

APPENDIX B

**CULTURAL RESOURCE EVALUATION FOR
THE IDENTIFIED CABLE LANDING AREAS**

**Cultural Resource Evaluation for the
Interisland Wind Project: Seven Cable Landing Areas:
Pearl Harbor Landing, O'ahu
Kāne'ōhe Landing, O'ahu
West Moloka'i Landing
South Moloka'i Landing
Lāna'i Landing
West Maui Landing
Kahului, Maui Landing**

**Prepared for
Ku'iwalu**

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Management Summary

Reference	Cultural Resource Evaluation for the Interisland Wind Project: Seven Cable Landing Areas: Pearl Harbor Landing, O'ahu Kāne'ōhe Landing, O'ahu, West Moloka'i, South Moloka'i, Lāna'i Landing, West Maui, Kahului, Maui
Date	April 2012
Project Number (s)	Cultural Surveys Hawai'i project # ALL ISLANDS 6
Investigation Permit Number	Cultural Surveys Hawai'i presently operates under archaeology permit # 12-04 issued by the State Historic Preservation Division/Hawai'i Department of Land and Natural Resources (SHPD/DLNR), per Hawai'i Administrative Rules (HAR) Chapter 13-13-282.
Project Location	This study addresses seven, large analysis areas: Pearl Harbor Landing, O'ahu, Kāne'ōhe Landing, O'ahu, West Moloka'i, South Moloka'i, Lāna'i Landing, West Maui, Kahului, Maui.
Land Jurisdiction	Various (Federal, State, County, Private)
Agencies	This study may be used to facilitate consultation with federal, state and county agencies as well as Native Hawaiian organizations and other concerned organizations.
Project Description	The Interisland Wind project proposes to send up to 400 megawatts of renewable wind energy from Moloka'i and Lāna'i via undersea cable to O'ahu (and Maui). The project would play an important part in helping to achieve the Hawai'i Clean Energy Initiative goal of 70% clean energy for electricity and ground transportation by 2030. The State of Hawai'i, First Wind Hawai'i, Castle & Cooke and Hawaiian Electric Company are committed to working collaboratively with the public on the project. Possible impact on historic or cultural properties is one of many concerns being taken into consideration in cable route planning.
Project Acreage	23,023 acres (approximately 36 square miles)
Area of Potential Effect (APE) and Survey Acreage	The area of potential effect is anticipated to be confined to the immediate area of land alteration associated with the cable landing enterprise and integration into electrical grids.
Historic Preservation Regulatory Context	This is intended as primarily a planning document. This study may be used in consultation with the State Historic Preservation Division, the Office of Hawaiian Affairs, Island Burial Councils and/or other concerned Native Hawaiian organizations and/or other concerned historic preservation organizations.
Fieldwork Effort	There was no fieldwork component to this study.
Mitigation Recommendation	More detailed cultural resource management work is indicated as the cable landing area site selection process moves forward. This will probably include one or more archaeological inventory surveys and one or more archaeological monitoring programs.

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Section 1 Introduction

1.1 Project Background

At the request of Ku'iwalu, Cultural Surveys Hawaii (CSH) has prepared this Cultural Resource Evaluation for Seven Cable Landing Areas for the Interisland Wind project (2 on O'ahu, 2 on Moloka'i, 2 on Maui and 1 on Lāna'i) to facilitate cable landing planning. The Interisland Wind project proposes to send up to 400 megawatts of renewable wind energy from Moloka'i and Lāna'i via undersea cable to O'ahu (and Maui). The project would play an important part in helping to achieve the Hawai'i Clean Energy Initiative goal of 70% clean energy for electricity and ground transportation by 2030. The State of Hawai'i, First Wind Hawai'i, Castle & Cooke and Hawaiian Electric Company are committed to working collaboratively with the public on the project. Possible impact on historic or cultural properties is one of many concerns being taken into consideration in cable route planning. The areas of analysis are summarized in Table 1 with indicated traditional land areas, Tax Map Key designations, acreage, and general comments and an overview of their locations is presented in Figure 1.

For purposes of this study two of the larger, more complicated analysis areas are addressed within discrete sub-areas (see following discussion under "Methodology")

The areas of analysis addressed in this study are quite large, collectively amounting to 23,023 acres (35.97 square miles or 93.17 square kilometers) of coastal lands. In all probability the actual area of any ground disturbance that may affect historic properties will be on the order of <0.01% of the area addressed in this study. Because of the large area under present consideration (nearly 36 square miles) and the likelihood that the area of impact will be to a very, very small percentage of this analysis area a "broad-brush" approach was indicated to facilitate planning. This approach is discussed further in the following Scope of Work and Methodology sections.

Table 1. Overview of Seven Cable Landing Analysis Areas

Study Areas	Traditional Lands	TMKs (Tax Map Key)	Acreage	Comments
Pearl Harbor O'ahu Landing (6,047 acres)	Honouliuli and Pu'uloa Ahupua'a of 'Ewa District O'ahu	[1] 9-1 various plats	1,701	This portion of the Pearl Harbor O'ahu landing analysis area spans between One'ula Beach in Honouliuli and the west side of the Entrance to Pearl Harbor
	Hālawā Ahupua'a of 'Ewa District and Moanalua Ahupua'a, of Kona District, O'ahu	[1] 9-9-001; 1-1 various plats	2,978	This portion of the Pearl Harbor O'ahu landing analysis area spans between the east side of the Entrance to Pearl Harbor and Kalihi Stream
	Kalihi & Kapālama ahupua'a, of Kona District, O'ahu	[1] 1-2 various plats; 1-5 various plats; 1-7 various plats	947	This portion of the Pearl Harbor O'ahu landing analysis area spans between Kalihi Stream and Nu'uānu Stream
	Honolulu and Kaka'ako (Nu'uānu and Makiki Ahupua'a) of Kona District, O'ahu	[1] 1-7 various plats; 2-1 various plats	421	This portion of the Pearl Harbor O'ahu landing analysis area spans between Nu'uānu Stream and Kewalo Basin
Kāne'ōhe O'ahu Landing, (2,845 acres)	Kāne'ōhe Ahupua'a, Ko'olaupoko, O'ahu	[1] 4-4-008 various plats, 4-4-009 various plats, 4-4-010 various plats,	965	This portion of the Kāne'ōhe O'ahu Landing side is the east side of Mōkapu Peninsula and lies entirely within Kāne'ōhe Ahupua'a
	Kāne'ōhe, Kailua and Waimānalo Ahupua'a, Ko'olaupoko, O'ahu	[1] 4-1 various plats, 4-2 various plats 4-3 various plats, 4-4 various plats	1,880	This project area spans a small SE portion of Kāne'ōhe Ahupua'a, spans the width of coastal Kailua Ahupua'a and extends into northern Waimānalo Ahupua'a
West Moloka'i Landing	Kaluako'i Ahupua'a, Kona District	[2] 5-1-001 por., 5-2-011 por.	3,992	Extending along the northern west coast of Moloka'i from Mokiō Point to Kahaiawa Point
South Moloka'i Landing	Ahupua'a, Kona District	[2] 5-1-001 por., 5-1-002 por., 5-2-011 por.	1,239	Extending along an approximately 5 kilometer long south central coastal strip of Moloka'i west of Kaunakakai
Lāna'i Landing	Ka'a and Paomai ahupua'a, Lahaina District	[2] 4-9-002:001 por.	5,721	Extending around the northwestern-most corner of Lāna'i from Lae Wahie Point on the NE side to Honopū Gulch on the SE side

Study Areas	Traditional Lands	TMKs (Tax Map Key)	Acreage	Comments
West Maui Landing	Honolua, Honokahua & Napili ahupua'a	[2] 4-1-001, 4-2-001	1,126	NW corner of Maui from Līpoa Point on the NE to Kapalua Bay on the SW
Kahului, Maui Landing	Waiehu & Wailuku ahupua'a	[2] 3-2 various plats, 3-7 various plats, 3-8 various plats	2,053	Surrounding Kahului Harbor, extending from Waiehu Point on the NW to near Papalua Point on the NE

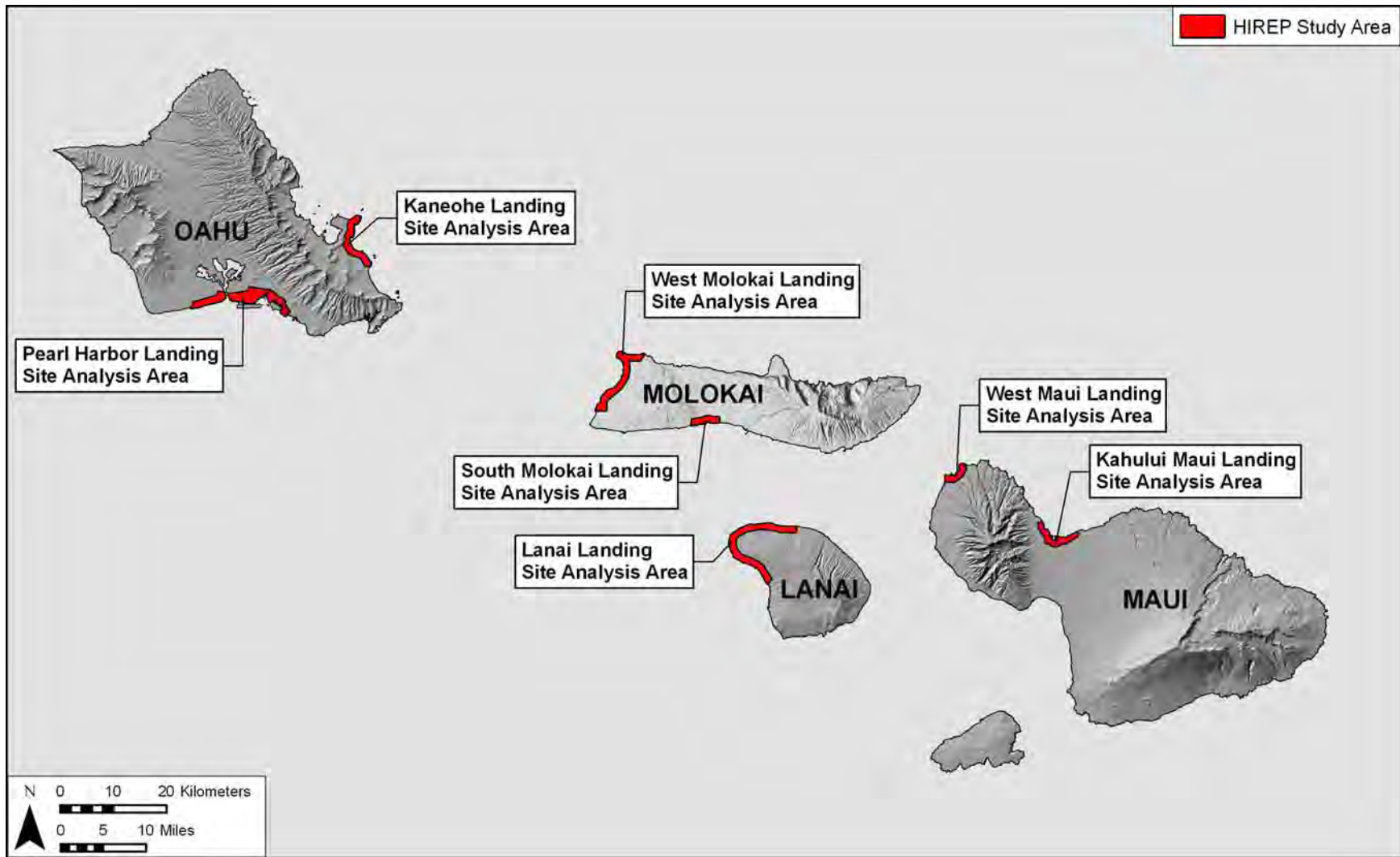


Figure 1. Overview of location of the seven cable landing analysis areas studied

1.2 Scope of Work

This study is based on a meeting at your offices. It is our understanding that you are requesting a scope and budget for a Cultural Resource Evaluation of seven Cable Landing Areas: one (1) on Lānaʻi, two (2) on Maui, two (2) on Molokaʻi, and two (2) on Oʻahu.

The scope of work includes the following:

1. Identify cultural and archaeological resources within the seven identified areas on the four islands. These resources could include sand deposits with potential for containing cultural deposits and burials, trails, known burial sites, known archaeological sites, shipwrecks, and other cultural resources identified in *moʻolelo* and other sources.
2. Provide short explanations and descriptions of each of these resources, including references.
3. Evaluate the impacts of potential cable landing on each of these resources.
4. Briefly describe potential mitigation measures or best management practices which could be applied to these resources
5. Prepare maps with overlays that identify general locations of cultural resources (those that can be assigned a location) of each of the seven cable landing areas.
6. Maps and other information will be compiled to develop sensitivity maps which will be based on known cultural resources.

A final report will be produced containing the items above.

Part of the scope will be to coordinate with Mr. Chris Stoll and Mr. Jeff Mertz of AECOM who can assist CSH with GIS resources.

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Section 2 Methods

There was no field work or consultation component to the present scope of work. As the selection process narrows down specific areas of possible project-related impact (almost certainly much less than 0.01% of the present study areas) then field work, consultation, and more detailed historical analysis will likely be indicated.

2.1 Document Review

Document review for the present study was limited to such prior archaeological and cultural studies as could be identified in the holdings of the State Historic Preservation Division and the Cultural Surveys Hawai'i library. There was no detailed analysis of historic records attempted for these vast areas of analysis. Further analysis of historic records including Land Commission Award data will likely be appropriate as the selection process narrows down specific areas of possible project-related impact.

It should be noted, that as designated, the O'ahu Cable Landing Areas include portions of three major military facilities (Joint Base Pearl Harbor Hickam, Marine Corps Base Hawaii, Kaneohe Bay, and Bellows Air Force Station). These areas have been subject to intensive cultural resource management study, but these studies are not always part of the public domain.

2.2 General Approach

The present study addresses five of the Cable Landing Areas within individual chapters. The exceptions are in the treatment of the "Pearl Harbor, O'ahu Landing Analysis Area" and the "Kāne'ōhe, O'ahu Landing Analysis Area."

Because of the size of the Pearl Harbor, O'ahu Landing Analysis Area that spans approximately 1/3 of the south coast of the island of O'ahu between One'ula Beach in Honouliuli and Kewalo Basin, the study area is addressed as falling within four sub-areas:

- 1) The Western Pearl Harbor Landing Study Area (West of the Pearl Harbor Entrance) including portions of coastal Honouliuli and Pu'uloa Ahupua'a of 'Ewa District (Pu'uloa is sometimes considered as an *'ili* subset of Honouliuli Ahupua'a),
- 2) The West Central Pearl Harbor Landing Study Area (Pearl Harbor Entrance to Kalihi Stream) including portions of Hālawa Ahupua'a of 'Ewa District and Moanalua Ahupua'a of Kona District,
- 3) The East Central Pearl Harbor Landing Study Area (Kalihi Stream to Nu'uānu Stream), including portions of Kalihi and the Iwilei area of Kapālama Ahupua'a and
- 4) The Eastern Pearl Harbor Landing Study Area (East of Nu'uānu Stream) encompassing coastal downtown Honolulu and Kaka'ako.

A similar approach of analysis has been used in splitting the "Kāne'ōhe, O'ahu Landing Analysis Area" into two separate areas for analysis purposes:

- 1) The Mōkapu portion the Kāne'ōhe, O'ahu Landing Analysis Area and
- 2) The Coastal Kailua and Northern Waimānalo Analysis Area.

2.3 Sensitivity Determination

A significant aspect of the present study was to come up with a sensitivity assessment as may inform cable landing site selections. Rough cultural resource sensitivity estimates have been developed from an analysis of the cultural resource management literature (primarily archaeological studies). A few basic points guide the present sensitivity estimating:

- In general, areas within 200 feet inland from the coastline as it was circa 1880 are suggested to be highly sensitive.
- In general, areas within 200 feet from perennial streams are suggested to be highly sensitive,
- In general, areas with 200 feet of known sites are suggested to be highly sensitive,
- In general, areas with 200 feet of known unique land forms (such as *pu'u* or hills) are suggested to be highly sensitive,
- In general areas of known, intensive 19th century habitation are suggested to be highly sensitive,
- In general, areas from between 200 feet and 400 feet inland from the coastline as it was circa 1880 are suggested to be moderately sensitive,
- In general, areas from between 200 feet and 400 feet out from the sides of perennial streams are suggested to be moderately sensitive,
- In general, areas from 200 feet to 400 feet out from known sites are suggested to be moderately sensitive,
- In general, areas from 200 feet to 400 feet out from known unique land forms (such as *pu'u* or hills) are suggested to be moderately sensitive,
- In general, areas of Jaucas sand are suggested to be moderately sensitive,
- In general areas of (circa post 1880) fill lands extending seaward of former coastlines are suggested to be of relatively low sensitivity,
- In general, areas of non-Jaucas sand soils away from the coast or streams are suggested to be of relatively low sensitivity.

More detailed sensitivity analysis could be carried out taking into consideration patterns of Land Commission Awards, field data, and the results of consultation with other knowledgeable parties. This investment reasonably awaits further paring down of the study area(s).

It should be noted that archaeological sensitivity is suggested to not be inherent in the historic property. For example, this study suggests that the entirety of a former off-shore fishpond on the south shore of Moloka'i should be regarded as of "high sensitivity" in the informed opinion that the local community will perceive the entirety of the former fishpond as a matter of cultural patrimony. In contrast, the interior of a large formerly offshore fishpond on O'ahu is evaluated at the opposite end of the spectrum –as of "low sensitivity" Some of these former fishponds have been under light industrial areas constructed on fill for more than a century and the level of public concern for the filled-in interior of these former ponds may be assumed to be quite low.

Section 3 Pearl Harbor, O'ahu Landing Analysis Area

3.1 Introduction to Cultural Resources of the Pearl Harbor Landing Analysis Area

The indicated "Pearl Harbor Landing Site Analysis Area" extends from the west side of One'ula Beach Park east to the west side of Kewalo Basin. This study area spans approximately 18 kilometers of the central south shore of O'ahu typically extending inland for a little more than a kilometer and amounting to approximately 6,047 acres (9.45 square miles or 24.48 square kilometers). Because of the cultural richness of this expanse of coast, for the purposes of this study, this Pearl Harbor Landing Study Area has been broken down into 4 subareas:

- 1) The Western Pearl Harbor Landing Study Area (West of the Pearl Harbor Entrance),
- 2) The West Central Pearl Harbor Landing Study Area (Pearl Harbor Entrance to Kalihi Stream),
- 3) The East Central Pearl Harbor Landing Study Area (Kalihi Stream to Nu'uaniu Stream),
and
- 4) The Eastern Pearl Harbor Landing Study Area (East of Nu'uaniu Stream).

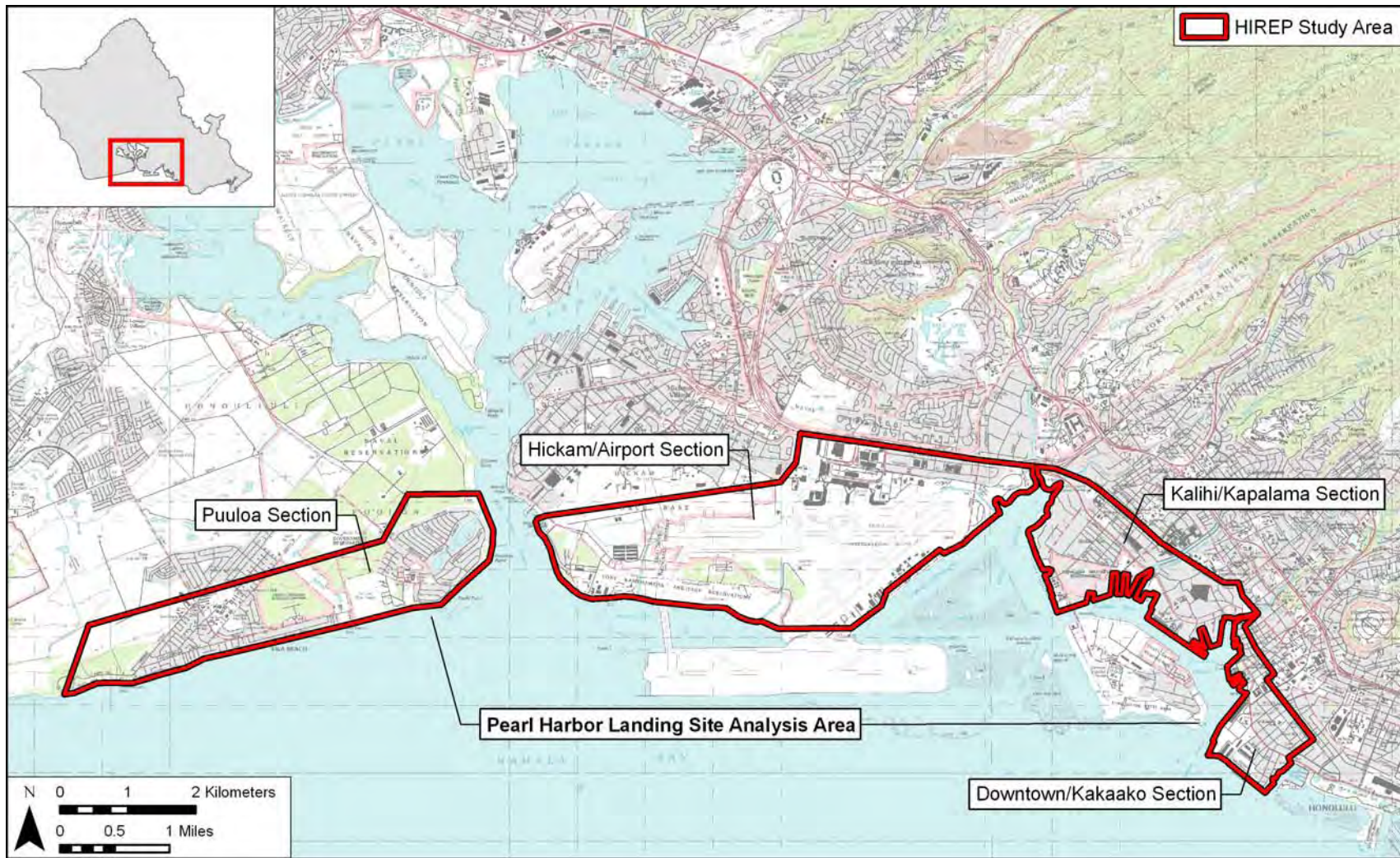


Figure 2. U. S. Geological Survey (1998), 'Ewa, Pearl Harbor and Honolulu quads, showing an overview of the Pearl Harbor Landing Analysis Area and the four subsections of analysis

3.2 Introduction to Cultural Resources of the Western Pearl Harbor Landing Analysis Area (West of the Pearl Harbor Entrance)

The Western Pearl Harbor Landing Study Area (Figure 2 and see Figure 3) extends east from the west side of One'ula Beach Park to the west side of the Pearl Harbor entrance extending approximately 1 kilometer north along the harbor entrance from Hammer Point and amounting to a total of 1,701 acres (2,66 square miles or 6.88 square kilometers). This includes the eastern coastal portion of Honouliuli Ahupua'a and most of the coast line of Pu'uloa Ahupua'a (sometimes Pu'uloa is understood as an *'ili* or subset of Honouliuli Ahupua'a). This area is most commonly known today as 'Ewa Beach and Iroquois Point (note that the Iroquois Point housing area near Iroquois Point School is significantly south of Iroquois Point). There are no natural sources of surface fresh water in this area. This entire area receives less than 600 mm of rainfall a year (Giambelluca 1986:138) which is typically less than adequate for un-irrigated agriculture. The soils of the Western Pearl Harbor Landing Analysis Area are typically "Coral Outcrop" or exposures of raised reef limestone. These limestone exposures were generally not good for agriculture. These 'Ewa limestone exposures are much associated with pit caves (popularly called "sink holes") that were often used for cultural practices, but these are not believed to be common in the present study area. The pre-Contact and early post-Contact populations for this area have been traditionally understood as small. On the other hand the entrance to Pearl Harbor included easy access to a wealth of natural resources.

3.3 Previous Cultural Resources Studies in the Western Pearl Harbor Landing Analysis Area (West of the Pearl Harbor Entrance)

J. Gilbert McAllister (1933:109) designated his site 146 as follows:

Ewa coral plains, throughout which are remains of many sites. The great extent of old stone walls, particularly near the Puuloa Salt Works, belongs to the ranching period of about 75 years ago [circa 1858]. It is probable that the holes and pits in the coral were formerly used by the Hawaiians. Frequently the soil on the floors of larger pits was used for cultivation, and even today one comes upon bananas and Hawaiian sugar cane still growing in them. They afford shelter and protection, but I doubt if previous to the time of Cook there was ever a large population here.

This reference focus is close to Keahi Point but this description is generally understood as applying to much of southern Honouliuli as well. McAllister's (1933:109) giving site designations to the legendary general locus of the introduction of breadfruit trees to Hawaii and to the Pākule fishtrap underscore that the west side of the Pearl Harbor entrance itself was an important place of pre-Contact Hawaiian activity.

Cultural studies for the Western Pearl Harbor Landing Analysis Area are summarized in Table 2 and are located on Figure 4. Most of 'Ewa Beach was developed as a residential community before present historic preservation laws took effect and there is not much data for urban 'Ewa Beach. There are also large areas of government lands (Pacific Tsunami Warning Center, Pu'uloa Rifle Range, "Government Reservation") for which we show no data.



Figure 3. Aerial photograph (2009) of the Western Pearl Harbor Landing Analysis Area (West of the Pearl Harbor Entrance)

Table 2. Previous Cultural Resources Studies in the Western Pearl Harbor Landing Analysis Area (West of the Pearl Harbor Entrance; Arranged chronologically)

Reference	Type of Investigation	Location	Findings (SIHP sites 50-80-13-)
Stokes 1909	Site Description	Survey of Pearl Harbor Fish Traps	Documentation of Pākule Fishtrap (Site 144), which was destroyed by dredging of Pearl Harbor, around 1907-1914
McAllister 1933	Archaeological reconnaissance	Island-wide	Describes sites: 144 Pākule Fishtrap, 145 “where the first breadfruit in Hawaii is said to have been planted.” and 146 Ewa coral plains with walls and cultural use of pit caves
McCoy 1972	Archaeological Inventory Survey	Kaimiloa Elementary School, Pu'uloa, Honouliuli	Identified probable historic, ranching-era walls and sinkhole modifications as well as mounds and <i>ahu</i> of possible pre-contact origin.
Davis 1979	Archaeological Inventory Survey	Ewa Marina Community, One'ula, Honouliuli	Identified 107 cultural features in a large 1099-acre area, interpreted as part of a late pre-contact/early historic settlement. Three sites are within the current project area, Sites 3211, 3212, and 3213. Three of the six features of Site 3212 were relocated in 1991, and redesignated as individual sites (3212, 4280, 4281)
Jourdane 1979	Archaeological Reconnaissance Survey	Ewa Marina Community, One'ula, Honouliuli	A limited survey of an 818-acre section of the project area identified an unquantified number of sites, assessed as indeterminate in age. Eight sites were identified in the eastern section, which overlaps with the current project area. They consist of three enclosures, a pavement, a sinkhole, a platform, and two alignments. No permanent site numbers were assigned, and no map of the site locations was included.
Hommon 1985	Archaeological Reconnaissance Survey	Iroquois Point Shoreline Revetment, Pu'uloa, Honouliuli	Found military features at the shore.
Athens 1987	Human Burial Removal	Iroquois Point, Pu'uloa, Honouliuli	One pre-contact / early historic burial (pre-1900) of a Polynesian woman was found during a sewer ditch construction. The burial was within a beach deposit cultural layer; both were designated Site -3703.

Reference	Type of Investigation	Location	Findings (SIHP sites 50-80-13-)
Dunn & Haun 1991	Archaeological Survey and Test Excavations	Ewa Marina Community, One'ula, Honouliuli	Located 53 sites with 312+ features, including prehistoric habitation and agricultural sites; Approximately 23 sites were identified in the portion overlapping the current project area: SIHP 50-80-13-3211, 3212, 3213, 4301, 4302, 4303, 4304, 4305, 4307, 4275, 4276, 4270, 4271, 4272, 4274, 4277, 4278, 4279, 4280, 4281
Kennedy and Denham 1992	Archaeological Survey and Subsurface Testing	Pu'uloa Golf Course, Pu'uloa, Honouliuli	Identified 72 prehistoric, historic and modern sites (usually consisting of a single feature). A total of 62 sites are within the current project area. Features definitely determined as pre-contact habitation and religious features cluster near the <i>makai</i> end of the project area. Radiocarbon dating indicates an occupation as early as A.D. 1020.
Franklin et al. 1995	Archaeological Test Excavations	Ewa Marine Community, One'ula, Honouliuli	Conducted data recovery (excavations) at 38 of the 53 sites first identified by Dunn & Haun (1991). 11 of these sites are within the current project area: sites 3703, 3211-3213, 4270-71, 4275, 4277-81
Jensen & Head 1995	Archaeological Reconnaissance Survey	West Loch Branch, Lualualei Naval Ammunition Depot, Pu'uloa, Honouliuli	Identified 109 traditional sites and 172 military, ranching and agricultural sites
Magnuson et al. 2002	Archaeological Survey and Subsurface Testing	Iroquois Point Navy Family Housing, Pu'uloa, Honouliuli	Identified four sites (5874, 5875, 5877, 5878), during extensive testing along the west coast of Pearl Harbor
Corbin 2004	Archaeological Testing	One'ula Beach Park, Kalo'i Drainage Channel, Honouliuli	Twenty-seven backhoe trenches were excavated. No human skeletal remains or pre-contact cultural materials were found. Most of the historic material consisted of recent trash.
Dye & Jourdane 2006a	Archaeological Assessment	Sprint Campbell High School Cell Site, Honouliuli	No historic properties were identified during the field inspection.
Dye & Jourdane 2006b	Archaeological Assessment	T-Mobile Hickam-Iroquois Point Cell Site, Pu'uloa	No historic properties were identified during the field inspection.
Carson 2007	Archaeological Inventory Survey	Iroquois Point Beach, Pu'uloa, Honouliuli	Surface features were described and 57 test trenches were excavated at two previously identified sites (5875 and 5878) and four newly designated sites (6905-6908)

Reference	Type of Investigation	Location	Findings (SIHP sites 50-80-13-)
Sroat, Shideler, and Hammatt 2010	Archaeological Literature Review and Field Inspection	James Campbell High School project	Only two small, filled-in sinkholes were noted. No historic properties were located. The school lands showed extensive previous disturbance, suggesting construction work has eradicated any archaeological sites that may have been present.
Hammatt & Shideler 2011	Archaeological Assessment	Iglesia Ni Christo Project, Fort Weaver Rd., Honouliuli	There were no surface historic properties and no indications of possible subsurface historic properties were present.

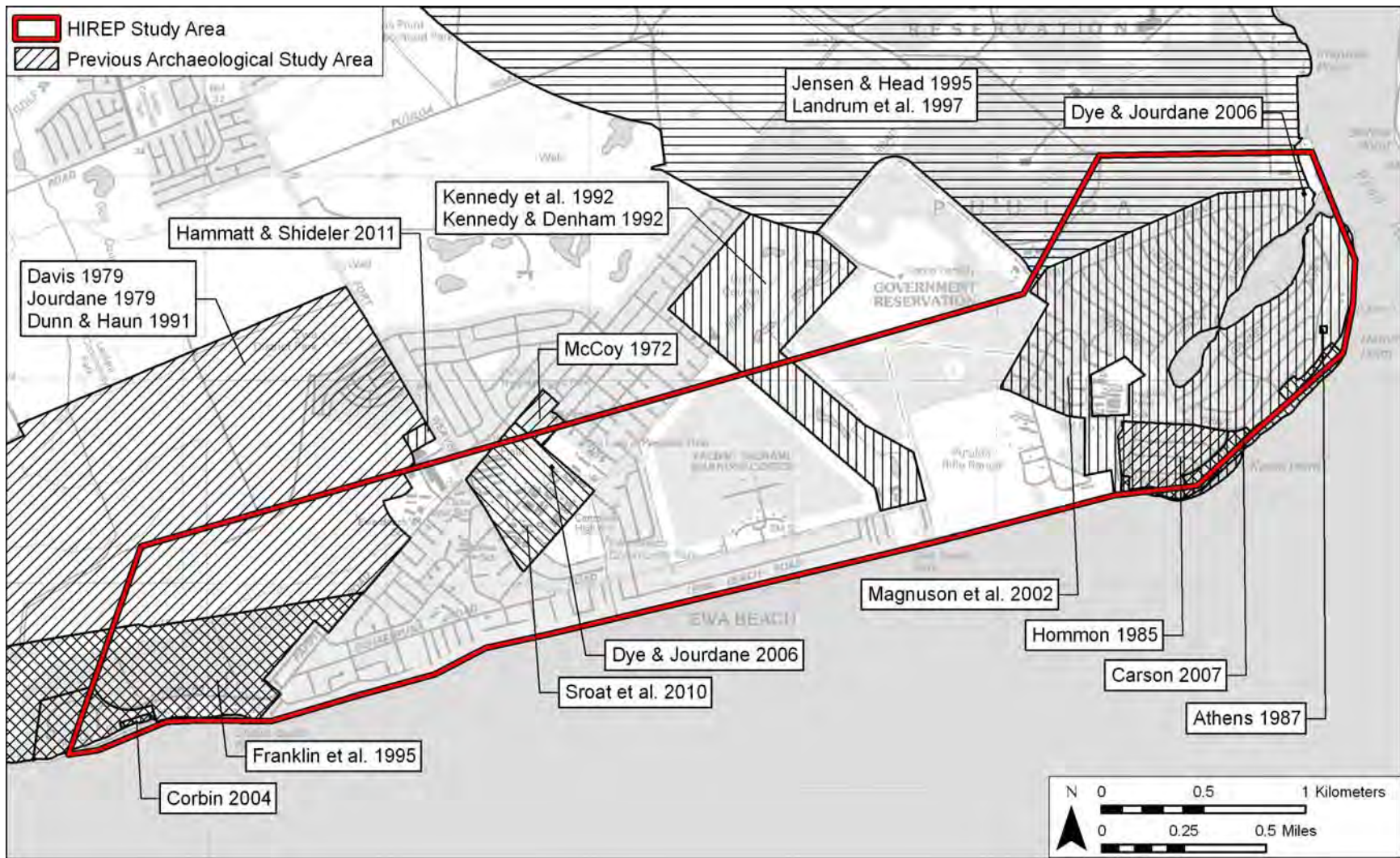


Figure 4. Previous cultural resource studies at the Western Pearl Harbor Landing Analysis Area (West of the Pearl Harbor Entrance)

3.4 Previously Identified Cultural Resources of the Western Pearl Harbor Landing Analysis Area (West of the Pearl Harbor Entrance)

Previously Identified Cultural Resources of the Western Pearl Harbor Landing Analysis Area are summarized in Table 3 and are located on Figure 5. While many historic properties have been located in the Pu'uloa/Iroquois Point area (in the area back of Keahi Point to Bishop Point) these are mostly military sites relating to the transformation of Pearl Harbor into an American naval base in the twentieth century. We understand the boundary of the Pearl Harbor National Landmark (SIHP # 50-80-13-9992) as the harbor and all its shorelines (placed on NRHP 1/29/64).

A surprisingly high density of pre-Contact sites were identified in the Kennedy et al. 1992 study (see Figure 4) just east of the Pacific Tsunami Warning Center (Figure 5) and this may reflect the archaeological landscape of much of the Western Pearl Harbor Landing Analysis Area prior to twentieth century agriculture, urbanization and military activities.

Table 3. Previously Identified Cultural Resources of the Western Pearl Harbor Landing Analysis Area (West of the Pearl Harbor Entrance)

SIHP 50-80-13-	General Location Relative to Project Area	Nature of Site	Status/ Comments	Source
--	Keahi (Tripod) Point, Pu'uloa	Coastal Point	Former fishing and surfing spot; destroyed by dredging in 1910-13	Pukui 1943:60
--	Keali'i Reef, Pu'uloa	Submerged Reef	Keali'i Reef, off Keahi Point, destroyed by dredging in 1910-13. Also the legendary location of an underwater cave, home of the shark Kamoawa	Saturday Press 1883
--	Pu'uloa Salt Works, South of Pākule Point, Pu'uloa	Salt Pan Complex	Mid-nineteenth century salt works shown on an 1873 map	U. S. Hydrographic Office 1873
144	Pākule (Hammer) Point, Pu'uloa	Fish Trap/ fishing shrine	Pākule (Kapākule) Fishpond, home of the shark Ka'ahupahau; destroyed by dredging in 1910-13. A 4-acre fish trap with a stone wall, built by the <i>e'epa</i> or <i>menehune</i> people. There was also a fishing shrine and two sacred rocks representing gods Hina and Kū.	Kamakau 1869-1870; 1976:88; Cobb 1903:733; Stokes 1909:33; McAllister 1933:109; Pukui 1943:56
145	Pu'uloa (legendary location not specific beyond "Pu'uloa")	"Where the first breadfruit in Hawaii is said to have been planted."	Cites Thrum on Kahai, son of Mō'ikeha, introducing Breadfruit to Pu'uloa from Upolu, Samoa	McAllister 1933:109

SIHP 50-80- 13-	General Location Relative to Project Area	Nature of Site	Status/ Comments	Source
146	A "great extent" of old stone walls, particularly near the Pu'uloa salt works"	"Ewa coral plains"	Discusses walls and pit caves. While indicated focus is close to Keahi Point this is generally understood as applying to much of southern Honouliuli	McAllister 1933:109
3210	NW of Pāpipi Road, One'ula	Pre-contact to early historic agricultural and habitation complex	Three enclosures, one platform, three alignments, and two mounds	Dunn & Haun 1991; Franklin et al. 1995
3211	NW of Pāpipi Road, One'ula	Pre-contact temporary habitation complex	Four enclosures	Davis 1979; Dunn & Haun 1991; Franklin et al. 1995
3212	NW of Pāpipi Road, One'ula	Historic agricultural mound/platform	Probably a ramp associated with historic pig farm	Jourdane 1979; Davis 1979; Dunn & Haun 1991; Franklin et al. 1996
3213	NW of Pāpipi Road, One'ula	C-shaped enclosure	Probably an historic animal enclosure	Davis 1979; Dunn & Haun 1991; Franklin et al. 1995
3703	Pu'uloa Village, North of Keahi Point, Pu'uloa	Pre-contact or early historic (pre 1900) burial and cultural deposit	Sand dune burial of a Polynesian woman, within a cultural deposit at the location of the 19th century Pu'uloa Village; the village was first described by Hiram Bingham in 1847 as a fishermans' habitation, but it later probably also housed the workers of the Pu'uloa Salt Works	Bingham 1847:176; U. S. Hydrographic Office 1873; Athens 1987; Magnuson et al. 2002
3770	Pu'uloa Golf Course, <i>mauka</i> section	Modified Sinkhole	Pre-contact to early historic agricultural feature	Kennedy et al. 1992
3771	Pu'uloa Golf Course, <i>mauka</i> section	Modified Sinkhole	Pre-contact to early historic habitation feature	Kennedy et al. 1992
3772	Pu'uloa Golf Course, <i>mauka</i> section	Unmodified Sinkhole	Pre-contact to early historic habitation feature	Kennedy et al. 1992
3773	Pu'uloa Golf Course, <i>makai</i> section	Circular enclosure	Pre-contact to early historic habitation feature	Kennedy et al. 1992
3774	Pu'uloa Golf Course, <i>makai</i> section	Stacked Wall	Late historic to modern ranching feature	Kennedy et al. 1992
3775	Pu'uloa Golf Course, <i>makai</i> section	Rectangular enclosure	Pre-contact habitation feature	Kennedy et al. 1992
3776	Pu'uloa Golf Course, <i>makai</i> section	Platform	Pre-contact habitation feature	Kennedy et al. 1992

SIHP 50-80- 13-	General Location Relative to Project Area	Nature of Site	Status/ Comments	Source
3783	Pu'uloa Golf Course, <i>makai</i> section	L-shape	Pre-contact to early historic shelter	Kennedy et al. 1992
3799	Pu'uloa Golf Course, <i>makai</i> section	Enclosure	Pre-contact to early historic habitation feature	Kennedy et al. 1992
3800	Pu'uloa Golf Course, <i>makai</i> section	C-shape	Pre-contact to early historic habitation feature	Kennedy et al. 1992
3801	Pu'uloa Golf Course, <i>makai</i> section	Mound	Pre-contact to early historic agricultural feature	Kennedy et al. 1992
3802	Pu'uloa Golf Course, <i>makai</i> section	Platform	Pre-contact to early historic habitation feature	Kennedy et al. 1992
3803	Pu'uloa Golf Course, <i>makai</i> section	Stacked Wall	Late historic to modern road	Kennedy et al. 1992
3804	Pu'uloa Golf Course, <i>makai</i> section	Stacked Wall	Pre-contact to early historic agricultural feature	Kennedy et al. 1992
3805	Pu'uloa Golf Course, <i>makai</i> section	Stacked Wall	Pre-contact to early historic agricultural feature	Kennedy et al. 1992
3806	Pu'uloa Golf Course, <i>makai</i> section	Rectangular enclosure	Pre-contact to early historic habitation feature	Kennedy et al. 1992
3807	Pu'uloa Golf Course, <i>makai</i> section	Mound	Late historic to modern clearing feature	Kennedy et al. 1992
3808	Pu'uloa Golf Course, <i>makai</i> section	Mound	Pre-contact to early historic agricultural feature	Kennedy et al. 1992
3809	Pu'uloa Golf Course, <i>makai</i> section	Mound	Modern clearing feature	Kennedy et al. 1992
3810	Pu'uloa Golf Course, <i>makai</i> section	Stacked Wall	Late historic to modern road	Kennedy et al. 1992
3811	Pu'uloa Golf Course, <i>makai</i> section	Mound	Modern clearing feature	Kennedy et al. 1992
3812	Pu'uloa Golf Course, <i>makai</i> section	Stacked Wall	Modern clearing feature	Kennedy et al. 1992
3813	Pu'uloa Golf Course, <i>makai</i> section	Mound	Modern clearing feature	Kennedy et al. 1992
3814	Pu'uloa Golf Course, <i>makai</i> section	Mound	Modern clearing feature	Kennedy et al. 1992
3815	Pu'uloa Golf Course, <i>makai</i> section	Mound	Modern clearing feature	Kennedy et al. 1992
3876	Pu'uloa Golf Course, <i>makai</i> section	Upright stones (3)	Pre-contact to early historic religious feature	Kennedy et al. 1992
3877	Pu'uloa Golf Course, <i>makai</i> section	Rectangular enclosure	Pre-contact to early historic animal pen	Kennedy et al. 1992
3883	Pu'uloa Golf Course, <i>makai</i> section	Enclosure	Late historic to modern habitation feature	Kennedy et al. 1992
3886	Pu'uloa Golf Course, central section	C-shape	Pre-contact to early historic habitation feature	Kennedy et al. 1992

SIHP 50-80- 13-	General Location Relative to Project Area	Nature of Site	Status/ Comments	Source
3887	Pu'uloa Golf Course, central section	C-shape	Pre-contact to early historic habitation feature	Kennedy et al. 1992
3888	Pu'uloa Golf Course, central section	C-shape	Pre-contact to early historic habitation feature	Kennedy et al. 1992
3889	Pu'uloa Golf Course, central section	Mound	Late historic to modern clearing feature	Kennedy et al. 1992
3890	Pu'uloa Golf Course, central section	Mound	Late historic to modern road	Kennedy et al. 1992
3891	Pu'uloa Golf Course, central section	C-shape and wall	Pre-contact to early historic habitation features	Kennedy et al. 1992
3892	Pu'uloa Golf Course, central section	Rectangular enclosure	Pre-contact to early historic animal pen	Kennedy et al. 1992
3893	Pu'uloa Golf Course, central section	Rectangular enclosure	Pre-contact to early historic animal pen	Kennedy et al. 1992
3894	Pu'uloa Golf Course, central section	L-shape	Pre-contact to early historic habitation feature; animal pen	Kennedy et al. 1992
3895	Pu'uloa Golf Course, central section	C-shape	Pre-contact to early historic habitation feature	Kennedy et al. 1992
3896	Pu'uloa Golf Course, <i>makai</i> section	Rectangular enclosure	Pre-contact habitation feature	Kennedy et al. 1992
3897	Pu'uloa Golf Course, <i>makai</i> section	C-shape	Pre-contact habitation feature	Kennedy et al. 1992
3898	Pu'uloa Golf Course, <i>makai</i> section	Rectangular enclosure	Pre-contact habitation feature	Kennedy et al. 1992
3899	Pu'uloa Golf Course, <i>mauka</i> section	Mound	Late historic to modern clearing feature	Kennedy et al. 1992
3901	Pu'uloa Golf Course, central section	Wall	Pre-contact to early historic habitation feature	Kennedy et al. 1992
3904	Pu'uloa Golf Course, central section	Rectangular enclosure	Pre-contact to early historic animal pen	Kennedy et al. 1992
3905	Pu'uloa Golf Course, central section	L-shape	Unknown age or function	Kennedy et al. 1992
3906	Pu'uloa Golf Course, central section	Sinkhole	No function	Kennedy et al. 1992
3907	Pu'uloa Golf Course, central section	Enclosure and mound	Pre-contact to early historic habitation features	Kennedy et al. 1992
3908	Pu'uloa Golf Course, central section	L-shape and walls	Unknown age or function	Kennedy et al. 1992
3909	Pu'uloa Golf Course, central section	Enclosure with wall	Pre-contact to early historic habitation feature	Kennedy et al. 1992
3910	Pu'uloa Golf Course, central section	Enclosure and sinkhole	Pre-contact habitation feature	Kennedy et al. 1992

SIHP 50-80- 13-	General Location Relative to Project Area	Nature of Site	Status/ Comments	Source
3911	Pu'uloa Golf Course, <i>makai</i> section	Mound with upright stones	Pre-contact to early historic religious feature	Kennedy et al. 1992
3912	Pu'uloa Golf Course, central section	Mound	Pre-contact to early historic agricultural feature	Kennedy et al. 1992
3913	Pu'uloa Golf Course, central section	Walls, C-shape, sinkhole	Pre-contact to early historic habitation feature	Kennedy et al. 1992
3914	Pu'uloa Golf Course, central section	Enclosures	Pre-contact habitation features	Kennedy et al. 1992
3915	Pu'uloa Golf Course, central section	Filled Sinkhole	No function	Kennedy et al. 1992
3916	Pu'uloa Golf Course, central section	Unmodified Sinkhole	No function or age determined	Kennedy et al. 1992
3917	Pu'uloa Golf Course, central section	Sinkhole	Pre-contact to modern habitation feature	Kennedy et al. 1992
3918	Pu'uloa Golf Course, <i>makai</i> section	Wall with upright stones	Pre-contact to early historic habitation feature; animal pen	Kennedy et al. 1992
3919	Pu'uloa Golf Course, <i>makai</i> section	C-shape	Pre-contact to early historic habitation feature	Kennedy et al. 1992
3920	Pu'uloa Golf Course, <i>makai</i> section	Walls/ Sinkhole	Pre-contact to early historic habitation features	Kennedy et al. 1992
3921	Pu'uloa Golf Course, <i>makai</i> section	Circular enclosure	Pre-contact to early historic animal pen	Kennedy et al. 1992
3922	Pu'uloa Golf Course, <i>makai</i> section	Circular enclosure	Pre-contact to early historic animal pen	Kennedy et al. 1992
3923	Pu'uloa Golf Course, <i>mauka</i> section	Wall/ Sinkholes	Late historic to modern road / clearing features	Kennedy et al. 1992
3924	Pu'uloa Golf Course, <i>mauka</i> section	Wall	Pre-contact to early historic habitation feature	Kennedy et al. 1992
3925	Pu'uloa Golf Course, <i>mauka</i> section	Walls	Unknown age or function	Kennedy et al. 1992
3926	Pu'uloa Golf Course, <i>mauka</i> section	Mound	Crypt (abandoned)	Kennedy et al. 1992
3927	Pu'uloa Golf Course, <i>mauka</i> section	Modified Sinkhole	Pre-contact to early historic habitation feature	Kennedy et al. 1992
4269	Inland of One'ula Beach Park	Pre-contact agricultural complex	Wall and modified bedrock	Dunn & Haun 1991; Franklin et al. 1995
4270	Inland of One'ula Beach Park	Pre-contact agricultural complex	One enclosure and two mounds	Dunn & Haun 1991; Franklin et al. 1995
4271	Inland of One'ula Beach Park	Pre-contact habitation complex	Two enclosures, one mound, and one <i>ahu</i> (cairn)	Dunn & Haun 1991; Franklin et al. 1996
4272	Inland of One'ula Beach Park	Concrete Foundation	Probably an historic animal pen	Dunn & Haun 1991

SIHP 50-80- 13-	General Location Relative to Project Area	Nature of Site	Status/ Comments	Source
4274	Inland of One'ula Beach Park	Concrete structure	Incinerator	Dunn & Haun 1992
4275	Inland of One'ula Beach Park	Pre-contact or early historic agricultural complex	Eleven features: a mound, 6 enclosures, 3 alignments, 1 rubble concentration, and 1 sinkhole cluster. Radiocarbon dated to A.D. 1410-1954	Dunn & Haun 1991; Franklin et al. 1998
4276	Inland of One'ula Beach Park	Modified Sinkhole	Possibly an historic well	Dunn & Haun 1991
4277	Inland of One'ula Beach Park	Pre-contact to historic, temporary habitation, agricultural, historic husbandry	Five features; 3 enclosures, 1 modified sinkhole, & 1 rubble concentration.	Dunn & Haun 1991; Franklin et al. 1998
4278	Inland of One'ula Beach Park	Pre-contact temporary habitation complex	Four features; 2 platforms & 2 enclosures	Dunn & Haun 1991; Franklin et al. 1998
4279	Inland of One'ula Beach Park	Platform- Historic	Used to support a water tank	Dunn & Haun 1991; Franklin et al. 1998
4280	Inland of One'ula Beach Park	Platform- Historic	Probably used as a animal ramp, associated with nearby pig farm	Dunn & Haun 1991; Franklin et al. 1998
4281	Inland of One'ula Beach Park	Pre-contact to early historic habitation platform	Five features: 1 platform; four rubble concentrations later identified as bulldozer push piles	Jourdane 1979; Davis 1979; Dunn & Haun 1991; Franklin et al. 1996
4282	Inland of One'ula Beach Park	Historic habitation complex	Platform and terrace	Dunn & Haun 1991
4301	One'ula Beach Park	Concrete bunker	Placed by U. S. military on beach between 1932-1950	Dunn & Haun 1991
4302	One'ula Beach Park	Concrete bunker	Placed by U. S. military on beach between 1932-1950	Dunn & Haun 1991
4303	One'ula Beach Park	Concrete foundation	Communication pole in center; placed on beach between 1932-1950	Dunn & Haun 1991
4304	One'ula Beach Park	Concrete bunker	Placed by U. S. military on beach between 1932-1950	Dunn & Haun 1991
4305	One'ula Beach Park	Concrete bunker	Placed by U. S. military on beach between 1932-1950	Dunn & Haun 1991
4306	One'ula Beach Park	Enclosure	Recent garden area	Dunn & Haun 1991
4307	One'ula Beach Park	Concrete foundation	Possibly for military flagpole footing	Dunn & Haun 1991

SIHP 50-80- 13-	General Location Relative to Project Area	Nature of Site	Status/ Comments	Source
5164	Iroquois Point Area, Pu'uloa	Military –concrete paving, basement & slab	NAVMAG West Loch – construction dates to 1932- 1950	Jensen & Head 1995
5165	Iroquois Point Area, Pu'uloa	Military Metal Container	NAVMAG West Loch – construction dates to 1932- 1950	Jensen & Head 1995
5166	Iroquois Point Area, Pu'uloa	Military concrete pavement	NAVMAG West Loch – construction dates to 1932- 1950	Jensen & Head 1995
5167	Iroquois Point Area, Pu'uloa	Military Asphalt Road	NAVMAG West Loch – construction dates to 1932- 1950	Jensen & Head 1995
5168	Iroquois Point Area, Pu'uloa	Military Concrete Slab	NAVMAG West Loch – construction dates to 1932- 1950	Jensen & Head 1995
5169	Iroquois Point Area, Pu'uloa	Military Concrete Slab	NAVMAG West Loch – construction dates to 1932- 1950	Jensen & Head 1995
5170	Iroquois Point Area, Pu'uloa	Military- concrete slab & utility	NAVMAG West Loch – construction dates to 1932- 1950	Jensen & Head 1995
5171	Iroquois Point Area, Pu'uloa	Military concrete structure	NAVMAG West Loch – construction dates to 1932- 1950	Jensen & Head 1995
5172	Iroquois Point Area, Pu'uloa	Military concrete slab	NAVMAG West Loch – construction dates to 1932- 1950	Jensen & Head 1995
5173	Iroquois Point Area, Pu'uloa	Military asphalt road	NAVMAG West Loch – construction dates to 1932- 1950	Jensen & Head 1995
5174	Iroquois Point Area, Pu'uloa	Military asphalt paving	NAVMAG West Loch – construction dates to 1932- 1950	Jensen & Head 1995
5175	Iroquois Point Area, Pu'uloa	Military Latrines (2)	NAVMAG West Loch – construction dates to 1932- 1950	Jensen & Head 1995
5176	Iroquois Point Area, Pu'uloa	Military Latrines (2)	NAVMAG West Loch – construction dates to 1932- 1950	Jensen & Head 1995
5177	Iroquois Point Area, Pu'uloa	Military concrete slabs (2)	NAVMAG West Loch – construction dates to 1932- 1950	Jensen & Head 1995
5178	Iroquois Point Area, Pu'uloa	Military concrete structure	NAVMAG West Loch – construction dates to 1932- 1950	Jensen & Head 1995
5179	Iroquois Point Area, Pu'uloa	Military manhole, asphalt paving, & fire hydrant	NAVMAG West Loch – construction dates to 1932- 1950	Jensen & Head 1995

SIHP 50-80- 13-	General Location Relative to Project Area	Nature of Site	Status/ Comments	Source
5180	Iroquois Point Area, Pu'uloa	Military concrete paving	NAVMAG West Loch – construction dates to 1932- 1950	Jensen & Head 1995
5181	Iroquois Point Area, Pu'uloa	Military asphalt paving	NAVMAG West Loch – construction dates to 1932- 1950	Jensen & Head 1995
5182	Iroquois Point Area, Pu'uloa	Military asphalt paving	NAVMAG West Loch – construction dates to 1932- 1950	Jensen & Head 1995
5183	Iroquois Point Area, Pu'uloa	Military Concrete Slab	NAVMAG West Loch – construction dates to 1932- 1950	Jensen & Head 1995
5184	Iroquois Point Area, Pu'uloa	Military Concrete Slab	NAVMAG West Loch – construction dates to 1932- 1950	Jensen & Head 1995
5185	Iroquois Point Area, Pu'uloa	Military Concrete Slab	NAVMAG West Loch – construction dates to 1932- 1950	Jensen & Head 1995
5186	Iroquois Point Area, Pu'uloa	Military Latrine	NAVMAG West Loch – construction dates to 1932- 1950	Jensen & Head 1995
5187	Iroquois Point Area, Pu'uloa	Military Concrete Slab	NAVMAG West Loch – construction dates to 1932- 1950	Jensen & Head 1995
5188	Iroquois Point Area, Pu'uloa	Military Latrines (2)	NAVMAG West Loch – construction dates to 1932- 1950	Jensen & Head 1995
5189	Iroquois Point Area, Pu'uloa	Military Latrines (2)	NAVMAG West Loch – construction dates to 1932- 1950	Jensen & Head 1995
5190	Iroquois Point Area, Pu'uloa	Military asphalt/concrete paving & utility	NAVMAG West Loch – construction dates to 1932- 1950	Jensen & Head 1995
5191	Iroquois Point Area, Pu'uloa	Military manhole & utility	NAVMAG West Loch – construction dates to 1932- 1950	Jensen & Head 1995
5192	Iroquois Point Area, Pu'uloa	Military concrete paving	NAVMAG West Loch – construction dates to 1932- 1950	Jensen & Head 1995
5193	Iroquois Point Area, Pu'uloa	Military manhole, utility, & concrete box	NAVMAG West Loch – construction dates to 1932- 1950	Jensen & Head 1995
5194	Iroquois Point Area, Pu'uloa	Military Concrete Slab	NAVMAG West Loch – construction dates to 1932- 1950	Jensen & Head 1995
5195	Iroquois Point Area, Pu'uloa	Military concrete slabs (2) & box	NAVMAG West Loch – construction dates to 1932- 1950	Jensen & Head 1995

SIHP 50-80- 13-	General Location Relative to Project Area	Nature of Site	Status/ Comments	Source
5196	Iroquois Point Area, Pu'uloa	Military asphalt paving	NAVMAG West Loch – construction dates to 1932- 1950	Jensen & Head 1995
5197	Iroquois Point Area, Pu'uloa	Military Concrete Slab	NAVMAG West Loch – construction dates to 1932- 1950	Jensen & Head 1995
5265	Iroquois Point Area, Pu'uloa	Military Concrete Slab	NAVMAG West Loch – construction dates to 1932- 1950	Jensen & Head 1995
5266	Iroquois Point Area, Pu'uloa	Military Concrete Slabs (4) and Asphalt Road	NAVMAG West Loch – construction dates to 1932- 1950	Jensen & Head 1995
5267	Iroquois Point Area, Pu'uloa	Military Concrete Slabs (3)	NAVMAG West Loch – construction dates to 1932- 1950	Jensen & Head 1995
5268	Iroquois Point Area, Pu'uloa	Military Concrete Slabs (2)	NAVMAG West Loch – construction dates to 1932- 1950	Jensen & Head 1995
5269	Iroquois Point Area, Pu'uloa	Military Fire Hydrant	NAVMAG West Loch – construction dates to 1932- 1950	Jensen & Head 1995
5270	Iroquois Point Area, Pu'uloa	Military Concrete Slab	NAVMAG West Loch – construction dates to 1932- 1950	Jensen & Head 1995
5271	Iroquois Point Area, Pu'uloa	Military Fire Hydrant	NAVMAG West Loch – construction dates to 1932- 1950	Jensen & Head 1995
5288	Iroquois Point Area, Pu'uloa	Military Concrete paving & structure	NAVMAG West Loch – construction dates to 1932- 1950	Jensen & Head 1995
5291	Iroquois Point Area, Pu'uloa	Military Fire Hydrant	NAVMAG West Loch – construction dates to 1932- 1950	Jensen & Head 1995
5292	Iroquois Point Area, Pu'uloa	Military Fire Hydrant	NAVMAG West Loch – construction dates to 1932- 1950	Jensen & Head 1995
5874	North of Pākule Point, Pu'uloa	Pre-contact subsurface deposit	Near former location of Pākule Fish Trap	Magnuson et al. 2002; Carson 2007
5875	North of Iroquois Beach, Pu'uloa	Late pre-contact and early post-contact habitation subsurface deposit	Radiocarbon dates ranging from A. D. 1650-1890. The remains of a buried concrete foundation indicates that the area was also utilized in more recent times.	Magnuson et al. 2002; Carson 2007
5877	South of Pākule Point, Pu'uloa	Historic Wharf	Associated with early 19th Pu'uloa Salt Works and Village	Magnuson et al. 2002; U. S. Hyrdographic Office 1873
5878	South of Keahi Point, Pu'uloa	Late 1800s survey marker	Offshore metal object	Magnuson et al. 2002; Carson 2007

SIHP 50-80- 13-	General Location Relative to Project Area	Nature of Site	Status/ Comments	Source
6905	Iroquois Beach, Pu'uloa	Post-contact subsurface cultural deposit	Cluster of houses in this area are shown on an 1873 map	Carson 2007; U. S. Hydrographic Office 1873
6906	Iroquois Beach, Pu'uloa	Panama Gun Mount	Offshore concrete & metal object, placed 1932-1950	Hommon 1985; Carson 2007
6907	South of Keahi Point, Pu'uloa	Pre-contact to early historic subsurface deposit	Radiocarbon dates range from A. D. 1650-1890	Carson 2007
6908	South of Keahi Point, Pu'uloa	Post-contact subsurface cultural deposit	Recent 20th century camping site	Carson 2008
9992	Shoreline of Pearl Harbor	Pearl Harbor Nation Landmark	The boundary of the Landmark is described as the harbor and all its shorelines (placed on NRHP 1/29/64)	NRHP form 1978; SHPD web site

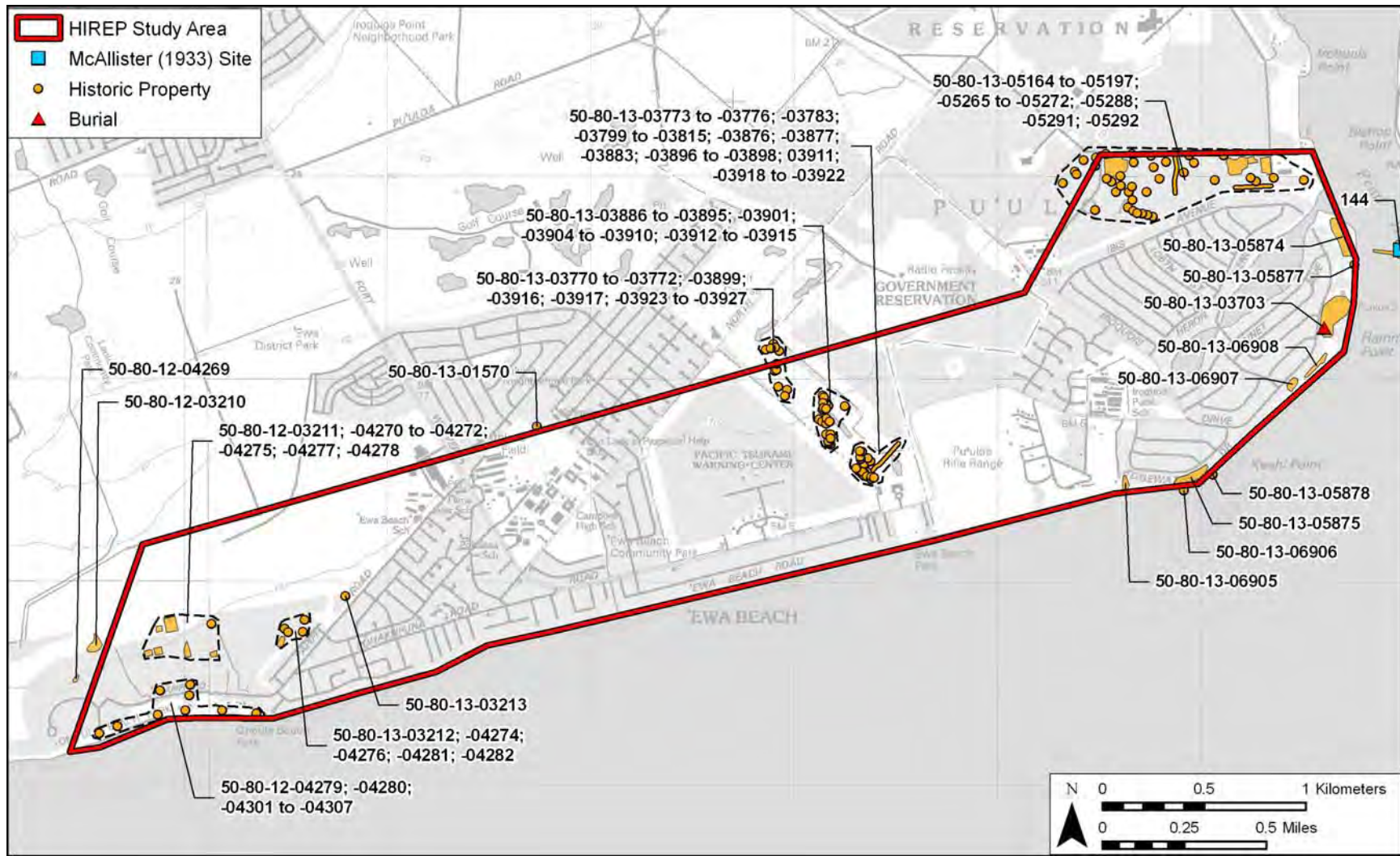


Figure 5. Previously identified cultural resources at the Western Pearl Harbor Landing Analysis Area (West of the Pearl Harbor Entrance)

3.5 Summary of Cultural Resources of the Western Pearl Harbor Landing Analysis Area

A surprisingly high density of pre-Contact sites were identified in the Kennedy et al. 1992 study (see Figure 4) just east of the Pacific Tsunami Warning Center (Figure 5). This may reflect the archaeological landscape of much of the Western Pearl Harbor Landing Analysis Area prior to twentieth century agriculture, urbanization and military activities. However, the twentieth century transformation of the Western Pearl Harbor Landing Analysis Area through massive grading down to the raised-reef limestone has been extreme and the resulting historic property sensitivity is thus lower than might have been otherwise expected.

