

APPENDIX G
CULTURAL IMPACTS ASSESSMENT (CIA)

**CULTURAL IMPACT ASSESSMENT
FOR THE
NĀ PUA MAKANI WIND PROJECT,
KAHUKU, KEANA, AND MĀLAEKAHANA
AHUPUA‘A, KO‘ALAU LOA DISTRICT,
ISLAND OF O‘AHU**

[TMK (1) 5-6-005:018; (1) 5-6-006:018, 047, 051, 055;
and (1) 5-6-008:006]



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Prepared by:

Kimberly M. Mooney, B.A.
Elizabeth E. Kahahane, B.A.
and
Paul L. Cleghorn, Ph.D.

Pacific Legacy, Inc.
30 Aulike Street, Suite 301
Kailua, HI 96734
(808) 263-4800

Prepared for:

Nā Pua Makani Power Partners, LLC

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ABSTRACT

As part of the Environmental Impact Statement process, Nā Pua Makani Power Partners, LLC, a subsidiary of Champlin Hawai‘i Wind Holdings, LLC, has requested a Cultural Impact Assessment (CIA) for the proposed Nā Pua Makani Wind Project, which is slated for a 464 acre parcel spanning the *kula* and *mauka* portions of Kahuku, Keana, and Mālaekahana Ahupua‘a, in Ko‘olau Loa District, O‘ahu [TMK (1) 5-6-005:018; (1) 5-6-006:018, 047, 051, 055; and (1) 5-6-008:006]. This assessment is based upon archival research as well as ethnographic interviews. Under Act 50, the Hawai‘i State Department of Health “Guidelines for Cultural Impact Assessments” mandate that the subject property be studied as well as surrounding areas where construction or development have impact potential. These guidelines also recommend personal interviews with traditional cultural practitioners and knowledgeable informants on cultural practices. For this study, three interviews with four cultural informants were performed, while only two informant summaries are included as two were withdrawn.

The results of archival research indicate that the vicinity of Kahuku, Keana, and Mālaekahana Ahupua‘a has a long and rich cultural and legendary history. However, little is mentioned of the specific property in which the Nā Pua Makani Wind Project is to be built. Regardless, some traditional Hawaiian practices were found to be practiced in and around the project area, including pig hunting and plant gathering, according to the testimony of two of the five interviewees. Yet, neither informant expressed that the areas in which the cultural practices were occurring were exceptional, legal, or even ideal, as the lands are private and/or reserved for military use. Further, it is uncertain that the locations in which the activities occur are within the Area of Potential Effect (APE). Hence, the proposed development of the Nā Pua Makani Wind Project is not forecasted to significantly impact any ongoing cultural practices. It is reportedly a common belief that the area in general has a mystical past and retains some supernatural qualities. To respect the spiritual connections that people have with the *‘āina*, as the general area is known as a *wahi pana* (legendary place), it is recommended that any major event or construction related activity be preceded with a traditional Hawaiian Blessing ceremony performed by a *kahuna* (priest or priestess) or *kahu pule* (minister/preacher). Another interviewee provided important information of the possible cultural significance of several birds and the endemic bat that live in the area. This possible cultural importance should be considered in the development and operation of the wind farm.

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Frontispiece: 2001 Google Earth aerial image of Nā Pua Makani Wind Project area.

1.0 INTRODUCTION

Pacific Legacy, Inc., under contract to Nā Pua Makani Power Partners, LLC, a subsidiary of Champlin Hawai‘i Wind Holdings, LLC, conducted a Cultural Impact Assessment (CIA) as part of the Environmental Impact Statement (EIS) for the proposed Nā Pua Makani Wind Project. The subject area is situated on approximately 464 acres of land spanning *kula* (plains) and *wao* (upland) portions of three *ahupua‘a*: Kahuku, Keana and Mālaekahana [TMK (1) 5-6-005:018; (1) 5-6-006:018, 047, 051, 055; and (1) 5-6-008:006], Ko‘olau Loa District, O‘ahu (Figure 1).

The main objective of a CIA is to promote and protect cultural beliefs, practices, and resources of Native Hawaiians, other ethnic groups, as well as other collective groups associated with the subject area and surrounding areas (OEQC 2011:3-4).

1.1 PURPOSE

In keeping with Articles IX and XII of the state constitution, the goal of a CIA is to promote and protect cultural beliefs, practices, and resources of Native Hawaiians as well as other ethnic groups and collective groups (OEQC 2011: 3-4). The general purpose of this CIA is to protect and preserve all cultural practices and resources within the project area and surrounding areas that may be impacted by the proposed project. To do so, cultural practices, features, and practitioners must be identified and assessed for potential impacts by the Proposed Action and alternative options. Finally, recommendations are provided to mitigate the potential impacts.

In the State of Hawai‘i, under Chapter 343 HRS, and Act 50, SLH 2000, a CIA is required as part of the EIS process, and has the stated purpose to:

1. require that environmental impact statements include the disclosure of the effects of a proposed action on the cultural practices of the community and State; and
2. amend the definition of “significant effect” to include adverse effects on cultural practices.

According to these guidelines, types of cultural practices and beliefs may include those relating to subsistence, commercial, residential, agricultural, access-related, recreational, as well as religion and spirituality. The guidelines further state that cultural resources subject to a CIA may include: “traditional cultural properties or other types of historic sites, both manmade and natural, including submerged cultural resources, which support such cultural practices and beliefs” (OEQC 2011:4). To determine the effects of the proposed development on cultural practices, resources, and beliefs, the following tasks are undertaken:

1. identify and consult with individuals and organizations knowledgeable about cultural practices that may have taken place in the area;
2. conduct archival research about traditional practices that may have been conducted in the area;

3. describe the cultural practices that took place within the potentially affected area;
4. assess the impact of the proposed development on the cultural practices that may have taken place within the potentially affected area; and
5. prepare a report on the findings resulting from the above investigations.

Appendix A provides a copy of the Guidelines for Assessing Cultural Impacts, adopted by the State of Hawai‘i Environmental Council in 1997 and amended in 2000 (OEQC 2011).

1.2 METHODS

According to the Office of Environmental Quality Control (OEQC) Guidelines for Assessing Cultural Impacts (OEQC 2011), it is recommended that preparers of CIA implement the following protocol:

1. identify and consult with individuals and organizations with expertise concerning the types of cultural resources, practices and beliefs found within the broad geographical area, e.g., district or ahupua‘a;
2. identify and consult with individuals and organizations with knowledge of the area potentially affected by the proposed action;
3. receive information from or conduct ethnographic interviews and oral histories with persons having knowledge of the potentially affected area;
4. conduct ethnographic, historical, anthropological, sociological, and other culturally related documentary research;
5. identify and describe the cultural resources, practices and beliefs located within the potentially affected area; and
6. assess the impact of the proposed action, alternatives to the proposed action, and mitigation measures, on the cultural resources, practices and beliefs identified.

These methods were strictly adhered to in the subject assessment. A rigorous effort was made to identify and locate persons knowledgeable about traditional practices that took place in the past or that are currently taking place in project area and broader geographical area that could potentially be impacted by the expansion project. In addition to prior CIA reports written about the Kahuku, Keana, and Mālaekahana areas (Hammatt 2008; McGerty and Spear 2009; Voegler et al. 2011; Mooney and Cleghorn 2012), the State Office of Environmental Quality Control (OEQC) and Office of Hawaiian Affairs (OHA) were consulted for a listing of Cultural Assessment Providers. Various Neighborhood Boards and civic clubs, were also contacted to obtain cultural informants. Appendix B provides a listing of potential cultural informants and their detailed contact history. Contact information was found for 24 individuals and organizations, all of which were solicited for participation. While no response was received from 14 of those asked to participate, eight individuals responded; interviews were secured with five individuals; and three interview summaries are included. Transcripts of interviews were not attempted in this assessment; however, audio recordings of the interviews were obtained and are kept on file at Pacific Legacy office in Kailua, Hawai‘i.

2.0 PROJECT AREA DESCRIPTIONS

The proposed Project is located in the Ko‘olau Loa District, west of the town of Kahuku in the City and County of Honolulu and covers three *ahupua‘a*: Kahuku, Keana, and Mālaekahana [TMK (1) 5-6-005:018; (1) 5-6-006:018, 047, 051, 055; and (1) 5-6-008:006]. It includes portions of two parcels which would be leased from the DLNR (approximately 234 acres [95 hectares]) and from the Mālaekahana Hui West, LLC (MHW) (approximately 452 acres [183 hectares]), as well as the use of non-leased State land for roadways into the project area. These lands are situated in the *kula* and *wao* portions of the following *ahupua‘a*: Kahuku, Keana, and Mālaekahana in the District of Ko‘olau Loa, O‘ahu Island, Hawai‘i. According to the Nā Pua Makani Wind Project’s Environmental Impact Statement Preparation Notice (EISPN), the environmental setting of the project area is as follows:

The Project lies on a portion of . . . leased land in Kahuku, Oahu, of which approximately [464 acres] comprise the Project Area. The operational Kahuku Wind Power facility abuts the Project Area to the northwest... It is surrounded by agricultural farm lands to the north; residential housing, community infrastructure, and agricultural farm lands to the east; a mixture of agricultural farm lands and undeveloped forest lands to the south; and undeveloped forest lands to the west. James Campbell National Wildlife Refuge is approximately 0.75 miles (1.2 kilometers) to the north and Mālaekahana State Recreation area is 0.1 miles (0.2 kilometers) to the east (Tetra Tech Inc. 2014:9).

Within the larger project area is the Area of Potential Effect (APE), the area where all construction related activities will take place. The APE consists of approximately 464 acres and is composed of:

- Access Roads;
- Turbines;
- Laydown Area;
- O & M Facility;
- Collector Substation;
- Underground Collector Lines; and
- Underground Transmission Lines.

The APE also includes:

- 2-acre buffers around each turbine;
- 450-foot buffer around each project component (e.g., O & M Facility); and
- The existing Department of Agriculture road on the north side of the APE that provides access to the State-owned portion of the project.

Currently, the project area is largely used for modern agriculture by various farming entities under Keana Farms. Recently, a recreational zip line has been established, which meanders throughout the project area. The OEQC Guidelines recommend that the “broader geographical area” be the subject unit (OEQC 2011), thus this assessment will not be limited to the project area, but areas adjacent to it as well.

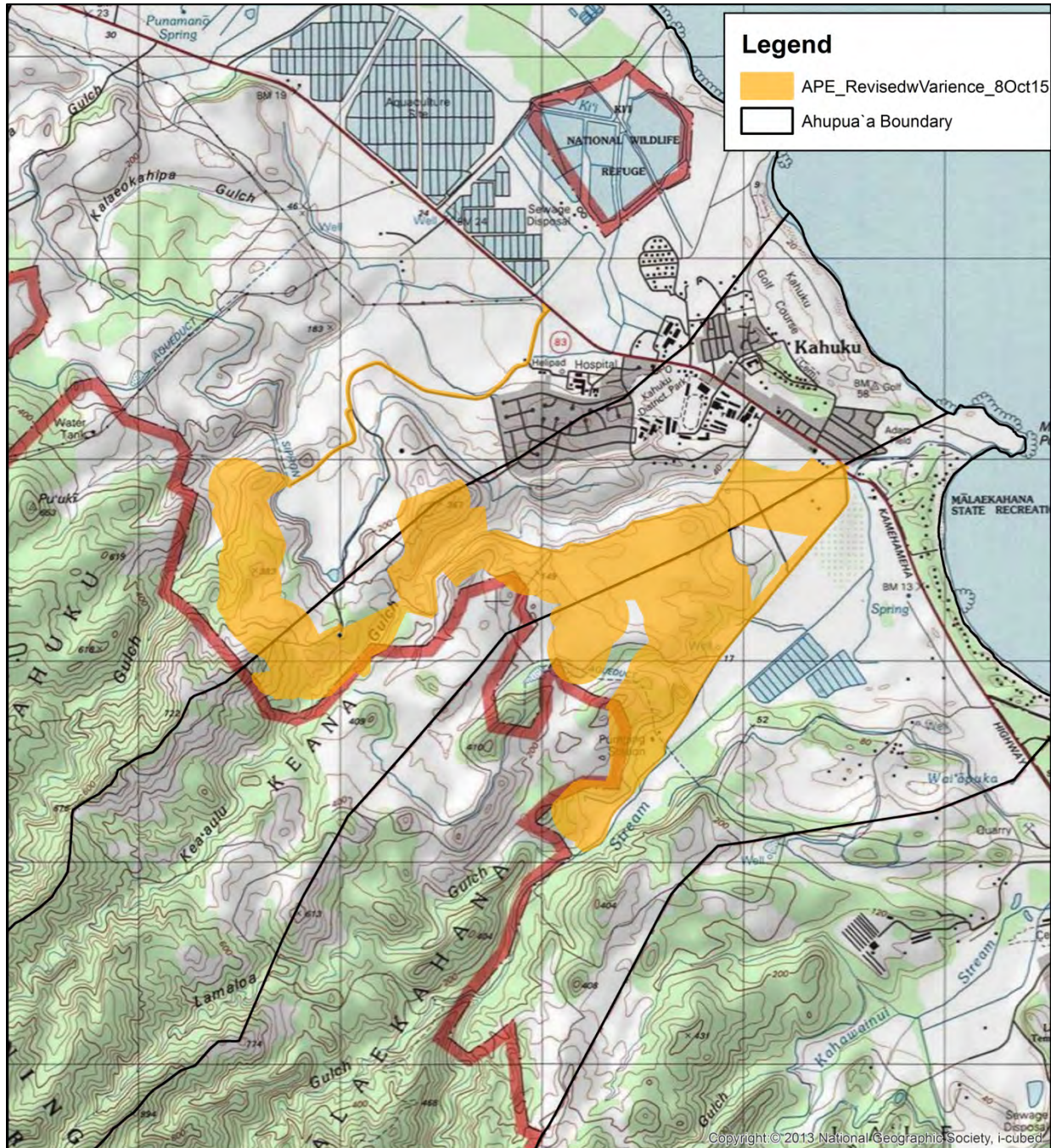


Figure 1. Project Area/APE on USGS map.

2.1 GEOLOGY, HYDROLOGY, AND SEDIMENTS

Several geological processes including shield-building volcanism, subsidence, weathering, erosion, sedimentation, followed by rejuvenated volcanism created the island of O‘ahu. Generally, the island is made up of heavily eroded remnants of the Pliocene era Wai‘anae and Ko‘olau shield volcanoes. The project area is located at the foot of the Ko‘olau Mountains, which were created by shield-building volcanism about 2.2 to 2.5 million years ago (Lau and Mink 2006). These mountains are mostly comprised of Koolau Basalt, a shield lava as well as basalt from later volcanic stages (Juvik and Juvik 1998).

Topography, stratigraphy, and hydrology of the general subject area result from a series of complex geological processes. Koolau Basalt lava flows ranging from 1.8 to 3 million year old underlie the majority of the vicinity. After these basalts were laid, they were subject to periods of erosion as well as periods of deposition of eroded upland sediment that occurred in the area. In the mid-to-late Quaternary period (ca 120,000 years ago), mean sea levels rose globally over seven meters higher than what they are today, permitting a coral reef system to build up along the coast in the area that now lies inland of the current coastline. After the sea level receded, these coral reefs were exposed and over time encapsulated in alluvium, becoming the karstic limestone of the Kahuku Plain (Ku et al. 1974; Stearns 1978; Gillespie et al. 2004). These deposits of terrestrial and marine sediments along the coast form a relatively impermeable wedge of sedimentary material known as caprock, which extends from Punalu‘u to Kahuku Point (Group 70 2009:2-7, 2-9). Generally, most high elevation water in Ko‘olau Loa is controlled by volcanic dikes that prevent groundwater from flowing freely to coastal areas from the upper elevations of the watershed (ibid.:2-9). The Kahuku, Keana, and Mālaekahana area contains several large marshes, which are a result of seepage that arises at the caprock.

In the Nā Pua Makani Wind Project EISPN, Tetra Tech Inc. (2014) describe the geology and soils of the project as follows:

The Project area consists of steep, dissected ridges surrounding gently sloping valleys...Elevations range from approximately 3 feet (1 meter) above mean sea level (amsl) on the northern edge to 614 feet (187 meters) amsl on the southern edge. The dominant soil types in the Project Area include Lahaina silty clay (3-15 percent slopes) soils and Paumalu-Badland complex soils (10-70 percent slopes), with coral outcrops at elevations below 100 feet (30 meters) amsl (Foote et al. 1972, NRCS 2013). Agricultural lands within the Malaekahana Hui West portion of the Project Area are classified as Prime Agricultural Lands under the ALISH system (Tetra Tech Inc. 2014:9).

2.2 CLIMATE

While seasonal variability is relatively mild, the climate of the Hawaiian Islands exhibits warm temperatures, dry conditions, and persistent trade winds that originate from the northeast during the summer season (May through September). Hawai‘i’s winter season (October through April) is typically characterized by cooler temperatures, elevated precipitation, and variable winds, including Kona (southerly) winds and storms (Juvik and Juvik 1998).

The climatic conditions of the subject area are characteristic of lowland and coastal areas of O‘ahu’s windward side, having relatively consistent temperatures as well as persistent northeast trade winds. While the annual average maximum temperature is 81 degrees Fahrenheit (°F), the Kahuku area has daily maximum temperatures in the range from the high 70s (°F) during the winter to the low-to-mid 80s (°F) during the summer. Average temperature lows range from the mid-to-high 60s (°F) during the winter to the low-to-mid 70s (°F) during the summer, with an annual minimum temperature of 70 °F (WRCC 2011).

In general, rainfall is heaviest in October and April for the entire state of Hawai‘i. However, rainfall averages are greatly affected by terrain. Further, great variation in rainfall can occur over small distances with extreme topographical changes. In the subject area, rainfall is relatively moderate, with a median annual rainfall of approximately 36 inches. Approximately two-thirds of the rainfall in the subject area occurs between October and April. Annual rainfall also varies significantly from year-to-year in the area (WRCC 2011).

2.3 VEGETATION

While the project area is dominated with active farms, growing a wide variety of non-native food crops, some areas exist where invasive exotics such as *koa haole* (*Leucaena glauca*), Christmas-berry (*Schinus teribinthifolius*), guava (*Psidium guajava*), as well as various grasses, weeds, ferns, shrubs, and vines dominate. Yet, some endemic species still persist in small pockets. According to Tetra Tech Inc. (2014:11), vegetation in the project is as follows:

The vegetation within the Project area is dominated by a mixture of aggressive non-native weedy species that took over following the abandonment of sugar cane (*Saccharum officinarum*) cultivation. Several common native species occupy some of the ridge tops. The most abundant species in the Project area is the common ironwood (*Casuarina equisetifolia*). Native species are largely intermixed with non-native species with the exception of a few ridge tops where the native ‘ulei (*Osteomeles anthyllidifolia*), forms large monotypic patches. Other common native species include ‘uhaloa (*Waltheria indica*) and ‘akia (*Wikstroemia oahuensis*).

3.0 ARCHIVAL RESEARCH SUMMARY

This section is a synthesis of records documenting traditional and mythological accounts associated with the Nā Pua Makani Wind Project lands and surrounding areas as well as Historical documentation and archaeological record. The names and locations of *ahupua'a* used in this section of the report are largely derived from information in the *O'ahu Pre-Māhele Moku and Ahupua'a* map created by Kamehameha School's Hawaiian Studies Institute in 1987 (Figure 2) and *Place Names of Hawai'i* (Pukui et al. 1974). According to this map, the project area spans an area that incorporates inland portions of three *ahupua'a*: Kahuku, Keana, and Mālaekahana.

The subject *ahupua'a* are located within the district, or *moku*, of Ko'olau Loa, within which the Nā Pua Makani Wind Project lands are located, extends from the *ahupua'a* of Ka'a'awa on the central east side of O'ahu, rounding the northern tip of the island to Pūpūkea. In *Sites of O'ahu* (Sterling and Summers 1978:142), writer for *Ka Nūpepa Kuokoa*, S. M. Kauai, holds that Ko'olau Loa District stretches from Keahu-o-Hapu'u to the Point of Ka'ō'io, which is between Kualoa and Ka'a'awa (Figure 3). The name of this district, spelt as "Ko'olau Loa" by Pukui et al. (1974:117), literally translates to "long Ko'olau" (ibid.), Ko'olau being the windward mountain range that runs along the entire eastern side of O'ahu.

3.1 PRE-EUROPEAN CONTACT CULTURAL LANDSCAPE

In general, traditional and mythological accounts from pre-European contact Hawai'i represent a belief system explaining all aspects of the physical universe and spirit realm, the origin and nature of mankind, and the history of the community, as well as collectively remembering the heroic adventures, exceptional feats, and cautionary tales of their ancestors. These traditional accounts are contained in the hearts and minds of cultural practitioners and customarily passed on through oration. Throughout the passage of time, figures transcend earthly legends into the cosmic, divine, and fearsome realm of the gods that is only separated from the mundane world by a thin veil and has the power to interact with and cast influence on the mundane. To this day, a sense of respect, reverence, and fear is still held on to by cultural practitioners and those indoctrinated in these traditions, as it is believed that the very landscape is imbued with the *mana* (life force or supernatural energy) of the divine.

3.1.1 The Natural World

Conversely, the mundane, or lifeways and land use, of pre-European contact Hawaiians are also part of the cultural landscape and are interpreted through archaeological research in conjunction with oral histories and recorded traditional accounts. Handy and Handy (1991) provide some commentary on general land use patterns of ancient Hawaiians that are applicable to the general Kahuku area. As marine resources represent the main source of protein in the traditional Hawaiian diet, Handy and Handy (ibid.) suggest that upland agriculture was typically preceded by or correlated with the productiveness of an area's coastal fishing grounds. *Mauka* lands were intensively developed in areas where coastal fishing

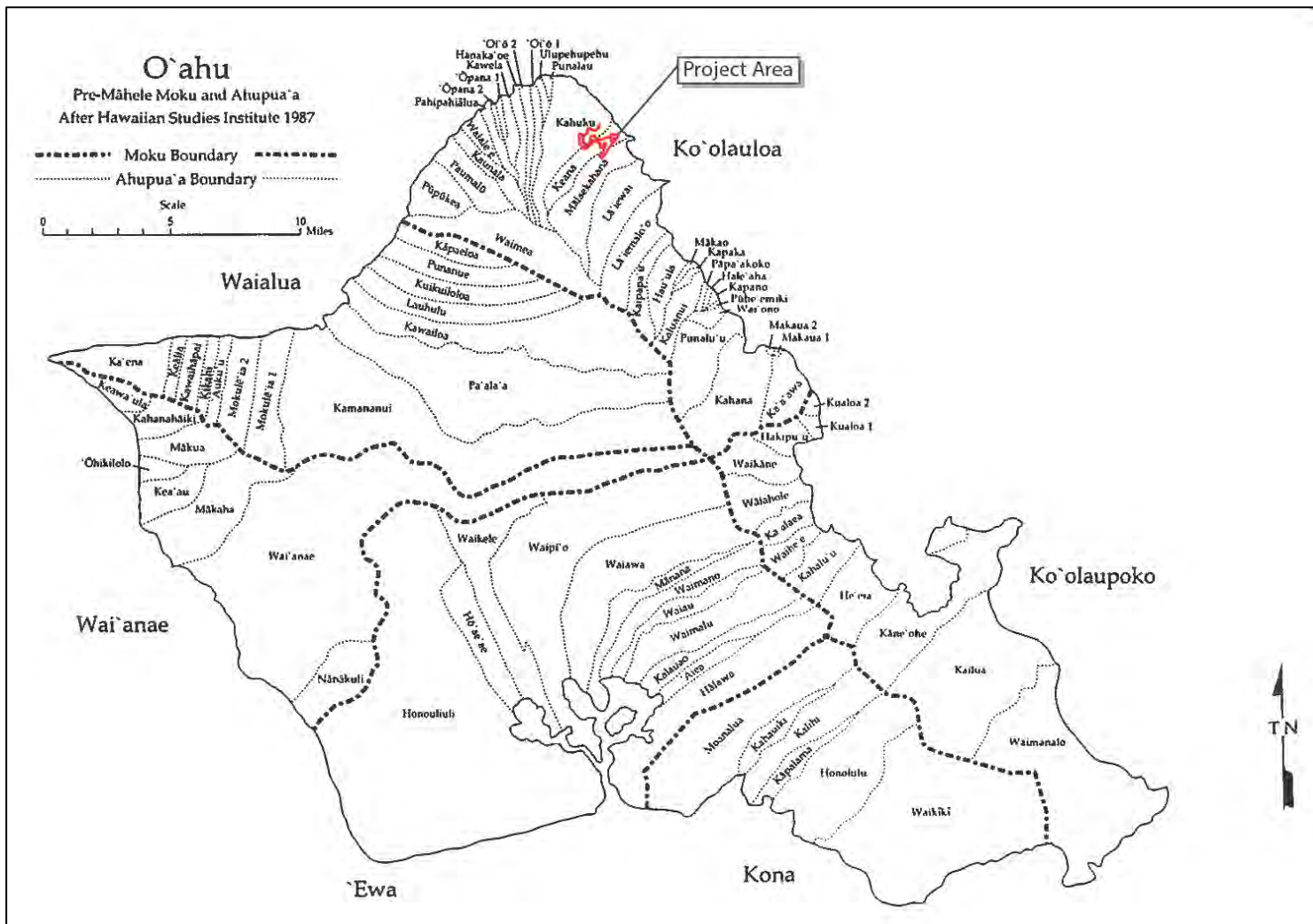


Figure 2. Map of O'ahu, showing approximate location of project area in relation to pre-Māhele *moku* and *ahupua'a* (courtesy of Hawaiian Studies Institute 1987).

grounds were easily accessed. On O‘ahu, sweet potatoes were cultivated to supplement taro, the main starch of the Hawaiian diet, when soils were too sandy or dry to grow taro. Further, sweet potato cultivation, typically grown inland, appeared to correlate with high population densities in general.

Traditionally in Hawai‘i, environmental zones were perceived and determined by various natural features and resource criteria (Handy and Handy 1991:54-56). . The following is a summary of Handy and Handy (1991:54-56) description of the terrestrial environmental zones:

1. *Ko Kaha Kai*: Land by the sea, or coastal region providing marine resources (fish and other marine animals, seaweed and salt). “Kaha was a special term applied to areas facing the shore but not favorable for planting.
2. *Kula*: The plains or sloping lands (without trees) above the coastal region.
 - a) *Kula kai*: Seaward plains.
 - b) *Kula uka*: Inland or upland slopes (towards the mountains).
3. *Kahawai*: The place (having) water. The area beyond or intersecting the *kula* lands. This upland zone provided suitable agricultural sites and abundant naturally occurring resources which were used for religious, domestic, and economic purposes.
4. *Wao*: Wilderness
 - a) *Wao kanaka*: Region of man. Lower forest, providing hard wood (*koa*) for spears, utensils, and logs for canoes; *lau hala* (pandanus leaves) for thatch and mats; *māmaki* for bark cloth (*tapa*); *kukui* (candlenut) for oil; wild yams, roots, and sandalwood.
 - b) *Wao akua*: Region of deities. ...remote, awesome, seldom penetrated, source of supernatural influences, both evil and beneficent.
 - c) *Wao ma‘ukele*: Rain forest. Here grew giant trees and tree ferns (*‘ama‘u*) under almost perpetual cloud and rain.

The Nā Pua Makani Wind Project lands are predominantly located in the following environmental zones: *Kula uka* and *Wao kanaka*. Numerous traditional accounts, *mo‘olelo*, and Land Claim Native Testimonies allude to the cultivation of lands, varying in intensity, from *kula* to *wao* (Hall 1839; Fornander 1917; Thrum 1919; Handy 1940; Handy and Handy 1991; Sterling and Summers 1978; Silva 1984; Maly and Maly 2003; Hammatt 2008; Vogeler et al. 2011).

3.1.2 Life in the Ahupua‘a

With great variations of geological features, each *ahupua‘a* had its own dynamic resource management system that was based on traditional customs upheld by the *kapu* system, or ancient religious law. The *ahupua‘a* typically extended from the coast to the nearest mountain top or ridge and resources from the land and sea were equally distributed within the *ahupua‘a*. Lyons (1875) describes the geographic nature of the *ahupua‘a* as well as the movement of resources from mountain to sea and vice versa, stating:

The Ahupuaa ran from the sea to the mountain, theoretically. That is to say the central idea of the Hawaiian division of land was emphatically central, or rather radial. Hawaiian life vibrated from *uka*, mountain, whence came wood, kapa, for clothing, olona, for fish line, ti-leaf for wrapping paper, *ie* for rattan lashing, wild birds for food, to the *kai*, sea, whence came *ia*, fish, and all connected therewith.

Mauka and makai therefore fundamental ideas to the native of an island (Lyons 1875: 104).

The *ahupua'a* was also an important socio-political unit in the pre-Contact era, each unit with its own hierarchy. Kirch (1985) holds that *moku* were independent chiefdoms, divided into a number of radial land divisions, referred to as *ahupua'a*, with subdivisions of 'ili and *mo'o* within. According to Kirch (1985),

Each *ahupua'a* was controlled by a lesser chief, who in turn appointed one or more stewards to oversee production, organize work parties, collect tribute, and in other ways represent the chief. *Ahupua'a* were economically self-sufficient to some degree, although differences in the local resource base (agricultural land, water resources, stone for tools, and so on) resulted in differences in the production patterns of individual land sections. Within the *ahupua'a*, there were yet smaller sections and divisions, especially the 'ili and *mo'o*, which were held and worked by extended households or groups of commoners.

According to Handy and Handy (1991), for the purpose of taxation, the chief political subdivision of the pre-Contact era was the *ahupua'a*, which was generally under the management of the *konohiki* (steward or caretaker). The term *ahupua'a* itself is derived from the fact that each coastal *ahupua'a* boundary was marked with an altar (*ahu*) which held a carved wooden effigy of a pig (*pua'a*) head during the Makahiki festival, when harvest tributes (taxes) were offered to the god of rain. Handy and Handy (1991) refer to the lower chief who represented the *ahupua'a* as *ali'i 'ai ahupua'a*, which translates to English as "chief who eats the *ahupua'a*" (1991:48). Yet, according to Malo (1951:142) the *konohiki* was tasked with collecting levies from the *maka'āinana* (commoners; literally "people that attend the land") of the *ahupua'a* for the king and of the *ali'i 'ai ahupua'a*. The word *konohiki* is defined by Pukui and Elbert (1986) as the, "Headman of an *ahupua'a* land division under the chief; land or fishing rights under control of the *konohiki*; such rights are sometimes called *konohiki* rights" (1986:166). Thrum (1924) wrote that the *konohiki* was a local representative or steward of the landlord owner whose privileges and duties were, "...practically those which go with that position in any land and in common with his brethren today in Russia or Ireland he had his failings and was not always popular among his fellows..." (1924:60).

