fishponds occur along the coast, though not in the immediate vicinity of the project area. Kaunakakai was known for harvesting of the *aloalo* shrimp, however. Cultivation of crops occurred in spring-fed areas and along the two main watercourses of the region, Kamiloloa and Kaunakakai Stream. Dryland agriculture, focusing on sweet potato cultivation, was likely practiced on the slopes above the town.

The settlement pattern for the central region of Moloka'i's southern shore suggests that the coastal habitation zone was populated by the 13<sup>th</sup> century, with the *mauka* portions being settled by the 15<sup>th</sup> century (Weisler 1989). The upland zones were the location of agricultural activities and much of the existing archaeological research has recorded the presence of temporary shelters among other site types (Weisler 1989). Archaeological studies have shown that the swampy coastal areas affected by tidal levels were not ideal for settlement and habitation (Tomonari-Tuggle 1990:54). Because of this, and the presence of fresh water in Kaunakakai Stream, the coastal flat *mauka* of this swamp became the center of the area's settlement.

Historic period use of Kaunakakai focused on sugar and ranching interests. This largely occurred after 1897, when large expanses of land were purchased to form the Molokai Ranch by a group who would later become the American Sugar Company. This prompted the construction of the Kaunakakai Wharf, which became a major port around which subsequent urban development was centered.

## Summary of Background Research

Background research revealed that the original name for Kaunakakai was Kaunakahakai. As the setting for a number of different *mo'olelo*, the area was an important place in traditional Hawaiian times. During this early period, the coastal zone was used as a canoe landing and also supported a small population, while upland areas were used for agriculture and were settled later. Two *heiau*, Kamalae and Mahinahina were known for the area, with Mahinahina Heiau located close to the project area.

The region's significance continued into the historic era, when Kamehameha V made his home, Malama, on the shores of Kaunakakai. Constructed at the turn of the 19<sup>th</sup> century, Kaunakakai Wharf played a vital role in the development of Kaunakakai as the urban center of Moloka'i. The wharf was a hub for commerce and entry to the island and a railroad once connected the wharf to other parts of Moloka'i. Several sources relate that the wharf was made from stones taken from a *heiau*.

Previous archaeological studies have been carried out near the project area on the east in the locations of Malama (Kamehameha V's residence) and Mahinahina Heiau. Subsurface midden deposits dated to traditional times, and historic subsurface features and artifacts were identified as well. Surrounding the project area were saltpans, as depicted on historic maps.

## METHODS

Archaeological monitoring was carried out by Windy McElroy, PhD; Steven Eminger; Pūlama Lima, BA; Dietrix Duhaylonsod, BA; and Alvin Burrows on December 10–18, 2014. One archaeologist was present per day for a total of nine work days. The archaeological monitor was on site full time for all ground disturbing activity. Windy McElroy, PhD served as Principal Investigator, overseeing all aspects of the project.

On the first day of work, the archaeological monitor spoke with the boring team to ensure that they understood the purpose of the monitoring and that the monitor has the authority to halt construction activity. Boring was conducted with a Track-Mounted CME55 (Figure 21). The holes left by the boring ranged from 5–15 cm (2–6 in.) in diameter and were generally 6–15 m (20–50 ft.) deep, too narrow to inspect visually. Instead, the boring tailings were examined for evidence of cultural material or deposits. Vertical provenience was measured from the surface as noted by the drill operator, and profiles could not be drawn because the small diameter of the holes precluded visual inspection of stratigraphy. Sediment descriptions were based on the boring tailings that were extracted at various depths. Sediments were described using Munsell soil color charts and a sediment texture flowchart (Thien 1979), although the Munsell color likely does not reflect the natural color of the soil because most of the soil that came up in the tailings was saturated with the boring solution used to lubricate the bores. All borings were filled with cement grout after excavation.

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



**Figure 21. Drilling of B-14 on the Kaunakakai levee, facing northwest.**

## RESULTS

Archaeological monitoring was conducted at 18 borings between December 10 and 18, 2014. Profiles could not be drawn because the small diameter of the bore holes prevented visual inspection of stratigraphy. Instead, sediments were described as best as possible from the boring tailings that came from various depths. Note that the recorded Munsell colors do not necessarily reflect the natural soil colors, as most of the sediment was saturated with boring solution. The depths recorded for each layer are also approximations based on the depths of the boring tailing samples.