While the general vicinity is famous for fisheries for shellfish, *nehu*, and mullet and for the shark goddess Ka'ahupāhau most of these references are believed to relate primarily to the inner reaches of Pearl Harbor (Pu'uloa). *Limu* (seaweed) picking off 'Ewa Beach has been a significant cultural issue recently and, although undoubtedly a geographically widespread practice, this appears to have been better documented in the west (One'ula Beach Park, Kānehili). Development impacts to "karst" in terms of both suggested burials present and fresh water resources has been a significant cultural issue recently but again, although undoubtedly geographically widespread, cultural use of karst features are believed to have been more common west of the Western Pearl Harbor Landing Analysis Area.

In general terms there is an abundance of historic and cultural resources indicated at the two ends of the Western Pearl Harbor Landing Analysis Area (Figure 6) at the Keahi Point/Bishop Point area at the west side of the mouth of Pearl Harbor and also at the west side near One'ula Beach Park. The attractiveness of the entrance to Pearl Harbor for habitation and fishing in the pre-Contact and early post-Contact periods is no surprise. It is also no surprise that this area would have been a focus of historic coastal defenses. The rationale for the abundance of historic resources at One'ula Beach Park is less clear.

Consideration might be given to avoiding the ends of the Western Pearl Harbor Landing Analysis Area in the vicinities of Keahi Point/Bishop Point and One'ula Beach Park in favor of the seemingly less sensitive central area of this sub-area.



Figure 6. Cultural resource sensitivity map for the Western Pearl Harbor Landing Analysis Area (West of the Pearl Harbor Entrance)

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3.7 Introduction to Cultural Resources of the West Central Pearl Harbor Landing Analysis Area (Pearl Harbor Entrance to Kalihi Stream)

The West Central Pearl Harbor Landing Analysis Area (Pearl Harbor Entrance to Kalihi Stream) includes a seaward portion of Hālawā Ahupua'a of 'Ewa District and the seaward portion of Moanalua Ahupua'a, of Kona District for a total of 2,978 acres (4.65 square miles or 12.05 square kilometers). This area is most commonly known today as Hickam and Airport (see Figure 2 and Figure 7). There are no natural sources of surface fresh water in this area (although some of the shallow coastal ponds were undoubtedly brackish). This entire area receives less than 600 mm of rainfall a year (Giambelluca 1986:138) which is typically less than adequate for un-irrigated agriculture. The natural soils of the West Central Pearl Harbor (Pearl Harbor Entrance to Kalihi Stream) Landing Analysis Area are typically clays, stony clays and silty clay loams but there are extensive areas of seaward "fill land, mixed" in seaward areas. Most of the fill material is understood as of marine origin relating to either dredging of the Pearl Harbor entrance or dredging of a seaplane airstrip in Ke'ehi Lagoon that was used to reclaim tracts of the coastal shallows circa 1931-1943. As a result the present shoreline is way south of the former natural shoreline (see Figure 10).

Hickam Air Force Base (SIHP # 50-80-13-1376) was declared a National Historic Landmark on 9/16/1985.

3.8 Previous Cultural Resources Studies in the West Central Pearl Harbor Landing Analysis Area (Pearl Harbor Entrance to Kalihi Stream)

Early cultural resource studies at coastal Hālawā and Moanalua focused on the former fishponds.

Much of the infrastructure of the Hickam and Airport area was in place prior to the institution of contemporary historic preservation laws. On the other hand the Hickam lands (now Joint Base Pearl Harbor Hickam) are subject to federal environmental review which has resulted in these lands being one of the most intensively studied places in Polynesia with over 85 cultural studies. The Joint Base Pearl Harbor Hickam studies are often complex, commonly addressing archaeological monitoring work at a relatively large number of different discrete locations (for removal of several underground storage tanks, or utility infrastructure improvements at different locales, for example).



Figure 7. Aerial photograph (2009) of the West Central Pearl Harbor Landing Analysis Area (Pearl Harbor Entrance to Kalihi Stream)

Table 4. Previous Cultural Resources Studies in the West Central Pearl Harbor Landing Analysis Area (Pearl Harbor Entrance to Kalihi Stream, Arranged chronologically)

Source	Type of Investigation	General Location	Findings
Cobb 1905	Fisheries Inventory	Territory-wide	Fishponds in Hālawā were noted to include: Waiaho (32 acres), Name not known (5 acres, partly filled); Fishponds in Moanalua include: Lelepaua (332 acres, mostly filled up), Kaihikapu (258 acres) and two fish traps
Stokes 1909	Study of walled fish traps	Pearl Harbor	Located former fish trap at Bishop Point (Site 144)
McAllister 1933	Early survey	O'ahu Island	Site 81. Kaihikapu Fishpond, Site 82. Lelepaua a large inland fishpond at Moanalua, Site 94. Loko Waiaho, known as Queen Emma's pond, Site 95. Loko Ke'oki was a pond near Watertown, Site 96. Papiolua Fishpond in Hālawā
Bishop Museum 1975	Burial Report	Fort Kamehameha, Quarters #8	No report. Information from Erkelens and Athens (1992:4)
Rosendahl 1977	Inadvertent Burial Find	Building 8	1 burial
Tuggle 1985a	Burial Report	Fort Kamehameha	Field notes record burial dated Oct. 5, 1985. No report. Information from Erkelens and Athens (1992:4)
Tuggle 1985b	Burial Report	Fort Kamehameha, Quarters #16	No report. Information from Erkelens and Athens (1992:4)
Hammatt et al. 1986	Archaeological subsurface testing	Proposed water main replacement, Fort Kamehameha, Officer's Family Housing	Gleyed soils interpreted as fishpond sediments dating to A.D. 1340-1650. Cultural materials included a possible pearl shell fishhook, 3 polished basalt beads or sinkers, and various historic artifacts
Watanabe 1986	Archaeological site survey and subsurface testing	FY 87 Sell/Replace Program, Fort Kamehameha	Located concrete foundations, walkways, roadway, ammunition storage bunkers, air raid shelter and dump piles. Testing identified sediments from embayed ponds and marsh environment
Hammatt and Borthwick 1987	Archaeological subsurface testing	Proposed power check pad with noise suppressor, Fort Kamehameha	No significant finds. The report includes a discussion of the original environment of the area from the dune beach to the inland fish ponds.
Streck and Watanabe 1988	Excavation for recovery of human remains	Quarters # 14, Fort Kamehameha	Excavation of 1 adult and 3 juveniles
Hammatt et al. 1988	Archaeological Monitoring report	Water main replacement, Fort Kamehameha	Gleyed soils interpreted as fishpond sediments dating to A D 1385-1655
Hinkes 1988	Human Skeletal Analysis	Fort Kamehameha, Battery Hasbrouck	Analysis of human remains reported in Streck 1989
Streck and Watanabe 1988	Burial Report	Fort Kamehameha, Quarters # 14	Four sets of human remains from 30 cm below surface

Source	Type of Investigation	General Location	Findings
Streck 1989	Burial Report	Fort Kamehameha, Battery Hasbrouck parking lot	Secondary deposition of scattered bones, including incomplete skeletons of at least one adult and one child (reported in Watanabe 1991)
Shun and Schilz 1991	Subsurface archaeological survey	Wastewater treatment plant, Fort Kamehameha	Single adult human burial, an adze preform and a polished adze were recovered. Documented pond sediments
Watanabe 1991	Archaeological site survey and subsurface testing	MIDPACK T-1 Network project, Fort Kamehameha	No significant finds were found during a surface survey or within eight auger tests.
Drolet & Schilz 1992	Emergency Data Recovery	Phase I Wastewater Treatment Plant, Fort Kamehameha	Summary and descriptions of 11 burial finds
Drolet 1993	Archaeological testing and data recovery	Phase II Waste water treatment plant, Fort Kamehameha	Summary of Phase II findings
Drolet 1994	Subsurface testing	Testing beneath roadways, Fort Kamehameha	Discussion of 4 burials found during Phase III investigations
Eulberg 1995	Inadvertent Discovery	Fort Kamehameha, Battery Hasbrouck	Inadvertent discovery of human left hip bone within Battery sand berm
Anderson & Bouthillier 1996	Assessment & analysis of historic properties	Hickam AFB	Preparation of a historic preservation plan providing a synthesis of prior studies
Drolet 1996 (Final)	Phase I Archaeological subsurface testing and data recovery	Wastewater Treatment plant, Fort Kamehameha	Component I single human burial, 7 pit features & cultural materials dating to AD 1200 to 1550 Component II Nine human burials dating to AD 1450-1900 Component III post 1900 historic materials
Athens, Ward and Tomonari-Tuggle 1997	Paleoenvironmental Coring	Loko Ka'ihikapu, TRACON Expansion, Hickam AFB	Inconclusive data regarding presence of prehistoric fishpond sediments
Drolet 1997a (Prefinal) (1999a Final)	Phase II Archaeological subsurface testing and data recovery	Wastewater treatment plant, Fort Kamehameha	SIHP # 50-80-13-4499 assigned. Component II Seventeen human burials & 2 animal burials Component IIIa 19 th cent glass and ceramic wares Component IIIb post 1900 historic materials
Drolet 1997b (Prefinal) (1999b Final)	Phase III Archaeological Monitoring and Data Recovery	Wastewater Treatment plant, Fort Kamehameha	Component I double midden pit Component II Thirteen human burials within ten graves & 2 animal burials Component IV historic trash pits
Athens, and Magnuson 1998	Archaeological Subsurface Survey	Low Level Windshear Alert System, Station No. 1 Relocation, Hickam AFB	No cultural finds. Pollen analysis results presented from sediments of Ka'ihikapu Fishpond.

Source	Type of Investigation	General Location	Findings
Anderson and Bouthillier 1998	Assessment & analysis of historic properties	Hickam AFB	Preparation of a historic preservation plan providing a synthesis of prior studies; limited subsurface testing was conducted in four areas of Fort Kamehameha: Area A, in the possible former location of Queen Emma's late 19 th c. house; Area B, in the former location of the 1800's village of Holokahiki; Area C, near Queen Emma's house, and Area D, possible location of the 1800's villages called Kumumau and Poi Village. Pre-contact cultural deposits were noted in Area B, while early 20 th century artifacts were recovered from Areas A and C. Area D had only recent fill material.
Athens, and Ward 1999a	Paleoenvironmental Coring Report	Ka'ihikapu Fishpond, Vault-X Project, Honolulu International Airport	Site 50-80-13-81 fishpond research – no sediments from pre-Contact Polynesian period
Athens, and Ward 1999b	Paleoenvironmental Coring Report	Loko Lelepaua, Hickam AFB	No pre-contact fishpond sediments were noted. The authors conclude that the core might have been outside the boundary of the pond, or that Loko Lelepaua was of historic construction.
Carlson 1999	Archaeological Monitoring Report	For Installation Restoration Program Activities at Hickam AFB	No significant finds. Possible fishpond sediments from Lelepaua and Ka'ihikapu Ponds discussed.
Dega & Farrell 1999	Archaeological testing	Airport apron, Hickam Air Force Base	SIHP #50-80-13-6692: intact cultural deposit with subsurface deposits dating to 1720-1820.
Robins, Clark, and Allen 1999	Monitoring and Sampling During Construction Excavations Report	AMC Ramp Lighting Project at Hickam AFB	Dates Lelepaua Fishpond (SIHP # 50-80-13-82) to late 13 th to mid-15 th centuries
Wolforth and Rechtman 1999	Archaeological Monitoring	Wastewater Treatment Plant, Fort Kamehameha	No significant finds
Athens et al. 2000	Fishpond Coring Projects	Pearl Harbor	Presents previous dating results of Loko Ka'ihikapu and Lelepaua cores. No pre-contact fishpond sediments were found, and authors conclude these two ponds may have been constructed after A. D. 1778, in the post-contact period.
Desilets 2000	Addendum to Archaeological Monitoring	Hickam Air Force Base	Wetland deposits, interpreted as marshland or mudflats

Source	Type of Investigation	General Location	Findings
Erkelens 2000	Archaeological Monitoring Report	For Underground Storage Tank Removals, Hickam AFB and Pearl City Peninsula	No significant finds
The Environmental Company, Inc. 2000	Addendum Archaeological Monitoring	For Petroleum, Oils & Lubricants (POL) System Component Removal, Fort Kamehameha	Identified probable fishpond sediments associated with Lelepaua Fishpond
Magnuson, 2000	Archaeological Monitoring Report	Storage Tank Removal Hickam AFB	Forty-one UST sites were investigated. Sediments of Lelepaua Pond were possibly identified at one site.
Athens, Ward and Blinn 2001	Paleoenvironmental Coring Report	Tank 2, Hickam AFB	Investigations of Lelepaua Fishpond found no intact evidence for fishpond sediments at this location
Carlson 2001	Archaeological Monitoring	Dredging Activities of the Manuwai Canal, Hickam AFB	No significant finds
Curtis 2001a	Report on Emergency Replacement of Two Utility Poles	Hickam Air Force Base	Possible fishpond remnants noted (unnamed fishpond on an 1870 map)
Dega and Davis 2001	Archaeological Monitoring Report	Base Civil Engineer Maintenance Complex, Fort Kamehameha	Identified 1 historic pit feature containing a fuel drum
Drolet and Schilz 2001	Phase IV Archaeological Monitoring, Testing and Data Recovery Report	Wastewater Treatment Plant, Fort Kamehameha	Recorded SIHP Site # 50-80-13-4449, with 30 component features, 36 sets of human remains, and 3 sets of isolated human remains, and non-human bones/burials
Dega, Davis, Ward and Winsborough 2002	Archaeological Monitoring and Sampling Report	In Conjunction with Subsurface Plume Investigations at Hickam AFB	Investigations at Ka'ihikapu fishpond but concluded there was substantial sediment mixing
Desilets 2002a	Archaeological Monitoring Report	Hazardous Waste Removal at Māmala Bay Golf Course & Landfill Site LF05, Hickam AFB	No significant finds. A cache of bottles with hazardous liquid and a rail section were recovered.
Desilets 2002b	Archaeological Monitoring Report	For DO-58 Underground Storage Tank Verification and Removal, Hickam AFB	No significant finds.

Source	Type of Investigation	General Location	Findings
McGhee, and Curtis 2002	Archaeological Monitoring Report	Carried out for Soil sampling in Conjunction with Military Housing Replacement Hickam AFB	No significant finds
Magnuson 2002	Archaeological Monitoring Report	AMC Stripper Pit Remediation, Hickam AFB	Not found in SHPD library. No cultural materials present (information from J. M. Waller 2008:52)
Roberts and Bower 2002b	Archaeological Monitoring Report	For Fire Rescue Training Facility Project Hickam	No significant finds
Roberts Dang and West 2002	Archaeological Monitoring Report	For Hickam Alert Aircraft Terminal (HAAT) Security System Installation Project, Hickam AFB	No significant finds
Roberts and West 2002a	Archaeological Monitoring Report	For Combat Installation Transportation System (CITS), Hickam AFB	No significant finds. No map of project area in report.
Roberts 2002	Archaeological Preconstruction Investigation	Storm Drain Repair/Upgrade Fort Kamehameha	No significant finds, but undisturbed sand layer was noted in several trenches.
Borthwick, Bush, and Hammatt 2003	Monitoring Report for Geotechnical Sampling	HIANG Project No. KNBD 989064A Clear Water Rinse Facility, Hickam AFB	No significant finds
Desilets 2003	Archaeological Monitoring Report	For DO-81 Underground Storage Tank Verification and Removal, Hickam AFB	Monitored 38 UST sites. Data indicated this area was once a wetland marsh environment. One area had an early 1900s steel fuel tank associated with Coastal Battery Selfridge (-1600)
McElroy 2003	Archaeological Monitoring report	For a Communication Line Installation at Hickam AFB	Minimal finds (late 1800s & early 1900s Watertown artifacts)
McGhee, and Curtis 2003a	Archaeological Monitoring Report	Backyard Fence Installation Behind Building 3327 Hickam AFB	No significant finds during monitoring of 12 postholes.
McGhee, and Curtis 2003b	Archaeological Monitoring Report	Fence and Gate Installation Near Building 3004 Hickam AFB	No significant finds during monitoring of 27 postholes.

Source	Type of Investigation	General Location	Findings
Ogg, Dega, Ward, and Winsborough 2003	Archaeological Monitoring and Sampling Report	Carried out at an Abandoned Fire Training Area at Hickam AFB	No significant finds, although an undisturbed sand layer was noted near the base of several excavations.
Davis & Rourke 2004	Archaeological Monitoring and testing	Airport apron, Hickam Air Force Base	SIHP # -6692: cultural layer
DeBaker and Roberts 2004	Archaeological Monitoring Report	Waterline Construction, Fort Kamehameha	No significant finds during the monitoring of one 480-m long trench.
DeBaker and Brown 2005	Archaeological Inventory Survey	Waterline Replacement at Fort Kamehameha	No significant finds
DeBaker, Peterson and Roberts 2005	Archaeological Monitoring and Sampling	Carried out for Waterline Replacement Project Bishop point and Fort Kamehameha Hickam AFB (TMK: 9-9-01:13, 14)	Minimal finds (20 th century artifacts associated with Watertown Village) were found during the monitoring of two trenches
Grant 2005	Archaeological Monitoring	Fire sprinklers, Hickam Air Force Base	Cultural deposit encountered, likely related to SIHP #-6692
Jourdane, and. Dye 2005	Archaeological Monitoring	Results of Monitoring of Alternate Circuits at Hickam AFB	No significant finds found during the excavation of one trench and two manhole locations.
Jourdane and Dye 2006a	Archaeological Monitoring Report	Underground Storage Tank Verification and Removal, Hickam AFB, Site Investigation Areas F531, F536, F529-1, -2, -4, -5, -6, -7, -8	Monitoring at 9 locales. No significant finds
Jourdane, and Dye 2006b	Archaeological Monitoring Report	Underground Storage Tank Verification and Removal, Hickam AFB, Site Investigation Areas F3018, F2004, F701, and 3222	Monitoring at 13 locales identified no traditional Hawaiian cultural materials or significant finds
McElroy, Dye and Jourdan 2006	Archaeological Monitoring and Investigation	Installation of Leach Field at Hickam AFB, Māmalā Bay Golf Course	Deposits associated with fish ponds at Hickam AFB found in one trench. No project area map in report.

Source	Type of Investigation	General Location	Findings
Jourdane and Dye 2007	Archaeological Monitoring Report	Underground Storage Tank Verification and Removal, Hickam AFB	No significant findings during testing for UST
Lebo, Jourdane and Kalama 2007	Archaeological Monitoring Report	Fort Kamehameha	Nine early to mid-19 th century subsurface features were recorded, including several shell middens and cooking
Lebo, Kalama, and Jourdane 2008	Archaeological Monitoring Report	Hickam AFB, proposed septic tank near Bldg 3200	No pre-contact or historic remains or deposits were found in one excavated trench
Yucha and Hammatt 2008	Archaeological Monitoring Report	Honolulu Airport, Elliott Street Project	During monitoring of geo-technical test boring, no cultural deposits or fishpond projects were noted.

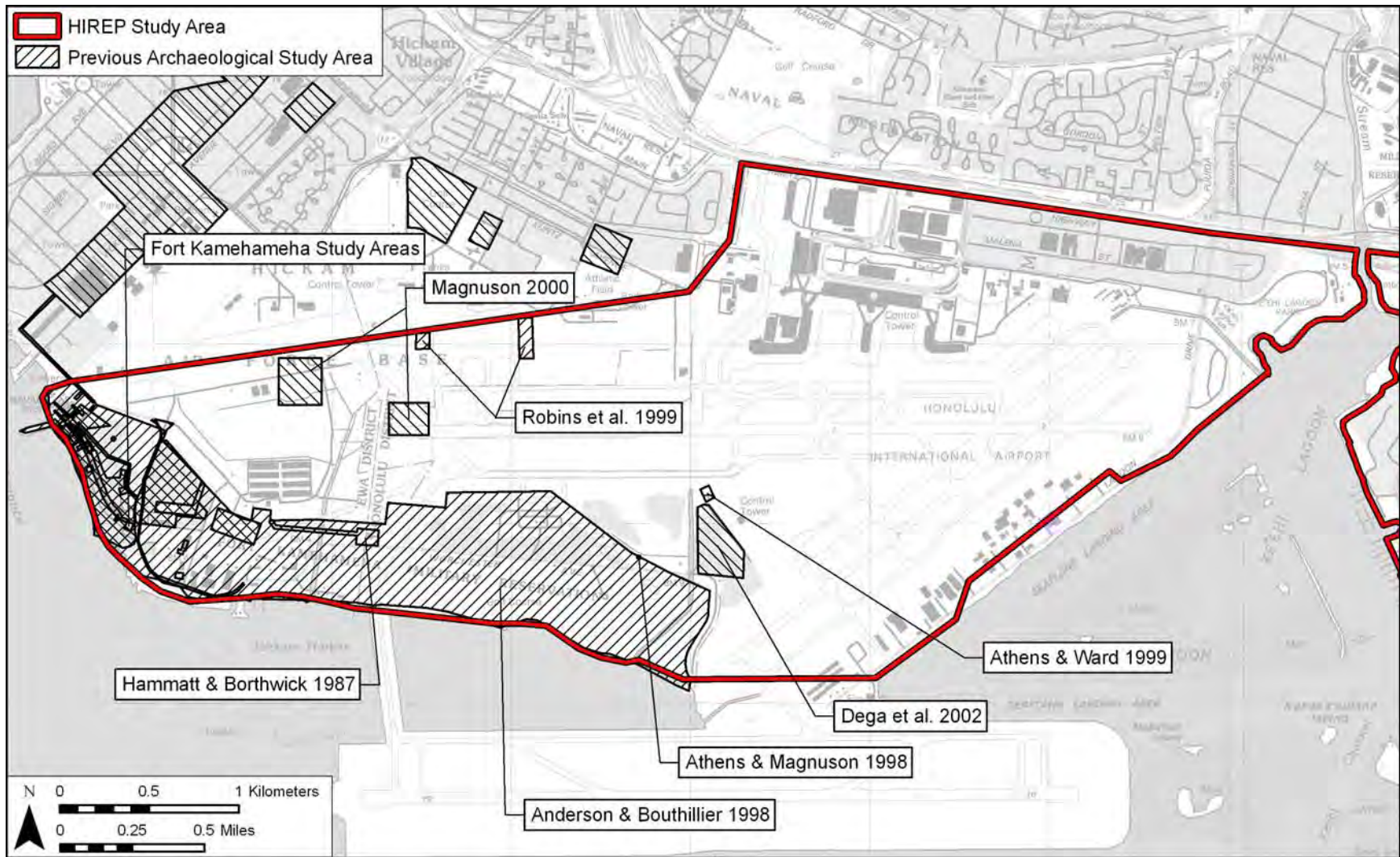


Figure 8. Previous cultural resource studies in the West Central Pearl Harbor Landing Analysis Area (Pearl Harbor Entrance to Kalihi Stream)

3.9 Previously Identified Cultural Resources of the West Central Pearl Harbor Landing Analysis Area (Pearl Harbor Entrance to Kalihi Stream)

Most of the sites McAllister (1933) recorded within coastal Hālawā and Moanalua *ahupua'a* were coastal fishponds. Sites within and in the near vicinity of the present study area include

Site 81, Kaihikapu fishpond, (SIHP # 50-80-13-0081) was a large fishpond (258 acres) near the present Lagoon Drive.

Site 82, Lelepaua Fishpond (SIHP # 50-80-13-0082), was a large inland fishpond approximately 332 acres, mostly filled, with walls made of coral and earth embankment, 10 feet or more wide.

Site 94 Loko Waiaho (SIHP # 50-80-13-0094), known as Queen Emma's pond, was located near Watertown. The walls were of coral and sand, 6.5 feet wide, 2 feet high, with five outlets (*mākāhā*). It covered an area of 32 acres.

Site 95 Loko Ke'oki (SIHP # 50-80-13-0095), was a pond near the present site of Watertown in Hālawā. It had narrow wall of coral rock and sand. It has been filled in.

Site 96, Papiolua Fishpond (SIHP # 50-80-13-0096), was a small pond approximately 1 acre in area with a wall 150 feet long, 4 feet wide and high. There were no outlet gates (*mākāhā*).

Site 144, the former location of fish traps and a fishing shrine; located along both the east and west shorelines of the channel leading into Pearl Harbor.

These ponds are further discussed in Table 5 and are located on Figure 9.

The discovery of a large number of burials in the Fort Kamehameha area may have resulted in an overstated level of concern for historic resources in the coastal Hālawā and Moanalua lands. A plethora of studies have documented relatively few historic archaeological properties.

A particularly important and relatively early study was the Anderson and Bouthillier (1996) work which attempted a synthesis of historical and archaeological documentation and produced an archaeological/ historical resources sensitivity map for Hickam Air Force Base. Many archaeological studies have been undertaken at the Hickam lands since Anderson and Bouthillier (1996) produced their sensitivity map. These later studies suggest that the designation of a large inland portion of Hickam AFB as of high and moderate archaeological sensitivity is simply not the case. We now know a great deal more about the likelihood of significant subsurface deposits in inland Hickam and the likelihood appears to be not high or even moderate but, as a generalization may be expected to be rather low. However, coastal areas of Hickam AFB, particularly within Fort Kamehameha, have proven to contain abundant subsurface deposits and cultural materials.

Table 5. Previously Identified Cultural Resources of the West Central Pearl Harbor Landing Analysis Area (Pearl Harbor Entrance to Kalihi Stream)

50-80-13	General Location Relative to the Project Area	Nature of Site	Status / Comments	Source
1376	East side of Pearl Harbor Entrance (Hickam Air Force Base)	Hickam Air Force Base	Became a National Historic Landmark 9/16/1985	SHPD website
4499	Fort Kamehameha	Burials and Cultural Deposit	30 component features, including 36 sets of human remains, 3 isolated human remains, and non-human animal burials; burials are pre-contact and post-contact; historic artifacts are pre and post-1900	Drolet & Schilz 1997
No #.	Fort Kamehameha	Burial (1 individual)	One left hip bone near Battery Hasbrouck	Eulberg 1995
No #.	Fort Kamehameha	Burial (3 individuals)	Four pre-contact burials near Quarters 14	Streck & Watanabe 1988
5325	Fort Kamehameha	Subsurface Cultural Deposit	Marsh sediments	Hammatt, Borthwick, & Shideler 1986
1382	Fort Kamehameha	Artillery District of Honolulu Fort Kamehameha, including Batteries Hasebrouck, Hawkins, Hawkins Annex, Jackson, Selfridge & Closson	Military construction at Fort Kamehameha began around 1909; The Artillery District was placed on the NRHP 6/5/1984	Anderson & Bouthillier 1998; SHPD web site
81	Hickam AFS, Southeast portion of present analysis area	Loko Kahikapu	Was a large fishpond (258 acres), possibly historic	Cobb 1905; McAllister 1933:93; Athens & Magnuson 1998; Athens et al. 2000; The Environmental Co. 2000; Magnuson 2000; Athens et al. 2001; Dega et al. 2002
82	Hickam AFS, Central portion of present analysis area	Loko Lelepaua	Was a large inland fishpond, possibly historic, approximately 332 acres, mostly filled, with walls made of coral and earth embankment, 10 feet or more wide.	Cobb 1905; McAllister 1933:93; Athens and Ward 1999b; Robins et al. 1999; Athens et al. 2000

50-80-13	General Location Relative to the Project Area	Nature of Site	Status / Comments	Source
80	Hickam AFS	Kaloaloo Fishpond	Unknown age fishpond	McAllister 1933
94	Hickam AFS, West portion of present analysis area	Loko Waiaho	Unknown age fishpond, (known as Queen Emma's pond, was located near Watertown. The walls were of coral and sand, 6.5 feet wide, 2 feet high, with five outlets (<i>makaha</i>). It covered an area of 32 acres.	Cobb 1905; McAllister 1933:101
95	Hickam AFS West portion of present analysis area	Loko Ke'oki	Was a pond of unknown age near the location of Watertown in Hālawā. It had narrow wall of coral rock and sand. It has been filled in.	McAllister 1933:101
144	Entrance to Pearl Harbor	Site 144, the former location of fish traps and a fishing shrine	Located along both the east and west shorelines of the channel leading into Pearl Harbor.	McAllister 1933:109
9992	Shoreline of Pearl Harbor	Pearl Harbor Naval Base National Landmark	The boundary of the Landmark is described as the harbor and all its shorelines (placed on NRHP 1/29/64)	NRHP form 1978; SHPD web site

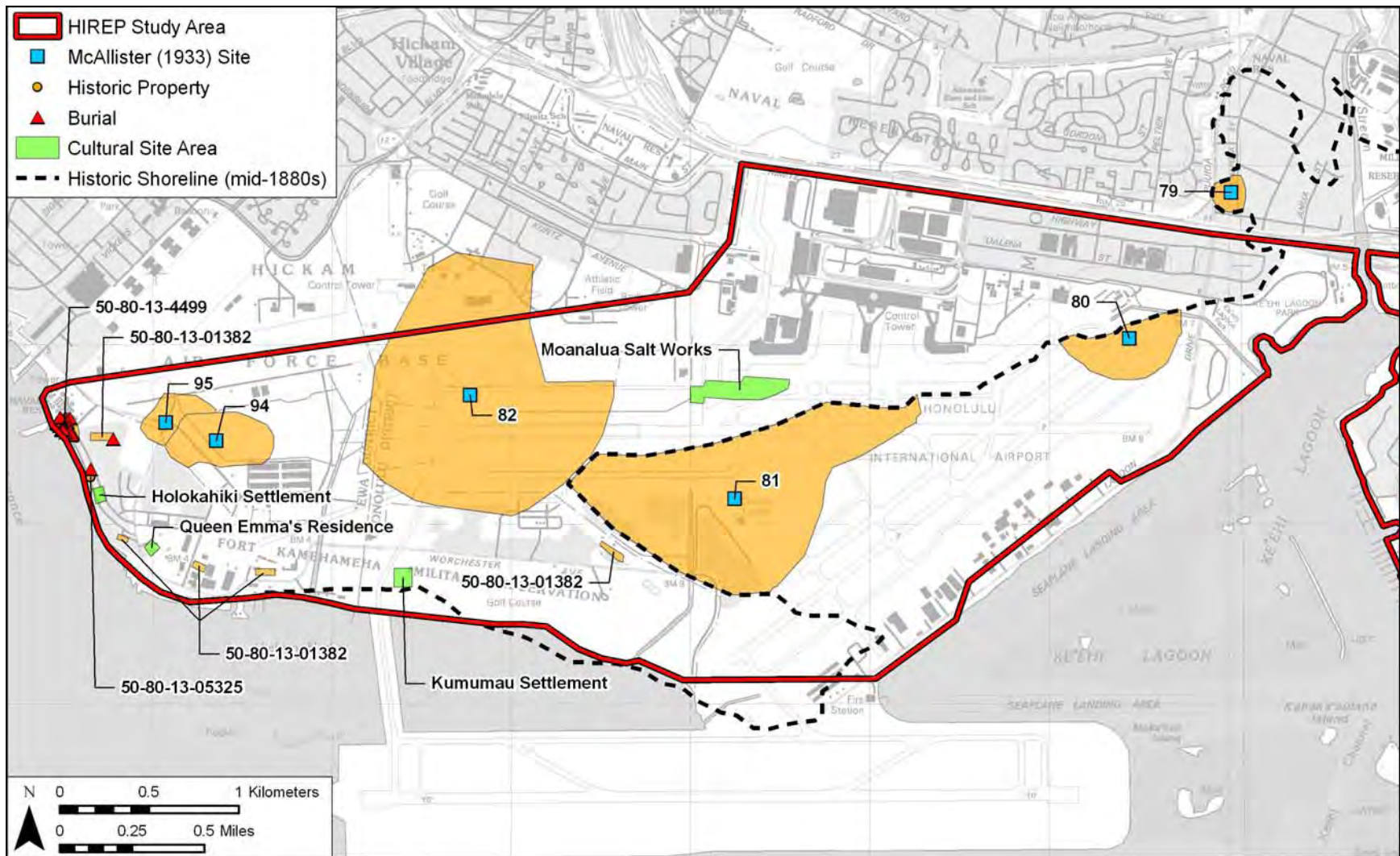


Figure 9. Previously Identified cultural resources of the West Central Pearl Harbor Landing Analysis Area (Pearl Harbor Entrance to Kalihi Stream)

3.10 Summary of Cultural Resources of the West Central Pearl Harbor Landing Analysis Area (Pearl Harbor Entrance to Kalihi Stream)

It is perhaps no surprise that the Fort Kamehameha area on the eastern entrance to Pearl Harbor should have been a logical locus of pre-Contact cultural expression (particularly as a burial ground) but also for twentieth century fortifications. Several discoveries of isolated human burials as well as burial clusters discovered during intense archaeological investigations have been documented within Fort Kamehameha (Rosendahl 1977, Tuggle 1985, Streck and Watanabe 1988, Watanabe 1991, Shun and Schilz 1991, Drolet & Schilz 1992, Drolet 1993 & 1994, Eulberg 1995, Drolet & Schilz 1996, 1997, Drolet 1999a & b, Drolet et al. 1997 and Drolet 2001). These burials appear, however, to be relatively tightly grouped in the Fort Kamehameha area.

Elsewhere in the West Central Pearl Harbor Landing Analysis Area (Pearl Harbor Entrance to Kalihi Stream) there have been few finds and for much of this area the archaeological sensitivity may now be understood as relatively low (Figure 10).

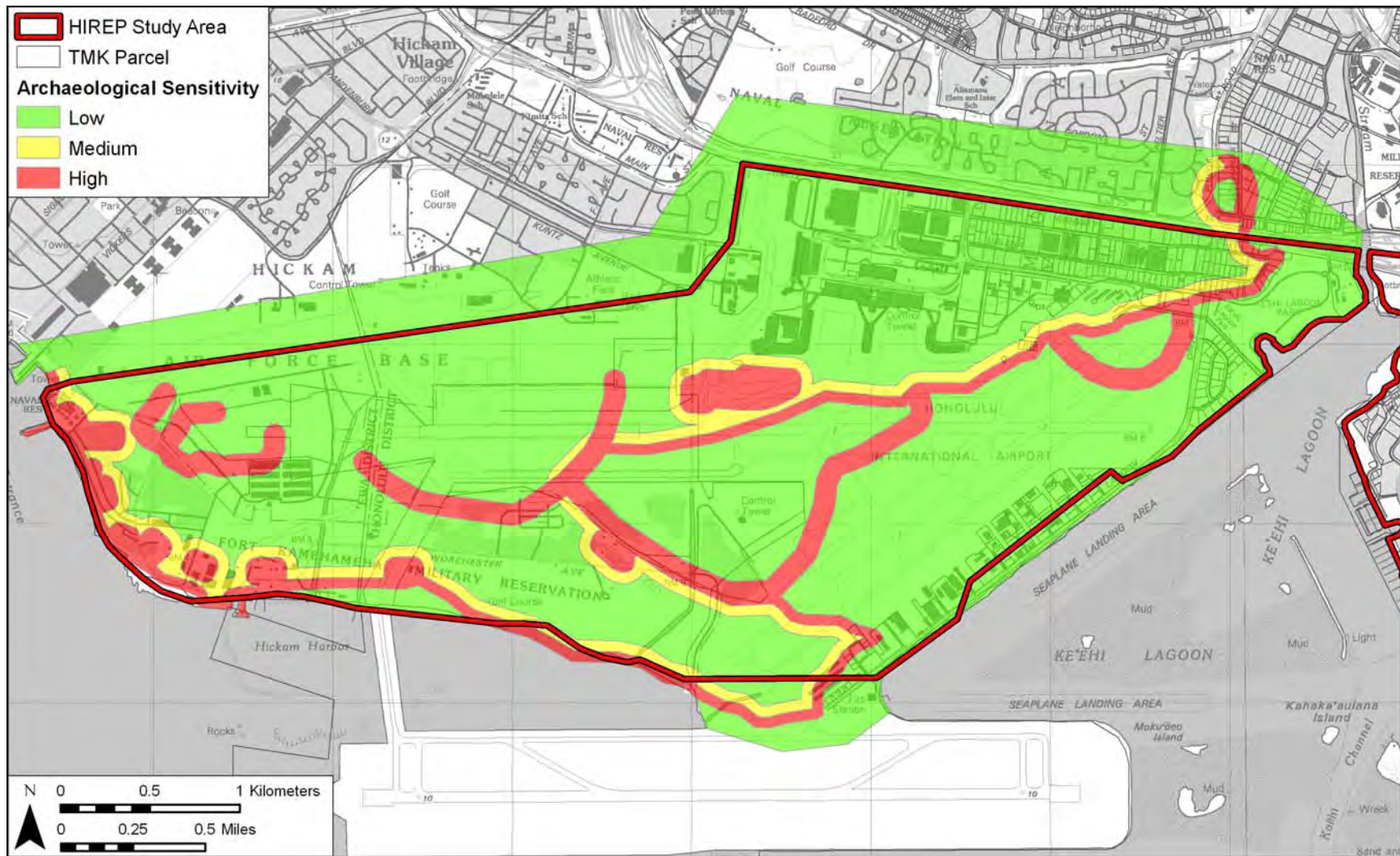


Figure 10. Cultural resource sensitivity map for the West Central Pearl Harbor Landing Analysis Area (Pearl Harbor Entrance to Kalihi Stream)

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3.12 Introduction to Cultural Resources of the East Central Pearl Harbor Landing Analysis Area (Kalihi Stream to Nu'uaniu Stream)

The East Central Pearl Harbor Landing Study Area (Figure 2 and Figure 11) begins at Kalihi Stream at the east side of the Pearl Harbor, and extends through the coastal sections of the *ahupua'a* of Kalihi, Kapālama, and the Iwilei section of Honolulu, west of Nu'uaniu Stream. The inland boundary generally follows Dillingham Avenue, which merges into North King Street near Nu'uaniu Stream. The coast extends from Ke'ehi Lagoon on the eastern side of Honolulu Harbor, to the Kapālama Basin and Channel and the western end of Honolulu Harbor. This analysis area amounts to 947 acres (1.48 square miles or 3.83 square kilometers). Rainfall in the area ranges from 600-800 millimeters (20-30 inches) each year in the coastal portion of Kalihi, Kapālama, and Iwilei (Giambelluca et al. 1986:138). Lands within the study area are relatively level with an elevation of about 3 feet above mean sea level (AMSL). Sediments are predominantly Fill (FL) material, containing areas filled with material dredged from the ocean and hauled from nearby areas (Foote et al. 1972:31). Beneath the fill are small pockets of undisturbed Jaucas Sand. The pre-contact construction of fishponds along the shores provided an anchor for the accumulation of detrital reef sediments. In the post-contact period, when the fishponds were no longer utilized, the ponds became obvious locations for the deposition of fill. The shoreline was modified further during the construction of the Ke'ehi Lagoon and the Kapālama Basin and Channel. Soils of the Ewa series (EmA; Ewa Silty Clay Loam), which developed in basins and on alluvial fans, are found along the inland boundary of the area. In the pre-contact period, habitation and agriculture was concentrated along the streams and adjacent to the large coastal and inland fishponds. Today, this entire area is an urban center, with a dense concentration of shops, warehouses and harbor facilities.

3.13 Previous Cultural Resources Studies in the East Central Pearl Harbor Landing Analysis Area (Kalihi Stream to Nu'uaniu Stream)

There have been relatively few cultural studies in these seaward areas of the East Central Pearl Harbor Landing Analysis Area (Kalihi Stream to Nu'uaniu Stream) (Table 6 and Figure 12). Much of this area was developed into urban and light industrial land use prior to contemporary historic preservation laws. In 1933, J. Gilbert McAllister gave single site numbers to all of Kalihi Valley (SIHP #50-80-13-72) and to Kapālama (SIHP #50-80-13-71). He says of Kalihi, "If any archaeological remains yet exist in Kalihi Valley, they are not known to the Hawaiians," and Kapālama is "'Another region about which it is now difficult to obtain information" (McAllister 1933:88). However, E. Craighill Handy noted that in the 1940s, remnants of an extensive terrace system for irrigated taro cultivation could still be noted in the flatland section of Kalihi Valley and on both sides of Kalihi Stream from the coast to the upper valley. The terrace system in Kapālama was concentrated in the lower valley area between Kapālama and Niuhelewai Stream (Handy 1940:79). Archaeological work in coastal Kalihi and Kapālama has concentrated on the geomorphological analysis of several coastal fishponds, which may have been initially constructed as early as A.D. 1100. These were not only important

resources for food in the pre-contact times, but were considered valuable properties in the nineteenth century, and still considered part of a rich fishery complex into the early twentieth century. Beginning in the 1930s and 1940s, most of these ponds were filled in to make new land adjacent to the new industrial areas along the shore. Archaeological studies have also focused on the inadvertent discovery of burials, usually early historic burials found isolated or near known cemeteries.



Figure 11. Aerial photograph (2009) of the East Central Pearl Harbor Landing Analysis Area (Kalihi Stream to Nu'uauu Stream)

Table 6. Previous Cultural Resources Studies in the East Central Pearl Harbor Landing Analysis Area (Kalihi Stream to Nu'uaniu Stream, Arranged chronologically)

Reference	Type of Investigation	Location	Findings
Cobb 1905	Survey of Fisheries in Hawai'i	Island-wide	Cobb identified five fishponds in Kalihi, Apili, Pāhounui, Pāhouiki, Auiki, and Ananoho. In 1905, Auiki was already partially filled.
McAllister 1933	Archaeological Survey	Island-wide	McAllister mentions that the Hawaiians had no knowledge of any sites in Kapālama in 1930, but he does mention a fishpond listed as Kūwili (Cobb, 1903), which adjoined Kapālama.
Sterling and Summers 1978	Listing of O'ahu Archaeological and Cultural Sites	Island-wide	Gives descriptions and presents map with locations of all Pearl Harbor Fishponds
Neller 1980	Archaeological Reconnaissance	Kapālama Fire Station, Kapālama	Field reconnaissance was conducted during a building renovation to the Pālama Fire Station (SIHP -1302). A massive charcoal deposit was observed in a trench, but its significance was not determined.
Hammatt 1986	Archaeological Reconnaissance	Iwilei & Sand Island	It was concluded that the Sand Island was coral fill and had been extensively altered for industrial and military purposes since World War II. Before the in-filling in the 1920s, this area had been marshland and fishponds.
Dunn Kalima, Kalima, and Goodfellow 1991	Archaeological Monitoring	Pālama Chevron Station, Kapālama	Nine test trenches for pipelines were excavated. Burials, human skeletal remains, and historic artifacts (SIHP -3373) were recorded. The burials were remains from smallpox epidemics in the 1800s
Landrum & Klieger 1991	Literature Review	Middle St. Bus Facility, Kalihi	No field work, but indicates the location of many fishponds in Kalihi.
Chiogioji & Hammatt 1992	Archaeological Assessment	Nimitz Highway, Iwilei	The report notes the location of a possible portion of the Kawa Pond (-5966) wall.
Hammatt and Folk 1992	Burial Report	Middle Street Bus Facility, Kalihi	Three burials (-4525) were found during construction; two were in coffins, and all three are believed to be historic interments.
Folk, Crotty and Hammatt 1993	Archaeological Survey with Testing	Middle Street, Kalihi	During excavation of 19 trenches, three burials were recorded (same as Hammatt and Folk 1992) and designated SIHP 50-80-14-4525. The burials were in a remnant cultural layer.

Reference	Type of Investigation	Location	Findings
Jourdane 1994	Burial Report	Austin St., Kapālama	Human burial (SIHP -4929) found during excavation on Austin Street, probably a historic burial associated with the Kaumakapili Church cemetery.
Chiogioji & Hammatt 1995	Archaeological Assessment	Iwilei and Sand Island	No intact cultural deposits or sediments from marshlands or fishponds had been found, only fill material probably brought in during the 1920s to the World War II era.
Athens & Ward 1997	Archaeological Data Recovery	Liliha Civic Center, Iwilei	Detailed pollen analysis and radiocarbon dating at Kūwili I Fishpond (-5368). Athens and Ward indicate that Kūwili Fishpond was constructed between A.D. 1400-1650. A detailed pollen record, from approximately 8000 B.P. to 2000 B.P. documents environmental conditions in the vicinity in the Holocene prior to Polynesian colonization of Hawai'i.
McGerty Dega, and Spear 1997	Archaeological Inventory Survey with Testing	Liliha Civic Center, Iwilei	Six backhoe trenches, as well as soil cores, were utilized to search for evidence of Kūwili Fishpond and associated architectural features. The field research identified soil layers interpreted as being the remains of Kūwili Fishpond (Site 5368). The research further indicated that the pond may have been constructed as early as A.D. 1100. Also significant were human skeletal remains encountered in the pond-fill material
Moore and Kennedy 1999	Burial Report	Pier 40, Iwilei	A post-Contact in situ burial (SIHP -5581) was disinterred.
McDermott & Mann 2001	Archaeological Inventory Survey	Nimitz Hwy, Iwilei	Fishpond sediments of Kawa Fishpond (SIHP -5966) were found beneath deep layers of historic fill material.
Winieski and Hammatt 2001	Archaeological Monitoring	Nimitz Hwy Sewer	No traditional Hawaiian cultural materials, features, or pre-Contact or post-Contact burials were encountered. Several historic brick alignments, manholes, and a light-gauge trolley rail remnant (Site 5942) were encountered at the intersection of Queen St. and Nimitz Highway. Historic trash was found scattered throughout a fill layer at the intersection of Maunakea Street and Nimitz Highway.
Athens & Ward 2002	Archaeological Coring Project	Auiki & Ananoho Fishponds, Kalihi	Coring at SIHP site -73, indicated that deposits were fill material and any remaining fishpond sediments were significantly disturbed.

Reference	Type of Investigation	Location	Findings
Hammatt, and Shideler 2002	Archaeological Assessment	of the Proposed Middle Street Transit Center Kalihi (TMK: 1-2-18: 1, 2, 3, 8, 9, &10),	Brief field inspection and documentary research indicated that the area was once a marsh pond-field agricultural area in pre-contact times, the potential for traditional Hawaiian or historic habitation cultural deposits were low. One rock and concrete wall was found, which corresponds to a wall found on a 1929 Land Commission Application map.
Mann, and Hammatt 2002	Archaeological Monitoring Report	for the King Street Rehabilitation Project (TMK: 2-1 por. and 1-7 por.),	One burial was recorded during monitoring (SIHP 50-80-14-6371) near the intersection of South King Street and Punchbowl Street, <i>makai</i> of Honolulu Hale (City Hall). A pit feature (no site designation) with butchered animal bones was also found near the corner of South King Street and Richards Street.
West, Ostroff and Roberts 2002	Archaeological Monitoring Report	King Street 24-Inch, (TMK 1-5-006, 1-5-007, 1-5-008, 1-7-026 and 1-7-027)	During monitoring for the King Street Waterline project, one site, a remnant of the Honolulu Rapid Transit railroad ties was found along King Street.
Moore, Bevan, and Kennedy 2004	Archaeological Inventory Survey	for a Property Located at TMK 1-2-21:13 in Kalihi	Coring project indicated lagoonal deposits in location of former site -74, the location of Loko Apili, Loko Pāhonui, and Loko Pāhouiki. However, the deposits were mixed with gravel throughout. Analysis of pollen samples indicated that deposits below the gravel date to a time before the Hawaiians colonized the island, and thus before the time of the construction of the ponds.
Dega, and Davis, 2005	Archaeological Inventory Survey and Subsurface Testing	at the Proposed Middle Street Intermodal Center, [TMKs: 1-2-18:001, 002, 009, and 010],	Excavations were conducted to test for fishpond sediments (Loko Waikulu) but no definitive markers were found. An historic-era refuse pit and associated historic artifacts (mainly bottles dating to the early to mid-20th century) were designated SIHP 50-80-14-6683.
Groza and Hammatt 2008	Archaeological Monitoring Report	Beretania St., between North King and Alapai	No significant finds, but monitoring indicated that undisturbed soil strata could be present in the area.
Hammatt, Hazlett, and Shideler 2008	Data Recovery Report	Iwilei Senior Housing, Iwilei	Pollen and charcoal samples were collected from three sediment samples from Kūwili I Fishpond. Carbon dating indicated the initial construction of the pond was approximately A.D. 1100, which agrees with McGerty et al (1997), but does not agree with Athens and Ward's determination of an initial construction in the A.D. 1400s.

Reference	Type of Investigation	Location	Findings
O'Hare Shideler, and Hammatt 2010	Archaeological Field Inspection	Honolulu Community College, Kapālama	A walk through of the property was conducted and no surface archaeological features remain. No subsurface testing was conducted.
Pammer & Monahan 2011	Archaeological Field Inspection & Limited Subsurface Testing	Kapālama Shopping Center, Kapālama	No surface features present. No cultural materials were found, but <i>lo'i</i> (irrigated taro field lands) wetland sediments were noted below modern fill layers.

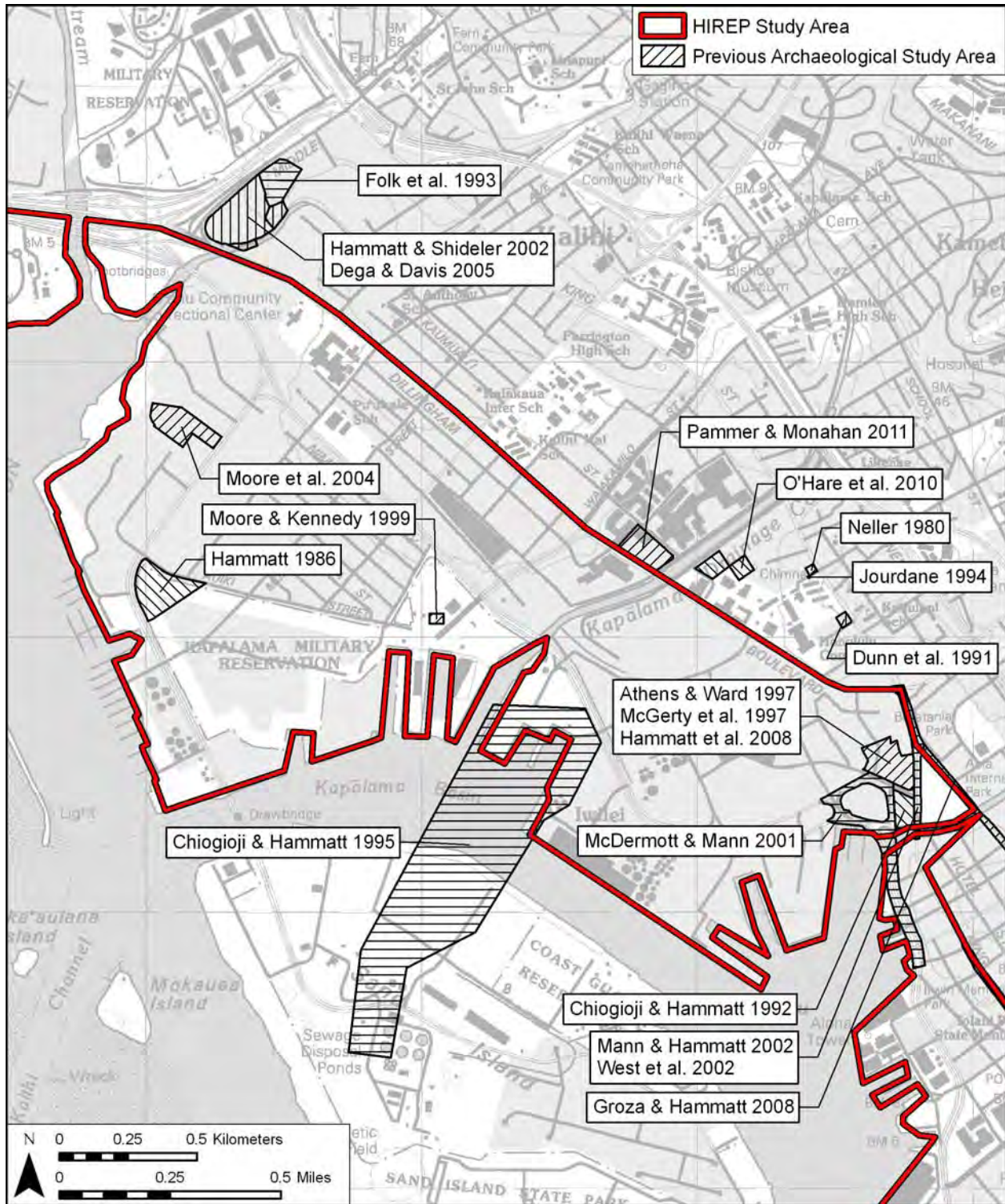


Figure 12. Previous cultural resources studies in the East Central Pearl Harbor Landing Analysis Area (Kalihi Stream to Nu'uanu Stream)

3.14 Previously Identified Cultural Resources of the East Central Pearl Harbor Landing Analysis Area (Kalihi Stream to Nu'uaniu Stream)

Other than fishponds (which did bound most of the coastline of this analysis sub-area) few sites have been identified (Figure 13). We know of only one burial reported from the East Central Pearl Harbor Landing Analysis Area (Kalihi Stream to Nu'uaniu Stream).

It may be noted that there has been significant filling of the coastal flats to create modern Honolulu Harbor (much of the fill understood as dredge spoils). Few archaeological resources would be expected in these seaward recent fill lands.

Table 7. Previously Identified Cultural Resources of the East Central Pearl Harbor Landing Analysis Area (Kalihi Stream to Nu'uaniu Stream)

Site #	General Location Relative to the Project Area	Nature of Site	Status/ Comments	Source
50-80-13-79	Mapunapuna, Moanalua	Awaawaloa Fishpond	Still extant in 1905; Not mentioned by name by McAllister in 1933	Cobb 1905; McAllister 1933; Sterling & Summers 1978
50-80-14-73	Coastal Kalihi	Auiki Fishpond and Ananoho Fishpond	Both fishponds still in use in 1905, but filled in by 1943. Only highly disturbed fishpond sediments were present during coring project in 2002.	McAllister 1933; Sterling & Summers 1978; Athens & Ward 2002
50-80-14-74	Coastal Kalihi	Loko Apili, Loko Pahonui, and Loko Pahouiki	All three fishponds still in use in 1905, but filled in by 1943. Coring of sediments in 2004 could not identify fishpond sediments.	Cobb 1905; McAllister 1933; Sterling & Summers 1978; Moore et al. 2004
50-80-14-75	Coastal Kahauiki	Weli Fishpond	Still extant in 1930s; filled in 1940s for military use	McAllister 1933; Sterling & Summers 1978
50-80-14-4525	Middle Street Bus Facility, Kalihi	Historic Burials (3)	Three historic burials, two in coffins	Hammatt and Folk. 1992; Folk et al. 1993
50-80-14-5368	Coastal Kapālama-Iwilei	Kūwili I Fishpond	Different projects have dated construction of the pond to as early as A.D. 1020 (Hammatt & Shideler 2008; McGerty et al. 1997) and as late as A.D. 1400 (Athens & Ward 1997); Pond filled in the 1890s	Cobb 1905; McAllister 1933; Sterling & Summers 1978; Athens and Ward 1997; McGerty et al. 1997; Moore et al. 2004
50-80-14-5581	Honolulu Harbor, Pier 40	Traditional Hawaiian Burial	Burial was determined to be pre-contact to early historic based on the flexed position	Moore & Kennedy 1999
50-80-14-5966	Coastal Kapālama-Iwilei	Kawa Fishpond	Radiocarbon dating for the pond was inconclusive; pond filled in the 1890s	Sterling & Summers 1981; McDermott & Mann 2001

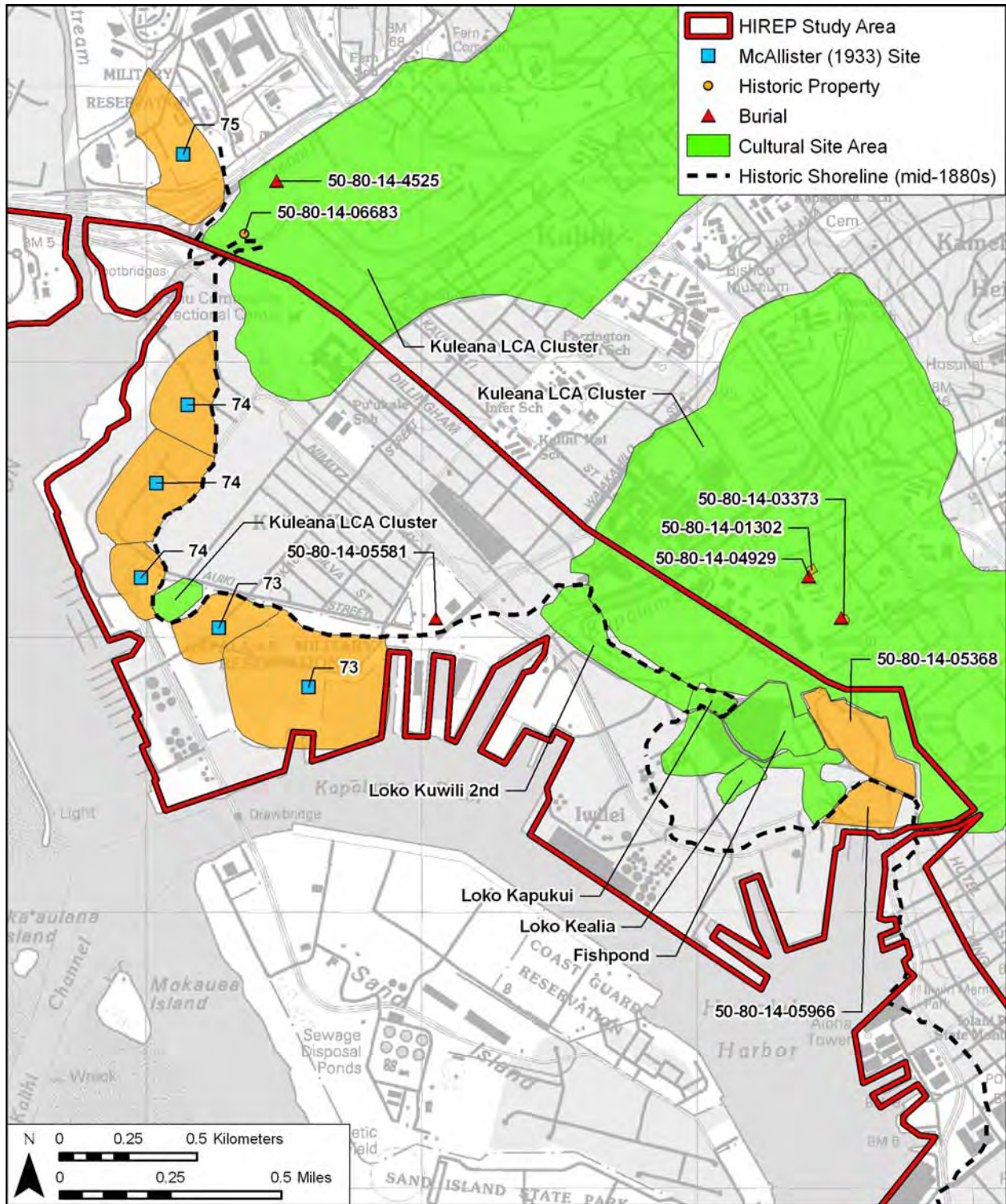


Figure 13. Previously identified cultural resources of the East Central Pearl Harbor Landing Analysis Area (Kalihi Stream to Nu'uuanu Stream)

3.15 Summary of Cultural Resources of the East Central Pearl Harbor Landing Analysis Area (Kalihi Stream to Nu'uaniu Stream)

The Kalihi-Kapālama coastline was almost continuously lined with fishponds most of which were filled in more than a century ago. While the outer walls of these fishponds may well remain largely intact, little of archaeological or cultural concern would be expected in the relatively recent fill in the interior of these former ponds.