Handy and Handy (1991) liken the *ahupua'a* tenure system to western share cropping, where "sharing between the chief and tenant was comprehensive and reciprocal in benefits" (1991:48). Kirch and Sahlins (1992) delve further into the social dynamics of the *ahupua'a* in their historical ethnography, *Anahulu: The Anthropology of History in the Kingdom of Hawai'i, Volume One*. Kirch and Sahlins (1992:17) state the following about variations in land use in the ancient *ahupua'a*:

Economically more highly valued, the coastal areas were also generally preferred for chiefly residence. Here were the most extensive wet taro lands, offshore and onshore fish ponds, as well as access to the sea and the fishing and surfing that in Hawaii were sports of kings. Still, the uplands were also necessary for the Hawaiian existence. In addition, to things mentioned by Lyons, people were specifically dependent on the uplands for the timber and thatching of their houses; the materials for their canoes, bowls, weapons, images, agricultural tools, and other objects using hardwoods; rope, line, fishnetting; lighting (from

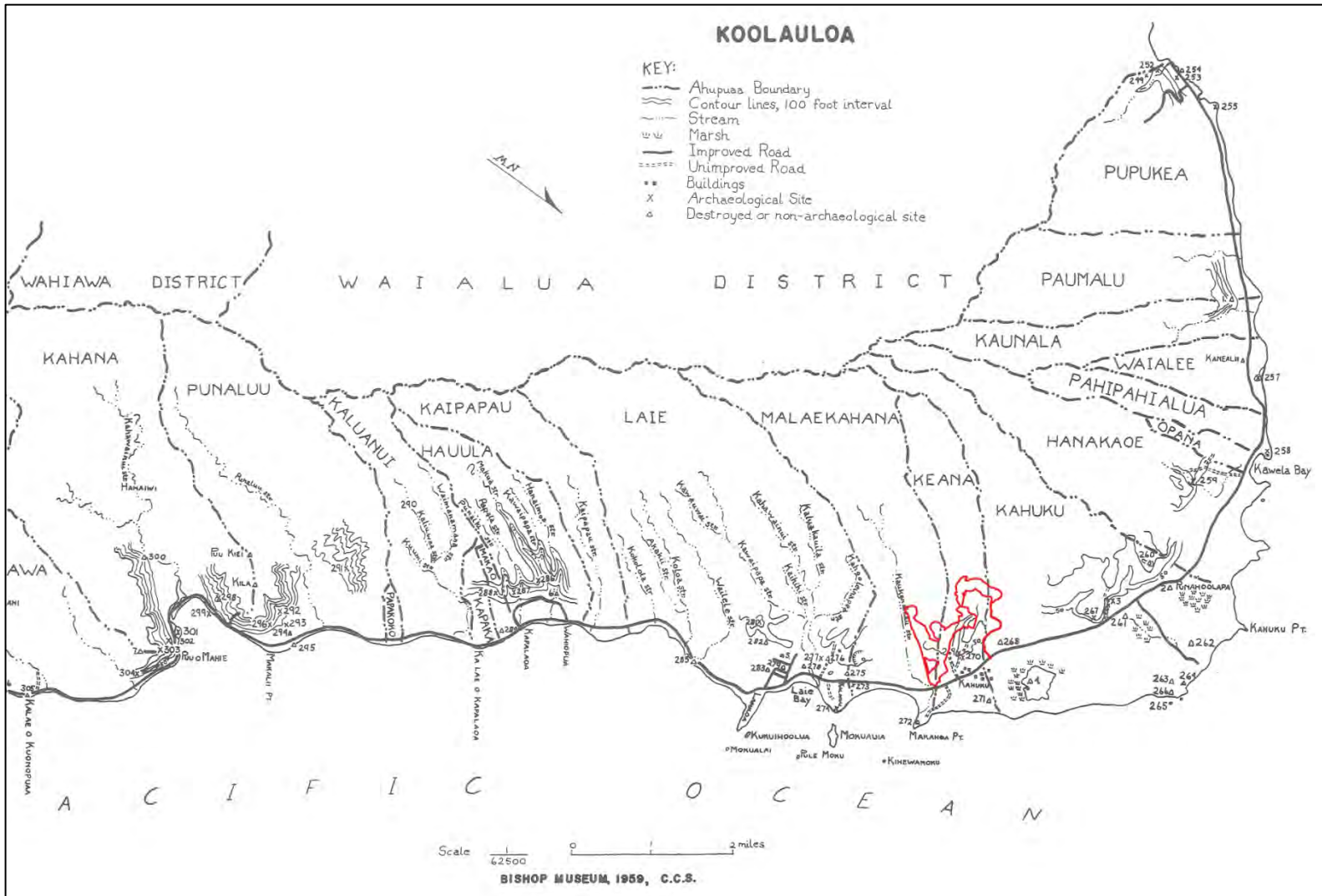


Figure 3. Sterling and Summers (1978) map of Ko'olau Loa showing approximate location of project area.

candlenuts); pasture for domestic animals (in the nineteenth century); various fruit trees; and more (Kirch and Sahlins 1992:19).

Thus, resources needed for daily life were best grown in or collected from the habitats that they were best suited for and likely distributed, through trade, gifting, or taxes, from *mauka* to *makai* or vice versa within the *ahupua'a*. Further evidence of this is found in the archaeological record, where most upland habitation features in the area contain significant amounts of marine shell and fish bone in midden deposits, which suggests that people inhabiting the *mauka* areas of the *ahupua'a* had a steady diet of marine resources (Jensen 1989; Williams and Patolo 1998).

3.1.3 Traditional Hawaiian Land Divisions

The pre-Contact economy of the Hawaiian Islands was based upon agricultural production that worked within a tiered system of land divisions (Lyons 1875; Malo 1951; Handy and Handy 1991; Kirch 1985; AKAC 2010). In 1875, Curtis J. Lyons, the distinguished surveyor published an article in *The Islander* on land issues, which identified the *ahupua'a* as the principal subdivision in a *moku* (district). In this article, he states:

...Its name is derived from the *Ahu* or altar; (literally, pile, *kuahu* being the specific term for altar) which was erected at the point where the boundary of the land was intersected by the main road, *alaloa*, which circumferenced each of the islands. Upon this altar at the annual progress of the *akua makahiki* (year god) was deposited the tax paid by the land whose boundary it marked, and also an image of a hog, *puaa*, carved out of kukui wood and stained with red ochre. How long this was left on the altar, I do not know, but from this came the name, *ahupua'a*, of the pile of stones, which title was also given to the division of land marked thereby...(Lyons 1875:103-104).

The islands are divided into several sections called *moku* (districts), in which are particular subdivisions referred to as *'okana* (a portion) or *kalana* (a division) (Lyons 1868:67-68; Malo 1951:16-17). According to Curtis J. Lyons (1868) in *Nūpepa Kuakoa*, these units are further divided into *ahupua'a*, which are the main units of traditional Hawaiian land division. Within *ahupua'a* are *'ili*, followed by *'ili pa'a*, *'ili kūpono*, *'ili lele, lele, mo'o, mo'o 'āina, paukū, kīhāpai, kō'ele*, and *kuleana* (Pukui and Elbert 1986). However, in some cases, the *'ili kūpono* or *kū* were a type of sovereign *'ili* within an *ahupua'a* that were not made to pay tribute to the chief (Thrum 1890:106). Within the *paukū* are dry land patches, referred to as *kō'ele, hakuone, and kuakua* (cultivated specifically for the chief; listed from smallest to largest). In general, high elevations or mountains are called *mauna*, but mountains or mountain summits located centrally on the island are termed *kuahiwi*, while the peaks or ridges on top of the *kuahiwi* are called *kualono*. In 1868, Lyons continues to describe the geography of the typical *ahupua'a* as well as the Hawaiian names for these geological features, stating:

The place where trees are small below the fern belt is termed *kuahea* (hillock section); below it is the *wao* (wild place), also called *waonahale* (wilderness) and *wao eiwa* (ninth wilderness). The place where trees grew taller below the *wao eiwa* is the *wao maukele*, and a little below it again is the *waoakua* (spirit region); next below that is where voices increase and, hence, called *wao kanaka* (people's sphere), because there the people cultivate food. Below that is *apaa*,

and next is ilima (where this plant of the Sida genus is found), and below it is pahu (stake or land mark). Below pahu is kula (open country) adjoining habitations, and seaward of the village is the shore, where it joins the sea. Such was the island divisions by the ancient people of Hawaii.

...Places that stand high up in this and that locality are called puu (mounds or peaks) ; if they stand in a row they are a lalani puu, or pae puu (a line or range of peaks or hills)...High places of the earth lying narrow is a lapa (ridge), or kua lapa (shoulder ridge). If the ridges are many they are called olapalapa (rough protuberances). Deep places lying lengthwise are called kahawai, awawa, or owawa (streams, valleys or ditches). Lengthy, solitary places are called alanui (roads), and kuamoo (paths), and if it continues circuiting the island it is a highway. In places where the path is steep it is called piina or hoopiina (ascending path), kooku (hill slope), and auku (up hill road). Descending paths are termed ihona, alu, kalua, and hooihona, and the place where men would rest is oioina (a resting place). Places where water flows continually are streams (kahawai). Inland places are kumu (source) and seaward places are called nuku (point or outlet). Where water is led to places of cultivation, that is called an auwai (watercourse); where the water joins the sea is a muliwai (river) ; waters borne within the land are lokos (lakes or ponds) (C.J. Lyons 1868 as cited in Thrum 1921:67-68).

Perhaps the ancient Hawaiians created names for an array of topographical features and slight variations within the *ahupua'a* as a way to help keep the dynamic *mauka-makai* economic structure organized.

The names of the three *ahupua'a*, Kahuku, Keana, and Mālaekahana, in which the project area are located within each have traditional meanings. According to Pukui et al. (1974:67) Kahuku literally translates as “the projection” and is the name of a village, land division, northernmost point, golf course, ranch, schools, forest reserve, as well as surfing beach on O‘ahu. Keana literally translates into English as “the cave,” according to Clark (2002:177), perhaps due to the fact that one of its most prominent sites is an ancient rock shelter (Site No. -270) known as Keana Cave (McAllister 1933:233; Sterling and Summers 1978:154). Mālaekahana Ahupua‘a, which is named after the mother of legendary figure, Lā‘ie-i-ka-wai, is also the name of the large bay and stream found within the land division (Pukui et al. 1974:143).

3.1.4 Traditional Names of Topographical Features

The Nā Pua Makani Wind Project lands are within Kahuku, Keana, and Mālaekahana Ahupua‘a. The great majority of the project area is within the *kula* (plains/fields) and *wao* (upland) areas of Keana and Mālaekahana Ahupua‘a. Several culturally significant landmarks and noted topographical are located in and around the Nā Pua Makani Wind Project lands. These landmarks possessed Hawaiian names in the pre-Contact era, which were based on distinguishing characteristics, *mo‘olelo*, or traditional use of the area. These traditional names are seldom used to refer to these landmarks in the modern era.

Kahuku Ahupua‘a covers the largest area and has a relatively large amount of noteworthy topographical features as well as an extensive mythological background. Due to the fact that only the northwest extreme of the project area is located in Kahuku Ahupua‘a, noteworthy

Kahuku traditional landmarks within the southern half of the *ahupua'a* will be mentioned in this study. Only two landmarks within the southern half of Kahuku Ahupua'a were found to have traditional names. Punamanō, which translates as "shark spring," is a spring-fed wetland located a little more than one kilometer north of the project area (Clark 2002:310). Also within the southern portion of Kahuku Ahupua'a is Kaauhelema Fishpond (Site No. -268), which was an ancient fishpond named after its *mo'o* (guardian), named Kaauhelema. This fishpond was once located only several hundred meters west of Kahuku Village. According to legend, "Kaauhelema was half man and half chicken, a being of supernatural power who could change himself at will into a man or a chicken" (McAllister 1933 as cited in Sterling and Summers 1978:152). Before being destroyed for sugarcane cultivation, the pond was said to have been fed by a spring (ibid). McAllister (1933) holds that Ki'i Wetlands, also referred to by some as Kahuku Fishponds, was always simply a swamp and never used as a fishpond (ibid.). Ki'i Wetlands, now a National Wildlife Refuge, is located just under two kilometers north of the project area.

In Keana Ahupua'a, northwest of Makahoa Point is a noted fishing ground, referred to as Kaluahole, which translates as the "pit, or cavern of the whole fish" (Clark 2002:155; Pukui et al. 1974:78). The *āhole* (Hawaiian Flagtail; *Kuhlia sandwicensis*), is described by Titcomb as "a common shore fish" that inhabits the coral and lava caverns of the reef when mature (1972:59). North of Kaluahole is Ka'ohana, or "the family," which is a calcareous sand beach near the Japanese Cemetery (Clark 2002:161). The coastline fronting the Kahuku Golf Course was traditionally referred to as Keone'ō'io, or "the 'o'io sands," where 'ō'io is the Hawaiian word for *Albula vulpes*, commonly known as bonefish (Clark 2002:137). This is also the traditional name for the channel that is most suitable for swimming in the area. Pōlou is the name of a pool of water that once existed *makai* of the Kahuku Mill, recorded by McAllister (1933) as Site No. -271 (as cited by Sterling and Summers 1978:154). This pool was said to have been the anchoring spot where the fabled "floating island" of Kahuku attaches to the rest of the island of O'ahu (ibid.).

Mālaekahana has also been referred to in local mythology. Less than 800 meters *makai* (seaward) of the project area is Makahoa Point, which is located on the north coast of Mālaekahana Ahupua'a. The beach ends at the south end at Makahoa Point in Mālaekahana Ahupua'a. Makahoa translates to English as "friendly" or "a companion" according to Pukui et al. (1974:140) and Clark (2002:228). Where the mouth of Kea'aulu Stream pours into Mālaekahana Bay marks the boundary Keana and Mālaekahana Ahupua'a. The name Kea'aulu means "the growing root," (Pukui et al. 1974:100), which may indicate that traditional Hawaiian agricultural practices likely occurred along Kea'aulu stream and gulch. Also in Mālaekahana Ahupua'a is Site No -275, referred to as Wai'āpuka, which is a pool mentioned in the legendary story of Lā'ie-i-ka-wai and was said to be the opening of a subterranean cavern with fresh spring that a person could swim underwater for a great distance prior to it being filled in with sediment in the historic era (Sterling and Summers 1978:155). This site is located approximately 1.5 kilometers to the south of the project area.

3.1.5 Traditional Names of the Winds of Ko'olau Loa

Traditional Hawaiian stories and legends (*mo'olelo*) have been told and retold; shortened and changed; published in turn-of-the-century Hawaiian language newspapers; and collected for

books. In 1902, Moses Kuaea Nakuina published *Moolelo Hawaii o Pakaa a me Ku-a-Pakaa, na Kahu Iwikuamoo o Keawenuiauni, ke Alii o Hawaii, a o na Moopuna hoi a Laamaomao* wherein he retold a “traditional legend collected from various sources, edited, and expanded” (Nakuina 1992:vii) upon in order to preserve its knowledge. In 1992, an English version of Nakuina’s *mo’olelo* was published as *The Wind Gourd of La’amaomao: The Hawaiian Story of Pāka’a and Kūapāka’a, Personal Attendants of Keawenuia’umi, Ruling Chief of Hawai’i and Descendants of La’amaomao*, with the translation done by Esther T. Mookini and Sarah Nākoa.

This mo’olelo retells the story of Pāka’a and Kūapāka’a, who were personal attendants to the ruling chief of Hawai’i, Keawenuia’umi. Pāka’a was the son of a Hawai’i Island ali’i, Kūanu’uanu, and La’amaomao, a “cherished keiki, brought up with care and refinement” in a family of status on Kaua’i (Nakuina 1992:2). Before the birth of his son, Kūanu’uanu returned to Hawai’i Island and La’amaomao was shunned by most of her ‘ohana and left to care for Pāka’a alone in a cave by the beach. When Pāka’a was a boy, he pestered his mother, always asking ‘who is my father?’ When La’amaomao finally answered she told him, “as for your real father, you must look for him. I’ll tell you this: to find him, you must look to the east, where the sun rises and a certain local wind blows. Your father lives there.” Pāka’a determined that he would search for his father when he was “old enough to travel the seas between the islands” (Nakuina 1992:2).

As he grew up, Pāka’a worked hard to help his mother and learned the ways of a fisherman. Pāka’a was clever and determined and when he learned that an *ali’i* of Kaua’i would be touring the islands, he asked his mother’s permission to join the traveling company. “‘Ae, go,’ said his mother. ‘But go with humility and modesty;...and when you arrive in the presence of Keawenuia’umi, you’ll know you’ve arrived at the place where your father lives” (Nakuina 1992:14). Then:

La’amaomao lifted the lid of a large calabash and took out a small, long, highly polished gourd in a woven bag. The gourd was covered securely. She turned to her keiki and said, “I’m giving you this gourd which belonged to your extraordinary kupunawahine for whom I was named. Her bones are inside the gourd. While she was alive, she controlled all the winds of the islands-she had them under a supernatural power. She gathered all the winds and put them into this gourd, where they’re still kept. She memorized one by one the names of all the winds from Hawai’i to Ka’ula. On windless days, she could remove the cover and call out the name of a wind, and the wind in this gourd would blow. This gourd, called ‘the wind gourd of La’amaomao,’ was famous.

Before she died, she entrusted me to put her bones inside this gourd and care for them until I had a child. Then I was to give the gourd to the child to watch over. You’re my only child, so now I’m giving the gourd to you. You must look after it according to the wishes of your extraordinary kupunawahine.

You must care for this gourd because it has been handed down from the kupuna. This gourd has great value-you may not think so now, but when you sail with the ali’i and arrive at an area where no wind blows and the canoes are becalmed, say that the winds are at your command; all you have to do is call, and the winds will blow.

When you're laughed at, remove the lid of the gourd and call for a wind. The wind will blow and bring the canoes to shore. The ali'i will be grateful to you, and you'll be loved and valued by him.

Before Pāka'a sailed off, La'amaomao taught him the names of all the winds, along with the prayers, songs and chants concerning them, and when she was done, Pāka'a had memorized everything. Then he took the wind gourd and tied it with a cord he had made, prepared his other things for the voyage, and left home (Nakuina 1992: 14-15).

The "grand traveling company" landed first at Waikīkī and from O'ahu, then continued on to Moloka'i, Maui, and eventually, Hawai'i Island, where he found his father in the chief's court (Nakuina 1992:15). He trained under his father, Kūanu'uānu, to become a *kahu iwikuamo'o* (personal attendant). When his father died, Pāka'a took on the role of *kahu* for the old *ali'i*. There were those jealous of Pāka'a's position and skill and eventually, he fell out of favor with the old *ali'i* and his court. Pāka'a left Hawai'i Island, taking the wind gourd his mother had given him, and sailed to Moloka'i where he met and married Hikauhi. They had a son named Kūapāka'a, who was dutiful and learned all his father had to teach (Nakuina 1992).

Many years after Pāka'a left Hawai'i Island, the old *ali'i* became tired of the poor service and greedy manners of his *kahu* and went in search of Pāka'a. Word traveled that Keawenuia'umi was searching for him, so Pāka'a and Kūapāka'a "gathered their supplies for catching uhu...took along with them the wind gourd of La'amaomao" (Nakuina 1992:30) and paddled out in their fishing canoe to await the entourage of his *haku* (master, lord). A fleet of canoes laden with the people of Keawenuia'umi's court was approaching and each time they encountered a canoe, Kūapāka'a would ask his father, 'Is this perhaps my haku?' and Pāka'a would reply, 'It is not your haku' (Nakuina 1992:33). Kūapāka'a asked that same question throughout the night and finally Pāka'a said, 'When you see the first rays of the sun, you'll see your haku' (Nakuina 1992:33). At first light, Pāka'a ordered Kūapāka'a to call out to his *haku*, and the *keiki* began to chant:

The canoe is yours,
Great Hawai'i of Kāne,
Great Hawai'i, land of the sun,
The sun emerges, emerges,
The sun emerges at Ha'eha'e,
With a strong affectionate love for my haku,
Not my real haku,
But a companion of the giddy sun,
The Kona sun without food,
Its loved one has arrived,
Arrived along with Hilo of Kāne,
Hilo of Kāneakapu,
Hilo, land of Kanilehua,
Beloved companion of Keawenuia'umi mā,
There sits Keawenuia'umi,
The canoe is yours
(Nakuina 1992:37-38).

Once greetings were exchanged, the *keiki*, Kūapāka‘a, asked Kahikuokamoku, the Kuhina Nui, to bring the canoe fleet ashore, because, “‘Tomorrow is a calm day for sailing; today will be stormy: there are thick cumulus clouds resting above Kawainui and the ridge of Wailau; when these clouds are blown with full force, a terrible storm will rage; when the clouds are at rest again, then good weather will follow’There were no clouds yet-only the clouds in the wind gourd” (Nakuina 1992:38). The Kuhina Nui asked, “how is it a calm day like today can be a bad day for sailing? The sky is clear, the mountain tops are exposed, and the banks of clouds are asleep at the horizon” (Nakuina 1992:39). Kūapāka‘a responded, “This will be a stormy day, a windy day. You came here from Hawai‘i with the winds from there; Hawai‘i is a windy land and they blow here from behind you.” The Kuhina Nui challenged Kūapāka‘a, a *keiki* of Moloka‘i, on his knowledge of the winds of Hawai‘i Island. Kūapāka‘a chanted the names of the winds for the west side of the island; he chanted the names of the winds for the east side of the island. Kahikuokamoku asked his advisers if it would storm and they contradicted Kūapāka‘a. Encouraged by a look from his *haku*, Kūapāka‘a chanted the rest of the names of the winds of Hawai‘i (Nakuina 1992). Kahikuokamoku answered:

“The ali‘i’s canoes won’t go ashore with you, ē ke keiki. These winds you’ve called out belong to Hawai‘i. They blow over the sea of ‘Alenuihāhā and die out there. The winds of Hawai‘i won’t reach here.”

Kūapāka‘a said, “Since you deny the winds of Hawai‘i, here in front of you is O‘ahu, another windy land.”

Kahikuokamoku said, “Let’s hear the names of the O‘ahu winds.”

Kūapāka‘a chanted the winds of O‘ahu:

There are our clouds, my father’s and mine,
 Covering the mountains;
 The clouds rise with a sudden shower,
 The whirling winds blow,
 The source of the storm of the keiki,
 Ku a ē-ho is at sea
 From the sea, the storm comes sweeping toward shore,
 The windward Kui-lua wind churns up the sea,
 While you’re fishing and sailing,...

...The sea wind blows hard,
 Mālualua comes from the northeast,
 Peapueo is of Kaunala,
 Ahamanu is of Kahuku,
 Lanakilia is of Hau‘ula,
 Moa‘e is of Punalu‘u,
 ‘Āhiu is of Kahana,
 Holopali is of Ka‘a‘awa and Kualoa,...

...The Kona winds turn, the Ko‘olau winds turn,
 The winds will turn before you and find you,
 You will be overwhelmed, O deaf ali‘i,
 The winds will gather,
 The na‘ena‘e leaves will bend,
 You’ll be swept ashore at ‘Awawamalu,
 Caught in the fishing net of the head fisherman,
 Your thigh bone and upper arm bone

Will be made into fishhooks,
To catch pāo‘o and ‘ōpakapaka,
Your flesh will be without bones,
The black crab, the shearwater will eat your remains,
The life from the parents will be broken off,
Here I am, the ‘aumakua kanaka,
Listen to my life-giving words,
Keawenuia‘umi, come ashore, a storm is coming,
When you sailed yesterday, it was calm.¹

After the winds of O‘ahu had been named, the kānaka were uncertain: they didn’t believe fully in the keiki’s words, yet they were afraid that the words might be right and that some of them might die at sea... (Nakuina 1992:42-44).

The tale continues, Pāka‘a urging Kūapāka‘a to call out the names of the winds of Kaua‘i; chant of the destruction to be caused by the wind; call out the names of the winds of Maui and Moloka‘i; and chant of terrible storms and rough seas. Pāka‘a had a plan of revenge that required the *ali‘i*, who had blackened his name to Keawenuia‘umi, go ashore. At that time, Pāka‘a would then be reunited with his *hānai* (provider). In the end, “Pāka‘a was victorious over his enemies who had come between him and his *hānai*. With the help of Kūapāka‘a, his keiki, Pāka‘a returned to enjoy the comforts and honors and carry out the responsibilities of an *ali‘i* of Hawai‘i” (Nakuina 1992:106).

According to Handy and Handy (1991), the gourd is a personification (*kino lau*) of Lono, the Hawaiian god of agriculture and fertility. “Lono is the gourd; the cosmic gourd is the heavens whence some winds, clouds, and rain” (Handy and Handy 1991:220). In a rite called the “Gourd Prayer” (*Pule Ipu*), a male child was blessed in order that he grow with the vigor of the gourd vine. Lines in the *Pule Ipu* refer to the gourd Lono-kui-kui, Lono-the-punisher, and his wife, Ka-papa-ia-kea, who bore him 12 children. They “dwelt in an underground cavern (*lua*), in which grew famous gourds (his children)...One of these gourd-children...was undoubtedly the great wind-gourd named La‘a-ma‘o-ma‘o. La‘a-ma‘o-ma‘o (Distant-La‘a), or Ka-ipu-makani-a-La‘a-ma‘o-ma‘o (the-wind-gourd-of-the-far-away-heavens-of-La‘a) was a name for the sky and its horizons whence come the winds and rains” (Handy and Handy 1991:219-220).

In consonance with the *mo‘olelo* of the Wind Gourd of La‘amaomao, there is only one named wind within the project area. It is the Ahumanu wind of Kahuku. “Ahu” (lit. to gather or collect) and “manu” (the general name for fowls or the feathered tribe) together literally mean bird gathering or gathering of birds (Andrews 1865; K. Cleghorn, personal communication 2015) suggesting that birds, and possibly bird hunting/gathering activities, were common in the area.

¹ One of the greatest fears of the *ali‘i* was the desecration of their bones by fishermen who used human bones to make fishhooks. The *mana* (spiritual power) of a person resided in the bones, and this *mana* could be passed on to descendants only if the bones were taken care of. (Thus Pāka‘a carries the bones of his grandmother La‘amaomao with him in his gourd.) Fishermen preferred the thigh bone and upper-arm bone for making hooks. If they were lucky enough to find a corpse at sea or washed ashore, they baked it in an *imu* and stripped off the flesh. Sometimes the flesh was used as bait to catch *niuhi* (tiger shark); or it could be left to scavengers, such as crabs and sea birds.

3.1.6 Mo'olelo of Kahuku, Keana, and Mālaekahana Ahupua'a

Each *ahupua'a* in which the Nā Pua Makani Wind Project lands are located has a traditional background from the pre-Contact era. Ancient *mo'olelo* for each *ahupua'a* helps to explain their traditional names, what kinds of natural resources were found within, what stories and mythological figures are associated with them, as well as the chronicles and conflicts may have occurred there. These facets of the cultural landscape help to provide a connection for modern day cultural practitioners to the land and their ancestors who dwelt in these *ahupua'a*. In addition, traditional *mo'olelo* about each *ahupua'a* is integral to understanding the cultural, historic, and spiritual significance of these lands.

Kahuku Ahupua'a

The name Kahuku appears to be used not only as the name of an *ahupua'a* and village, but as a district or place name for the area roughly between 'Ō'io and Keana Ahupua'a. Of the three *ahupua'a* represented in the project area, Kahuku has the most extensive traditional and mythological background.

Traditional accounts of natural resources and environmental conditions are relatively abundant for the *ahupua'a* of Kahuku. Traditional land use in Kahuku is also made apparent through legend. The landscape of Kahuku appears to have had several configurations, from the pre-European contact era to the present. During Hawaiian settlement prior to the arrival of Europeans, many parts of the landscape were used for traditional agriculture, habitation, and ceremony, varying from intense to moderate. In the early European Contact period, a good portion of the land lay fallow due to severe population decline and was overgrown in some areas with exotic plant species. Thus, there are several conflicting accounts of what the landscape was like and how it was used prior to European contact. Several themes are tied to Kahuku's landscape, including its abundance of *hala*, or pandanus, and its importance to ancient Kahuku's cultural identity.

Fresh water springs were mentioned in several traditional accounts of the Kahuku area. For instance, in the tale of Makanikeoe, the celebrated adventurer, Makanikeoe stopped at Punaho'olapa, "a deep spring on the plain of Kahuku," where he found the spring that the legendary *kapa* anvil fell into and ended up in Waipahu, at 'Ewa (Maly and Maly 2003:91). Subsequently, Makanikeoe "crawled along another path" arriving at another Kahuku spring known as Punamanō (ibid.). A lone rock here, Kū's Rock Spring, was said to give forth pure spring water (Sterling and Summers 1978:153). Further, Handy (1940:88), disclosed that a spring, referred to as Kaainapele Spring, was located *mauka* of the Kahuku Ranch house.

Agricultural terraces were also said to exist in northern Kahuku in the pre-European contact era, which was made possible with the presence of natural springs (Handy 1940:88). There is some debate, however, on the origin of these terraces, where some informants claim that the terraces pre-date European contact and were used in the late 19th Century by the Chinese for rice paddies and some claim that the terraces were built by the Chinese for this purpose (ibid.). On the district of Ko'olau Loa in general, Hall (1839) states that, "...much taro land now lies waste, because the diminished population of the district does not require its cultivation," which upholds the abandonment of taro patches in various locations in Ko'olau Loa due to population decline (as cited in Sterling and Summers 1978:148).

The presence of fish and fishing practices of pre-Contact Kahuku are recalled in legends. In the legend of Kaneaukai, as told by Thrum (1976:254) from April through July, schools of mullet, or *'anae-holo*, and surgeonfish, or *āa*, move from Maui to Waimea, passing by Kahuku. Further, in the tale, *Two Fish from Tahiti*, Westervelt (1915:138-140) alludes to *kapu* being placed on the catching and eating of certain species of reef fish associated with the Tahitians that fell victim to cannibalism in this story. The story of Punamanō Spring in Kahuku eludes to locals net fishing at the beach at night, which is telling of traditional fishing methods used in Kahuku (Sterling and Summers 1978:150). The story of Kūki'ō Pond holds that the pond was once much larger and had contained a variety of fish. This story suggests that these natural ponds were utilized as brackish water fish ponds in ancient times.

Numerous proverbs, prayers, and *mele* about Kahuku in general elude to its abundance of *hala*, or pandanus trees. Pukui (1983:248) recites the proverb, *Nani i ka hala ka 'ōiwi o Kahuku*, which translates to, "the body of Kahuku is beautified by hala trees." In Fornander's translation of the prayer of Kualī'i, Kahuku is described as a *hala* tree (Fornander 1917:28). Thrum (1919) also associates pandanus with Kahuku in his translation of Comparison of Kualī'i, in the following lines:

...Not like the paua [clam or abalone] which cuts the pandanus,
To weave its blossoms at the social gatherings,
That was the knife to cut Kahuku's pandanus.
[He is] Not like these.
(Thrum 1919:459)

This *mele* compares Kualī'i with a host of euphemisms that often call upon various localities and objects often associated with them. In a section titled: "Various Heathen Prayers," Fornander (1920:46-51) translates an untitled prayer with a line that states: "He hala o Kahuku..." which Fornander interprets as, "Full of pandanus is Kahuku..." (1920: 50). Intending to win back the affections of his wife, Halemano, composed a chant that referring to the *hala* trees of Kahuku, stating:

<i>Ku au nana I laila,</i>	I stood and gazed, then
<i>Haloiloi Kuu waimaka e uwe,</i>	Tears filled my eyes causing me to weep.
<i>Nani na hala ka oiwi o Kahuku,</i>	How beautiful are the hala, native trees of Kahuku.
<i>I ka lawe a ka makani he mikioi</i>	As they are being fanned by the Mikioi wind.
	(Elbert 1965:281)

Another tearful sentiment about the *hala* of Kahuku comes from the tragic tale of Kaopulupulu, who's failed prophecy sealed his death warrant in the time of Kahahana. According to Thrum (1912:210):

...In the morning, ascending a hill, they turned and looked back over the sea-spray of Wailua to the swimming halas of Kahuku beyond. Love for the place of his birth so overcame Kaopulupulu for a time that his tears flowed for that he should see it no more (as cited in Silva 1984:C-4).

Further, Apuakehau wrote in the Hawaiian newspaper, *Kuokoa*, in 1922 that "the first Kahuku" was covered by a *hala* grove (as cited in Sterling and Summers 1978:149). The association of *hala* with Kahuku is even repeated in the traditional Hawaiian myth of Pele and Hi'iaka (Silva 1984). In this portion of the myth, while Hi'iaka is in Kahuku (Kahipa), she rebukes two bad-mannered individuals, Puna-he'e-lapa and Pahi-pahi-alua, who did not pay her the proper respects by stating:

We enter the fragrant groves,
Hala groves whose heads make a calm,
Wild growths by the sea of Kahuku,
But what, indeed are your halas?
Shall their murmur forbid you speech?
Make you dumb to my salutation?
I make this kindly entreaty
To you who sit in the grove
(Emerson 1915:97-8 cited in Silva 1984:C-5).

Silva (1984) adds that Emerson (1915) gathered that there was some word play in the chant, where the word "*hala*" stood for the pandanus tree as well as a fault or a sin. As late as the late 1820s, Chamberlain holds that the Kahuku area was "beautified with lauhala and some other trees" in his manuscript, "Trip Around Oahu in 1826" (as cited in Sterling and Summers 1978:149).

The wearing of *hala*, in the form of plaited *lau* (leaves) *hala* or *leis* made of the *hala* fruit/seed was a way in which the people of Kahuku represented their homeland. In the tale of Kalelealuaka, the strong and brave young warrior who fought for King Kakuhihewa, went to Kahuku and fashioned wreaths of pandanus fruit and sugarcane to disguise himself. He then was able to convince the King's marshal, who was disabled, that he was from Kahuku and that he would carry the marshal to his destination. As a reward, the marshal granted Kalelealuaka the district of Ko'olau Loa for his services (Thrum 1976:100). Cummins (1913) also calls the Kahuku area as "land of the hala tree" and stated that people should not leave Kahuku for Waimea or Waialua without a wreath of Hala-fruit (as cited in Sterling and Summers 1978:149).