Sediment descriptions are presented for three of the borings. Together, they characterize the stratigraphy over the project area from *mauka* to *makai*, with B-8 representing the most inland bore (Figure 22), B-13 roughly in the center of the project area (Figure 23), and B-16 the most coastal bore (Figure 24) (see Figure 1 for bore locations). Stratigraphy generally consisted of silt or clay near the surface, underlain with basalt gravel and bedrock in the interior bores, or coral gravel and marine sand toward the coast (Table 2).



Figure 22. B-8 tailings, Layer III (left) and Layer V (right).



Figure 23. B-13 tailings, Layer I (left) and Layer V (right).



Figure 24. B-16 tailings, Layer II (left) and Layer III (right).

**Table 2. Representative Sediment Descriptions**

<b>Bore</b>	<b>Layer</b>	<b>Depth (cmbs)</b>	<b>Color</b>	<b>Description</b>	<b>Interpretation</b>
B-8	I	0-180	5YR 5/4	Dry sandy silt; low plasticity.	Levee Fill
	II	180-580	10YR 3/2	Moist silty sand; low plasticity.	Natural
	III	580-660	10YR 3/2	Moist clayey sand; medium plasticity.	Natural
	IV	660-980	N/A	Basalt gravel and cobbles.	Natural
	V	980-1220	N/A	Basalt bedrock.	Natural
B-13	I	0-80	7.5YR 2.5/2	Moist sandy silt; low plasticity.	Natural
	II	80-210	5YR 3/2	Moist clay; medium plasticity.	Natural
	III	210-270	7.5YR 2.5/2	Moist silty sand; low plasticity.	Natural
	IV	270-440	7.5YR 6/1	Wet silty, sandy coral gravel.	Natural
	V	440-810	7.5YR 4/1	Moist silty sand; low plasticity.	Natural
B-16	I	0-80	N/A	Moist clayey coral gravel.	Levee Fill
	II	80-180	7.5YR 3/4	Moist clayey sand; medium plasticity.	Natural
	III	180-410	7.5YR 6/1	Moist silty sand with coral gravel and marine shell.	Natural
	IV	410-1080	7.5YR 7/1	Wet silty, sandy coral gravel with marine shell.	Natural
	V	1080-1330	7.5YR 6/1	Wet clayey sand with coral gravel.	Natural

No cultural material was observed in any of the bores. Several of the bores did impact SIHP 60-03-2563, the Kaunakakai levees. The levees were constructed in 1950 and designated as a historic property during an archaeological inventory survey that preceded this project (McElroy and Eminger 2015). Of the 18 bores, six were located atop the levees: B-1, B-3, B-8, B-10 (Figure 25), B-14, and B-16 (see Figure 1 for bore locations). The bore holes ranged from only 5–15 cm (2–6 in.) in diameter, and they were filled with cement grout after excavation. Therefore very little damage was caused to the levees. Nothing was found during monitoring that might provide more information on the historic levees, and none of the other bores impacted archaeological sites nearby (see Figure 20 for locations of known archaeological sites in the vicinity of the bores).

### Summary of Results

In sum, 18 bores were monitored in anticipation of construction to improve the Kaunakakai levees. The levees themselves are considered an archaeological site because they were built in 1950, and six of the bores minimally impacted the site. No cultural material or deposits were encountered in any of the bores, on or off the levees, and none of the other bores impacted archaeological sites nearby. Stratigraphy generally consisted of silt or clay near the surface, underlain with basalt gravel and bedrock in the interior part of the project area, or coral gravel and marine sand toward the coast.



**Figure 25. Boring at B-10, showing the drill rig atop the levee wall. View is to the northwest.**

## CONCLUSION AND RECOMMENDATIONS

Archaeological monitoring was conducted for 18 soil borings in Kaunakakai Ahupua'a, Kona District, on the island of Moloka'i. This was done in anticipation of modifications to the Kaunakakai levees so that they are in compliance with FEMA flood protection regulations. Work took place on TMK: (2) 5-3-005:003 (por.), :006 (por.), :008 (por.), :010 (por.), and :011 (por.), (2) 5-3-003:015 (por.), (2) 5-3-002:024 (por.), and :049 (por.). Each of the 18 borings was monitored, and no cultural material or deposits were encountered.

Previous archaeological studies identified the Kaunakakai levees as an archaeological site (SIHP 50-60-03-2563) because they were constructed in 1950 and thus are more than 50 years old. Several of the borings were located at the levees, and other archaeological sites have been recorded nearby. Therefore it is recommended that archaeological monitoring is conducted for any future work on or near the levees.