There is reason to believe that in pre-Contact and early post-Contact times habitation and agriculture were focused inland of the northwest (Kalihi Stream) and southeast (Niuhelewai or Kapālama Stream) ends of this study area with less activity in-between.

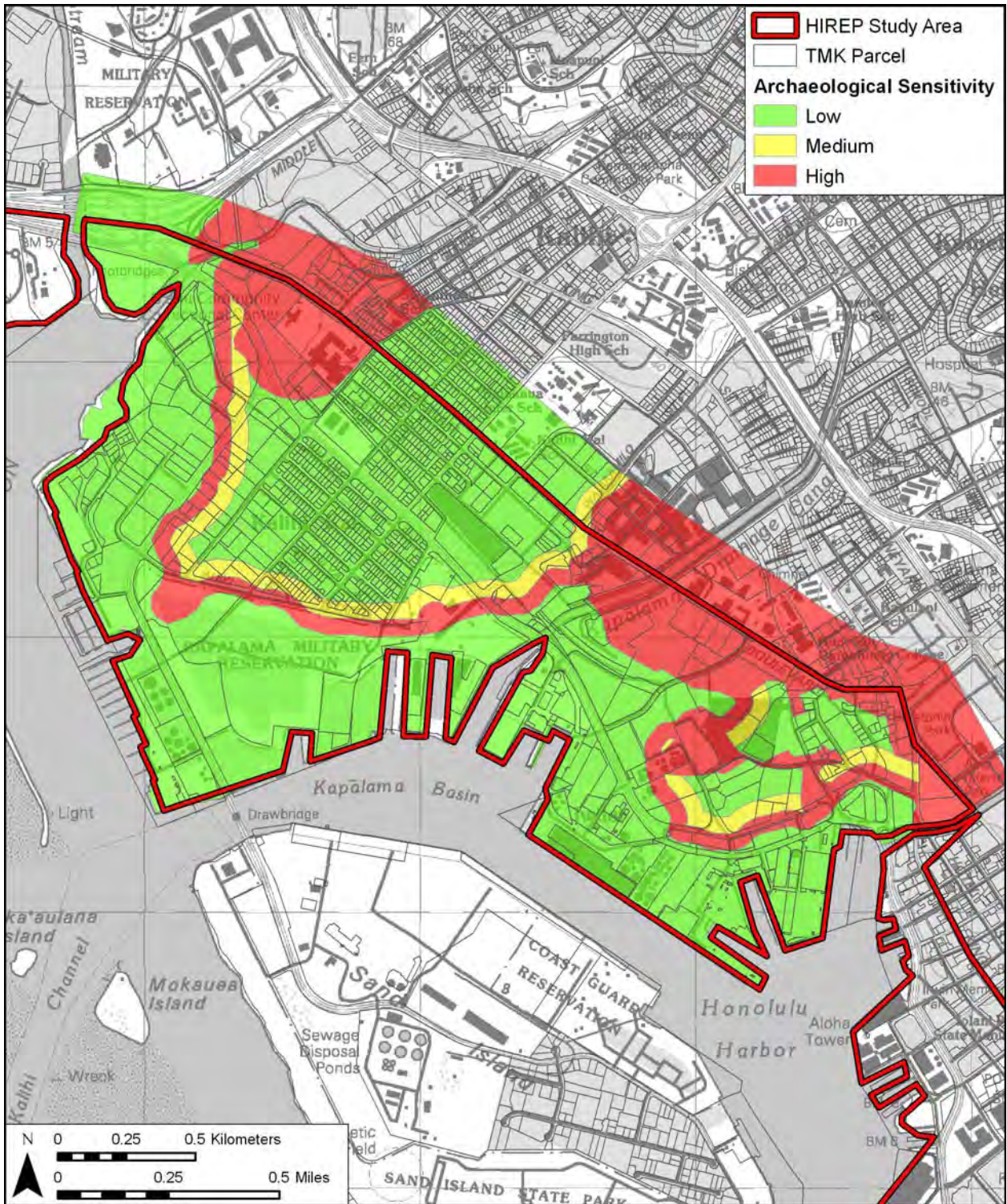


Figure 14. Cultural resource sensitivity map for the East Central Pearl Harbor Landing Analysis Area (Kalihi Stream to Nu'uānu Stream)

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3.17 Introduction to Cultural Resources of the Eastern Pearl Harbor Landing Analysis Area (East of Nu‘uanu Stream)

The Eastern Pearl Harbor Landing Analysis Area (Figure 15) includes the area between Nu‘uanu Stream and Kewalo Basin, including much of downtown Honolulu and most of (western and central) Kaka‘ako, a developmental district of Honolulu Ahupua‘a. This analysis area amounts to 421 acres (0.66 square miles or 1.70 square kilometers). Rainfall in the area ranges from 600-800 millimeters (20-30 inches) annually. In the coastal sections, sediments are predominantly Fill (FL) material, containing areas filled with material dredged from the ocean and hauled from nearby areas. Beneath the fill are small pockets of undisturbed Jaucas Sand. The coastline has been heavily modified by dredging and filling for the construction of Honolulu Harbor, Sand Island, and Kewalo Basin. In the inland sections are found soils of the Ewa series (EmA; Ewa Silty Clay Loam), which developed in basins and on alluvial fans (Foote et al. 1972). The Honolulu area, or Kou, as it was called in pre-contact and early historic times, is understood as a relatively early and fairly intensive area of Native Hawaiian habitation, particularly along the east bank of Nu‘uanu Stream and extending along Honolulu Harbor. Kaka‘ako was not densely inhabited, but it was an important location for salt ponds, fish ponds, and marsh and coastal resources. In the post-contact period (post-1778), the archaeological resources relating to the early growth of Honolulu are often quite rich. In contrast, Kaka‘ako was considered for a long period as outside the boundary of town, and was used as a place for quarantine, trash disposal, and historic burials, which are found in known cemeteries, in clusters, and as isolated burials. Today, the Honolulu and Kaka‘ako sections are mainly commercial areas, with shops, restaurants, and other business establishments.

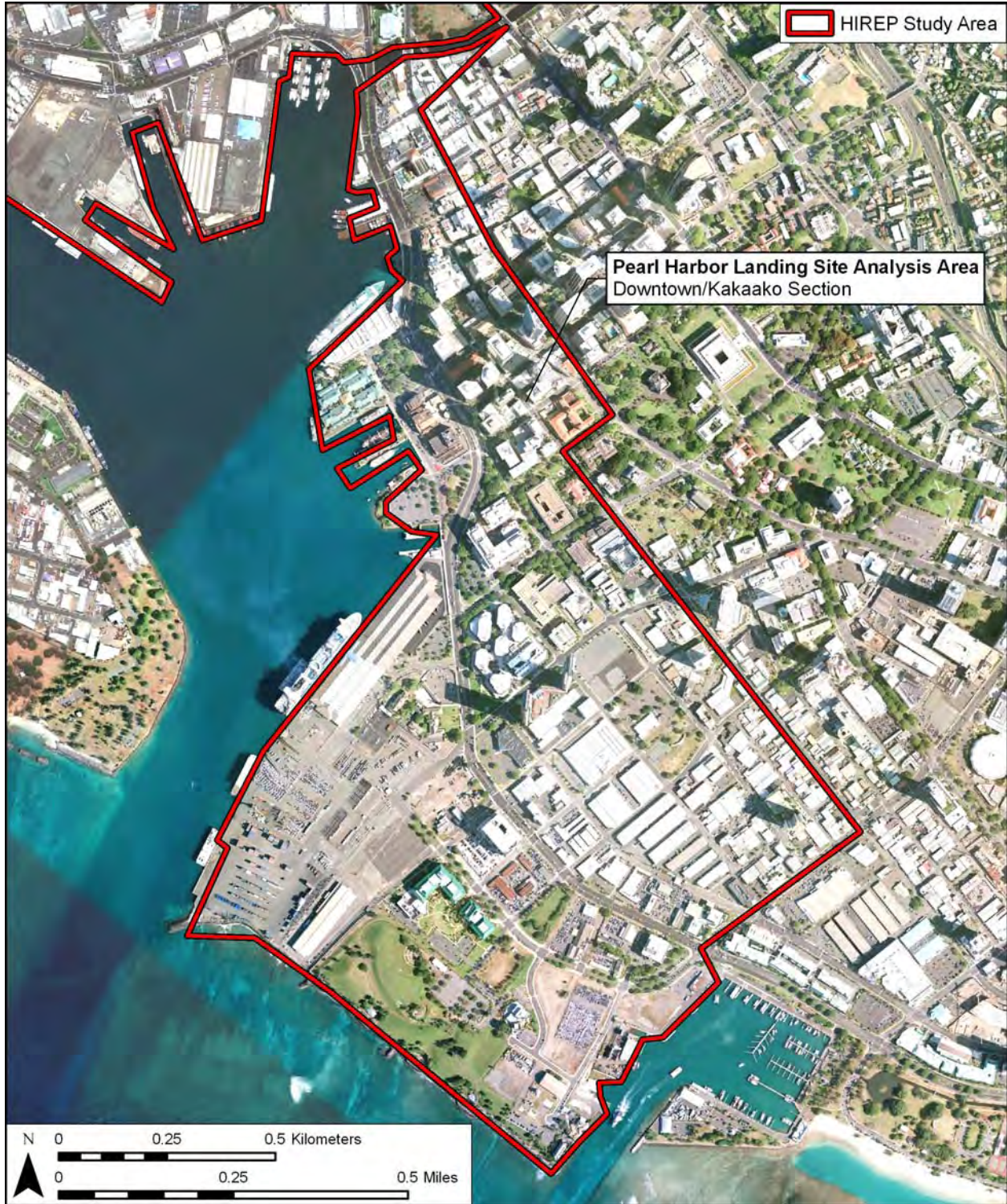


Figure 15. Aerial photograph (2009) of the Eastern Pearl Harbor Landing Analysis Area (East of Nu'uaniu Stream)

3.18 Previous Cultural Resources Studies in the Eastern Pearl Harbor Landing Analysis Area (East of Nu'uānu Stream)

In his 1933 survey of important archaeological sites of O'ahu, McAllister (1933:80) give one site number for all of Honolulu (SIHP 50-80-14-66), and notes that “information regarding sites within the present limits of Honolulu must come entirely from literary sources.” Handy (1940:79) notes that in the 1940s, the extant taro terraces were found *mauka* of the present project, above School Street, although eighteenth and nineteenth century maps indicate that there were once extensive taro fields on both sides of Nu'uānu Stream all the way down to the coast. The early Hawaiian scholar, John Papa 'Ī'ī (1959:65) described large fields for dryland crops, such as sweet potatoes and yams, even lower down, nearly to Beretania Street above the town of Honolulu. Kaka'ako was once a large marsh, too salty for agriculture, but well suited for the construction of fishponds and salt ponds. In the early historic period, the production of salt became a commercial enterprise, and large sections of Kaka'ako were modified to form a grid of salt evaporation pans. Several large archaeological projects have excavated entire blocks in downtown Honolulu, such as at Harbor Court, Nu'uānu Court, and Marin Tower (Goodwin et al. 1992, 1995, 1996; Hurst and Allen 1992, Lebo 2002, Lebo et al. 1997, and Lebo and McGuirt 2000a, 2000b). These have led to our understanding concerning the growth in size, complexity, and importance of Honolulu and Honolulu Harbor from pre-contact times to the modern era. Cultural deposits in Honolulu have been dated to A.D. 1200, although the majority of deposits date to the time period in the decades after Western Contact (1778), when Honolulu became a great port of call and commercial destination for the Pacific trade. In Kaka'ako, archaeologists have recorded many historic trash deposits dating to the late nineteenth and early twentieth century, when the former marsh areas were filled with soil and trash. As a place outside the eastern boundary of Honolulu, Kaka'ako was considered a place for quarantine and burial, and before formal burial laws in regard to cemeteries were established in the early twentieth century, local inhabitants used their own land or unused land to bury their relatives. Archaeologists have identified several areas with early historic burial clusters, and have also reported on isolated burials dating to both the pre-contact and post-contact periods.

Table 8. Previous Cultural Resources Studies in the Eastern Pearl Harbor Landing Analysis Area (East of Nu'uano Stream, Arranged chronologically)

Reference	Type of Investigation	Location	Findings (SIHP site # 50-80-14-)
Ota and Kam 1982	Osteological Analysis of Human Remains	State Office Bldg., Kaka'ako	Makai Parking Garage; 6 partial burial sets (-2963) found. Tooth evulsion indicates probable pre-Contact to 1850 date
Kennedy 1984	Archaeological Subsurface Testing	Parking lot at Bethel and Hotel Streets	No intact cultural deposits were found. Old basements had been bulldozed and filled with soil in the 1960s.
Yent 1985	Burial Excavations report	Honolulu Ironworks Construction Site	Ka'ākaukui Cemetery (-2918) at the Honolulu Iron Works project area; 5 burials (-2918) recorded
Athens 1986	Archaeological Monitoring Report	Judiciary Parking Garage, Kaka'ako	Historic deposits (-3984) with artifacts dating late nineteenth-early twentieth centuries were recorded.
Clark 1987	Archaeological Monitoring Report	Makai Parking Garage, Kaka'ako	Seven burials (-2963) found probably, dating to pre -1850
Griffin, Keene and Kennedy 1987	Burial Finds during Archaeological Monitoring	Ka'ākaukui Cemetery, Kaka'ako	Background research and predictive models; reports on an additional 3 burials at Ka'ākaukui Cemetery (-2918) (for location see Yent 1985)
Davis, Cox, Sox and Neller 1988	Archaeological Monitoring Report	Ka'ākaukui Cemetery, Kaka'ako	No additional human burials were found in the area surrounding Ka'ākaukui Cemetery (site -2918) (for location see Yent 1985)
Leidemann 1988	Archaeological Monitoring Report	Judiciary Parking Garage, Kaka'ako	Monitoring at Federal parking lot; historic deposits (-1973) found
Wong-Smith and Rosendahl 1990	Historical Assessment	Aloha Tower	No field work.
Chiogioji and Hammatt 1991	Archaeological Assessment	Ilaniwai and Halekauwila block, Kaka'ako	Field inspection only.
Douglas 1991a	Burial Finds during Archaeological Monitoring	Coral & Queen St.	Coral and Queen Street area: 1 burial recorded (-4380)
Douglas 1991b	Burial Finds during Archaeological Monitoring	Coral & Queen St.	Coral and Queen Street area: 8 burials (-4380) recorded and 5 disinterred
Kamakau 1991	<i>Heiau</i>	Coastal Honolulu and Kaka'ako	Kamakau mentions two <i>heiau</i> in the coastal Honolulu-Kaka'ako area, Pākākā Heiau, near the junction of Fort and Queen streets, and Pu'uhea Heiau, possibly in Pu'uhea 'Ili (near the junction of Cooke and Ilaniwai streets).
Kawachi 1991	Archaeological Monitoring Report	Queen Emmalina Tower, Kaka'ako	One human skull and one femur (-1604) were found in the backdirt pile

Reference	Type of Investigation	Location	Findings (SIHP site # 50-80-14-)
Goodwin, Pietruszewsky, Douglas, and Ikehara-Quebral 1992	Archaeological Monitoring & Data Recovery	Marin Tower, Smith & Maunakea streets, Honolulu	The findings revealed a 200-plus year occupation, with the dominant features the early 19th century Don Marin residential compound and the post-1860 Honolulu Iron Works. Seventeen burials were encountered. All features were identified as Site 50-80-14-4494.
Hurst & Allen 1992	Archaeological Monitoring and Inventory Survey	Harbor Court, Bethel St., Honolulu,	SIHP site-2456, a subsurface cultural layer containing both pre- and post-contact elements was recorded. The cultural layer contained primarily post-contact features (i.e., building foundation ruins) associated with 19th century urban development; however, both pre- and post-contact artifacts were also observed. Pre-contact traditional Hawaiian artifacts included: basalt and volcanic glass flakes and modified marine shell; Post-contact artifacts included: 19th century bottles and ceramics.
Landrum and Dixon 1992	Mitigation Work	River St. & Nimitz. Hwy.	Five post-Contact-era pit and trash dump features, and a single human burial (Site 4192) were found.
Avery and Kennedy 1993	Inadvertent Burial Finds	South St. Building Complex, Kaka'ako	Monitoring at 1853–1854 Honuakaha Smallpox Cemetery (-3712); 3 historic burials initially recorded and 6 additional burials listed in revised report
Denham and Kennedy 1993	Capitol District, Beretania to Halekauwila Street, Honolulu	Archaeological Monitoring	Recorded nine scattered historic pits in a three-block area of the Capitol District. All these historic pits were designated features of SIHP site -4606. A cluster of 11 features, SIHP site -4605 was noted near the corner of Mililani and Halekauwila streets. Including 1 historic trash pit, 6 postholes, 2 firepits, 1 ditch, and 1 burial. The ethnicity of date of interment for the burial could not be determined due to the disturbed nature.
Dunn and Rosendahl 1993	Archaeological Inventory Survey with Subsurface Testing	Nu'uaniu Court, Nu'uaniu & Bethel streets, Honolulu	A large cultural deposit (Site 2456), pre-and post-Contact, was encountered with 19 features. The features included 11 probable postholes, a basin-shaped pit, a post-Contact ash lens, an historic foundation wall, a disturbed wall or curbing section, an historic wall with a filled in basement, an historic pipe trench, and two historic floors associated with prior buildings on the parcel. Land use in the project area was estimated from A.D. 1250 to the present.
Hammatt and Pfeffer 1993	Archaeological Inventory Survey	Honolulu Brewery Site, Kaka'ako	Subsurface Inventory Survey; found 31 burial pits from the 1853–1854 Honuakaha Smallpox Cemetery (-3712) and 3 refuse pits associated with the Honolulu Brewing Co. (-9917)

Reference	Type of Investigation	Location	Findings (SIHP site # 50-80-14-)
Pfeffer, Borthwick and Hammatt 1993	Archaeological Monitoring Report	Kaka'ako ID-1 roads, Kaka'ako	Monitoring for Kaka'ako ID-1; 31 burials from 1853–1854 Honuakaha Smallpox Cemetery (-3712) at Quinn Lane, 1 historic burial from Punchbowl Street (-4532), 1 possibly pre-Contact burial from Halekauwila Street (-4533), and 116 historic burials from Kawaiaha'o Cemetery (-4534) at Queen Street (used from 1825–1920)
Erkelens, Pietruszewsky, Ikehara-Quebral, and Sava 1994	Burial Report	Keakaulike Revitalization Project, Diamond Head Block	Report on burials from SIHP site -4875; the remains were too fragmentary to date
Kennedy, Brennan, Denham, Ireland, Moore, and Riley 1994	Archaeological Inventory Survey	Keakaulike Revitalization Project, 'Ewa Block	A fishpond (SIHP -4587) and a multi-component site (SIHP #50-80-14-4588) dating from the pre-Contact period were recorded.
Goodwin and Allan 1995	Archaeological Data Recovery	Keakaulike Revitalization Project, Diamond Head Block	Further data recovery at SIHP site -4875. A total of 8,552 artifacts were collected, associated with a variety of ethnic origins (traditional Hawaiian, Euro-American, and Asian).
Goodwin, Pietruszewsky, Douglas, and Ikehara-Quebral 1995	Archaeological Inventory Survey: Burial Report	Marin Tower, Smith & Maunakea streets, Honolulu	The entire project area was designated SIHP site -4494, which consisted of 28 post-contact burial features and the remains of several displaced human skeletal remains, pre-contact fire pits, and early post-contact structural foundations associated with the residence of the Marin family from about 1810 to 1850.
McGerty et al. 1995		Hotel St. between Maunakea & Smith streets	Documentary Research and a brief field check
Riley, Kennedy, Ireland, and Yoshifuku 1995	Archaeological Data Recovery	Keakaulike Revitalization Project, 'Ewa Block	Further research at SIHP sites 4587 and 4588.
Goodwin Beardsley, Wickler, and Jones 1996	Archaeological Inventory Survey and Data Recovery	Marin Tower, Smith & Maunakea streets, Honolulu	The study resulted in a documentation of the occupation and lifestyle in this area from the pre-Contact period to the present, with all cultural material as part of SIHP site -4494. Over 50 boxes of excavated materials were examined during the analysis stage; materials included historic artifacts, lithics, and sediment samples.
Winieski Kalima and Hammatt 1996	Archaeological Monitoring Report	Honuakaha Housing project	Monitoring at the Honuakaha Housing project; 27 burials from 1853–1854 Honuakaha Smallpox Cemetery (-3712) were disinterred (11 sets previously located in Hammatt 1993)
Goodwin 1997	Archaeological Inventory Survey	Keakaulike Revitalization Project, Diamond Head Block	A multi-component site (SIHP -4875) dating to the 13 th century was found; four burial were also present

Reference	Type of Investigation	Location	Findings (SIHP site # 50-80-14-)
Heidel & Hammatt 1997	Archaeological Subsurface Testing	Corner of Hotel & Maunakea streets	No cultural deposits found in four backhoe trenches
Lebo, Klieger, Clark, Hartzell, Lennstrom, Dixon, Riford, and Tam Sing 1997	Native Hawaiian and Euro-American Culture Change in Early Honolulu Historical study	Harbor Court, Bethel St., Honolulu	Work on the project area provided information on Native Hawaiian occupations of the village of Kou/Honolulu from the late 18th to mid 19th century (SIHP site -2456). Thirty-five new post-contact features were described from the project area first reported in Dunn and Rosendahl 1993. Fifty boxes of artifacts were recovered including bottles, ceramics, glass beads, buttons, metal nails, adzes, basalt and volcanic glass flakes, fish hook blanks, bone awls, and hammer and grinding stones.
Lebo and McGuirt 2000a	Archaeological Inventory Survey and Data Recovery	800 Nu'uauu Ave, Honolulu	One historic property was documented (SIHP site -5496), a subsurface cultural layer containing both pre- and post-contact archaeological features.
Lebo and McGuirt 2000b	Archaeological Data Recovery	800 Nu'uauu Ave, Honolulu	Additional components of SIHP site -5496 subsurface cultural layer containing both pre- and post-contact archaeological features were recorded.
Winieski & Hammatt 2000	Archaeological Monitoring Report	Kaka'ako ID-3 and Kauhale Housing, Kaka'ako	No burials or cultural deposits; old "A" horizon in 4 of 5 trenches in the Kauhale portion but 20 human burials (Sites -4380 and -5820) found near Queen and South streets . 9 burials found at the Pohulani Housing area (-4380) and 11 human burials (-5820) found at Mother Waldron Park (site -1388) At least two were interred in the post-Contact period.
Borthwick and Hammatt 2001	Archaeological Monitoring Report	Kaka'ako ID-6 roads, Kaka'ako	No cultural materials were found during monitoring. Fill material was found over tidal flats.
Winieski and Hammatt 2001a	Archaeological Monitoring Report	Kaka'ako Fire Station, (TMK [1] 2-1-31:18)	Monitoring for geotechnical sampling at Kaka'ako Fire Station (-1346); no cultural remains found
Winieski and Hammatt 2001b	Archaeological Monitoring Report	Nimitz Hwy. Sewer Project, Honolulu	One historic property was encountered, a remnant of a light-gauge rail associated with the historic Honolulu Rapid Transit trolley system (SIHP site -5942) at the intersection of Queen Street and Nimitz Highway.
Lebo 2002	Archaeological Data Recovery	Harbor Court, Bethel St., Honolulu	Radiocarbon analysis of the SIHP site -2456 pre-contact deposits indicated that occupation at the site began between A.D. 1000 and A.D. 1200.
Mann and Hammatt 2002	Archaeological Monitoring Report	King Street Alignment, Honolulu and Kaka'ako	One burial (-6371) found, possibly post-Contact due to presence of historic artifact

Reference	Type of Investigation	Location	Findings (SIHP site # 50-80-14-)
West, Ostroff and Roberts 2002	Archaeological Monitoring Report	King Street 24-Inch, (TMK 1-5-006, 1-5-007, 1-5-008, 1-7-026 and 1-7-027)	During monitoring for the King Street Waterline project, one site, a remnant of the Honolulu Rapid Transit railroad ties was found along King Street. This site was not found within the Kaka'ako portion of the Project area
Perzinski and Hammatt 2004	Archaeological Inventory Survey	Kaka'ako Fire Station, Kaka'ako	Monitoring of geotechnical borings at the Kaka'ako Fire Station (site -1346), no cultural material was found in 12 test trenches
Putzi and Dye 2004	Archaeological Monitoring Report	Ali'iolani Hale and Kapuiwai Bldg, Honolulu	Documented one trash pit with historic artifacts, possibly dating to historic occupation before the construction of the Kapuiwai Bldg in 1884. The feature was not designated as a separate site.
Cordy and Hammatt 2005	Archaeological Monitoring Report	Punchbowl St. Improvements, Kaka'ako	No historic properties were noted.
Perzinski, Tulchin and Hammatt 2005	Archaeological Inventory Survey	Queen Emmalina Tower, Kaka'ako	Two isolated human bones (-1604) and remnants of historic occupation (-6766) were recorded
Tulchin and Hammatt 2006	Archaeological Subsurface Investigation	Kawaiaha'o Churchyard (-4534)	Two trenches excavated in the Kawaiaha'o Cemetery (-4534) <i>mauka</i> of Queen Street; 13 burial pits with coffins were recorded, but no burials were disinterred
Stein, Bush and Hammatt 2007	Archaeological Monitoring Report	Kaka'ako Fire Station, Kaka'ako	Monitoring during demolition and construction of new structures at the Kaka'ako Fire Station lot (-1346): no findings
Hazlett, Fehrenback, and Hammatt 2008a	Archaeological Monitoring Report	Aloha Tower Drive Water Main, Honolulu	No historic properties were encountered during project construction. Observed stratigraphy consisted entirely of fill associated with modern and utility construction, as well as historic land filling activities associated with the expansion of Honolulu Harbor.
Hazlett, Monahan and Hammatt 2008b	Archaeological Monitoring Report	Keola Lai Condo, Kaka'ako	Monitoring at Queen Emmalina project; 2 human skeletal elements found (-1604)
McElroy 2008	Archaeological Assessment with limited testing	Two parcels <i>makai</i> of Ala Moana Blvd.	Four test pits were excavated. No cultural features or deposits were found
O'Hare, Tulchin, Borthwick and Hammatt 2009a	Inventory Survey Plan with limited testing	Former CompUSA parcel, Kaka'ako	Five test trenches excavated in Kamehameha Parcel Block E (CompUSA). No cultural material found
O'Hare, Tulchin, Borthwick and Hammatt 2009b	Inventory Survey Plan with limited testing	Three parcels <i>makai</i> of CompUSA parcel, Kaka'ako	Thirteen test trenches excavated in Kamehameha Parcel Blocks A and B. No cultural material found
Tulchin, T. Altizer, Borthwick and Hammatt 2009a	Archaeological Assessment with limited testing	Halekauwila Place, Kaka'ako	Eighteen test trenches were excavated; no pre-Contact material was recorded; numerous historic artifacts, such as bottles and ceramics were found, dating to the late-nineteenth-early twentieth century

Reference	Type of Investigation	Location	Findings (SIHP site # 50-80-14-)
Pammer and Hammatt 2010a	Inventory Survey Plan with limited testing	Former CompUSA parcel, Kaka'ako	For an inventory survey plan, 14 trenches were excavated on Block E and 20 cores were excavated through the building foundation. No pre-Contact cultural layers were found
Pammer and Hammatt 2010b	Archaeological Assessment	Former CompUSA parcel, Kaka'ako	The results of testing at Block E from O'Hare et al. 2009a and Pammer and Hammatt 2010 were presented in full. Includes analysis of glass bottles, ceramics, and other historic artifacts found in fill layers
Pammer, Fong, and Hammatt 2011	Archaeological Inventory Survey	Block 2 parking lot, Kaka'ako	Additional testing in Block A. Four sites were identified, site 7124, early to late building structure remnants, 7189, a burnt early 20 th century trash layer, 7190, salt pan remnants, and 7197, a pre-and post contact cultural deposit, dated to A.D. 1735-1805.

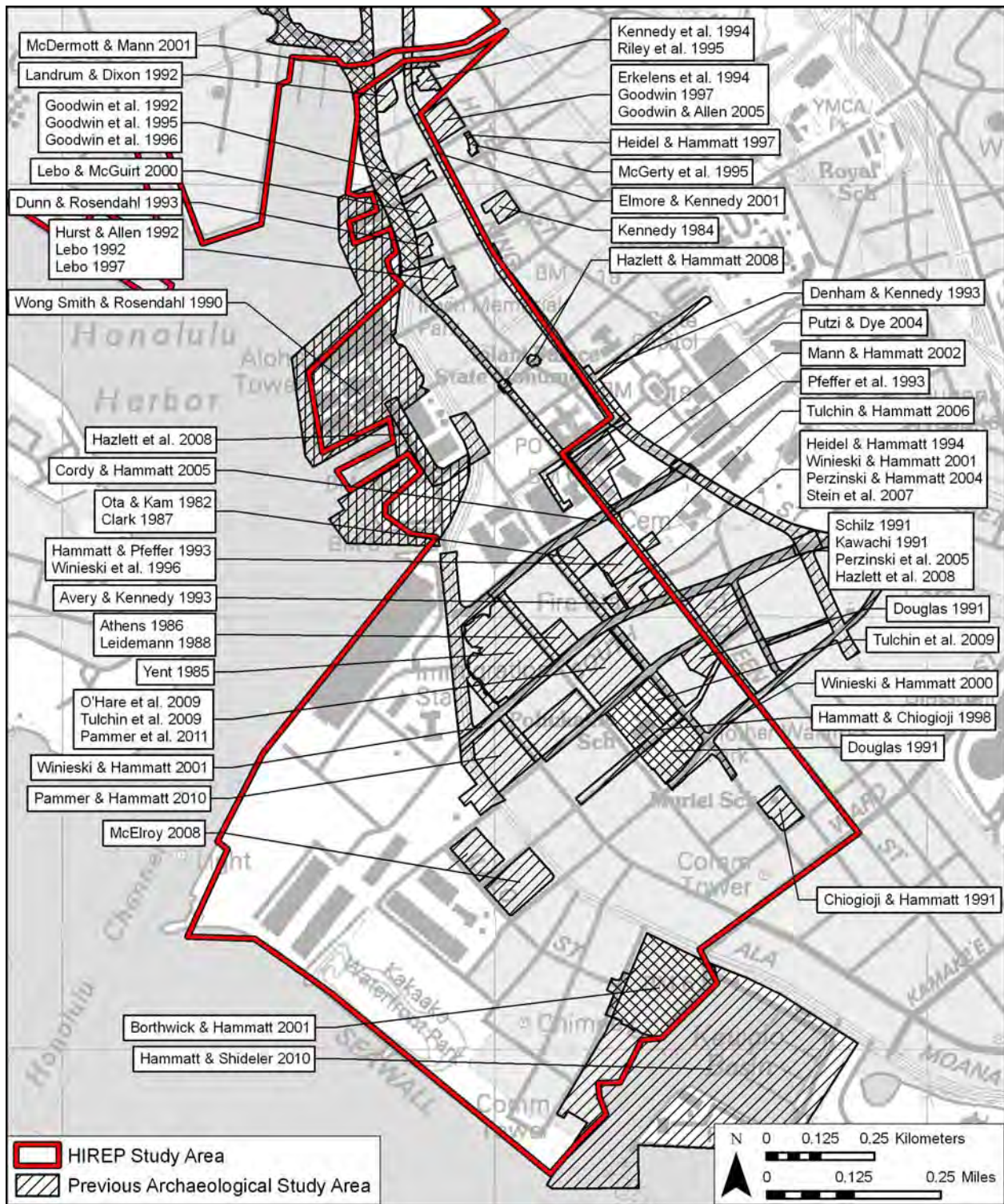


Figure 16. Previous cultural resources studies in the Eastern Pearl Harbor Landing Analysis Area (East of Nu‘uanu Stream)

3.19 Previously Identified Cultural Resources of the Eastern Pearl Harbor Landing Analysis Area (East of Nu'uaniu Stream)

In downtown Honolulu (Table 9), historic properties including historic structures, which have been placed on the National Register of Historic Places as part of the Chinatown District (SIHP #50-80-14-9986), the Merchant Street District (SIHP #50-80-14-9905), and the Capitol District (SIHP # 50-80-14-1307 and 1321), or placed on the National or State Registers with individual site designations for specific structures. Several of these date to the mid to late nineteenth century, such as the Melchers (built 1854) in the Merchant Street District, the oldest commercial building in Honolulu, and the Kawaiaha'o Church, built in 1842, and considered part of the Capitol District. There are also a few buildings on the National Register in the Kaka'ako area, such as the Kaka'ako Pumping Station, built in 1900 ((SIHP #50-80-14-9710).

Archaeological sites in Honolulu are dominated by nineteenth and twentieth century historic cultural deposits, but deposits dating to the pre-contact period and early post-contact period (post 1778) have also been found beneath fill layers under demolished older structures, such as those found for the construction of Harbor Court (SIHP #50-80-14-2456), and the Marin Tower (SIHP #50-80-14-4494). Kaka'ako is also known for historic artifact deposits, although later in date, and for numerous burials, usually dating from the mid-nineteenth century to the turn of the century. Two large cemeteries, Kawaiaha'o Cemetery (SIHP # 50-80-14-1321), and the Honuakaha Small pox Cemetery (SIHP # 50-80-14-3712), are within the Kaka'ako District.

Table 9. Previously Identified Cultural Resources of the Eastern Pearl Harbor Landing Analysis Area (East of Nu'uaniu Stream)

Site # 50-80- 14	General Location Relative to the Project Area	Nature of Site	Status/ Comments	Source
1307	Richards to Punchbowl; Beretania to King	Hawaii State Capitol Bldg. and Grounds	Includes: Hawai'i State Library, Hawaiian Electric Company, Kamehameha Statue, Mission Memorial Building, State Capitol/Grounds, State Tax Office, Territorial Office Building, YMCA, YWCA, Honolulu Hale Grounds (several cross listed with SIHP # 1321). NRHP 12/1/1978	SHPD Web Site
1321	Richards to Punchbowl; Beretania to King	Honolulu Capitol District	Includes: 'Iolani Palace Grounds (Hawaii State Capitol Bldg. and Grounds, 'Iolani Palace and grounds, 'Iolani Barracks, Coronation Stand, Pohukaina Royal Tomb), Kanaina Bldg (Old Territorial Archives), Hawai'i State Library, Hawaiian Elec. Co. Office, King Kalākaua (Federal) Bldg, Ali 'iolani Hale, Kamehameha Statue, Kekuaaoa (Territorial) Bldg, Kapuaiwa Bldg, Kawaiaha'o Church, Lunalilo Tomb, Hale Auhau (Tax Office). NRHP 12/1/1978	SHPD Web Site

Site # 50-80- 14	General Location Relative to the Project Area	Nature of Site	Status/ Comments	Source
1346	Kaka'ako Fire Station, South and King, Kaka'ako	Historic Property	Early historic burials (Honuakaha 1854-54 Smallpox Cemetery) found in this area were designated part of Site- 3712 ; No historic deposits associated with the fire station itself, built in 1929, have been found during three projects. HRHP 2/8/2004	Winieski and Hammatt 2001a; Perzinski and Hammatt 2004; Stein, Bush and Hammatt 2007
1357	Alakea & Merchant	Joseph W. Podmore Bldg	1905. NRHP 3/24/1983	SHPD Web Site
1388	Mother Waldron Park, South and Halekauwila, Kaka'ako	Historic Property	Burials found in this area were designated site 5820; there were no historic deposits directly associated with the park, built in 1937. HRHP 6/9/1988	Winieski and Hammatt 2000
1604	Queen Emmalina Tower, South and King Streets, Kaka'ako	Burials, possibly pre- contact	One human skull and one femur reported from a backdirt pile in 1991; Two isolated human bones reported in 2005 and two additional isolated elements reported in 2007; unknown interment date; 4 individuals represented	Kawachi 1991; Perzinski, Tulchin, and Hammatt 2005; Hazlett, Monahan, and Hammatt 2008
1973	Judiciary Parking Garage, Kaka'ako	Historic deposit of bottles and ceramics	Bottles dated from late 19th to early 20th century	Leidemann 1988
2456	Harbor Court, Honolulu	Pre-contact and Historic Cultural Deposit	Historic artifacts dating from Contact (1778) to the present were analyzed. A total of 113 features were associated with the a pre-contact deposit. Radiocarbon analysis suggested occupation of the area as early as A.D. 1000-1200	Hurst and Allen 1992; Dunn and Rosendahl 1993; Lebo 1997, Lebo 2002
2918	Waterfront Towers (formerly Honolulu Ironworks), Punchbowl & Pohukaina, Kaka'ako	Five to eight early historic burials	Cluster of burials, designated the Ka'ākaukui Cemetery by archaeologists (not an historic name), used from the early 1700s to the early 1800s; entire extent of burial cluster and number of burials unknown	Yent 1985; Griffin, Keene, and Kennedy 1987, Davis et al. 1988

Site # 50-80- 14	General Location Relative to the Project Area	Nature of Site	Status/ Comments	Source
2963	State Office Bldg. and Makai Parking Garage, Punchbowl & Halekauwila, Kaka'ako	13 pre-contact to early historic (pre 1850) burials	Pre-contact and or early historic (pre-1850) burials found near the former 'Auwaiolimu fishpond (present in 19th century)	Ota & Kam 1982; Clark 1987
3712	Honuakaha 1853-54 Smallpox Cemetery	Cemetery for victims of the 1853 smallpox epidemic	A total of 87 burials have been recorded and 62 disinterred, but the entire cemetery may contain several hundred additional burials.	Avery & Kennedy 1993; Hammatt and Pfeffer 1993; Pfeffer, Borthwick and Hammatt 1993, Winieski, Kalima, and Hammatt 1996
3984	Judiciary Parking Garage, Kaka'ako	Historic deposit of bottles and ceramics	Bottles dated from late 19th to early 20th century	Athens 1986
4192	River St. and Nimitz Hwy. junction area	Historic trash pits, and one pre-contact burial	Four historic trash pits, a brick and mortar foundation, and one burial	Landrum and Dixon 1992
4380	Coral and Queen streets, Pohulani Housing, Kaka'ako	Nine burials, possibly pre-contact	Cluster of burials of unknown age	Douglas 1991a, 1991b; Winieski & Hammatt 2000; Winieski and Hammatt 2000
4494	Marin Tower, Smith & Maunakea, Honolulu	Early historic to modern cultural deposit, and 28 early historic burials	Historic deposit and structural remains dating from the contact period (ca. 1778) to the present; twenty-eight historic burials in this area were given the same site number.	Goodwin et al., 1992, 1995, 1996
4532	Kaka'ako ID-1 roads, King to Ala Moana, Kaka'ako	One historic burial	Isolated burial at Punchbowl Street	Pfeffer, Borthwick and Hammatt 1993

Site # 50-80- 14	General Location Relative to the Project Area	Nature of Site	Status/ Comments	Source
4533	Kaka'ako ID-1 roads, King to Ala Moana, Kaka'ako	One burial, possibly pre- contact	Isolated burial at Halekauwila Street	Pfeffer, Borthwick and Hammatt 1993
4534	Kawaiaha'o Cemetery	Burial recording and some disinter- ments	A portion of Kawaiaha'o Church Cemetery, which was used from about 1825 to 1920; A total of 129 burials have been recorded in burial pits near Queen Street.	Pfeffer, Borthwick and Hammatt 1993; Tulchin and Hammatt 2006
4587	Kekaulike Street, Honolulu	Fishpond	Fishpond with multi-component site dating to as early as the 13 th century	Kennedy et al. 1984, Riley et al. 1995
4588	Kekaulike Street, Honolulu	Burials (4)	Four burials, too fragmentary to determine ethnicity or age	Erkelens et al. 1994
4605	Capitol District, Honolulu	Historic Trash Pits	Nine scattered historic trash pits, with 19th century artifacts	Denham & Kennedy 1993
4606	Capitol District, Honolulu	Multi- component site with possible pre- contact, historic, and modern features	Eleven features, some possible pre-contact firepits, modern postholes, one 19th century trashpit, and one burial (unknown time period)	Denham & Kennedy 1994
5496	800 Nu'uauu Ave., Honolulu	Pre-and post contact subsurface cultural layer	The cultural layer dated from three cultural zones, 1810-1860s, a transition from traditional Hawaiian to post-contact habitation, 1860s-1890, use of the area for stores and warehouses, traditional habitation and shore use, 1830s-1860s, and 1890s to the present, urbanization of the area.	Lebo and McGuirt 2000a, 2000b
5820	Mother Waldron Park, South and Halekauwila, Kaka'ako	Eleven Burials	Pre-contact and or early historic burials (at least two are historic); scattered over three areas	Winieski & Hammatt 2000

Site # 50-80- 14	General Location Relative to the Project Area	Nature of Site	Status/ Comments	Source
5942	Nimitz Highway, King Street	Historic Electric Streetcar Rail artifacts	One light gauge rail of the HRT&L Co. was found near Queen & Nimitz (Honolulu area; Winieski and Hammatt 2001b) and near the junction of Dillingham Blvd. and King Street (Kapālama area; West, Ostroff and Roberts 2002)	Winieski and Hammatt 2001b; West, Ostroff, and Roberts 2002
6371	Punchbowl and King Street junction	One isolated burial, possible historic	Identified as historic for possibly associated historic artifacts, a glass marble and a porcelain button	Mann and Hammatt 2002
6766	Queen Emmalina Tower, South and King Streets, Kaka'ako	Subsurface cultural features	Three subsurface features, a garbage pit with artifacts dated to the mid to late 1800s, a concrete slab foundation, and a post hole.	Perzinski, Tulchin and Hammatt 2005
7124	South and Halekauwila block, Kaka'ako	Historic Building remnants	Building structures dating from 1914 (or earlier) to 1991	Pammer, Fong, and Hammatt 2011
7189	South and Halekauwila block, Kaka'ako	Burnt Historic Trash Layer	Associated with 1920s open-air burning of trash in the Kaka'ako area	Pammer, Fong, and Hammatt 2011
7190	South and Halekauwila block, Kaka'ako	Salt Pans	Alternating layers of clay and peat, associated with 19th century salt works in Kaka'ako	Pammer, Fong, and Hammatt 2011
7197	South and Halekauwila block, Kaka'ako	Pre-contact and Post-contact Cultural Deposit	Includes one pre-contact, early post-contact fire pit; radiocarbon sample was dated to A. D. 1735-1805	Pammer, Fong, and Hammatt 2011
9061	Fort & Merchant	Honolulu Star Bulletin Bldg	1912	SHPD Web Site
9710	Keawe & Ala Moana Blvd.	Kaka'ako Pumping Station	1900. NRHP 10/4/1978	SHPD Web Site
9829	Fort & Aloha Tower Drive	Irwin Memorial Park	HRHP 12/4/1999	SHPD Web Site
9900	Bishop from Queen to Nimitz	Dillingham Transportation Bldg	1930. NRHP 9/7/1979	SHPD Web Site
9903	Bethel & Merchant	Kameha-meha V Post Office	1871. NRHP 5/5/1972	SHPD Web Site

Site # 50-80- 14	General Location Relative to the Project Area	Nature of Site	Status/ Comments	Source
9905	TMK: 1-7-002:035, 036; 2-1-001:012:012; 2-1-002:012, 019, 020, 024, 032, 033, 034, 035	Merchant Street Historic District	Includes: Nippu Jiji – Irwin Block T. R. Foster Bldg-O'Tooles Pub Wing Wo Tai & Co. Bldg Royal Saloon – Murphy's Bar Gibson Bldg – Old Police Station J. T. Waterhouse Bldg. The Friend Bldg Yokohama Specie Bank Kamehameha V Post Office Melchers Bldg Bishop Estate Bldg. Judd Bldg Stangenwald Bldg Honolulu Star Bulletin Bldg Bishop & Co. Bank; NRHP 6/28/1973	SHPD Web Site
9908	Mililani from King to Queen	Ali'iolani Hale	1874. NRHP 2/2/1972	SHPD Web Site
9912	Mauka side of King St., immediately inland	Iolani Palace and grounds	1882. NHL 12/29/1962	SHPD Web Site
9917	Honolulu Brewery Co. Bldg and lot (Royal Brewery)	Historic Property	Many historic artifacts relating to the brewery (especially bottles), built in 1900, were found during excavations, including three refuse pits. NRHP 11/29/1972	Hammatt and Pfeffer 1993
9918	Richards Street	Iolani Barracks	1871. NRHP 12/1/1978	SHPD Web Site
9925	Bishop from Merchant to Queen	Alexander & Baldwin Bldg	NRHP 9/7/1979	SHPD Web Site
9929	Fort & Aloha Tower Drive	Aloha Tower	1926. NRHP 5/13/1976	SHPD web site
9938	Fort & Queen	C. Brewer Bldg	1906. NRHP 4/2/1980	SHPD web site
9952	Richards to Mililani; King to Queen	King Kalākaua (Federal) Bldg	1921. NRHP 1/27/1975	SHPD web site
9970	Punchbowl & Queen	Kapuaiwa Bldg	1884. NRHP 7/2/1973	SHPD web site

Site # 50-80- 14	General Location Relative to the Project Area	Nature of Site	Status/ Comments	Source
9986	River to Nu'uaniu, Nimitz to Beretania TMK 1-7-002, 003, 004	Chinatown Historic District	Includes: Armstrong Bldg Kekaulike Bldg L. Ah. Leong Bldg Oahu Marketplace Chinatown Fish Market Lee & Young Bldg Yee Hop Plaza Liberty Bank Schnack Bldg Kawahara-Sato Bld DOT Harbors Division Central Pacific Bank King's Court; 1/17/1973 NRHP	SHPD web site
9991	Kawaiaha'o Church, Grounds and Mission Houses	Historic Property	Burials found outside the present-day boundary of Kawaiaha'o Church (but within the original boundary) were designated SIHP site 4534. The present stone church was completed in 1942. NHL 12/29/62	Pfeffer, Borthwick and Hammatt 1993; Tulchin and Hammatt 2006
--	Exact location unknown; possibly near the junction of Cooke & Ilaniwai streets, Pu'uakea 'Ili, Kaka'ako	Pu'uakea Heiau	Legendary mention only	Kamakau 1991:24
--	Foot of Fort Street at Queen Street	Pākākā Heiau	Destroyed in early 19th century for the construction of the Honolulu Fort	Kamakau 1991:24

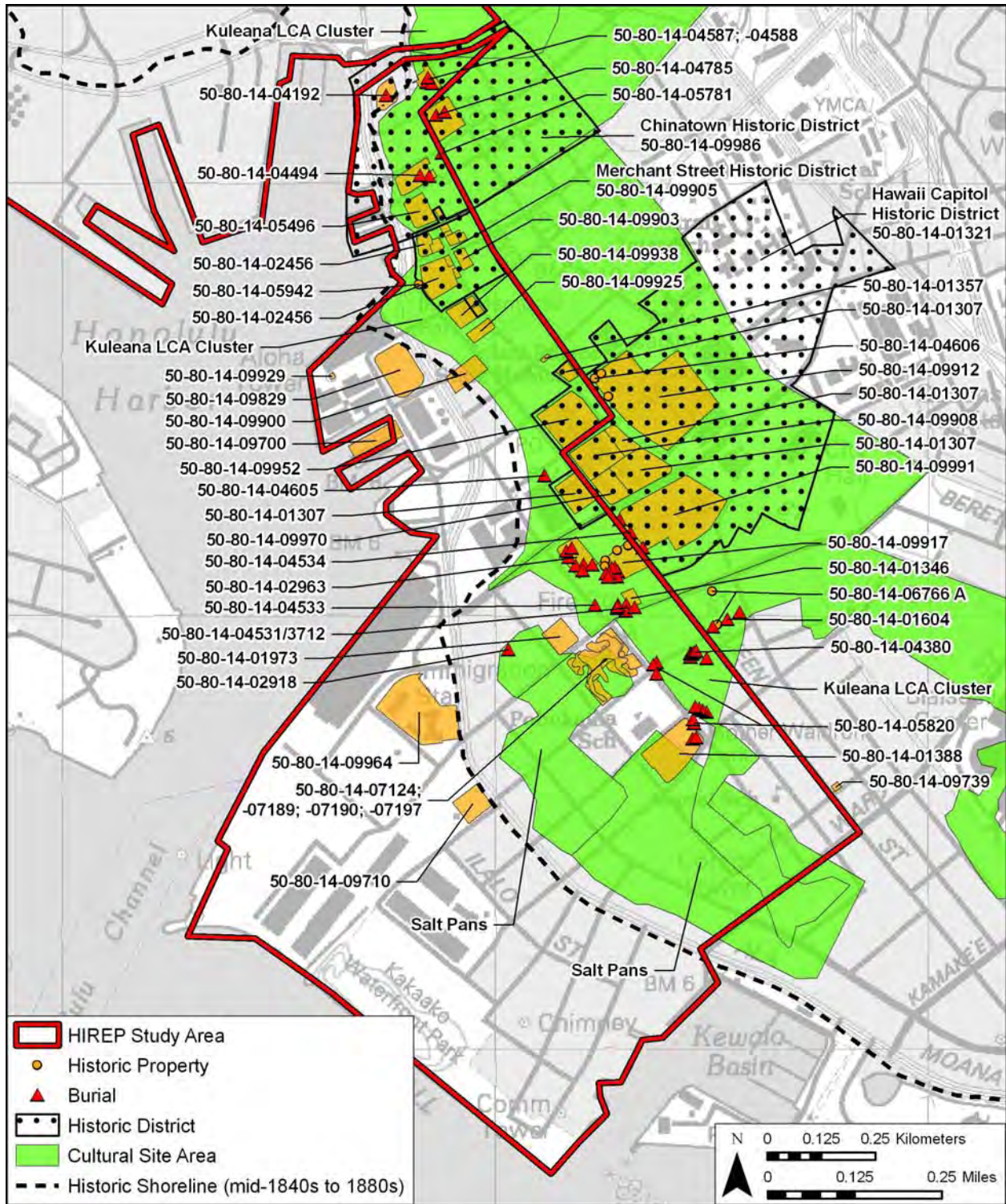


Figure 17. Previously identified cultural resources of the Eastern Pearl Harbor Landing Analysis Area (East of Nu‘uanu Stream)

3.20 Summary of Cultural Resources of the Eastern Pearl Harbor Landing Analysis Area (East of Nu‘uanu Stream)

There should be a high density of cultural deposits with artifacts, possibly dating back to the earliest development of Honolulu in the pre-contact period, present in any excavations in the downtown Honolulu area from Nu‘uanu Stream to Punchbowl Street. In areas on the shore that have been heavily modified for the construction of Honolulu Harbor, or on land directly adjacent to Nu‘uanu Stream, or on land that has been formed completely of fill off the former shoreline of Honolulu, few if any cultural deposits are expected.

In Kaka‘ako, pre-contact deposits have been scarce in most areas. However, soils related to the use of the area for salt production have been identified (Pammer and Hammatt 2011), and the original marsh sediments may provide additional information on the environment, the native vegetation, and coastal resources available to Hawaiians before Western contact. Historic cultural layers and pit features with historic artifacts dating to the late nineteenth to early twentieth century are common in Kaka‘ako, which was noted as a place for trash disposal in early historic records. Kaka‘ako was also used as a place “apart” from Honolulu, for quarantine of leprosy victims, recent immigrants to the islands, and finally for burials for inhabitants, who had been cut off from their traditional burial grounds during the upheaval native Hawaiian land loss in the post-contact period. Isolated burials, several burials in a cluster, possibly representing families, and large cemeteries have been recorded during several archaeological projects in the Kaka‘ako area.

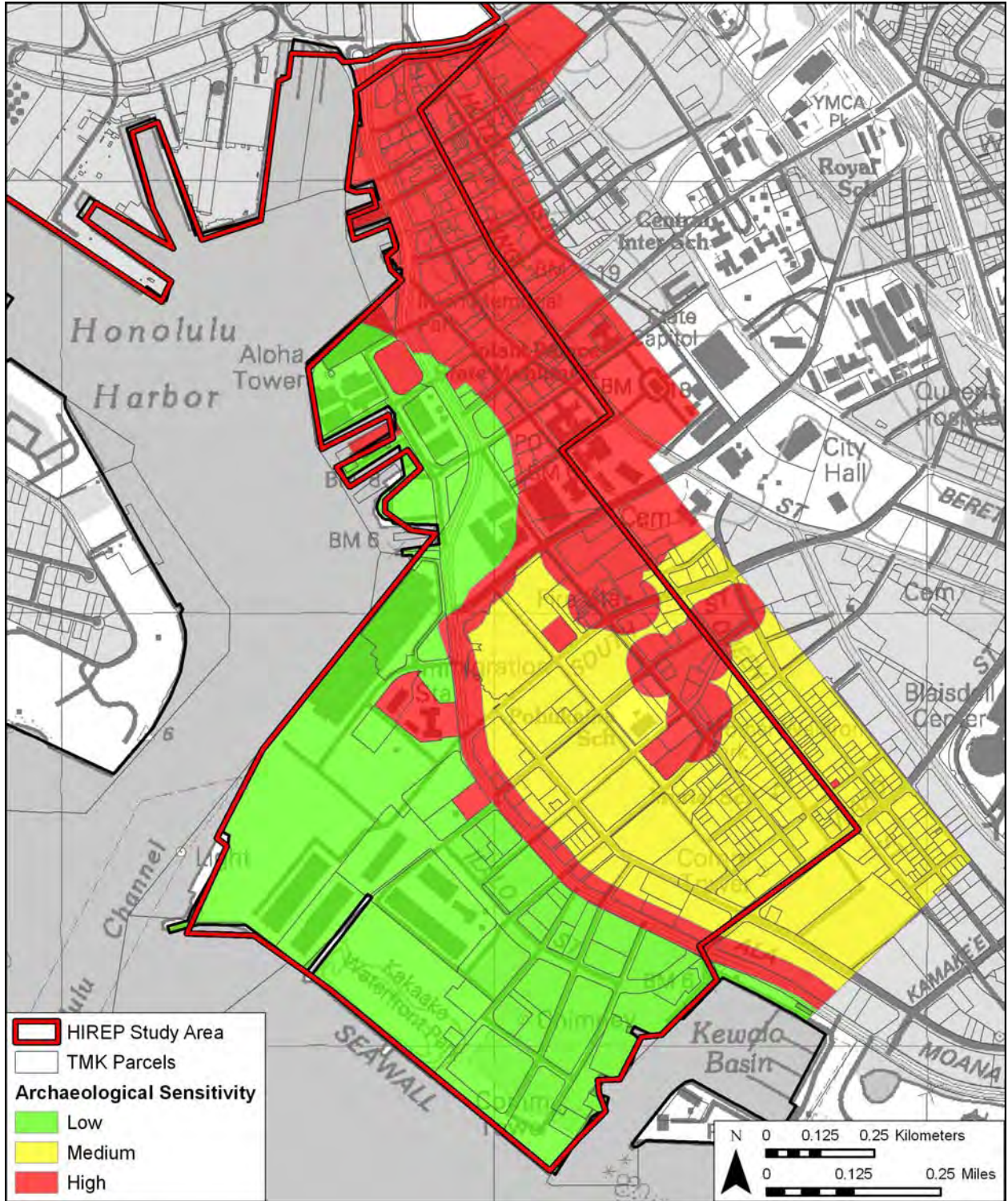


Figure 18. Cultural resource sensitivity map for the Eastern Pearl Harbor Landing Analysis Area (East of Nu'uuanu Stream)

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Section 4 Kāne'ōhe Landing, O'ahu Analysis Area

4.1 Introduction to Cultural Resources of the Kāne'ōhe Landing Analysis Area

The Kāne'ōhe Landing Site Analysis Area (Figure 19) encompasses approximately 12 kilometers of coastline extending from Pukaulua Point on Ulupa'u Head along the east side of Mōkapu Peninsula and along the entire span of Kailua Beach to the southeast and across the coastal Keolu Hills to northern coastal Waimānalo. The strip averages approximately a kilometer wide. This Site Analysis Study Area includes approximately 2,845 acres (4.45 square miles or 11.51 square kilometers) of coastal Kāne'ōhe, Kailua, and Waimānalo *ahupua'a*. This analysis area is addressed here within two subset study areas of: 1) Mōkapu Peninsula of Kāne'ōhe Ahupua'a, and 2) Coastal Kailua Ahupua'a, and north coastal Waimānalo Ahupua'a (North Bellows).

4.2 Introduction to Cultural Resources of the Mōkapu Portion of the Kāne'ōhe Landing Analysis Area

The Mōkapu Portion of the Kāne'ōhe Landing Analysis Area (Figure 20) consists of the east side of Mōkapu Peninsula of Marine Corps Base Hawaii, Kaneohe Bay (the Marine Corps Air Station has changed its official name a number of times). This analysis area amounts to 965 acres (1.51 square miles or 3.91 square kilometers).

Mōkapu Peninsula is understood as having the largest pre-Contact cemetery in Polynesia which is located in discrete coastal dune areas on the north side (primarily two areas of dune cemetery designated SIHP # 50-80-11-1017) and east side (primarily two areas of dune cemetery designated SIHP # 50-80-11-1002) of the peninsula. Mōkapu Peninsula has received a good deal of archaeological attention over the years owing primarily to the extensive pre-Contact Hawaiian sand dune burial areas. The Mōkapu Burial Area (SIHP # 50-80-11-1017) was placed on the HRHP on 7/25/1981 and on the NRHP 11/15/1972 (SHPD Web Site)..