Kahuku was infamous for several other landmarks that stand out in Kahuku's cultural and physical landscape. Some legends explain the occurrence of these distinctive natural features, such as the tale relayed by Pukui et al. (1974:67) where, Lono-ka-'eho (Lono the stone), who is described as a chief with eight stone foreheads, severed Kahuku Point from the island. Emerson (1909) translates the verses of a *hula* that describes a few of these landmarks of Kahuku in a rather colorful way. He precludes the translation with the quip, "Whether there is any

connection between the name of the hula – breast-beating – and the expression in the first verse of the following mele is more than the author can say.” The verses for this *hula* are translated by Emerson into English as:

‘Tis Kahipa, with pendulous breasts;
How they swing to and fro, see-saw!
The teeth of Lani-wahine gape –
A truce to upper and lower jaw!
From Lihue we look upon Ewa;
There swam the monster, Miko-lo-lou,
His bowels torn out by Pa-pi’-o.
The shark was caught in grip of the hand.
Let each one stay himself with wild herbs,
And for comfort, turn his hungry eyes
To the rustling trees of Lei-walo.
Hark! The whistling-plover – her old-time seat,
As one climbs the hill from Echo-glen,
And cools his brow in the breeze.
(Emerson 1909:206)

Emerson goes on to say that, “The thread of interest that holds together the separate pictures composing this mele is slight. It will, perhaps, give to the whole a more definite meaning if we recognize that it is made up of snapshots at various objects and localities that presented themselves to one passing along the old road from Kahuku, on O‘ahu, to the high land which gave the tired traveler his first distant view of Honolulu before he entered the winding canyon of Moana-lua” (ibid.). He adds that Kahipa is the name of a fabled female character, which was then applied to a locality in Kahuku where the mountains resemble two female breasts. Further, he describes Lani-wahine as, “A benignant *mo‘o*, or water-nymph, sometimes taking the form of a woman, that is said to have haunted the lagoon of ‘Uko‘a, Waialua, O‘ahu” (ibid.).

Another tale of the distinguished promontory, referred to as Kalaeokahipa is as follows:

Nawai-o-lewa is on the northwest side of the rocky brow of Kalaeokahipa and now only one breast is left to move in the gusty winds of Kuhuku-lewa. The other was broken off by that supernatural son of Ku and Hina... Between Kalaeokahipa and Nawaiolewa, just above is a small round opening to a secret cave... The small secret cave belonged to Kaalae-huapi (Red head mud hen) and others in the first Kahuku that was covered by a hala grove (J.K. Apuakehau, Kuokoa, June 29, 1922 in Sterling and Summers 1978:152).

Sterling and Summers (1978:151-2) list numerous historic references to Kalaeokahipa, most enlisting the use of the word “breast(s)” to describe the peak(s).

Also of note are the harsh currents and surf of Kahuku’s coasts, which are mentioned in *The Birth Chant of Princess Bernice Pauahi Bishop*, as translated by Ahuena Taylor, which follows:

...Who builds the heat, the oven, until the long fires
Become like a wild sea.
From “Kama” to “Waialua.”
And comes close the head lands of “Kahuku,”

And the hawk-like scratching sea of "Kahuku,"
The night was spent at "Waialua,"
For a voice was at the sea of "Ewa."
Listening for the response.
Respond! Oh Heavenly one...
(Kanahele 2002: 223-226)

This chant lends a rather rough image to the coast of Kahuku.

Kamakau (1964) tells of a famous hiding cave, referred to as Pohukaina, thought to be a considerable distance *mauka* of the Turtle Bay Resort area. This cave, which had an entrance in Kahuku, is described by Kamakau:

The mountain peak of Konahuanui was the highest point of the ridgepole of this burial cave "house," which sloped toward Kahuku. Within the cave are pools of water, streams, creeks, and decorations by the hand of man (*hana kinohinoh'ia*), and in some places level land (Kamakau 1964:38).

The great cave of Pohukaina is also said have been the refuge and storage place of "much wealth" for O'ahu's chiefs (ibid.).

Although Kahuku lacked physical evidence of taro terraces along Kahuku Stream, informants interviewed by Handy and Handy in 1991 claimed that there was taro cultivation in ancient times (Handy and Handy 1991).

Hawaiian legend holds that Kahuku was once a floating island blown here and there by the trade winds and is recounted by many sources in several different ways. Pukui (1983) writes of the traditional proverb, *Kahuku 'āina lewa*, which translates as "Kahuku, an unstable land..." and later writes that, "O'ahu, according to legend, was once two islands that grew together. Kahuku is the part that bridges the gap" (Pukui 1983:144). Yet, there are many variations to this legend. In one version, the people of Kahuku grew tired of the moving island bumping against O'ahu, so they fastened Kahuku to O'ahu with fishhooks. McAllister (1933:155) retells this story in great detail:

A story is told that Kahuku was once a land afloat, wafted about by the winds, drifting over the ocean. Just how it came to Oahu is not told, but old Hawaiians point out to Polou, the place where Kahuku is fastened to Oahu. Formerly it was possible to dice into the pool and when a depth of 40 fathoms was reached, a shelf of rock was found upon which to rest. Forty fathoms deeper Punakea (white line from coral) was reached and on looking toward Malaekahana, the hook by which Kahuku was made fast could be seen. This hook was intricately fashioned of Kawila (*Alphitonia excelsior*). Seaward of the Waialeale Industrial School, in another pool of water, known as Kalou, is the spot where Kahuku is attached to Waialeale... (McAllister 1933:155).

In addition, when McAllister (1933) relays the story about Kāne and Kanaloa, one line repeats the common tale that Kahuku was not attached to O'ahu in ancient times, stating that "Kane and Kanaloa lived in the vicinity of the ridge (Kalaiokahipa ridge); but that was at the time

when the Kahuku plain was still under water, and the waves lapped about Kalaiokahipa” (as cited by Wong-Smith 1989:A-2).

Silva (1984) lists several stories of how Kahuku was reattached to O‘ahu. One colorful account holds that the floating island of Kahuku belonged to the *menehune*, stating as follows:

Ka-hu-ku section of O‘ahu was once a separate island...It was an islet whose people were the Mene-hune, or Dwarfs as they are called today. Many stories are told about the miraculous feats performed by the Little People of ancient Hawai‘i. It is known, that they always worked from just after sunset until just before dawn.

Legend tells us that Kahuku was a floating island situated several miles out to sea. For a long time, the people of O‘ahu had planned to make the island part of their land, for they saw it come close to O‘ahu’s shores. The floating island of the Menehune did not have any fresh water springs because there were no high mountains covered with verdure and trees to capture the rains. So, the Little Folk used to paddle their islet into the bays of O‘ahu at night to haul water from the springs of the large island.

One day, a resident of Kahuku suggested that all the people gather together to make strong hooks of whalebone and attach them to a stout rope made of sacred olonā fibers. This was done.

The Menehune came to take water as usual, then the residents of O‘ahu attached the large hooks to the floating isle while the Menehune started to paddle off again, but they could not move their islet or free it from the ivory hooks and olonā ropes.

Today, many people who travel Kahuku section of O‘ahu and see the many islets seeming to float off shore, and hear the sea singing its songs, they say, ‘Listen to the Menehune grumbling while they try to move their island that used to float!’

The rumbling and grumbling is heard only at night, for that is the time for the Menehune to be working at Kahuku. (Paki 1972:53 as cited in Silva 1984:2-3)

Another account of Kahuku being an island was provided by Silva (1984), which also links the locality with a legendary princess, named Lā‘ieikawai, and reads as follows:

Kahuku District, according to legend, was once a floating island blown about by the winds. As it banged against O‘ahu, it made noises which disturbed the old women guarding the princess Laieikawai. The old women grappled the island with fishhooks and attached it securely to O‘ahu. Polou pool on the sea side of the Kahuku mill is one spot where the hook was fastened. The other end was fastened at Kūki‘o pond 300 feet inland at Kahuku Point (Boswell 1958:68 as cited in Silva 1984:2).

Other versions provide a political motive for uniting the two islands. A portion of the tale of “The Hole of Kahipa and Nawaiuolewa” was told to Mary Pukui by a one-hundred and five year old woman named, Kanui, who described how two ruling chiefs united Kahuku with O‘ahu. In this tale, “the two were brother and sister. In order to make it one, the two sat down and hooked their fingers together and drew them together. The hole marks the place where

they sat (Kamakau Part II, Moololo o Hawaii, Note 4, Chap 12, as cited by Sterling and Summers 1978:151). Kamakau (1991:38-9) holds that O‘ahu was a floating island, rather than Kahuku. However there are some consistencies with the previously mentioned versions. He writes:

According to traditions of some people, O‘ahu was said to have once been a floating land, *he ‘āina lewa o O‘ahu*. The Kahuku side was a wide open gap (*puka hāmama*) and this was called *Ka Puka o Kahipa a me Nawaiuolewa*, “The opening of Kahipa and Nawaiuolewa.” The piece of land that closed it up was called Kahuku, and the hooks that made fast the piece of land and joined it to the island were called Kilou and Polou (Kamakau 1991:38-39).

Another variation of the story told holds that there was an underground canal or tunnel where the two islands joined. In 1828, Levi Chamberlain, a missionary accountant, tells of a 5-7 mile long by 1-2 mile wide underground canal leading from the sea inland at the convergence of the two islands (Chamberlain 1957:35-36). He reiterated the following in regards to this legend:

The natives tell a marvelous story respecting the origin of this district [sic], which they say floated in from the sea, and attached itself to the ancient shore of the island, that there was a subterranean communication between the sea and the ancient shore, by which a shark used to pass, and make depredations up on the land. The basis of the tract, which is from five to seven miles in length, and from one to two miles in breadth, appears to be of coral; and it was evidently redeemed from the sea, as a good deal of land, in many places along the shore around the whole circuit of the island, evidently has been (Chamberlain 1957:35-6).

McAllister (1933) relays a story about a secret underwater passage way marked by two stones off of Kahuku Point that led to another land referred to as Ulukaa or Kahuna Moku. The story is as follows:

Two stones known as Kahoa in water about 250 ft. from the beach just opposite from Kalaehila heiau, Kahuku Point. Many years ago a woman who lived on this beach was frequently seen to swim to these stones and disappear. At times she would be gone for as much as a week. Sometimes she was seen to put her clothes in a watertight calabash and swim away. When she returned she usually wore a kou lei. It was finally discovered that this was the entrance to another land, known as Ulukaa or Kahuna Moku (as cited by Silva 1984:A-5).

The theme of an underground canal is echoed in Thrum’s (1911) “Legend of the Tapa Log,” which largely takes place in Punahoolapa Marsh, located in the southeast corner of the Turtle Bay Resort property and currently a wildlife preserve. Thrum’s story is as follows:

A kapa-beating log of peculiar sound, unlike any other known on the island, which was placed in its waters at the close of the kapa-making season to keep it smooth and free from cracks that would impart an impression to the cloth in its manufacture, was missed, and, believing it to have been stolen, search was made all through the Koolau, Waialua and other districts ‘til at last it was found in use at Waipahu. Recognizing it by its resonant tone, it was claimed by the searching owner, and right thereto by those in possession was vigorously maintained. To test the truth of ownership as claimed, the ‘Ewa people accompanied the

claimant back to Kahuku to visit the scene and witness a test of the underground stream theory. A bundle of ti leaves were gathered, which was wrapped together and consigned to the waters of Punahoolapa. In the course of a few days they were lost to sight, whereupon the party set out for 'Ewa, and after careful watching, as predicted, the bundle of ti leaves came forth on the bosom of the waters of the Waipahu stream. The kapa log was thereupon recognized as the rightful property of the Kahuku claimant (Thrum 1911:130 as cited in Sterling and Summers 1978:149).

Associated with Kahuku's underground canal are several legends of man-eating sharks, where a shark once traversed to consume people (Chamberlain 1957:35-36). In Handy (1922:111), Manō-niho-kahi (shark with one tooth) is a man who had the power to shape-shift into a shark. This version of the tale presents him as normal looking, except for the shark mouth on his back that he always covered with a cloak of *tapa*. When Manō-niho-kahi found out that people, specifically women, were going to the sea to fish or collect *limu*, he would rush out to where they were and bite them with his single shark tooth, killing them. When the killings became too regular, the chief of the region and his *kahuna* gathered all of his people and ordered them all to disrobe. When Manō-niho-kahi refused to take off his *tapa* cloak, he was stripped, revealing the shark mouth on his back. At once, he was put to death, ending the streak of deaths of women in those waters. Another, albeit less gruesome, tale about man-eating sharks associated with Kahuku is told by McAllister (1933), where a shark was caught and kept as a pet in Punamanō marsh, which is located just east of Turtle Bay Resort lands. The story, as reiterated from an informant's testimony is as follows:

One time when the people of Kahuku were fishing they caught a small shark. Putting him in a calabash of water they carried him to their houses near the beach. Here he was cared for and put in larger and larger calabashes as he grew bigger. Finally haven outgrown even the largest calabash that could be found, it was decided to place him in one of the pools of brackish water which came to be known as Punamanō. A man and woman living near the pool became guardians. They had lived in their grass huts with a breadfruit tree near the pool and taro and potato patches near the mountains for several years when the brother of the woman came to live with them. Sometime after, the man and his wife went to the mountains to gather taro and potatoes. The brother, who was staying at home, thought that he would like to have some food prepared when the sister and her husband returned. He climbed the breadfruit tree and gathered several, throwing the fruit into the water instead of on the ground, where it would have been bruised in the fall. After picking enough for a few days he descended the tree and gathered most of the fruits from the bank. Two had floated to the middle of the pond and he could not reach them. Now this man knew of the shark that lived in the pool, but he had frequently bathed in the pool and no thought of fear crossed his mind as he swam to the breadfruit. He did not know, however, that his sister and her husband had warned the shark not to allow anyone to steal breadfruit when they were gone. When the sister and her husband returned they could not find brother. Neither was the shark to be found, but they saw the breadfruit floating in the pool and the reddish color to the water. They guessed what had occurred. For nearly a mile they followed the bloody trail until they came to a spring known as Punahoolapa. Not only was the brother never seen, but the shark has never been seen to this day (as cited in Wong-Smith 1989:A-7).

In this case, it appears that the shark was simply looking out for its keeper's interests. Kuapuu (1861) wrote a very similar account of the Punamanō man-eating shark in the *Ka Hae Hawaii* newspaper (as cited in Sterling and Summers 1978:151).

Other supernatural beings and demigods associated with Kahuku are mentioned in Beckwith (1940). On a quest to find his brother, Lono-ka-ehu brought his "great dog" or the dog-man, Kū-'ilio-loa (Kū long dog), to O'ahu from Kahiki. In the search, Kū-'ilio-loa "pierced the hill Kāne-hoa-lani at Kualoa, cleft Kahuku and Kahipa apart, and broke Ka-pali-ho'oku'i at Kailua" according to Beckwith (1940:321). She later describes Kū-'ilio-loa as "a dog with a human body and supernatural power, 'a great soldier and famous warrior,' who terrorizes Kahiki" (Beckwith 1940:321).

Kahuku is also a place where the manifestation of ancient *kapu* law had become a permanent part of the landscape in the form of two stone outcrops. According to Beckwith (1970:48), Kamakau mentioned the story of two stones in the cave of Ke-ana at Kahuku that are said to be the bodies of two boys who disobeyed their mother's injunction to keep silence during a thunderstorm. Kāne-hekili, the god of thunder, is associated with several gods whose names are also suggestive of the phenomenon experienced during thunderstorms, such as Kāne-wawahi-lani (Kāne breaking through heaven) and Ka-uila-nui-maka-keha'i-i-ka-lani (Lightning flashing in the heavens). The gods in their humpbacked forms can be seen flying through the air during storms with Na-kolo-i-lani, who are the humpbacked brothers of Pele. According to the ancient *kapu* laws, all containers should be turned bottom side up and people should lie face down without any outcry, for silence is the law of Kāne-hekili (Beckwith 1970:48).

Another well known *mo'olelo* is the Legend of Kamapua'a, a supernatural being and a deity attributed to agriculture, rain, and fertility (Elbert 1965:200-1; Maly and Maly 2003:9). While he had the ability to shape-shift into multiple bodily forms (*kino lau*), Kamapua'a was most noted for his pig-like appearance. In one of his many exploits, Kamapua'a was caught stealing chickens from Olopana, the head chief of O'ahu at the time. To catch Kamapua'a, Olopana enlisted the residents of Kahuku, who capture him, bind him to a pole, and carry him towards Punalu'u. Upon seeing this, his grandmother, Kamaunuaniho, recited a chant that gave him the power to kill the captors from Kahuku.

In *The Hawaiian Romance of Laieikawai*, the people of Waianae on O'ahu offered their version of the story, which mentions the high chief who ruled Kahuku named, Kaho'ali'i. In this account, Kaho'ali'i instructs his son to, "Fly about O'ahu while I chew the 'awa; before I have emptied it into the cup return to me and rehearse to me all that you have seen" (Beckwith 1918:30). The tale goes on to list the places his son passed on his journey. Further, Kahuku is mentioned in the chant of Kuali'i as one of the major landmarks of O'ahu for those travelling to the island from Kaua'i (Beckwith 1918:30).

In the tale, *Two Fish from Tahiti*, Westervelt (1915:142-144) recounts two great canoes filled with men from Tahiti, referred to as two "fish," journeyed to O'ahu. The purpose of the journey was to "find the wonderful fire-land of Hawaii about which they had been taught in the stories of returned travelers..." and "...find an appropriate location for a settlement. Possibly they planned to make a permanent home or hoped to meet some good community into which they might be absorbed" (Westervelt 1915:140). Upon their arrival on the shores of Makapu'u, the

travelers found an “unfriendly coast” and decided to separate and circle the island, with one canoe going north and one going south. Westervelt continues:

The boat which sailed toward the north found no good resting-place until it came to the fishing-village of Hauula...Evidently there, was dissension and at last a battle. The whole story is summed up by the Hawaiian legend in the saying: “The fish from Tahiti was caught by the fishermen of Hauula. They killed it and cut it up into pieces for food.” Thus the visitors found death instead of friendship, and cannibalism was thereby veiled by calling the victims “fish” and the victory a “catch...”

...The second fish from Tahiti had gone on southward in its journey around the island of Oahu. It passed the rough and desolate craters of Koko Head on the eastern end of the island. It swam by Diamond Head and the beautiful Waikiki Beach. Either the number of the inhabitants was so large that they were afraid to make any stay or else they preferred to make the complete circuit of the island before locating, for they evidently made only a very short stay wherever they landed, and then hurried on their journey. By the time they reached Kaena, the northwestern cape of Oahu, they were evidently anxious concerning their missing companions. Not a boat on the miles of water between Kaena and Kahuku, the most northerly point on the island. The legend says that the fish changed itself into a man and went inland to search the coast for its friend, but the search was unsuccessful. It was now a weary journey from point to point, watching the sea and exploring all the spots on the beach where it seemed as if there was any prospect of finding a trace of their expected friends. Where a break in the coral reef permitted their boat to approach the land they forced their way to shore. Then when the thorough search failed again, the boat was pushed out over the line of white in rolling breakers to the great sea until at last the Tahitians came to Kahuku.

Now they appeared no longer as “fish,” but went to the village at Kahuku as men. They made themselves at home among the people and were invited to a great feast. They heard the story of a battle with a great fish at Hauula and the capture of the monster. They heard how it had been cut up and its fragments widely distributed among the villages on the northwest coast. Evidently provision had been made for several great feasts. The people of Kahuku, although several miles distant from Hauula, had received their portion. The friendly strangers must share this great gift with them. But the men from Tahiti with heavy hearts recognized the fragments as a part of their companion. They could not partake of the feast, but by kindness and strategy they managed not only to decline the invitation, but also to secure some portions of the flesh to carry down to the sea. These were thrown into the water, and immediately came to life. They had the color of blood as a reminder of the death from which they had been reclaimed. Ever after they bore the name “Hilu-ula,” or “the red Hilu.”

Then the “fish” from Tahiti went on around to Hauula. They went up to the tabu land back of Hauula. They pulled up the tabu flags. Then they dammed up the waters of the valley above the village until there was sufficient for a mighty flood. The storms from the heavy clouds drove the people into their homes. Then the Tahitians opened the flood-gates of their mountain reservoir and let the irresistible waters down upon the village. The houses and their inhabitants were swept into the sea and destroyed. Thus vengeance came upon the cannibals.

The Tahitians were “fish,” therefore they went back into the ocean to swim around the islands. Sometimes they came near enough to the haunts of fishermen to be taken for food. They bear the name “hilu.” But there are two varieties. The red hilu is cooked and eaten, but never eaten without having felt the power of fire. The trace of the cannibal feast is always over its flesh. Therefore it has to be removed by purification of the flames over which it is prepared for food. The blue hilu, the natives say, is salted and eaten uncooked. Thus the legend says the two fish came from Tahiti, and thus they became the origin of some of the beautiful fish whose colors flash like the rainbow through the clear waters of Hawaii (ibid.:142-144).

This account calls attention to the political control of resources, *kapu* systems, variations in conduct with outsiders as well as warfare and cannibalism in pre-European contact Kahuku and Hau‘ula.

Keana Ahupua‘a

Few traditional legends mention Keana Ahupua‘a specifically. One of which is the section of the Pele and Hi‘iaka legend, where Hi‘iaka passes through Lā‘ie, Mālaekahana, and Keana to make her way to Kahuku (Emerson 1915:233). However, there are a number of traditional sites associated with legendary stories in the *ahupua‘a*.

For example, two large stones in the Keana Cave or Rock Shelter (Site No. -270) are said to be the remains of two boys who failed to follow their mother’s orders to stay silence during a thunderstorm, which was the *kapu* (law) of the god of thunder, Kane-hekili (Beckwith 1940:48). According to Beckwith (1940:48) “During such a storm all containers should be turned bottom side up; all persons should lie face down-ward and make no outcry.” Emerson’s (1915) rendition of this tale is as follows:

In Kahuku, island of Oahu, at a place not far from the sugar-mill, is a cave, known as Keana. In former times this cave was the home where lived a mother and her two sons. One day, having occasion to journey to a distance, she left them with this injunction, “If during my absence you hear the sound of thunder, keep still, make no disturbance, don’t utter a word. If you do it will be your death.” During her absence, there sprang up a violent storm of thunder and lightning, and the young lads made an outcry of alarm. Thereupon a thunderbolt struck them dead, turning their bodies into stone. Two pillar-shaped stones standing at the mouth of the cave are to this day pointed out in confirmation of the truth of the legend (Emerson 1915:233).

Additionally, Pōlou (Site No. -271), which was described by McAllister (1933) as once being, “a pool of water, sea side of the Kahuku mill,” was located in Keana Ahupua‘a. This was said by some *kūpuna* to be the place where the “floating island” of Kahuku attached to the Island of O‘ahu. It was also said to be the location of a “stone” known as Kanaloa (ibid).

Mālaekahana Ahupua‘a

Several legendary stories reference Mālaekahana as a locality, and the name itself is shared with a great heroin of ancient myth and the mother of Lā‘ie-i-ka-wai and her twin sister,

Lā'ielohelohe. In the story of Lā'ie-i-ka-wai, Beckwith (1940:526-527) describes the nature of the twin's birth, betrothals, and trials in finding the right suitor:

Laie-i-ka-wai and her twin sister Laie-lohelohe are born at Laie on Oahu of Kahauokapaka the father, chief of the northern lands of the island, and Malaekahana the mother. Since the father has vowed to let no daughter born to his wife live until she bears him a son, the mother conceals the birth of the twins and gives them to her own relatives to rear, Laie-lohelohe to Ka-puka-i-haoa to bring up at the heiau at Ku-kani-loko, and Laie-i-ka-wai to Waka, who first hides her in a cave near Laie which can be reached only by diving into the pool which conceals the entrance, and then takes her to the uplands of Puna. Here she builds a tapu house for her ward thatched with bird feathers, and gives her birds to wait upon her and mists to hide her from the sight of men until such time as a suitable lover shall appear to make her his wife.

The first whose suit seems acceptable is Kauakahi-ali'i, ruling chief of Kauai and husband of Ka-ili-o-ka-lau-o-ke-koa (Skin like the leaf of the koa). The reappearance of his wife whom he had mourned for dead prevents the appointed meeting, but on his return to Kauai he relates the adventure and the young chiefs of that island are stirred by the story. Aiwohikupua meets her nightly in dream and goes to woo her, but even the presence of his four sweet-scented kupua sisters, named after the four varieties of maile vine whose scent they inherit, cannot shake her refusal. Enraged by the insult, he abandons the sisters in the forest. His fifth and favorite sister, Ka-hala-o-mapuana (The fragrant hala blossom) refuses to abandon them. Through her clever management she attracts the attention of Laie-i-ka-wai and the five are adopted as sisters and made the guardians of Paliuli. They drive off their brother upon his second attempt to win the chiefess, and a guardian mo'o named Kiha-nui-lulu-moku (Great mo'o shaking the island) completes his discomfiture. Another and more favored young chief from Kauai named Hauailike is also expelled by the watchful youngest sister.

Waka now arranges a match with Ke-kalukalu-o-ke-wa, younger brother of Ka-ili-o-ka-lau-o-ke-koa and successor with her to Kauakahi as ruling chief of Kauai. Just as the formal marriage (hoao) is about to be consummated, a young rascal from Puna named Hala-aniani, aided by his sorceress sister, carries her off on his surfboard in place of the legitimate lover. Waka finds them sleeping together and abandons the girl in a rage, stripping her of mist and bird guardians and of the house thatched with feathers whose protection her loose conduct has forfeited. The five sisters and the great mo'o, however, refuse to abandon their mistress. Since the Kauai chief has made her twin sister Laie-lohelohe his wife in place of their disgraced mistress, they determine to retrieve her fortunes by providing a more splendid match, and the clever youngest sister is despatched, with the great mo'o as carrier, to fetch their oldest brother who lives as a god in a tapu house in the very center of the sun in the highest heavens. While she is away on this errand the group leave Paliuli and travel about the island and, meeting an old family guardian and seer named Hulu-maniani, make their home with him as adopted daughters at Honopuwai-akua on Kauai. Throughout the course of the story this old seer (kaula) has been following around the islands after the rainbow sign which hovers over the place where Laie-i-ka-wai is hidden, determined to make this new divinity his chief and thus provide for his own old age.

Ka-onohi-o-ka-la (Eyeball of the sun) looks favorably upon his sister's proposal and, putting off his nature as a god, he descends to earth, strips the enemies of Laie-i-ka-wai of their lands and power and, leaving Ke-kalukalu-o-ke-wa and the twin sister rulers over Kauai, gives to each of the sisters rule over one of the other islands of the group and takes Laie-i-ka-wai up on a rainbow to live with him in Ka-hakaekaea. All goes well until, on one of his visits to earth to see that all goes well there, he notices the budding beauty of his sister-in-law. He presses his attentions and succeeds in securing her. His wife in the heavens wonders what important affairs keep him so long on earth. In the temple at Kahakaekaea stands the gourd Lau-ka-palili which reveals to one who looks within what is going on below. Laie-ika-wai discovers her husband's infidelity and reports him to his parents, who live with her in the heavens. They banish him to become a wandering spirit, the first lapu (ghost) in Hawaii. Laie-i-ka-wai returns to earth and lives like a god with her sister. Today she is worshiped as Ka-wahine-o-ka-liula (Lady of the twilight, mist, or mirage) (Beckwith 1940: 526-527).

Another fable that takes place in primarily in Mālaekahana Ahupua‘a area is that of “Manuwahi: A Legend of Oahu” in *Hawaiian Legends* (Rice 1923), which is told as follows:

At Laie lived Manuwahi, Free Gift, with his son, Ka haku loa, The-Lord-of-a-Long-Land; his grandson, Kaiawa, Bitter Sea, and his great-grandson Kauhalekua The-Village-on-the-Ridge. These men were the keepers of the akua at Laie.

Manuwahi and his children were hairless and were possessed of supernatural powers.

Manuwahi planted black and white area far up in the mountains for the use of the akua. Every awa root planted was given one of these names, Kaluaka, The-Hole-That-Gives-a-Shadow; Kumumu, Blunt-Edged; Kahiwa, Best-Awa, or Kumilipo, The-Root-of-Unconsciousness. This was done so [that] Manuwahi, when sending one of his sons for a piece of awa could designate the exact one he wished.

When the awa a was given to him, Manuwahi would prepare it, and then summon the akua from the North, South, East, and West, as well as from above and below, to drink of it. They prayed in this wise, before they drank:

Gods of the Morning,
Gods of the Night,
Look at your progeny:
Grant them health,
Grant them long life;
Amama ua noa - it is free!

It happened that during this time Kamehameha I had come to conquer Oahu. He had succeeded in subduing all the island except Malae-kahana, between Laie and Kahuku. Determined to add this place to his conquests, the king sent one of his body guard, Ka-hala-iu, In-the-Shadow-of-the-Hala-Tree, with many of his bravest soldiers to subdue Malae-kahana.

Ka-hala-iu marched as far as Hanapepe the first day, where he spent the night. Early the next morning he set out and meeting Manuwahi, whom he did not recognize, asked him where the powerful kahuna of Malae kahana lived.

Manuwahi answered, "Pass over the river and you will see a spring and nearby a hut with trees about it. This is his home."

Ka-hala-iu did as he was told and had soon surrounded the hut with his soldiers. When Manuwahi's son came out Ka-hala-iu asked him, "Where is your father?"

"Did you meet a bald headed man?" asked the boy in turn.

"Yes," replied Ka-hala-iu.

"Well, that was my father. Why did you come here?"

"I came to kill your father by the orders of King Kamehameha," answered the King's man. Deciding it would profit them nothing to kill the son, the soldiers departed for Hanapepe by the makai side of the hill, and failed to meet Manuwahi, who had returned to his home by the mauka side.

The next morning the King's body-guard again surrounded with his soldiers the home of the kahuna. Manuwahi came out and asked, "What are you here for? Did you come for battle?"

"Yes," answered the fearless soldier, "We came to kill you."

Whereupon Manuwahi called to his assistance all the akua from the North, South, East and West as well as those from above and below. They came at once and gave battle to the soldiers of the king. The akua fought by biting and scratching their assailants and before long they had killed all but Ka-hala-iu.

Ka-hala-iu cried out, "Spare my life, kahuna of the gods, and I will stay with you."

"What can you do if you stay with me?" asked Manuwahi.

"I will plant awa for you. I came from Hawaii, where I lived by planting awa," answered Ka-hala-iu.

But Manuwahi said, "I do not need you. Go back and tell your king that even his bravest soldiers were not able to conquer Malae-kahana. Tell him that all but you were killed by the akua there."

When Kamehameha had heard these words he sent Ka-hala-iu back with another body of soldiers with orders that he must conquer Malae-kahana.

In the meantime, Manuwahi had moved with his sons up to the cave of Kaukana-leau, where the natives made their stone adzes. There the King's soldiers met them. As before, Manuwahi called all the akua to his aid. Again the soldiers were quickly put to death and only Ka-hala-iu was left. So Malae-kahana was not conquered.

Ka-hala-iu respected and admired Manuwahi so much that he was very anxious to remain with him, and so he asked again to be allowed to remain as an awa grower. Manuwahi consented this time and gave him one side of the valley to cultivate in awa.

One day as Ka-hala-iu was preparing the side hill for its cultivation. He noticed that on the opposite side of the valley, trees and bushes were falling in every

direction, as if a whirlwind were uprooting them. This frightened him very much, as he could not understand the phenomenon, so he ran in great haste to Manuwahi, and asked what it meant. Manuwahi told him that his akua were helping in the clearing of the side hill, and that if he wished them to help him they would gladly do so. Ka-hala-iu was only too happy to have help so he called upon the akua, and in a short time both sides of the valley were cleared, and were growing luxuriantly with the most beautiful awa.

After the battle, between Ka-hala-iu and the akua for the possession of Malae-kahana, Manu-ka, Frightener-of-Birds, one of Manuwahi's sons, moved to Kaneohe, where he died some time later. He was buried makai of the present road. The natives dug a very large grave but before they could cover the body the akua brought red dirt from Ewa, in a cloud, which filled the grave, and made a red hill above it, which can be seen to this day. There is no other red dirt in that district (Rice 1923:113-115).