## GLOSSARY

<b><i>ahupua‘a</i></b>	Traditional Hawaiian land division usually extending from the uplands to the sea.
<b>alfalfa</b>	<i>Medicago sativa</i> , also known as lucerne, a flowering plant in the pea family, widely grown as a forage crop.
<b><i>ali‘i</i></b>	Chief, chiefess, monarch.
<b><i>ali‘i nui</i></b>	High chief.
<b><i>aloalo</i></b>	Squilla ( <i>Pseudosquilla ciliata</i> , <i>Lysiosquilla maculata</i> ), a crustacean considered a delicacy.
<b>boulder</b>	Rock 60 cm and greater.
<b>cobble</b>	Rock fragment ranging from 7 cm to less than 25 cm.
<b>gravel</b>	Rock fragment less than 7 cm.
<b><i>heiau</i></b>	Place of worship and ritual in traditional Hawai‘i.
<b><i>kahua</i></b>	Open place for sports, such as ‘ulu maika.
<b><i>kama‘āina</i></b>	Native-born.
<b><i>kaona</i></b>	Hidden meaning in poetry, or concealed reference to a person, place, or thing.
<b><i>kapa</i></b>	Tapa cloth.
<b><i>kiawe</i></b>	The algaroba tree, <i>Prosopis</i> sp., a legume from tropical America, first planted in 1828 in Hawai‘i.
<b><i>kōlea</i></b>	The Pacific golden plover <i>Pluvalis dominica</i> , a bird that migrates to Hawai‘i in the summer; the native trees and shrubs <i>Myrsine</i> , the sap and charcoal of which were used as a dye, the wood used for houses and for beating <i>kapa</i> .
<b><i>kōnane</i></b>	A traditional Hawaiian game played with pebbles on a wooden or stone board.
<b><i>konohiki</i></b>	The overseer of an <i>ahupua‘a</i> ranked below a chief; land or fishing rights under control of the <i>konohiki</i> ; such rights are sometimes called <i>konohiki</i> rights.
<b><i>kuleana</i></b>	Right, title, property, portion, responsibility, jurisdiction, authority, interest, claim, ownership.
<b><i>Māhele</i></b>	The 1848 division of land.
<b><i>makai</i></b>	Toward the sea.
<b><i>makana</i></b>	Gift, reward, prize.
<b><i>makani</i></b>	Wind, breeze.
<b><i>mauka</i></b>	Inland, upland, toward the mountain.
<b>midden</b>	A heap or stratum of refuse normally found on the site of an ancient settlement. In Hawai‘i, the term generally refers to food remains, whether or not they appear as a heap or stratum.
<b><i>mo‘o</i></b>	Lizard, dragon, water spirit.
<b><i>mo‘olelo</i></b>	A story, myth, history, tradition, legend, or record.
<b>‘ohana</b>	Family.

<b>‘ōhi‘a</b>	Two kinds of forest trees. See also <i>o ‘ōhi‘a‘ai</i> and <i>‘ōhi‘a lehua</i> .
<b>‘ōhi‘a ‘ai</b>	The mountain apple tree, <i>Eugenia malaccensis</i> , a forest tree to 50 ft. high.
<b>‘ōhi‘a lehua</b>	The native tree <i>Metrosideros polymorpha</i> , the wood of which was utilized for carving images, as temple posts and palisades, for canoe spreaders and gunwales, and in musical instruments.
<b>‘ōlelo no‘eau</b>	Proverb, wise saying, traditional saying.
<b>‘opihi</b>	Limpets, four types of which are endemic to Hawai‘i: <i>Cellana exarata</i> (‘opihi <i>makaiauli</i> ), <i>C. sandwicensis</i> (‘opihi <i>alinalina</i> ), <i>C. talcosa</i> (‘opihi <i>ko‘ele</i> ), and <i>C. melanostoma</i> (no Hawaiian name). ‘Opihi are a prized food in Hawai‘i and considered a rare treat today.
<b>pili</b>	A native grass, <i>Heteropogon contortus</i> .
<b>poi</b>	A staple of traditional Hawai‘i, made of cooked and pounded taro mixed with water to form a paste.
<b>stone</b>	Rock fragment ranging from 25 cm to less than 60 cm.
<b>‘ulu maika</b>	Stone used in the <i>maika</i> game, similar to bowling.

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