The archaeology of the military infrastructure is a whole additional layer of cultural resource management on Mōkapu peninsula. The Kane'ōhe Naval Air Station was placed on the NRHP on 5/28/1978 (SHPD Web Site).

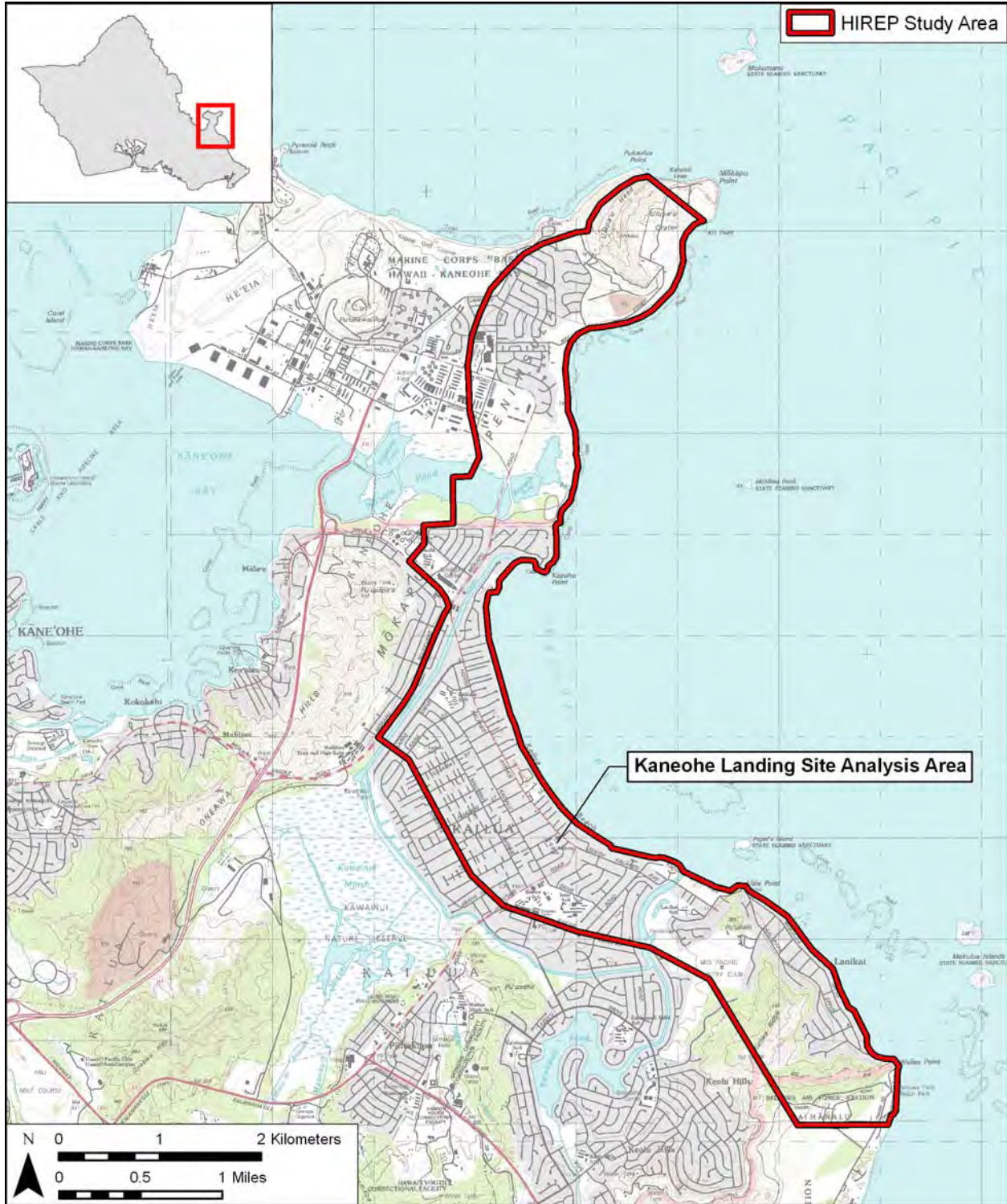


Figure 19. U.S. Geological Survey (1998), Mōkapu Point quad, showing the Kāne'ōhe Landing Analysis Area



Figure 20. Aerial photograph (2007) of the of the Mōkapu Portion of the Kāne'ohe Landing Analysis Area

4.3 Previous Cultural Resources Studies in the Mōkapu Portion of the Kāne'ōhe Landing Analysis Area

The history of archaeological involvement with the Mōkapu area began on 1912, when John F. G. Stokes, curator of collections at B.P. Bishop Museum, curated an adz purchased from a Chinese resident of Mōkapu. From 1912 to 1914 a number of artifacts were purchased from Chinese residents of Mōkapu.

In 1917, two College of Hawai'i professors, MacCaughey and Austin, visited Mōkapu, recorded a wealth of archaeological data, and published their observations. MacCaughey described the fishponds as having been large arms of Kāne'ōhe Bay cut off from the sea by heavy stone walls. MacCaughey and Austin described a number of archaeological feature in Mōkapu "and satisfied ourselves that in the days of ancient Hawai'i, Mo-kapu had been the site of several villages" (1917:190). Their description of Mōkapu in 1917 is one of a remote windswept desolate landscape. They report only three habitations (including the Chinese hovel) and note that the terraced taro patches were overgrown and that the coconut palms were dying off fast.

Human skeletal material which had been "buried close to the sea near Mōkapu Peninsula" was first accessioned by E.S.C. Handy of the Bishop Museum on December 14, 1921 (Snow 1974:132). More skeletal material was noted by J. Gilbert McAllister (1933), (apparently at the He'eia Dunes site) during his 1930 archaeological survey of O'ahu.

Prehistoric human remains continued to be revealed by wind erosion of sand dunes and construction activities. In 1932 the Bishop Museum curator of collections, Edwin H. Bryan, Jr., collected skeletal remains from near Harold Castle's Mōkapu residence. More remains were recorded. As a result of the archaeological research between 1938 and 1940 and sand mining activities in dune areas new burial sites were uncovered. The Heleloa and He'eia dune sites have yielded the remains of about 1,200 individuals. A detailed analysis of much of this material was conducted by Charles E. Snow (1974). Burials continue to be exposed in these areas from time to time.

During the archaeological monitoring of a sewer line excavation (Davis, Dye and Kam 1976) in 1975 the presence of a third major burial area along the southeast coast (Site 50-0a-G5-67, Areas A, B, and C at Ulupa'u dunes; within the present analysis area) was established. The remains of eighty-nine (89) individuals were recovered in this area. In 1980, Jeffery T. Clark reported another burial from this area (Clark 1980).

In 1982, Schousboe conducted emergency archaeological data recovery of an exposed cultural deposit within the Ulupa'u dune adjacent to the Pa'akai Pond (within the present analysis area). This study uncovered "charcoal stained layers with associated hearths and postholes," dating of the material collected yielded radio carbon dates of A.D. 1200-1300 (Schousboe 1982:4).

Between 1987 and 2012 approximately sixty (60) archaeological projects have been conducted at different locations on the Mōkapu Peninsula

Table 10. Previous Cultural Resources Studies in the in the Mōkapu Portion of the Kāne'ōhe Landing Study Area (Arranged chronologically)

Reference	Type of Investigation	Location	Findings
MacCaughey 1917	Popular antiquarian account Mid Pacific Magazine		Described a number of archaeological feature in Mōkapu
McAllister 1933	Archaeological reconnaissance survey	Island wide	McAllister describes Site 364 as including Halekou, Kaluapuhi and Nu'upia fishponds.
Bowen 1974	1017	Mōkapu Burial Area in Kāne'ōhe and He'eia <i>ahupua'a</i>	1938 - Kenneth Emory conducted the first archaeological investigation; findings included 40 burials with associated cultural material including a necklace, dog teeth, 87 land snails, and a cone shell. Since the early 20 th century, findings have totaled almost 1,500 sets of pre-contact and early historic human remains, some of which were associated with <i>lei niho palaoa</i> , shell fishhooks, mats, <i>tapa</i> cloth, octopus lure hook, and lithics. Bird, pig, and dog burials have also been found associated with human remains.
Snow 1974	Osteological Study	Three locations (designated "H" (He'eia), "C" ("Castle") and "N" ("Navy") on the north side of Mōkapu peninsula	Description of Early Hawaiian skeletal material" addressing 1,171 Mokapuans
Snow 1975	Report on the Walk-Through Reconnaissance Survey	Kalaheo High School Expansion Area, Kailua	No sites recorded. Discusses certain modern graves but believes were relocated previously
Davis 1976	1002	Ulupa'u Dune	24 burials of various ages and both sexes in close proximity with almost 100 firepits and 12 postholes. (50-80-11-2002)
Davis, Dye, and Kam 1976	Archaeological investigations	Ulupa'u Dune (SIHP # - 1002	Cultural deposit within Ulupa'u Dune was approximately 30 m wide; 89 burials disinterred – single and multiple interments of various ages and both sexes. Postholes, midden material, and earthen ovens found in close proximity to burials.
Sterling and Summers 1978	Sites of Oahu" compendium	Island-wide	Accounts of Oneawa, Alele, Kānepolu, Alāla, Wailea, etc.
Clark, J. T. 1980	Mokapu Burial study Manuscript	Ulupa'u Dune Site.	Discussion of Ulupa'u Dune Site
Barrera 1982	Archaeological and Ethno-Historic Reconnaissance and Assessment	Mōkapu Peninsula	Overview Discussion

Reference	Type of Investigation	Location	Findings
Neller 1982	Archaeological Reconnaissance Survey (SHPD field report)	Ulupa'u Dune Site.	Presents data on eroding pre-Contact features (identifies as 50-Oa-G5-67 understood as 50-80-11-1017), Calls for emergency archaeological investigation
Schousboe, R. 1982	Emergency Archaeological Data Recovery	Ulupa'u Dune, Mōkapu Peninsula	Presents data on eroding pre-Contact features (identifies as 50-Oa-G5-67 understood as 50-80-11-1017), Calls for emergency archaeological investigation
Hammatt, Borthwick, and Shideler 1985	Archaeological Coring and Testing	Nu'upia and Halekou ponds	1938 - Kenneth Emory conducted the first archaeological investigation; findings included 40 burials with associated cultural material including a necklace, dog teeth, 87 land snails, and a cone shell. Since the early 20th century, findings have totaled almost 1,500 sets of pre-contact and early historic human remains, some of which were associated with lei niho palaoa, shell fishhooks, mats, tapa cloth, octopus lure hook, and lithics. Bird, pig, and dog burials have also been found associated with human remains.
Tuggle and Hommon 1986	Historic Property Inventory	Marine Corps Air Station Kaneohe Bay	Within the east portion of the peninsula they discuss: 50-80-11-1002 "Mōkapu Peninsula", 50-80-11-1431 Battery Pennsylvania, and 50-80-11-2886 a Pre-Contact, early post-Contact cultural deposit
Schilz, and Dies 1990	Archaeological Survey and Testing and Archaeological Monitoring Report	SW of west turn of Mōkapu Road, Marine Corps Air Station Kaneohe Bay	No significant finds
Watanabe, 1990	Archaeological Surface Reconnaissance Survey	West side Ulupa'u Crater, Marine Corps Air Station Kaneohe Bay	No significant finds
Schilz, and Dies 1991	Archaeological Monitoring Report	Ft. Hase Beach	No significant finds
Charvet-Pond, and Rosendahl 1992	Archaeological Monitoring Report	at Mōkapu Peninsula Fishpond Complex (Site 50-80-11-1002) Marine Corps Air Station, TMK: 4:4:08, 10	Further documents Fishpond Complex (Site 50-80-11-1002)
Anderson, and Schilz 1993	Inventory Survey and Limited Testing	Ulupa'u Crater Vicinity, Mōkapu Peninsula	Discusses 3 possible pre-Contact sites 50-80-11-4644 to -4646 (no cultural material encountered) and four WWII sites 50-80-11-4631 to 4634

Reference	Type of Investigation	Location	Findings
Jackson, Carlson, Cleghorn, Dagher and Goddard 1993	Archaeological Monitoring, Reconnaissance, and Test Excavations	Nu'upia Pond	6 historic properties identified on the south side of Nu'upia pond, including: 2 boulder alignments (SIHP -4641 & -4643), two cobble pavements (SIHP -4638 & -4639), and two lithic scatters (SIHP -4640 & -4642). Of note is SIHP -4638, a limestone cobble pavement that was interpreted as a possible burial.
Hammatt, and Colin 1995	Archaeological Assessment	150.08 acres eastern/central Mōkapu Peninsula	Note extensive grading, filling and surface modification
Drolet, 1996	Archaeological Testing and Sampling Report	East of west turn of Mōkapu Road, Marine Corps Air Station Kaneohe Bay	No significant cultural deposits were identified
Rosendahl, 1999	Archaeological Monitoring of Trench Excavations and Testing	Various locations Mōkapu Marine Corps Base	Discusses sites 50-80-11-5733 – an occupation and burial site (NW peninsula, outside present study area), and 50-80-11-5736 a deposit with charred material (1999:33) at west edge of present project area

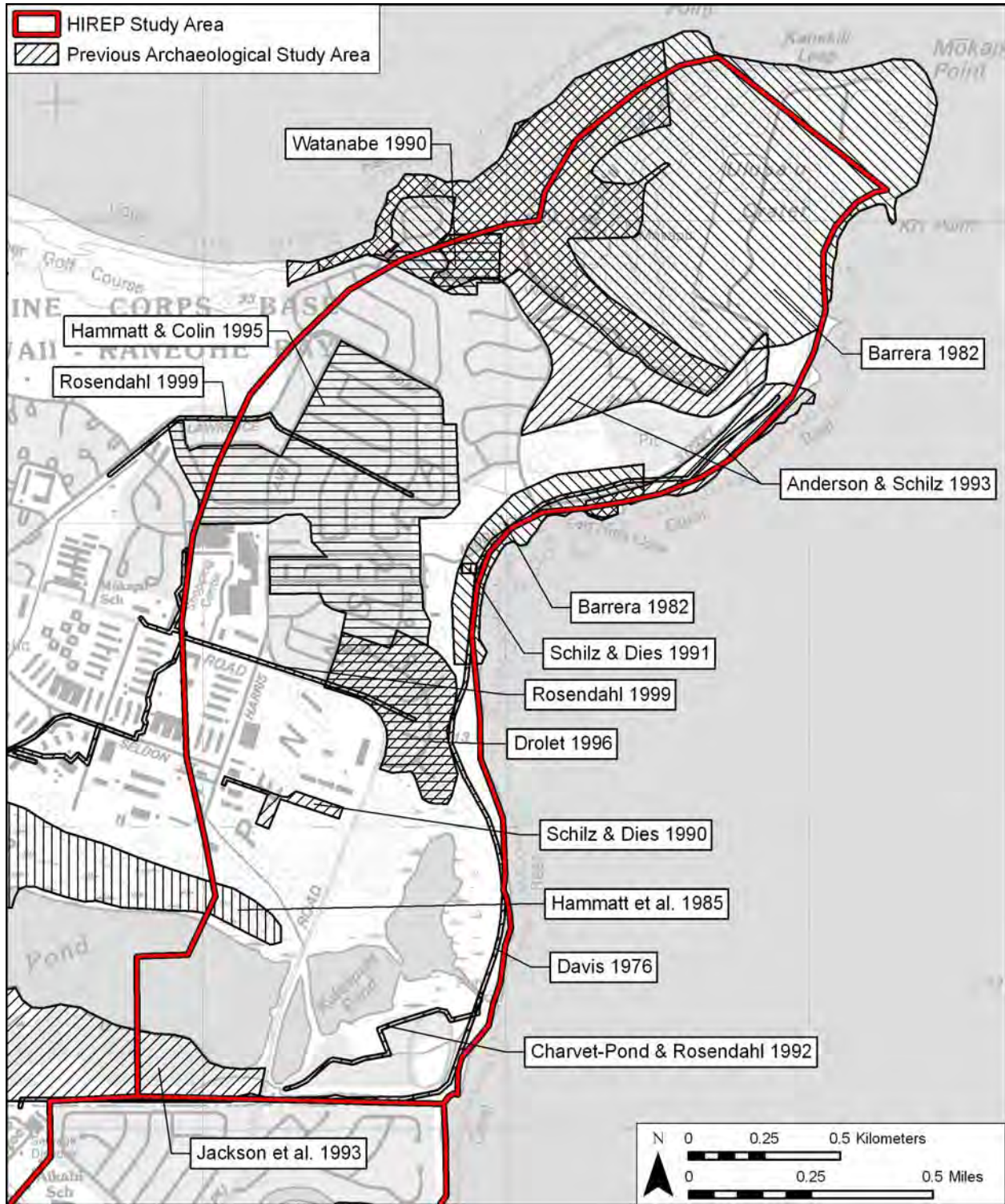


Figure 21. Previous cultural resources studies in the Mōkapu Portion of the Kāne'ōhe Landing Study Area

4.4 Previously Identified Cultural Resources of the Mōkapu Portion of the Kāne'ōhe Landing Analysis Area

Table 11. Previously Identified Cultural Resources of the Mōkapu Portion of the Kāne'ōhe Landing Analysis Area

Site #	General Location Relative to the Project Area	Nature of Site	Status/ Comments	Source
Kapoho salt works "Site 9"	Ka-lua-puhi pond on east side of Mōkapu Isthmus	Native salt works or pans known as Kapoho at Ka-lua-puhi	BP Bishop Museum designation	MacCaughey 1917; Fiddler 1956:14; Sterling and Summers (Mrs. Charles, informant 1939) 1978:214
"Site 10"	North Mōkapu	Mōkapu sand burials	BP Bishop Museum designation	Sterling and Summers 1978:216-217
50-80-11-00364	Isthmus leading to Mōkapu	Halekou, Kaluapuhi and Nu'upia Fishponds	Discusses ponds and salt works	McAllister 1933:184, Hammatt, Borthwick, and Shideler 1985
50-80-10-1386	4-4-008:001	Kaneohe Naval Air Station	NRHP 5/28/1987	SHPD web site
50-80-11-1002	Ulupa'u Dune	Polynesian cemetery, ponds, dunes, <i>mākāhā</i>	Extensive work	Davis 1976, Davis, Dye, and Kam 1976; Hammatt, Borthwick, and Shideler 1985; Tuggle and Hommon 1986:60-69; Charvet-Pond, and Rosendahl 1992
50-80-11-1017	Ulupa'u Dune	Mōkapu Burial Area	Clark (1980), Neller (1982) and Schousboe (1982) use B.M. Bishop Museum designation 50-Oa-G5-67 for the Ulupa'u Dune Site; SHPD report labeling uses 50-80-11-1017	Clark 1980, Neller 1982, Schousboe 1982; SHPD website; placed on NRHP 11/15/1972
50-80-11-1431 Battery Pennsylvania	Extreme NE corner of Mōkapu Peninsula – may be entirely just outside study area	WWII massive artillery battery complex with 14-inch guns	Partly abandoned and partly used for storage (1986)	Tuggle and Hommon 1986:55
50-80-11-2886	North end of "Fort Hase Beach" area on east side of peninsula	a Pre-Contact, early post-Contact cultural deposit	Extends 400 m along coast with a width of 15 to 50 m	Neller, 1982, Tuggle and Hommon 1986:58-60

Site #	General Location Relative to the Project Area	Nature of Site	Status/ Comments	Source
50-80-11-4631	SW edge of Ulupa'u Crater	WWII site – gun mount	Circular cement foundation 1.64 m diameter	Anderson and Schilz 1993:31
50-80-11-4632	South edge of Ulupa'u Crater	WWII site – gun emplacement	Gun mount (1.3 by 1.2 m) & semi-circular bunker 6.5 m by 1.2 m	Anderson and Schilz 1993:36, 39
50-80-11-4633	South edge of Ulupa'u Crater	WWII ammunition storage structure	Wood, concrete and steel, 1942 date	Anderson and Schilz 1993:40-43
50-80-11-4634	South edge of Ulupa'u Crater	WWII site – underground shelter	circular sandbag construction (8 courses sandbags) with three underground shelters	Anderson and Schilz 1993:40, 44-46
50-80-11-4638	On the south side of Nu'upia pond	cobble pavement 3.75 m by 2.5 m	Possible burial, heath observed near by	Jackson, Carlson, Cleghorn, Dagher and Goddard 1993:18, 19
50-80-11-4639	On the south side of Nu'upia pond	cobble pavement 6.5 m by 6.0 m	No midden or artifacts (other than communication wire) observed, function uncertain	Jackson, Carlson, Cleghorn, Dagher and Goddard 1993:18, 20, 21
50-80-11-4640	On the south side of Nu'upia pond	Lithic scatter	Medium density basalt debitage and tool scatter with historic material	Jackson, Carlson, Cleghorn, Dagher and Goddard 1993:21-22
50-80-11-4641	On the south side of Nu'upia pond	Boulder alignment	Limestone boulders, function uncertain	Jackson, Carlson, Cleghorn, Dagher and Goddard 1993:21,23
50-80-11-4642	On the south side of Nu'upia pond	Lithic scatter	A low density basalt debitage and tool scatter with historic material	Jackson, Carlson, Cleghorn, Dagher and Goddard 1993:21, 24
50-80-11--4643	On the south side of Nu'upia pond	Boulder alignment	Limestone boulders, function uncertain	Jackson, Carlson, Cleghorn, Dagher and Goddard 1993:21, 25
50-80-11-4644	SW edge Ulupa'u Crater	Rock mound Possible pre-Contact agricultural clearing mound	Stacked cobbles and boulders, 2.2 m by 1.4 m by 0.45 m high (no cultural material encountered)	Anderson and Schilz 1993:33
50-80-11-4645	SW edge of Ulupa'u Crater	Terrace Possible pre-Contact site agricultural feature	Stacked cobbles and boulders, 7 m by 3.5 m by 0.75 m high (no cultural material encountered)	Anderson and Schilz 1993:33

Site #	General Location Relative to the Project Area	Nature of Site	Status/ Comments	Source
50-80-11-4646	SW edge of Ulupa'u Crater	C-shape (Possible pre-Contact site)	Stacked cobbles and boulders; 2.5 m by 0.6 m by 0.40 m high (no cultural material encountered)	Anderson and Schilz 1993:36
50-80-11-5328	East coast of isthmus	Cultural deposit	2 localities; dated to A.D. 1300 to 1640.	Schousboe 1982
50-80-11-5736	"Exposed at SK-4 profile (S. Cushman Ave.) Mōkapu Marine Base west edge of present project area	A deposit with charred material	Dated to A.D. 1530-1950; not enough information to evaluate eligibility to NRHP (Rosendahl 1999:57)	Rosendahl 1999:33

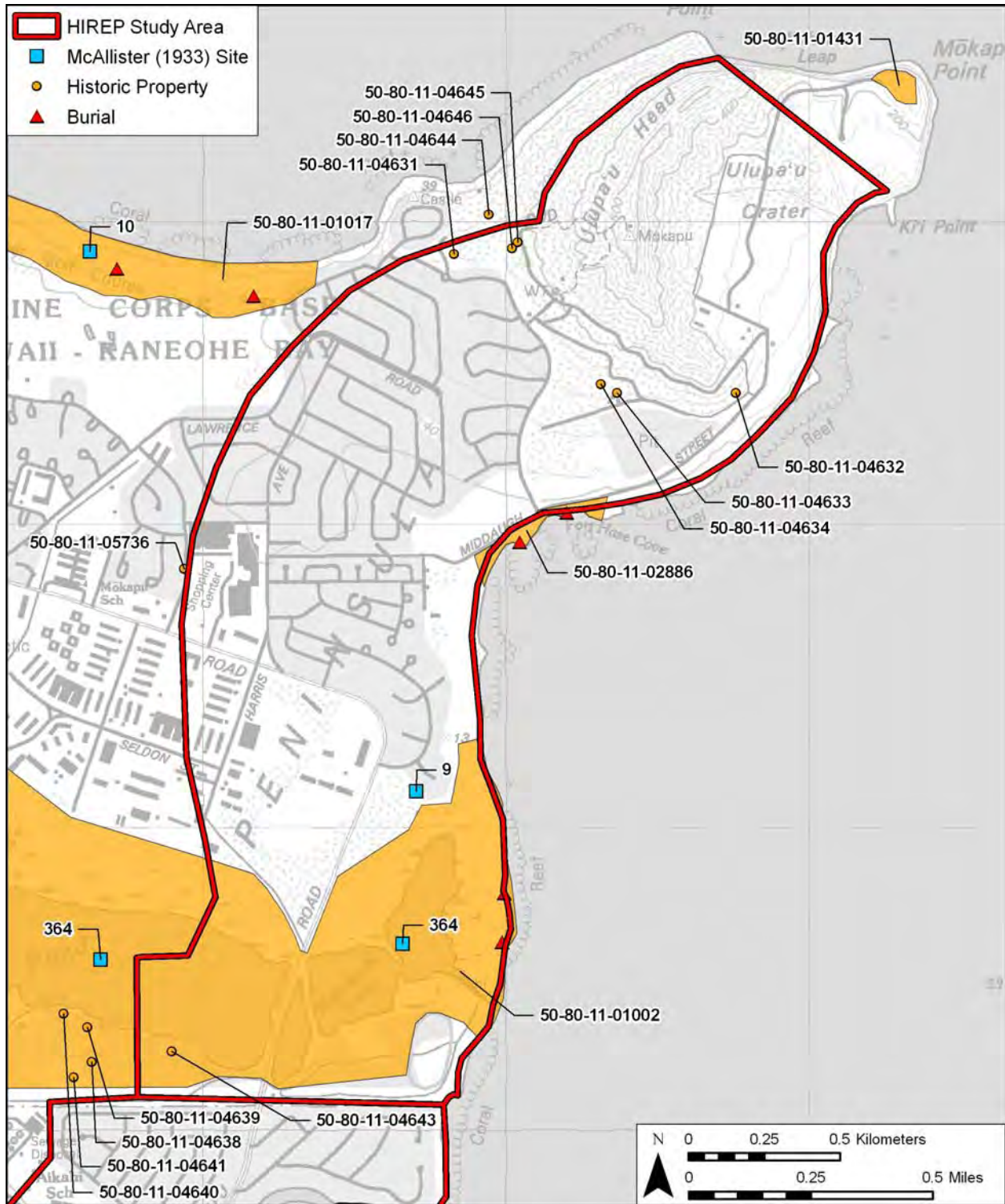


Figure 22. Previously identified cultural resources of the Mōkapu Portion of the Kāne'ōhe Landing Study Area

4.5 Summary of Cultural Resources of the of the Mōkapu Portion of the Kāne'ōhe Landing Analysis Area

Mōkapu is almost synonymous in the popular imagination with “massive burial ground.” The vast majority of the burials previously described, however, have been in two areas of sand dunes on the north side of the peninsula outside of (northwest of) the present Kāne'ōhe Landing Analysis Area. There was indeed another significant pre-Contact burial area along the coast of the central portion of this Mōkapu sub-area but this appears to have been much smaller and relatively discrete.

As shown in Figure 23 much of the central portion of the north and central portions of this sub-area would be expected to have modest constraints from cultural resources.

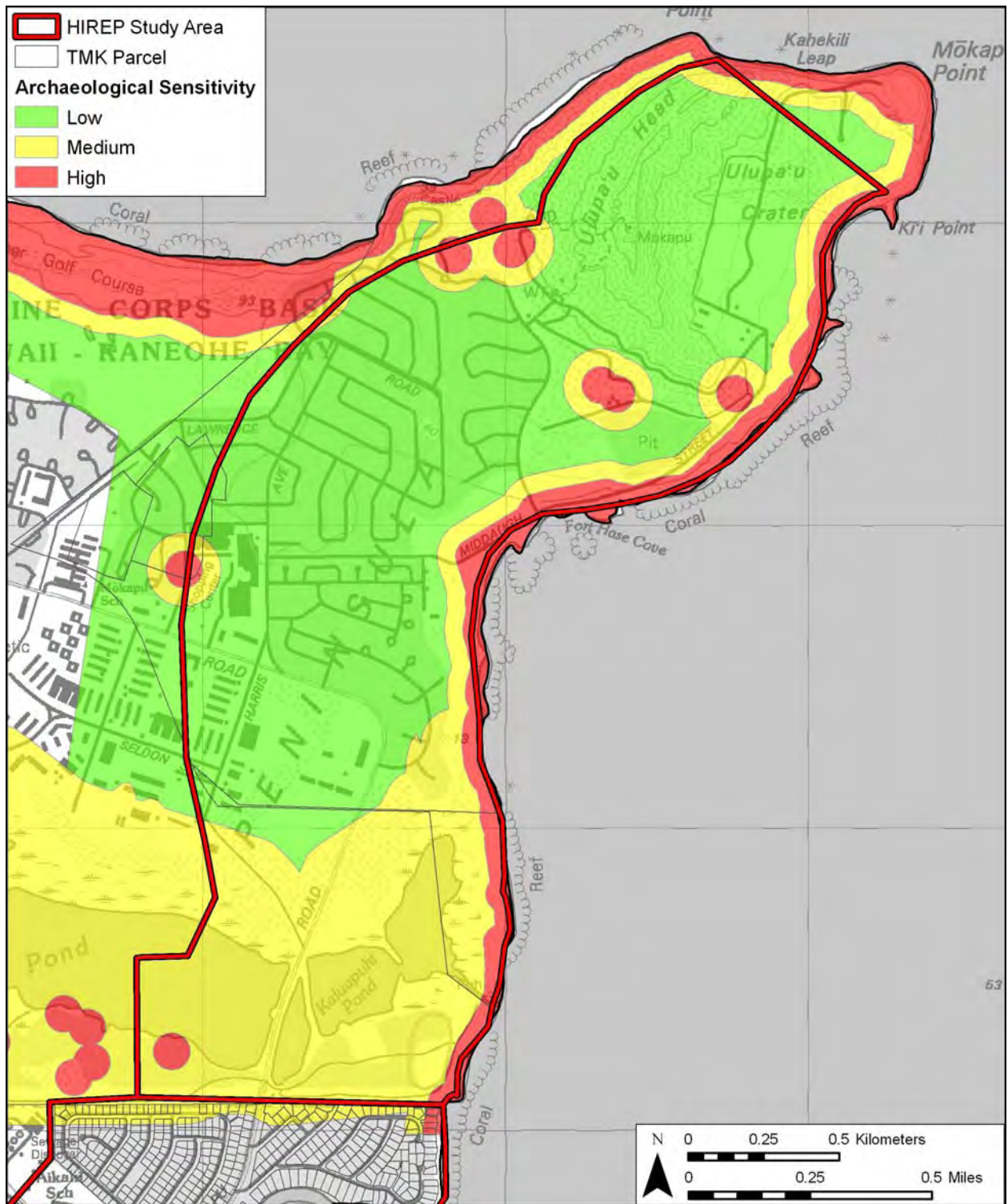


Figure 23. Cultural resource sensitivity map for the Mōkapu Portion of the Kāne'ōhe Landing Analysis Area

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4.7 Coastal Kailua Ahupua'a, and north coastal Waimānalo Ahupua'a (North Bellows)

The coastal Kailua Ahupua'a, and north coastal Waimānalo Ahupua'a (North Bellows) portion of the Kāne'ōhe Landing Site Analysis Study lies primarily on the seaward portion of a long sand bar in which most of the town of Kailua is built and spans an area of 1,880 acres (2.94 square miles or 7.61 square kilometers). This sandbar lies seaward of the well-watered uplands of Kailua that supported extensive irrigated agriculture as well as seaward of Kawainui Marsh and Ka'elepulu Pond that offered further amenities to the peoples of this rich land.

4.8 Introduction to Cultural Resources of the Coastal Kailua and Northern Bellows Portion of the Kāne'ōhe Landing Analysis Area

The Coastal Kailua and Northern Bellows Portion of the Kāne'ōhe Landing Analysis Area is blessed with a well-watered interior suitable for intensive agriculture and has relatively good fishing grounds in the extensive protected fringing reef. The sandbar upon which much of Kailua was built has proven to hold the remains of many of the former residents of the *ahupua'a*. The Bellows Field Archaeological District (SIHP #50-80-15-511) remains on the National Register of Historic Places.



Figure 24. Aerial photograph (2007) of the of the Coastal Kailua and Northern Bellows Portion of the Kāne'ōhe Landing Analysis Area

4.9 Previous Cultural Resources Studies in the of the Kailua and Waimānalo Portion of the Kāne'ōhe Landing Analysis Area

Most of the prior archaeological studies in coastal Kailua have been relatively modest studies and have either had no finds or have reported burials.

Table 12. Previous Cultural Resources Studies in the Coastal Kailua and Northern Bellows Portion of the Kāne'ōhe Landing Study Area (Arranged chronologically)

Reference	Type of Investigation	Location	Findings
Kamakau 1992	Historical account	Alele, coastal Kailua	Describes Kākuhihewa's house at Alele
McAllister 1933	Archaeological reconnaissance survey	Island wide	McAllister describes Site 364 as including Halekouu, Kaluapuhi and Nu'upia fishponds. Site 369 related to Kākuhihewa's house at Alele. Site 378 designates Alāla Heiau and <i>ko'a</i>
Emory (Diary) 1952	Bishop Museum burial investigation	Makawao Street	Early work by the Bishop Museum. A number of excavations took place, including some burials but recordation was sparse.
Federal Register on January 28, 1998, Vol. 63, No 18:4280	"Notice of [NAGPRA] Inventory Completion"	Makawao Street	"In 1952, human remains representing 58 individuals from Kailua O'ahu were collected by Kenneth Emory and donated to the Bishop Museum."
Pearson, Kirch, and Pietruszewsky 1971	Study of "An Early Prehistoric Site" <i>Archaeology and Physical Anthropology in Oceania</i>	Bellows Beach	Lead to long-standing belief that Bellows sites were particularly old
H. Alton, <i>Honolulu Star Bulletin</i> , May 18, 1972).	Newspaper account of burial finds	139A Ulupa St.	In May of 1972, State archaeologists Jean Martin and Beth Walton spent several days at a house lot at 139A Ulupa St. where 30 to 35 burials were unearthed in the course of swimming pool excavations
Sinoto, 1975	Report on the Walk-Through Reconnaissance Survey	Kalaheo High School Expansion Area, Kailua	No sites recorded. Discusses certain modern graves but believes were relocated previously
Tuggle 1975a	Sub-Surface Investigation	"Tuggle's "Site 511-5", north, coastal Bellows Air Force Station	Pertaining to "Seawall Repair and Drip-line" Project (SIHP # 50-80-15-3313)
Tuggle 1975b	Report on Sub-Surface Investigation	"Tuggle's "Site 511-5", north, coastal Bellows Air Force Station	Pertaining to a Proposed Irrigation Line Project (SIHP # 50-80-15-3313)
Cordy 1978	Archaeological inventory survey	Kailua Beach Park Boat Ramp Area	Reports no significant finds.

Reference	Type of Investigation	Location	Findings
Davis, 1978	Subsurface Archaeological Reconnaissance	Three areas in north coastal Bellows Air Force Station	Identifies 7 firepits, 2 <i>imu</i> , midden and a portion of a human skull
Sterling and Summers 1978	Sites of Oahu'' compendium	Island-wide	Accounts of Oneawa, Alele, Kānepolu, Alāla, Wailea, etc.
Carter, 1979	Archaeological Monitoring Report	Selected Areas at Bellows Air Force Station	Discusses SIHP # 50-80-15-9645 in the north coastal region
Riley, 1980	Archaeological Reconnaissance and Subsurface Testing	Proposed Boathouse Project Site at N coastal Bellows AFS	Discusses find of infant burial, pre-Contact cultural layer and post-Contact cultural layer
Athens, 1983	Archaeological Excavations report	at a Beach Midden Deposit The H.A.R.C. Site (50-Oa-G6-40),	Documents marine midden, hearths and pit features
Barrera, 1983	Archaeological Reconnaissance and Testing	at Koolau Vista, Aoloa St. between Kailua Road and Hāmākua Drive 4-2-01:45	No significant finds
Barrera, 1984	Archaeological Reconnaissance	Kailua Mall, TMK 4-2-01: 5 & 56	No significant finds
Kam, 1985	Field Inspection	Bellows AFB Picnic Area #6, N coastal area	Human cranium eroding from beach sand discovered by Bellows personnel
Kam, 1986	Investigation of Discovery of Human Skeletal Remains	Bellows AFS by Building 532, near the corner of Family Circle Road	Describes a human burial and buried cultural deposit
Hurlbett, and Haun 1987	Inventory and Evaluation Cultural Resources Management Plan (CRMP),	Bellows Air Force Station	Provides detailed information up to that time on archaeological/historical resources at Bellows including sites 3305, 3306, 3307, 3309, 3311, 3313, & 9645
Bath 1988 & Pietruszewsky 1988	Data recovery	59 Kailuana Place	Single burial recovered 50-80-11-3993, osteological analysis completed.
Bath and Smith 1988	Data recovery	Lanikai 8-inch water main project	Single burial recovered, osteological analysis completed. Site 50-80-11-3738
Pietruszewsky 1988	Data recovery	Kailua Beach Park	Single burial removed, osteological analysis completed.
Smith and Kawachi 1988	1063 Ko'oho'o Place, Lanikai	SHPD burial removal report	Single burial (50-80-11-3740) recovered, osteological analysis completed
Bath 1989	3993	4-3-22:11	Single burial recovered within an area that had previously been the shoreline. Pig tusks and vertebrae also found in close proximity;

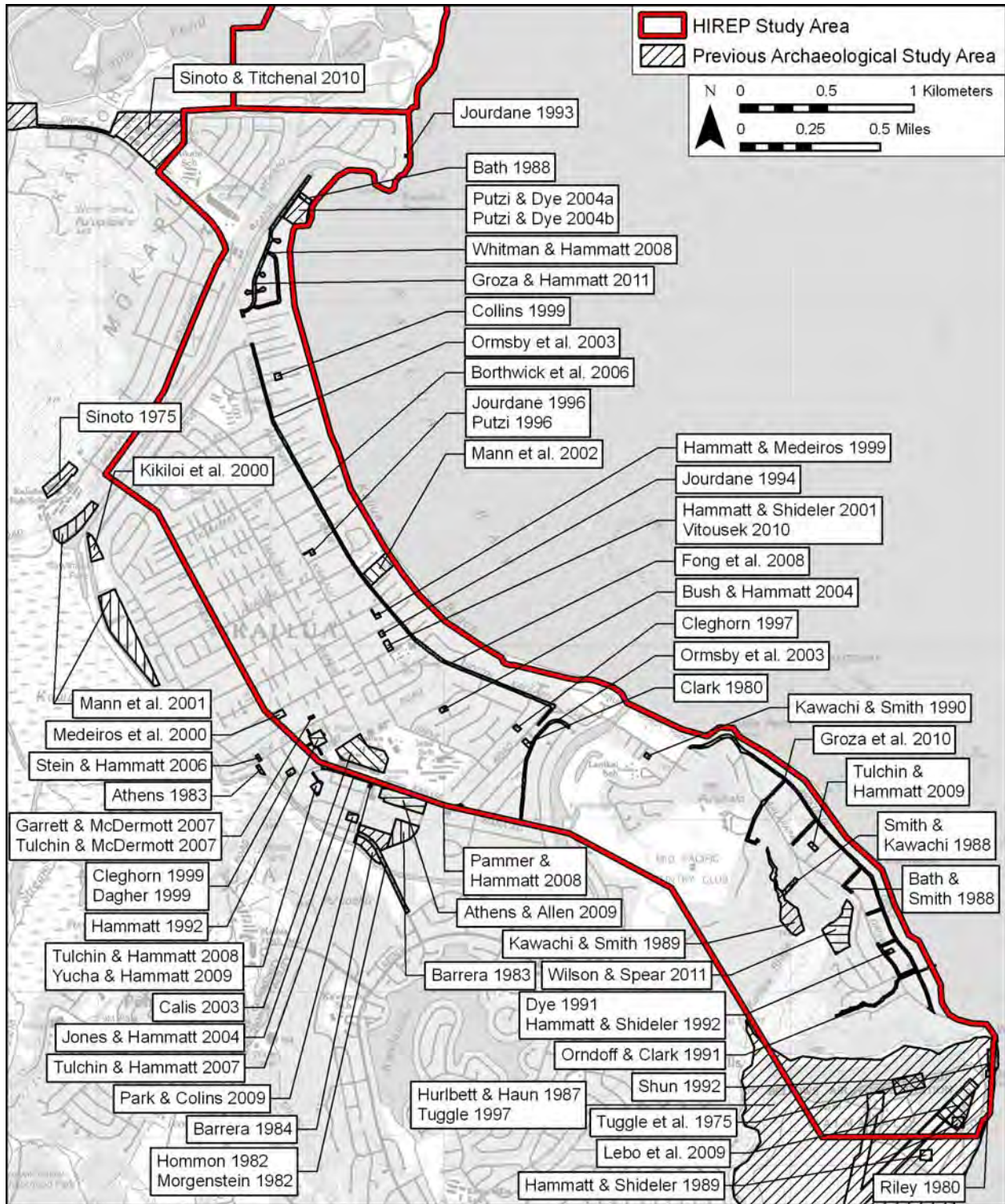
Reference	Type of Investigation	Location	Findings
Hammatt, and Shideler 1989	Archaeological Reconnaissance and Subsurface Testing	Park Complex North Coastal Region of Bellows AFS, Waimānalo	Potentially significant cultural deposits underlie a relatively small percentage (about 15%) of the proposed antenna field site.
Hammatt 1989	Subsurface Reconnaissance	44-291A Kāne'ohe Bay Drive (TMK: [1] 4-4-007: 8, 10)	Subsurface testing documented the presence of imported fill sediments and naturally deposited marine clays atop limestone bedrock. No historic properties identified. No further archaeological work was recommended.
Kawachi, and Smith 1989	SHPD Field Check, report	Kaiwa Ridge Lanikai, TMK 4-2-02:17	Notes two WWII bunkers (informant asserts former <i>ko'a</i> or <i>kilo i'a</i> locations, notes possibility of caves
Pietruewsky 1989	3993	4-3-22:11	Osteological analysis completed on Bath (1989) reported single burial..
Kawachi and Smith 1990	SHPD burial report	481-A1 Kawailoa Rd. 4-3-10:32 (East side Kaelepulu Stream)	Single flexed burial
Dye 1991	Burial recovery report	1414 'A'alapapa Drive, Lanikai	Burial recovered (see Hammatt and Shideler 1992 for work on same project).
Orndoff and Clark 1991	A historic literature and documents search that presents finds of monitoring.	Po'opo'o Gulch Lanikai	No significant finds
Hammatt 1992	Archaeological testing report	Kailua Elderly Housing TMK 4-3-55:11 just <i>makai</i> of Oneawa between Uluniu, and Ku'uilei	Minimal finds but references a 2/11/1992 discovery of a burial and possible pre-Contact pit feature. No site designation
Hammatt, and Shideler 1992	Burial recovery report	1414 'A'alapapa TMK 4-3-4:5 Ka'ōhao ("Lanikai")	Archaeological disinterment of inadvertent burial finds (three individuals) (see Dye 1991 for work on same project). Site 50-80-11-3738 used by Bath & Smith 1988 was used
Shun, 1992	Archaeological Reconnaissance Survey and Subsurface Testing	Two work areas: N and Central Bellows Air Force Station	In [the northern] Work Area 2, no significant archaeological site was recorded (Shun 1992:58)
Jourdane 1993	4691	4-4-39:015	Human skeletal remains were inadvertently discovered on the beach. Wave action exposed human remains that were believed to be one individual most likely of Hawaiian ancestry.
Jourdane 1994	SHPD Burial investigation report	Ulupa Street	Report on inadvertent discovery of human remains at SIHP # 50-80-11-4864. but only one femur fragment was observed. In the course of the work, anecdotal accounts of the discovery of human remains at two lots just seaward on the same side of Makawao Street were heard.

Reference	Type of Investigation	Location	Findings
Jourdane, 1996	SHPD Inadvertent Discovery Report	364 Kainalu Street Kailua, TMK 4-3-26:43	50-80-11-5377; finds further described by Putzi 1996
Putzi 1996	Data recovery	364 North Kainalu Drive	Report on the recovery of human remains (5 burials) from State Site # 50-80-11-5377.
Cleghorn 1997	Data recovery	Ku'ukama Street	Reports recovery of human skeletal material designated 50-80-5530
Tuggle 1997	Literature Review of the Cultural Resources of the Bellows Area	Bellows Air Force Station, O'ahu	Good summary of research and finds up to that time
Cleghorn 1999a&b	Report on recovery of human burials	Pūniu & Ho'olai Streets (just outside of project area)	Three separate human burials were encountered and recorded during property development. Two features were noted; one pit feature and a post-hole assigned 50-80-11-5731
Collins 1999	Monitoring report.	66 Kaiholu Place	Human skeletal remains of an adult female individual were disturbed during excavations.
Dagher, 1999	SHPD Inadvertent burial find report	Old Orson's Chowder House Kailua, TMK 4-3-57:38 (just <i>mauka</i> of project area)	Inadvertent Discovery of Human Skeletal Remains SIHP # 50-80-11-5731 during sewer line excavation
Hammatt and Medeiros 1999	Burial recovery report	119-A Mo'okua Street (Ordenstein Residence) (TMK 4-3-28:73)	A single human burial (State Site # 50-80-11-5770) was Inadvertently Discovered during excavation of a swimming pool.
Kikiloi, McDermott, and Hammatt 2000	Archaeological Inventory Survey	For a Kawainui Marsh Park Improvement Area TMK 4-2-17: por. 04	No significant finds
Medeiros, Bush and Hammatt 2000	Archaeological Monitoring Report	Andy's Drive-Inn	Fragmented human remains encountered.
Hammatt & Shideler 2001	Burial recovery report	St. Anthony's School, 145 Makawao Street	Report documenting the disinterment of inadvertently discovered human burials (SIHP # 50-80-11-5771).
Mann, Shideler, and Hammatt 2002	Archaeological Monitoring report:	Kalama Beach Park	No cultural features, cultural deposits, or burials were found.
Calis, 2003	Archaeological Monitoring Report	Kailua Elementary School [TMK 4-3-56:03]	Reports recovery of three human burials designated 50-80-11-6524
Ormsby, Peterson and Athens 2003	Archaeological Monitoring report	for the Kalaheo Avenue Sewer Project, Kailua, O'ahu TMK 4-2-1, 19, 20; 4-4-22 thru 32; 4-4-11	No cultural resources were found

Reference	Type of Investigation	Location	Findings
Bush and Hammatt 2004	Burial recovery report	205 Ku'upua Street Residence, (TMK 4-3-74:53)	A Letter Report for three human burials and a cultural layer disturbed during pool excavations the cultural layer was designated 50-80-11-6694 feature A and the burials were designated -6694 features B, C & D
Jones & Hammatt 2004	Monitoring report	Kailua Road	Discontinuous and disturbed subsurface pre-Contact cultural layer (SIHP No. 50-80-11-6657) containing charcoal concentrations observed.
Putzi and Dye 2004a	Archaeological Inventory Survey	55 Kailuana Place, Kailua, (TMK:4-3-22:11)	Traditional Hawaiian habitation with five early historic-era human burials and one pig burial. Dating was based on presence of glass beads in association with one burial. SIHP # 50-80-11-6642
Putzi and Dye 2004b	Archaeological Data Recovery	55 Kailuana Place, Kailua, (TMK:4-3-22:11)	Excavation of a re-interment pit yielded traditional Hawaiian artifacts, food remains and exposed a sixth individual of SIHP # 50-80-11-6642
Borthwick Fong, Van Ryzin, and Hammatt 2006	Monitoring report.	Kalāheo Avenue	Two separate sets of human remains encountered during the course of excavations for new sewer line. 50-80-11-6770 and 50-80-11-6818
McElroy 2006a	Burial Site Component of an Archaeological Data Recovery Plan	135 Kaimi Street; TMK: 4-3-026:061	Documents two burials SIHP #s ?
McElroy 2006b	Archaeological Monitoring Report	135 Kaimi Street; TMK: 4-3-026:061	No cultural materials
Stein, and Hammatt 2006	Archaeological Monitoring Report	74 Kīhāpai Street, TMK [1] 4-3-058:016	No significant finds
Garrett and McDermott 2007	Archaeological Monitoring Report	At 408 A Uluniu Street, [TMK: (1) 4-3-058:016]	One Burial (SIHP # 50-80-11-6859) recovered during elevator shaft excavations
Tulchin J. and Hammatt 2007a	Archaeological Monitoring Report	Kalāheo Avenue , TMK: [1] 4-2-18 to 20; [1] 4-3-11 to 30, 69, 70, 75, 80, & 83; [1] 4-4-2 to 5, 11, 23, & 27	Identified two sites: 50-80-11-6770 cultural layer containing 5 human burials 50-80-11-6818 a single burial
Tulchin J. and Hammatt 2007b	Archaeological Inventory Survey	for a Hekili Street Property, TMK: [1] 4-2-038: 009 & 010	Discusses 50-80-11-6916 a pre-Contact subsurface cultural layer with two human burials, midden, lithic artifacts and numerous pit features

Reference	Type of Investigation	Location	Findings
Fong, Borthwick and Hammatt 2008	Archaeological Monitoring Report	Kalāheo Avenue, from the Intersection of Kaluamo'o Street to Kailua Road, TMK: [1] 4-3-11 to 16, 26 to 30 & 69	Minor finds, no sites designated
Pammer, and Hammatt 2008	Archaeological Monitoring Report.	For Kailua Road Sewers Improvement District No. 276, TMK: [1] 4-2-001, 4-3-056 & 4-3-071	No significant finds
Tulchin J. and Hammatt 2008	Archaeological Inventory Survey	for a New First Hawaiian Bank Project, TMK: [1] 4-2-038: por. 022 & 062	Documents 50-80-11-6960 a pre-Contact subsurface cultural layer containing 3 burials (Features A to C) an <i>imu</i> , (Feature D), midden, debitage, and pit features
Whitman and Hammatt 2008	Archaeological Monitoring Report 6925	Kailuana Place and Kailuana Loop TMK [1] 4-03-022 & 0834-3-083:057	A disarticulated human burial (50-80-11-6925, determined to be one individual, was found within previously disturbed Jaucus sand during excavations for the existing sewer line. The remains may have been buried within the project area or imported from elsewhere.
Athens, and Allen 2009	Archaeological Assessment	for Ironwoods at Kailua, 5 parcels, 5.16 acres, TMK 4-2-01:30, 33, 34, 51, 57, 58	Documents stratigraphy, no finds, recommends monitoring
Lebo, S., Dye, and T. Dye 2009	Pre-Construction Archaeological Survey	For New Recreational Lodging at Bellows Air Force Station	Work between sites 50-80-15-4856 and -4857 led to expansion of -4856 with documentation of buried cultural layers and pit features with the bulk of dates relatively young
Park, and Collins 2009	Archaeological Monitoring Report	Intersection of Kailua Road & Hahani Street, TMKs (1) 4-2-001, 4-2-038, & 4-3-056	One archaeological site (SIHP # 50-80-11-7064, a pit feature of uncertain function (no artifacts, no midden) was recorded
Tulchin J. and Hammatt 2009	Archaeological Inventory Survey	For the Geary Residence at 136 Haokea Drive, , TMK: [1] 4-3-006:023	Identified SIHP #50-80-11-7054, a pre-Contact hearth
Yucha, and Hammatt 2009	Archaeological Monitoring Report	For the New Kailua First Hawaiian Bank Project, Kailua Road TMK [1] 4-2-038:022 & 062	Documents 50-80-11-6960 a pre-Contact subsurface cultural layer
Groza, and Hammatt 2010	Archaeological Monitoring Report	Wana'ao Road/Keolu Drive	No significant finds

Reference	Type of Investigation	Location	Findings
Groza, Pammer, and Hammatt 2010	Archaeological Monitoring Report	For the Mōkuluā Drive 8-inch Water Main, Part II, TMK: [1] 4-2-02, 4-3-001, 003, 004, 005, 006, 007, 008, 009	Documents two burial sites: 50-80-11-6937 50-80-11-7032
Vitousek, 2010	Inadvertent Discovery of Human Remains SHPD report	St. Anthony's Church 148 Makawao St., TMK # *(1) 4-3-028:010	Bones from a previous construction project
Groza and Hammatt 2011	Archaeological Monitoring Report	For the Kailuana Place Single Phase Loop Upgrade Project, TMK [1] 4-03-083: various	SIHP # 50-80-11-7174, a subsurface cultural layer; SIHP # 50-80-11-7175, a Native Hawaiian human burial
Wilson, and Spear 2011	Archaeological Assessment	An Approx. 7 Acre Residential Property in Lanikai, [TMK (1) 4-3-05:077-86]	No finds
Hammatt 2012	Archaeological Assessment	211 S. Kalāheo Avenue, TMK: [1] 4-3-014:010	No significant finds



Previous cultural resources studies in the Coastal Kailua and Northern Waimānalo Portion of the Kāne'ōhe Landing Study Area

4.10 Previously Identified Cultural Resources of the Coastal Kailua and Northern Bellows Portion of the Kāne'ōhe Landing Analysis Area

Table 13. Previously Identified Cultural Resources of the Coastal Kailua and Northern Bellows Portion Kāne'ōhe Landing Analysis Area

Site #	General Location Relative to the Project Area	Nature of Site	Status/ Comments	Source
50-80-10-1383	4-3-025:035	Historic Residence	Edric Cook Residence	Hawai'i Register 8/15/1987
50-80-11-00369	"At Alele in Kailua" Kapa'a and Kanalu Street	The approximate location in the coconut grove of the famous "Pamoa" house built by Kākuhihewa	McAllister notes the approximate location as known to him, Sterling and Summers relate location as per informant Louis Mahoe in 1951	Kamakau, Fornander McAllister 1933:185; Sterling and Summers 1978:230
50-80-11-00378	Alāla Point	Alāla Heiau & <i>ko'a</i> & "natural shrine" & "fish god" & <i>wahi pana</i> refuge cave	Temple associated by McAllister with Kūali'i about A.D. 1640	McAllister 1933:190; Oahu Place Names 1939; Pukui, Elbert Mookini 1974:9; Sterling and Summers 1978:238-239
50-80-11-3738	1414 Aalapapa TMK 4-3-4:5 Ka'ōhao ("Lanikai")	Burial site	At least 4 individuals	Bath and Smith 1988; Dye 1991; Hammatt, and Shideler 1992
50-80-11-3740	1063 Koohoo Place, Lanikai	Burial site	Single flexed burial	Smith and Kawachi 1988
50-80-11-3993	59 Kailuana Place	Burial site	Skeleton encased in beach rock	Bath 1988
50-80-11-4222	481-A1 Kawailoa Rd. 4-3-10:32 (East side Kaelepulu Stream)	Burial site	Single flexed burial	Kawachi and Smith 1990
50-80-11-4638	On the south side of Nu'upia pond	cobble pavement 3.75 m by 2.5 m	Possible burial, heath observed near by	Jackson, Carlson, Cleghorn, Dagher and Goddard 1993:18, 19
50-80-11-4639	On the south side of Nu'upia pond	cobble pavement 6.5 m by 6.0 m	No midden or artifacts (other than communication wire) observed, function uncertain	Jackson, Carlson, Cleghorn, Dagher and Goddard 1993:18, 20, 21
50-80-11-4640	On the south side of Nu'upia pond	Lithic scatter	Medium density basalt debitage and tool scatter with historic material	Jackson, Carlson, Cleghorn, Dagher and Goddard 1993:21-22

Site #	General Location Relative to the Project Area	Nature of Site	Status/ Comments	Source
50-80-11-4641	On the south side of Nu'upia pond	Boulder alignment	Limestone boulders, function uncertain	Jackson, Carlson, Cleghorn, Dagher and Goddard 1993:21,23
50-80-11-4642	On the south side of Nu'upia pond	Lithic scatter	A low density basalt debitage and tool scatter with historic material	Jackson, Carlson, Cleghorn, Dagher and Goddard 1993:21, 24
50-80-11-4643	On the south side of Nu'upia pond	Boulder alignment	Limestone boulders, function uncertain	Jackson, Carlson, Cleghorn, Dagher and Goddard 1993:21, 25
50-80-11-4691	Kapoho Point,, N. of mouth of Kawainui Canal	Burial site	Bones on beach; collected by SHPD	Jourdane 1993
50-80-11-5377	364 North Kainalu Drive	Burial site	Inadvertent find of 5 burials	Jourdane, 1996; Putzi 1996
50-80-11-5730	159 Ku'ukama Street TMK 4-3-70:25	Burial site	Reports recovery of human skeletal material	Cleghorn 1997
50-80-11-5731	Old Orson's Chowder House Kailua, TMK 4-3-57:38 and Pūniu & Ho'olai Streets (just mauka of project area)	Burial site	Inadvertent find of 1 burial (Dagher 1999) Three separate human burials were encountered and recorded during property development. Two features were noted; one pit feature and a post-hole assigned 50-80-11-5731	Dagher 1999; Cleghorn 1999
50-80-11-5770	119-A Mo'okua Street (TMK 4-3-28:73)	A single human burial	Inadvertent find	Hammatt and Medeiros 1999
50-80-11-5771	St. Anthony's School, 145 Makawao Street	Burial site	Inadvertent find, extensive, dense, burial site	Hammatt & Shideler 2001
50-80-11-6524	Kailua Elementary School [TMK 4-3-56:03]	Burial site	Three human burials. Re-interred on-site	Calis 2003
50-80-11-6642	55 Kailuana Place, Kailua, (TMK:4-3-22:11)	Traditional Hawaiian habitation with six early historic-era human burials and one pig burial.	Dating was based on presence of glass beads in association with one burial.5 burials were re-interred on site, one left in situ	Putzi and Dye 2004a,b
50-80-11-6657	Kailua Road	Cultural layer	Discontinuous and disturbed subsurface pre-Contact cultural layer containing charcoal concentrations	Jones & Hammatt 2004

Site #	General Location Relative to the Project Area	Nature of Site	Status/ Comments	Source
50-80-11-6694	205 Ku'upua Street Residence, (TMK 4-3-74:53)	Three human burials and a cultural layer: the cultural layer was designated 50-80-11-6694 feature A and the burials were designated -6694 features B, C & D	Disturbed during pool excavations	Bush and Hammatt 2004
50-80-11-6770	Intersection of Kalāheo Ave. and Wilikoki Place	Cultural layer containing human burials	5 human burials	Borthwick Fong, Van Ryzin, and Hammatt 2006; Tulchin J. and Hammatt 2007
50-80-11-6818	Intersection of Kalāheo Ave. and 'Ōma'o St.	Burial site	a single burial	Borthwick Fong, Van Ryzin, and Hammatt 2006; Tulchin J. and Hammatt 2007
50-80-11-6859	408 A Uluniu Street, [TMK: (1) 4-3-058:016]	One Burial	Human burial relocated within project area	Garrett and McDermott 2007
50-80-11-6916	a Hekili Street Property, TMK: [1] 4-2-038: 009 & 010	A pre-Contact subsurface cultural layer with two human burials,	Included midden, lithic artifacts and numerous pit features	Tulchin and Hammatt 2007
50-80-11-6925	Kai'ōlino Way	Human clavicle (context uncertain)	Inadvertent find	Whitman, and Hammatt 2008
50-80-11-6937	Laniaki, fronting 971 Mōkulua Drive near the intersection with Kaiolena Drive (TMK: [1] 4-3-007:014).	Burial site	Inadvertent find	Groza, Pammer, and Hammatt 2010
50-80-11-6960	New Kailua First Hawaiian Bank Project, Kailua Road TMK [1] 4-2-038:022 & 062	Subsurface cultural layer	Pre-contact containing 3 burials (Features A to C) an <i>imu</i> , (Feature D), midden, debitage, and pit features	Tulchin J. and Hammatt 2008; Yucha, and Hammatt 2009
50-80-11-7032	Laniaki, fronting 122 Lanipō Drive near the intersection with 'A'alapapa Drive (TMK: [1] 4-3-003:056).	Burial site	Inadvertent find	Groza, Pammer, and Hammatt 2010
50-80-11-7054	136 Haokea Drive, TMK: [1] 4-3-006:023	Hearth	Charcoal collected from the hearth yielded a date range of 1480AD-1670AD	Tulchin J. and Hammatt 2009