In Fornander's (1920) "Legend of Halemano," the hero, Halemano, passed through the area, mentioning Kahuku and Mālaekahana. In this story, Halemano's companion, Kumukahi, arrived at Hauula after they fled Hawai'i and so admired an upright image, named Mālaekahana, that he decided to stay in the area while the rest of his party continued on (Fornander 1920:236). It is possible that the statue was created in the likeness of its heroin namesake. The site of this statue may have been McAllister's Site No. -273, which is described as the *kauahale*, or house, foundation that once belonged to the *kahuna* (priest/sorcerer), Manuwahi, who was the keeper of the god of Mālaekahana (Sterling and Summers 1978:154). This site was located just within southern boundary of Mālaekahana Ahupua'a, near the present day entrance to the Mālaekahana State Recreation Area, which is approximately 1.5 kilometers southeast of the project area.

Mālaekahana is also associated with one of the many legends of shark gods. In this tale, Manō-niho-kahi (Shark with one tooth), resides near a spring in Mālaekahana located somewhere between Lā'ie and Kahuku, perhaps Wai'āpuka (Site No. -275). When Manō-niho-kahi spies a woman going to gather fish or *limu* (seaweed) from the ocean, he tells her to be wary of sharks, before attacking and killing her himself (Beckwith 1940:142). Subsequently, the chief detected Manō-niho-kahi out of a line-up of villagers when his tapa cloak is removed, revealing the mark of the shark's mouth on his back.

Wai'āpuka (Site No. -275), located in the *kula* of Mālaekahana, is noted in 1888 by King David Kalākaua in his book, *The Legends and Myths of Hawaii*, as a significant feature of Mālaekahana's landscape as well as an important locale in "The Story of Laieikawai." He iterates the acts of Waka, Laieikawai's grandmother, who provided the infant Laieikawai sanctuary from her father's wrath for not being born male, as follows:

In his absence she was delivered of twin girls, who were named Laieikawai and Laielohelohe. They were surpassingly beautiful children, and, desirous of saving their lives, the mother consigned the first-named to the care of Waka, the child's grandmother, and the other to Kapukaihaoa, a priest of discretion and sanctity.

On the return of the husband he was told that the expected child came into the world without life. He knew that a birth in his house had occurred during his absence, for he had heard two distinct claps of thunder.

Waka took her foster-child to the cavern which opens into the pond of Waiapuka, and which can be entered only by diving. Laielohelohe was taken by her priestly protector to the sacred enclosure of Kukaniloko, on the western side of the island, and there tenderly cared for.

The moment Waka entered the cavern of Waiapuka with Laieikawai a rainbow appeared over the place, and was constantly visible so long as the child remained there. Even when the sun was obscured by clouds the rainbow could be seen.

At length the rainbow was observed by the great prophet Hulumaniani on the distant island of Kauai. For twenty days in succession he saw it, and knew its significance. He secured a canoe and fifteen men from Poloula, the chief of Wailua, provided himself with a black pig, white fowl and red fish for sacrifice, and, when the star Sirius rose, set sail for Oahu.

Reaching that island he landed at Waianae, and, guided by the rainbow, in due time arrived at the pool of Waiapuka.

Waka had just dived into the cave, and he noticed ripples on the water. During the day Waka started to leave the cavern, but caught a glimpse of the prophet sitting on the bank, and quickly returned, again ruffling the water.

The prophet remained by the pool all night, and in the morning saw a rainbow over Kukaniloko. Traveling in that direction, he ascended Mount Kaala, when he saw the rainbow over the island of Molokai. Finding a canoe bound thither, he took passage and landed at Haleolono, near the western shore.

In a dream Waka had been directed by Kapukaihaoa to remove Laieikawai to some securer place, and had accordingly taken her to Malelewaa, a secluded spot on the north side of Molokai (Kalākaua 1990:457-458).

Another mythical tale attributed to Mālaekahana Ahupua‘a concerns Laniloa, which the name given to a point of land that extends *makai* from Lā‘ie. According to Rice (1923) this legend, referred to as *Laniloa, The Mo‘o*, this point was said to have been a *mo‘o*, or a standing lizard in this case. Rice (1923) holds that this *mo‘o* was ready at any time to kill passersby. In Rice’s version of the legend, he states:

After Kana and his brother had rescued their mother from Molokai and had taken her back to Hawaii, Kana set out on a journey around the islands to kill all the mo-o. In due time he reached Laie, where the mo-o was killing many people. Kana had no difficulty in destroying this monster. Taking its head, he cut it into five pieces and threw them into the sea, where they can be seen today as the five small islands lying off Malae-kahana: Malualai, Keauakaluapaaa, Pulemoku, Mokuaaniwa and Kihewamoku.

At the spot where Kana severed the head of the mo-o is a deep hole which even to this day has never been fathomed (Rice 1923:112).

One might speculate that this “deep hole” is the legendary site, Wai‘āpuka (Site No. -275).

3.2 EUROPEAN CONTACT

At European Contact and shortly thereafter, the general Kahuku area was commented on by several maritime officials, with observations that point to a drastic change in land use from initial contact in the mid-1780s to the mid-1830s.

Approximately two weeks after the death of British Captain James Cook, Charles Clerke took over the helm of the H.M.S. Resolution. As the ship rounded the northern point of O‘ahu, Captain Clerke provided the first post-Contact account of the Kahuku area. Clerke wrote on February 28, 1779:

SUNDAY 28th. . . Winds Eterly [Easterly]. fresh breezes with open Cloudy Weather. Run round the Noern [Northern] Extreme of the Isle which terminates in a low Point rather projecting; off it lay a ledge of rocks extending a full Mile into the Sea, many of them above the surface of the Water; the Country in this neighborhood is exceedingly fine and fertile; here is a large Village, in the midst of it is run up a high Pyramid doubtlessly part of a Morai. I stood into a Bay just to the Westward of this point the Eastern Shore of which was far the most beautifull [sic] Country we have yet seen among these Isles, here was a fine expanse of Low Land bounteously cloath’d with Verdure, on which were situated many large Villages and extensive plantations; at the Water side it terminated in a fine sloping, sandy Beach. . . (Beaglehole 1967:I:572 in Silva 1984:C-10).

This description paints a pleasant picture of the Kahuku area, with a thriving community and large ceremonial structures. At about the same period, H.M.S. Resolution Lieutenant, James King, described this northern tip of O‘ahu, writing:

WOA‘HOO. . . We saw this Island the beginning of last year, but only just as a high lump, We this Time sailed along its NE & NW sides but say nothing of its Soern [Southern] part. What we did see of this Island was by far the most beautiful country of any in the Groupe; particularly the Neck that Stretches to the No ward [Northward] and its NW side. Nothing could exceed the verdure of the hills, nor the Variety which the face of the Country display’d. It /s north-eastern/ parts were cliffy, & rugg’d to the Sea side, but the Valley look’d exceedingly pleasant, near the

N point we were charmed with the narrow border full of Villages, & and Moderate hills that rose behind them (Beaglehole 1967:I:610 in Silva 1984:C-10-11).

This is yet another testimony to the beauty and lushness North Shore during the early Contact period. In contrast, Captain George Vancouver visited the northern tip of O‘ahu later in 1794, discovering that the Kahuku coast had significantly changed in terms of cultivation and population, writing:

...In every other respect our examination confirmed the remark of Capt. King excepting that in point of cultivation or fertility, the country did not appear in so flourishing a state, nor to be so numerously inhabited, as he represented it to

have been at that time, occasioned most probably by the constant hostilities that had existed since that period (Vancouver 1798, Vol.3:71).

Wong-Smith (1989) suggests that regular hostilities and the scourge of Western diseases caused the severe decline of the Hawaiian population in Kahuku. It was likely Captain Cook's 1778 expedition that brought venereal disease to Hawai'i and spread rapidly between the initial and secondary contact events (Kuykendall 1938; Beaglehole 1967; Lind 1968; Schmitt 1968, 1971). By the time the first missionaries conducted a census of the islands in the early 1820s, they estimated that the entire population had been reduced by nearly a third (Schmitt 1968:10 in Wong-Smith 1989:A-10). This population crash created a wasteland out of the once verdant fields and lively villages of Kahuku.

3.3 HISTORIC ERA

The focus of this section will remain on events that greatly shaped the modern character of Kahuku, Keana, and Mālaekahana Ahupua'a as well as any occurrences that help paint a picture of what Hawaiian cultural practices were like during this period.

3.3.1 Western Observations

Many accounts of the Kahuku, Keana, and Mālaekahana area's early historic era were provided by missionaries. According to missionary censuses from the 1830s suggests that the area had severe declines during this time (Schmitt 1968). Ko'olau Loa's population in 1831 was 2,891 with 452 living in Lā'ie. Wong-Smith (1989:A-10) notes that "a population loss of 210 for the entire district occurred between 1831 and 1835." This population decline affected the extent of traditional agriculture in the area. In the early 1830s, E.O. Hall, of the American Board of Missions, stated in regards to Ko'olau Loa, "Much taro land now lies waste, because the diminished population of the district does not require its cultivation" (as cited in McAllister 1933: 153). The greatest factor in the tragic population decline during this period was the introduction of Western diseases, followed by warfare (Kuykendall 1938; Nakamura 1981; Wong-Smith 1989).

The Superintendent of Secular Affairs for the Mission in Hawai'i, Levi Chamberlain, gave an 1828 account of Mālaekahana during his second circuit of O'ahu, where he evaluated the effectiveness of the island's education system, provides insight on the fecundity of lands in this area. Chamberlain states:

Tuesday Feb. 5th. After breakfast I examined two schools, belonging to Laie & Malaekahana, and was pleased with the appearance of the scholars. At a quarter before 11 A.M. we set out for Kahuku, and after travelling about two hours over a level sandy country, arrived at the school house, where we found 83 scholars assembled, waiting to be examined ... A good hog had been cooked for us & when the examination closed, dinner was waiting ... my attendants made a hearty meal; and the remainder of the food was placed in the calabashes of our natives, and carried along to furnish food for us when we should be again in need (Chamberlain 1957:35-6).

Another account of Ko‘olau Loa and the project area vicinity from the late 1800s was provided by John Effinger, in an article titled, “A Tramp Around Oahu,” for *Paradise of the Pacific* magazine, where he states:

The sun had scarcely got its eyes open when I had pushed on several miles further along the grassy plain and shore through Kualoa ranch, past the ruins of the old Wilder mill, looking like an antiquated English castle, and past the Punaluu rice patches. The chimney of Kahuku mill was my guiding star this morning, and the miles seem to fly along so green is the verdure around us and so fresh the strong salt air. Sentinel cliffs, sheltering pleasant valleys where are many of the summer residences of Honolulu’s “400” shoot into the sky on the left. Chief Justice Judd Hon. P.C. Jones, and Cecil Brown, Esq. have country places along here, and when the Oahu Railway is completed, there will be an exodus from Honolulu every Saturday afternoon for a Sunday’s vacation to this favored spot. The air is cool and bracing. Mosquitoes are hardly a nuisance. From Kualoa to Laie is the prettiest, healthiest part of the island of Oahu. About noon I reached Laie, a Mormon settlement, with a small cane plantation and mill. The plantation railway runs down into Laie from Kahuku plantation and all the cane is ground at the big Kahuku mill. Laie Point shoots out into the blue ocean here and the surf banging up against it throws spray high in the air. It was a few hours after noon when Kahuku mill was reached, and I took a few moments rest before pushing out for Waialua. The Kahuku stock ranch takes up all the land of this district not occupied by cane (Effinger 1895:88).

One account, which was recorded by King Kalākaua in the late 1800s, provides a very detailed description of a significant landmark of Mālaekahana, Wai‘āpuka (Site No. -275). He reiterated the experiences of a group of travelers touring the area in 1885, as follows:

Entering the district of Koolouloa, and approaching the coast over a broad stretch of grassy meadow but slightly above the level of the ocean, our party was suddenly brought to a halt beside a pool of clear water, nearly round, and perhaps a hundred feet in diameter. The surface of the pool was ten or twelve feet below the level of the surrounding plain, and its even banks of solid rock dropped almost perpendicularly into water of unknown depth. The volume of the pool is affected neither by rain nor drought, and the native belief is that it is fed by springs at the bottom, and has a subterranean drainage to the ocean, some two or three miles distant.

This, we learned, was the celebrated pond of Waiapuka, around which so many strange legends have been woven. All of them speak of a cavern somewhere beyond the walls of the pool, and to be reached only by diving into the water and finding the narrow passage leading up into it.

While listening to fragments of the story of Laieikawai and of other legends connected with the mysterious cavern, and seriously doubting the existence of the secret chamber so prominently referred to in early folk-lore of Oahu, an old native, who had joined the party at Kaneohe, quietly and without a word, dismounted, divested himself of his upper garments and plunged into the pool. Swimming to the northern wall, he clung for a moment to a slight projection, and then disappeared. It was suggested for the first time that he was in search of the

cavern of Laieikawai, and all eyes were turned toward the point where he was last seen above the water.

Three or four minutes elapsed, and fears for his safety began to be exchanged, when the salutation of “*aloha!*” greeted us from the opposite wall, and the next moment a pair of black eyes were seen glistening through a small opening into the cavern, not before observed, about four feet above the surface of the water.

The swimmer then returned to the pool by the passage through which he had left it, and we were compelled to admit that the cavern of Laieikawai was a reality, however wild and visionary may have been the stories connected with it. Not a single person present, including the governor, had ever before seen the passage to the cavern attempted, and the natives were overjoyed at what they had witnessed.

To the many questions with which he was asked the old man returned but brief answers on his return, and when importuned to explain the method of his entrance to the cavern, that the secret might not be lost, he pointed significantly to the sea, and declared that there would be found three bodies of those who sought to solve the mystery of the passage and failed (Kalākaua 1990:455-456).

This description suggests that Wai‘āpuka was not only massive, being approximately 100-feet in diameter, but also a classic sinkhole in an area known to be *karstic*, which is a geological term for limestone terrain that has been subjected to complex acidic weathering. Typically, *karstic* topography is prone to exhibiting a variety of subterranean and surficial features, including caves, tunnels, caverns, underground rivers and bodies of water, as well as sinkholes and cenotes. Unfortunately, by the time of McAllister’s (1933) island-wide survey, the site of this culturally and topographically significant feature was destroyed by being filled with sediment. Whether man or natural forces are responsible for this act has not been ascertained.

Just after the turn-of-the-Century, Andrew Adams of the Territory’s Forestry Division, reported on the agricultural and horticultural developments of Ko‘olau Loa, stating:

Mr. Andrew Adams, District Forester for the Koolauloa District, desired that no formal report for him be published but in correspondence he stated that “The Plantation is constantly planting Ironwood trees, which are thriving, but no systematic effort has been made toward forest planting, in fact the little planting that has been done could scarcely be dignified by the term ‘forestation.’ There are no forest nurseries, except several boxes on the premises of the head luna and my own where Iron wood trees are started from seeds.

The native forest in the mountains is in good condition, and the Koa, of which there is a good belt between Malaekahana and Kaipapau valleys, is vigorous and thriving. The insect usually preying upon the Koa is not so much in evidence in this forest, it appears to me, as formerly, and there are many young Koas springing up; some of this is sizeable timber, but I doubt if it could ever be lumbered without great destruction to the surrounding forest, and especially the undergrowth, because of the almost inaccessible ridges on which the Koa stands (Adams 1905:90-91).

3.3.2 Cultural Practices

Although the spread of Western ideals and lifestyles was rampant at this time, there are several instances of Hawaiian traditional practices taking place in Kahuku. *Hula* and *mele* performances held in Kahuku in 1844 and 1849 were described by Emerson (1998). The first performance, a *hula*, called the Hula O-Niu, which took place in 1844 was described by Emerson (1998) as such:

The so-called *hula o-niu* is not to be classed with the regular dances of the halau. It was rather a popular sport, in which men and women capered about in an informal dance while the players engaged in a competitive game of top-spinning. The instrument of sport was made from the lower pointed half of an oval coconut shell, or from the corresponding part of a small gourd. The sport was conducted in the presence of a mixed gathering of people amid the enthusiasm and boisterous effervescence which betting always greatly stimulated in Hawaii.

The players were divided into two sides of equal number, and each player had before him a plank, slightly hollowed in the center—like the board on which the Hawaiians pounded their poi—to be used as the bed for spinning his top. The naked hand, unaided by whip or string, was used to impart to the rude top a spinning motion and at the same time the necessary projectile force—a balancing of forces that called for nice adjustment, lest the whirling thing reel too far to one side or run wild and fly its smooth bed. Victory was declared and the wager given to the player whose top spun the longest.

The feature that most interests us is the singing, or cantillation, of the oli. In a dance and game of this sort, which the author's informant witnessed at Kahuku, Oahu, in 1844, one contestant on each side, in turn, cantillated an oli during the performance of the game and the dance (Emerson 1998:248).

The later performance, a *mele* about Kāne, recorded by Emerson (1998) took place in 1849 was viewed by King Kamehameha III's during his circuit around the island of O'ahu. Emerson (1998) wrote:

The author has already hinted at the form and character of the entertainments with which hula-folk sometimes beguiled their professional interludes. Fortunately the author is able to illustrate by means of song the very form of entertainment they provided for themselves on such an occasion. The following *mele*, cantillated with an accompaniment of expressive gesture, is one that was actually given at an awa-drinking bout indulged in by hula-folk. The author has an account of its recital at Kahuku, island of Oahu, so late as the year 1849, during a circuit of that island made by King Kamehameha III. This *mele* is reckoned as belonging to the ordinary repertory of the hula; but to which particular form of the dance it was devoted has not been learned...(Emerson 1998:129-130).

The fact that this performance was part of King Kamehameha III's circuit and recorded with such detail and contemplation by Emerson (1998), suggests that this unnamed *hula hālau* was no ordinary one. It is possible that this Kahuku *halau* has a long, but unrecorded history.

In terms of traditional agricultural practices, Handy (1940; as cited by Barrera 1981) maintain that Kahuku had a few areas that traditional Hawaiian farming methods may have taken place.

They state the following about agriculture in Kahuku Ahupua‘a:

Inland from the Kahuku ranch house is Kaainapele Spring. Terrace symbols are shown south of the ranch house (U.S.G.S. topographic map, 1917), but Judge Rathburn says that these flats were built by Chinese before 1890 for rice paddies. They were irrigated with artesian water, but the water turned brackish and the paddies were abandoned. They were never used for taro. The 1917 map shows extensive terrace areas in the swampland seaward of the Oahu Railway, stretching 1 5 miles south of Kukio Pond. These were originally terraces, were later planted to rice, and are now under sugar cane. According to John Kaleo, there is a small group of terraces, south of this swampland, named Kaukana. North of Kukio Pond was also a small area. It is reported that there were no terraces up Kahuku Stream or Kaohiaae, its upland branch. Kaleo names 11 localities where terraces were formerly cultivated (as cited in Barrera 1981:13-14).

However, Handy and Handy (1940) stated that there were no terraces in Keana’s stream or on the lowland plains. They also hold that, Kaleo, their informant for the area, knew of agricultural terraces in Kaukanalaa Stream.

3.3.3 Land Court Awards

Private land ownership was established in Hawai‘i with the Māhele ‘Āina, also known as the Great Māhele of 1848. Crown and *ali‘i* lands were awarded in 1848 and *kuleana* titles were awarded to the general populace in 1850 (Chinen 1958). Awarded lands in this process are referred to as Land Commission Awards (LCAs). Over time, government lands were sold off to pay government expenses. The purchasers of these lands were awarded Grants or Royal Patent Grants (Chinen 1958). LCAs offer the native and foreign testimonies recorded during the claiming process, which shed light on what the land use of the area was in the early historic period. This information can be used to predict the types of resources may still be present in the project area.

There are no LCAs within the Nā Pua Makani Project APE. For the purposes of gaining as much early historic information on land use in the area, the LCA information presented in this section are a sample of LCAs located outside of the project area, some as far away as 2 kilometer from the boundaries of the APE.

Numerous LCAs were identified within an approximate 2 kilometer radius around the Nā Pua Makani Project APE. A partial list of these properties by *ahupua‘a* is provided in Table 1. Figure 4 and Figure 5 show the project area on TMK maps. The LCAs are described in Native Register (NR) comments and Foreign Testimonies (FT) submitted during the Māhele ‘Āina and provide a narrative on traditional use of land within each *ahupua‘a*. A few of these testimonies are presented below.

LCA Awards in Kahuku Ahupua‘a

While King Kamehameha III, under the name of Victoria Kamāmalu, retained the entire *ahupua‘a* of Kahuku as part of Crown Lands, the land rights of its tenants amounted to 4,752 acres (Indices 1929:27-8 as cited by Wong-Smith 1989:A-11). According to Rechtman (2009:15), “...eighty-five claims for Land Commission Award (LCAw.) parcels were made within the *ahupua‘a* of Kahuku, but only 72 *kuleana* lots were awarded to native tenants. Nearly all of

Table 1. Land Court Awards (LCA) in the Vicinity of the Nā Pua Makani Wind Project Area

LCA	Ahupua'a	Claimant	Testimony	Book	TMK Map
2691:1 & 2	Kahuku	Laumea	8 <i>lo'i</i> , 2 watercourses (' <i>auwai</i> ?), <i>kula</i> lands and shore area, <i>wauke</i> gardens, banana plantation (a mountain land), 3 <i>koa</i> trees, 2 <i>hala</i> trees, 1 <i>kukui</i> tree, houselot	NR v. 3, 592 FT v. 10, 169	5-6-004
2702:1	Kahuku	Waiaulaa	<i>Kula</i> lands planted with melons, spring, houselot with wooden fence	NR v.3, 598 FT v.10, 188	5-6-002
2723:3	Kahuku	Puu	6 <i>lo'i</i> , <i>kula</i> land, houselot	NR v. 3, 607 FT v. 10, 166	5-6-002
2872:1 & 2	Kahuku	Kaihikapu	18 <i>lo'i kalo</i> , <i>kula</i> lands, salt land, shore land, mountain land, <i>mala</i> of <i>wauke</i> , <i>mala</i> of sweet potato, houselot	NR v. 3, 672 FT v. 10, 154	5-6-004
2887:1 & 2	Kahuku	Keawe	3 <i>lo'i</i> , <i>kula</i> land, a <i>mala</i> of ' <i>awa</i> , houselot	NR v. 3, 678 FT v. 10, 171	5-6-002 5-6-004
2916:1 & 2	Kahuku	Kaluau	5 <i>lo'i kalo</i> , watercourse (' <i>auwai</i> ?), <i>mala</i> of <i>wauke</i> , <i>mala</i> of ' <i>olena</i> , a <i>kuahiwi</i> , <i>kula</i> lands, houselot	NR v. 3, 692 FT v. 10, 168	5-6-004
2918:1 & 2	Kahuku	Kawaa	1 <i>lo'i</i> , houselot	NR v. 3, 692 FT v.10, 182	5-6-002 5-6-004
3723:1	Kahuku	Male	9 <i>lo'i</i> , <i>kula</i> lands, houselot	NR v. 4, 156 FT v. 10, 171 NT v. 4, 368	5-6-002
4391:1 & 2	Kahuku and Keana	Kalawaiamanu	3 ' <i>ili weuweu</i> , 1 ' <i>ili</i> of sweet potato, 1 ' <i>ili</i> of <i>wauke</i> , 1 <i>kula</i> , sugarcane and <i>wauke</i> , breadfruit, <i>noni</i> , ' <i>awa</i> and banana, tobacco, houselot	NR v. 4, 292 FT v. 10, 184	5-6-006
4422:2	Kahuku	Kaumualii	10 <i>lo'i</i> , <i>kula</i> land with <i>wauke</i> , sweet potato, <i>hala</i> , salt land, a <i>mala</i> of <i>noni</i> , banana, watermelon, houselot	NR v. 4, 296 FT v. 10, 164	5-6-005
4458:1	Kahuku	Kaihupailani	5 <i>lo'i kalo</i> , <i>kula</i> lands, <i>kula</i> of <i>wauke</i> , wooded upland, <i>koa</i> tree, <i>kukui</i> tree, houselot	NR v. 4, 303 FT v. 10, 203	5-6-004
238-E:1	Lā'iewai	Pakolu	-	No testimony.	5-5-008
3696:1 & 2	Lā'iewai	Mahunalii	1 <i>lo'i</i> , ' <i>ili</i> of <i>wauke</i> , 8 ' <i>ili</i> of gourd, a <i>mala</i> of <i>wauke</i> , 2 ' <i>ili</i> of <i>weuweu</i> , houselot	NR v. 4, 145 FT v.11, 281	5-5-005 5-5-008
3697:1, 2 & 3	Lā'iewai	Mahoe	3 <i>lo'i</i> and 1 <i>kula</i> land, houselot	NR v. 4, 146 FT v. 11, 281	5-5-008
3699:1, 2 & 3	Lā'iewai	Kahakea	3 <i>lo'i</i> , 1 steep patch sweet potato (<i>pali 'uala</i>), 1 <i>kula</i> , 1 ' <i>ili</i> of sweet potato, 2 <i>mala</i> of gourd, ' <i>ili</i> of <i>wauke</i> , 2 <i>lo'i</i> and a houselot	NR v. 4, 146 FT v.11, 253	5-5-008
3699-B:1	Lā'iewai	Kainoahou	2 <i>lo'i kalo</i> , <i>kula</i> land and a houselot	FT v. 3, 531	5-5-008
3708:1	Lā'iewai	Moanauli	3 <i>lo'i</i> and 1 <i>kula</i> land	NR v. 14, 150 FT v. 11, 251	5-5-008

LCA	Ahupua'a	Claimant	Testimony	Book	TMK Map
3714:2	Lā'iewai	Maii	7 lo'i, 3 kula, houselot, 2 koa trees	NR v. 4, 154 FT v. 11, 251	5-5-008
3731:1 & 3	Lā'iewai	Ihupuu	6 lo'i, houselot	FT v. 11, 247	5-5-008
3743:1 & 2	Lā'iewai	Wi	5.5 lo'i, 9 kula, 3 mountain kula, 2 hala clumps, 1 gourd kula, 4 fallen ko'a trees, 1 kula houselot	- FT v. 11, 305	5-5-005 5-5-008
3773:1, 2 & 3	Lā'iewai	Amaka	8 lo'i and 16 kula	NR v. 4, 165 FT v. 11, 213	5-5-008
3789:2 & 3	Lā'iewai	Opala & Kaiimakuhi	1 mo'o, 3 lo'i kalo, 1 lo'i, 'ili of wauke, 2 'ili of weuweu, houselot	- FT v. 11, 287	5-5-005
3807:1	Lā'iewai	Laielohelohe	6 lo'i, 13 kula (1 planted in tobacco) and a houselot	NR v. 4, 173 FT v. 11, 249	5-5-008
3859:1	Lā'iewai	Pahumoa	8 lo'i, 1 kula, 2 'ili of sweet potato, 1 mala of 'awa, houselot	NR v. 4, 179 FT v. 11, 261	5-5-008
3861:1, 2 & 3	Lā'iewai	Pulehu	1 mo'o, 7 lo'i, 1 'ili of weuweu, 1 'ili of sweet potato, houselot	NR v. 4, 179 FT v. 11, 263	5-5-005 5-5-008
3864:1	Lā'iewai	Paiakea	4 lo'i, 2 houselots, 3 kula	NR v. 4, 180 FT v. 11, 261	5-5-008
3873:1, 2 & 3	Lā'iewai	Paakahi	9 lo'i, 7 kula, 1 fishery, 1 koa tree, houselot	NR v.4, 183 FT v. 11, 275	5-5-008
3936:1, 2, 3 & 4	Lā'iewai	Nakahili	5 lo'i, 3 kula, houselot	FT v. 11, 299	5-5-008
3945: 1 & 2	Lā'iewai	Napahu	3 lo'i, 5 kula, houselot	NR v. 4, 196 FT v. 11, 285	5-5-008
4003:1, 2 & 3	Lā'iewai	Hano	3 lo'i, 1 kula, 1 kai [fishery], 1 mtn. area; scattered claims: 6 lo'i, 10 kula, 1 houselot; in Kapuna: 1 lo'i, 2 kula	NR v. 4, 208 FT v. 44, 277	5-5-005 5-5-008
4039:1 & 2	Lā'iewai	Kalawaiholona	1 lo'i, 1 kula (planted in wauke)	NR v.4, 214 FT v.11, 306	5-5-008
4269:1	Lā'iewai	Kala (testimony says "Kula")	1 mo'o, 3 lo'i kalo, 1 'ili (Kakaiahui), 1 steep sweet potato planting, 2 sweet potato lo'i (dried out lo'i?), 2 koa canoe trees, houselot	NR v. 4, 235 FT v. 11, 311	5-5-008
4270:2	Lā'iewai	Keao	5 lo'i kalo, 45 moku weuweu, 1 moku mo'o, 5 koa trees, houselot	NR v. 4, 235 FT v. 11, 308	5-5-008
4271:1, 2 & 3	Lā'iewai	Kaleo	44 lo'i, 1 kula, 2 'ili of wauke, houselot	NR v. 4, 235 FT v. 11, 265	5-5-008
4272:1	Lā'iewai	Koi	7 lo'i, 3 kula, 1 mala of 'awa, 2 koa trees, houselot	NR v. 4, 236 FT v.11, 269	5-5-008

LCA	Ahupua'a	Claimant	Testimony	Book	TMK Map
4280:1	Lā'iewai	Kauhane	1 <i>lo'i</i> , 1 <i>kula</i>	NR v. 4, 237 FT v. 11, 307	5-5-008
4283:1	Lā'iewai	Koula	6 <i>lo'i</i> , 2 <i>kula</i> , 1 <i>moku</i> of <i>weuweu</i> , 1 ' <i>ili</i> planted in gourd, houselot	NR v. 4, 238 FT v. 11, 298	5-5-008
4288:1	Lā'iewai	Kaonohi	7 <i>lo'i</i> , 2 dry <i>lo'i</i> , 1 clump of <i>hau</i> , 11 <i>moku</i> of <i>weuweu</i> , 1 <i>koa</i> tree	NR v. 4, 239 FT v. 11, 294	5-5-008
4290:1	Lā'iewai	Kaiolohia	6 <i>lo'i</i> , 1 ' <i>ili</i> of <i>wauke</i> , 1 grass <i>kula</i> , 2 mala of ' <i>awa</i> , 1 mala of <i>noni</i> , 3 mala of sweet potato, houselot	NR v. 4, 239 FT v. 11, 293	5-5-008
4291:1	Lā'iewai	Kapule	4 <i>lo'i</i> , 1 <i>kula</i> , 1 mala of ' <i>awa</i> , houselot, <i>kula wauke</i> , partly in Mālaekahana	NR v. 4, 240 FT v. 11, 296	5-5-008
4293:1	Lā'iewai	Keawe	14 <i>lo'i</i> , 1 <i>kula</i> , 1 ' <i>ili</i> of sweet potato, 1 ' <i>ili</i> of <i>noni</i> , 1 mala of <i>wauke</i> , houselot	NR v. 4, 290 FT v. 11, 298	5-5-008
4297:1	Lā'iewai	Kapuaokahala	4 <i>lo'i</i> , 3 <i>kula</i> , houselot	NR v. 4, 240 FT v. 11, 269	5-5-008
4298:1 & 2	Lā'iewai	Kaualewa	2 <i>lo'i</i> , 1 <i>kula</i> , 3 ' <i>ili</i> of sweet potato, 2 ' <i>ili</i> of <i>wauke</i> , 1 ' <i>ili</i> of <i>noni</i> , 1 mala of sweet potato, 1 mala of ' <i>awa</i>	NR v. 4, 241 FT v. 11, 297	5-5-005
4300:1	Lā'iewai	Kapule for Waikupulani	7 ' <i>ili</i> of sweet potato, 3 <i>lo'i</i> <i>kalo</i> , houselot	NR v. 4, 241 FT v. 11, 297	5-5-008
4301:1	Lā'iewai	Kanakanui	7 <i>lo'i</i> , 1 <i>kula</i> , 1 <i>kula</i> of <i>wauke</i> , 4 mala of <i>noni</i> , 2 steep sweet potato plantings, 2 houselots	NR v. 4, 242 FT v. 11, 373	5-5-008
4325:1	Lā'iewai	Kahoale	2 <i>lo'i</i> , 2 <i>kula</i> , houselot	NR v. 4, 259	5-5-008
4326:1, 2, 3 & 4	Lā'iewai	Koalaukanu	8 <i>lo'i</i> , 5 <i>kula</i> , houselot	NR v. 4, 259 FT v. 11, 309	5-5-005 5-5-007 5-5-008
4329:1 & 2 (4329B)	Lā'iewai	Kalua	5 <i>lo'i</i> , 7 <i>kula</i> , houselot	NR v. 4, 260 FT v. 11, 306	5-5-008
4331:1 & 2	Lā'iewai	Kamano	7 <i>kalo lo'i</i> , 6 <i>kula</i> , 1 <i>kula</i> houselot, 1 fish pond	NR v. 4, 261 FT v.11, 310	5-5-007 5-5-0088
4333:1	Lā'iewai	Kahoukua	6 <i>lo'i</i> , 17 <i>kula</i> , houselot	NR v. 4, 262 FT v. 11, 292	5-5-008
4334:1	Lā'iewai	Kalou	2 <i>lo'i</i> , 17 <i>kula</i> (some planted in tobacco), houselot enclosed with a wooden fence	NR v. 4, 263 FT v. 11, 292	5-5-008
4338:1 & 2	Lā'iewai	Kahalelaau	1 <i>lo'i</i> , 1 <i>kula</i> , 3 mala, 1 mala of <i>wauke</i> , 1 shore area and a mountain land, houselot	NR v. 4, 265 FT v. 11, 293	5-5-008