Site #	General Location Relative to the Project Area	Nature of Site	Status/ Comments	Source
50-80-11-7064, a	Intersection of Kailua Road & Hahani Street, TMKs (1) 4-2-001, 4-2-038, & 4-3-056	Pit feature of uncertain function	No artifacts, no midden, recommended eligible to National Register	Park and Collins 2009:16
50-80-11-7174	800 block of North Kalāheo Avenue and west portion of Kailuana Place	Subsurface cultural layer	Pre-contact	Groza and Hammatt 2011
50-80-11-7175	North Kalāheo Avenue, Kailua <i>makai</i> of 153 North Kalāheo Avenue's driveway	Burial site	A Native Hawaiian human burial	Groza and Hammatt 2011
50-80-11-9009	2 Aalapapa Place, 4-3-008:087	Historic Residence	"Hilltop House", "Pu'uhonua", or "Bird Lady's House"	Hawai'i Register 6/24/2006
50-80-11-9037	4-3-004:064	Historic Residence	Miles and Kathy Anderson House	Hawai'i Register 6/30/2007
50-80-11-9064	1548 Mokulua Drive	Historic Residence	Clarence Cooke Guest Beach House	Hawai'i Register 8/8/2009
50-80-11-9067	55 Kailuana Place	Historic Residence	Harold Castle Beach Residence	Hawai'i Register 8/8/2009
50-80-11-9748	4-3-018:045	Historic Residence	Mark Robinson Beach House	Hawai'i Register 6/29/1990
50-80-11-9760	4-3-016:004	Historic Residence	Charles and Mae Boettcher Residence	National Register 4/26/2002
50-80-11-9763	4-3-006:058	Historic Residence	Robert McCorrison Beach House	Hawai'i Register 6/28/1993
50-80-14-9846	4-3-009:001	Monument	Lanikai Monument	Hawai'i Register 8/2/2003
50-80-15-511	4-1-015:001, 015	Bellows Field Archaeological District	Boundaries drawn when archaeological resources were poorly known	National Register 8/14/1973
50-80-15-3305	N coastal Bellows	Complex of structural features: basalt quarry, mounds, alignment	Pre-Contact	Hurlbett and Haun 1987:8,14, 18, 37-47
50-80-15-3306	N coastal Bellows	Large platform or <i>heiau</i>	Pre-Contact	Hurlbett and Haun 1987:8, 14, 18, 47-49
50-80-15-3307	N coastal Bellows	Smaller stone platform	Pre-Contact	Hurlbett and Haun 1987:8, 15, 49-51
50-80-15-3309	N coastal Bellows	Field cultivation and irrigation complex	Associated with post-Contact agriculture	Hurlbett and Haun 1987:8, 14, 18, 51-53
50-80-15-3311	N coastal Bellows	Irrigation Channel	Associated with post-Contact agriculture	Hurlbett and Haun 1987:8, 14, 18, 53

Site #	General Location Relative to the Project Area	Nature of Site	Status/ Comments	Source
50-80-15-3313	N coastal Bellows	Cultural deposit	Eroding from beneath a sea wall (Tuggle 1975 addressed this as site 511-5).	Pearson et al. 1971; Tuggle 1975a; Tuggle 1975b; Hurlbett and Haun 1987:8, 14, 56
50-80-15-4856	N coastal Bellows	Cultural deposit	Buried traditional Hawaiian cultural deposit	Tuggle 1997:120-123; Lebo, Dye and Dye 2009:13-14
50-80-15-4857	N coastal Bellows	Cultural deposit	Site is known to contain human burials	Lebo, Dye and Dye 2009:14
50-80-15-9645	Beach cottage building 448, north coastal Bellows	Cultural deposit	On coast	Carter 1979; Hurlbett and Haun 1987:8
No SIHP #	Kaiwa Ridge, Lanikai	Two WWII bunkers	Informant (J. Bruce) asserts bunkers at former <i>ko'a</i> or <i>kilo i'a</i> locations, notes possibility of caves	Kawachi, and Smith 1989
No SIHP # Burial at Kailua Elderly Housing	Kailua Elderly Housing TMK 4-3-55:11 just <i>makai</i> of Oneawa between Uluniu, and Ku'u lei	One Burial and possible pre-Contact pit feature	Discovered 2/11/1992	Hammatt 1992:2
No SIHP # Burial at	TMK: (1) 4-3-026:061; 135 Kaimi Street	Burial site	2 burials encountered during swimming pool excavation	McElroy 2006a
No SIHP # Burial at 66 Kaiholu Place	66 Kaiholu Place (TMK 4-3-020:024)	Burial site	Inadvertent find	Collins 1999
No SIHP # Kānepolu	Kawailoa Road	<i>Wahi pana</i> , guardian stones	Basalt and coral stones associated with legend of Kānepolu, one stone has an imprint of his leg	Sterling and Summers 1978:238
No SIHP #	"Oneawa" coast	<i>Wahi pana</i> , "	famous for the quality and quantities of the 'ō'io (bonefish)," a favorite residence of the Old O'ahu chiefs", landing and camping place for the forces of Alapai, famous for <i>līpoa</i> seaweed	Saturday Press 1883; <i>Ke Au Hou</i> August 9, 1911; Kamakau 1992:71
No SIHP # "Wailea" (also Waile'a)	"Up above Hale Aloha" (between Bellows and Lanikai near coast	<i>Wahi pana</i> , "natural shrine"	Association with canoe-maker goddess, name of a fish god	Oahu Place Names 1939; Pukui, Elbert Mookini 1974:224

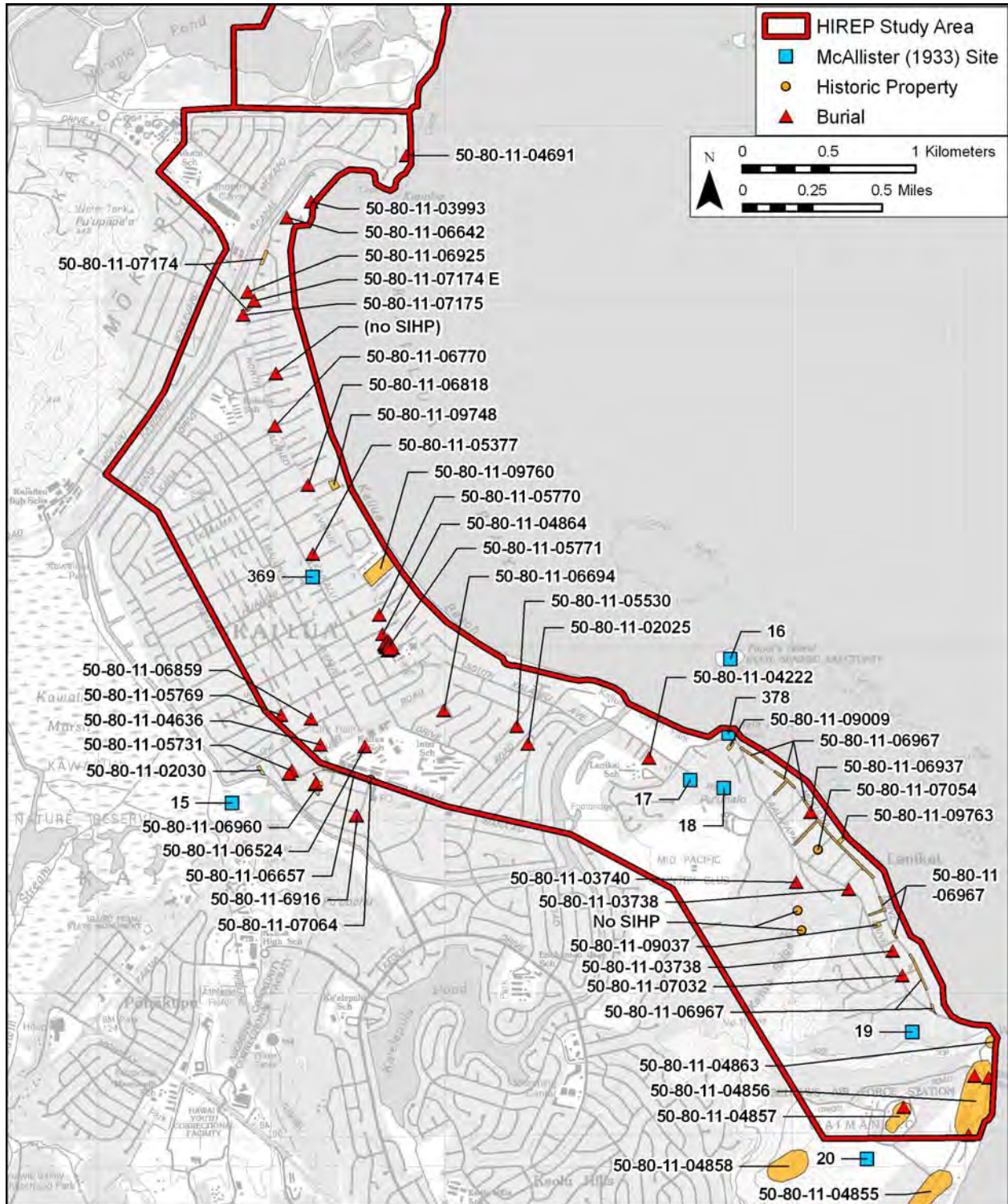


Figure 25. Previously identified cultural resources of the Coastal Kailua and Northern Waimānalo Portion of the Kāne'ōhe Landing Study Area

4.11 Summary of Cultural Resources of the Coastal Kailua and Northern Bellows Portion of the Kāne'ōhe Landing Analysis Area

Cultural resource studies for the Coastal Kailua and Northern Bellows Portion of the Kāne'ōhe Landing Analysis Area have been dominated by reports of burial finds. The coast of Kailua Ahupua'a has very extensive Jaucas sand deposits that were a preferred soil type for traditional Hawaiian burial. Burials could be anywhere in these sand deposits which are thus regarded of at least moderate sensitivity (Figure 26). These reported burials, however, disproportionately lie in a band between 50 m and 150 m back from the coast and appear somewhat evenly distributed over the coastal sandbar of *makai* Kailua (Figure 25). There does appear to be a significant area of finds in the immediate vicinity of St. Anthony's School on Makawao Street in central seaward Kailua. There is reason to believe there is also a significantly greater probability of finds on either side of Kailua road near the inland edge of the present analysis sub-area. This is also one of the few areas where there is strong evidence (other than burials) of Hawaiian pre-Contact settlement. With this notable exception, finds taper off in more mauka areas of the Kailua sand bar.

While the import of archaeological finds at Bellows may have been somewhat overemphasized in the past (because of the belief of very early dated deposits that are now suspect), the north portion of Bellows beach area (the south portion of the Kāne'ōhe Landing Analysis Area) remains relatively sensitive for finds (Figure 26). In addition the Bellows Field Archaeological District (SIHP #50-80-15-511) remains on the National Register of Historic Places.

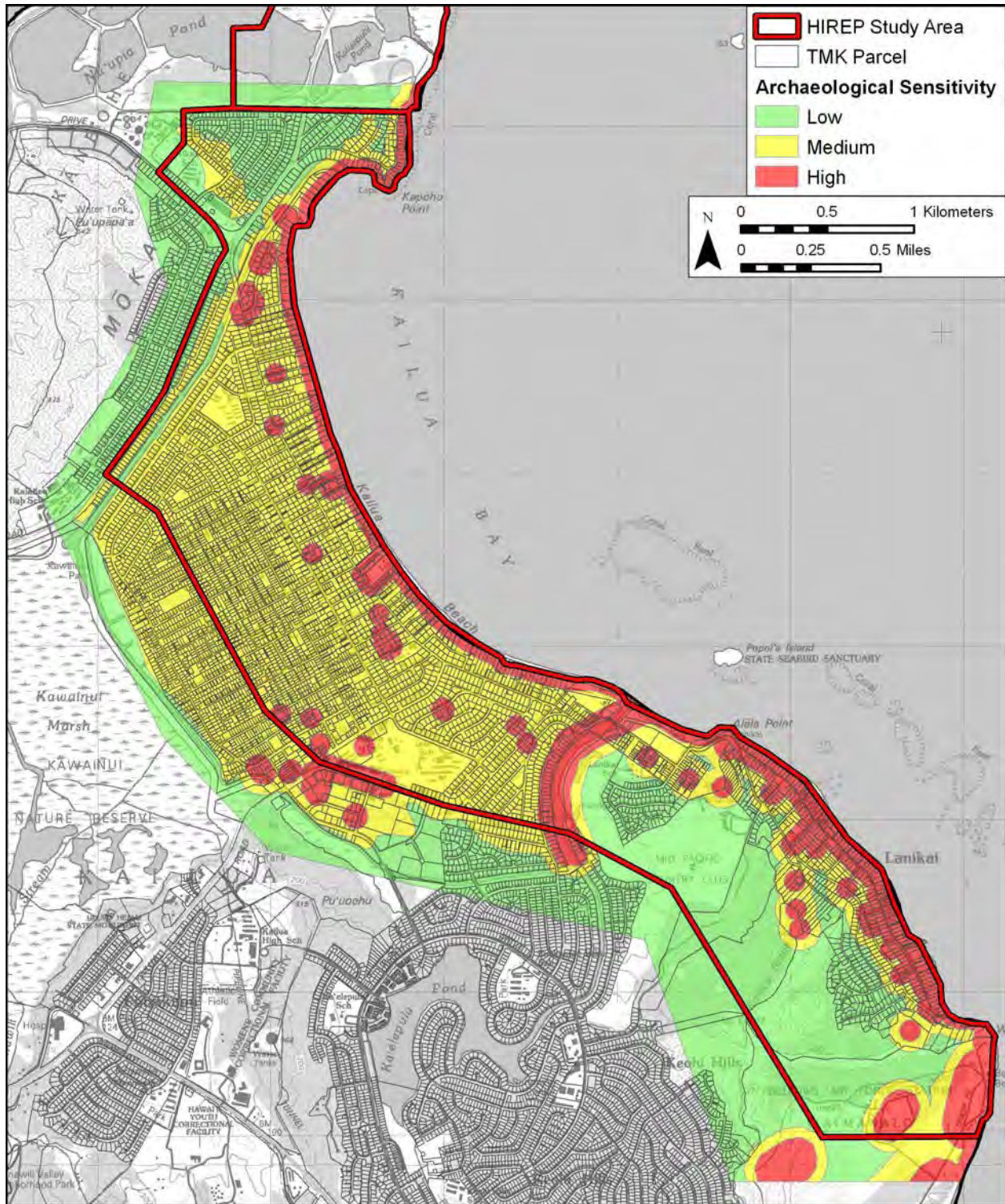


Figure 26. Cultural resource sensitivity map for the Kailua/North Waimānalo Portion of the Kāne'ōhe Landing Analysis Area

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Section 5 West Moloka'i Landing Study Area

5.1 Introduction to Cultural Resources of the West Moloka'i Landing Study Analysis Area

The West Moloka'i Landing Site Analysis Study Area (Figure 27 and Figure 28) encompasses approximately 12 kilometers of coastline extending from Mokio Point on the north west to 'Īlio Point, the most northwestern point on the island, and south to Kahaiawa encompassing most of the west coast of the island. Kaluako'i is the largest *ahupua'a* on Moloka'i with an area of 46,500 acres. The Project area averages approximately a kilometer-wide. This Site Analysis Study Area includes approximately 3,992 acres (6.24square miles or 16.16 square kilometers) of coastal Kaluako'i *ahupua'a*.

5.2 Previous Cultural Resources Studies in the West Moloka'i Landing Study Analysis Area

Table 14 lists cultural studies on the West Moloka'i coast with findings. These study areas are depicted on Figure 29.

Catherine C. Summers produced (1971) a *Molokai: A Site Survey* study that serves as a detailed compendium of B. P. Bishop Museum archaeological data for the island of Moloka'i up to that time. Many of the primary sources listed in Table 14 are gleaned from the Summers (1971) compendium.

From 1974 to 1987 there was a flurry of archaeological studies associated with proposed developments on coastal West Moloka'i Hammatt (1978) surveyed a *makai* portion of Kawakiuiki and Pōhakumauliuli by foot. Site findings varied from residential and agricultural complexes to *heiau* (Hammatt 1978). The following year Hammatt (1979) conducted archaeological excavations in Kawakiunui. Excavations were done on Sites 50-60-01-38, -1606, and -1607. In 1980, Hammatt conducted an archaeological reconnaissance at Pāpōhaku Beach. No archaeological remains were found in *mauka* portions of the Project area. Four habitation sites were found along the coast consisting of eroded remnants of stone shelters.

Barrera conducted a series of archaeological surveys and investigations ranging from 1981 to 1984 in the Kaluako'i area which yielded a series of new and old sites.

In 1987, Weisler conducted an archaeological re-evaluation and inventory study (1987a and 1987b). The re-evaluation was to expand on Barrera and Hammatt's previous studies. An additional 282 archaeological features were recorded during the study.

An inventory survey and mitigation plan were carried out by Hammatt (1997a and 1997b) for a 30-acre parcel in Kaupo'a. The study relocated six sites and discovered eight new SIHPs which were identified, documented and mapped.

The University of Hawai'i at Mānoa, Department of Urban and Regional Planning (2005), conducted a Cultural and Natural Resource Preservation Plan in the Pāpōhaku Dunes. The plan was to protect and preserve the last intact coastal dune system in Hawai'i.

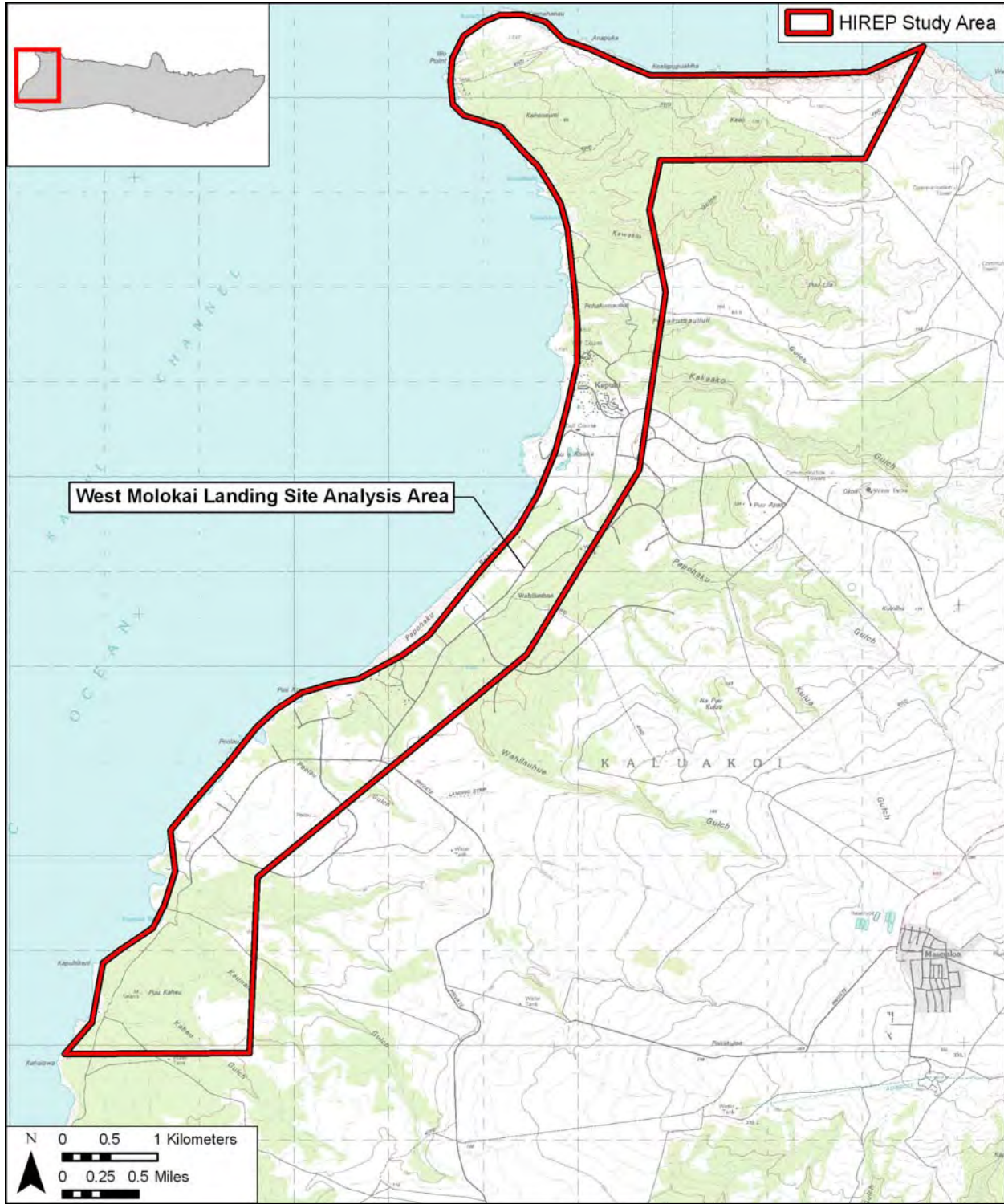


Figure 27. U.S. Geological Survey (1993), 'Īlio Point quad, showing the West Moloka'i Landing Study Analysis Area

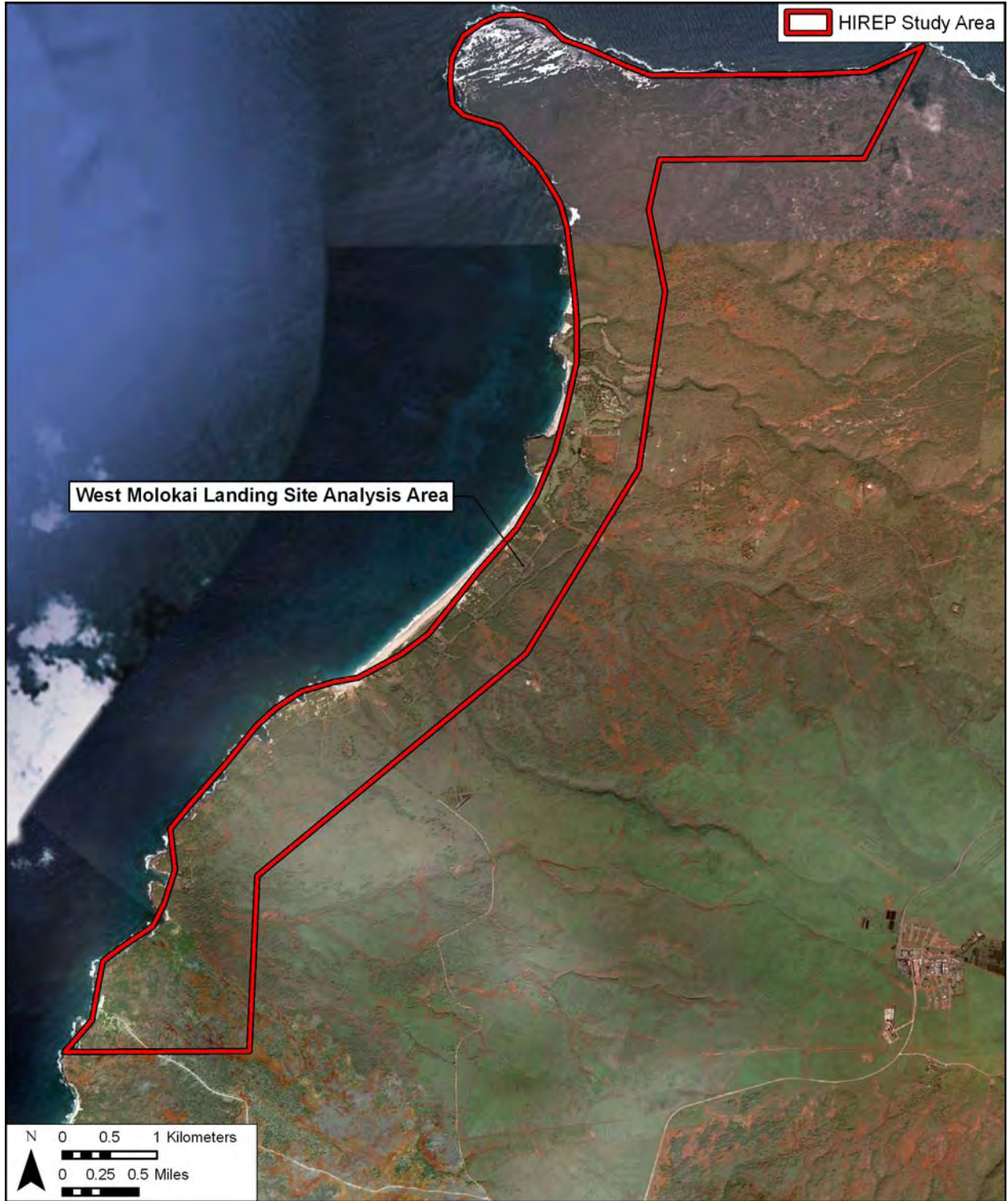


Figure 28. Aerial photograph (2007) of the West Moloka'i Landing Analysis Area

Table 14. Previous Cultural Resources Studies in the West Moloka'i Landing Analysis Area (arranged chronologically)

Reference	Type of Investigation	Location	Findings
Malihini-hele, 1876	"Hina's Windy Island" <i>Ka Lahui Hawai'i</i> (Hawaiian Newspaper article)	Moloka'i	Noted in Summers (1971); "Kaunala in Kaluako'i"
Monsarrat, 1885	Surveyor's Field Notebook	Moloka'i	Noted in Summers (1971); survey and mapping of sites
Stokes, 1909	<i>Heiau</i> study	Moloka'i	Noted in Summers (1971); Survey of sites
Stokes, n.d. circa 1909	Partial Plans of Sites	Moloka'i	Noted in Summers (1971); Based on 1909 survey
Cartwright, n.d. (circa 1922)	Notes on 1922 Pāpōhaku Quadrangle Map (1927-1928) Manuscript	Pāpōhaku Quadrangle	Noted in Summers (1971); Recorded locations of sites including description and place names
Phelps, 1937	A Regional Study	Moloka'i	Noted in Summers (1971); Investigation and description of sites
Stearns and MacDonald, 1947	Geology and Ground Water Resources study	Island of Moloka'i	Noted in Summers (1971); Geologic development of Moloka'i
Emory, 1952	Archaeological Field Notes	West Moloka'i	Noted in Summers (1971); Archaeological excavations on West Moloka'i
Bonk, 1954	Archaeological Excavations M.A. Thesis	West Moloka'i	9 excavation sites; 1 excavation is within the current Project area (Site Mo.5)
Emory, Bonk and Sinoto 1959	Fishhooks study	Moloka'i	Noted in Summers (1971); excavations and fishhook studies
Summers, 1971	A Site Survey (compendium)	Moloka'i	Compilation of sites on Moloka'i; 304 sites recorded island-wide; 82 sites in the <i>ahupua'a</i> of Kaluako'i
Cleghorn 1974	Archaeological Survey	Kaluako'i	One historical site and nine archaeological complexes (Areas A thru J)
Barrera, 1975	Archaeological Investigations	Between Pohaku-mauliuli Gulch and Pāpōhaku Gulch, Kaluakoi	Survey and excavations of seven sites (Sites -500 to -514)
Ching, 1978	Archaeological Reconnaissance	1,000-acres between Kawaiuiki and Pohaku-mauliuli, Kaluako'i	Two coastal parcels surveyed; Area I yielded no archaeological remains; Area II yielded archaeological remains in nine locations including four enclosures, three <i>ahu</i> , two C-shaped structures, an L-shaped structure, and a wall remnant

Reference	Type of Investigation	Location	Findings
Hammatt, 1978	Archaeological Surface Survey,	Seaward Portion of Kaluako'i between Kawakiu-iki and Pohaku-mauliuli	Survey by foot yielded results of Sites -38, -1601, -1602, -1603, -1604, -1605, -1606, -1607, -1608, -1609, -1610, -1611, -1612, -1613, -1614, -1615, -1616
Hammatt, 1979	Archaeological Excavations	KawakiunuiK auluako'i	Excavations on Sites 50-60-01-1606, -1607, and -38
Hammatt, 1980	Letter Report, Archaeological Reconnaissance	3,200-acres, Pāpōhaku Beach, Kaluako'i	No archaeological remains in <i>mauka</i> portion of area; four habitation sites (1-4) were found along the coast consisting of eroded remnants of stone shelters surrounded by basalt flakes and midden
Barrera, 1981a	Archaeological Survey	Kawakiunui Park Site	No new features identified within Project area; one feature close to the Project boundary was found (Site -529), a human interment
Barrera, 1981b	Letter Report	Kawakiunui Bay	Inspection of two habitation shelters and a stone mound; flagging of sites; archaeological survey (skeletal remains found)
Barrera, 1982a	Archaeological Survey	Proposed Roads and Beach Accesses at Kaluakoi	Three sites located in the road right-of-way; two sites were located in the right-of-way of two beach accesses (Sites -516, -517, -518, -519, and -520 which includes features A thru E)
Barrera, 1982b	Archaeological Investigations	Kaluakoi, West Moloka'i	Excavations carried out for proposed roadway construction (Sites -516, -517, -520)
Barrera, 1982c	Account of Additional Archaeological Sites	Kaluakoi	Archaeological survey for additional Sites including -521, -522, -523, -524, -527, -528, -1604, -1609, -1610, -1611, -1612, -1613, -1614, -1615, and -1616
Barrera, 1983	Archaeological Survey	Kaiaka Rock	Proposed additional golf holes; Areas A thru D were tested as well as Sites -41, -500, -501 to -507, -526, and -530
Barerra, 1984	Archaeological Survey	Various parcels, Kaluako'i	Archaeological survey in six areas; yielded results for Sites -521, -522 (Features A thru D), -524, -525, -527, -1610 (with Features A thru E), -1611 (Features A and B), -1612 (Features A thru C), -1613 (Features A thru C), -1614 (Features A thru C), -1616
Weisler, 1984	Archaeological Survey	Southwest Moloka'i	Remapping of previous sites
Kaluako'i Historic Sites Advisory Council, 1987	Cultural Resource Management Procedural Plan	Kaluako'i	To mitigate cultural resources, including activities for their protection and preservation on Kaluako'i lands; review of all previous archaeology within Kaluako'i
Weisler, 1987a	Archaeological re-evaluation	Kawakiu Nui	Discussion of survey results in Residential Complex A (Sites -38, -529, -1606, -1607), Complex B (Site -1608), Complex C (Site -1605), and Complex D (Site -1609)

Reference	Type of Investigation	Location	Findings
Weisler, 1987b	Inventory, Significance and Management of Archaeological Resources study	Northwest Moloka'i	282 archaeological features from 45 sites were recorded; the first radiocarbon dating determined habitation from A.D. 1650 to 1894 from deposit at Kawakiu Nui Bay
Dixon and Major, 1993	Archaeological Inventory Survey	Southwest Moloka'i	Extensive study of Southwest Moloka'i recording many sites both inside and outside of present analysis area
Erkelens, 1995	Archaeological Inventory Survey	Kaupo'a Parcel, Kaluako'i	Report not seen
Hammatt, 1997a	Archaeological Mitigation Plan	Kaupo'a	Previously surveyed by Erkelens (1995) and Hammatt (1997); protection measures based on previous studies
Hammatt, 1997b	Archaeological Inventory Survey	30-Acre Kaupo'a Parcel	SIHPs 50-60-01-52, -639, -648, -650, -653, and -784 were relocated; eight new SIHPs 50-60-01-1658, -1659, -1662, and -1667 were identified, documented, and mapped
Burtchard, Athens, Tuggle, Tomonari-Tuggle, 1999	Archaeological Reconnaissance	Pāpōhaku Aerial Gunnery Range	Reconnaissance of Sites 50-60-01-1754 and (45)
Dega 1999	Monitoring	Pāpōhaku Beach	No findings
U.H. Mānoa, Department of Urban and Regional Planning, 2005	Cultural and Natural Resource Preservation Plan	Pāpōhaku Dunes	To protect and preserve the Pāpōhaku Sand Dunes, the last intact coastal dune system in the State of Hawai'i
Moore and Kennedy, 2006	Archaeological Assessment	Pāpōhaku Ranchlands	No findings

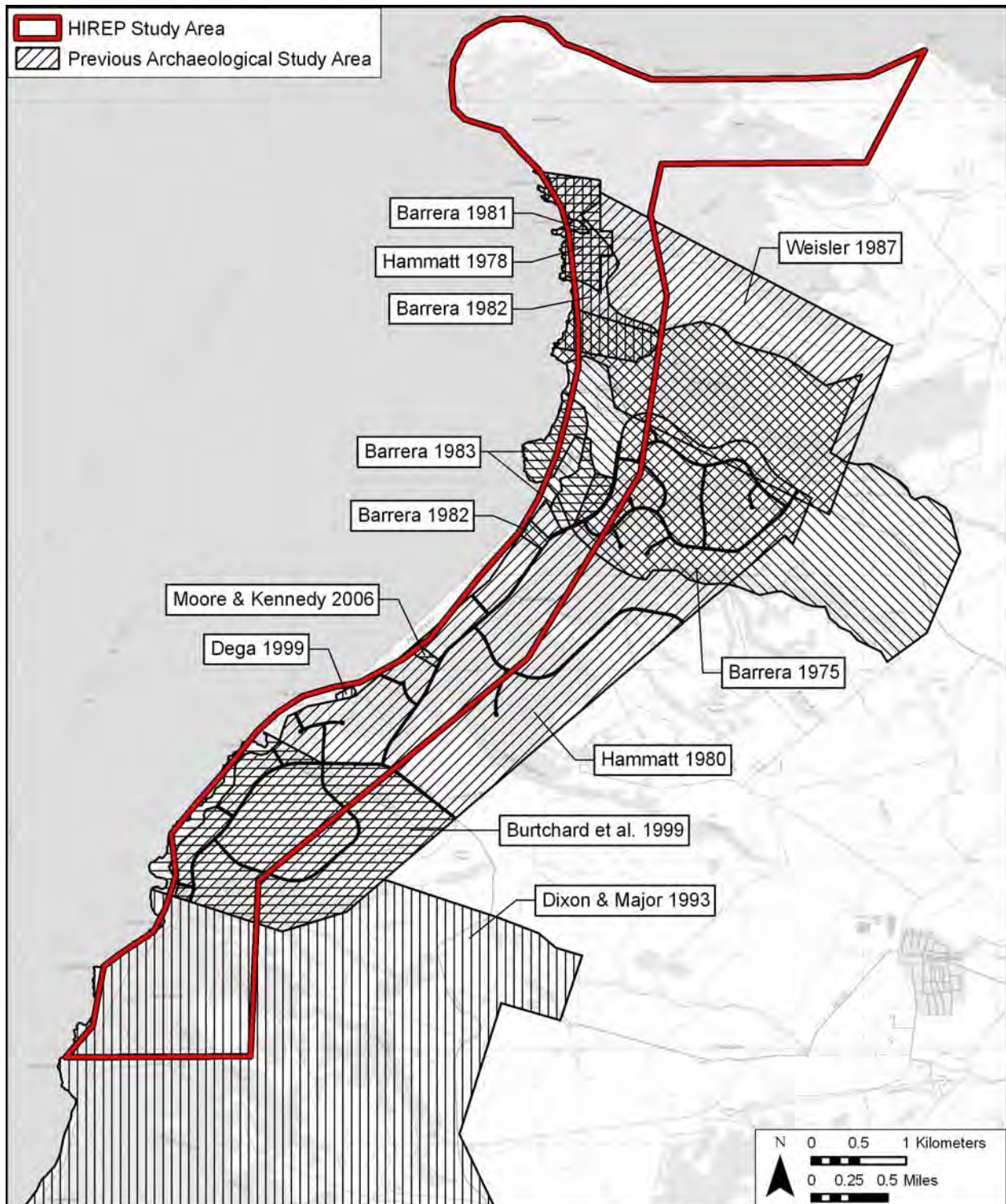


Figure 29. Previous cultural resource studies in the West Moloka'i Landing Study Area

5.3 Previously Identified Cultural Resources of the West Moloka'i Landing Study Analysis Area

The West Moloka'i Landing Study Analysis Area has proven to be remarkably rich in archaeological sites (Table 15 and Figure 30) given the aridity and lack of surface water. This site density is largely an expression of the exceptional off-shore fishing resource as well as the general absence of early development in this area.

Table 15. Previously Identified Cultural Resources of the West Moloka'i Landing Analysis Area

Site #	General Location Relative to the Project Area	Nature of Site	Status/ Comments	Source
(31)	SW of Pueaoao	<i>Heiau</i> at Ka'eo Hill, Kaluako'i	Top of hill; <i>heiau</i> foundation; natural outcropping of stone due to erosion	Stokes (n.d. a:28), Summers (1971:45)
(32)	SE of Ka'eo Heiau	Adze quarry at Ka'eo Hill, Kaluako'i	MacDonald described as being "a thin flow of dense lava"	Stearns and MacDonald (1947: Plate 2); Summers (1971:45-46)
(33)	NW corner of Project area; At Kalaeoka'ilio Point	<i>Ko'a</i> at Kalaeoka'ilio, Kaluako'i	20 m above sea level; perimeter is 3 m x 2.7 m; walls vary from 0.3 m to 0.7 m in width and 0.9 m in height; S wall was 0.3 m in height and width; four ' <i>alā</i> ' (basalt) stones present	Stokes (n.d. a:29), Summers (1971:46-47)
(34)	NW corner of Project area; slightly SW of Kalaeoka'ilio Point	Excavation site 'Ilio, Kaluako'i	Bluff shelter 6 m below top of cliffs; shelter is 6.7 m wide x 3 m in depth x height of 1.50 m; primarily used by fishermen	Bonk (1954:44-47), Summers (1971:46)
(35)	SE corner of Kawakiuiki Bay	<i>Ko'a</i> at Kawakiuiki Bay, Kaluako'i	3.81 m x 2.6 m, longer axis N and S; bordered with large water-worn stones; paved with smaller stones	Stokes (n.d. a:29-30), Summers (1971:46-47)
(36)	N point of Kawakiunui Bay	<i>Ko'a</i> at Kawakiunui Bay, Kaluako'i	No remains	Stokes (n.d. a:30), Summers (1971:47)
(37)	Mid-point of Kawakiunui Bay	<i>Ko'a</i> at Kawakiunui Bay, Kaluako'i	Circular, flat boulder 1.8 m in diameter x 0.6 m in height; another 0.9 m of stones piled on boulder; caretaker of <i>ko'a</i> lived in nearby enclosure 61 m E; enclosure contained human female skeleton; <i>Ko'a</i> was destroyed by 1946 tsunami	Stokes (n.d. a:30), Summers (1971:47-48)

Site #	General Location Relative to the Project Area	Nature of Site	Status/ Comments	Source
(38) 50-60-01-38	S point of Kawakiunui Bay	<i>Heiau</i> at Kawakiunui Bay, Kaluako'i	Paved platform on NW corner; NE wall is 1.2 m high; SW wall is 1.5 m high; branch coral throughout heiau; 15 m N of N corner is a large grind-stone; however, excavations show evidence of habitation dwelling; yielded largest fishhook manufacturing site (over 500 artifacts)	Emory (n.d. c: June 28), Summers (1971:47-48), Hammatt (1978:14 and 1979:15)
(39) 50-60-01-39	E outside of Project area; S of Ka'eo Heiau; E of Pōhakumauliuli	<i>Heiau</i> at Kawakiunui Bay, Kaluako'i	61 m long on the W x 26 m wide on the N x 22.8 m wide on the S x 58.8 m long on the E; traces of interior paving; used for <i>ho'omana</i> (ascribing divine honors)	Stokes (n.d. a:30 and n.d. f), Summers (1971:49), Weisler (1987b:52)
(40)	N point of Kepuhi Bay	<i>Ko'a</i> at Kepuhi Bay, Kaluako'i	Two platforms inside enclosure suggesting house foundations; walls vary from 1.5 to 2 m in height around enclosures; partly paved areas; possible <i>ko'a</i> was in small enclosure and large enclosure was for keeper; house sites in vicinity of area; rock piles NE of <i>ko'a</i> used for conservation of moisture for <i>'uala</i> (sweet potato)	Stokes (n.d. a:30-31), Summers (1971:49-50)
(41)	Top of Pu'u o Kaiaka	<i>Heiau</i> at Pu'u o Kaiaka, Kaluako'i	11.8 m x 5.5 m; U.S. Army dozed the site in 1967; a boulder with "Benchmark 110" present	Emory (n.d. c. April 12), Summers (1971:50), Barrera (1983:12)
(42)	E of Pāpōhaku Beach	Pāpōhaku, Kaluako'i	Numerous structures indicating larger settlement than Kaluako'i; house sites N of Pāpōhaku Beach; grind-stone 0.9 m in diameter S of Pāpōhaku Gulch, E of the road; house sites continue near vicinity of grind-stone; another grind-stone can be found E on a slope, rectangular in shape 0.7 m in length x 0.9 m wide x 0.4 m high; 15.24 m W of grind-stone on slope is an <i>ahu</i> 1.5 m wide x 0.9 m high with a rock stacking of 0.5 m high; two wells on the 1897 Monsarrat map include Punawaikohelea and Wahilauhue, both are now filled	Monsarrat (1897), Summers (1971:71-76)

Site #	General Location Relative to the Project Area	Nature of Site	Status/ Comments	Source
(43)	E outside of Project area; E of Pāpōhaku Beach	Three <i>hōlua</i> slides at Na Pu'u Kulua	Northern hill of Na Pu'u Kulua; two <i>hōlua</i> are located on the W of the hill and are 1.8 m apart and 0.9 m wide; the third was on the N and extended 7.3 m in 1954; the top of the hill has a paved platform measuring 3.6 m x 5.4 m	Summers (1971:51)
(44)	S point of Pāpōhaku Beach, N point of Po'olau Bay	<i>Heiau</i> at Po'olau Bay Kaluako'i	16.7 m E to W x 12.8 m N to S x 0.6 to 0.9 m in height; loosely piled rocks with coral throughout; upright stone on NW platform 1 m high x 0.9 wide x 0.6 m thick	Summers (1971:51)
(45)	Mid-point of Po'olau Bay	Excavation site, House sites, and <i>Ahu</i> at Po'olau Bay, Kaluako'i	Rectangular house sites measuring 3.6 to 6 m on a side with walls 0.3 to 0.6 m thick and 0.9 to 1.5 m high, extend from N side of bay to mouth of gulch; several house sites have been destroyed by dozing; N side of Po'olau Gulch, approximately 91 m E of road, are three <i>ahu</i> 15 m apart from each other, composed of a large boulder with rock stackings varying from 0.4 to 0.9 m in height	Phelps (n.d. 16); Emory et al. (1959:5); Summers (1971:51); Burtchard et al. (1999:45)
(46)	S of Site 45	<i>Ko'a</i> at Po'olau Bay, Kaluako'i	Enclosure and platform joined by a causeway a foot high; most of the structure was destroyed by the 1946 tsunami; a pile of ' <i>alā</i> ' stones and coral remain; it was said that a grave was next to the <i>ko'a</i>	Stokes (n.d. a:31), Summers (1971:51-52)
(47) 50-60-01-47 BPBM Site 50-Mo-B6-59 and -60	N of Kapukahehu Bay	<i>Ko'a</i> at Kapukahehu Bay, Kaluako'i (NRHP listing is for "Habitation Site")	<i>Ko'a</i> most likely destroyed by tsunami; no structure exists, however, many house sites extend from the point to the beach; Placed on NRHP 10/15/86 as part of 50-60-01-803 Archaeological District	Cartwright (n.d. c), Summers (1971:51), Weisler (1984:8); SHPD web site
(48) 50-60-01-48 BPBM Site 50-Mo-B6-61 and -83	N of Kapukahehu Bay, S of Site 47	<i>Ko'a</i> at Kapukahehu Bay, Kaluako'i; (NRHP listing is for "Habitation Area")	Rectangular enclosure 8.2m E to W x 12.8 m N to S x 1.2 m in width x 1.2 to 2.1 m in height; zigzag causeway on W; interior of enclosure was cultivated since abandonment of <i>ko'a</i> ; Moloka'i Ranch named this bay Dixie Maru; Placed on NRHP 10/15/86 as part of 50-60-01-803 Archaeological District	Stokes (n.d. a:31 and n. d. f), Summers (1971:51-52), Weisler (1984:8); SHPD web site

Site #	General Location Relative to the Project Area	Nature of Site	Status/ Comments	Source
(49) 50-60-01-49 BPBM Site 50-Mo-B6-62	S of Site 47 and 48	<i>Ko'a</i> at Kaunala Bay, Kaluako'i; (NRHP listing is for "Habitation Site")	Located on a bluff; Placed on NRHP 10/15/86 as part of 50-60-01-803 Archaeological District	Emory (n.d. c), Summers (1971:52), Weisler (1984:8); SHPD web site
(50) 50-60-01-50 BPBM Site 50-Mo-B6-63 and -63	S of Kaunala Stream and Gulch	<i>Ko'a</i> at Kaunala Gulch, Kaluako'i; (NRHP listing is for "Habitation Area")	45.7 m E of the road and 4.5 m above sea level; several house sites in vicinity; enclosure is 5.4 m N to S x 5.8 m E to W x 1.8 to 2.2 m wide; the N wall is 1.5 m high; the S wall is 0.9 m high; E wall contains small enclosure 1.2 m N to S by 0.6 E to W; another name used was Kaunalu which is a misprint; Placed on NRHP 10/15/86 as part of 50-60-01-803 Archaeological District	Malihinihele (1976), Monsarrat (n.d. b:40), Summers (1971:52), Weisler (1984:8); SHPD web site
(51) 50-60-01-51 BPBM Site 50-Mo-B6-65	N of Kapuhikani Point	<i>Heiau</i> at Kapuhikani Kaluako'i	18 m N to S x 16.5 m E to W; S wall had a "tail" of rocks 0.6 m high; Placed on NRHP 10/15/86 as part of 50-60-01-803 Archaeological District	Summers (1971:53), Weisler (1984:8); SHPD web site
(52) 50-60-01-52 BPBM Site 50-Mo-B6-66 IARII Site # 2	SE of Kapuhikani Point; S point in Project area	<i>Ko'a</i> at Kaupoa, Kaluako'i; (NRHP listing is for "Habitation Area at Kaheu Gulch")	0.6 to 1.2 m wide x 1.2 m high, 5.1 m wide on the S, 5.7 m wide on the N, and 6.7 m; Placed on NRHP 10/15/86 as part of 50-60-01-803 Archaeological District	Stokes (n.d. a:31), Summers (1971:53), Dixon and Major (1993:65); Erkelens (1995, not seen); SHPD web site
50-60-01-500	S side Pu'u o Kaiaka	Terrace	9 x 15 m x 0.60 m high	Barrera (1975: 5-10 and 1983:12)
50-60-01-501	S side Pu'u o Kaiaka	Platform	2 x 6 m x 0.30 m high, included a fire pit	Barrera (1975: 10-12 and 1983:12-13)
50-60-01-502	S side Pu'u o Kaiaka	Platform	10 x 10 m x 0.50 m high	Barrera (1975:11-13 and 1983:12-13)
50-60-01-503	S side Pu'u o Kaiaka	Platform	3.5 x 3.8 m x 0.50 m high	Barrera (1975:11 and 1983:12-13)
50-60-01-504	S side Pu'u o Kaiaka	Basalt Quarry	Quarried bedrock outcrops	Barrera (1975:14-15 and 1983:13)
50-60-01-505	S side Pu'u o Kaiaka	Enclosure	Rectangular, 3.9 m x 11 m with walls 1.15 m	Barrera (1975:15 and 1983:13)
50-60-01-506	S side Pu'u o Kaiaka	Walls	28 m long with 2 shorter walls	Barrera (1975:16 and 1983:13)
50-60-01-507	S side Pu'u o Kaiaka	Shelters	3 features: 2 L-shaped walls & a C-shape	Barrera (1975:17-18 and 1983:13)

Site #	General Location Relative to the Project Area	Nature of Site	Status/ Comments	Source
50-60-01-508	800 m ENE of Pu'u o Kaiaka	Enclosure	Small oval enclosure 1.8 x 2m x 0.75 m high	Barrera (1975:18)
50-60-01-509	800 m ENE of Pu'u o Kaiaka	Enclosure & wall	Small enclosure 3.7 x 4 m & a 2 m long wall	Barrera (1975:18-19)
50-60-01-510	Kilometer N of Pu'u o Kaiaka near coast	Enclosure	Rectangular, 8.5 x 18.7 m with 4 rooms & height of 0.60 m	Barrera (1975:19-21)
50-60-01-511	Kilometer N of Pu'u o Kaiaka near coast	Burial platform	2.8 x 3.8 m x 0.65 m high, flexed skeleton left in place	Barrera (1975:21-22)
50-60-01-512	Kilometer N of Pu'u o Kaiaka near coast	Enclosure and wall	U-shaped enclosure 7.5 x 10 m x 0.65 m high	Barrera (1975:22-26)
50-60-01-513 Site 40 (Stokes 1909)	Kilometer N of Pu'u o Kaiaka near coast	Platform	13 x 15 m area with platform 8.5 x 15 m x 1m high with adjacent paved area & low wall	Described by Stokes (1909) as a shrine; Barrera (1975:26); Weisler (1987b:53-55)
50-60-01-514	Kilometer N of Pu'u o Kaiaka near coast	Open midden	Extensive, revealed during bulldozing	Barrera (1975:26-27)
50-60-01-516	Inland of Sheraton Moloka'i (N end Pāpōhaku Beach)	Midden deposit in sand dune	23 hearths or firepits; 347 cataloged artifacts including worked mammal bone, a fishhook, basalt flakes, hammerstone	Barrera (1982a: 3 and 1982b:7)
50-60-01-517	Inland of Po'olau Bay	Rock mound	2.3 m x 4.9 m x 60 cm high; 124 artifacts recovered including adze, coral abrader, hammerstone	Barrera (1982a:4 and 1982b:15)
50-60-518	Inland of Po'olau Bay	Low crude wall	75 m long x 50 cm wide x 30 cm high; constructed of basalt rocks measuring 20 cm x 20 cm and 40 cm x 50 cm	Barrera (1982a:4)
50-60-519	Inland of Pāpōhaku Beach	C-shaped shelters	Northern shelter: 6.5 m long x 1.6 m wide x 40 cm high; the other shelter stands at 6 m long x 1 m wide x 50 cm high	Barrera (1982a:4)

Site #	General Location Relative to the Project Area	Nature of Site	Status/ Comments	Source
50-60-01-520	Km inland of Po'olau Bay	Five features	Feature A: Stone wall shelter 5.5 m x 5.8 m x 70 cm high; large firepit; cultural deposit; two firepits found within Feature B: Habitation shelter 2.7 m x 2.9 m x 1 m high Feature C: C-shaped shelter 5.4 m x 2.5 m x 60 cm high Feature D: C-shaped shelter 5.4 m x 1.5 m x 1.2 m high Feature E: Large boulders filled with 'ili'ili (pebble) 1.8 m x 3.5 m x 1.2 m high; 'ili'ili approximately 30 cm x 30 cm	Barrera (1982a:4 and 1982b:20)
50-60-01-521	Near Pohakumauliuli	Habitation features, agricultural enclosures, gardening modifications	A: Wall 15 m long x 0.40 m high B: 41 m x 34 m x 0/50 m high, agricultural enclosure constructed of stacked cobbles and boulders; S are 28 stone mounds averaging 0.82 m in diameter and 0.23 m high C: 16 m long wall x 0.50 m high D: Agricultural enclosure 50 m x 30 m x 0.20 to 0.60 m high E: 25 m x 10.5 m habitation structure; fragments of coral and sandstone noted F: Uncertain feature measuring 9 m square	Weisler (1987b:60-71)
50-60-01-522	At Pohakumauliuli	Stone mounds	116 mounds over a 1,540 m square area; NW corner of site is a tabular upright stone (0.54 m high x 0.40 m wide x 0.12 m thick)	Barrera (1982c:2 and 1984:21), Weisler (1987b:20)
50-60-01-524	Kawakiunui	Enclosure	C-shape 4.5 m x 2.6 m x 0.90 m high, open to the S	Barrera (1982c:5 and 1984:10), Weisler (1987b:20)
50-60-01-526	At Kaiaka Rock	Stone mounds	Remnants of concrete and brick structures, fragments of machinery; site measures 45 m x 55 m	Barrera (1983:13)
50-60-01-527	Kawakiunui	Midden deposit	1m square	Barrera (1982b:6 and 1984:11), Weisler (1987b:20)

Site #	General Location Relative to the Project Area	Nature of Site	Status/ Comments	Source
50-60-01-528	Kawakiunui	Rock shelter with earthen terraces	A: Rock shelter measures 3.90 m deep x 3 m wide x 0.50 to 1.20 m high B: Earthen terrace 11 m x 5.40 m; stacked wall 2 m long x 1 m wide x 0.65 m high perpendicular to the long axis of the terrace; two hammerstones and a groundstone found S C: E of 528B is another terrace 8.5 m x 5.3 m; basalt core and hammerstone present	Weisler (1987b:66-67)
50-60-01-529	South point of Kawakiunui Bay	Residential complex with features	Features include <i>ko'a</i> , terrace, three enclosures, a stone mound, burial niche, two bedrock grinding slabs Note: Barrera (1981a:35) describes the site as a small cave 50 cm x 100 cm with a height of 40 cm; a thin deposit of cultural material consisting of ash and mollusk shells with deteriorated and fragmented human bone present	Barrera (1981a:35), Weisler (1987a:29)
50-60-01-530	At Kaiaka Rock	Midden scatter	60 m x 60 m	Barrera (1983:14)
50-60-01-639 BPBM Site 50-Mo-B6-67 IARII Site # 2	Kaupoa	Habitation complex and lithic	3 m x 4 m boulder platform; basalt flakes and midden present 2 m x 2.5 m L-shaped enclosure; basalt and midden present C-shaped enclosure, Odd shaped enclosure with wall extending 7 m to W; coral head present 3 m x 5 m J-shaped wall; 4 m x 4x three walled enclosure, Area 4 m in diameter paved with <i>'ili'ili</i> ; basalt flakes present 5m base x 6 m sides triangular shaped enclosure	Weisler (1984:21); Dixon and Major (1993:65); Erkelens (1995, not seen)
50-60-01-646 BPBM Site 50-Mo-B6-88	Kaupoa	Midden scatter	Site could not be located in 1993 due to high energy erosion; however, during April of 1995, midden was visible (charcoal flakes, shellfish midden, basalt flakes)	Weisler (1984:29), Erkelens (1995; not seen)
50-60-01-647 BPBM Site 50-Mo-B6-89	Kaupoa	Trail and agricultural features	Trail remnant, two C-shapes, and four planting circles	Weisler (1984:15); Dixon and Major (1993:100)

Site #	General Location Relative to the Project Area	Nature of Site	Status/ Comments	Source
50-60-01-648 BPBM Site 50-Mo-B6-90	Kaupoa	<i>Ko'a</i>	Two enclosures, one cupboard, one C-shape, one stone mound (possible burial), two planting circles, and a wall remnant	Weisler (1984:38); Dixon and Major (1993:100)
50-60-01-649 BPBM Site 50-Mo-B6-91	Kaupoa	One <i>ko'a</i> , one enclosure, one C-shape, one stone mound	stone mound is a possible burial	Weisler (1984:17); Dixon and Major (1993:103)
50-60-01-650 BPBM Site 50-Mo-B6-92	Kaupoa	Habitation complex consisting of 10 features	11 C-shaped shelters, one agricultural or habitation shelter, six small mounds (agricultural clearing piles), six planting circles	Weisler (1984:35); Dixon and Major (1993:103); Erkelens (1995, not seen); Hammatt (1997b:28-32)
50-60-01-651 BPBM Site 50-Mo-B6-93	Kaupoa	Agricultural features	Two clearing mounds, eight planting circles, enclosure, six C-shapes, and a shrine	Weisler (1984:16); Dixon and Major (1993:103)
50-60-01-652 BPBM Site 50-Mo-B6-94	Kaupoa	Habitation enclosure	Four C-shapes, small enclosure with level soil interior (possible planting circle)	Dixon and Major (1993:103)
50-60-01-653	Kaupoa	Mound and enclosures	3 m x 5 m three sided stone enclosure; stacked to 30 cm high and 60 cm high 5m square accumulation of cobbles and boulders; presence of coral, basalt flakes, shell, and beachrock confirm the feature is constructed rather than natural	Weisler (1984:14); Erkelens (1995, not seen)
50-60-01-783 IARII Site # 3	Kaupoa	Low, stacked alignment	1.5 m x 5.5 m x 20-30 cm high, alignment of basalt cobbles and boulders	Erkelens (1995, not seen), Hammatt (1997b:40)
50-60-01-784 IARII Site # 7	Kaupoa	Habitation complex	2 m C-shape 2 m x 1.5 m high, large triangular boulder; beachrock grindstone on top of boulder; small cairn from 20 cm high stack of cobbles at the base on the N 1.5 m diameter mound x 50 cm high; attached wall to mound is 4 m in length; wall varies from 1.5 m to 20 cm high	Erkelens (1995, not seen), Hammatt (1997b:41)

Site #	General Location Relative to the Project Area	Nature of Site	Status/ Comments	Source
50-60-01-803	S.W. Moloka'i, (Discontiguous)	S.W. Moloka'i Archaeological District (Discontiguous)	This Archaeological District including Sites 50-60-01-47 through -52 (listed above) was placed on the HRHP 11/12/85 and NRHP 10/15/86	SHPD web site
50-60-01-822	Kaka'ako	Rock shelter	S facing 9 m wide x 2 m deep x 0.60 to 1.30 m high	Weisler (1987b:62)
50-60-01-823	Kaka'ako	Rock shelter	3.05 m deep x 2.55 m x 0.25 high in the back and 1.05 m high at the entrance; shellfish and charcoal observed	Weisler (1987b:63)
50-60-01-824	Kaka'ako	Rock shelter	Stone faced earthen terrace 4.20 m wide x 3.50 m deep x 1.25 m high; coral abrader, shellfish, charcoal observed	Weisler (1987b:64)
50-60-01-825	Kaka'ako	Rock shelter	Facing N, 13 m wide x 3 to 4.5 m deep x 2 m high at entrance; E end of shelter contains stacked wall and hearth; fireplace consisting of upright slabs on two sides is at the W measuring 0.80 m long; fishbone and shellfish material present	Weisler (1987b:64)
50-60-01-826	Kaka'ako	Small shelter and modified outcrop	A: Modified outcrop 1.3 m in diameter with cobbles and boulders with a height of 1 m B: Small shelter wall between two bedrock outcrops 1.5 m x 0.70 m high on the inside	Weisler (1987b:52)
50-60-01-827	Kepuhi	Shelter	C-shape built against bedrock outcrops 2.9 m x 3 m x 0.25 m high and a 2.2 m square interior area	Weisler (1987b:52)
50-60-01-828	Kaka'ako	Agricultural complex	Two stone mounds and a possible alignment	Weisler (1987b:67)

Site #	General Location Relative to the Project Area	Nature of Site	Status/ Comments	Source
50-60-01-829	Pohakumauliuli	Boulder outcrops and habitation terrace	A: 1.33 m x 0.83 m x 0.51 m boulder with trough-like depression B: 0.82 m x 0.70 m x 0.30 m boulder C: 0.68 x 0.37 m x 0/14 m boulder D: 1.12 m x 0.99 m x 0.18 m boulder E: 1.15 m x 0.90 m x 0.32 m boulder F: Boulder G: Eroded habitation terrace 5 m x 4 m; E and N are best preserved; basalt core found on W; recent stone pile or <i>ahu</i> located 5.7 m N of terrace	Weisler (1987b:55)
50-60-01-830	Pohakumauliuli	Shelter	C-shaped shelter 4.5 m x 3.1 m x 0.25 m high; a boulder to the N wall measuring 0.31 m x 0.24 m x 0.19 m with a 0.13 m diameter hole 0.03 m deep that may be a mortar	Weisler (1987b:56)
50-60-01-831	Kaka'ako	Agricultural complex	Three stone clearance mounds 1.70 m x 1 m x 0.90 m square piled to a height of 0.45 m	Weisler (1987b:67)
50-60-01-832	Pohakumauliuli	Historic ramp	Used to load cattle; ramp is 5.7 m long x 4.40 m high with a slope of 0.25 m to 0.85 m high	Weisler (1987b:58)
50-60-01-833	Kawakiunui	Eroded wall	5.10 m long x 0.70 m wide x 0.40 m high; no artifacts or faunal materials	Weisler (1987b:58)
50-60-01-834	Kawakiunui	Habitation features	A: Shelter wall 2.65 m long x 0.45 m wide x 0.15 m high; wall facing S; level soil area 7.95 m square contains fireplace with seven stones ranging from 10 cm to 24 cm B: 4 m SE of 834A is a short shelter 1.9 m long x 0.60 m wide C: 8 m E of 834B lie oven features; stones in length from 11 cm to 15 cm with a diameter of 1.40 m surround an elongated stone 0.52 m long x 0.16 wide x 0.12 thick D: Eroded house site with wall measuring 3.20 m long x 1.25 m wide	Weisler (1987b:33)

Site #	General Location Relative to the Project Area	Nature of Site	Status/ Comments	Source
50-60-01-835	Kawakiunui	Residential complex	A: Platform 4.80 m N to S x 5.05 m E to W x 0.65 m high; paved with 'ili'ili and coral chunks in SW quadrant; elongated stone near the W of the structure measuring 1.33 m long x 0.25 m wide x 0.18 m thick B: Shelter wall 6.40 m long x 1.90 m wide; some artifacts found	Weisler (1987b:31)
50-60-01-836	Kawakiunui	Wall	10.5 m long x 0.85 m wide x 0.50 m high	Weisler (1987b:71)
50-60-01-837	Kawakiunui	Modified outcrops	A: 2.60 m x 2.70 m x 1.55 m basalt cobbles stacked to a maximum height of 0.45 m on the S B: 1.90 m x 1.55 m x 2 m boulder with cobbles stacked to 0.65 m high	Weisler (1987b:58)
50-60-01-838	S of Kawakiunui Bay	Rock shelter	2.5 m deep x 1.5 m wide x 0.80 m high; coralline sand and remnant cultural deposit suggests possible tsunami damage; basalt flakes, shellfish, fishbone, and charcoal chunks present	Weisler (1987b:64)
50-60-01-839	Kawakiu Iki	Habitation site	A: Major house site with wall; wall measures 6.5 m long x 1 m wide x .60 high B: Shelter wall 3.9 m x 0.45 m high stacking of cobbles C: Agricultural modification 2 m long x 1.1 m wide x 0.6 m high D: Shelter wall or possible gardening modification 6 m long x 0.60 m high	Weisler (1987b:50)

Site #	General Location Relative to the Project Area	Nature of Site	Status/ Comments	Source
50-60-01-1601	Pohakumauliuli	Residential complex with seven features	A: The largest house structure of the complex 9.70 m x 4.35 m; basalt core found B: 7 m downslope of A is a second major house site; 4.45 m x 2.30 m with a 0.40 m high L-shaped wall built NW to SE; bifacially flaked basalt core found on N wall C: Terrace 17.3 m long with several upright boulders and piled cobbles with heights ranging from 0.20 to 0.50 m D: C-shaped shelter 3.25 m x 2.5 m with an opening to the S; stacked walls range in height from 0.20 to 0.45 m and enclose at a 4.4 m square area E: 6 m N of A is an L-shaped shelter 5.1 m x 3.95 m F: L-shaped single course alignment 3.20 m x 2.20 m x 0.45 m E of A G: 38 m NE of D is a C-shaped shelter 3 m x 2.5 m	Hammatt (1978:28-30), Weisler (1987b:28)
50-60-01-1602	Pohakumauliuli	Residential complex	A: C-shaped shelter 3.15 m x 2.95 m x .30 m high B: 36 m NE of A is a shelter wall 6.5 m long with heights ranging from 0.20 to 0.45 m	Hammatt (1978:30-31), Weisler (1987b:28)
50-60-01-1603	Pohakumauliuli	Residential complex	14.5 m S of 1602A; C-shaped structure 4.1 m x 3.1 m; fireplace with an upright slab on the S	Hammatt (1978:31), Weisler (1987b:28)
50-60-01-1604	Pohakumauliuli	Historic structural foundations	Two parallel terrace retaining walls 5 m long x 25 to 30 cm high; rectangular enclosure measures 6 m long x 2.5 m wide; historic bottle glass and metal fragments scattered in and outside of enclosure; enclosure walls are 50 cm high and are 30 to 40 cm wide; 16 m SE of enclosure is a ruined two seated outhouse	Hammatt (1978:57), Weisler (1987b:28)
50-60-01-1605	Kawakiunui	Residential complex	13 structures and two eroded stone configurations spread over a 3,000 m square area (three house sites, two shelters, two alignments or terraces, and six stone mounds)	Hammatt (1978:34), Weisler (1987b:35)

Site #	General Location Relative to the Project Area	Nature of Site	Status/ Comments	Source
50-60-01-1606	Kawakiunui	Residential complex	Stone enclosure with low walls; rectangular; artifacts include adze flake and bone fishhook fragment	Hammatt (1978:35 and 1979:16), Weisler (1987a and 1987b:35)
50-60-01-1607	Kawakiunui	Residential complex	Rectangular enclosure with adjacent rough platform and <i>ahu</i> ; stone flake and midden scatter around structure	Hammatt (1978:17 and 1979:35), Weisler (1987a:28 and 1987b:35)
50-60-01-1608	Kawakiunui	Residential complex		Hammatt (1978:17), Weisler (1987a:47)
50-60-01-1609	Kawakiunui	Residential complex	NE corner of Kawakiu Nui Bay at sandy beach extending along 70 m on the ridgeline; six habitation structures (142.1 m square area); gardening modifications; artifacts including shellfish concentrations visible	Hammatt (1978:17), Barerra (1981a:3 and 1982:7), Weisler (1987a:55 and 1987b:35)
50-60-01-1610	Kawakiunui	Midden deposit	A: 23 m NW to SE by 24 m NE to SE with an L-shaped configuration 2.75 m x 2.10 m that may be a house remnant; B: Built on rise overlooking sandy beach below; structure with thick wall and rectangular enclosure on leeward side; C: 4.4 m x 3.4 m x 0.85 m high J-shaped structure with scattered shellfish on ground D: C-shaped shelter 5.6 m x 4 m x 0.70 m high; dense shellfish concentration outside near N wall E: Wall with historic house site 10 m long x 1.15 m wide x 0.45 m to 0.75 m high; historic artifacts including chalcedony gunflint found F: Stone faced terrace 4 m x 3.2 m x 10.9 m square level area; line sinker collected G: Small midden concentration 2.9 m x 1.4 m containing shellfish and charcoal	Hammatt (1978:17), Barerra (1982c:7-9 and 1984:11-13), Weisler (1987b:35)

Site #	General Location Relative to the Project Area	Nature of Site	Status/ Comments	Source
50-60-01-1611	Kawakiunui	House structure	<p>A: Major house structure 8.20 m x 6.10 m with a 38.70 m square level soil area x 0.60 m high; fireplace near SW measuring 0.65 m x .90 m and is marked by two upright slabs and a single stone on the NE; a hammerstone, basalt core and flakes, and shellfish found inside</p> <p>B: C-shape structure of stacked cobbles 3.45 m in diameter x 2.20 m square area x 0.40 m high; shellfish concentration</p>	Hammatt (1978:20), Barrera (1984:13-14), Weisler (1987b:41)
50-60-01-1612	Kawakiunui	Agricultural complex and features	<p>A: Two stepped terrace 10.9 m x 8.5 m x 0.50 m high; enclosure is 3.5 m x 3.20 m x 4.6 m</p> <p>B: Stone mound 1.70 m x 1.10 m;</p> <p>C: Terrace 1.9 m E to W x 2.3 m N to S; triangular shaped with a height of 0.50 m; hammerstone on surface</p> <p>D: Circular enclosure 5.7 m x 4.4 m with an interior soil square area of 9.45 m;</p> <p>E: Terrace-like structure 4.7 m x 3.9 m with an enclosure of 8.8 m square</p> <p>F: Terrace 5.1 m x 4 m with an interior soil area of 5.7 m square; three basalt cores</p> <p>H: Stone faced earthen terrace 3.10 m x 2.70 m; a fireplace is near the center in the 3.8 m square interior</p> <p>I: Platform 3.85 m x 2.70 m; nine basalt cores, two hammerstones, adze</p> <p>J: Stone filled terrace 4.20 m long x 1.15 m w x 0.40 m high; possible control slope erosion</p>	Hammatt (1978:21), Barrera (1981a:3-4, 1982:, 1984:14-15), Weisler (1987b:41)

Site #	General Location Relative to the Project Area	Nature of Site	Status/ Comments	Source
50-60-01-1613	Kawakiunui	House site and agricultural features	<p>A: Major house site with a massive wall; wall measures 0.50 m high; house site measures 7.45 m x 3.8 m; dense shellfish concentration 10 cm thick</p> <p>B: L-shaped shelter 4.10 m x 3.40 m x 0.20 to 0.40 m high; dense shellfish concentration at least 10 cm thick</p> <p>C: C-shaped habitation shelter 3 m x 7.5 m x 70 cm high (Barrera 1984)</p> <p>D: Stone pile measuring 1.80 m in diameter</p> <p>E: Trail features with stone alignments</p>	Hammatt (1978:22), Barrera (1984:16), Weisler (1987b:45)
50-60-01-1614	Kawakiunui	Habitation site	<p>A: Major house site measuring 12.70 m x 12 m; two sandstone grinding slabs and numerous basalt cores observed</p> <p>B: Pavement of flat basalt cobbles and boulders and a single reef rock measuring 3.75 m x 4.10 m</p> <p>C: <i>Ko'a</i> 6.70 m E to W x 4.20 m N to S, water rounded basalt and coral cobbles; upright basalt stone (43 cm high) is set on W half and may be a god-stone (<i>akua</i>); branch coral heads on platform surface downslope on the S (documented by Weisler only)</p> <p>D: Shelter 4.5 m long x 1.9 m wide x 0.65 m high; basalt cores and retouched basalt flake were found</p> <p>E: Major house site with an L-shaped wall measuring 8.40 m x 7 m; wall measures 4 m x 1.70 m wide and stacked to 0.70 m high; basalt cores and scattered shellfish found</p>	Hammatt (1978:22), Weisler (1987b:45)

Site #	General Location Relative to the Project Area	Nature of Site	Status/ Comments	Source
50-60-01-1615	Kawakiunui	Midden scatter and cultural deposit	A: Oven measuring 0.52 m x 0.46 m with fire altered basalt stones ranging from 6 to 11 cm B: Oven stones 0.20 m x 0.25 m x 7 cm thick C: Oven measuring 0.40 m x 0.35 m x 11 cm thick; basalt and coral stones range from 5 to 11 cm in size and surrounded by ashy sediment with charcoal flakes	Hammatt (1978:22), Weisler (1987b:61)
50-60-01-1616	Kawakiunui	Large boulder grinding slab with lithic scatter and small shelter	A: Boulder 1.40 m x 1.05 m x 0.50 m with natural trough-like depression; adze perform, a used flakes, and two unmodified flakes present B: Grinding stone in an eroded C-shape shelter measuring 3.5 m in diameter; no artifacts or faunal material noted	Hammatt (1978:23), Weisler (1987b:59)
50-60-01-1658 CSH Site # 1	Kaupoa Camp	Enclosure	4.4 m N to S x 5.2 m E to W x 0.1 to 0.6 m high	Hammatt (1997a:11 and 1997b:41)
50-60-01-1659	Kaupoa	Enclosure	8.7 m N to S x 5.8 m E to W x 0.4 to 0.6 m high Marine shell midden and basalt flakes observed	Hammatt (1997b:45)
50-60-01-1662	Kaupoa	Pile of boulders and cobbles	1 m x 70 cm x 30 cm high Age and function unclear; possible prehistoric <i>ahu</i> or marker; no artifacts or midden	Hammatt (1997a:13 and 1997b:45)
50-60-01-1663	Kaupoa	Terrace platform	4.3 m x 2.9 m x 40 cm high; a single piece of coral found on site	Hammatt (1997a:13 and 1997b:45)
50-60-01-1664	Kaupoa	C-shape enclosure opens to W	Poor condition; 2 m E to W x 1.2 m N to S x 20 cm high; no artifacts or midden; prehistoric temporary habitation site	Hammatt (1997a:13 and 1997b:48)
50-60-01-1665	Kaupoa	Stone piles and alignments	May represent prehistoric agricultural clearing; covers an area of 45 m NE to SW by 15 m NW to SE; no artifacts or midden	Hammatt (1997a:17 and 1997b:48)
50-60-01-1666	Kaupoa	Stone piles and alignments	Cover an area 45 m NE to SW x 15 m NW to SE; possible prehistoric agricultural clearing; five features observed during field work; no artifacts or midden	Hammatt (1997a:17 and 1997b:48)

Site #	General Location Relative to the Project Area	Nature of Site	Status/ Comments	Source
50-60-01-1667 IARII Site # 8B	Kaupoa	Basalt boulder platform with steel half cylinder water trough	1.6 m x 2.7 m x 50 cm deep steel half cylinder water trough 6 m NW to SE x 5.4 m NE to SW x 30 to 40 cm high platform; N of platform is well paved with small boulders and cobbles; two modern bottles at N of platform (brown glass beer bottle and green glass basal fragment)	Erkelens (1995, not seen), Hammatt (1997a:17 and 1997b:50)
50-60-01-1754	Mid Po'olau Gulch	Residential site with two terrace platforms, hearth, basalt lithic scatter, burn pit features	10 m x 35 m	Burchard et al.(1999:36)

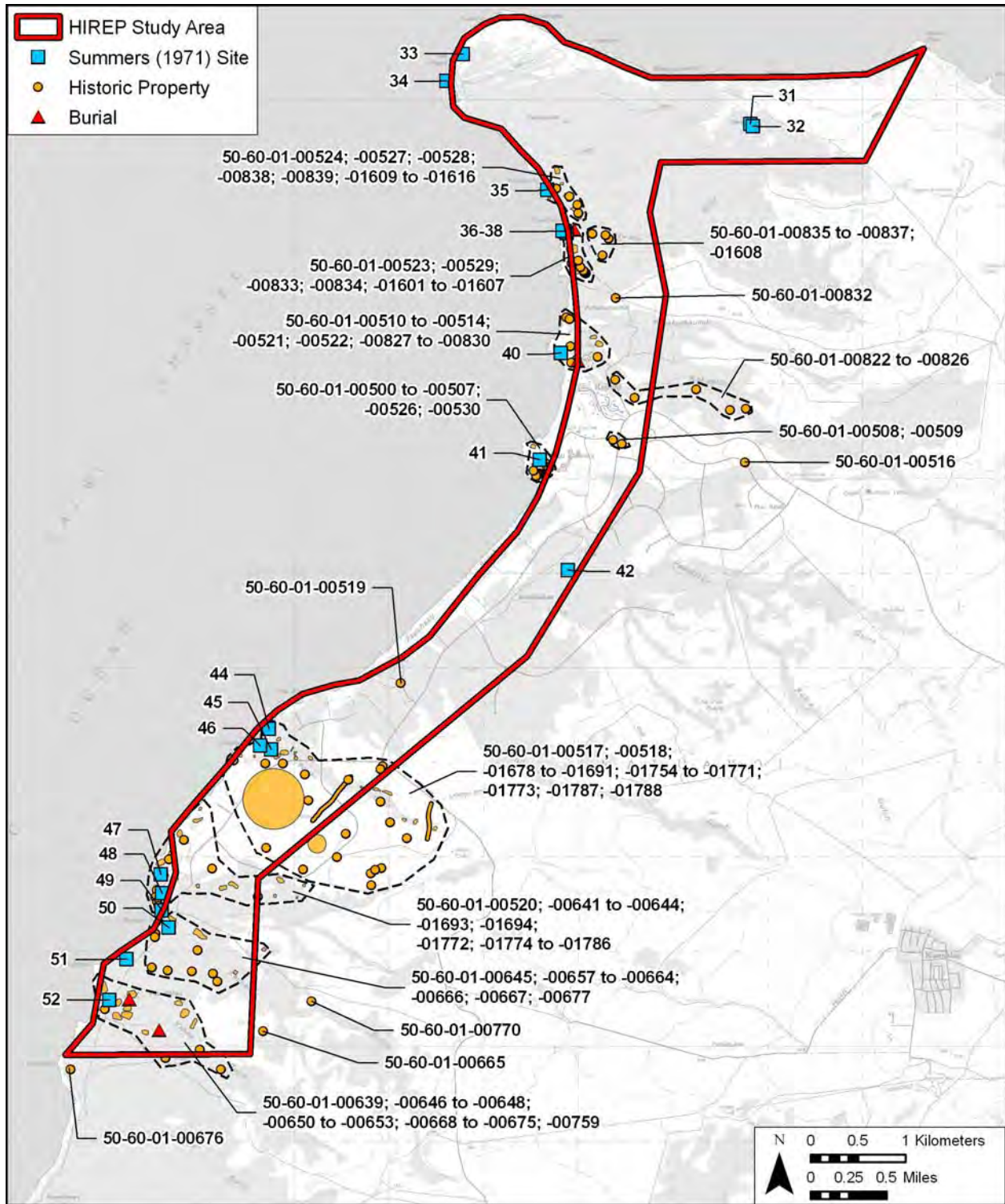


Figure 30. Previously identified cultural resources of the West Molokai Landing Analysis Area (Two large orange circles are historic bombing target properities)

5.4 Summary of Cultural Resources of the West Moloka'i Landing Analysis Area

According to research and findings, the *ahupua'a* of Kaluako'i was a large residential area boasting numerous residential and agricultural complexes. Multiple *ko'a* and cliff-side shelters suggest the area provided excellent fishing grounds. The artifacts, which have included abundant evidence of fishhook manufacturing, and numerous amounts of midden that included shellfish scatter, provide support that the *makai* Kaluako'i shoreline was used extensively. Remnants of adz also suggest stone tool manufacturing from which the *ahupua'a* is understood to have taken its name.

For whatever reasons, there appear to be two areas of greater site density (Figure 31) in the north/central portion of the project area and in the south end of the project area.

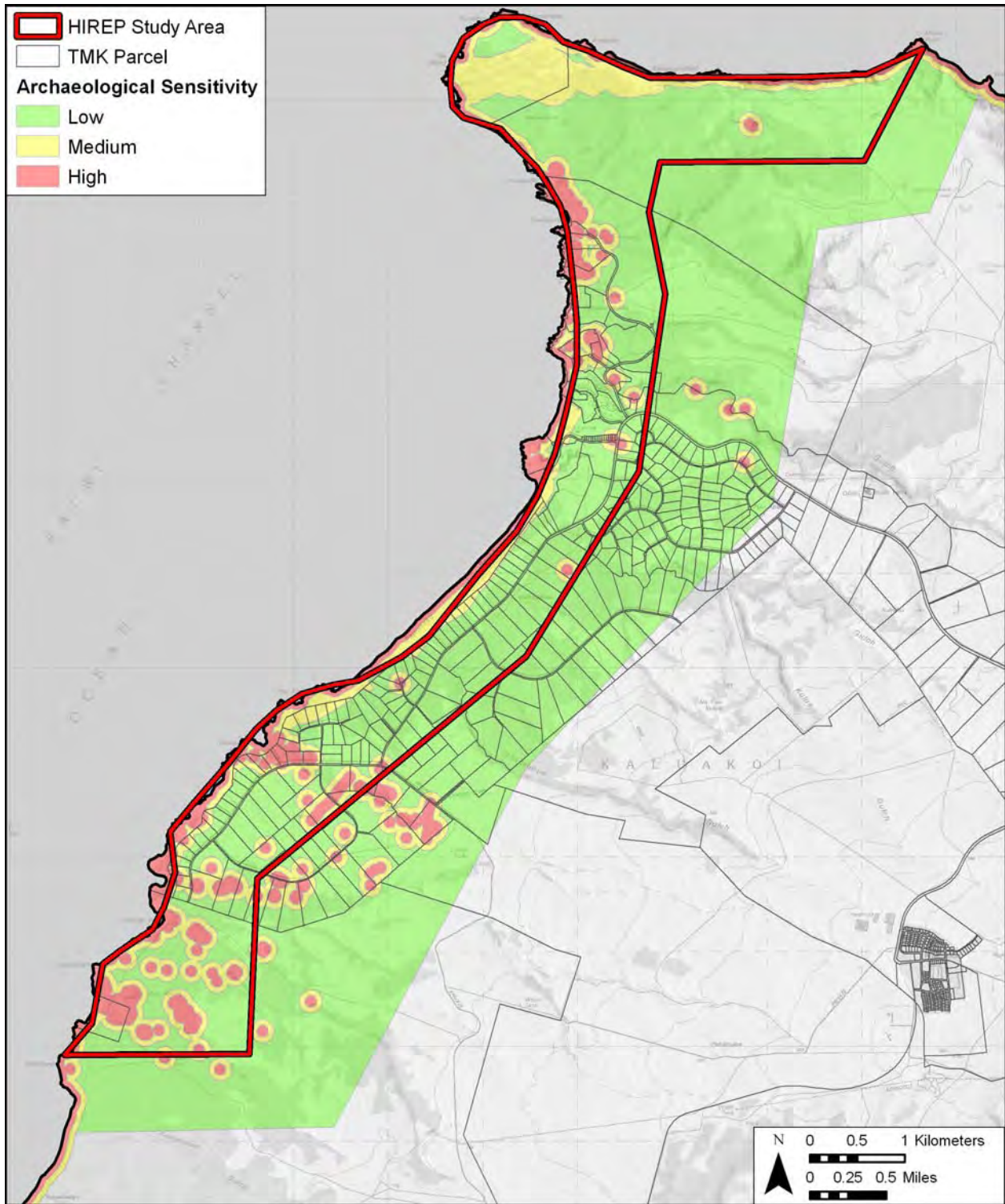


Figure 31. Cultural resource sensitivity map for the West Moloka‘i Landing Analysis Area

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Section 6 South Moloka'i Landing Analysis Area

6.1 Introduction to Cultural Resources of the South Moloka'i Landing Analysis Area

The South Moloka'i Landing Study Area (Figure 32 and Figure 33) occupies approximately 1,239 acres (1.94 square miles) in an approximately 5 kilometer long south central coastal strip of Moloka'i including portions of Punakou, Iloli, Ho'olehua, Pala'au and Kahanui lands lying approximately 3 to 8 kilometers west of Kaunakakai town. The study area lies within the south side of the "Mahana Saddle" between the Mauna Loa Dissected Uplands of the very flat West Moloka'i shield volcano to the west and the Kamakou Deeply dissected uplands of the East Moloka'i shield volcano to the east. Alluvium erodes down into this area from both the northwest and northeast with substantial tradewind driven deposition of sediment as well. Lying in the lee of the East Moloka'i shield wave erosion is slight. This gives rise to a relatively rapidly accreting shoreline of mudflats. This deposition of alluvium within the South Moloka'i Landing Study Area probably extends far back into geologic time but is understood to have greatly increased as a result of denudation of the land by fires and grazing animals. Approximately 50% of the South Moloka'i Landing Study Area lies seaward of the shoreline as shown on an 1885 map. A study focused on coastal Pala'au, in the central portion of the South Moloka'i Landing Study Area, describes the land as follows:

No one lives in Palaau today. It is a dead area and from the highway several miles away it is an awesome sight. After the heavy kona rains the area is a sea of mud out to the mangrove front. In the dry season red dust swirls upward through the windy part of the day....

The streams that run into Palaau...carried [siltation] death to the pond in the 1800's....

In 1887 the Palaau fishpond was mainly a large mudflow... (Carlson 1952: 12, 14, 15)

Carlson notes (1952:20) the final de-population of Pala'au in 1853 when "All the men of the villages were found guilty of rustling cattle and were sentenced to a term of five years in the jail in Honolulu."

Morgenstein and Kaschko (1981:7) estimate 1,130 feet of shoreline accretion in the east portion of the South Moloka'i Landing Study Area between 1947 and 1981 or 33 feet a year. As a sweeping generalization little significant archaeology would be anticipated on these newly created alluvial lands.

6.2 Previous Cultural Resources Studies in the South Moloka'i Landing Analysis Area

Previous Cultural Resources Studies in the South Moloka'i Landing Study Area are presented in Table 16 and the location of previous cultural studies are shown in Figure 34).

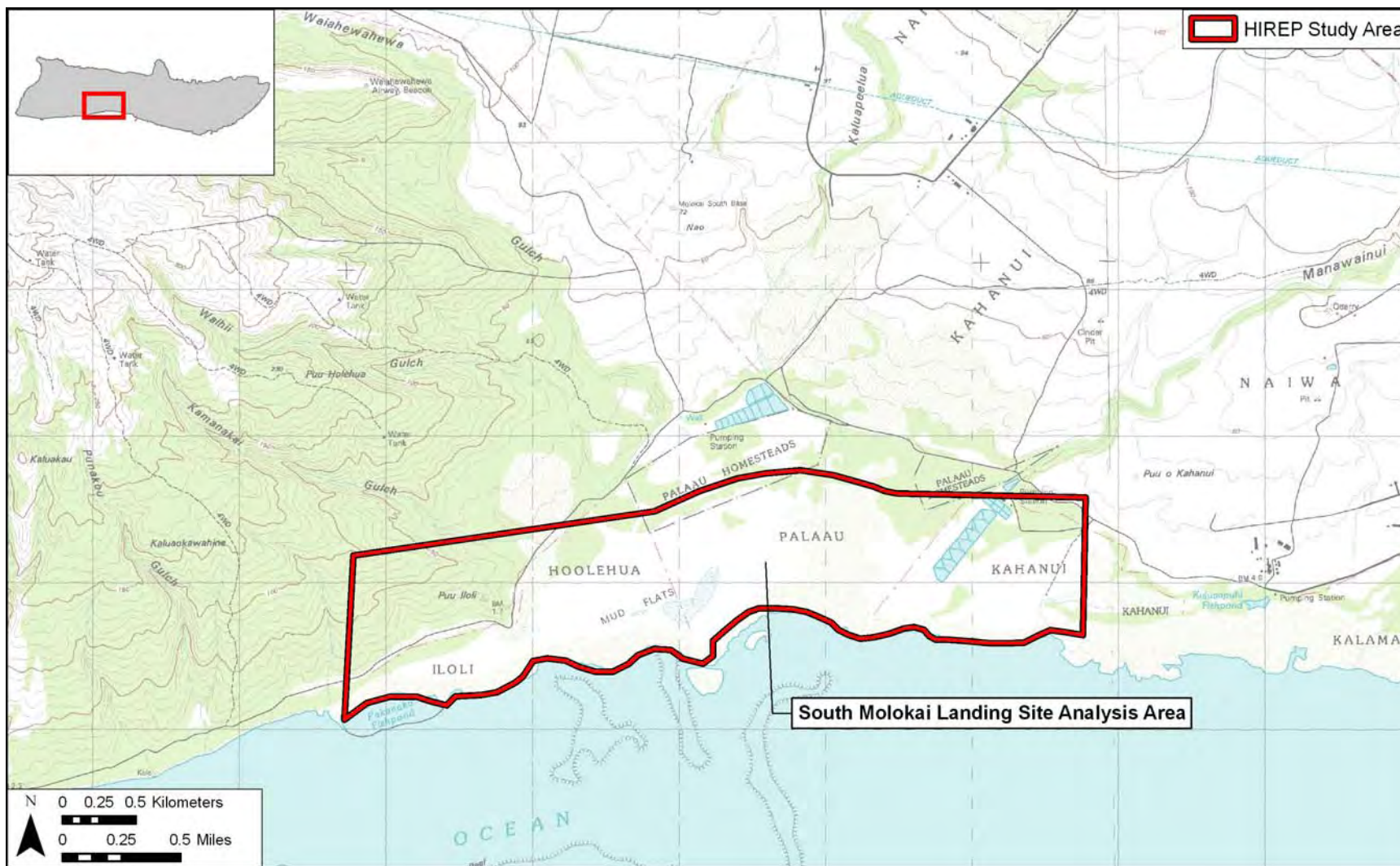


Figure 32. U. S. Geological Survey map (1993), Moloka'i Airport and Kaunakakai quads, showing the South Moloka'i Landing Analysis Area



Figure 33. Aerial photograph (2007) of the South Moloka'i Landing Analysis Area

Table 16. Previous Cultural Resources Studies in the South Moloka'i Landing Analysis Area
(Arranged chronologically)

Reference	Type of Investigation	Location	Findings
Monsarrat 1884	Diary of a Surveyor	Moloka'i	Describes 'Aipōhaku, Kauha'a and Waiākea Ponds (1884:34)
1897 Hawaiian Government Survey Map of Molokai	Hawaiian Government Survey Map	Moloka'i	Shows broken walls of Poho'ele Pond as filled with "mud"
Cobb, 1902	Commercial Fisheries of the Hawaiian Islands study	Archipelago- wide	Gives area of Pākanaka pond as 43 acres (1902:429); refers to Poho'ele Pond as "Nameless, extensive pond, in Palaau, filled with mud." (1902:429); describes Punalau Pond as of 20 acres and under commercial use in 1901 (1902:429); describes 'Ō'ō'ia as 15 acres (1902:429)
Jordan and Evermann 1902	"Preliminary Report on an Investigation of Fishes and Fisheries	Archipelago- wide	Describe waters off of Punalau and 'O'o'ia fishponds as "known by the people to have shoals of fish" (1902:362)
Thrum, 1907	Hawaiian Mythology study (Hawaiian Folk Tales)	Archipelago- wide	Discusses travels of 'Ai'ai through Hīlia (1907:239)
Stokes 1909	Miscellaneous archaeologist's Field Notes	Moloka'i	Discusses Ho'olehua 1 fishpond
Stokes 1911	Notes on Polynesian fishtraps and Ponds	Polynesia	Describes Poho'ele Pond
<i>Ka Nupepa Kuokoa</i> 1922	Hawaiian language newspaper account	Spring of 'Olo'olo, Moloka'i.	Describes Poho'ele Pond
<i>Ka Nupepa Kuokoa</i> 1922	Hawaiian language newspaper account	"A Tale of the Kona Side of Moloka'i in the Days of Kamehameha the Conqueror"	Describes Poho'ele Pond
Beckwith, 1940	Hawaiian Mythology study	Archipelago- wide	Discusses (1940:20) travels of 'Ai'ai through Hīlia
Cooke, 1949	Mo'olelo o Molokai, A Ranch Story of Molokai	Moloka'i	Describes "Boundary Stone where Pala'au 1/Ho'olehua 2, and Nā'iwa meet (1949:46)
Carlson 1952	Saltwater fishpond study	Pāla'au Moloka'i	Interesting historical account of Poho'ele Pond at Pala'au in central study area.
Morse 1953	Popular newspaper account	Fishing <i>Heiau</i> , Kahanui 1	Describes destruction of Kahanui 1 fishing <i>heiau</i> , during railroad construction
Tapes of Conversa- tions with Native Hawaiians 1961	Oral history tape recordings	Hīlia Fishing ground	Tape H-91h (3/8/61 & 3/9/1961) discusses Hīlia fishing area
Summers, 1964	Hawaiian Fishponds study	Archipelago- wide	Discusses Pākanaka Pond

Reference	Type of Investigation	Location	Findings
Summers, 1971	A Site Survey (compendium)	Moloka'i	A detailed compendium of information in B. P. Bishop Museum files
Morgenstein, and Kaschko 1981	Archaeological Survey and Testing Investigations,	Orca Sea Farms Inc. Property, Kahanui	Documents Sites 101A & 101B ('aipōhaku and Kauha'a Ponds) and Site 102 Punalau Fishpond
Pukui, 1983	Collection of Proverbs and Poetical sayings (' <i>Ōlelo No'eau</i>)	Archipelago-wide	Sayings (1352 & 1805 relating to Hilia (Pukui, 1983:147, 194)
Pantaleo 1988	Archaeological reconnaissance	10 km stretch of coastal South Moloka'i west of Kaunakakai	Briefly describes numerous sites within four designated areas (A through D) in the vicinity of the present study area
McGerty and Spear 2005	Cultural Impact Assessment	Nā'iwa TMK 5-2-011:027, 029 (extreme NE corner of present study area	Informant Halona Kaupuiki speaks of deer and pig hunting and "A large rock, located by the side of a fishpond in Pala'au, used as a bell stone to alert fishermen [reported as destroyed]" (McGerty and Spear 2005:14, A-8). Informant Louise Bush spoke of the fishing ground (just east of the present study area?) as a place for ' <i>ele'ele</i> seaweed (McGerty and Spear 2005:17).

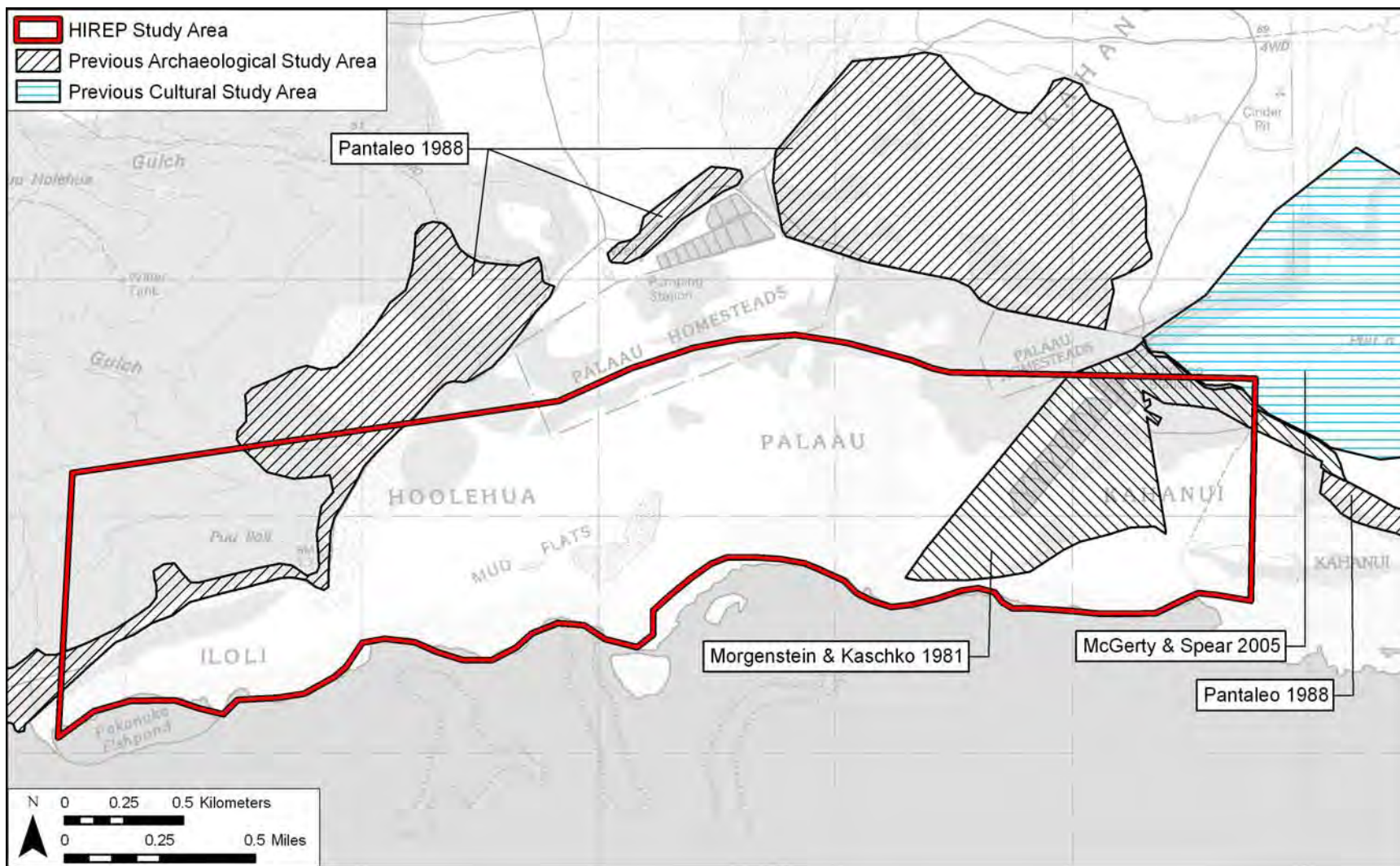


Figure 34. Previous cultural resource studies in the South Moloka'i Landing Analysis Area

Catherine C. Summers produced (1971) a *Molokai: A Site Survey* study that serves as a detailed compendium of B. P. Bishop Museum archaeological data for the island of Moloka'i up to that time. Many of the primary sources listed in Table 16 are gleaned from the Summers (1971) compendium. Summers had previously (1964) written on *Hawaiian Fishponds* and her *Molokai: A Site Survey* provides a wealth of historic data regarding the island's rich fishpond resources.

Very little in the way of formal archaeological studies have been previously undertaken within the South Moloka'i Landing Study Area (this is in contrast to the relatively well studied coastal areas of Nā'iwa, Kalama'ula and Kaunakakai just to the east).

Jeffrey Pantaleo (1988) produced a "Project 412" Bishop Museum Unpublished Manuscript briefly documenting archaeological sites along a long stretch of the south shore of Moloka'i west of Kaunakakai. Pantaleo describes four general site areas (lettered "A" through "D" in the vicinity of the South Moloka'i Landing Study Area. Many of these identified sites have a "ranching" or "agriculture" function (often it is unclear whether the sites are pre- or post-Contact).

Morgenstein, and Kaschko (1981) carried out Archaeological Survey and Testing Investigations at an Orca Sea Farms Inc. Property at Kahanui, including an extensive area in the east portion of the South Moloka'i Landing Study Area, developing information on Punalau Pond (Site 102) and the small inland Aipōhaku and Kauha'a ponds (101A and 101B).

McGerty and Spear (2005) carried out a Cultural Impact Assessment of two parcels in Nā'iwa of approximately 14 acres overlapping the extreme NE corner of the South Moloka'i Landing Study Area.

6.3 Previously Identified Cultural Resources of the South Moloka'i Landing Analysis Area

The South Moloka'i Landing Study Area is dominated by fishponds (see Table 17 and Figure 35), specifically (from west to east), Pākanaka Pond (Summer's site 97), the Ho'olehua 1 fishpond (Summer's site 97), the Poho'ele or Pālā'au Pond (Summer's site 99), the Aipōhaku, Kauha'a and Waiākea Ponds (Summer's sites 101 A, 101B & 101 c) and Punalau Pond (Summer's site 102). The Pākanaka Pond (Summer's site 97), the Ho'olehua 1 fishpond (Summer's site 97), the Poho'ele or Pālā'au Pond (Summer's site 99) and Punalau Pond (Summer's site 102) extended well out into the coastal mudflats and were bounded on the seaward side by massive fishpond walls. The inland side of these ponds required no bounding walls and the demarcation of the inland sides may have been of packed earth. The Aipōhaku, Kauha'a and Waiākea Ponds (Summer's sites 101 A, 101B & 101 c) were small (less than an acre in area each) inland ponds and may never have had formal bounding walls. These three inland ponds may have been filled in by as early as A.D. 1900.

McGerty and Spear (2005) informant Halona Kaupuiki speaks of deer and pig hunting and "A large rock, located by the side of a fishpond in Pala'au, used as a bell stone to alert fishermen [reported as destroyed]" (McGerty and Spear 2005:14, A-8). Informant Louise Bush spoke of the fishing ground (just east of the present study area?) as a place for 'ele'ele seaweed (McGerty and Spear 2005:17).

Table 17. Previously Identified Cultural Resources of the South Moloka'i Landing Analysis Area

Site #	General Location Relative to the Project Area	Nature of Site	Status/ Comments	Source
(97) 50-60-02-97	West coastal	Pākanaka Pond, 'Ioli 1	68.85 acres, used by commoners; an unusual <i>loko 'umeiki</i> with at least 20 lanes all leading outward, overgrown with mangroves with walls badly damaged by 1961	Royal Patent 8138 (n.d.:177), Cobb (1902:429), Summers 1964:6), Summers (1971:71-76)
Hīlia	West coastal (extending from Pākanaka Pond through Kalama'ula	Fishing ground (particularly for mullet)	Formerly had sandy beaches ("now covered with mud"), the mullet were caught by kicking them ashore with the side of the foot ; associated with 'Ai'ai	Thrum 1907:239, Beckwith 1940:20, Tape n.d. c, Tape n.d. d, Pukui n.d. a, Summers (1971:72-73)
(98) 50-60-02-98	West coastal	Fishpond Ho'olehua 1	An unusual <i>loko 'umeiki</i> with lanes going inward, with 6 lanes, "covered with mud" in 1909	Stokes n.d. b, Summers (1971:73,76)
(99) 50-60-02-99	Central coastal	Poho'ele or Pālā'au Pond, Pālā'au 1	Largest of Moloka'i fishponds, broken walls with mud by 1897, built by Ho'olepanui in time of Kamehameha I, deepest part said to be 5 fathoms	Cobb (1902:429), <i>Ka Nupepa Kuokoa</i> 1922b, <i>Ka Nupepa Kuokoa</i> 1922c, Stokes 1911, Stokes n.d.b, Summers (1971:77-78)
(100) 50-60-02-100	East coastal	Boundary Stone, Pālā'au 1	Marks point where Pala'au, Kaluako'i, Ho'olehua 2, and Nā'iwa meet. Said to be 3 ft high in 1898 but a foot underground by 1923 due to siltation	Cooke (1949:46), Summers (1971:77-78)
(101) 50-60-02-101	East coastal	'Aipōhaku, Kauha'a and Waiākea Ponds, Kahanui 1	Three small inland ponds ("ponds are now filled"); Placed on HRHP 7/17/93 (Part of Moloka'i Fishponds Multiple Property)	Monsarrat n.d. a:34, Summers (1971:78); Morgenstein & Kaschko (1981:21-32); SHPD website
Fishing Heiau, Kahanui 1	Near site 101 ?	<i>Heiau</i>	Reported by George C. Munro (1953) as destroyed during American Sugar Co. railroad construction along the shore to Pala'au	Summers (1971:79); Morse 1953:6)
(102)	East coastal	Punalau Pond, Kahanui 1	"Many Springs" 20 acres, almost filled in by 1922 "and is now completely filled."	Cobb 1902:429), Summers (1971:78); Morgenstein & Kaschko (1981:13-21)
(103)	East coastal	'O'o'ia Pond, Kahanui 1	A <i>loko kuapā</i> land has built up between the pond and the sea	Summers (1971:79)

Site #	General Location Relative to the Project Area	Nature of Site	Status/ Comments	Source
Waters off of Punalau and 'O'o'ia	East coastal off of Punalau and 'O'o'ia fishponds	Fishing ground	Known to have shoals of fish, placed under <i>kapu</i> for the king in 1839	Jordan and Evermann (1902:362), Summers (1971:79)
Pantaleo (1988) Area A	Just east of the present study area	One feature designated: A-1 a rock alignment	An agriculture function is posited	Major and Dixon 1994:4,6
Pantaleo (1988) Area B	Just inland of the central portion of the present study area.	Eleven features designated: B-2 a wall, B-3 a wall, B-4 a stone cairn, B-5 an enclosure, B-6 includes a wall, a stone cairn, a modified outcrop, and a platform, B-7 stone mounds, B-8 a wall, B-9 a road bed, B-10 a wall, B-12 a lined well, and B-13 a rockshelter	A ranching function is suggested for the B-2 wall, the B-10 wall & the B-12 lined well. A stream diversion function is suggested for the B-3 wall. An <i>ahu</i> or marker function is suggested for B-4 and the B-6 cairn. Agriculture is suggested as the function of the B-6 wall and platform, the B-7 stone mounds, & the B-8 wall. A habitation function is suggested for the B-5 enclosure. B-9 is understood to relate to a railroad. B-13 is understood as a temporary habitation.	Major and Dixon 1994:4,6
Pantaleo (1988) Area C	Just inland of the west/central portion of the present study area	Three features designated: C-1 includes an enclosure and two lined wells. C-2 includes a wall and an enclosure. C-3 designates an enclosure.	The C-1 features all relate to ranching. The C-2 and C-3 features relate to temporary habitation.	Major and Dixon 1994:4,6,7

Site #	General Location Relative to the Project Area	Nature of Site	Status/ Comments	Source
Pantaleo (1988) Area D	Inland portion of the west end of the present study area	Seven features designated: D-1 two enclosures and platforms. D-2 2 walls. D-3 a platform. D-4 two enclosures, a wall and a depression. D-5 an enclosure, a wall and a platform. D-6 an enclosure and a stone alignment. D-7 three stone mounds	The D-1 enclosures relate to agriculture and the D-1 platforms to habitation. D-2 and D-3 have an agriculture function. The D-4 enclosures are temporary habitations and the D-4 wall and depression have an agriculture function. The D-5 features all relate to temporary habitation. The D-6 enclosure relates to temporary habitation and the D-6 alignment has an agriculture function. The D-7 mounds are thought to have an agriculture function.	Major and Dixon 1994:4 & 7
Deer and pig hunting	NW of the present study area (not specific)	Hunting grounds	Subsistence hunting concern	McGerty and Spear 2005:14, A-8
Bell stone	Located by the side of a fishpond in Pala'au,	A large rock, used as a bell stone to alert fishermen	Reported as destroyed	McGerty and Spear 2005:14, A-8
fishing ground	Just east of the present study area?	A place for 'ele'ele seaweed	Subsistence gathering of marine resources;	McGerty and Spear 2005:17, A-15

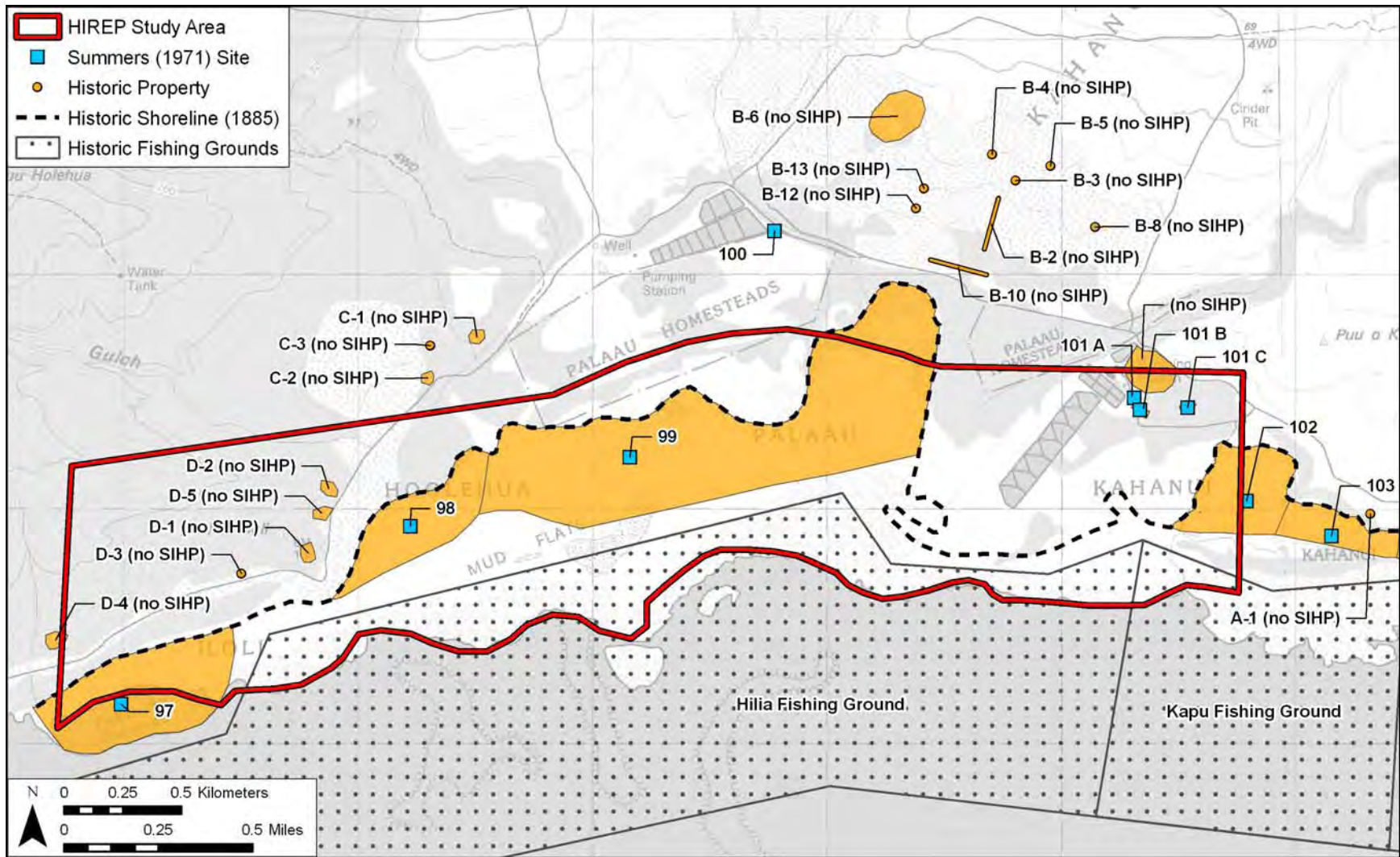


Figure 35. Previously identified cultural resources of the South Moloka'i Landing Analysis Area (see companion Table 17)

6.4 Summary of Cultural Resources of the South Moloka'i Landing Analysis Area

A cultural and historical sensitivity map for the South Moloka'i Landing Area is provided in Figure 12.

While the interiors of former fishponds may never have had formal modification it should probably be anticipated that any alteration to the footprints of former fishponds may raise local concern. It may be noted that there are two logical gaps to come ashore between fishponds in the South Moloka'i Landing Study Area. On the west side of the study area there is a gap between Pākanaka Pond (Site 97) to the west and the Ho'olehua 1 fishpond (Site 98) to the east. On the east side of the study area there is a gap between the huge Poho'ele or Pālā'au Pond (Site 99) on the west and Punalau Pond (Site 92) on the east. One or the other of these gaps probably merits consideration due to likely local concerns that the integrity of these fishponds not be broached.

If a western route were chosen (just west of the Ho'olehua 1 fishpond - Site 98) the route would come close to the Pantaleo (1988) Area D including a number of habitation sites. The western route east of the huge Poho'ele or Pālā'au Pond (Site 99) might be preferable if the inland small ponds ('Aipōhaku, Kauha'a and Waiākea Ponds -Site 101A, B & C) could be avoided.

It should be noted that the coastal shallows were famous for fishing (mullet kicking) and that concerns for adverse impacts to the shallow water Hīlia fishing ground is likely.

Concerns for impacts to deer and pig hunting may be expected.

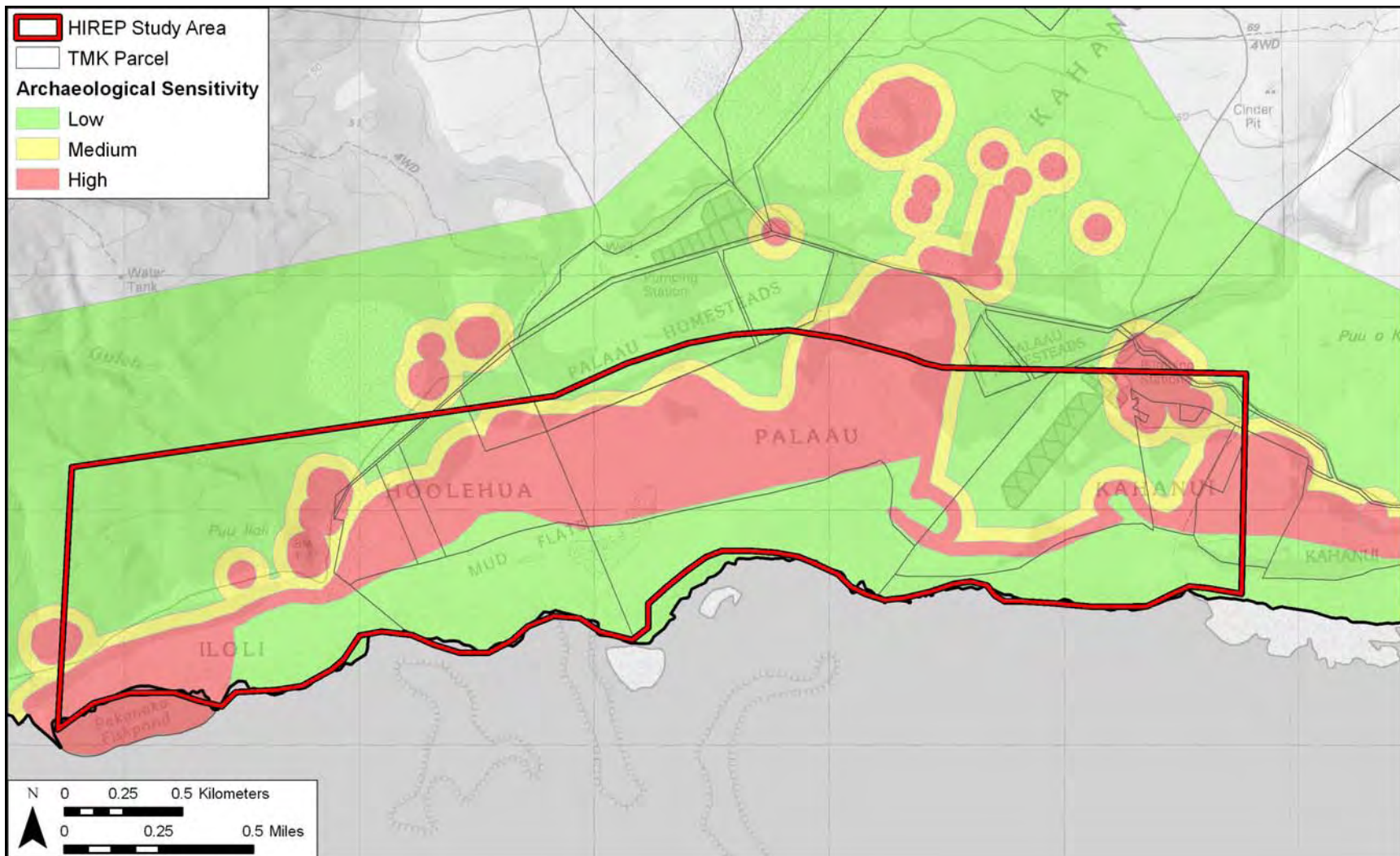


Figure 36. Cultural resource sensitivity map for the South Moloka'i Landing Analysis Area

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Section 7 Lāna'i Landing Analysis Area

7.1 Introduction to Cultural Resources of the Lāna'i Landing Analysis Area

The proposed “Lāna'i Landing Site Analysis Area” extends from just west of Laewahie in Paoma'i Ahupua'a to Honopū Gulch in Ka'ā Ahupua'a (Figure 37). This study area extends across two *ahupua'a* for approximately 25 kilometers along Lāna'i coastline and inland for approximately one kilometer, thus comprising an overall approximate area of 5, 721 acres (8.93 square miles or 23.15 square kilometers).

7.2 Previous Cultural Resources Studies in the Lāna'i Landing Analysis Area

Table 18 lists cultural studies in the Northern section of Lāna'i Island with findings. These study areas are depicted on Figure 41. While the *ahupua'a* of Ka'ā and Paoma'i collectively covers a significant portion of Lāna'i, very few archaeological or formal cultural studies have been carried out in the area.

The earliest record of an archaeological excavation within the proposed project area was performed at Awalua, in 1914, by Bernice Pauahi Bishop Museum staff John Penchula, August Perry, John F. G. Stokes, and William Wagner, who assisted visiting archaeologist Felix von Luschan of the Berlin Museum. The remains of 83 individuals were studied, during which four associated funerary objects were recorded (Records of the Federal Register, Vol. 60, No. 125, Thursday June 25, 1995, Page 33846).

Following the work of Penchula, Kenneth Emory (1924) conducted the landmark island-wide archaeological survey of Lāna'i between July 1921 and January 1922. In all, Emory documented a total 489 house sites, ten large *heiau* structures, ten small *heiau* structures, numerous burial sites, and 18 intact *ko'a* shrine structures. At the time of the study conducted by Emory, the State Inventory of Historic Places archaeological site numbering convention had not been developed and specific locational data had not been acquired. Findings pertinent to the study area are presented below in Table 19.

Following the passage of the National Historic Preservation Act of 1966, Robert Hommon (1974) conducted an island survey of archaeological sites on Lāna'i using Bishop Museum staff members. Hommon attempted to reacquire 262 of Emory's sites located outside of the Kaūnōlū, and documented a small number of previously unrecorded sites in the northwestern upland and coastal areas. Hommon observed that most of the coastal sites had successfully remained intact in the 50 years since the Emory's survey had been performed, and termed the state of preservation “unmatched elsewhere in similar Hawaiian sites” in regard to the coastal sites he visited.