LCA	Ahupua'a	Claimant	Testimony	Book	TMK Map
4343:1 & 2	Lā'iewai	Not found	10 <i>lo'i</i> , 7 <i>kula</i> (scattered claims)	NR v. 4, 267 FT v. 11, 298	5-5-005 5-5-008
4345:1	Lā'iewai	Kaumiumi	1 <i>lo'i</i> , 3 <i>kula</i> , 3 fallen (shattered) <i>koa</i> trees, houselot	NR v. 4, 286 FT v. 11, 297	5-5-008
4361:1, 2 & 3	Lā'iewai	-	no specifics on land use	NR v. 4, 271 FT v. 11, 300	5-5-005 5-5-008
4451:1, 2 & 3	Lā'iewai	Kuapuu	16 <i>lo'i</i> , 5 <i>kula</i> , 3 <i>koa</i> trees, 4 <i>lua hānai</i> (holes where fish feed), houselot	NR v. 4, 301 FT v. 11, 301	5-5-008
4514:1, 4 & 5	Lā'iewai	Pupuka	5 <i>kalo lo'i</i> , 5 <i>kula</i> , 1 houselot	NR v.4, 313 FT v. 11, 302	5-5-008
6989:2	Lā'iewai	Kahuailua	5 <i>lo'i</i> , 11 <i>kula</i> , houselot	NR v. 5, 411 FT v. 11, 291	5-5-008
8355:3	Lā'iewai	Kakau	2 <i>lo'i</i> , 1 <i>kula</i> , houselot	NR v. 5, 545 FT v. 10, 150	5-5-008
8440:1	Lā'iewai	Kamamae	1 <i>lo'i</i> , 2 <i>wauke</i> patches, 2 sweet potato patches, one <i>mala</i> of <i>noni</i> , 2 <i>hala</i> trees, houselot	NR v. 5, 565 FT v. 11, 307	5-5-008
8443:1, 2 & 3	Lā'iewai	Kauhalekua	5 <i>lo'i</i> , 2 <i>wauke</i> patches, 2 <i>kula</i> , 4 <i>weuweu</i> patches, houselot	NR v. 5, 565 FT v. 11, 307	5-5-005
8580:1, 2, 3 & 6	Lā'iewai	Kealiiwaiwaiole	5 <i>lo'i</i> , 3 'ili of <i>kula</i> , 1 <i>mala</i> of <i>maiapia</i> , houselot	NR v. 4, 355 FT v. 11, 321	5-5-005 5-5-008
8580-B:1, 2 & 3	Lā'iewai	Palii	5 <i>lo'i</i> , 1 <i>mala</i>	FT v. 11, 322	5-5-008
10748:2 & 3	Lā'iewai	Puhibaka	3 <i>lo'i</i> , 1 watercourse (' <i>auwai</i> ?), 1 <i>kula</i> , 1 <i>mala</i> of <i>noni</i> , 2 <i>koa</i> trees, 1 <i>mala</i> of sweet potato, 2 pools for fish	NR v. 4, 584 FT v. 11, 302	5-5-008
10763:1	Lā'iewai	Puni	5 <i>lo'i</i> , 4 <i>kula</i> , houselot	NR v. 4, 584 FT v. 11, 304	5-5-008
10822:1, 2, 3 & 4	Lā'iewai	Peka	4 <i>lo'i</i> , 1 <i>kula</i> patch, coconut tree and sweet potato patches, 10 <i>mo'o</i> , 1 <i>mala</i> of 'awa, the <i>pali</i> of Kaukauulua, the beach of Laiemaloo, 1 <i>kula</i> of mountain area	NR v. 4, 602 FT v. 11, 324	5-5-008
10928:1	Lā'iewai	Ulukou	4 <i>kalo lo'i</i> , 1 sweet potato patch, houselot	NR v. 4, 614 FT v. 11, 304	5-5-008

awards were located makai of the present day highway....” The following are claims for lands either within or partially within Kahuku Ahupua‘a. These claims provide a narrative on traditional use of *kula* and *wao* lands.

No. 2887: Keawe (claimant), Kahuku, Oahu
January 5, 1848

To the Land Commissioners, Respectful Greetings: I, Keawe, hereby state my claim for land at Kahuku. The name of the *mo‘o* is Luahime. There are three *lo‘i*, bounded on the north by Kawaa’s [land] on the east by Kaluau’s [land], on the south by *lo‘i kō ‘ele*, on the west by Paukoa’s [land]. A *mala* of sweet potato is at Ahamau, and at Keana I have a *mala* of ‘*awa*. My houselot is Kahuku, and is surrounded by *kula*. My right of occupancy is from the time of Kamehameha I.
KEAWE x his mark

LCA Awards in Keana Ahupua‘a

The *ahupua‘a konohiki* (overseer), Kinimaka was closely affiliated with Kamehameha III, which may have helped secure his claim to the entire *ahupua‘a*. According to O’Hare et al. 2008, “He was a *makua hanai* (adopted parent) to David Kalākaua, sixth king of Hawai‘i. Kinimaka retained one-half of the *ahupua‘a*, giving back the other half to pay his commutation fees for the properties that he retained. This second half became part of the government lands” (O’Hare et al. 2008:19).

Environmental conditions would partly explain for the dearth of claims for this *ahupua‘a*, as these lands were not suited for most traditional methods of farming. While the coastal areas of Keana appeared to be largely brackish water swamp and/or sand with outcrops of limestone, the uplands were relatively dry and rocky - not suitable for terrace farming. This was expressed by the sentiments of Kaleo, E. C. Handy’s trusted informant, as they recorded traditional land use on O‘ahu in the 1940s. He maintained that he knew of no agricultural terraces up the stream, nor of any on the plains of Keana (Handy 1940). This was later upheld in Handy and Handy (1991:462), who stated the following about Mālaekahana and Keana:

These two small *ahupua‘a* intervening between La‘ie and Kahuku (the northernmost tip of Oahu) show much the same pattern, in miniature, of dune coasts, elevated coral, and broken level land seaward from the hills. Each has a small stream. There were formerly some irrigated terraces in Malaekahana (Wayclear-for-work), but not in Keana (The-cave) (as cited by O’Hare et al. 2008:19).

The following is a claim for lands partially within Keana Ahupua‘a. This claim provides a narrative on traditional use of Keana’s *kula* and *wao* lands.

No. 4391: Kalawaiamanu (claimant), Keana, Oahu
January 3, 1848

To the Land Commissioners, Greetings: I, Kalawaiamanu, am a claimant in the ‘*ili* in Louana. There are three ‘*ili weuweu*, one ‘*ili* of sweet potato, one ‘*ili* of *wauke*, bounded on the north by the *kula*, on the east and west by sugarcane, on the south by the *pali*. Here are the jump lands: At Halulu is sugarcane, *wauke*. At Kahalau is breadfruit and *noni*. At Keaaulu is a breadfruit, and *noni*. At Kapuou

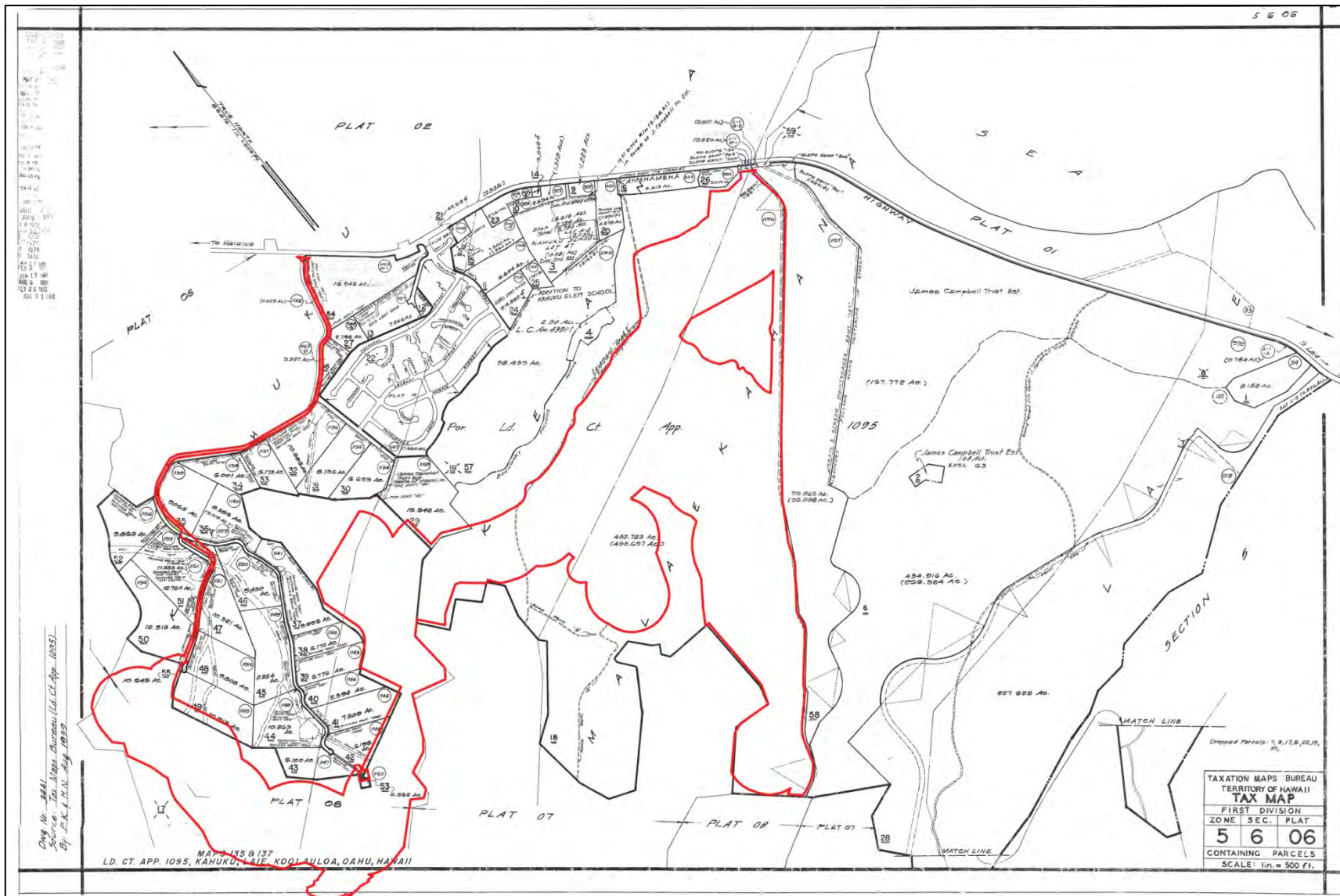


Figure 4. Project area depicted on TMK Map

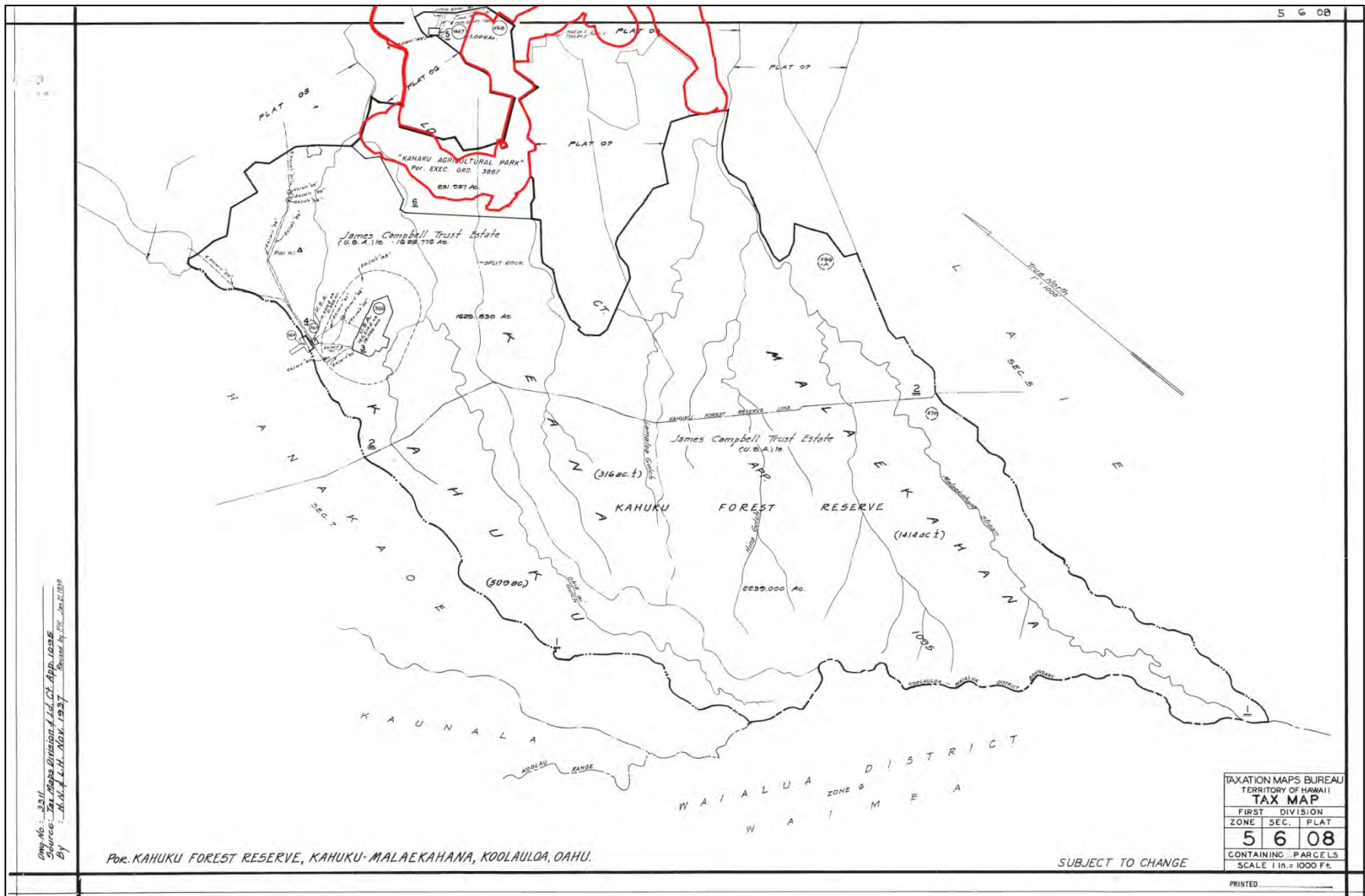


Figure 5. Project area depicted on TMK map.

is *noni*. At Kealahaka is *'awa*, sugar cane, and banana. At Paos is *'awa*. At Uumhalu is a *kula* planted in sweet potato and watermelon. My house is at Nonoula. My right of occupancy is from the time of Kamehameha II.
KALAWAIMANU

LCA Awards in Mālaekahana Ahupua'a (in the Vicinity of Nā Pua Makani Project Area)

The Mālaekahana *ahupua'a* LCA claims suggest that traditional agricultural practices occurred in Mālaekahana, but was limited to dryland cultivation as well as gathering of plant resources, while wetland agricultures was practicing in adjacent Lā'ie (Hammatt 1996). Land use as indicated in Mālaekahana LCA claims is described by Hammatt (1996) as follows:

In 1850 the *ahupua'a* of Mālaekahana (3280 Acres) is claimed by A. Keohokalole, mother of King Kalākaua, Queen Liliu'okalani, Miriam Likelike Cleghorn and Wm. Pitt Leleiohoku (II) and is awarded to her in 1854. Of 21 claims for land parcels (*apana*) in Mālaekahana only four *kuleana* claims are awarded. There are no claims for *lo'i* in Mālaekahana. The claims often state that the area jumps around and goes from sea to mountain and therefore boundaries can't be given. The claims for Mālaekahana mention 15 *kula*, 6 *mala*, and 1 *mo'o* with no crop given, 12 *wauke* patches, 7 house sites, 6 banana patches, 3 potato patches, 5 koa trees for canoe making, and 1 *mala* each for *hala*, *noni*, *ti*, *hau*, breadfruit and tobacco. Two mountain areas are also claimed. Two house sites, 1 banana and potato land, and 1 *wauke* land are awarded. However, no present maps show where these awards were located. The old Mālaekahana maps at the State Survey office are missing (as reported by the survey office to Dr. V. Creed on 2/2/96). Tax maps do not show the location of these few awards (Hammatt 1996:4-5).

After exhausting all available historic maps for Mālaekahana during this documentary research, no maps were found depicting the Mālaekahana LCA locations. The entire *ahupua'a* was awarded to Ane Keohokālōle.

LCA Awards in Lā'iewai Ahupua'a (in the Vicinity of Nā Pua Makani Project Area)

The succeeding sample of Lā'iewai LCA claims provide insights on the area's traditional land use.

No. 3861: 2&3: Pulehu (claimant), Lā'ie, Oahu
January 5, 1848

To the Land Commissioners, Greetings: I hereby state the claim for my land. Kahikiea is the *mo'o*. There are five taro *lo'i* at Kahikiea. One *lo'i* is at Kaholo, one *lo'i* is at Paakea. One *'ili weawe*a [grass or herbage], one *mo'o* is at Malaekahana. One *'ili* of sweet potatoes is at Omao. The right of my *makuas* was from Liholiho.

Foreign Testimony V. 11:263
No. 3861 Pulehu

Kauaikaua, sworn says, he knows the land claimed by Pulehu in Laie. It consists of 6 *kalo* patches, a piece of *kula* land and a House site. The 6 patches are bounded on Hauula side by Kahalelaau's land, Mauka and Waialua side by the Konohiki, Makai by Kii's land. The *kula* land is planted with *wauke* - contains about half an acre - surrounded by the Konohiki. The house site is not enclosed, there is one house on it. Claimant has held the land for 30 years. The Konohiki's agent consented to this claim.

No. 4003:3: Hano (claimant), Lā'ie, Oahu
January 5, 1848

Native Register V. 4:208
January 5, 1848

To the Land Commissioners, Greetings: I, Hano am a claimant of land at Laie. In the 'ili of Paoo are three *lo'i*, one *kula*, one *kai* /fishery/ one mountain area. The boundaries are: on the north, *muliwai* land of Poouahi, on the east, land of Kaaipuaa, on the south, land of Kauwaiawa, on the west, land of Palii. Here are the scattered claims: In the 'ili or the *ahupua'a*, six *lo'i*, ten *kula*. Seaward of the mountain, one house lot. In the 'ili of Kapuna, one *lo'i*, two *kula*. Because these claims are so very scattered, therefore it is not practical to describe their boundaries to you, the Land Commissioners. My right of occupancy at these places is from the time of Kamehameha 1 until the reign of Kamehameha III at this time.

Foreign Testimony V. 11:277
No. 4003 Hano

Kauaiamanu, sworn says, he knows the land-claimed by Hano in Laie. It consists of 3 *kalo* patches, a piece of *kula* land, and a House lot. The 3 patches are bounded on Hauula side by Maii's land, Mauka by Hoanauli's land,- Waialua side by Kaluaiaawa's land. - Makai by Kauaiamanu's land. The *kula* land is planted with tobacco & bananas. It is bounded on Hauula side by Kauaiamanu's land, - Mauka by Napahu's land, -Waialua and Makai by the Konohiki. The house lot is in another place. It is not enclosed. Claimant has held the land for 9 years. The konohiki's agent had no other objection to the claim

No. 4343:2: Kauaiomono (claimant), Lā'ie, Oahu
January 3, 1848

Native Register V. 4:267
January 3, 1848

To the Land Commissioners, Greetings: I, Kauaiomono, am a claimant at Laie for four *lo'i* and one *kula*. The boundaries are: north, the land of Pupukeya, east, Kalakee's /land/, south, the land of Napaeko, west, the land of Hano. The scattered *lo'is* and *kulas* are as follows: Kalawa, one *lo'i*, no *kula*. Kapaakea, four *lo'i*, three *kula*. Kaholi, no *lo'i*, no *kula*. Kahikiea no *lo'i*, two *kula*. Kumupali, no *lo'i*, one *kula*. My right of occupancy is from my *kupunas* until the present.

Foreign Testimony V. 11:298
No. 4343 Kauaiomano

Kauaikaua, sworn says, he knows-the land of claimant in Laie. It consists of 12 *kalo* patches, 7 of which are planted, a piece of *kula* land and a house site. 5 of the patches have not been planted for two years. The 7 *kalo* patches which are planted are bounded on Hauula side by Kaleo's land, -Mauka by Elemakule's land, - Waialua side by the Konohiki, -Makai by Kamamai's land. The *kula* land is bounded on Hauula side by Pulehu's land, - Mauka by Kaleo's land, Waialua side by the land of Malaekahana, - Makai by Kamamai's land. It is planted with *wauke*. The house site is separate- not enclosed. Claimant derived the land from his ancestors. The Konohiki's agent had no other objection to this claim ...

No. 4361:3: Kii (claimant), Lā‘ie, Oahu
January 3, 1848

Native Register V. 4:271 Laie wai, Oahu
January 3, 1848

To the Land Commissioners, Greetings: I, Kii, am 1 claimant of land in the ‘*ili* of Kahikea. There are two taro *lo‘i*, a *kula* and a wooded upland named Omao. The boundaries are: north, Napilipili, east, Kaiwikkole, west, a stream, south, Kapaakea. Here are the scattered claims: At Puhahaka is one ‘*ili* of *wauke*. At Namahana, is one ‘*ili* of *wauke* and a *pali uala*; [steep planting of sweet potatoes]. At Keanahale is one ‘*ili* of *wauke* and an *apuapu‘uala*. At Noholua are two *lo‘i* and a watercourse. At Paakea is one ‘*ili* of *wauke*, two ‘*ili* of sweet potato, and, ‘*ili* of watermelon. At Malaekahana is one ‘*ili* of sweet potato. Malaekahana is a separate *ahupua‘a*. Also, my house is at Paakea. My occupancy has been from the reign of Kamehameha 3 [sic]

Foreign Testimony V. 11:300
No. 4361 Kii

Kupehia, sworn says, he knows the land claimed by Kii in Laie. It consists of 2 *kalo* patches, a piece of *kula* land and a house site. The 3 patches are bounded on Hauula side by Kahalelaau’s land, - Maauka by Pulehua’s, - Waialua side by the Konohiki, - Makai by Mahoe’s land. The *kula* land is bounded on Hauula side by Kauaiomano’s, - Mauka and Makai by the *konohiki*, - Waialua side by Kauikaua’s land. The house site is distinct from the land – not enclosed. Claimant has held his land for over ten years. The land claimed in Malaekahana is *nahelehele*. The agent of the Konohiki of Laie had no objections to this claim.

Summary of Traditional Economic Activities

Based on the information presented above, the following is a summary of the traditional economic activities that may have taken place in the area of the project.

- Houselots for habitation.
- Irrigated taro cultivation.
- Dryland farming on *kula* lands:
 - Sweet potato
 - Wauke
 - ‘Ōlena
 - ‘Awa
 - Banana
 - Melons
 - Tobacco
 - Sugar cane
- Economically useful trees:
 - Hala
 - Kukui
 - Koa
 - Breadfruit
 - Noni
 - Coconut

The summary indicates that agricultural pursuits were widespread and diverse. Both irrigated and non-irrigated farming took place, and a wide range of trees appeared to have been important to the residents of the area. Most of the cultigens were Polynesian introductions, but a couple of historically introduced plants (melons, tobacco) were added after European contact. It appears that the main agricultural cultigens were taro, sweet potato, and breadfruit. Added dietary items included banana, sugar cane, and coconut. *Wauke*, used in making tapa was apparently widespread. Medicinal plants including *‘ōlena* and *noni* were also present.

3.3.4 Historic Agriculture, Religion, Developments, and Military Land Use

The Kahuku Ranch

According to Rechtman (2009), prior to Campbell’s ownership, Charles Gordon Hopkins obtained the *ahupua‘a* of Kahuku in 1851 as part of Grant No. 550 and founded a ranch at Kahuku.

The result of these developments were not all positive, as suggested by Emerson (1928), where he writes that the tyranny of the new land owners had caused the Native population of Kahuku to suffer, on which he elaborates:

Kahuku had passed from control of its chief to that of an Englishman. The pastures of his big ranch extended along the shore for 12 miles, reaching inland to the mountain chain, and he was so autocratic that the natives could not own a dog, or pasture a cow or horse, without his consent. The depredations of herds and flocks on their small homesteads became unbearable, but they appealed in vain for their beloved *hala* trees and patches of vegetables. . . There was no redress, however, and with the fading of the forests the people also disappeared and the once populous district of Kahuku became a lonely sheep and cattle ranch (Emerson 1928:135-136 as cited in Rechtman 2009).

The 25,000 acre property in Kahuku that would become Kahuku Ranch had passed through a series of hands before it was purchased by James Campbell for \$63,500 cash in the mid-1870s. Campbell then stocked this ranch with 3,000 head of cattle as well as a number of sheep and horses he hoped would reach 30,000 (Silva 1984:C-16).

The Kahuku Plantation

By the late 1890s, Campbell had leased a large portion of his ranch lands to James B. Castle, which would become the Kahuku Plantation. The plantation proved to be innovative both socially and economically. In the early 1900s, the Hawaiian Sugar Planters’ Association became a recognized organization that aimed to improve general working and living conditions of plantation workers. Kahuku Plantation became a pioneer in the movement, providing a day-care center for the working mothers beginning in 1905 (Thrum 1921:116). The plantation had also developed a new fuel-saving device that burnt waste molasses, creating an ash that was then used as a high grade fertilizer (ibid.). By the mid-1930s, the plantation was cultivating nearly 4,500 acres and had 1,137 people under its employ (O’Hare and Hammatt 2006:21). With its heyday long over, the Kahuku Plantation shut its doors in 1971, causing the greater Kahuku area to experience economic instability for years.

During the plantation's operation, water was an extremely valued resource in the Kahuku and Keana area. Prior to the plantation, traditional agricultural methods relied on seasonal rains, the area's few springs, and intermittent streams. Thus, the plantation began pumping spring water, stream water, and rain to irrigate the sugarcane, but "...these sources were found to be insufficient. Thereafter, the company resorted to artesian wells, which came to be the main source of water" (Kuykendall 1967:69).

Religion and Religious Developments in Kahuku, Keana, and Mālaekahana Ahupua'a

Western religions in Kahuku during the late 1800s were jostling to gain the loyalty of the community. In the 1878 *Annual Report of the Hawaiian Evangelical Association*, Kahuku Church, which eventually merged with Hau'ula Church, was one of the last Hawaiian speaking Evangelical churches on the island (Hawaiian Evangelical Association 1878:2). This church is later described in this report as "one of the feeble churches," to the point that, "its pastor has been called to Waianae, and installed over that church...It would be well for this church to unite with some stronger one..." (Hawaiian Evangelical Association 1878:10).

The Church of Jesus Christ of Latter Day Saints gained the majority of Lā'ie and Mālaekahana's faith in as early as 1850, when Mormon missionaries initially settled in the area. According to Ahlo and Hommon (1981), the Mormon Church purchased approximately 6,000 acres in the area for farming. Of these lands, approximately 1,500 acres of which were ideal for agriculture. Crops that were initially cultivated on these lands, but by the end of the 19th century pineapple and sugar cane dominated. This is upheld in Vogeler et al. (2011), who largely cite Britsch (1989), holding that Brigham Young sent the first eight Mormon missionaries to the Hawaiian Islands in 1850. This initial mission yielded a significant religious, economic, and infrastructural foothold for the Mormon Church, as is evident in Voegler et al. (2011):

They arrived on December 12 in Honolulu, and then split up, traveling in groups of two or three to the other islands. Their original mission to convert the mainly foreign-born (*haole*) population proved to be difficult. The missionaries were discouraged and discussed returning home, but they instead decided to stay, to learn the Hawaiian language, and to preach to the native Hawaiians...The number of Hawaiian converts quickly grew, and in 1853, they decided to buy land on Lāna'i to start a colony, where all the brethren could live and work.

The Lāna'i colony was not a success, for a wide variety of reasons, and in 1864, the mission decided to found a new gathering place. In 1864, two Latter-day Saints Mission presidents, Francis A. Hammond and George Nebecker, traveled to Hawai'i to purchase land for a new Mormon settlement. Land was fairly cheap at this time in Hawai'i as the end of the Civil War in the U.S. had led to a depression in the sugar market, leading to an eagerness to sell land by sugar planters... In 1865, Hammond purchased a six-thousand acre plantation called "Lā'ie" from Thomas T. Dougherty. By 1865, the Church had 6,000 acres, probably all the land in Lā'iemalo'o and a portion of the land in Lā'iewai (minus the 298.5 acres owned by the Kahuku Ranch and Kahuku Sugar Company).

On this land was 600 head of cattle, 500 sheep, 250 goats, 20 horses, a large frame house, five native houses, and five acres of cotton...The first order of business for the new owners was to establish a cash crop that would sustain the settlement. Although corn and cotton were grown for the first two years, it soon became

evident that sugar would be the salvation of the growing community. A mill was purchased and set up in Lā‘ie in 1868...The problem of insufficient water in some years was solved in the early 1880s, when a flume was built to bring water down from the Ko‘olau Mountains. A new, more efficient mill was built in 1879...

By 1866, about two hundred Hawaiians, mostly members of the Church, were living at the Lā‘ie mission settlement...Growth of the community was slow through the 1870s, due to most Hawaiians wishing to stay near their own homes. In 1874, only about 377 members lived near the mission... However, church membership as a whole did increase during this time; in 1865, the island-wide membership of the Hawaiian mission was recorded as 500; by 1906, it was 7,212 strong... (Voegler et al. 2011:41-42).

In 1920, the Mormon Temple was erected in Lā‘ie, with a price tag of \$250,000, which was intended to resemble a tabernacle in Salt Lake (Elder 1922:194).

Transportation in Kahuku, Keana, and Mālaekahana Ahupua‘a

The entire northern portion of O‘ahu was greatly isolated from the Western urban sprawl of Honolulu until paved roadways and rail were implemented. While this area remained “country,” the new transportation infrastructure forever changed the landscape Kahuku, Keana, and Mālaekahana Ahupua‘a. According to Kuykendall (1953),

On Oahu, what came to be called the “round-the-island road” --ancestor of Kamehameha Highway--extended from Honolulu to Ewa, thence across the central plateau to Wai‘alua; from that place it ran along the coast past Kahuku and Kualoa to Kaneohe, where it joined the road which came over the Nuuanu pali from Honolulu. In 1856, for the first time, a four-wheeled carriage drawn by a pair of horses was driven over the portion of this road between Honolulu and Kahuku. Three years later, a Captain Coffin is reported to have driven with a carriage and span of horses from Honolulu to Kahuku one day in ten hours and to have returned the following day in eight hours (Kuykendall 1953:25).

In the late 1800s, the O‘ahu Railway and Land Co. ran a line up to Kahuku from Honolulu via the Pali – with the terminus of the line running from Wai‘anae (Honolulu Star-Bulletin 1941:155). This line was lauded for opening up new economic opportunities to windward districts of O‘ahu (ibid.:158). Wong-Smith (1989) summarizes this as follows:

For its first nine years Kahuku Plantation Co. relied on little coastal vessels which anchored offshore from Kahuku Landing to bring supplies and return raw sugar to Honolulu. Five miles of 36-inch gauge railway, some of it portable, had been laid in 1890 to haul the cane through the plantation fields to the Kahuku mill and thence to the landing. The plantation track extended south opposite Laie and the Mormon settlement, which sent its cane to be ground at Kahuku... In 1899, the Oahu Railway finally laid track to a terminal at Kahuku. It hauled sugar and the agricultural freight products back and forth across the windward part of Oahu. The Koolau Railway Co. laid tracks from Kahana to Kahuku and served as a common carrier until 1931. From then until the 1950s, its sole function was to carry cane from the northeastern field of the island (Wong-Smith 1989:A-15-16).

Military Presence in Kahuku, Keana, and Mālaekahana Ahupua‘a

Prior to the construction of any U.S. military bases in Hawai‘i, the American Marconi Company set up a wireless operation in Hawai‘i in 1902, building their transpacific receiving station at Kahuku in 1915. This site is located less than 3 kilometers north of the Nā Pua Makani Wind Project area.

According to O’Hare et al. (2008), Kahuku Golf Course, which is less than one kilometer east of the project area, also played a part in World War II, stating:

It was during the attack on Pearl Harbor on December 7, 1941 that the Kahuku Golf Course was first used as an emergency landing field. On December 6, twelve B-17s had left California on route to the Philippines, with a stopover for refueling at O‘ahu. They flew into O‘ahu completely unaware of the Japanese attack and had to quickly dodge strafing by the Japanese Zeros. Amazingly, they all managed to make emergency landings, seven at Hickam Air Field, one at Wheeler Airfield, one at Bellows Airfield, one at the tiny Hale‘iwa Airport, and one on the grass and sand surface of the Kahuku Golf Course...The Army Air Force on O‘ahu had planned to build an emergency strip at the golf course, but it had not been completed by the time of Pearl Harbor attack (O’Hare 2008:28).

In 1942, the Kahuku Airfield was constructed as an auxiliary airfield, with several runways, ancillary bunkers, and emplacements (O’Hare and Hammatt 2006:21). Pilots from Wheeler Air Force Base were trained to fly a variety of aircraft on this airfield. By the late 1940s, Kahuku Field was abandoned and the lands once leased by the military were returned to the landowner. This former airfield was located near the present day Turtle Bay Resort.

According to Nakamura (1981), the *wao/mauka* areas of Kahuku and Keana Ahupua‘a were also leased to the U. S. Military for training purposes in the mid-1950s. These lands, referred to as the Kahuku Training Area (KTA), have continuously been utilized by various branches of the United States Department of Defense and have not been easily accessible to the general public since. KTA makes up most of the western boundary of the Nā Pua Makani project area.

4.0 PREVIOUS ARCHAEOLOGY

A total of 39 archaeological studies have been conducted in various locations within a 2.5 kilometer radius around the proposed Nā Pua Makani Wind Project lands. Presented in the following section is a summary of the findings for these reports. A list of the reports and their locations in chronological order is provided in Table 2 and map of the project area with all of the study areas and known archaeological sites is provided in Figure 6.

Table 2. Previous Archaeological Investigations in the Vicinity of the Project Area

Authors	Year	Report Title and Publisher	Project Location	Findings
McAllister	1933	<i>Archaeology of Oahu</i> . Bishop Museum: Honolulu.	Island-wide survey.	Sites 50-80-02-0268 through -0272 near Nā Pua Makani Wind Project area.
Cox and Stasack	1970	Hawaiian Petroglyphs. Bishop Museum Press, Honolulu.	Island-wide survey.	Located a petroglyph on a beach boulder in either Keana or Kahuku Ahupua'a.
Rosendahl	1977	<i>Archaeological Inventory and Evaluation Report for U.S. Army Support Command, Hawaii (USASCH). Parts I Report Text and II Tables</i> . Department of Anthropology, Bishop Museum, Honolulu.	Kahuku Training Area, selected portions totaling 1,044 acres.	Relocation of 3 sites and discovery of 6 new sites (No. 50-80-02-9506 through -9509); Site -9506 (historic stone faced irrigation ditch) is less than 0.5 km southwest of project area.
Barerra	1979	<i>Kahuku Archaeological Survey</i> . Chiniago Inc. Honolulu.	Described in Barrera (1981) as located "...inland of the post office at Kahuku."	Discovery of 5 sites (No. 50-80-02-1425 through -1429), largely traditional.
Clark	1979	<i>Preliminary Archaeological Reconnaissance Report for Koolau Loa Housing Project and Park Expansion, Kahuku, Island of Oahu</i> . Kualoa Archaeological Research Project, Department of Parks and Recreation, City and County of Honolulu.	57.3-acres in the proposed Koolau Loa Housing Project area and Park Expansion Area, Kahuku.	Relocation of Site -0269, A "sacred way," (described as a Hawaiian sacred area having no structural features).
Schilt	1979	<i>Archaeological Reconnaissance Survey of Proposed Extension, Kahuku Elementary School, Kahuku, O'ahu</i> . Department of Anthropology., Bernice P. Bishop Museum, Honolulu.	4-acres in the Proposed Extension of Kahuku Elementary School.	Relocated a rock shelter and platform previously recorded by McAllister (1933). Two new sites (a mound and overhang shelter) were also found.
Yent & Estioko-Griffin	1980	<i>Archaeological Investigations at Mālaekahana (50-80-02-2801), Windward O'ahu</i> . DLNR, Honolulu.	Mālaekahana State Park, Phase I (south portion)	Site No. -2801; 3-year project; performed mapping, testing, excavation, and analysis; 3 major occupational layers found (ca. AD 1600-1780).

Authors	Year	Report Title and Publisher	Project Location	Findings
Barrera	1981	<i>Cultural Resources Reconnaissance of the Kahuku Agricultural Park Project Area.</i> Chiniago Inc. Honolulu.	Four separate parcels totaling 3,000 acres in <i>mauka</i> Kahuku, Keana, & Mālaekahana Ahupua‘a.	Three new sites: (1) a surface scatter of historic and traditional artifacts; (2) a single cowrie shell; and (3) a surface scatter of historic artifacts. Sites 2 and 3 are located near a prominent limestone outcrop.
Davis	1981	<i>Archaeological Reconnaissance Survey of Hawaiian Wind Farm Project area at Kahuku O‘ahu, Hawai‘i.</i> MS 060481. Department of Anthropology, Bishop Museum, Honolulu.	Kahuku Training Area, selected portions (proposed windmill sites).	Discovery of 4 additional sites, including a historic stone wall remnant, a habitation complex, agricultural terraces, and stone platform.
Sinoto	1981	<i>Archaeological Reconnaissance Survey of Ki‘i and Punamanō Wetland Refuge Units, Kahuku, O‘ahu, TMK 5-6-002 & 003,</i> Bishop Museum.	Ki‘i and Punamanō Wetland Refuge Units in Kahuku.	Relocation of 2 sites found by McAllister (1933): Puumano Spring and Ki‘i Fishpond.
Yent & Ota	1982	<i>Mālaekahana Phase II Initial Testing Results.</i> DLNR, Honolulu.	Mālaekahana State Park, Phase II (central portion).	22 cores; cultural materials encountered only in coastal cores; No new sites found.
Rogers-Jourdane	1982	<i>Archaeological Reconnaissance Survey of Marine Culture Enterprises Lands in Kahuku, O‘ahu Island.</i>	45 acres in Kahuku Golf Course area.	No sites found.
Yent & Ota	1983	<i>Eroding Archaeological Site at Mālaekahana Phase III, Mālaekahana Bay, Windward O‘ahu.</i>	Mālaekahana State Park; Dune area of Phase III.	In eroding dune face, a human burial, <i>imu</i> , and two hearths were recorded (Site No. -1038).
Yent & Estioko-Griffin	1986	<i>Results of Auger Coring Conducted at Mālaekahana State Recreation Area, Phase II, Koolau Loa, Oahu.</i>	Mālaekahana State Park, Phase II (northern portion).	11 cores excavated; no sites found.
Sinoto	1986	<i>Perimeter Flagging for Proposed Fencing Around Two Archaeological Site Areas, Kahuku Elementary School, Kahuku, O‘ahu.</i> Letter Report. Department of Anthropology, Bernice P. Bishop Museum, Honolulu.	Kahuku Elementary School, Keana Ahupua‘a.	No new sites found; flagging of McAllister (1933) Sites -0269 and -0270.
Jensen	1989 a & b	<i>Archaeological Inventory Survey Punamanō and Mālaekahana Golf Courses Lands of Ulupehupehu. Punaluu. Kahuku, Mālaekahana, and Laie, Koolau Loa District, Island of Oahu.</i>	Non-contiguous project area, totaling 866-acres of inland Kahuku. Punamanō Golf Courses is within Ulupehupehu, Punalau and Kahuku Ahupua‘a. Mālaekahana Golf Course is in Lā‘ie and Mālaekahana Ahupua‘a.	Twenty-six sites containing 45 component features were identified. Traditional site types: caves, overhangs, walls, terraces, platforms, enclosures, isolated midden deposits. Historic site types: WWII II emplacements, dumps, roads, and agricultural ditches.
Kennedy	1989a	<i>Archaeological Inventory Survey for the Proposed Mālaekahana Golf Course, A Portion of the Country Courses at Kahuku.</i>	200 acres inland of Mālaekahana Bay and Kalanai Point, ca. 100 meters southeast of project area. Was location of Site -0275, Wai‘āpuka, a legendary sinkhole with spring.	Thirteen new sites found (11 traditional habitation and agricultural sites and 2 historic plantation and military sites). Also, 6 sand dunes recommended for testing. Letter report lists only temporary site numbers. Site -0275 not relocated.

Authors	Year	Report Title and Publisher	Project Location	Findings
Kennedy	1989b	<i>Archaeological Assessment and Reevaluation Report Concerning the Recently surveyed, Proposed Punamanō Golf Course; A Portion of the Country Courses at Kahuku.</i>	Inland Ulupehupehu, Punalau and Kahuku Ahupua'a.	Two new Historic sites to the Jensen's (1989 a&b) findings with a total of 14 additional features. Also recommends preservation of Site - 4070 (possible burial).
Kennedy	1989c	<i>Archaeological Reconnaissance Survey at TMK: 5-6-002:025, Located at Kahuku, O'ahu.</i> Archaeological Consultants of Hawai'i, Hale'iwa, Hawai'i.	Across Kamehameha Hwy. to the north of Hospital (Kahuku Medical Center).	No sites found.
Kennedy	1990	<i>Kahuku Sand Mining Project: Archaeological Subsurface Testing Results.</i> Archaeological Consultants of Hawai'i, Hale'iwa, Hawai'i.	Immediately southwest of Kahuku Golf Course.	No burials or cultural layers were found during testing.
Pfeffer & Hammatt	1992	<i>Waialua to Kahuku Power Line.</i> Cultural Surveys Hawai'i, Kailua, Hawai'i.	Uplands of Ahupua'a spanning from Waialua to Kahuku.	-
Hammatt & Pfeffer	1992	<i>Archaeological Reconnaissance of Kahuku Agricultural Park.</i> Cultural Surveys Hawai'i, Kailua, Hawai'i.	Upland Keana Ahupua'a.	One day reconnaissance survey yielded no new sites.
Stride et al.	1993 & 2003	<i>Archaeological Inventory Survey of the Proposed 785-Acre Kahuku Agricultural Park.</i> Cultural Surveys Hawai'i, Hale'iwa, Hawai'i.	Original 1993 project area was 1666 acres, later in 2003 reduced to 785 acres in upland Kahuku and Keana Ahupua'a (single report submitted in 2003).	In all, 21 sites were located in original project area. However, 7 sites were recorded (50-80-02-4510 through -4516) in the revised area. Site types: wall sections, overhang shelters, terraces, and enclosures. Most appear to function as habitation sites from pre-Contact into historic times.
Dagher	1993	<i>Inadvertent Discovery of a Human Burial at Makahoa Point, Mālaekahana, Ko'olau Loa, O'ahu.</i> State Historic Preservation Division, Kapolei, Hawai'i.	Makahoa Point.	A single pre-Contact era human burial of Hawaiian ancestry was inadvertently discovered.
Jourdane	1994	<i>The Inadvertent Discovery of Human Remains near Kahuku Golf Course, Kahuku, O'ahu.</i> Historic Preservation Division, Kapolei, Hawai'i.	Near Kahuku Golf Course.	A single pre-Contact era juvenile human burial was inadvertently discovered.
Hammatt	1996	<i>Archaeological Reconnaissance for Proposed Mālaekahana Exploratory Wells, Mālaekahana, O'ahu.</i>	Just mauka of the southern mauka end of the NPM APE.	Archival research and archaeological background performed. No sites recorded.
Hibbard	1997	<i>Inadvertent Discovery of Human Remains, Japanese Cemetery, Kahuku Golf Course, TMK 5-6-002:010.</i> Memo in Burial Files, State Historic Preservation Division, Kapolei, Hawai'i.	Japanese Cemetery near Kahuku Golf Course.	A single pre-Contact era human bone was inadvertently discovered.
Collins	1999	<i>Recovery of Human Remains From Kahuku Golf Course.</i> State Historic Preservation Division, Kapolei, Hawai'i.	Kahuku Golf Course (<i>makai</i>).	Pre-Contact era human remains were inadvertently discovered (site -5773).

Authors	Year	Report Title and Publisher	Project Location	Findings
Perzinski & Hammatt	2001	<i>Archaeological Inventory Survey Report for Hospital Ditch and Ki'i Bridge in the Ahupua'a of Kahuku, District of Ko'olau Loa, Island of O'ahu (TMK: 5-6-002, 005 & 006).</i> Cultural Surveys Hawai'i, Kailua, Hawai'i.	Kamehameha Hwy., Kahuku near detour roads.	No sites recorded.
Calis & Tome	2002	<i>An Archaeological Monitoring Report for the Force Main Sewer Replacement Project, Kahuku Ahupua'a, Ko'olau Loa District, O'ahu Island, Hawai'i.</i> Scientific Consultant Services, Inc., Honolulu.	Force Main Sewer, <i>makai</i> of Kamehameha Hwy., Kahuku.	No sites recorded.
O'Hare et al.	2004	<i>Documentation of the Kahuku Sugar Mill, Kahuku Ahupua'a, Ko'olau Loa District, Island of O'ahu.</i> Cultural Surveys Hawai'i, Inc. Submitted to Tetra Tech Inc.	Kahuku Mill Complex.	Documentation report of remaining Plantation structures.
O'Hare et al.	2008	<i>Archaeological Inventory Survey Plan for the Kahuku Subdivision Project, Kahuku, Keana, and Mālaekahana Ahupua'a, Ko'olau Loa District, O'ahu Island. TMK: (1) 5-6-002; 003, 010, 012, 016, and 027.</i> Cultural Surveys Hawai'i, Kailua.	200 acres of <i>makai</i> Kahuku, Keana, and Mālaekahana Ahupua'a. Bound by the coast, Makahoa Point, Kaluahole, and Kamehameha Hwy.	No sites recorded. Extensive background research performed on area.
Morrison	2009	<i>Archaeological Background Report for the Proposed Nā Pua Makani Windfarm Project, Kahuku, O'ahu (TMK 5-6-008:006).</i> IARII, Honolulu.	231.9 acres of Kahuku and Keana Ahupua'a, <i>mauka</i> of Kahuku Hospital.	No sites recorded. Background research performed on area.
Rechtman	2009	<i>A Comprehensive Archaeological Survey of the First Wind Kahuku Wind Power Project Area (TMKs: 1-5-6-05:007 & 014).</i> Rechtman Consulting, LLC, Hilo.	230 acres west of Kahuku Village and 2.5 kilometers inland of coast.	SIHP Site 4707, which was described as sugarcane field infrastructure.
Dagher & Spear	2010	<i>Literature Search and Field Inspection of The Kahuku Storm Damage Reduction Project Kahuku Ahupua'a, Ko'olau Loa District, O'ahu Island, Hawai'i.</i> SCS, Honolulu.	Kahuku Intermediate and High School grounds and park adjacent to the west.	No sites recorded. Background research performed on area.
Dagher & Spear	2014a	<i>Archaeological Inventory Survey Report for the Kahuku Village Subdivision Project, Keana and Mālaekahana Ahupua'a, Ko'olau Loa District, Island of O'ahu, Hawai'i [TMK (1) 5-6-002:027].</i> SCS, Honolulu.	Portion of 50 acres between Kahuku Golf Course and Kamehameha Hwy.	A single site was found (site No. -7508), consisting of 10 features (9 plantation era and 1 pre-Contact to early-Contact era).
Dagher & Spear	2014b	<i>An Archaeological Monitoring Report for the Kahuku Village Subdivision Project, Keana and Mālaekahana Ahupua'a, Ko'olau Loa District, Island of O'ahu, Hawai'i [TMK (1) 5-6-002:013, 014].</i> SCS, Honolulu.	Portion of 50 acres between Kahuku Golf Course and Kamehameha Hwy.	Five archaeological sites found: site -7398 (historic cesspools); -7399 (Burial); -7400 (-7401, and -7511); -7398
Lyman & Spear	2014	<i>Archaeological Inventory Survey for the Kahuku Village Subdivision Project Keana Ahupua'a, Ko'olau Loa District, Island of O'ahu, Hawai'i [TMK: (1) 5-6-002:047 por].</i> SCS, Honolulu.	Kahuku Village immediately <i>makai</i> of Kamehameha Hwy. and <i>mauka</i> of Kahuku Golf Course.	Site No. -7508, 8 features (historic existing plantation era homes) relocated.

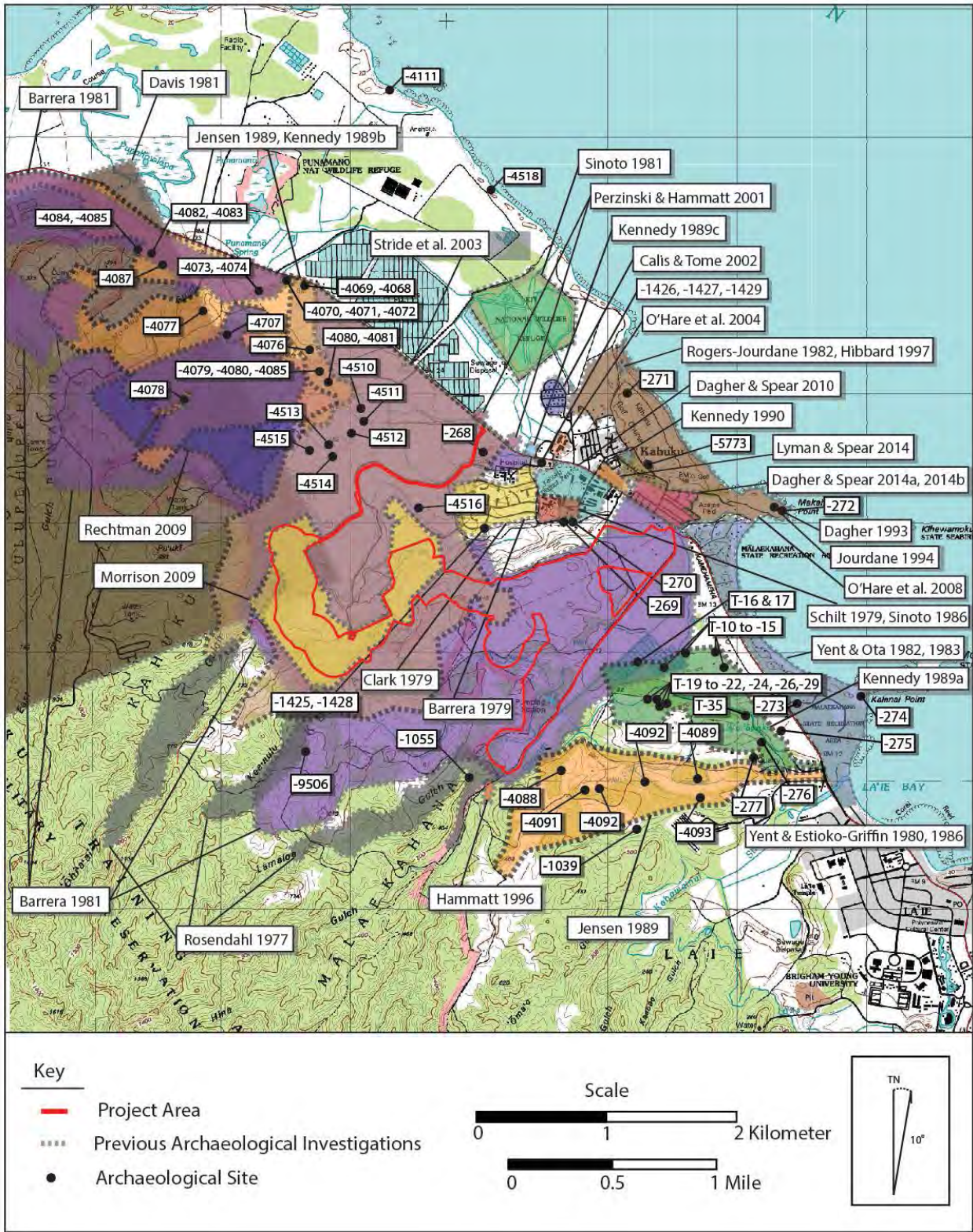


Figure 6. Previous archaeological studies and sites in vicinity of the project area (adapted from USGS Kahuku Quadrangle Map).

4.1 EARLY ARCHAEOLOGICAL STUDIES

The earliest systematic archaeological study performed in the vicinity of the Nā Pua Makani Wind Project is the 1930 island-wide survey conducted by Gilbert McAllister (1933). In *Archaeology of Oahu*, McAllister identifies several historic sites near the project area, including McAllister's Site 269 (traditional platform) and Site 270 (Keana Cave), located less than 300 meters north of the project area. In addition, Kaaulelemoa Fishpond (Site 268) is located less than a kilometer north of the project area, a traditional fishing shrine on Makahoa Point (Site 272) is less than a kilometer to the east, and Pōlou Pool (Site 271) is located just over a kilometer to the north.

Nearly 50 years later, a state-wide survey was performed by J. Halley Cox and Edward Stasack (1970), which focuses solely on petroglyphs. In this study, Cox and Stasack (1970:97) recorded a human figure petroglyph on a boulder at Kalaeuila Point, which is ca. 4 kilometers south of the Kahuku/Keana boundary.

4.2 RECENT ARCHAEOLOGICAL INVESTIGATIONS

In 1977, Paul Rosendahl, performed an archaeological inventory survey on 1,044 acres (non-contiguous) of the 9,646-acre Kahuku Training Area (KTA), the eastern sections of which abut and overlap portions of the west-southwest boundaries of the current Nā Pua Makani Wind Project lands. During this reconnaissance undertaking, Rosendahl (1977) identified nine archaeological sites, including four previously recorded sites that were destroyed (-259, -260, -1043, and -9517), one previously recorded site that was intact and on the State of Hawai'i Register of Historic Places (-2501), and four newly discovered sites (-9506 through -9509). All sites found by Rosendahl (1977) are located in the *ahupua'a* of Hanakaoe and nearly 2 kilometers to the northwest of the project area. Only site -9506, Keaaulu Ditch, which is described as a Historic stone-faced irrigation ditch, is located in close proximity to the project area (ca. 500 meters southwest).

In 1978, the Kualoa Archaeological Research Project (City and County of Honolulu) was tasked with a reconnaissance survey of the 49.9-acre Ko'olau Loa Housing Project area and the 7.4-acre Kahuku District Park Expansion area (Clark 1979). These areas are located less than 500 meters north of the project area. During the survey, local informants led the archaeologists to a locality in the housing area that they referred to as a "sacred way," which was a cleared area with no visible man-made features, but held some spiritual significance to the community. Site -269 was relocated in the school expansion area and described as a stone platform containing a large coral slab that was interpreted as a possible *kū'ula* (stone image), or grindstone (*hoana*). Also revisited was Keana Cave (Site -270) where human skeletal remains were observed on the slope of the cave entrance. In addition, Clark (1979) found a second rock shelter located along a coral outcrop that contained skeletal remains, possibly human, and wood. Clark (1979) noted several other small crevices in outcrops and rock shelters with crude walls in the project area, but did not investigate further. A single Historic grave with a marker exhibiting a date of 1945 was also found during this investigation.

William Barrera (1979) revisited the Ko‘olau Loa Housing project the following year, conducting a more thorough archaeological inventory survey and subsurface testing. Barrera (1979) suggested that two limestone knolls and the base of a limestone ledge had the potential to contain archaeological sites, and that the rest of the area had been impacted by sugarcane activities. These three areas were surveyed, yielding five archaeological sites. Site No. -1425 was comprised of two walls aligned at the base of the limestone cliff. Site No. -1426 was described as a rock-lined depression and a metal pipe located at the eastern knoll. Site No. -1427 consisted of a complex of three walls, three rock mounds, and one cave located on the eastern knoll. Site No. -1428 was described as a wall situated on top of a cliff. Site No. -1429 consisted of an earthen mound within an L-shaped wall. Although several of the features were tested, no cultural remains were observed. The conclusion was that most of these features, if not all, were historic and associated with sugar cane cultivation (Barrera 1979).

In 1979, a crew from the Bishop Museum recorded Sites No. -269 and -270 (Schilt 1979), during an archaeological reconnaissance survey for the 4-acre Kahuku School Expansion project. Although some collapse and disturbance was observed on the platform (Site No. -269), Schilt (1979) noted that one component of the platform was a large coral “block,” which may indicate that the feature had a ceremonial component. Sketches were made of the platform as well as photographs to record the condition of the platform. Schilt (1979) also noted that the two stones at the entrance of Keana Cave (Site No. -270) were natural formations and that the cave floor was covered by scattered limestone fragments that were likely roof fall, but that midden could possibly lie below it. A roughly rectangular stone mound (Site No. -2478) and a small overhang located within a large outcrop (Site No. -2479) were also recorded (Schilt 1979).

A reconnaissance survey was performed in 1981 by Barrera for the 2,500-acre Kahuku Agricultural Park, which was separated into four parcels. This study area nearly encompasses the current Nā Pua Makani Wind Project area. Barrera (1981) brief survey was performed in three of these parcels and a more thorough survey was performed in one 500-acre parcel. The current project area lies largely in the 500-acre parcel intensively surveyed and the eastern most parcel Barrera (1981) surveyed. In his background research, Barrera (1981:19) listed sites on file at the SHPD office at that time, stating that Site -1055, described as a “Shelter Cave,” was outside of his project area and mapped it approximately 200 meters west of the southernmost projection of the project area. However, no source was cited in Barrera’s 1981 report. Three archaeological “locations” were identified in the westernmost parcels, which did not include any structural features, but consisted of solely of possibly pre-Contact and Historic surficial remains. These three locations were all within Kahuku Ahupua‘a, just under a kilometer north of the project area. Location 1 consisted of a marine shell, coral fragments, and basalt flakes. Location 2 was comprised of one cowry shell. Location 3 was a concentration of glass bottle fragments.

Subsequently, Bertel Davis (1981) performed a reconnaissance-level survey in selected areas of KTA for a proposed wind farm, which yielded four newly identified sites (Site No -2357 through -2360). Site No. -2357 consisted of a discontinuous segment of a stacked stone wall that supported a barbed-wire fence with milled wood posts. Sites No. -2358 through -2360, consisting of a house site, habitation terraces, and a terrace with ceremonial features (respectively), are suggested to be functionally and spatially related, being situated within a

swale in upland ‘Ōpana Ahupua‘a (Davis 1981). These findings are located over three kilometers to the northeast of the project area.

The same year, Aki Sinoto of the Bishop Museum performed a brief reconnaissance survey of the Ki‘i and Punamanō Wetland Refuge areas (Sinoto 1981), finding that the land had been extensively modified. He noted a single historic site, which was an old OR&L railroad track. The entire wetland site was designated 50-0a-F4-10/11. While Sinoto (1981) referred to this area as Kahuku Fishpond, one of McAllister’s (1933:154) informants maintains that this area was always a swamp - not a fishpond.

Between the years 1980 and 1986, several archaeological investigations were performed in Mālaekahana State park, which had been divided into three phases. In 1980, Yent and Estioko-Griffin performed mapping, testing, excavation, and analysis at Site No. 50-80-02-2801, which was in Phase I located in the southern portion of the park. The three-year project yielded three major occupational layers dating from ca. AD 1600 to 1780. (Yent and Estioko-Griffin 1980:xxi-xxiv). Yent and Ota (1982) performed auger testing at Phase II of the park, which is the northern portion of the park. Of the 22 cores, cultural materials were encountered only in coastal areas. No new sites were found. The next year, Yent and Ota (1983) recorded a human burial, *imu*, and two hearths in an eroding dune face in Phase III, which is in the center of the bay’s coast (Site No. 50-80-02-1038). In 1986, Yent and Estioko-Griffin excavated 11 cores in the southern extent of Phase I, which yielded no new sites (Yent and Estioko-Griffin 1986).

Also in 1982, Rogers-Jourdane performed a reconnaissance survey of approximately 45 acres of the Kahuku Golf Course as well as a 2,000-foot long by 100-foot wide corridor for an associated pipeline. This survey yielded no archaeological sites (Rogers-Jourdane 1982). This project area was located over 200 meters to the northeast of the current project area.

Four years later, Sinoto revisited Sites No. -269 and -270 to flag the perimeter for protective fencing to be installed prevent damage during the proposed Kahuku Elementary School extension construction activities (Sinoto 1986).

In 1989, Jensen performed an archaeological inventory survey of two separate areas for the proposed development of Punamanō and Mālaekahana Golf Courses project, totaling 866 acres. Twenty-six sites containing 45 component features were identified between the two separate project areas. These reports were initially released as a single report by Jensen (1989a). Later that year, they were released as separate reports with a change in project area for the Mālaekahana Golf Course and, thus, new survey area, released by Kennedy (1989b). A reevaluation of Jensen’s (1989) Punamanō Golf Course survey was also released by Kennedy (1989a). The proposed 638-acre Punamanō Golf Course was located less than one kilometer north of the current project area. Twenty-six archaeological sites were recorded by Jensen (1989) in this portion of the project area (Sites No. -4076 through -4081, and -4085). Site No. -4076 is comprised of an overhang shelter complex of eight features (Features A-H) with visible midden and basalt flakes. Site No. -4077, also a complex (Features A-C), was described as a terrace with a wall and ‘*auwai* (modified crevasse). Site No. -4078 is a three feature complex (A-C) comprised of an overhang shelter with two stacked walls. Site No. -4079 consists of short wall segments. Site No. -4080 is described as a historic trash dump and bottle scatter. Site No. -4085

is a complex of two features (A and B), Feature A being an enclosure and Feature B being a low wall. Kennedy (1989b) reviewed and reevaluated Jensen's (1989) findings and added two new historic sites, including an enclosure complex and an irrigation ditch, as well as 14 new features associated with sites previously identified by Jensen (1989). SIHP numbers for newly identified sites were not provided. Further, Kennedy (1989b) suggested that Jensen's (1989) Site No. -4076 be preserved, as Kennedy maintained that it could possibly be a burial. Kennedy's (1989a) survey of 200 acres at the site of the proposed Mālaekahana Golf Course, which was not the same survey area as Jensen's (1989) Mālaekahana Golf Course project area, yielded 19 surface features. These sites included overhang shelters with evidence of previous human occupation, suspected agricultural terraces, low mounds, midden scatter areas, large, sandy dune formations with suspected cultural components, prehistoric surface artifacts, a historic gun emplacement, and an historic railroad bed. Kennedy (1989a) found thirteen new sites, consisting of 11 traditional habitation and agricultural sites and two historic plantation and military sites. Also, six sand dunes were recommended for testing. Sites in this report did not receive SIHP numbers, but were designated temporary site numbers. This portion of the project area is located less than 100 meters south of the current Nā Pua Makani Wind Project's southern boundary.

Later that year, Kennedy (1989c) performed a reconnaissance survey on a 14-acre parcel across Kamehameha Highway of Kahuku Hospital, which is roughly 1 kilometer north of the project area. While no archaeological sites were identified, Kennedy noted that Ki'i Ditch ran through the parcel. Yet, it was not apparent if this plantation-era ditch followed an earlier *'auwai*, or traditional irrigation ditch.

In 1990, Kennedy performed archaeological subsurface testing in a parcel just northeast of the Kahuku Sugar Mill and approximately 500-meters north of the current project area. Although no archaeological materials were found in the 47 trenches, a single early modern trash pit and a few shallow irrigation channels associated with nearby small garden areas were observed. The stratigraphy of the trenches suggested that a sand deposit, which has been formed by gradual Aeolian processes over a lengthy time period, exists throughout the area. As such, human remains may potentially exist in the upper, penetrable sand deposit (Kennedy 1990).