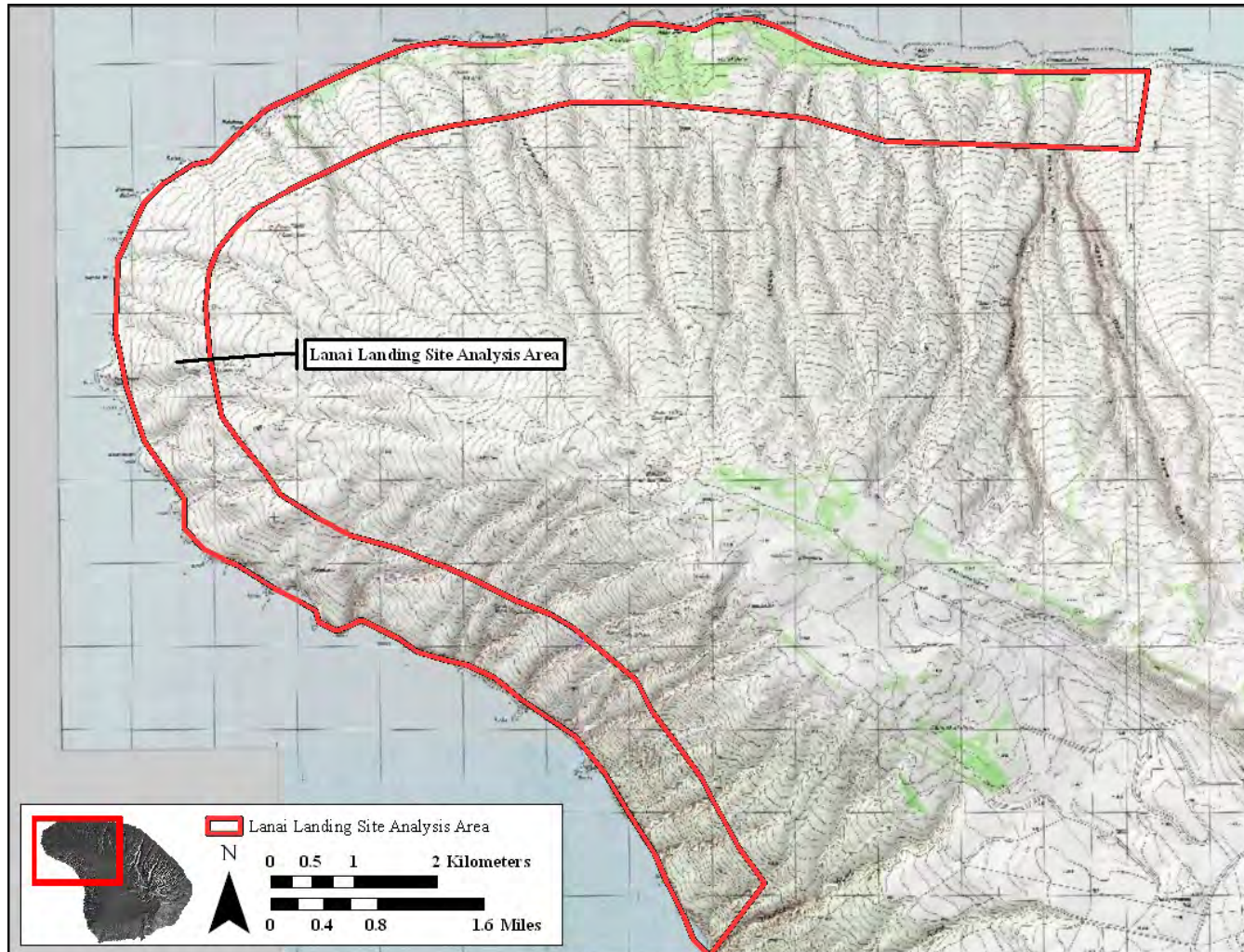


Figure 37. Portion of the U. S. Geologic Survey topographic map, Garden of the Gods 7.5-minute series quadrangle (2000), showing the Lāna'i Landing Analysis Area

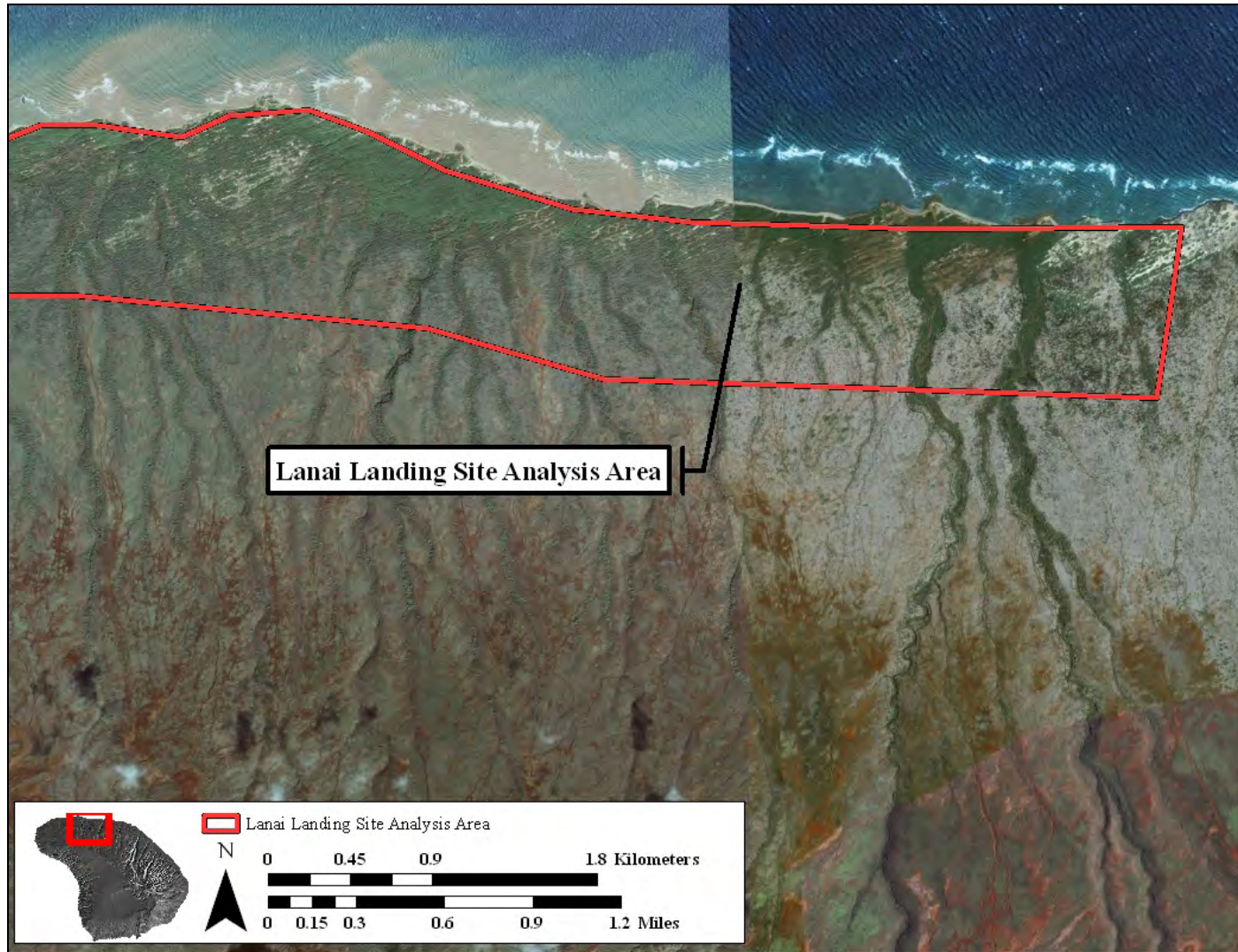


Figure 38. Aerial photograph (Microsoft Corporation and ESRI 2010) of the northern section of the Lāna'i Landing Analysis Area

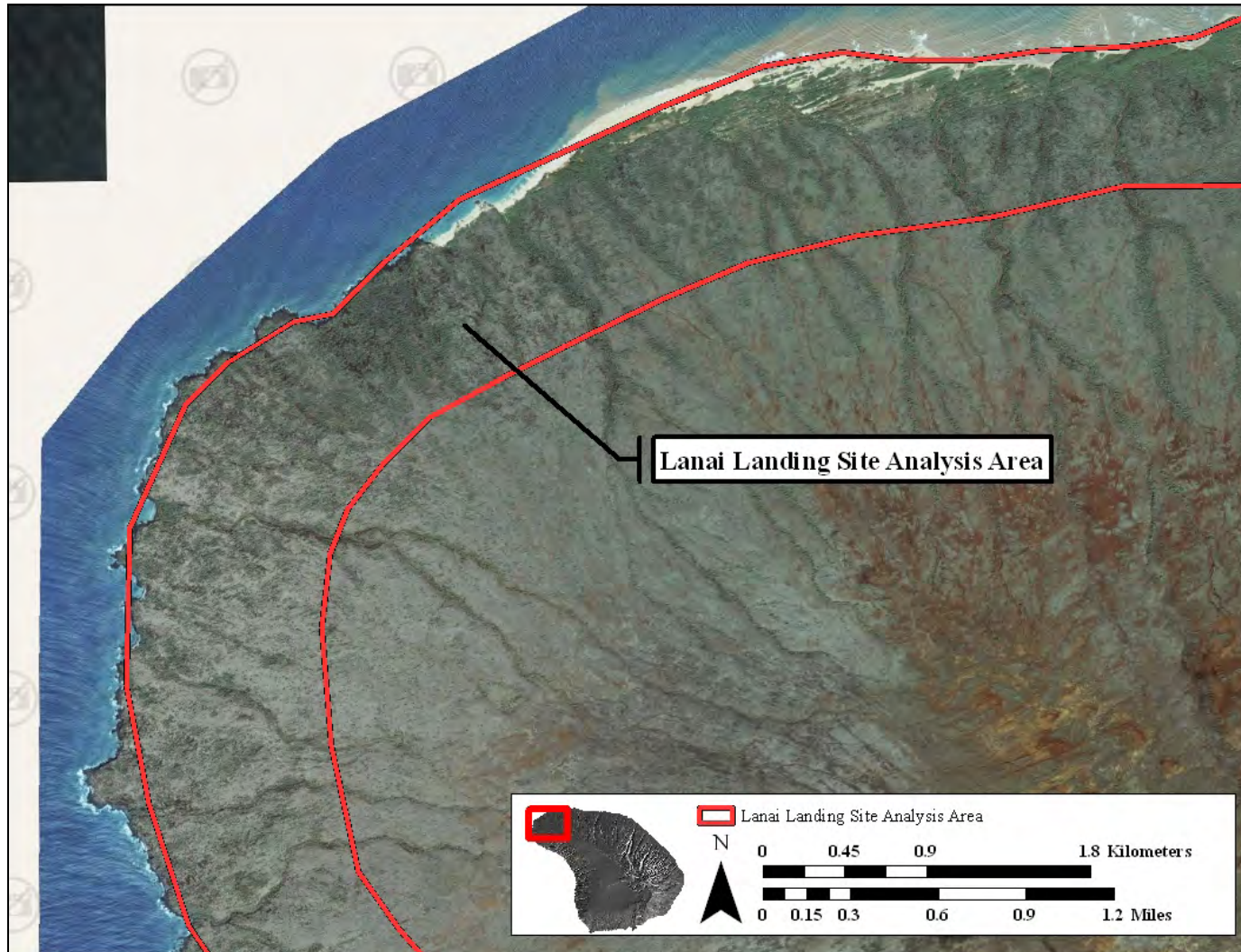


Figure 39. Aerial photograph (Microsoft Corporation and ESRI 2010) of the western section of the Lāna'i Landing Analysis Area



Figure 40. Aerial photograph (Microsoft Corporation and ESRI 2010) of the southern section of the Lāna'i Landing Analysis Area

In 1992, Myra Tomonari-Tuggle and David Tuggle performed an archaeological inventory survey of a section of the eight-mile-long Kaiolohia-Kahue coastline. A three-mile-long coastal trail along the north coast of Lāna'i had been tied to commercial sheep ranching from 1860 to 1900, and had been described by Emory (1924) as passing through a number of abandoned pre-contact village sites. Inventory survey transects were conducted along the three-mile-long section between Pōhakuloa Point and Kahue.

In 1997, David Tuggle performed an archaeological inventory survey of five upland locations within the rural area of Ka'ā and Paoma'i Ahupua'a for proposed U.S. Marine helicopter landing zones.

More recently, Kepa and Onaona Maly performed a ground breaking and extensive ethnographic survey of Ka'ā Ahupua'a which documented the traditional Hawaiian lifeways through research of Hawaiian language newspapers and other historical accounts along with a limited archaeological reconnaissance in collaboration with Cultural Surveys Hawai'i which identified 111 consisting of 439 contributing features throughout Ka'ā (archaeological report in progress).

Table 18. Previous Cultural Resources Studies in the Lāna'i Landing Analysis Area (Arranged chronologically)

Reference	Type of Investigation	Location	Findings within the Proposed Landing Site
Penchula et al. 1914	Archaeological Excavation	Awalua	Burial Ground at Awalua – 83 individuals and associated funerary objects (two items of personal adornment, one fishing item, and one animal tooth.)
Emory 1924	Archaeological Survey	Island-Wide Reconnaissance	<p><u>Ka'ā:</u></p> <p><u>Honopū</u> – water well; lava tube caves</p> <p><u>Ka'ena and Ka'ena Iki</u> – Ka'enaiki Heiau (largest on Lāna'i); 2 small <u>heiau</u>; <u>ko'a</u>; petroglyphs</p> <p><u>Kalaeāhole</u> – habitation complex; ceremonial platform; small unnamed <u>heiau</u></p> <p><u>Ka'ea</u> – <u>ko'a</u>; 2 small <u>heiau</u></p> <p><u>Polihua</u> – 3 <u>ko'a</u>;</p> <p><u>Keanapapa</u> – <u>ko'a</u></p> <p><u>Paoma'i:</u></p> <p><u>Kanaele</u> – thatched houses;</p> <p><u>Honua'ula</u> – <u>ko'a</u>;</p> <p><u>Kahue</u> – 4 <u>ko'a</u>; small <u>heiau</u></p> <p><u>Haleolono</u> – upright stone slab alignments (ceremonial)</p> <p><u>Awalua</u> – sand dune burials;</p> <p><u>Honowae</u> – <u>ko'a</u>;</p> <p><u>Pōhakuloa Point</u> – small <u>heiau</u></p>

Reference	Type of Investigation	Location	Findings within the Proposed Landing Site
Hommon 1974	Archaeological Inventory Survey	Island-Wide	Purpose was to re-identify sites previously recorded by Emory and assign SIHP numbers.
Tomonari-Tuggle and Tuggle	Archaeological Inventory Survey	Kahue to Pōhakuloa Point	A total of 26 historic properties representing 75 discrete features, including four extensive deflated midden scatters, with no apparent association to the habitation complexes, were documented. Three major habitation complexes were recorded, and a fourth complex, at Kuahua, although outside the project area, was noted for further study by the authors.
Tuggle 1997	Archaeological Inventory Survey	Ka'ā and Paoma'i	Documented five historic properties consisting of a cobble and boulder alignment, cultural material surface scatters, a possible ceremonial site consisting of a terrace constructed of upright basalt cobbles, and remnant soil hummocks with <i>in situ</i> firepits.
Maly and Maly 2011	Ethnography with Limited Archaeological Reconnaissance	Ka'ā	A total of 111 historic properties with 439 contributing features primarily clustered at the mouths of streams and along the sandy beach areas (Polihua and Awalua). Sites identified include ceremonial sites, <i>ahu</i> (cairns), burials, trails, permanent and temporary habitation, salt pans, agricultural features, lithic quarries and workshops, petroglyphs, modified caves and outcrops, gaming sites, historic features associated with ranching and hunting activities, and sites of indeterminate function. Identified the traditional cultural practices and traditional cultural resources of Polihua and Awalua.

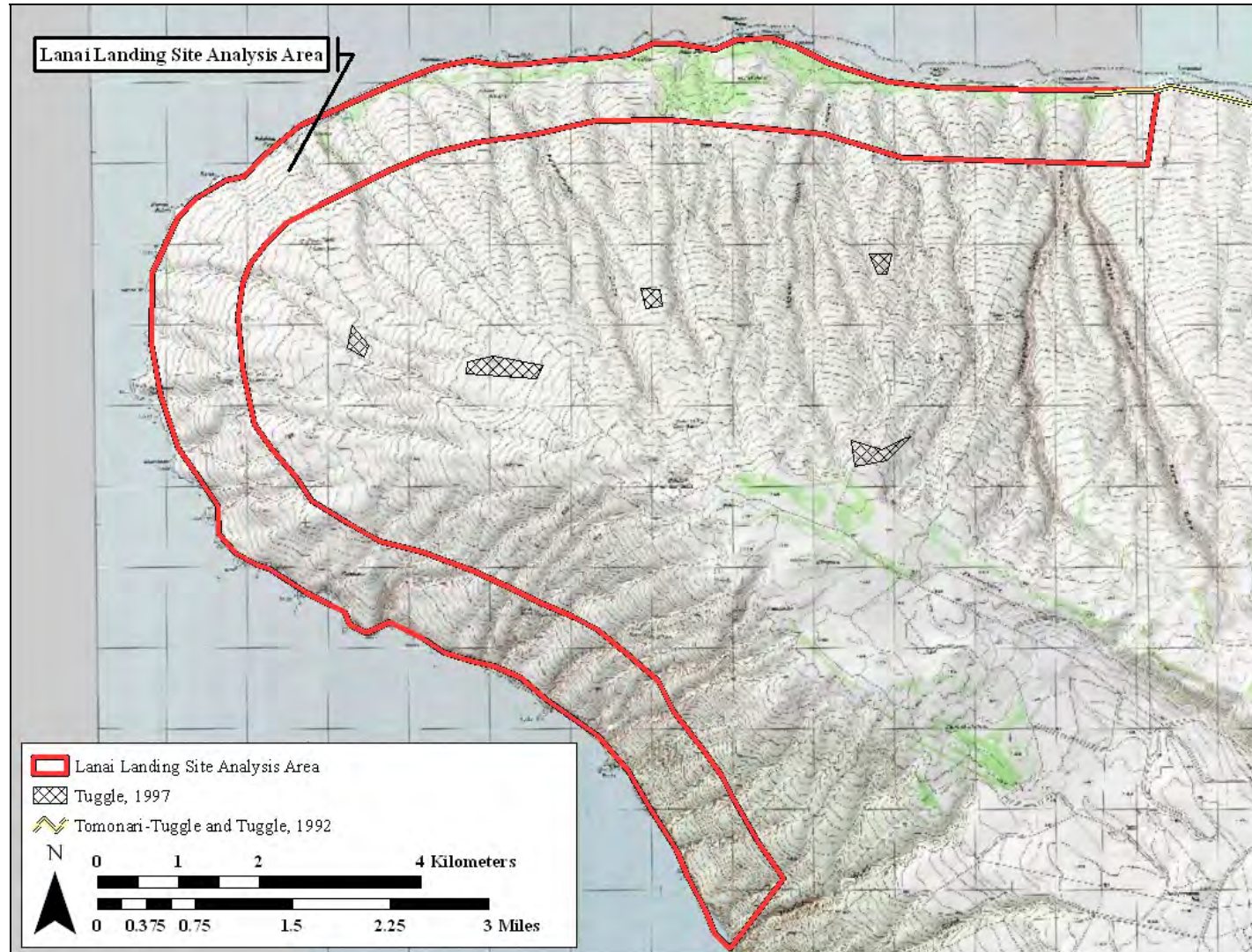


Figure 41. Previous cultural resource studies in the Lāna‘i Landing Analysis Area

7.3 Previously Identified Cultural Resources of the Lāna'i Landing Analysis Area

While archaeological and ethnographic studies of the lands within the Lāna'i Landing Analysis Area are sparse, only one of which conformed to modern archaeological inventory survey standards, the findings are nonetheless significant given the environmental constraints of a leeward climate (Table 19 and Figure 42). It is likely, that the site density along the coastal is due, in large part, to the available fishing grounds and other marine resources (*limu* and turtle), as well as, the possible presence of coastal springs and other sources of potable brackish water.

Table 19. Previously Identified Historic Properties of the Lāna'i Landing Analysis Area

SIHP 50-40-98-#	General Location Relative to the Project Area	Nature of Site	Status/ Comments	Source
119	Honopu, Ka'ā	Habitation complex	Consists of one house terrace, <i>papamū</i> , and 10 house sites	Emory 1924: 40; Emory 1921: 20
120	Honopu, Ka'ā	Caves	Storage area	Emory 1924: 88; Emory 1921: 20
125	Honopu, Ka'ā	Habitation site	Rectangular enclosure	Emory 1921: 20
37	Ka'ā	Keahialoa habitation complex	2 small terraced house sites just west of platforms	Emory 1924: 69
38	Polihua, Ka'ā	Habitation and ceremonial complex	4 <i>ko'a</i> , 1 house site, and 1 enclosure	Emory 1924: 70; Hommon 1974
39	Keanapapa, Ka'ā	Ceremonial sites	<i>Ko'a</i> consisting of a platform and stepped altar	Emory 1924: 71; Hommon 1974
42	Honua'ula, Paoma'i	Ceremonial site	Irregular platform with a low altar, 1.82m x 3.7m x 1.82m, constructed of basalt stones and coral	Emory 1924: 70
44	Kahue, Paoma'i	Kahue habitation complex	<i>Ko'a</i> platform on a sand dune 1.37m x 3.04m x 0.6 m high; over 10 recurrent habitation caves (pre-contact to historic era) with a single terrace (historic bottles, historic clothing, and historic furnishing)	Emory 1924: 38; Emory 1921: 16
45	Kahue Bay, Paoma'i	Ceremonial platform	Possible <i>ko'a</i>	Emory 1924: 70
46	Kahue Valley, Paoma'i, near the mouth of the valley	Habitation complex	<i>Ko'a</i> , house sites, and an enclosure	Emory 1924: 70
47	Honowae, Paoma'i	Ceremonial site	<i>Ko'a</i> stone platform approximately 4.6m x 4.6m x 1.5m among the sand dunes	Emory 1924: 71
48	Kahue, Paoma'i	Ceremonial	2 <i>ko'a</i> enclosures	Emory 1924: 71
49	Hale O Lono, Paoma'i	Ceremonial site	<i>Ko'a</i> constructed of 9 upright stone slabs ranging in height from 0.3-0.6m	Emory 1924: 72

SIHP 50-40-98-#	General Location Relative to the Project Area	Nature of Site	Status/ Comments	Source
50	Awalua, Paoma'i	Sand dune burial ground	Approximately 83 individuals with associated funerary objects	Emory 1924: 73
53	Pōhakula Point, Paoma'i	No Data	Site location provided in Tuggle 1997: Figure 1, p. 8	Tuggle 1997: Figure 1, p. 8
124	Ka'ena Point	Petroglyph	One human figure, faint, bruised	Emory 1924: 103
122	Kalaehole, Ka'ā	Petroglyphs	Human and animal figures	Emory 1924: 103
123	Ka'ea, Ka'ā	Habitation complex	House site, <i>ko'a</i> , and cairns	Emory 1921: 18; Hommon 1974
124	Ka'ena Nui	Habitation site	11 house sites, <i>ko'a</i> , and a well	Emory 1924: 71; 72
128	Honua'ula, Paoma'i	Habitation site	Located in a shallow valley	Emory 1921: 16
129	Honua'ula, Paoma'i	Habitation complex	9 circular structures measuring 3m in diameter; and 2 house platforms over 6m x 9m long	Emory 1921: 16
130	Paopao Gulch, Paoma'i	Habitation complex	5 house sites and 4-5 large animal pens	Emory 1921: 17
131	Kanaele, Paoma'i, coastal plains	House site	Fallen frame of a <i>pili hale</i> (grass house) with historic materials; no stone foundation	Emory 1924: 50
133	Awalua, Paoma'i	Habitation complex	5 house sites identified east of the bay, one housesite identified west of the bay, historic cultural material (e.g. bottles, lumber, iron)	Emory 1921: 18
151	Kahue Valley, Paoma'i	Petroglyphs	4 animals, abraded	Emory 1924: 105
178	Ka'ena Iki	Ka'ena Iki ceremonial complex	Ka'ena Iki Heiau (16.76m x 46.32m x 0.9m high), 9 house platforms, and 2 <i>ko'a</i> .	Emory 1924: 64; Emory 1921: 19; Hommon 1974
1559	East of Keonohau Gulch	Habitation complex	3 narrow terraces the largest of which is 5m x 2.5m	Tomonari-Tuggle and Tuggle 1991: 101
1560	East of Keonohau Gulch	Habitation site	C-Shaped structure at the base of a high outcrop	Tomonari-Tuggle and Tuggle 1991: 101
1562	Mouth of Keonohau Gulch near	Habitation and ceremonial complex	Small ceremonial structure consisting of a roughly paved platform in addition to a terraced area, C-Shape structures (2), an L-Shape wall, a windbreak, a cave, and associated midden surface scatters	Tomonari-Tuggle and Tuggle 1991: 103-105
1563	East of Kahue Stream	Habitation complex	Two L-Shaped walls and a terrace.	Tomonari-Tuggle and Tuggle 1991: 106
1912	Approximately 150m north of Polihua Beach	No Data	Site location provided in Tuggle 1997: Figure 1, p. 8	Tuggle 1997: Figure 1, p. 8
1914	North of Ka'ena Point	No Data	Site location provided in Tuggle 1997: Figure 1, p. 8	Tuggle 1997: Figure 1, p. 8

Table 20. Traditional Cultural Resources of the Lāna'i Landing Analysis Area

General Location Relative to Project Area	Cultural Resource	Source
Polihua	<i>Honu</i> nesting area; salt gathering ponds; the last growth of the <i>manewanewa</i> plant (known as <i>pōhinahina</i> on the neighbor islands [<i>Vitex trifolia</i> var. <i>simpicifolia</i>]) on the Island of Lāna'i when adorned like a <i>lei</i> is a signal to those native to Lāna'i that you have seen Polihua	Maly and Maly 2011:256-257; 272-276
Awalua	Brackish water wells	Maly and Maly 2011:257

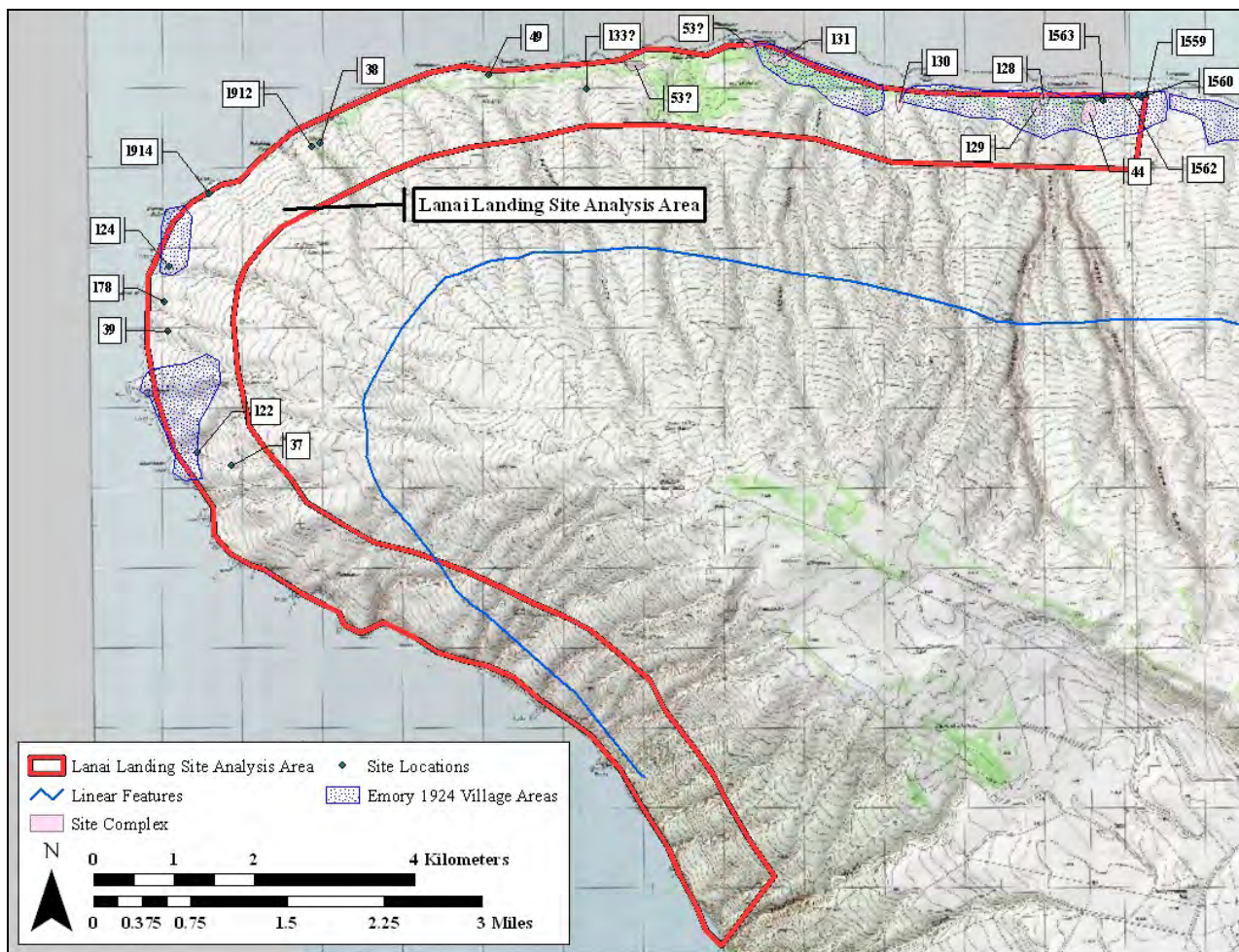


Figure 42. Previously identified cultural resources¹ in the Lāna'i Landing Analysis Area (see companion Table 19) (blue line indicates a 1920s waterline historic property)

¹ Site locations after Tuggle 1997

7.4 Summary of Cultural Resources of the Lāna'i Landing Analysis Area

According to research and findings, from Laewahie in Paoma'i to Kalae'āhole Shoal in Ka'ā, there appears to be a fairly even distribution of pre-contact habitation sites and complexes, ceremonial sites and complexes, or a combination thereof within the Lāna'i Landing Analysis Area. Multiple *ko'a* and habitation sites at the mouths of streams, along stretches of beach, and across the low plains suggest the area provided excellent fishing grounds. Between Kalae'āhole to just north of Honopū, the number of previously identified historic properties drop, a factor that may be related to either limited shoreline accessibility from the *mauka* reaches and the steep topographic relief of the area or simply due limited archaeological study of this particular region. At Honopū Gulch and Valley, however, the presence of large habitation complexes indicate an area where access could be gained from the *mauka* elevations via traditional trails. While the overall site density appears rather low (Figure 43), it would be prudent to recall that only a total of three formal archaeological studies that cover the lands within the proposed landing site have been published to date (Emory 1924; Hommon 1974; Tomonari-Tuggle and Tuggle 1992) and, if the approximate locations of the village areas of the region documented by Kenneth Emory in 1924 and the preliminary archaeological findings presented by Maly and Maly (2011) are any indication, it is likely that the documented site density would increase through additional systematic archaeological study.

With regard to non-archaeological cultural resources, it is of further importance to point out that the stretch of beach at Polihua is traditionally significant for several reasons. First, as it is pertinent to any construction or subsurface disturbance in this area, it is imperative to know that this beach is famous through history as a nesting ground for the sea turtle (Maly and Maly 2011:256; Pukui 1983:243) which is marked by the stone-formed body of the turtle, a *mo'olelo* that has been documented in the Hawaiian language newspapers (Maly and Maly 2011:269-270). Second, the rocky outcrops extending into the waters of Polihua provide both natural catchment, as well as culturally worked salt basins (*poho pa'akai*) for the gathering of sea salt (Maly and Maly 2011:276). Finally, along this stretch of beach, the last stand of the vines and blossoms of the *manewanewa* plant grows and is significant to the people of Ka'ā and Paoma'i as a symbol of Polihua (Maly and Maly 2011:272-274; Pukui 1983:9).

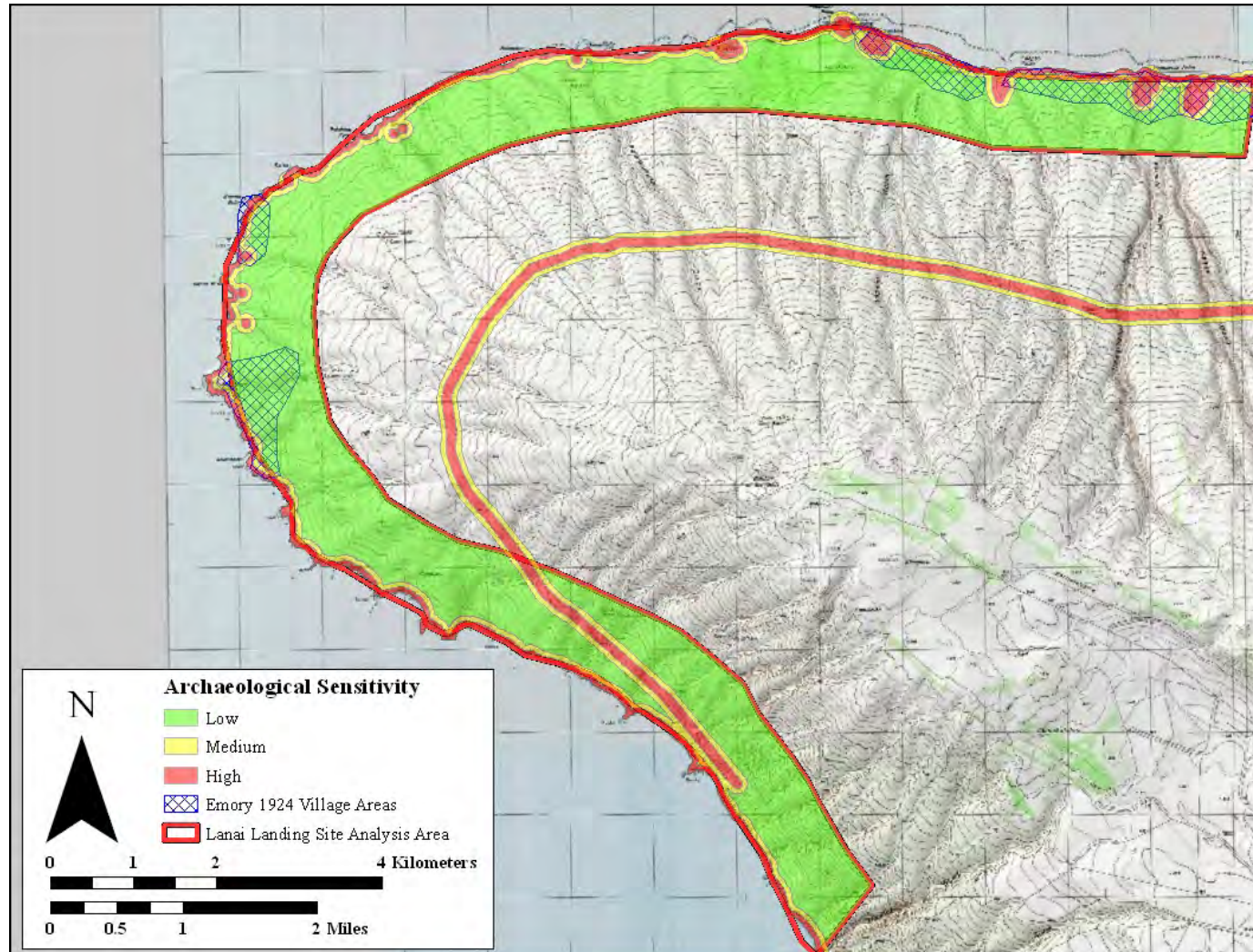


Figure 43. Cultural resource sensitivity map for the Lāna'i Landing Analysis Area (arcng red line indicates a 1920s waterline historic property)

7.5 References Cited for the Lāna'i Landing Analysis Area

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Section 8 West Maui Landing Analysis Area

8.1 Introduction to Cultural Resources of the West Maui Landing Analysis Area

The West Maui Landing Analysis Area is located in the traditional *moku* of Ka'anapali and crosses the *ahupua'a* of Nāpili, Honokahua, and Honolua for approximately six kilometers (3.7 miles) along the coastline from Hawea Point to just east of Lipoa Point. Extending inland for approximately one kilometer, analysis area for the proposed West Maui landing site covers an overall area of roughly 1126 acres (Figure 44). The modern environment of the analysis area for West Maui consists of primarily of golf course greens and resort amenities followed by fallow pineapple fields and small residential communities at the mouth of Honolua Gulch and toward Nāpili within the southwest corner of the analysis area (Figure 50).

The broad pattern of settlement in the study area included both permanent and temporary habitation in coastal areas and inland valley regions. A traditional description of settlement and land use patterns in the greater Ka'anapali region can be found in Handy and others (1991:494-498) where they document extensive inland *lo'i* systems within five main valleys that drained the West Maui watershed area: Honokawai, Kahana, Honokahua, Honolua, and Honokohau. In some of the drier and smaller streams that drain the region, small areas of taro were planted as well. The backs of the larger valleys are interpreted to have been suitable areas for growing yams, arrowroot, *wauke*, and *olona* (Handy et al. 1991:495).

In 1988, at Honokahua, the Ritz-Carlton obtained permits to develop a hotel on a bluff overlooking Honokahua Beach (Gaylord 2005:73). During the course of excavation, at a site that was initially identified by Kirch in 1973 as having "an indeterminate number of Precontact traditional Hawaiian human burials in the sand dunes behind Honokahua Beach" (SIHP -1342) (1973b:11), approximately 1100 individuals were archaeologically disinterred from the proposed development area (Guerriero et al. 1993) to facilitate hotel construction. These actions prompted swift outcries from the native Hawaiian community across the State and culminated in the landmark actions by then Governor John Waihe'e to approve a settlement which moved the development project away from the burial site, returned the disinterred remains to their original resting place, and preserved the burial site in perpetuity (Gaylord 2005:73-74). This case would bring about the most significant legislation in the State of Hawai'i with respect to traditional Hawaiian burials and cultural resource management since the passage the National Historic Preservation Act of 1966. In 1990, the legislature found that "Native Hawaiian burial sites are especially vulnerable and often not afforded the protection of law which assures dignity and freedom from unnecessary disturbance (e.g. *Honokahua*) (HAR 13-300-1). As a result sections 6E-11, 6E-12, 6E-43, 6E-43.5, 6E-43.6 HRS, were amended or enacted in part to provide additional protection for Native Hawaiian burial sites with the rules and procedures addressing burial sites and human remains were codified in HAR 13-300. In her master's thesis for Pacific Studies, Kimberlee Gaylord recounts the statements of Jack and Grethchen Kelly who were plaintiffs in a case at Hōkūli'a on Hawai'i Island "[o]ut of the Honokahua tragedy was born the first legislation enacted to protect Hawaiian burials and burial sites, enacted in July 1990. That legislation established the burials program within the State Historic Preservation Division and the formation of Burial Councils, made up primarily of Native Hawaiians, on each island." (Gaylord 2005:74).

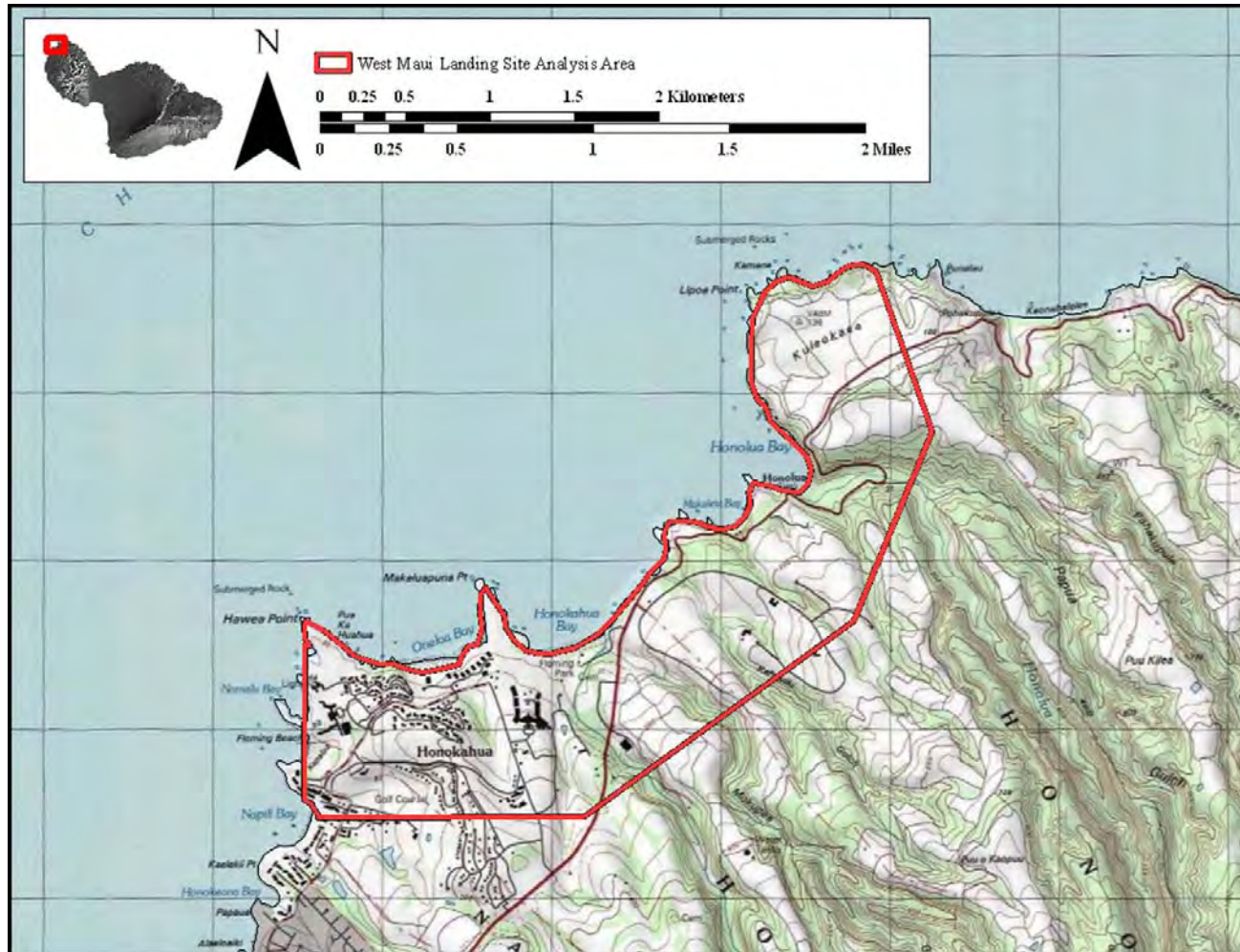


Figure 44. Portion of the U. S. Geologic Survey topographic map, Napili (United State Department of the Interior 1997) 7.5-minute series quadrangle, showing the West Maui Landing Analysis Area



Figure 45. Aerial photograph (Microsoft Corporation and ESRI 2010) of the northern section of the West Maui Landing Analysis Area

8.1 Previous Cultural Resources Studies in the West Maui Landing Analysis Area

Beginning in the late 1920s and continuing in recent decades, archaeological studies have been conducted within Nāpili, Honokahua, and Honolulu. These studies complement and amplify the historical documentation record, suggesting patterns of Hawaiian activity within the three *ahupua'a* covered by the study area during the pre-contact and early post-contact periods.

Table 21. Previous Cultural Resources Studies within the West Maui Landing Analysis Area (Arranged chronologically)

Reference	Location	Type of Study	Findings within the Proposed Landing Site
(Walker 1931)	Honolua and Honokahua	Archaeological Inventory Survey	<p><u>Honolua</u> Site 17 – “Puhalakau (Ai Mala), a <i>heiau</i> for Ku‘ula” : Level space showing some paving with small stones. Modern walls and houses have destroyed the outline (p.70) Site 18 – Honua‘ula Heiau remains of old stone platforms and walls with 1m thick walls. Interior formerly paved with stones that have been removed to build animal pens (p.70) <i>holua</i> slide fisherman’s <i>ko‘a</i> on the beach has washed away</p> <p><u>Honokahua</u> Site 16 – Kahauiki Heiau: small irregular platform of stones whose walls have been taken for stock pens (p.69)</p>
(Kirch 1973a)	Haweia Point	Archaeological Testing	Testing of Sites 50-MA-D13-1 and 50-MA-D13-2 - fishing settlement and cave shelter.
(Kirch 1973b)	D.T. Fleming Beach to Honokahua Bay including four gulch areas	Archaeological Inventory Survey	Recorded sites that include a cluster of eight possible temporary habitation features (D13-1); a shelter cave (D13-2); a stone platform (D13-3); a terrace, enclosure, possible pre-contact pavement and, midden scatter (D13-4); a series of historic walls (D13-5) identified as cattle pen walls; an exposed pre-contact midden deposit (D13-6); a large basalt boulder that exhibited grind stone use-wear; a historic-period midden deposit (D13-8); and an “indeterminate number of human (presumably prehistoric) burials” (D13-9) located in the sand dunes behind Honokahua Beach. Site D13-9 represents the initial recording of the Honokahua Burial Site 50-50-01-1342 that was placed on the State Inventory of Historic Places Register in 1973.

Reference	Location	Type of Study	Findings within the Proposed Landing Site
(Moore 1974)	Honolua Bay and Gulch	Archaeological Inventory Survey	Thirteen historic properties were identified (SIHP: 50-50-01-0017, -1471, 1751 to 1761) comprising 11 pre-contact sites and 2 historic sites (including historic gravesites).
(Ladd 1980)	Haweia Point	Archaeological Inventory Survey	Re-identified SIHP -1347,
(Donham 1986)	Kapalua Hotel, Honokahua	Archeological Inventory Survey	Documented eight archaeological sites which included remnants of a precontact trail, a subsurface cultural deposit, three sites associated with historic ranching, a walled shelter and a rubble pile of indeterminate age, and the previously-recorded Honokahua Burial Site (50-50-01-1342).
(Rosendahl 1989)	Haweia Point	Archaeological Field Inspection	Identified only one feature of Site D13-1, a stone platform, within the Haweia Point Residence Site. No additional sites were encountered during the reconnaissance survey. Documentation and observation of a stone platform feature (Site D13-1).
(M. L. K. Rosendahl 1988)	Coastal Honokahua and Nāpili	Archaeological Surface Reconnaissance	No significant historic properties identified.
(P. H. Rosendahl 1988)	Coastal Honokahua and Nāpili	Archaeological Subsurface Reconnaissance	No significant historic properties identified.
(Donham 1989)	Kapalua Hotel, Honokahua	Archaeological Data Recovery and Mitigation	Honokahua Burial Site: A total of 920 burials were recorded. (Interim Report)
(Guerriero et al. 1993)	Revised Ritz-Carlton Kapalua Hotel Site, Honokahua	Archaeological Monitoring and Data Recovery	Nine sites, containing 43 component features, were recorded during monitoring. Six radiocarbon dates were submitted for samples from Sites 1322A and -873, and radiocarbon dates from A.D. 1270 to the present were determined.
(Kennedy 1990)	Haweia Point Residential Project	Archaeological Assessment	Discovery and documentation of three previously unidentified sites which included a low soil-filled platform, an L-shaped stone alignment, and a C-shaped structure.
(W. M. Fredericksen et al. 1994)	Fleming Beach Park	Archaeological Subsurface Testing	No cultural remains were encountered during testing
(E. M. Fredericksen et al. 1994)	Kapalua Bay Hotel, Coconut Grove, Coastal Honokahua and Nāpili 2-3 Ahupua'a	Archaeological Inventory Survey	No significant historic properties identified.

Reference	Location	Type of Study	Findings within the Proposed Landing Site
(Jimenez and Rosendahl 1995)	Near the coast of Honolua Bay	Archaeological Inventory Survey	Identified five historic properties including SIHP 50-50-01-4141 a fire pit, SIHP-4142 burial terraces, SIHP-4143 a permanent habitation platform, SIHP-4144 a possible habitation complex and SIHP-4145 a boundary wall
(W. M. Fredericksen and Fredericksen 1996)	Fleming Beach Park	Archaeological Data Recovery	Flexed human burial SIHP -1342 encountered during construction of sewer line
(E. M. Fredericksen et al. 1996)	Kapalua Bay Hotel, Coconut Grove, Coastal Honokahua and Nāpili 2-3	Archaeological Subsurface Testing	No significant historic properties identified.
(E. M. Fredericksen 1997)	Spa Resort, Honokahua	Archaeological Reconnaissance	Noted the 1915 former home of D.T. Fleming as within the survey parcel, no other significant historic properties were identified.
(Devereux et al. 1998)	Kapalua Project District 2 <i>mauka</i> of Honoapiilani Highway	Archaeological Inventory Survey	Identified eight sites that included boulder terraces, boulder overhang, shelter cave, historic reservoir, road bridge, and cemetery
(E. M. Fredericksen et al. 2000)	West side of Honolua Bay	Archaeological Inventory Survey	Identified a single site, SIHP 50-50-01-4829. The site consisted of two dry masonry rock retaining wall sections supporting Honoapi'ilani Highway near Mokuleia Bay.
(D. L. Fredericksen and Fredericksen 2000)	Honokohau, Honolua, and Honokahua	Archaeological Inventory Survey	Identified two previously unrecorded historic properties (SIHP 50-50-01-4782 and SIHP:-4783). SIHP-4782 is a surface scatter of water worn coral and SIHP -4783 is a plantation era retaining wall.
(E. M. Fredericksen 2001)	Kapalua Project District 2 <i>mauka</i> of Honoapiilani Highway	Archaeological Monitoring	Three sites were identified: a post-contact crypt burial, a pre-contact habitation deposit, and a pre-contact burial, which was preserved in place. A radiocarbon age range of A.D. 1490-1665 was determined for the subsurface cultural deposit
Fredericksen and Fredericksen 2001	Nāpili, Nāpili Gulch	Archaeological Inventory Survey	Identified 37 previously unrecorded sites which included precontact agricultural terraces, temporary and more permanent habitation areas, possible ceremonial areas, and possible burial features; as well as, ranch era and plantation era sites
(E. M. Fredericksen and Fredericksen 2002)	Adjacent to the shore at the middle of Honolua Bay	Archaeological Inventory Survey	Identified six new sites, SIHP 50-50-01-5093 a ceremonial enclosure/platform and fish spotting station, SIHP-5094 a pre-contact habitation area, SIHP-5095 a remnant of the old government road, SIHP -5096 a remnant of an old slaughter house, SIHP-5097 two rock overhang shelters, and SIHP -5098 a coastal burial.

Reference	Location	Type of Study	Findings within the Proposed Landing Site
(Tome et al. 2002)	Honolua Gulch just <i>mauka</i> of Honoapi'ilani Highway	Archaeological Inventory Survey	Identified two previously recorded sites (Moore 1974) SIHP 50-50-01-1471, Honua'ula Heiau and SIHP-1758 historic house site with associated components. This inventory survey also documented four newly-identified architectural features interpreted as components of both sites.
(Hammatt et al. 2003)	South of Honoapi'ilani Highway, and extending up Honolua Ridge	Archaeological Inventory Survey	Identified four new sites (SIHP-50-50-01-5234, 5235, 5425 and 5426) and relocated a previously identified site (SIHP-1760). SIHP-5234 consisted of a water tunnel, SIHP-5235 a single faint petroglyph, SIHP-5425 a historic trail, and SIHP-5426 a permanent pre-contact habitation site respectively. SIHP -1760 is a human burial.
(Haun et al. 2003)	Honolua Ahupua'a	Archaeological Data Recovery	Noted that SIHP -4141 had been destroyed prior to the data recovery and determined that SIHP -4143 may have been constructed atop a late pre-Contact fire feature and subsequently utilized as a trash dump for a nearby historic residence.
(Dockall and Hammatt 2005)	Honokahua Historic District	Archaeological Inventory Survey	Further documented historic era features within the Honokahua Historic District resulting in SIHP number assignments (SIHP -5672, four component features of Maka'oi'oi and SIHP -5673, facilities and operational buildings of the Honolua Plantation) to structures within the inventory survey project area.
(Conte 2006)	Honolua Gulch	Archaeological Inventory Survey	Re-identified and updated documentation on 12 component features of SIHP 50-50-01-1756.
(Pickett and Dega 2007)	Lipoa Point, Honolua Ahupua'a,	Archaeological Inventory Survey	Twenty-three previously unrecorded sites were discovered (SIHP 50-50-01-5913 to -5935). Twelve of the sites were determined to be pre-Contact, five were pre-Contact/Historic, five were Historic, and one was indeterminate.
(Tome and Dega 2008)	Areas of Nāpili, Kapalua, Honokahua, and Honolua	Archaeological Inventory Survey	No new historic properties were identified
(Perzinski and Dega 2009)	Honolua Bridge	Archaeological Inventory Survey	Re-identified features of two previously recorded sites from Moore (1974), SIHP 50-50-01-1471 Feature 12 and SIHP:-1754 Feature 6. In addition the Honolua Stream Bridge was added as an additional feature (Feature 11) to SIHP -1754.

Reference	Location	Type of Study	Findings within the Proposed Landing Site
(Dagan et al. 2011)	Honolua Ahupua'a	Cultural Impact Assessment	Identified historic properties associated with traditional ceremony and long-term habitation ; communal <i>akule</i> fishing, as well as, subsistence fishing at Honolua Bay; and a popular location for engaging in <i>he'e nalu</i> or the traditional sport of surfing.

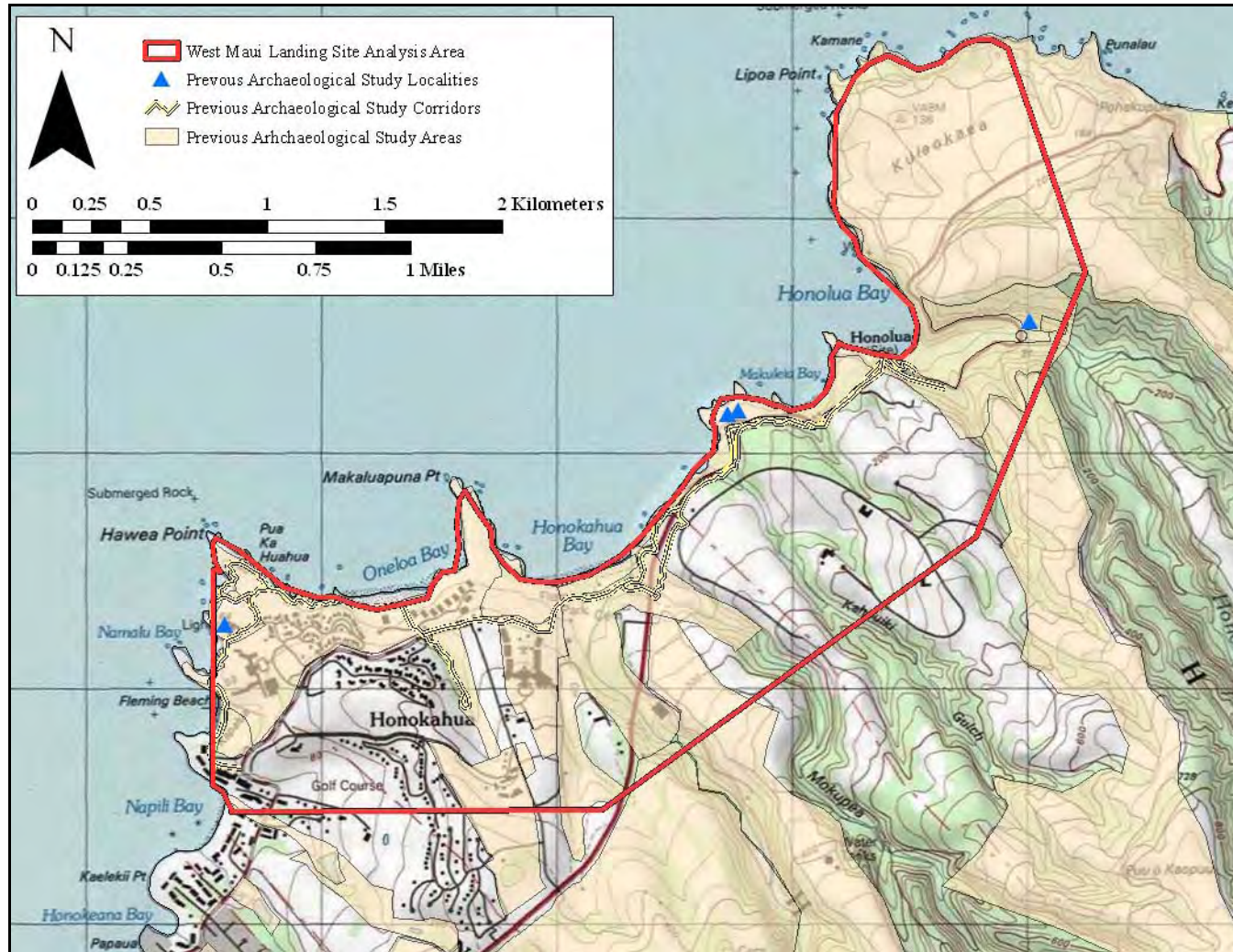


Figure 46. Portion of the U. S. Geologic Survey topographic map, Napili (United State Department of the Interior 1997) 7.5-minute series quadrangle, showing the West Maui Landing Analysis Area in relation to the previous archaeological studies

8.2 Previously Identified Cultural Resources of the West Maui Landing Analysis Area

Previously identified cultural resources of the West Maui Landing Analysis Area are presented in Table 27 below with approximate site locations depicted on Figure 42.