Pfeffer and Hammatt (1992) of Cultural Surveys Hawai'i, performed an archaeological assessment of an area spanning from Waiāluā to Kahuku for a power line project. They noted that a multitude of archaeological sites may be present in the vicinity of the project area, with greater probability in coastal areas.

A one-day survey was performed by Hammatt and Pfeffer in 1992 on four parcels (1A, 1B, 2, and 3) in *mauka* Keana Ahupua'a for the Kahuku Agricultural Park, limiting the survey to areas not under cultivation. No sites were recorded during the brief survey.

The grand majority of the 1666-acre Kahuku Agricultural Park (Parcels 1A, 1B, 2, and 3) was surveyed and tested in 1992 by Cultural Surveys Hawai'i, which covers the entire western side of the current project area (Stride et al. 2003). However, the 1666-acre project area was reduced to 785 acres (Parcels 2 and 3). Prior to the project area reduction, a total of 21 archaeological sites were recorded in the 1666 acres. Seven of the 21 sites found were within Parcels 2 and 3.

Only these sites are described in detail in the 1993 CSH report, consisting of: six temporary habitation overhang shelters (Site No. -4510, 4511, and 4515); a temporary habitation enclosure (Site No. -4512); a permanent habitation complex with walls, terraces, an enclosure, and an overhang (Site No. -4513); a temporary habitation terrace (site 4514); and a temporary habitation complex with an overhang and a wall (Site No. -4516). Three of the sites were tested, each sampled with a single test unit (Trenches 1, 2, and 3). A human burial was encountered in Test Trench 2 in Site No. -4515, Feature B (overhang shelter). This burial and others found in Keana and eastern Kahuku *ahupua'a* were reinterred at Site No. -4516 Feature C, which is a low wall adjacent to a limestone outcrop.

In 1993, a single pre-Contact era human burial of Hawaiian ancestry was inadvertently discovered at Makahoa Point (Dagher 1993), which is approximately 800 meters east of the current project area. The following year, Jourdane (1994) wrote a letter report for a single pre-Contact era juvenile human burial that was inadvertently discovered near the Kahuku Golf Course, ca. 800 meters east of the project area. In 1997, a single human bone, assumed to be pre-Contact era, was inadvertently discovered near the Kahuku Golf Course, approximately one kilometer north of the current project area (Hibbard 1997). Several years later, another set of pre-Contact era human remains were inadvertently discovered at the golf course (Site No. -5773), less than 500 meters north of the project area (Collins 1999).

An archaeological inventory survey was performed in 2001 for the Hospital Ditch and Ki'i Bridge/Drainage (Perzinski and Hammatt 2001), which is located just over 1 kilometer north of the project area. No archaeological sites were noted.

Archaeological monitoring was performed in 2002 during excavations related to the 670-meter long force main sewer replacement *makai* of Kamehameha Hwy, which is a little over one kilometer north of the current project area (Calis and Tome 2002). Although no archaeological sites were encountered during ground disturbing activities, Calis and Tome (2002) recorded the stratigraphy of this area that appeared to be largely imported construction fills related to sugar cane cultivation and irrigation.

In 2004, O'Hare et al. conducted documentary research for the Kahuku Sugar Mill complex, in which HAER format recordation of the existing Kahuku Mill structure was performed. History of the mill as well as recordation of mill equipment (O'Hare et al. 2004) was undertaken. The mill is roughly 900 meters north of the current project area.

O'Hare et al. (2008) performed extensive background research for the Kahuku Subdivision Project area, which is comprised of 200 acres that are located less than 300 meters northeast of the current project area. No sites recorded.

In 2009, Morrison prepared an archaeological background report for the proposed 231.9-acre Nā Pua Makani Wind Project for West Wind Works LLC, Oregon, which covers a little less than the western half of the current project area (Morrison 2009). This study focused mostly on creating predictive models by using a series of historical USGS maps and aerial photographs of the project area, ranging from 1906 to 1968, that were geo-referenced and overlain.

Rechtman (2009) conducted an archaeological inventory survey of the 230-acre First Wind Kahuku Wind Power project area located less than 300 meters northwest of the Nā Pua Makani Wind Project. A single archaeological site was recorded within the project area (Site No. -4707), which is an existing site recorded by Kennedy (1989) with related plantation infrastructure features located just outside of the project area.

Another background research report was prepared in 2010 by Dagher and Spear for the Kahuku Storm Damage Reduction Project which is located approximately 500 meters north of the project area (Dagher and Spear 2010). No archaeological sites were recorded.

In 2014, Dagher and Spear performed an inventory survey on 50 acres between the Kahuku Golf Course and Kamehameha Highway for the Kahuku Village Subdivision Project, which is directly across Kamehameha Highway of the current project area (Dagher and Spear 2014a). During this survey, a single site was found (Site No. -7508), consisting of ten features (nine plantation era and one pre-Contact to early-Contact era). Subsequently, Dagher and Spear conducted archaeological monitoring for the same project, where five additional archaeological sites were found, including Site No. -7398 through -7401, and -7511. Site types include human burials and historic cesspools (Dagher and Spear 2014b). Later the same year, Lyman and Spear (2014) conducted an inventory survey for the same project, but the area immediately northwest of Dagher and Spear's (2014a and 2014b) project area. No new archaeological sites were found.

5.0 PREVIOUS ETHNOGRAPHIC INTERVIEWS

A total of four Cultural Impact Assessments (CIA) were found for the Nā Pua Makani Project vicinity (Hammatt 2008; McGerty and Spear 2009; Voegler et al. 2011; Mooney and Cleghorn 2012).

In 2008, Hallatt H. Hammatt conducted a provisional CIA for the Kahuku Village Subdivision Project, which spanned the coastal areas of Kahuku, Keana and Mālaekahana Ahupua‘a. This project area is located a little less than one kilometer to the northeast of the Nā Pua Makani Wind Project. Hammatt (2008) consulted numerous organizations for informants, including the State Historic Preservation Division (SHPD), Office of Hawaiian Affairs (OHA), O‘ahu Island Burial Council (OIBC), Ko‘olau Loa Hawaiian Civic Club, and Ko‘olau Loa Neighborhood Board. A total of three organizations and three individuals participated in this assessment, which yielded information on cultural practices and resources in the area as well as shed light on community concerns. These findings are as follows:

- the area has long been used by *kanaka maoli* and Plantation *kama‘āina*, particularly along the shoreline;
- a variety of cultural activities including plant-gathering, salt and *limu* collection, and fishing;
- concerns of disturbing subsurface cultural and human remains are held by the community (Hammatt’s 2009 archival evidence upholds this sentiment); and
- concerns of restricted beach access to cultural practitioners are also held.

McGerty and Spear (2009) conducted a CIA for the Kahuku Storm Drainage Reduction Project, which was located under Kahuku High School’s football field, which is less than half of a kilometer north of the Nā Pua Makani Wind Project. According to McGerty and Spear (2009), letters were sent to various organizations, including SHPD, the Ko‘olau Hawaiian Civic Club, and the O‘ahu Island Burial Committee, as well as knowledgeable individuals in the area. Additionally, three CIA Notices requesting community participation were published in *The Honolulu Advertiser* between 30 August and 3 September 2009 and also in *Ka Wai Ola*, OHA’s official newspaper in the August and September issues. Despite McGerty and Spear’s attempts, they hold that, “No responses were received from any of the above listed organizations or news periodical announcements” (McGerty and Spear 2009:16). Due to the lack of community interest in the matter, McGerty and Spear’s assessment was that, “...pursuant to Act 50, the exercise of native Hawaiian rights, or any ethnic group, related to gathering, access or other customary activities will not be affected by development activities. Because there were no cultural activities identified within the project area, there are no adverse effects” (2009:16).

In 2011, Vogeler et al. conducted a CIA for the Hawai‘i Department of Transportation’s (HDOT) Lā‘ieloa Bridge Replacement Project in Lā‘ie Ahupua‘a, approximately 2.5 kilometers to the southeast of Nā Pua Makani Wind Project lands. Vogeler et al. (2011) contacted 14 individuals, out of which, four participants responded in writing. Of these four responses, one email interview and two interviews were achieved. Findings of these efforts shed light on the cultural significance and of Lā‘ieloa Stream, including its cultural resources, colorful history, and

affiliation with the *ali'i*, or royalty. Cultural resources of the project area and its vicinity were found by Vogeler et al. (2011) as follows:

- various riparian faunal food sources, such as *'ōpae* (var. shrimp), *'o'opu*, (var. goby) in Lā'ieloa Stream;
- *limu 'ele'ele* (*Enteromorpha prolifera*) at the mouth of Lā'ieloa Stream;
- *he'e* (squid or octopus), *līpe'epe'e* (red seaweed), and variety of reef fish in near shore waters; and
- *moi* or thread-fish (*Polydactylus sexfilis*), and *'ama'ama* or mullet (*Mugil cephalus*) were bountiful in deeper waters.

While a primary concern was flooding of lands surrounding the river, concerns were raised about the potential to encounter *iwi* (human remains) during project related ground disturbances.

Mooney and Cleghorn (2012) performed a CIA as part of the Supplemental Environmental Impact Statement (SEIS) for the proposed expansion of Turtle Bay Resort (TBR). The 767-acre project area spanned the *makai* portions of 'Ōpana, Kawela, Hanaka'oe, 'Ō'io, Ulupehupehu, Punalau, and Kahuku Ahupua'a, the eastern end of which is less than 2 kilometers north of the Nā Pua Makani Wind Project. According to Mooney and Cleghorn (2012), the aim of the CIA was to be as inclusive as possible, to fully capture the area's cultural significance to the entire community. This effort is summarized as follows:

In recognition of the area's rich *mo'olelo* and traditional land uses, great lengths were taken to contact and invite as many local *kūpuna* (elders) and cultural informants as possible from varied backgrounds and interests on the subject of traditional, customary, and contemporary use of TBR SEIS Lands and surrounding areas. Concerted attempts were made to identify and locate persons knowledgeable about traditional practices that took place in the past or that are currently taking place on or near SEIS Lands, as recommended by the Office of Environmental Quality Control (OEQC) Guidelines. Earlier CIA reports written about the Kahuku area, OEQC list of Cultural Assessment Providers, Office of Hawaiian Affairs (OHA), Neighborhood Boards No. 27 & 28, numerous North Shore civic clubs, and other North Shore community associations were consulted for a listing of *kūpuna*, cultural practitioners, and cultural informants willing to share their *mana'o* (knowledge and opinion).

A total of 16 interviews were conducted between 4 May and 11 April 2012. All interviewees had a personal association with TBR SEIS Lands and/or surrounding areas, many of whom were highly recommended by various sources in the community. Most informants are active in the local community and well respected for their leadership, expertise in Hawaiian cultural practices, and knowledge of the project area and its history. The results of all interviews, with the exception of one interview, are submitted in this CIA.

As a result of archival research and community consultations, it was found that TBR SEIS Lands and surrounding areas contain an array of cultural resources that are currently being used for traditional cultural practices, including marine food sources, medicinal plants, plants used in crafts, wood for woodcarving, and salt for various uses. Further, the land and sea are currently used for a variety of

traditional and non-traditional sports and recreational activities. The presence of *iwi kūpuna*, or human burials, as well as archaeological sites on the property has also been established, which continues to be a point of concern in the community in terms of past and/or potential disturbances related to the resort. Furthermore, supernatural and/or divine phenomenon in the project area experienced by a few informants and acknowledged by others, suggests that there is still cultural significance and spiritual connection for those with ancestral ties to the land (Mooney and Cleghorn 2012:i-ii).

The archival research revealed that, in general, the TBR vicinity has long and interesting history. From the archaeological record, traditional stories and myths, and historic documents attributed to this vast area, it was evident that these lands had been the stage of many significant acts in the long drama of O‘ahu’s pre- and post-Contact history. Further, these lands have been the subject of numerous archaeological investigations between 1977 and 2006, resulting in 21 individual reports. These archaeological investigations have documented 19 archaeological sites providing data from 291 auger tests excavations, 121 controlled excavations, 78 radiocarbon dates, 50 pollen samples, and substantial midden and artifact collections.

Mooney and Cleghorn (2012) also maintained that ethnographical evidence obtained through community consultations upheld the archival research findings that TBR property was abundant in cultural resources and lore, though much has changed throughout time. These community consultations also verified the existence of cultural practices, such as the gathering of various traditional marine and terrestrial resources. Out of the sixteen interviews performed, information from 15 interviews was represented the CIA. A variety of cultural resources gathered by an array of Hawaiian cultural practitioners for a variety of traditional activities, including *lā‘au lapa‘au* (herbal healing), *kālai ki‘i* (wood carving), *lei* making, cordage making, and consumption, were identified, including a total of 40 species of flora and fauna as well as *pa‘akai* (sea salt). Cultural resources in the TBR vicinity are as follows:

- TBR’s coastline and coastal waters provide 32 marine species, including 17 species of fish, six crustacean, one mollusk, two gastropod, two sea urchin, and four sea weed species for cultural practitioners;
- six plant species and two tree species were said to be collected from inland areas of TBR;
- concerns of disturbing subsurface cultural and human remains are held by the community (the archival evidence upholds this sentiment); and
- concerns of restricted beach access to cultural practitioners are also held.

While none of the informants claimed that any of these cultural resources were the last of their kind or this was the only place to collect them, the majority of those interviewed shared that these resources had drastically declined in their lifetimes and are now found in diminutive numbers. Further, the locations of many resources are guarded secrets according to many informants who fear over-harvesting to the point of extinction.

In conclusion, several traditional resources and sentiments were found to be common between these CIA, including a wide spectrum of flora and fauna from the lowlands, streams, coasts, and seas, which are used for traditional subsistence, crafts, and medicine. Also shared were concerns over disturbing subsurface archaeological sites and *iwi kūpuna* during construction.

6.0 ETHNOGRAPHIC INTERVIEWS

The purpose of ethnographic interviews is to acquire information from *kūpuna* and local knowledgeable individuals about the background cultural use, if any, of the subject property that could be adversely affected by the proposed Nā Pua Makani Wind Project.

Concerted attempts were made to identify and locate persons knowledgeable about traditional practices that took place in the past, or are currently taking place in the project area, that could be potentially impacted by the expansion project. In addition to prior CIA reports written about the area spanning from Kahuku to Lā‘ie Ahupua‘a (Hammatt 2008; McGerty and Spear 2009; Voegler et al. 2011; Mooney and Cleghorn 2012), the State Office of Environmental Quality Control (OEQC) and Office of Hawaiian Affairs (OHA) were consulted for a listing of Cultural Assessment Providers. Various Neighborhood Boards, and civic clubs were also contacted to obtain cultural informants. Appendix B provides a listing of potential cultural informants and their detailed contact history. Contact information was found for 24 individuals, all of which were solicited for participation. While no response was received from 14 of those asked to participate, eight individuals responded and interviews were secured with four individuals. Two of the interviewees are *kūpuna* of the area and two are recognized cultural practitioners of the area. Many of those who responded to interview requests did not wish to be interviewed, but recommended other, more knowledgeable individuals or community groups to interview.

A total of four interviews with five informants were conducted between 31 March and 12 August 2015. However, only the information from three informants is included in this CIA. All interviewees had a personal association with the Nā Pua Makani Wind Project area and were recommended by various sources in the community. Most informants are active in the local community and well respected for their leadership and knowledge of the project area and its history. Table 3 provides a list of the consulted parties, their association with the Nā Pua Makani Wind Project area.

During the typical interview, a basic questionnaire (Appendix D) was used as a guide to solicit interviewees’ knowledge of the area and biographical information. Maps of the Nā Pua Makani project area were used to further assist the interview process and gain specific information about locations of resources and/or cultural practices. After the interview, an interview summary was created. The interview summary was then shared with the interviewee for review, which allowed them the opportunity to correct, add, and/or delete information in their testimony. These interviews were occasionally supplemented with subsequent personal and telephone conversations with informants for clarification and additional information. When the interview summary met their approval, the interviewee was asked to sign an Oral History Release Form. Copies of release forms are provided in Appendix E. Summaries of the resulting interviews follow.

Table 3. List of Participating Cultural Informants

Name(s)/Title	Association	Form of Interview
Junior Primacio, Kupuna	Fourth Generation Kahuku Village resident; Former plantation worker; Ko‘olau Loa Neighborhood Board, Chair on Agriculture and Parks and Recreation Committees	Person-to-person; interviewer: Elizabeth L. Kahahane
Raymond “Buddy” Ako, Kupuna	Former resident of Kahuku; educated in Kahuku; Former Community Liaison for Turtle Bay Resort Development	Person-to-person; interviewer: Kimberly M. Mooney
Kenneth M. Hee, Kahu & cultural practitioner	Native Hawaiian, area descendent; born and raised in Kahuku; trusted Kahu of Kahuku; traditional agriculturalist	Person-to-person; interviewer: Elizabeth L. Kahahane; joint with Germaine K. Halualani-Hee; withdrawn
Germaine K. Halualani-Hee, cultural practitioner	Native Hawaiian; long-time resident of Kahuku; traditional agriculturalist	Person-to-person; interviewer: Elizabeth L. Kahahane; joint with Kenneth M. Hee; withdrawn
Tēvita O. Ka‘ili, Ph.D.	Brinham Young University	Person-to-person; interviewer: Kimberly M. Mooney

6.1 KŪPUNA TESTIMONY

For the Nā Pua Makani Wind Project Cultural Impact Assessment, four *kūpuna* and one cultural practitioner were interviewed. In this assessment, *kūpuna* refers to individuals who are respected as elders of the community.

6.1.1 Mr. John Primacio Jr.

John “Junior” Primacio is a life-long resident of Kahuku Village. Mr. Primacio worked at the Kahuku Plantation for nearly two decades, served in the U.S. Military in wartime Vietnam, and later took the position of General Manager with the Kahuku Housing Corporation. Mr. Primacio has given over 40 years of public service in the Ko‘olau Loa District, dealing with land and resource management, community affairs, workers’ rights, and planning. He has served on the Ko‘olau Loa Neighborhood Board as a board member and as the Chair of the Committee on Agriculture. He was also a Unit Chairman for the International Longshore & Warehouse Union. Due to the many positions and long tenure he held at Kahuku Plantation as well as being born and raised in Kahuku, Mr. Primacio has a wealth of knowledge pertaining to the past and present land use as well as history of the Kahuku area. Mr. Primacio was interviewed by Elizabeth L. Kahahane of Pacific Legacy, Inc. on 25 June 2014.

Mr. John Primacio Jr. was born to John Primacio Sr. and Alice M. Moniz on January 23, 1932. His father was born in the Philippines and immigrated to Hawai‘i as a young boy. His mother was the daughter of a sugar plantation worker in Waipahu. John Primacio Jr. was born and raised in Kahuku and graduated from Kahuku High School in 1952.

As an adult, Mr. Primacio joined the National Guard. He subsequently applied for work in the plantation. Mr. Primacio progressed rapidly through the ranks due to his openness to change and innovation. Later in 1960, the National Guard and Army Reserves were called into active

duty in Vietnam. He, like many others, stopped work at the plantation to report to Schofield before heading to Vietnam. Mr. Primacio later returned from Vietnam to become the General Manager for Kahuku Housing Corporation in 1971. He went from working in the laboratory to the mill, to operating heavy machinery, and on to being union boss. According to Mr. Primacio, it wasn't only his openness to new job opportunities that helped Mr. Primacio see the many aspects of the plantation, it was his eagerness to ask questions and listen to the advice of his elders. It didn't matter if they were Filipino, Japanese, Hawaiian, or Portuguese, he communicated with these *kūpuna* in pidgin or otherwise to learn.

Mr. Primacio described the plantation's "good days," as being in the mid-1900s, when the union had just formed and sugar workers had contracts, medical care, inexpensive housing, even kerosene for their stoves. People became more than their "bongo," or number, but individuals with responsibilities and job titles. He also described life on the plantation as being very unique because of its sustainability. For example, many of those living on the plantation thrived with the aid of supplemental activities such as fishing, gardening, hunting, raising bees, and by specializing in a trade. It was this interdependency on each other and the dependency on the land that helped many of these families with little money send their children to college. And it wasn't uncommon for families to combine funds to buy a cow. It was through bartering and the common hardships that plantation families shared that helped them coexist, despite cultural differences and language barriers.

However, as Mr. Primacio holds, eventually the sustainability of Kahuku Plantation declined with the increase of government imposed environmental regulations. According to Mr. Primacio, gradually more plantation activities were being regulated by the government, such as mill water discharge into the ocean. As these changes affected the plantation economically, Mr. Primacio believed that it was just too costly for plantation to keep up with the proper environmental techniques and that closure was inevitable. After nearly 75 years, the Kahuku Plantation closed its doors in 1970. The next year, Mr. Primacio became the General Manager for the Kahuku Housing Corporation, with 255 plantation homes to oversee. Mr. Primacio believes this position taught him to be a good leader. His responsibility within the plantation community grew substantially as the plantation's economy, political structure, and infrastructure dissolved. Mr. Primacio then decided to serve on neighborhood, city, and state boards. As a result, he became well connected and a pillar of the community, but he maintains that his goal to help Kahuku rebound after the plantation's closure kept him grounded. He believed that his most important responsibility was to bring the focus back to sustainability. Mr. Primacio likens this focus on sustainability to today's need to transition from fossil fuels to renewable energy.

In regards to the current Nā Pua Makani Wind Project area, Mr. Primacio refers to it as "Mālaekahana West" and describes it as mostly farm operation land historically used for sugar cane production. He also knew the land to be used for diversified agriculture, cattle, chicken, and pig farming. Mr. Primacio maintains that plantation infrastructure is still present in the project area, with as many as four water pumps and wells used for irrigation and to fill the plantation's reservoirs. According to Mr. Primacio, these hydrologic control features were necessary, as low lying areas tend to flood due to the close proximity of Mālaekahana Stream. He holds that lava tubes, some containing springs, were also located in the project area, but was

unsure if they are caved in or still in existence. In addition, Mr. Primacio states that a train route ran through this property from Hau‘ula to the Kahuku Sugar Mill during the plantation era. Other historic infrastructure includes a road going through the property to get back to the military training area, first installed during the World War II. He added that the training area was not extensively used in those days.

In regards to traditional and non-traditional cultural resources available in the project area, Mr. Primacio recalls pigs occasionally being hunted in and around the property, but added that pigs tend to stay in higher elevations. He acknowledged that various bird species, pheasants, mongoose, and rats are present as well and potentially still hunted. Fruit trees, such as guava, are still present and may also be exploited by locals. Mr. Primacio stated that these lands are rich in coral, or limestone, that was mined for repairing the plantation roads.

As a member of the Kahuku Community Association and past chair of the Community Association’s Renewable Energy Committee, Mr. Primacio is positive that development, in the right way, can be beneficial to the community. From agriculture to animal husbandry, the land has supported families of Kahuku. He views the land, water, and wind as valuable resources to the community that need to be managed for the long run. But ultimately, the main focus of today has to be Kahuku’s ability to become as sustainable as it was in the early plantation era.

6.1.2 Mr. Raymond “Buddy” A.H. Ako

Mr. Ako has spent most of his years living, receiving an education, and working in Kahuku and Hau‘ula. Mr. Ako participated in an interview on 19 November 2014 with Kimberly Mooney of Pacific Legacy.

Raymond “Buddy” A.H. Ako was born 7 July 1938 to James and Lei Ako in Honolulu. Until the age of eight years old, he was raised by his Chinese grandfather, Lau Ako, in Kāne‘ohe, after which a young Buddy Ako moved from Kāne‘ohe to Hau‘ula to be raised by his mother and step-father. As Hau‘ula was a relatively close community, Mr. Ako recalls learning about the natural world and Hawaiian traditions from several Hawaiian “uncles”, including ‘Aina Kamakee‘aina, Joe A‘alona, and Joseph Kalili. Although he lived in Hau‘ula, Buddy attended Kahuku Elementary and High School from grades three to twelve.

Between school and play, Mr. Ako spent most of his time in Kahuku, as the majority of his friends resided in Kahuku and he maintains that in those days there was much more for a kid to do in Kahuku than in Hau‘ula. He fondly looks back on his many adventures in the mountains above Kahuku, including parts of the proposed Nā Pua Makani Wind Project area. During the weekends and holidays, Mr. Ako remembers hiking, picking wild pineapple from abandoned fields, swimming in reservoirs, as well as hunting doves and pheasant. Whatever they were able to catch, they would share with farmer friends and classmates. These tenant farmers, mostly of Japanese descent, grew “truck crops,” such as cabbage, lettuce, and tomatoes in and around the project area. The produce of these farms were largely sold to local consumers.

According to Mr. Ako, the proposed project area was largely feral pineapple fields where sugar was not grown and that sugar was still grown up until the late 1960s. He also recalls that during his childhood, Mālaekahana Stream was mostly dry, due to the usage of water by the

plantation. After the plantation closed its doors, the local streams and drainages were able to maintain some degree of flowing water intermittently.

While he has no knowledge of cultural practitioners gathering traditional Hawaiian plants or other resources in the proposed project area, he does recall that many people of Kahuku gathered flowers from a large area overgrown with bougainvillea (*Bougainvillea* sp.) near a limestone outcrop or cliff located just off of the main access road of the project area. He holds that it was common for folks to gather large amounts of these flowers for special occasions, decorating, and *lei* making. Mr. Ako is also aware of some degree of pig hunting that has taken place in the upland areas near to or within the project area and that hunting pig may still be occurring.

Mr. Ako has a positive view of the proposed Nā Pua Makani Wind Project. He feels as though this proposed project represents a needed transition to renewable energy from fossil fuels.

6.1.3 Tēvita O. Ka‘ili, Ph.D.

Brigham Young University, Hawai‘i (BYUH), Associate Professor of Cultural Anthropology and Chair of the International Cultural Studies Department Tēvita O. Ka‘ili, is also a resident of Kahuku, a cultural practitioner of Polynesian traditions, and Cultural Advisor of the Kahuku Community Association. He is well versed in pan-Polynesian belief systems, including the Hawaiian creation chant, Kumulipo, and other Hawaiian mythologies, and the pantheon of pan-Polynesian gods and deities. Further, Dr. Ka‘ili has a strong spiritual connection and ancestral ties to several of the pan-Polynesian gods and *‘aumāku* that are associated with the lands of Kahuku, which he learned through his familial and Traditional Polynesian oral histories. Professor Ka‘ili was interviewed on 12 August 2015 at his BYUH office by Kimberly M. Mooney of Pacific Legacy, Inc.

Tēvita ‘Osoni Ka‘ili was born in March of 1970 in Tonga to parents, Tēvita and Lakalaka Ka‘ili. His ancestry and the foundation of his Traditional practices and beliefs are Tongan. Much of this cultural knowledge was received during his formative years from his maternal grandfather in Tonga and the United States. Dr. Ka‘ili attended schools in both Tonga and the United States. After graduating from BYUH, he obtained his M.A. in 2003 and five years later he obtained his Ph.D. in Anthropology at the University of Washington, Seattle. Subsequently, Dr. Ka‘ili returned to Hawai‘i to teach Cultural Anthropology at his *alma mater*, BYUH in Lā‘ie. During his thirteen-year residence in Hawai‘i, he has had several Hawaiian cultural practitioners and *kūpuna* as mentors who have shared oral histories and their *mana‘o* of Hawaiian culture. He has also performed documentary research on recorded traditions, such as the Hawaiian creation chant, Kumulipo, which has deepened his understanding of Hawaiian Traditional culture.

As a professor of Cultural Anthropology, Dr. Ka‘ili, has extensive knowledge of Polynesian belief systems and how most Polynesian cultures have very similar world views, divine beings, ceremonies, and edicts due to common cultural and ancestral origins. The shared origins of Polynesians as well as the voyaging of Polynesians throughout the Pacific in the pre-European contact era, has led many to believe that the majority of the Polynesian pantheon to be based on the very same individuals throughout the region. In fact, many of these divine beings share the

same or very similar sounding names as well as personalities, feats, physical traits, and story lines. These deities are also held to be the ancestors of Polynesians and, for some, their spiritual guardians.

Dr. Ka‘ili maintains a spiritual and ancestral connection to Hawai‘i and the land of Kahuku by way of his ancestral deity’s association with these lands. Through matrilineal descent, Dr. Ka‘ili is a descendant of Maui, the Polynesian ancestral deity known for many his amazing feats throughout the Pacific. Maui legends in Hawai‘i are profuse. Specifically in Kahuku, he is known to have anchored Kahuku, which was held in the legend to be small detached island, to the greater Island of O‘ahu with a mystical fish hook and line. Through patrilineal descent, he is related to the ancestral deity, Tangaloa/Kanaloa, who also has legendary connections to the Kahuku area. In ancient times, Kanaloa and his brother, Kāne, are said to have once lived in the vicinity of Kalaiokahipa Ridge, which is approximately two miles north of the Na Pua Makani project area. Also, an ancient Hawaiian site, referred to as Pōlou (Site No. -271), described by McAllister (1933) as once being, “a pool of water, sea side of the Kahuku mill” was believed by some *kūpuna* to be the place where the “floating island” of Kahuku attached to the Island of O‘ahu as well as the location of a “stone” known as Kanaloa (ibid). Pōlou is also the site where the deity, Maui, used his magical fish hook to anchor Kahuku to O‘ahu.

A widely held belief in Polynesia is the spiritual connection to or physical embodiment of deities as animals, plants, elements, or objects. Dr. Ka‘ili maintains, his ancestral deities have the ability to take on the form of several native species of birds as well as bats (collectively *manu*) that have been documented in and around the project area. Kanaloa, according to this belief, can take the bodily form (*kinolau*) of the ‘ōpe‘ape‘a or Hawaiian hoary bat (*Lasiurus cinereus semotus*). Further, some bird species noted in the project area are recognized in the Kumulipo, or Hawaiian Creation Chant, as ancestors, protectors, creators, and/or elders of the Hawaiian people. According to Dr. Ka‘ili in his testimony during the 4 June 2015 DLNR Public Hearing on the Draft Habitat Conservation Plan for Nā Pua Makani Wind Energy Project, “Some are ‘aumākua (ancestral guardians), makua (parental birds), keiki (children of parent birds), kia‘i (guardian/caretaker birds), and others are *kinolau* (body forms) of principal ancestors in Oceania” (Ka‘ili 2015). He lists *manu* of concern and their significance in his testimony as the following:

‘Aumākua – Ancestral Guardians:

1. ‘Alae ‘ula or Hawaiian moorhen (*Gallinula chloropus sandwicensis*) - ‘Aumakua. Makua /parent bird of the *apapane* bird (Kumulipo line #303). ‘Alae ‘ula taught Maui the secret of firemaking.
2. Pueo or Hawaiian short-eared owl (*Asio flammeus sandwicensis*) - ‘Aumakua. Kia‘i /guardian bird of *noio* bird (Kumulipo line #361).
3. Nēnē or Hawaiian goose (*Branta sandwicensis*) ‘Aumakua. Kia‘i /guardian bird of the *Hehe* bird (Kumulipo line #349) [.]

Mākua – Parental/Caretaker Birds:

1. ‘A‘o or Newell’s shearwater (*Puffinus auricularis newelli*) – Makua /parent bird of the *a‘u* bird (Kumulipo line #299) [.]

2. ‘*Alae ‘ula* or Hawaiian moorhen (*Gallinula chloropus sandwicensis*) - ‘*Aumakua*. *Makua* /parent bird of the *apapane* bird (Kumulipo line #303). ‘*Alae ‘ula* taught Maui the secret of firemaking.
3. ‘*Alae ke‘oke‘o* or Hawaiian coot (*Fulica alai*) – *Makua* /parent bird of the *apapane* bird (Kumulipo line #303).

Kia‘i – Guardian/Protector Birds:

1. *Pueo* or Hawaiian short-eared owl (*Asio flammeus sandwicensis*) - ‘*Aumakua*. *Kia‘a* /guardian bird of the *noio* bird (Kumulipo line #361).
2. *Nēnē* or Hawaiian goose (*Branta sandwicensis*) ‘*Aumakua*. *Kia‘i* /guardian bird of the *hehe* bird (Kumulipo line #349) [.]
3. *Koloa maoli* or Hawaiian Duck (*Anas wyvilliana*) – “*Koloa* birds protected a legendary blind giant, *Ima-i-ka-lani*, and quacked to warn him from which side he might expect an attack (FS 169). (PPN toloa.)” (Hawaiian Dictionary). *Koloa* ducks are guardians (*kia‘i*) for *Imaikalani*.