Table 22. Previously Identified Historic Properties of the West Maui Landing Analysis Area

SIHP 50-50-01-#	General Location Relative to the Project Area	Nature of Site	Status/ Comments	Source
1340	Northeast end of Honokahua Beach	Grinding Stone	Site consists of grinding stone, 1.6 x 1.0; located at northeast end of Honokahua Beach.	(Kirch 1973b:10)
1341	Mokupea Gulch	Cultural Deposit	Poorly defined exposed midden layer with a sparse scatter of charcoal and one 4-hole button.	(Kirch 1973b:10)
1342	Honokahua Beach	Precontact burial ground	Identified and indeterminate number of human burials in the sand dunes behind Honokahua Beach, overall dimensions 225 x 30-40m; well over 1000 human skeletal remains. Eastern portion designated 1342A.	(Guerriero et al. 1993:41, Appendix B, Appendix G; Kirch 1973b:11)
1343	Makaluapuna Point	Habitation terrace	Site consists of terrace; enclosure, 2.6 x 1.75 x 0.5m; pavement; and midden scatter; located on Makaluapuna Point.	(Kirch 1973b:5)
1344	Makaluapuna Point	Historic era wall features	Originally described as "...series of fairly recent, historic walls..."; later described as 3 features: enclosure, 160 sq m, w/ interior walls; wall, 28 x 1 x 0.8; wall, 73m long.	(Kirch 1973b:9)
1345	Honokahua Beach	Cultural deposit	Site consists of exposed cultural deposit, extends 20m; located behind Honokahua Beach, along south bank of intermittent stream.	(Kirch 1973b:9)
1346	Hawea Point	Temporary fishing village	Site consists of 8 features: 2 surface midden scatters, 2 "shelters" with surface midden, pavement, 2 platforms; located near tip of Hawea Bay.	(Kirch 1973a; b:4-5; Tome and Dega 2008:34-37)
1347	Hawea Point	Habitation Shelter	Small shelter cave beneath a cliff overhang that extends 5-6m deep with a small midden pocket of <2m ² . Observed midden scatters in recently bulldozed areas	(Kirch 1973b:5; Ladd 1980:2; Tome and Dega 2008:37)

SIHP 50-50-01-#	General Location Relative to the Project Area	Nature of Site	Status/ Comments	Source
1348	On a promontory above Oneloa Bay	Terraced platform	Stone platform of cobbles and boulders (6m x 6m x 2.2m high) with low wall behind the platform.	(Kirch 1973b:5)
1471	Approximately 100m northeast of Honoapi'ilani Hwy Bridge at Honolua Valley	Honua'ula Heiau	Consists of a minimum of 8 associated features that include: walls, platforms, and enclosures	(Dagan et al. 2011:49-50; Moore 1974:3-6; Pickett and Dega 2007:25; Tome et al. 2002:46-49; Walker 1931:70)
1591	Honokahua	Honokahua Historic District	Site consists of historic plantation features which include the cannery facilities of Baldwin Packers, Honolua Ranch Stables, plantation housing, churches, and Honolua store, in addition to the Honokahua burials	(Dockall and Hammatt 2005; Donham 1986; E. M. Fredericksen 1997; Wright 1974)
1751	Honolua Valley	Grinding Stones	A minimum of 12 basalt boulders with one or more facets from use as grinding surfaces, likely for adze sharpening.	(Moore 1974:6)
1752	Honolua Valley	Historic Structures	Remains of historic era occupation of LCA 4243D, AP 2. Concrete house foundations and historic graves. House destroyed by 1946 tsunami (<i>he'e</i> [octopus] lure and coral abrader observed on the surface)	(Moore 1974:6-9)
1753	Honolua Valley	Possible Midden	Consists of discontinuous band of dark sandy clay w/ charcoal flecking, 15m long x 0.2-0.10m thick	(Moore 1974:9)
1754	Honolua Valley	Historic Structures	Site consists of 10 features; stretches from beach up N. side of Honolua Valley; overall site area approx. 250m; all but 2 features related to historic activity; area corresponds to 2 LCAS.	(Moore 1974:9-11; Perzinski and Dega 2009:29)
1755	<i>makai</i> of east bend of Honoapi'ilani Hwy on the north side of Honolua Valley	Habitation and burial complex	Site consists of large walled area (80m x 50m) that corresponds to LCAW 4065, Ap 3; interior includes a minimum 10 features.	(Moore 1974:11-14)

SIHP 50-50-01-#	General Location Relative to the Project Area	Nature of Site	Status/ Comments	Source
1756	Honolua Valley	Precontact to historic era habitation and agricultural complex	Dry agricultural complex with house platforms, midden deposit, a series of low habitation terraces, mounds, grinding surfaces and agricultural terraces. Correlates to LCA 3692:1.	(Conte 2006:18-45; Moore 1974:14-17)
1757	South of dirt access road to Honolua Bay.	Precontact to historic era habitation enclosure	Site consists of large walled enclosure w/ lined ditch; platform; historic debris scattered on surface.	(Moore 1974:17-19)
1758	Honolua Bay	Historic era house site and burials	Site consists of 10 features; overall site area 70 x 50m; in close proximity to and may either be associated w/ Honua'ula Heiau and/or LCA 6602:2.	(Moore 1974:19-21; Tome et al. 2002:49-50)
1759	Along the <i>makai</i> end of the Honolua Stream to Honoapi'ilan i Highway	Historic era plantation or ranch wall	Isolated wall segment extending approximately 16m long x 1-2m wide x 0.8m high.	(Moore 1974:21)
1760	Honolua Bay	Human skeletal remains	Human cranium exposed in the <i>mauka</i> face of the road cut. Apparent recent damage may indicate deposition at this location from down slope erosion. Possible origin at LCA3813:1.	(Moore 1974:21; Pickett and Dega 2007:115)
1761	Honolua Bay	Midden	Scattered midden (fragments of <i>Cellana</i> spp., charcoal flecks) approximately 0.03m thick x 0.3m across in the south bank of Honolua Stream.	(Moore 1974:22)
2015	Honokahua Ahupua'a	Precontact trail segment	A portion of the Alaloa constructed circa AD 1516.	(Donham 1986)
2016	Honokahua Ahupua'a	Precontact habitation deposit	Cultural material deposit associated with precontact habitation	(Donham 1986)
2869	Revised Kapalua Hotel Site	Historic habitation complex within the boundary of the Honokahua Historical District (-1591)	Complex consisting of two historic refuse deposits related to an early 20 th century plantation camp for Japanese field workers.	(Guerriero et al. 1993: 31-33, Appendix B)

SIHP 50-50-01-#	General Location Relative to the Project Area	Nature of Site	Status/ Comments	Source
2870	Revised Kapalua Hotel Site	Historic habitation complex within the boundary of the Honokahua Historical District (-1591).	Complex consists of four component features that includes historic to modern cultural deposits, mortared cesspool and concrete stairway, and a stone wall of an indeterminate function.	(Guerriero et al. 1993:34, Appendix B)
2871	Revised Kapalua Hotel Site	Historic habitation complex	Complex comprised of features associated with a late 20 th century residential complex. Features include a two wood shingle dwellings, a Quonset hut with concrete paving, a wood and mortared brick dwelling, and a historic cultural deposit.	(Guerriero et al. 1993: 34- 36, Appendix B)
2872	Revised Kapalua Hotel Site	Historic agricultural site	Faced stone terraces constructed of basalt slabs located immediately <i>makai</i> of the former location of "Filipino Camp"	(Guerriero et al. 1993: 36, Appendix B)
2873	Revised Kapalua Hotel Site	Precontact habitation complex	Site complex is comprised of 13 features that include two firepits with associated deposits (Feature A); four cultural material deposits (Features B-D), one with an associated firepit (Feature B); and three spatially discrete firepits (Features E-G).	(Guerriero et al. 1993:50, Appendix B)
2874	Revised Kapalua Hotel Site	Historic habitation complex	Site complex consisting of six associated features comprised of a cultural material deposit with associated firepits (Features B-D) and a structure that functioned as a small communal men's outhouse (Feature A).	(Guerriero et al. 1993:36- 38, Appendix B)
2875	Revised Kapalua Hotel Site	Historic habitation site	Demolished concrete foundation floor with associated cultural material consisting of mortared waterworn basalt cobbles, metal fragments, and metal rebar.	(Guerriero et al. 1993:38, Appendix B)
2876	Revised Kapalua Hotel Site	Precontact trail	Trail segment constructed of large angular and subangular basalt boulder curbing and paved with angular basalt gravels, small cobbles, and coral fragments. Likely an extension of Site -2015 trail segment recorded in the Honokahua Burial Area (Site - 1342)	(Guerriero et al. 1993:60, Appendix B)

SIHP 50-50-01-#	General Location Relative to the Project Area	Nature of Site	Status/ Comments	Source
4141	West of Mokuleia Bay	Precontact habitation	Firepit eroding out of a soil embankment with one volcanic glass flake and one piece of coral	(Jimenez and Rosendahl 1995:13, Appendix A)
4142	West of Mokuleia Bay	Historic to modern era burial site	Four small connected, and enclosed terraces.	(Jimenez and Rosendahl 1995:13-16, Appendix A)
4143	West of Mokuleia Bay	Late precontact habitation site	A rectangular platform bordered primarily by upright basalt slabs measuring 7.5m x 3.7m.	(Jimenez and Rosendahl 1995:16, Appendix A)
4144	West of Mokuleia Bay	Possible historic era habitation complex	Complex includes two associated features consisting of a modified outcrop and basalt cobble alignment.	(Jimenez and Rosendahl 1995:17, Appendix A)
4145	West of Mokuleia Bay	Historic era boundary wall	An approximate 17m long section of low wall primarily construction of a single course of basalt boulders.	(Jimenez and Rosendahl 1995:17, Appendix A)
5920	Lipoa Point	Agricultural terrace	Low-lying and poorly preserved single agricultural feature measuring approximately 6.8m x 1.8m x 0.32-0.6m high.	(Pickett and Dega 2007:27, 41)
5921	Lipoa Point	Habitation complex	Complex of five features consisting of an enclosure with multiple terraces and associated wall segment; an irregularly shaped enclosure; oval shaped enclosure; modified outcrop; and a semi-circular alignment	(Pickett and Dega 2007:27, 41-56)
5922	Lipoa Point	Temporary habitation and agricultural complex	Complex consisting of seven features that include a C-shaped enclosure; a terrace; and five modified rock.	(Pickett and Dega 2007:27, 56-67)
5923	Lipoa Point	Precontact to historic era temporary habitation and agricultural complex	Consists of two component features: a terrace and associated wall and a circular fire-pit.	(Pickett and Dega 2007:27, 67-70)
5924	Lipoa Point	Precontact to historic era temporary habitation and traditional trail system	A complex of three features that includes a modified outcrop, waterworn cobble/pebble concentration, and a rock wall	(Pickett and Dega 2007:27, 70-72)
5925	Lipoa Point	Memorial marker	Two features that represent historic era memorial markers. The first is a metal cross and the second is a wooden cross approximately 20m apart.	(Pickett and Dega 2007:27, 73)

SIHP 50-50-01-#	General Location Relative to the Project Area	Nature of Site	Status/ Comments	Source
5926	Lipoa Point	D.T. Fleming clubhouse	Two associated structures that comprise the D.T. Fleming clubhouse: the club house structure (Feature 1) and a basalt stone and mortar platform (Feature 2)	(Pickett and Dega 2007:27, 73-76)
5927	Lipoa Point	Possible temporary habitation	A C-shaped terrace structure in fair condition due to slope erosion, vegetative overgrowth, and modern activities.	(Pickett and Dega 2007:27, 76)
5928	Lipoa Point	Possible temporary habitation	A C-shaped terrace structure in fair condition due to slope erosion.	(Pickett and Dega 2007:27, 76)
5929	Lipoa Point	Historic road	A terrace associated with the historic government road above Honolulu Bay constructed of 4-6 courses of cut stone blocks.	(Pickett and Dega 2007:27, 76)
5930	Lipoa Point	Precontact habitation enclosure	Rectangular enclosure constructed of 5-6 courses of faced core-filled walls measuring 21.2m x 15.8m x by 0.48-1m high.	(Pickett and Dega 2007:27, 78-81)
5931	Lipoa Point	Precontact habitation enclosure	Square enclosure construction of 5-6 courses of faced core-filled walls measuring 5m x 5m x 0.6-0.9m high.	(Pickett and Dega 2007:27, 82-85)
5932	Lipoa Point	Habitation shelter	Modified rock overhang with and associated terrace.	(Pickett and Dega 2007:27, 85-88)
5933	Lipoa Point	Precontact to historic era temporary habitation site	Two associated features consisting of an L-shaped enclosure and low-lying terrace.	(Pickett and Dega 2007:27, 88-90)
5934	Pōhakupule Gulch along the coast	Precontact agricultural complex with a possible ceremonial aspect	Complex consisting of seven associated terraces.	(Pickett and Dega 2007:27, 90-99)
5935	Lipoa Point	Possible ceremonial function	Coral concentration with scattered waterworn cobbles and pebbles that may represent a ceremonial function.	(Pickett and Dega 2007:27, 99)

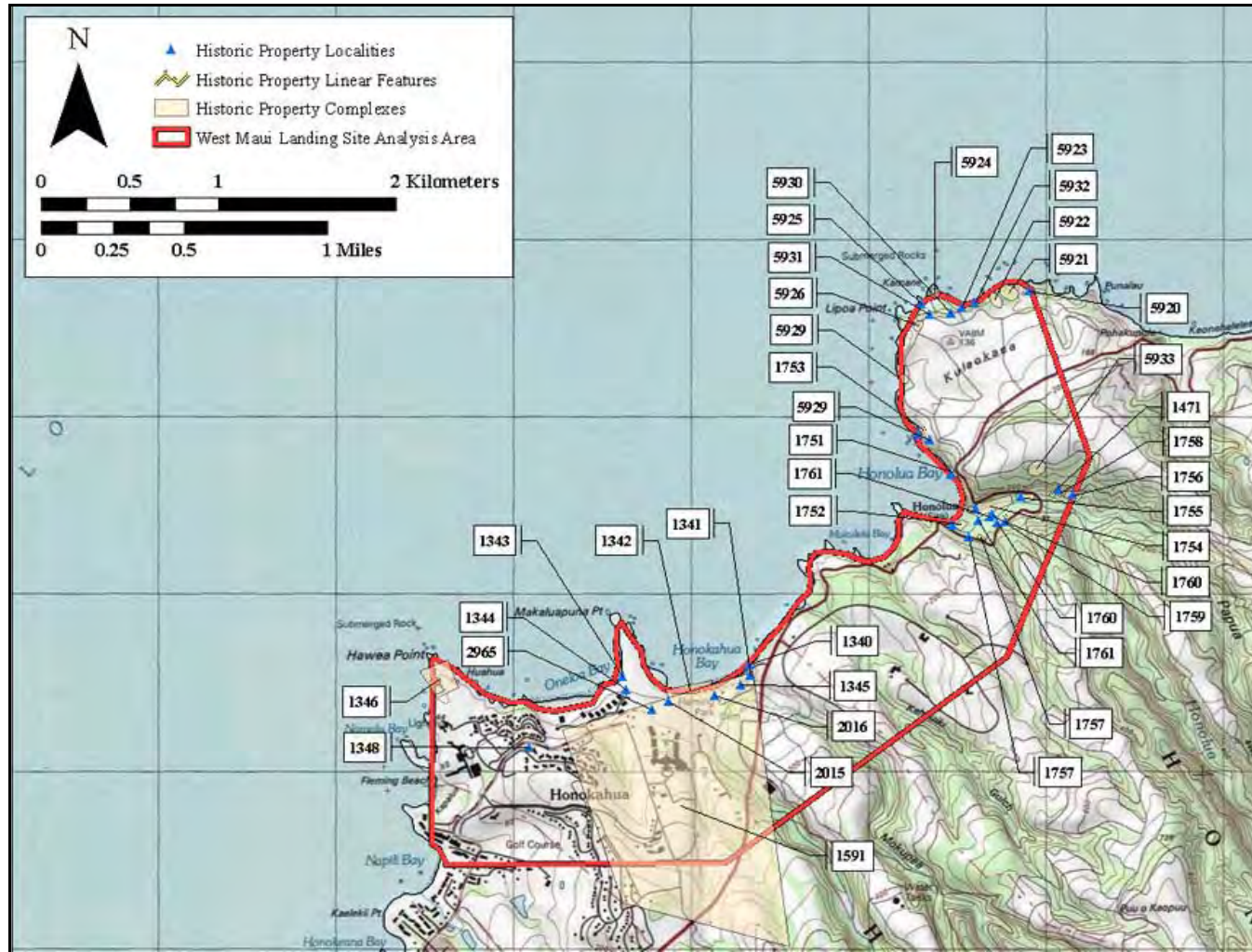


Figure 47. Portion of the U. S. Geologic Survey topographic map, Napili (United State Department of the Interior 1997) 7.5-minute series quadrangle, showing the West Maui Landing Analysis Area in relation to the previously identified historic properties (see companion Table 27)

8.3 Summary of Cultural Resources of the West Maui Landing Analysis Area

The three major topographical zones probably affected the use-patterns of lands within and directly adjacent to the West Maui Landing Analysis can be explained as follows:

- 1) the coast and near shore land - These lands contained temporary settlements, shelter caves, other stone structures, middens, and an extensive burial site. Evidence of permanency of habitation is not found along this shoreline today; this may be due to extensive historic era modification of the land for the pineapple plantation, or it may be related to the large Honokahua burial site.
- 2) the inland valley land - Previous investigations have extended inland in the valleys only to about the 200 foot elevation contour, roughly one kilometer from the sea. Physical evidence of prehistoric land use at Honolua Valley includes long-term habitation complexes that correlate to *kuleana* lots, the existence of a *holua* slide and two large *heiau*; Honua'ula Heiau and the now destroyed Puhalakau Heiau, along with sections of the *Alaloa* traditional trail that circled the island. The physical remnants coupled with the traditional accounts provide evidence of a fairly substantial settlement located.
- 3) the forested ridge-top land - These lands in Honokahua, Nāpili, and Honolua were subjected to cattle grazing, clearing and plowing for pineapple cultivation, and, in the present project area, grading and landscaping for a golf course. Nevertheless, we can be certain these lands were used for gathering forest products, and for forest plantings of various utilitarian Hawaiian plants.

The archaeological sensitivity map presented below is reflective of a high probability for encountering significant cultural resources along the coast or near shore lands; as well as, the inland valley lands of Honolua Valley (Figure 48). The promontories and inlets associated with Oneloa Bay, Honokahua Bay, Mokuleia Bay and Honolua Bay are culturally significant as evidenced by the traditional cultural resources of the lands within the proposed landing site, from the extensive traditional burial practices at Honokahua Bay (SIHP -1342) to the presence of Honua'ula Heiau at Honolua Bay and including the continuous use of the *Alaloa*, temporary habitation and traditional fishing sites along the entire coastline. Moreover, the extensive Honokahua Historic District, which is comprised of historically significant plantation and ranching features, lends an additional layer of cultural sensitivity to an area rich in both traditional Hawaiian cultural lifeways and the multi-ethnic influences of immigrant workers who had come to the area in order to work at the Baldwin Packers pineapple plantation and associated ranching operations.

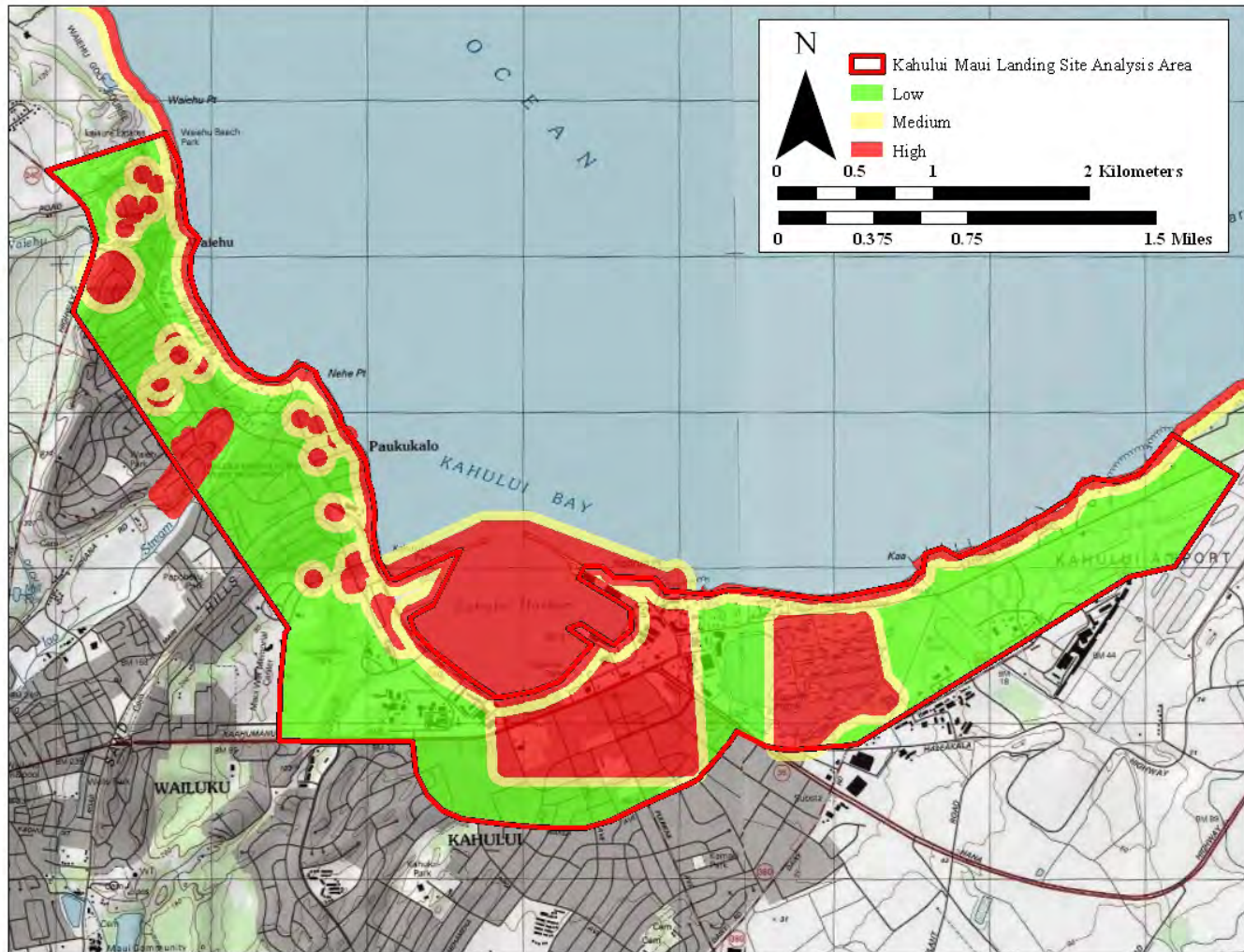


Figure 48. Cultural resource sensitivity map based on previously identified historic properties for the West Maui Landing Analysis Area

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Section 9 Kahului Maui Landing Analysis Area

9.1 Introduction to Cultural Resources of the Kahului Maui Landing Analysis Area

The Kahului Maui Landing Analysis Area spans approximately nine kilometers (5.6 miles) of North Maui coastline from Waiehu Beach Park to Kanahā Beach Park, extending inland for approximately one kilometer to encompass an area of roughly 2053 acres (Figure 49). Included in the study area of the proposed landing site are the facilities of the Kahului Airport, the facilities of the Kahului Commercial Harbor, businesses and warehouses of the Kahului Commercial District, residential areas, and beach parks (Figure 50).

From Waiehu Beach Park to Paukūkalo, and within the area that comprises the Kahului Maui Landing Analysis Area, the most prominent natural feature of the landscape is ʻĪao Stream. One of four deep valley streams that comprise Nā Wai ʻEha, or “The Four Waters” (Handy et al. 1991:496), ʻĪao Stream would have had ample water for taro lands in near-shore valleys (Handy et al. 1991:272). The presence of two major *heiau*, the Halekiʻi and Pihana Heiau Complex (SIHP 50-40- 592), along the northern ridge of the ʻĪao Stream bed gives evidence of the cultural significance of this portion of Wailuku Ahupuaʻa. Mid-nineteenth century *Māhele* records indicate that the area surrounding ʻĪao Stream, including the lands of the present study area, were places of intensive traditional agriculture and habitation. Added to the rich agricultural resources of the area are the abundant marine resources of the coastal environment which likely sustained a long-term traditional Hawaiian population along the northern coastline through to Kanahā Beach Park.

In the plains region of Wailuku Ahupuaʻa, intensive use of the central isthmus of Puʻunēnē in historic times by the commercial cultivation of sugar cane facilitated the commercial development of the lands surrounding Kahului Harbor. From 1901 to 1930 improvements to the area the now comprises the Kahului Commercial Harbor and District changed the character of the Kahului Area. Currently, both the Kahului Commercial Harbor (50-50-40-2953) and Kahului Historic District (50-50-40-1607) are eligible for inclusion on the both the National and State Registers of Historic Places.

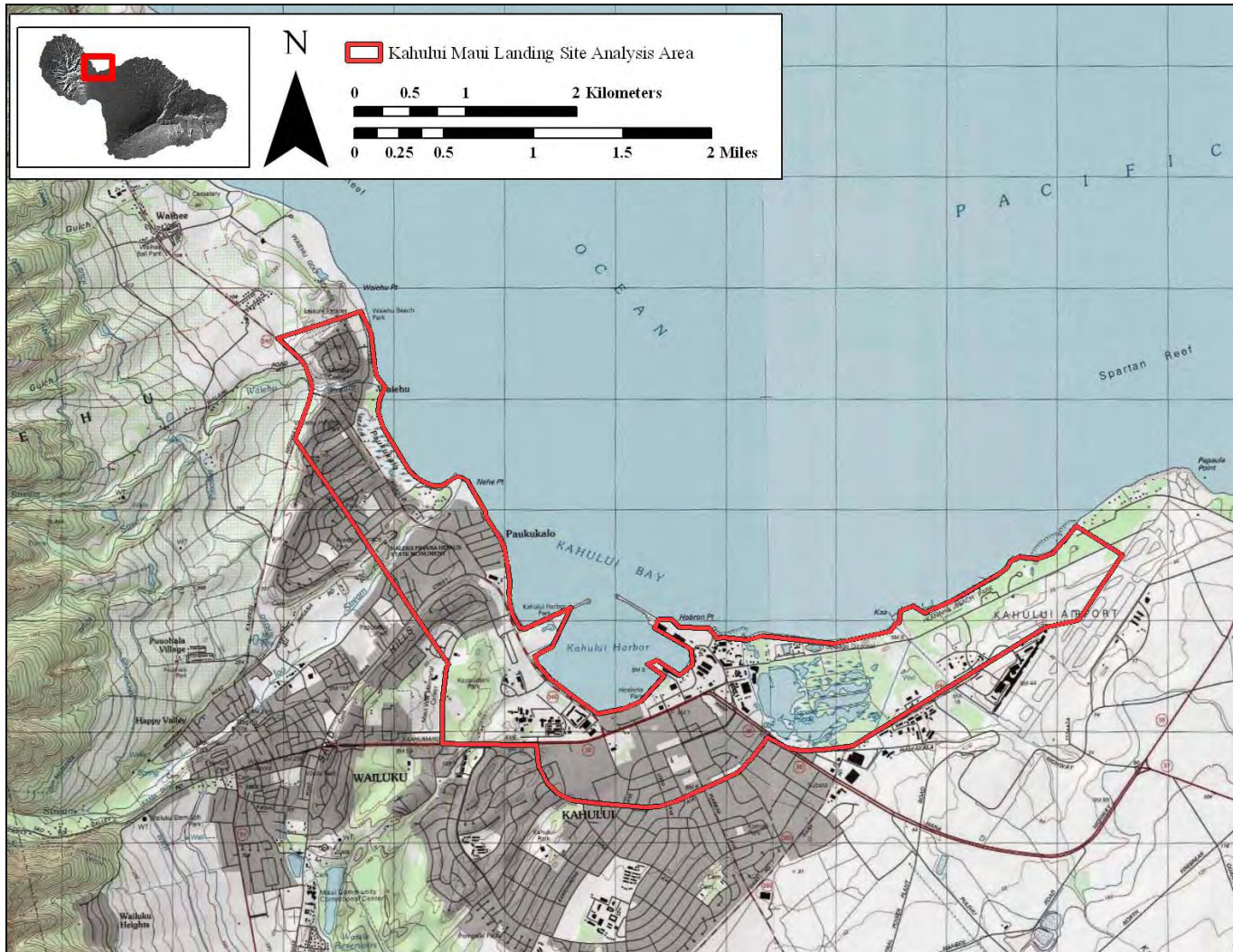


Figure 49. Portion of the U. S. Geologic Survey topographic map, Wailuku (1997b) and Pā'ia (1997a) 7.5-minute series quadrangle, showing the Kahului Landing Analysis Area

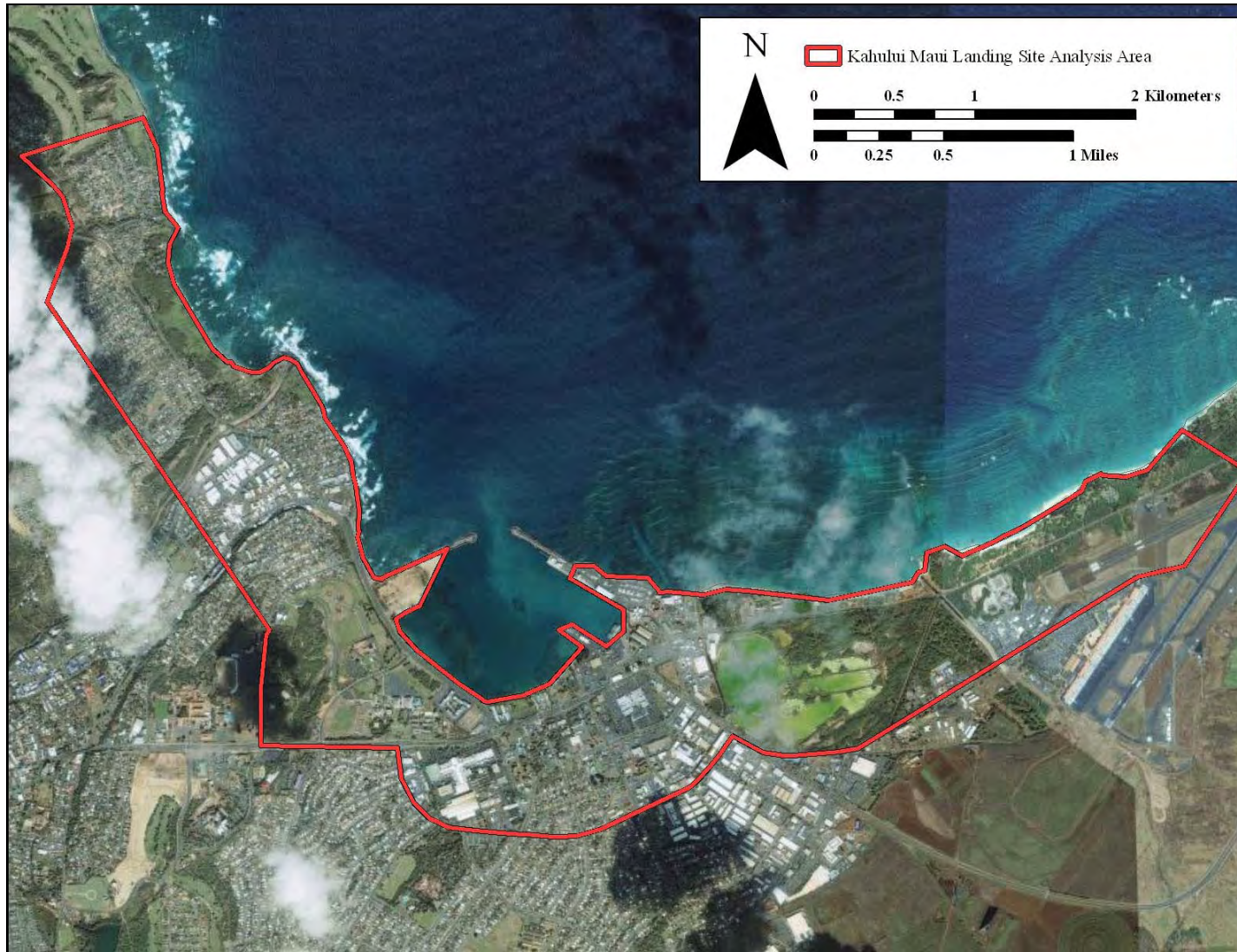


Figure 50. Aerial photograph (Microsoft Corporation and ESRI 2010) of the northern section of the Kahului Landing Analysis Area

9.2 Previous Cultural Resources Studies in the Kahului Maui Landing Analysis Area

Experience has shown that soil type is one of the surest indicators of the likelihood of encountering sub-surface cultural resources and/or burials. Sandy deposits, Puuone Sand and Jaucas Sand deposits in particular, have been found to have a far higher probability of containing discrete stratified cultural layers, cultural features and burials. As such, one of the driving factors for the requirement of both archaeological inventory surveys and archaeological monitoring studies within the study area is the presence of underlying the sand deposits. Approximately 1406 acres (68.47%) of the overall 2053 acre Kahului Landing Analysis Study Area is comprised of sandy soils (Beach Sand [BS] = 1.06%, Dune Land [DL] = 12.2%, Jaucas Sand 0-15% Slopes [JaC] = 3.46%, Jaucas Sand 0-12% Slopes [JcC] = 15.03%, and Puuone Sands [PZUE] = 36.71%) (Figure 51). For ease of presentation and organization, the previous cultural studies of the Kahului Maui Landing Analysis Study Area are divided into four areas: 1. Waiehu Studies (Table 23); 2. Paukūkalo Studies (Table 24); 3. Central Maui Studies (Table 25); and 4. Kahului Airport Studies (Table 26). These study areas are depicted on Figure 52.

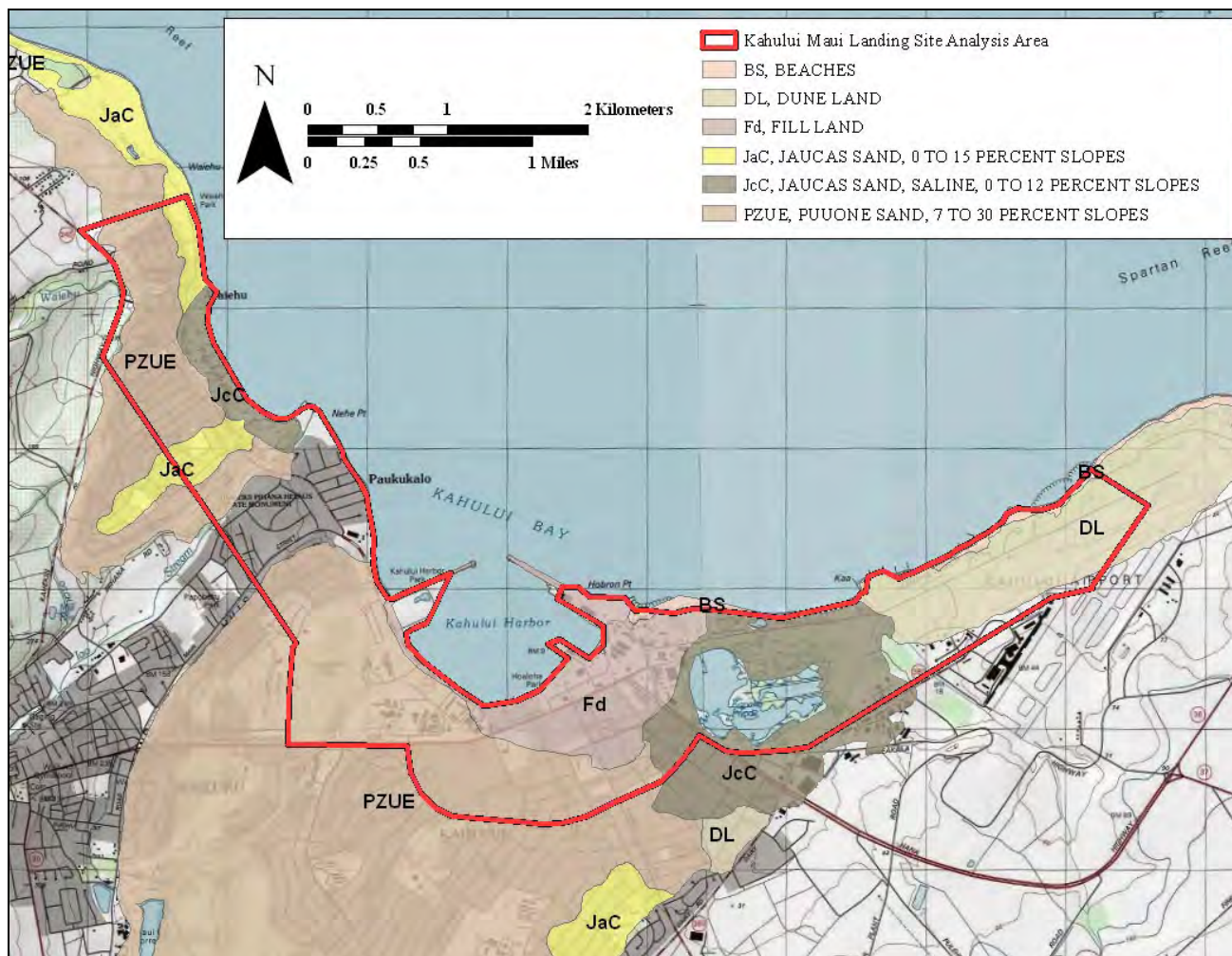


Figure 51. Portion of the U. S. Geologic Survey topographic map, Wailuku (1997b) and Pā'ia (1997a) 7.5-minute series quadrangle, showing the Kahului Landing Analysis Area in relation to culturally sensitive sand deposits (U.S. Department of Agriculture 2001)

Table 23. Previous Cultural Resources Studies within the Waiehu Section of the Kahului Landing Analysis Area (Arranged chronologically)

Reference	Location	Type of Study	Findings within the Proposed Landing Site
Han 1982	South of Waiehu Point on coast	Archaeological Investigations	Revisited earlier project area identifying four additional sites. Describes 20 th cent house site, limestone quarry and several incomplete burials
Fredericksen, E. M. and Fredericksen 1999	Seaward of Waiehu Kou Subdivisions	Archaeological Inventory Survey	Identified two burials assoc. with site 50-50-04-4731; five carbon dates suggest occupation from the 13 th century.
Dega 2003	Waiehu	Archaeological Monitoring	No significant historic properties identified on the surface, encountered intact sand dune deposits.
Fortini and Dega 2006	Waiehu	Archaeological Monitoring	No significant historic properties identified on the surface, encountered intact sand dune deposits.
Shefcheck and Dega 2008	Between Waiehu Heights Subdivision and Kahekili Hwy.	Archaeological Assessment	No significant historic properties identified.

Table 24. Previous Cultural Resources Studies within the Paukūkalo Section of the Kahului Landing Analysis Area (Arranged chronologically)

Reference	Location	Type of Study	Findings within the Proposed Landing Site
Keau and Murray 1977	Paukūkalo – Hawaiian Homes	Archaeological Reconnaissance	Eight features comprised of small mounds construction of water-worn basalt interpreted as possible grave sites, cultural material consisting of historic bottles
Bordner and Patteys 1979	Paukūkalo – Hawaiian Homes	Archaeological Pedestrian Survey	Determined that Feature X, identified by Keau and Murray 1977 was the only historic property of the 10 that were previously documented. Feature X is a C-Shaped shelter with an associated wall section roughly paved platform
Yent 1983	Haleki'i-Pihana State Monument: Phase I, Waiehu	Survey and Test Coring	Haleki'i (-4592), 'ili'ili stones, marine shell, charcoal. Pihana (-4592): 'ili'ili stones, marine shell, human and pig bone, and a human burial that remains <i>in situ</i>
Estioko-Griffin 1988	Paukūkalo – Hawaiian Homes	Archaeological Field Inspection	Re-identified water worn stones that appeared to have correlated to Feature X
Kennedy 1988	Maui Central Park	Archaeological Reconnaissance	No significant historic properties identified on the surface, note possible burial sites in a subsurface context due to sandy substrate.
Kennedy 1990	Maui Arts and Cultural Center	Archaeological Reconnaissance	No significant historic properties identified.

Reference	Location	Type of Study	Findings within the Proposed Landing Site
Kolb and Keau 1990	Haleki'i-Pihana Heiau	Archaeological Excavation	Cultural material representative a ceremonial complex with associated habitation deposits.
Estioko-Griffin 1991	Paukukalo – Hawaiian Homes	Archaeological Assessment	Identified to small caves along with a surface scatter of shell midden and basalt artifacts.
Fredericksen, D. L. and E. M. Fredericksen 1992	Nisei Veterans Memorial Center, Lower Main and Waiehu Road	Archaeological Inventory Survey	Identified the Kahului railroad bed (Site 3112), a historic refuse disposal probably associated with the construction of the railroad in the late 1800's (Site 3119), and a pre-contact cultural deposit. A second pre-contact deposit (Site 3120) was identified 30 meters to the east. An early date of A. D. 90-230, was initially determined, but later found to have come from a fill layer.
Burgett and Spear 1995	Lower Main Street	Burial Recovery	One individual – no location information provided
Heidel et al. 1999	Maui Central Park	Archaeological Inventory Survey	Two historic sites, the Kahului Railroad Berm (Site 3112) and a WWII military camp (Site 4232) were recorded. Burials were previously found at Site 4211 in the central eastern portion of the project area, but no additional human remains were found during this project.
Rechtman 1999	Lower Main Street	Archaeological Monitoring	No significant historic properties identified.
Calis and Dega 2000	Wailuku	Archaeological Monitoring	No significant historic properties identified.
Fredericksen, E. M. and Fredericksen 2001	Paukūkalo	Archaeological Monitoring	Identified 6 previously unrecorded historic properties consisting of four pre-Contact habitations areas with associated burial features, one post-contact burial, and a previously disturbed human burial
Fredericksen, D. L. and Fredericksen 2002	Along the west rim of Kahului Harbor	Archaeological Inventory Survey	Identified two historic properties consisting of a cultural deposit associated with pre-Contact coastal habitation and a concrete foundation associated with the operation of the Maui Dry Goods & Grocery Co. Ltd.
Fredericksen, E. M. 2003b	Inland of Kahului Beach Road, Paukūkalo	Archaeological Monitoring	No significant historic properties identified on the surface, encountered intact sand dune deposits.
Fredericksen, E. M. 2005a	Paukūkalo	Archaeological Inventory Survey	Identified two previously unrecorded habitation sites, in addition to six individual human burial finds.
Fredericksen, E. M. 2005b	Lower Main to 'Eha Street	Archaeological Monitoring	No significant historic properties identified.
Tome and Dega 2005	Wailuku Sand Hills	Archaeological Assessment	Sand deposits encountered. No significant historic properties identified

Reference	Location	Type of Study	Findings within the Proposed Landing Site
Hunt and Dega 2007	Waiehu Beach Road	Archaeological Monitoring	Sand deposits encountered. No significant historic properties identified
Dagher and Dega 2008	Paukūkalo	Archaeological Monitoring	Isolated artifact (Hunting Tag 1951-1952), no significant historic properties identified.

Table 25. Previous Cultural Resources Studies within the Central Maui Section of the Kahului Landing Analysis Area (Arranged chronologically)

Reference	Location	Type of Study	Findings within the Proposed Landing Site
Donham 1990	Maui Palms Hotel	Archaeological Inventory Survey	Two concentrations of historic artifacts were given temporary site numbers and recorded.
Goodfellow 1991	Kahului Harbor	Archaeological Inventory Survey	No significant historic properties identified.
Fredericksen W. M. and D. Fredericksen 1992	Maui Community College Campus	Archaeological Assessment	The entire parcel was disturbed by previous landfill and construction projects, including WW II military activities. No significant historic properties identified.
Fredericksen, E. M. et al. 1994	Maui Central Park Parkway	Archaeological Inventory Survey	No significant historic properties identified.
Fredericksen W. M. and Fredericksen 1995	Maui Central Park Keiki Zoo	Archaeological Inventory Survey	One artifact, a basalt abrader, was found on the surface. No significant historic properties identified.
Eble and Carlson 1996	Hobron Triangle	Archaeological Inventory Survey	16 test units show previously disturbed soil and one layer of historic refuse.
Wade et al. 1997	Kahului Harbor	Archaeological Inventory Survey	No surface features were noted. A glass bottle and a historic ceramic sherd were the only artifacts recovered.
Burgett and Spear 1998	Kahului Harbor Young Brothers Storage Yard	Archaeological Monitoring	No significant historic properties identified.
Donham 2002	Kahului	Archaeological Monitoring	No significant historic properties identified.
Dega and Risedorf 2004	Kahului Town	Archaeological Monitoring	Sand dune deposits encountered. No significant historic properties identified.
Fredericksen, E. M. and Fredericksen 2004	Kahului Town	Archaeological Assessment	Sand dune deposits encountered. No significant historic properties identified.
Fredericksen, E. M. 2004	Wailuku	Archaeological Monitoring	Sand dune deposits encountered. No significant historic properties identified.
Monahan 2004	Kahului Town	Archaeological Assessment	Sand dune deposits encountered. No significant historic properties identified.
Hunt et al. 2006	Kahului Harbor	Archaeological Monitoring	Identified one <i>in situ</i> human burial (-5773 – no location information provided) and cultural material associated with the larger - 1607 (Kahului Historic District)
Monahan 2006	Kahului Harbor Area	Archaeological Monitoring	Historic era cultural material recovered throughout. No significant historic properties identified
Johnson and Dega 2006	Kahului Town	Archaeological Assessment	Sand dune deposits encountered. No significant historic properties identified.
Fredericksen, E. M. 2006a	Wailuku	Archaeological Monitoring	Sand dune deposits encountered. No significant historic properties identified.
Fredericksen, E. M. 2003c	Wailuku	Archaeological Monitoring	Sand dune deposits encountered. No significant historic properties identified.
Fredericksen, E. M. 2006b	Wailuku	Archaeological Monitoring	Sand dune deposits encountered. No significant historic properties identified.

Reference	Location	Type of Study	Findings within the Proposed Landing Site
Fredericksen E. M. 2008	Kahului Town	Archaeological Assessment	Sand dune deposits encountered. No significant historic properties identified.
Frey and Fredericksen 2009	Walgreens Pharmacy	Archaeological Assessment Survey and Subsurface Testing	Observed fill and dredged material, as well as sand deposits. No significant historic properties identified.

Table 26. Previous Cultural Resources Studies within the Kahului Airport Section of the Kahului Landing Analysis Area (Arranged chronologically)

Reference	Location	Type of Study	Findings within the Proposed Landing Site
Connolly 1981b	Kahului Airport	Archaeological Reconnaissance	Pedestrian survey of the Kahului Airport Master Plan Study Area. Identified two historic properties consisting of an unknown number of human burials and one pre-Contact house site or habitation.
Welch 1988	Kahului Airport	Archaeological Inventory Survey	Follow up to Connolly 1981. Relocated historic properties identified by Connolly (1981) and assigned SIHP numbers with significance assessments. No new finds.
Folk and Hammatt 1991	Kahului Airport	Archaeological Inventory Survey	Pedestrian survey and subsurface testing north of Kahului Airport Runway 5-23. A 100% systematic survey and excavation of 16 backhoe trenches resulted in no significant historic properties identified.
Welch 1991	Kahului Airport	Archaeological Subsurface Testing	: Subsurface testing for the then proposed Kanahā Beach Park addition and Airport Transient Apron. A total of 82 backhoe trenches were excavated. With the exception of the out of context remnants of railroad track in Trench 23, no significant historic properties were identified.
Tomonari-Tuggle and Welch 1995	Kahului Airport	Archaeological Survey	Literature review and low-medium intensity pedestrian survey of the Kahului Airport Master Plan layout and surrounding areas. Identified and relocated five previously recorded historic properties within the study area (two buried cultural deposits, one remnant habitation structure, on burial/reburial area, and the Kanahā and Mau'oni Fishponds). In addition to the previously recorded sites, structures associated with the former Naval Air Station Kahului (NASKA) was also identified and noted within their study area.
Fredericksen, E. M. 2003a	Kanahā Beach Park	Archaeological Assessment	No subsurface testing undertaken during this study. No significant historic properties identified.

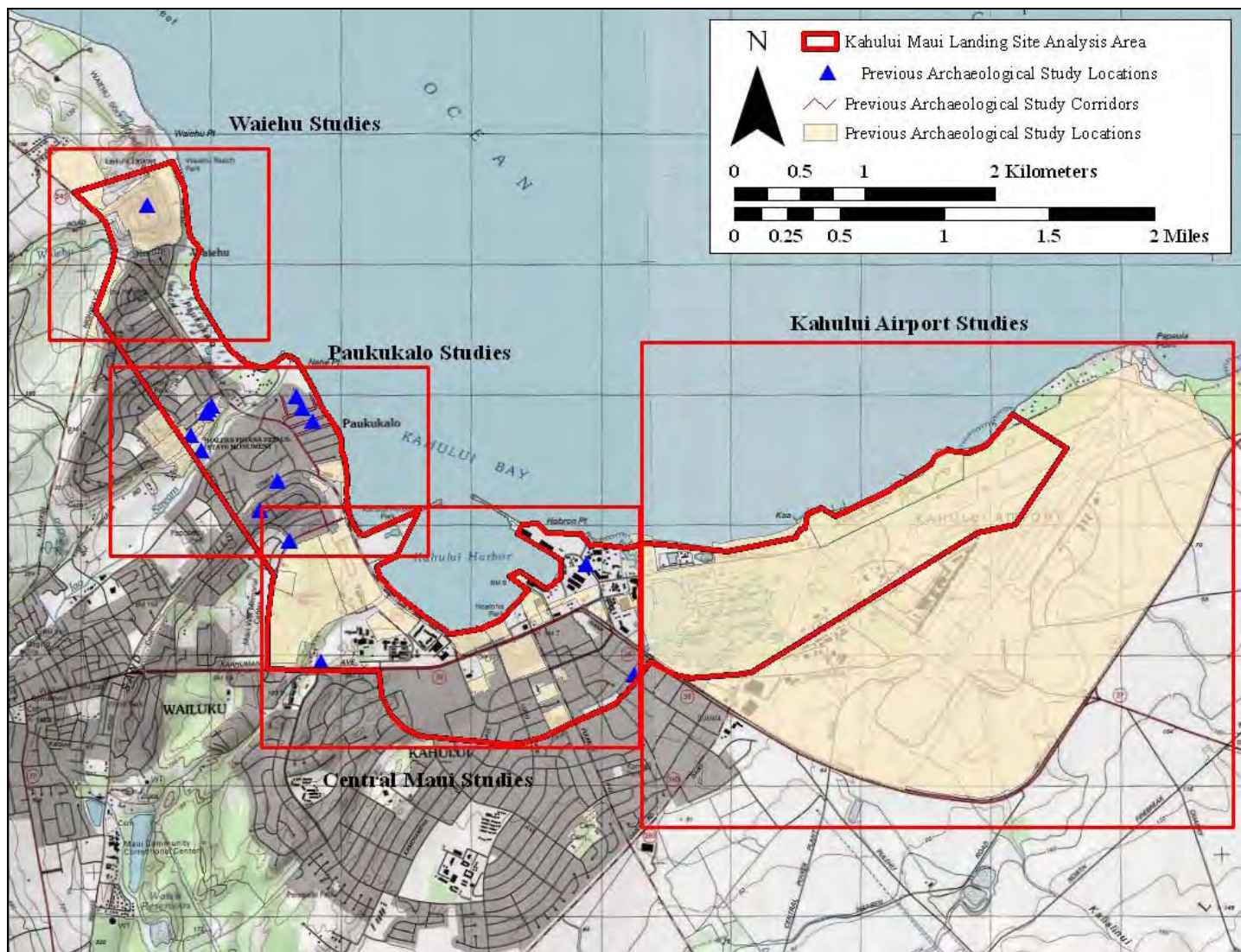


Figure 52. Previous cultural resource studies in the Kahului Landing Analysis Area

9.3 Previously Identified Cultural Resources of the Kahului Maui Landing Analysis Area

Previously identified cultural resources of the Kahului Maui Landing Analysis Area are presented in Table 27 below with approximate site locations presented on Figure 53. As implicated above, traditional Hawaiian burials and cultural deposits reflective of coastal habitation are the predominant historic property type identified within the proposed landing site study area. Historic land use and industry are also a part of the cultural landscape of Kahului as indicated by the delineation of historic boundaries of the both the Kahului Commercial Harbor (50-50-40-2953) and Kahului Historic District (50-50-40-1607).

Table 27. Previously Identified Historic Properties of the Kahului Landing Analysis Area

SIHP 50-50-40-#	General Location Relative to the Project Area	Nature of Site	Status/ Comments	Source
592	North ridge of 'Āao Stream	Haleki'i-Pihana (Pi'ihana) Heiau	Recorded by Walker; also known as the Wailuku Heiau Complex; on sand dune ridge on west side of 'Āao Stream; 2 heiau structures; Haleki'i Heiau 125m north of Pi'ihana Heiau; overall site area 10.2 acres.	Kennedy 1989; Kolb 1994; Kolb and Keau 1990; Silva n.d.; Thrum 1916; Walker 1931; Yent 1983
1186	Lower Waiehu	Burial Cave	A small, sealed burial cave	State Historic Preservation Division 2004
1606	Paukūkalo	Maui Jinsha Mission	Excellent example of the Shinto style of Japanese temple architecture.	State Historic Preservation Division 2004
1607	Kahului	Kahului Historic District	Historic district including a railroad roundhouse, bank, school, fairgrounds, and other buildings associated with the industrialization of Kahului Harbor.	Wright 1974
1783	Kahului Airport area	Kanahā Pond	Pond said to have been built by Kiha-a-Pi'ilani, brother-in-law of 'Umi, who lived about A.D. 1500.	State Historic Preservation Division 2004
1798	Kahului Airport	Burial Complex	Site consists of an "...uncertain number of burials located within the boundaries of the airport proper..."; several of the burials have been reinterred, others were preserved in place.	Connolly 1981a, b
1810	Paukūkalo	Burial	Site consists of human skeletal remains inadvertently discovered during construction activities; remains were removed by construction crew.	State Historic Preservation Division 2004
1810	Paukūkalo	Burial	Site consists of human skeletal remains inadvertently discovered during construction activities; remains were removed by construction crew.	State Historic Preservation Division 2004

SIHP 50-50- 40-#	General Location Relative to the Project Area	Nature of Site	Status/ Comments	Source
1812	Paukūkalo	Burial Complex	Site consists of inadvertent discovery of human skeletal remains, representing a minimum of 4 individuals eroding out of face of dune remnant.	State Historic Preservation Division 2004
2953	Wailuku	Kahului Commercial Harbor	Contributing elements include piers, wharves, breakwaters, and structures that were constructed between 1901 and 1931.	Belt Collins Hawaii Ltd. 2007:5-49
2970	Waiehu	Burial	BPBM Site No: C10-15. Partial exposed flexed burial; disinterred and repatriated.	Han 1982:5-7
2971	Waiehu	Limestone Quarry	BPBM Site No: C10-17. Lithic debitage.	Han 1982:34-39
2972	Waiehu	Midden Scatter	BPBM Site No: C10-20. Low density midden scatter covering approximately 246m	Han 1982:40
2973	Waiehu	Eroding burial site	BPBM Site No: C10-18. Surface scatter of highly fragmented human skeletal remains.	Han 1982:39
2974	Waiehu	Habitation site	BPBM Site No: C10-16. Walled terrace associated with historic era cultural materials on the surface and historic era trash pits.	Han 1982:7-34
2975	Waiehu	Eroding burial site	BPBM Site No: C10-19. Surface scatter of highly fragmented human skeletal remains	Han 1982:39
2976	Waiehu	Fishpond	Pond	Han 1982:1
2983	Waiehu	Burials	One coffin burial & undetermined number of human skeletal remains disturbed during construction activity. A minimum of six individuals were recovered from sites 04-2983 and 04-2984. No archaeological report.	State Historic Preservation Division 2004
2984	Waiehu	Burials	Site consists of human skeletal remains disturbed during construction activities. A minimum of six individuals were recovered from sites 04-2983 and 04-2984. No archaeological report.	State Historic Preservation Division 2004
3112	Wailuku	Railroad Bed,	Site consist of railroad bed, 90m long; several retaining walls.	State Historic Preservation Division 2004
3119	Wailuku	Habitation Complex	Site consists of 2 components; historic trash deposit and prehistoric midden; overall site area 85 sq. m.	State Historic Preservation Division 2004
3120	Wailuku	Burial and Habitation Complex,	Subsurface cultural deposit; human skeletal remains (1.5-1.7mbs) representing minimum of 2 individuals; overall site area undetermined (approx 15 sq m x approx 1.4m deep); located 30m southeast of site 04-3119.	State Historic Preservation Division 2004
4211	Maui Central Park	Burial	Site consists of human skeletal remains (partial); encountered during construction activities.	State Historic Preservation Division 2004

SIHP 50-50- 40-#	General Location Relative to the Project Area	Nature of Site	Status/ Comments	Source
4232	Wailuku	WWII military sites	Features B, C, and D of a former WWII military camp	Colin and Hammatt 1997:Figure 4
5001	Paukūkalo	Burial and Habitation Complex,	Site consists of 17 finds of human skeletal remains (includes one burial and additional possible burial features). total number of individuals represented not determined.	E. M. Fredericksen and Fredericksen 2001:11- 19
5005	Paukūkalo	Burial and Habitation Complex,	Site consists of at least 2 primary burials and 3 probable burial features. Total number of individuals represented not determined.	E. M. Fredericksen and Fredericksen 2001:23- 33
5023	Paukūkalo	Burial and Habitation Complex,	Site consists of human skeletal remains representing single in situ infant, cultural deposit remnants.	E. M. Fredericksen and Fredericksen 2001:38- 44
5027	Paukūkalo	Habitation Site	Site consists of a subsurface habitation deposit; burial (site 5102) truncates and intrudes into 5027.	E. M. Fredericksen and Fredericksen 2001:38- 44
5102	Paukūkalo	Historic Burial Site	Site consists of in situ burial which truncates and intrudes into site 5027.	E. M. Fredericksen and Fredericksen 2001:38- 44
5103	Wailuku Sand Hills	Burial and Habitation Complex	Site consists of previously disturbed human burials (at least 2 primary burials & 3 probable burials). Total number of individuals represented not determined.	E. M. Fredericksen and Fredericksen 2001:30- 33
5471	Wailuku Sand Hills	Burial	Single pre-contact burial.	E. M. Fredericksen 2005a:28
5495	Wailuku Sand Hills	Burial	Pre-contact burial area consisting of 4 individuals.	E. M. Fredericksen 2005a:28
5496	Wailuku Sand Hills	Cultural deposit reflective of coastal habitation	Pre-contact habitation area with an associated <i>'ili'ili</i> pavement.	E. M. Fredericksen 2005a:29-37
5660	Wailuku Sand Hills	Cultural deposit reflective of coastal habitation	Low density cultural deposit associated with coastal habitation.	E. M. Fredericksen 2005a:17

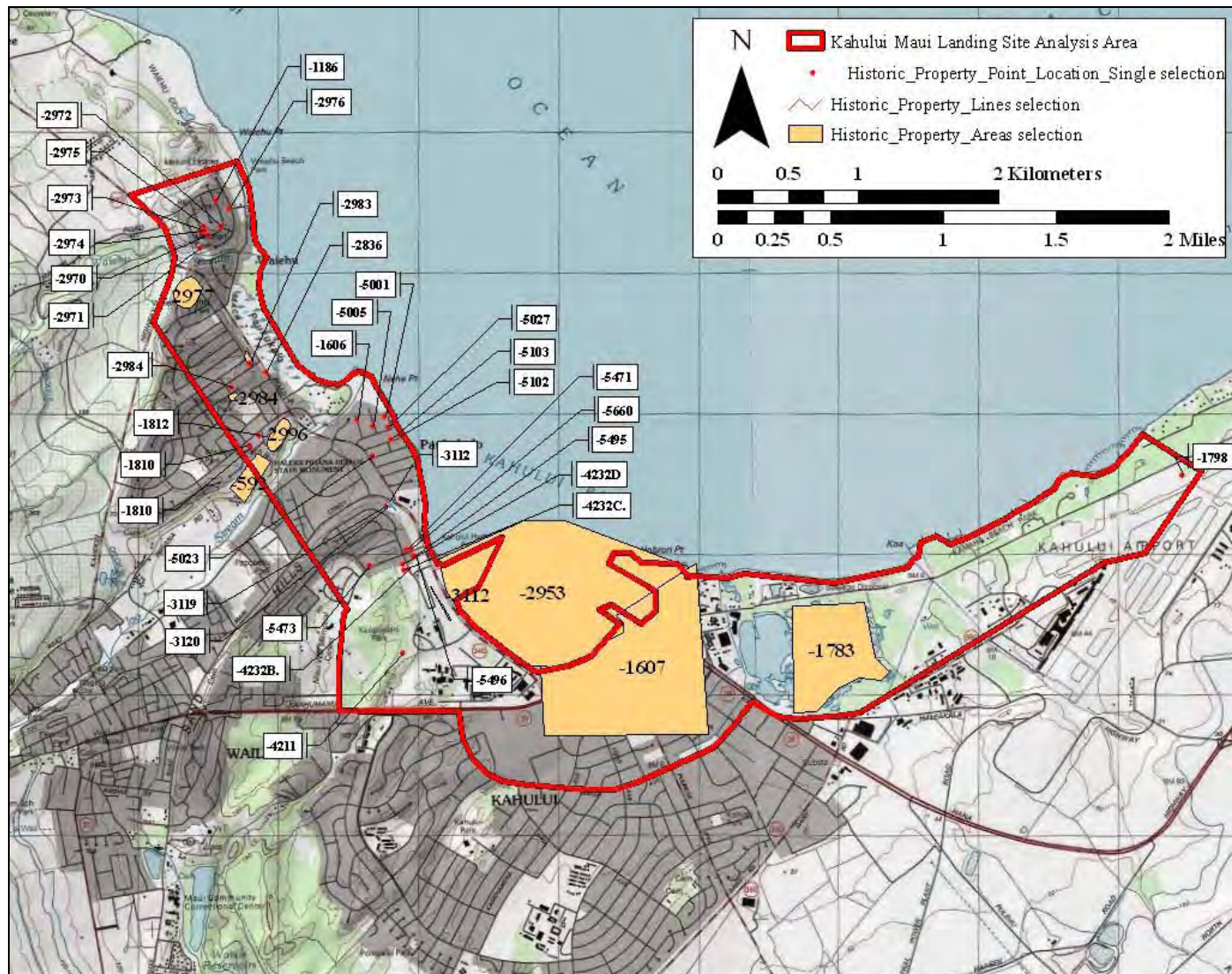


Figure 53. Previously identified archaeological resources in the Kahului Landing Analysis Area (see companion Table 27)

9.4 Summary of Cultural Resources of the Kahului Landing Analysis Area

Overall, the proposed Kahului Landing site poses some challenges for absolute avoidance of significant historic properties and other cultural resources. Culturally sensitive sand deposits and formations are found across 68.47% of the lands within the study area. It has been demonstrated through archaeological study that prior development over such soils does not preclude the high probability of encountering significant subsurface historic properties in the form of cultural deposits or traditional Hawaiian burials. When planning for the development of the proposed project, it would be prudent to not only take into consideration the presence of previously identified historic properties as presented below in the archaeological sensitivity map (Figure 54) for the study area but the underlying soil substrate as well (see also Figure 49).

With Fill Lands (FD) comprising much of the Kahului Harbor and Commercial Area, it may be a worthwhile effort to take a closer look at this location as a more favorable locality than the Waiehu to Paukūkalo sections or the Kanahā Wetland to Kanahā Beach Park sections with special attention paid to maintain the historic character of the area.

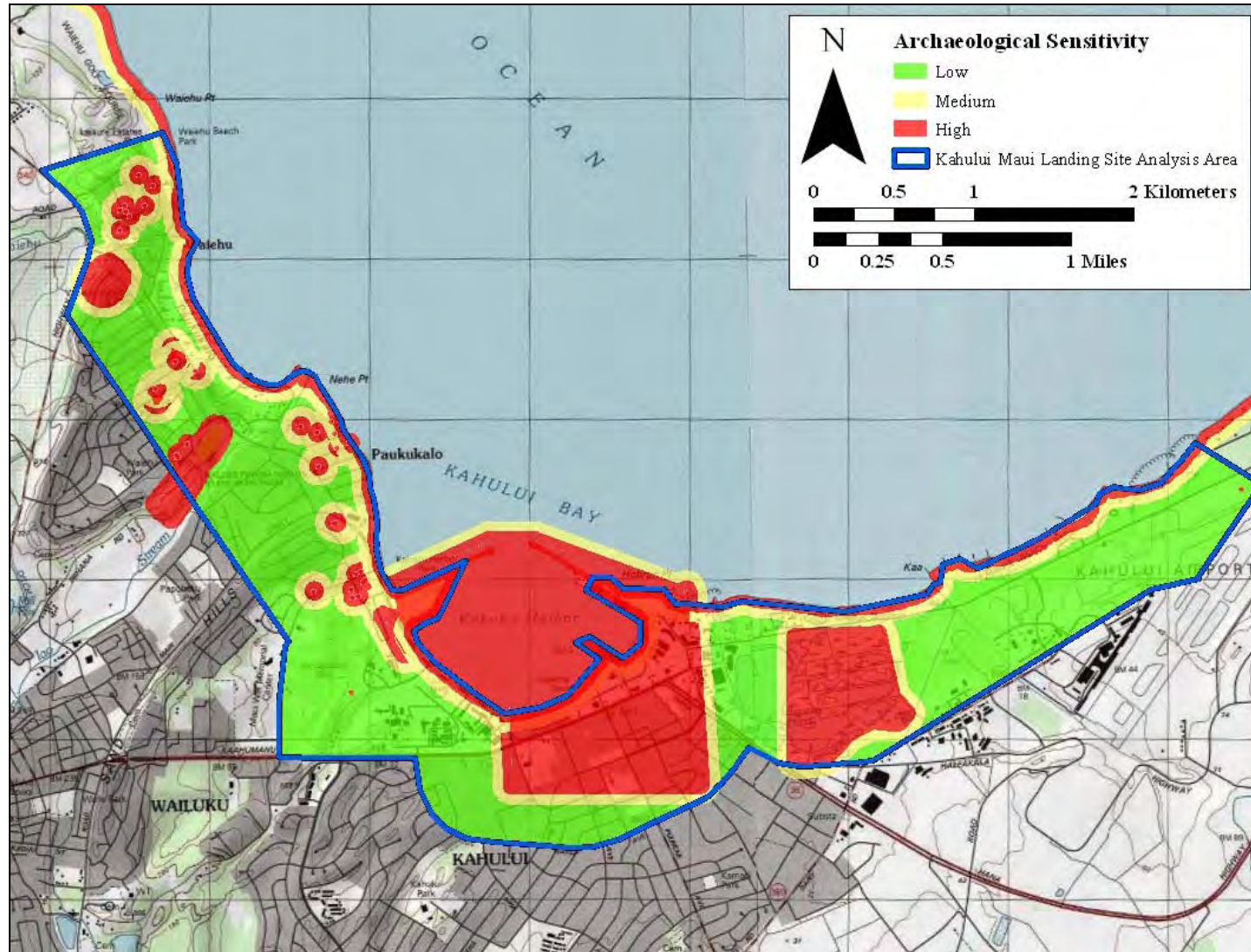


Figure 54. Cultural resource sensitivity map based previously identified historic properties for the Kahului Landing Analysis Area

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Section 11 Summary

This study has attempted to give a “broadbrush” overview of the data available on cultural resource distribution in seven large proposed possible landing areas. From the standpoint of cultural resource management the study area(s) assigned are extraordinarily large (collectively accounting for some 23,023 acres (approximately 36 square miles). This study and the attendant data base of cultural resource study areas and finds) can be easily adapted (and improved if appropriate) as the selection process for possible cable landing infrastructure narrows down the study area.

The tabulation and graphic presentation of prior archaeological studies is suggested to be relatively complete. There is a caveat here in that the military sometimes withholds cultural studies from general circulation (for areas like Joint Base Pearl Harbor Hickam, Marine Corps Base Hawaii, Kaneohe Bay, and Bellows Air Force station). If the cable landings and associated infrastructure impact areas that have not had prior archaeological inventory survey then archaeological inventory survey will very likely be required regardless of the sensitivity of the area of concern. “Moderate” and “High” sensitivity areas are significantly more likely to encounter cultural finds and/or impact cultural practices which will take more time and money (to accomplish archaeological data recovery programs, archaeological monitoring programs, burial treatment, etc.)

When appropriate following narrowing down of the area of potential effect (at the time of likely archaeological inventory survey if not before) further consideration will need to be given to such matters as research of land use documents, fieldwork and consultation.

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