Keiki – Child/Offspring of Mākua Birds:

1. *Ae‘o* (*Kukuluae‘o*) or Hawaiian stilt (*Himantopus mexicanus knudseni*) *Keiki* /child bird of the *kioea* (Kumulipo line #316).

Kinolau – Body Form/Manifestation/Vessels of Ancestors/Gods

1. ‘*Ōpe‘ape‘a* or Hawaiian hoary bat (*Lasiurus cinereus semotus*) – *Kinolau* (body form) of *Kanaloa* (Kumulipo lines #589 – 592).

Thus, these *manu* hold a significant place in the Traditional cultural landscape of Kahuku for many of Hawaiian and Polynesian descent. For those who believe that these *manu* are ‘*aumākua*, *makua*, *keiki*, *kia‘i*, and *Kinolau*, any harm to these *manu* is tantamount to harming one’s revered ancestors. In addition, Dr. Ka‘ili holds that the name of Kahuku’s dominant wind (*makani*) is traditionally named, *Ahamanu*, which translates as “gathering of birds.” This further upholds the cultural significance of these *manu* to Kahuku and its traditional cultural practitioners.

According to Dr. Ka‘ili, it has been established in other assessments of the Nā Pua Makani Wind Energy Project Environmental Impact Statement (EIS) that not only do these *manu* occur within and/or cross through the proposed project area, they are acknowledged to be adversely affected by industrial turbines such as those proposed for the project. To the projected impacts on these *manu*, Dr. Ka‘ili feels as though the current mitigation plan is unacceptable.

In summary, Dr. Ka‘ili is mainly concerned about the spiritual and cultural impacts that the project will have through the possible injuring or killing of these significant birds and bats. Though he is in support of renewable energy, Dr. Ka‘ili is not for the development of renewable energy systems that compromise these already endangered *manu*. Furthermore, Dr. Ka‘ili, as a resident of Kahuku, is concerned about added visual and noise impacts of additional wind turbines in the area.

6.2 WITHDRAWN TESTIMONIES

While five interviews were performed, two of these interviews is not included in this draft report. Mr. and Mrs. Hee both participated in an interview, but they subsequently withdrew their testimony from the public document.

7.0 FINDINGS

Interviews with two noted *kūpuna* and one cultural practitioner familiar with the Nā Pua Makani Wind Project area provided some additional insights into the area's history and cultural significance.

7.1 SUMMARY OF KŪPUNA TESTIMONY

Mr. Junior Primacio shared valuable information about the history of Kahuku Plantation, its transportation and irrigation infrastructure, as well as its use of lands in and around the Nā Pua Makani Wind Project area. His input regarding Kahuku's community, past and present, paints a picture of a colorful plantation culture shared by people of many different backgrounds and ethnicities. The area in question, he referred to as "Mālaekahana West," was largely used for Plantation agriculture - predominantly sugar cane. Since the closure of the plantation, these lands remained agricultural, but were used commercially for various food crops and small scale animal husbandry. Fruit trees, such as guava, are still present and may also be exploited by locals. Currently, Mr. Primacio holds that pigs are occasionally hunted in and around the project area, but added that pigs tend to stay in higher elevations. He added that various bird species, pheasants, mongoose, and rats are present as well and potentially still hunted. Another resource exploited in this area is coral, or limestone, that was mined for repairing the plantation roads. He also mentioned the presence of plantation-era structural features throughout the property and topographical features, such as "lava tubes," some of which had contained springs that may have been filled in.

Mr. Buddy Ako's testimony was similar to Mr. Primacio, regarding the project area. He agrees that these lands remained agricultural after the Kahuku Plantation closed. These tenant farmers, mostly of Japanese descent, grew "truck crops," such as cabbage, lettuce, and tomatoes in and around the project area. The produce of these farms were largely sold to local consumers. He recalls hunting doves and pheasant in the area when he was young, but this practice was not significant for anyone's subsistence. Mr. Ako added that some degree of pig hunting has taken place in the upland areas near to or within the project area and that this may still be occurring. While he has no knowledge of cultural practitioners gathering traditional Hawaiian plants or other resources in the proposed project area, he did recall that people of Kahuku gathered flowers from a large area overgrown with bougainvillea (*Bougainvillea* sp.) near a limestone outcrop or cliff located just off of the main access road of the project area. These flowers were used for special occasions, decorating, and *lei* making. He was not sure if this practice was still occurring.

Dr. Ka'ili is a Brigham Young University, Hawai'i (BYUH), Associate Professor of Cultural Anthropology and Chair of the International Cultural Studies Department, and cultural practitioner of Polynesian traditions. Dr. Ka'ili is mainly concerned about the spiritual and cultural impacts that the project will have through the possible injuring or killing of significant birds and bats (*manu*) that are recognized in the Kumulipo, or Hawaiian Creation Chant, as

ancestors, protectors, creators, and/or elders of the Hawaiian people. Though he is in support of renewable energy, Dr. Ka'ili is not for the development of renewable energy systems that compromise these already endangered *manu*. Furthermore, Dr. Ka'ili, as a resident of Kahuku, is concerned about added visual and noise impacts of additional wind turbines in the area.

8.0 CONCLUSIONS AND RECOMMENDATIONS

The results of archival research indicate that the vicinity of Kahuku, Keana, and Mālaekahana Ahupua‘a has a long and rich cultural and legendary past. However, little is mentioned of the specific property in which the Nā Pua Makani Wind Project is to be built. The archaeological background suggests that this area was heavily disturbed during the plantation era for sugar cane and pineapple cultivation, which significantly decreases the likelihood of cultural resources such as intact archaeological subsurface deposits and *iwi kūpuna* to exist.

Based upon two of the ethnographic interviews (a total of five interviews were conducted, but two were retracted), some traditional Hawaiian practices were found to be practiced in and around the project area, including pig hunting and plant gathering. Yet, neither informant expressed that the areas in which the cultural practices were occurring were exceptional, legal, or even ideal, as the lands are private and/or reserved for military use. Further, it is not certain that the locations in which these activities occur are within the APE. Hence, the proposed development of the Nā Pua Makani Wind Project is not forecasted to significantly impact any ongoing cultural practices. However, as espoused by various *mo‘olelo*, the area in general has a mystical past and retains some supernatural qualities, which is reportedly a common belief in the area. To respect the spiritual connections that people have with the ‘*āina*, as the general area is known as a *wahi pana* (legendary place), it is recommended that any major event or construction related activity be preceded with a traditional Hawaiian blessing ceremony performed by a *kahuna* (priest or priestess) or *kahu pule* (minister/preacher).

The third ethnographic interview with Dr. Tēvita O. Ka‘ili revealed the possible cultural importance of many of the “winged creatures” or *manu* that exist in the area. Many of these *manu* have been documented as ancestors, protectors, creators, and/or elders of the Hawaiian people. These include the ‘*alae ‘ula* or Hawaiian moorhen, *pueo* or Hawaiian short-eared owl *nēnē* or Hawaiian ‘*a‘o* or Newell’s shearwater, ‘*alae ke‘oke‘o* or Hawaiian coot, *koloa maoli* or Hawaiian Duck, *ae‘o* (*kukuluae‘o*) or Hawaiian stilt, ‘*ōpe‘ape‘a* or Hawaiian hoary bat.

The results of the interviews conducted as part of this CIA indicate that there does not appear to be a need for traditional access to the project area for the collection of natural resources or performing traditional cultural practices. No traditional activities associated with gathering natural resources or conducting traditional cultural practices were identified within the APE. It appears that community access to this area was probably stopped during the plantation era and was not re-established. Nā Pua Makani Power Partners does not plan to change the current status of *mauka/makai* access in this area.

The cultural importance of certain species of “winged creatures” should be considered in the development and operation of the wind farm. It appears that the project has the potential to impact birds and bats, some of which are culturally important. The project proponent must strive to avoid, minimize, or mitigate any impacts to these culturally important species. Specific plans to achieve the goals of avoidance, minimization, and mitigation must be thoroughly developed in development and permit plans for this project.

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Cultural Impact Assessment

Proposed Nā Pua Makani Wind Project

Kahuku, Keana, and Mālaekahana Ahupua‘a, Ko‘olau Loa District

December 2015

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9.1 HISTORIC MAPS

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APPENDIX A

*Guidelines For Assessing Cultural Impacts
Obtained From
Office of Environmental Quality Control Website*

Guidelines for Assessing Cultural Impacts

Adopted by the Environmental Council, State of Hawaii
November 19, 1997

1. INTRODUCTION

It is the policy of the State of Hawaii under Chapter 343, HRS, to alert decision makers, through the environmental assessment process, about significant environmental effects which may result from the implementation of certain actions. An environmental assessment of cultural impacts gathers information about cultural practices and cultural features that may be affected by actions subject to Chapter 343, and promotes responsible decision making.

Articles IX and XII of the State Constitution, other state laws, and the courts of the state require government agencies to promote and preserve cultural beliefs, practices, and resources of Native Hawaiians and other ethnic groups. Chapter 343 also requires environmental assessment of cultural resources, in determining the significance of a proposed project.

The Environmental Council encourages preparers of environmental assessments and environmental impact statements to analyze the impact of a proposed action on cultural practices and features associated with the project area. The Council provides the following methodology and content protocol as guidance for any assessment of a project that may significantly affect cultural resources.

Background

Prior to the arrival of westerners and the ideas of private land ownership, Hawaiians freely accessed and gathered resources of the land and seas to fulfill their community responsibilities. During the Mahele of 1848, large tracts of land were divided and control was given to private individuals. When King Kamehameha the III was forced to set up this new system of land ownership, he reserved the right of access to privately owned lands for Native Hawaiian ahupua'a tenants. However, with the later emergence of the western concept of land ownership, many Hawaiians were denied access to previously available traditional resources.

In 1978, the Hawaii constitution was amended to protect and preserve traditional and customary rights of Native Hawaiians. Then in 1995 the Hawaii Supreme Court confirmed that Native Hawaiians have rights to access undeveloped and under-developed private lands. Recently, state lawmakers clarified that government agencies and private developers must assess the impacts of their development on the traditional practices of Native Hawaiians as well as the cultural resources of all people of Hawaii. These Hawaii laws, and the National Historic Preservation Act, clearly mandate federal agencies in Hawaii, including the military, to evaluate the impacts of their actions on traditional practices and cultural resources.

If you own or control undeveloped or under-developed lands in Hawaii, here are some hints as to whether traditional practices are occurring or may have occurred on your lands. If there is a trail on your property, that may be an indication of traditional practices or customary usage. Other clues include streams, caves and native plants. Another important point to remember is that, although traditional practices may have been interrupted for many years, these customary practices cannot be denied in the future.

These traditional practices of Native Hawaiians were primarily for subsistence, medicinal, religious, and cultural purposes. Examples of traditional subsistence practices include fishing, picking opihi and collecting limu or seaweed. The collection of herbs to cure the sick is an example of a traditional medicinal practice. The underlying purpose for conducting these traditional practices is to fulfill one's community responsibilities, such as feeding people or healing the sick.

As it is the responsibility of Native Hawaiians to conduct these traditional practices, government agencies and private developers also have a responsibility to follow the law and assess the impacts of their actions on traditional and cultural resources.

The State Environmental Council has prepared guidelines for assessing cultural resources and has compiled a directory of cultural consultants who can conduct such studies. The State Historic Preservation Division has drafted guidelines on how to conduct ethnographic inventory surveys. And the Office of Planning has recently completed a case study on traditional gathering rights on Kaua'i.

The most important element of preparing Cultural Impact Assessments is consulting with community groups, especially with expert and responsible cultural records and review of transcripts of previous ethnographic interviews. Once all the information has been collected, and verified by the community experts, the assessment can then be used to protect and preserve these valuable traditional practices.

Native Hawaiians performed these traditional and customary practices out of a sense of responsibility: to feed their families, cure the sick, nurture the land, and honor their ancestors. As stewards of this sacred land, we too have a responsibility to preserve, protect and restore these cultural resources for future generations.

TEXT OF ACT 50, SLH 2000

A BILL FOR AN ACT RELATING TO ENVIRONMENTAL IMPACT STATEMENTS

UNOFFICIAL VERSION

HOUSE OF REPRESENTATIVES H.B. NO, 2895 H.D.1
TWENTIETH LEGISLATURE, 2000
STATE OF HAWAII

A BILL FOR AN ACT

RELATING TO ENVIRONMENTAL IMPACT STATEMENTS.

BE IT ENACTED BY THE LEGISLATURE OF THE STATE OF HAWAII:

SECTION 1. The legislature finds that there is a need to clarify that the preparation of environmental assessments or environmental impact statements should identify and address effects on Hawai'i's culture, and traditional and customary rights.

The legislature also finds that native Hawaiian culture plays a vital role in preserving and advancing the unique quality of life and the "aloha spirit" in Hawaii. Articles IX and XII of the state constitution, other state laws, and the courts of the State impose on government agencies a duty to promote and protect cultural beliefs, practices, and resources of native Hawaiians as well as other ethnic groups.

Moreover, the past failure to require native Hawaiian cultural impact assessments has resulted in the loss and destruction of many important cultural resources and has interfered with the exercise of native Hawaiian culture. The legislature further finds that due consideration of the effects of human activities on native Hawaiian culture and the exercise thereof is necessary to ensure the continued existence, development, and exercise of native Hawaiian culture.

The purpose of this Act is to: (1) Require that environmental impact statements include the disclosure of the effects of a proposed action on the cultural practices of the community and State; and (2) Amend the definition of "significant effect" to include adverse effects on cultural practices.

SECTION 2. Section 343-2, Hawai'i Revised Statutes, is amended by amending the definitions of "environmental impact statement" or "statement" and "significant effect", to read as follows:

"Environmental impact statement" or "statement" means an informational document prepared in compliance with the rules adopted under section 343-6 and which discloses the environmental effects of a proposed action, effects of a proposed action on the economic [and] welfare, social welfare, and cultural practices of the community and State, effects of the economic activities arising out of the proposed action, measures proposed to minimize adverse effects, and alternatives to the action and their environmental effects.

The initial statement filed for public review shall be referred to as the draft statement and shall be distinguished from the final statement which is the document that has incorporated the public's comments and the responses to those comments. The final statement is the document that shall be evaluated for acceptability by the respective accepting authority.

"Significant effect" means the sum of effects on the quality of the environment, including actions that irrevocably commit a natural resource, curtail the range of beneficial uses of the environment, are contrary to the State's environmental policies or long-term environmental goals as established by law, or adversely affect the economic [or] welfare, social welfare[.], or cultural practices of the community and State."

SECTION 3. Statutory material to be repealed is bracketed. New statutory material is underscored.

SECTION 4. This Act shall take effect upon its approval.

Approved by the Governor as Act 50 on April 26, 2000

2. CULTURAL IMPACT ASSESSMENT METHODOLOGY

Cultural impacts differ from other types of impacts assessed in environmental assessments or environmental impact statements. A cultural impact assessment includes information relating to the practices and beliefs of a particular cultural or ethnic group or groups.

Such information may be obtained through scoping, community meetings, ethnographic interviews and oral histories. Information provided by knowledgeable informants, including traditional cultural practitioners, can be applied to the analysis of cultural impacts in conjunction with information concerning cultural practices and features obtained through consultation and from documentary research.

In scoping the cultural portion of an environmental assessment, the geographical extent of the inquiry should, in most instances, be greater than the area over which the proposed action will take place. This is to ensure that cultural practices which may not occur within the boundaries of the project area, but which may nonetheless be affected, are included in the assessment. Thus, for example, a proposed action that may not physically alter gathering practices, but may affect access to gathering areas would be included in the assessment. An ahupua'a is usually the appropriate geographical unit to begin an assessment of cultural impacts of a proposed action, particularly if it includes all of the types of cultural practices associated with the project area. In some cases, cultural practices are likely to extend beyond the ahupua'a and the geographical extent of the study area should take into account those cultural practices.

The historical period studied in a cultural impact assessment should commence with the initial presence in the area of the particular group whose cultural practices and features are being assessed. The types of cultural practices and beliefs subject to assessment may include subsistence, commercial, residential, agricultural, access-related, recreational, and religious and spiritual customs.

The types of cultural resources subject to assessment may include traditional cultural properties or other types of historic sites, both man-made and natural, including submerged cultural resources, which support such cultural practices and beliefs.

The Environmental Council recommends that preparers of assessments analyzing cultural impacts adopt the following protocol:

1. identify and consult with individuals and organizations with expertise concerning the types of cultural resources, practices and beliefs found within the broad geographical area, e.g., district or ahupua'a;
2. identify and consult with individuals and organizations with knowledge of the area potentially affected by the proposed action;
3. receive information from or conduct ethnographic interviews and oral histories with persons having knowledge of the potentially affected area;
4. conduct ethnographic, historical, anthropological, sociological, and other culturally related documentary research;
5. identify and describe the cultural resources, practices and beliefs located within the potentially affected area; and
6. assess the impact of the proposed action, alternatives to the proposed action, and mitigation measures, on the cultural resources, practices and beliefs identified.

Interviews and oral histories with knowledgeable individuals may be recorded, if consent is given, and field visits by preparers accompanied by informants are encouraged. Persons interviewed should be afforded an opportunity to review the record of the interview, and consent to publish the record should be obtained whenever possible. For example, the Primary source materials reviewed and analyzed may include, as appropriate: Mahele, land court, census and tax records, including testimonies; vital statistics records; family histories and genealogies; previously published or recorded ethnographic interviews and oral histories; community studies, old maps and photographs; and other archival documents, including correspondence, newspaper or almanac articles, and visitor journals. Secondary source materials such as historical, sociological, and anthropological texts, manuscripts, and similar materials, published and unpublished, should also be consulted. Other materials which should be examined include prior land use proposals, decisions, and rulings which pertain to the study area.

3. CULTURAL IMPACT ASSESSMENT CONTENTS

In addition to the content requirements for environmental assessments and environmental impact statements, which are set out in HAR §§ 11-200-10 and 16 through 18, the portion of the assessment concerning cultural impacts should address, but not necessarily be limited to, the following matters:

1. A discussion of the methods applied and results of consultation with individuals and organizations identified by the preparer as being familiar with cultural practices and features associated with the project area, including any constraints or limitations which might have affected the quality of the information obtained.
2. A description of methods adopted by the preparer to identify, locate, and select the persons interviewed, including a discussion of the level of effort undertaken.
3. Ethnographic and oral history interview procedures, including the institutions and repositories searched, and the level of effort undertaken. This discussion should include, if appropriate, the particular perspective of the authors, any opposing views, and any other relevant constraints, limitations or biases.
4. A discussion concerning the cultural resources, practices and beliefs identified, and, for resources and practices, their location within the broad geographical area in which the proposed action is located, as well as their direct or indirect significance or connection to the project site.

5. A discussion concerning the nature of the cultural practices and beliefs, and the significance of the cultural resources within the project area, affected directly or indirectly by the proposed project.
6. An explanation of confidential information that has been withheld from public disclosure in the assessment.
7. A discussion concerning any conflicting information in regard to identified cultural resources, practices and beliefs.
8. An analysis of the potential effect of any proposed physical alteration on cultural resources, practices or beliefs; the potential of the proposed action to isolate cultural resources, practices or beliefs from their setting; and the potential of the proposed action to introduce elements which may alter the setting in which cultural practices take place.
9. A bibliography of references, and attached records of interviews which were allowed to be disclosed.

The inclusion of this information will help make environmental assessments and environmental impact statements complete and meet the requirements of Chapter 343, HRS. If you have any questions, please call 586-4185.

APPENDIX B

Pacific Legacy Communication Log - Organizations and Individuals Contacted

PACIFIC LEGACY – NĀ PUA MAKANI WIND PROJECT CIA - CULTURAL INFORMANTS

Name	Affiliation/Association	Contact Log
Ahuna, Gladys Pualoa "Auntie Gladys"	Lā'ie Community Association; Ko'olau Loa Neighborhood Board; Hawaiian Civic Clubs; Lanihuli Hawaiian Civic Club, co-founder; family has lived in Lā'ie for seven generations	<ul style="list-style-type: none"> • letters sent: 6/10/14; 3/31/2014 • no response
Ako, Buddy	Former resident of Kahuku; educated in Kahuku; Former Community Liaison for Turtle Bay Resort Development	<ul style="list-style-type: none"> • letters sent: 6/10/14; 3/31/2014 • phone conversation: 11/13/14 • interview 11/19/14 (K. Mooney) • interview summary sent: 10/17/14 • phone conversation: 12/15/14 • oral history consent: 12/22/14
Anamizu, Carol	Cultural practitioner who lived and farmed ti in adjacent lands to east (Anamizu Farms); also knowledgeable on Japanese Cemetery;	<ul style="list-style-type: none"> • letters sent: 6/10/14; 3/31/2014 • no response • phone message left: 11/13/14 • no response
Awai-Lennox, Gladys "Honey"	Lifelong Kahuku resident; family goes back many generations in Waialua District; Wai'alua Hawaiian Civic Club .	<ul style="list-style-type: none"> • letters sent: 6/10/14; 3/31/2014 • no response
Beirne-Keawe, Danielle Ululani	Ko'olau Loa Hawaiian Civic Club, President	<ul style="list-style-type: none"> • letters sent: 6/10/14; 4/14/2014 • no response
Benham, Roy	Kupuna, cultural practitioner; Raised in Kahuku	<ul style="list-style-type: none"> • letters sent: 6/10/14; 3/31/2014 • no response
Colburn, Pua	Kupuna; Kahuku Burial Committee	<ul style="list-style-type: none"> • letters sent: 6/10/14; 3/31/2014 • no response • phone conversation: 11/13/14 (not knowledgeable on area; refers Dawn Wasson & family)
Hee, Kenneth Maka'io and Germaine K. Halualani-Hee	Mr. Hee: Kahuku North Shore Health Center, kahu & healer Mrs. Hulualani-Hee: cultural practitioner and longtime resident of Kahuku	<ul style="list-style-type: none"> • letters sent: 6/10/14; 5/3/2014 (to Mr. Hee) • interview: 6/25/14 (E.L. Kahahane) • interview summary sent: 1/7/15 • no response
Kaluhiokalani, Norman A.	Ko'olau Loa Neighborhood Board, member	<ul style="list-style-type: none"> • letters sent: 6/10/14; 3/31/2014 • no response
Lenchanko, Tom	Cultural practitioner and historian	<ul style="list-style-type: none"> • letters sent: 6/16/14 Resent letter; 6/16/14 letter returned with forwarding address; 6/10/14; 3/31/2014 • email: 11/13/14 • email response: 11/13/14 (states CIA & Ethnographic Inventory Survey are not sufficient, recommends a Traditional Cultural Property Analysis)
Logan, Roland Maiola "Ahi"	Lifelong Ko'olau Loa resident; Fisherman	<ul style="list-style-type: none"> • letters sent: 6/10/14; 3/31/2014 • no response
Lunasco, Ollie	Pig hunter's Association, president	<ul style="list-style-type: none"> • email: 11/13/14 • phone conversation: 11/13/14 • email response: 11/17/14 • letter sent: 11/18/14
Makaiau, Ralph	Lifelong Kahuku resident; Kahuku Community Association; Turtle Bay Resort, Sr. Proj. Manager	<ul style="list-style-type: none"> • letters sent: 6/10/14; 3/31/2014 • no response
Matsuda, Kylie	Kahuku Farms, 4th generation farmer in Kahuku	<ul style="list-style-type: none"> • letters sent: 6/10/14; 3/31/2014 • no response
McKenzie, Nova-Jean	Kupuna with long ancestral ties to Kahuku; Kumu of Hawaiian Studies; cultural practitioner	<ul style="list-style-type: none"> • letters sent: 6/10/14; 3/31/2014 • no response • found informant to be recently deceased
Napela, Jonathan	Referred by OHA	<ul style="list-style-type: none"> • letter sent: 6/10/14 • no response
Paglinawan, Richard	Cultural Advisor to the Kahuku Burial Committee	<ul style="list-style-type: none"> • letters sent: 4/1/14; 6/10/14; 3/31/2014 • no response

PACIFIC LEGACY – NĀ PUA MAKANI WIND PROJECT CIA - CULTURAL INFORMANTS		
Name	Affiliation/Association	Contact Log
Primacio, John Junior and Primacio, Margaret	Mr. Primacio: 5th Generation Kahuku Resident; former Kahuku Plantation worker; various community associations; Mrs. Primacio: Kahuku Villages Association fmr. Vice President; seven generations in Kahuku	<ul style="list-style-type: none"> • letters sent: 6/10/14; 3/31/2014 • interview: 6/25/14 (Mr. Primacio only with E.L. Kahahane) • interview summary letter sent: 10/17/14 • oral history consent: 1/1/15
Shirai, Thomas	Kawaihapai 'Ohana, O'ahu Island Burial Council	<ul style="list-style-type: none"> • letter sent: 6/10/14 • email: 11/13/14 • email response: 12/5/14 (has health issues) • email 12/8/14 • no response
Wasson, Dawn Kahala Taotafa	Hau'ula Elementary - Kupuna; Ko'olau Loa Hawaiian Civic Club, Member; Ko'olau Loa Health & Wellness Center, Kupuna Council; Ko'olau Loa Neighborhood Board No. 28, Culture Committee, chair	<ul style="list-style-type: none"> • letters sent: 6/10/14; 3/31/2014 • phone conversations (with E.L. Kahahane): July-August 2014 • email: 11/13/14 • phone message: 11/13/14 • no response

APPENDIX C

Correspondence From OHA

From: Jerome K. Yasuhara [jeromey@oha.org]
Sent: Thursday, April 10, 2014 1:41 PM
To: mooney@pacificlegacy.com
Cc: Jerome K. Yasuhara
Subject: Pre-Consultation for the CIA and Ethnographic Inventory Survey for the proposed Nā Pua Makani Wind Farm [OHA ref: HRD14-7014]

Aloha e Kimberly M. Mooney/Pacific Legacy, Inc.:

This is commentary responding to your March 19, 2014 letter to Dr. Kamana'opono M. Crabbe of the Office of Hawaiian Affairs [OHA ref: HRD14-7014]. OHA appreciates this early pre-consultation in developing the Cultural Impact Assessment (CIA) and Ethnographic Inventory Survey pursuant to Act 50, Session Laws of Hawaii (2000), and Chapters 343 & 6E, HRS, the Environmental Impact Statement (EIS) and Historic Preservation review process.

OHA understands the importance of participating in the review process to foster better-informed decision-making and to bring balance to the various interests. As with any CIA, OHA values the views of the local communities being impacted in conjunction with the planning needs of developers, all of which must be weighed in view of the legally protected traditional and cultural rights of native practitioners and the historic/cultural/religious/subsistence resources.

OHA also points out the emphasis on integrity entrusted to all consulting firms, such as Pacific Legacy, Inc., in executing and presenting that which is pono. Even if one were to arrive at certain conclusions about Kahuku based on preliminary discussions and literary research, it is nearly always safe to anticipate the abundant layers of nuances upon nuances to one's analysis if only reasonable amounts of curiosity, diligence and inspection were fully employed.

Kahuku is multifaceted, dynamic, passionate, rustic and special. It is one of those rare places where linkages to the past are still vibrant even with the passage of time and introduced Western influences. We are aware of kūpuna who continue practicing and teaching lā`au lapa`au, we are aware of the resilience shown when concerning iwi kūpuna burials, we are aware of the interests of subsistence hunters, and so forth. Access, gathering, mālama and subsistence rights must be adequately understood if community support is sought.

Because of the many still engaged in such practices, but whose identities are not readily available, OHA encourages a broad grassroots approach in outreaching the Kahuku community. Therefore, the following is a preliminary list of referrals for this CIA (in no particular order) and from whom we hope other knowledgeable informants can be gained:

- Ko'olau Loa Hawaiian Civic Club
- O'ahu Island Burial Council
- Kahuku Burial Committee
- Various Kūpuna Lā'au Lapa'au Practitioners
- D. Ululani Beirne
- Roy Benham

- Dawn Wasson
- Kahu Cy Bridges
- Margaret Primacio
- Thomas Shirai
- Ollie Lunasco
- Tom Lenchanko

Finally, please be informed of our new office location and mailing address: **Office of Hawaiian Affairs, 560 N. Nimitz Hwy., Suite 200, Honolulu, HI 96817.** All future formal requests for comment should be mailed attention: **Dr. Kamana‘opono Crabbe, Ka Pouhana, CEO.**

Please feel free to contact me directly with any questions or concerns at (808) 594-0129 or jeromey@oha.org.

Mahalo,

Jerome



Effective January 17, 2014, OHA's formal MAILING ADDRESS will be 560 N. Nimitz Hwy., Suite 200, Honolulu HI 96817, (phone/fax numbers will remain the same)

Jerome Yasuhara

Ka ‘Aho Pueo, Kia‘i Kānāwai
Compliance Specialist
Office of Hawaiian Affairs



560 N. Nimitz Hwy., Suite 200, Honolulu HI 96817
Ph: 808-594-0129
Fax: 808-594-1825
email: jeromey@oha.org

APPENDIX D

Ethnographic Interview Questionnaire

Pacific Legacy, Inc.
Cultural Impact Assessment (CIA)
Ethnographic Interview Form

Job Name/#: _____ Interviewer Name: _____

Location: _____ Date/Time: _____

Permission to Record Audio (Y/N): _____

Interviewee Full Name:	Birth Name:
Birth Date:	Occupation/Title:
Current Residence:	Birth Place & Place of formative years:
Years spent in or near subject area:	Affiliation with subject area:
Parents:	Informants/Mentors:

- 1) How familiar are you with the subject area?

- 2) What is this area traditionally called? Can you recall any other names of the area?

- 3) What stories or mythologies have you heard of this area?

- 4) How would you describe the physical characteristics of the area from your earliest memory?

- 5) Are there any significant or special features (i.e. landmarks or unique topography) in this area as it relates to land use and/or its history?

6) How was the area used by people in the past?

Land Use Details:

Activity	Types (specific names)	When	Intensity and Frequency	By Who
7) Hunting/ Fishing				
8) Gathering				
9) Agriculture/ Aquaculture				
10) Habitation				
11) Ceremonial				
12) Burial				
13) Other				

14) Have you observed changes to the land or its resources? Please Explain.

15) What are your thoughts about the project proposal?

16) Additional Comments by the Interviewee:

17) Additional Comments:

Would you like to view the synopsis of the interview prior to CIA report submittal(Y/N)? _____

Time Interview Concludes : _____

Interviewee Signature: _____ Date: _____

APPENDIX E

Signed Oral History Release Forms

PACIFIC LEGACY, INC.
ORAL HISTORY STUDY
PERSONAL RELEASE OF INTERVIEW RECORDS

Project: NA PUA MAKANI WIND FARM

Date of Interview: 25 JUNE 2014

I, JUNIOR PRIMACIO, have been previously interviewed by
ELIZABETH KAHAAHANE of Pacific Legacy, Inc. for the above referenced project.

I have reviewed the typed summary of the interview and agree that this documentation is complete and accurate, except for the clarifications and corrections noted below. I further agree that the interview information may be used in a report that may be made public, subject to my specific objections and restrictions set forth below.

CLARIFICATIONS AND CORRECTIONS:

SPECIFIC OBJECTIONS AND RESTRICTIONS:

Junior Primacio
Interviewee Signature

1/1/15
Date

PACIFIC LEGACY, INC.
ORAL HISTORY STUDY
PERSONAL RELEASE OF INTERVIEW RECORDS

Project: NA PUA MAKANI WIND FARM

Date of Interview: NOVEMBER 19, 2014

I, RAYMOND "BUDDY" A.H. AKO, have been previously interviewed by
KIMBERLY M. MOONEY of Pacific Legacy, Inc. for the above referenced project.

I have reviewed the typed summary of the interview and agree that this documentation is complete and accurate, except for the clarifications and corrections noted below. I further agree that the interview information may be used in a report that may be made public, subject to my specific objections and restrictions set forth below.

CLARIFICATIONS AND CORRECTIONS:

NONE

SPECIFIC OBJECTIONS AND RESTRICTIONS:

NONE

Raymond A.H. Ako
Interviewee Signature

DECEMBER 22, 2014
Date



ORAL HISTORY STUDY
PERSONAL RELEASE OF INTERVIEW RECORDS

Project: Nā Pua Makani Wind farm

Date of Interview: 6/25/14

I, KENNETH HEE, have been interviewed by E.L. KAHALANUI of Pacific Legacy, Inc. for the above referenced project. I agree that the interview information may be used in a report that may be made public.

Kenneth M. Hee
Interviewee Signature

6-25-14
Date





ORAL HISTORY STUDY
PERSONAL RELEASE OF INTERVIEW RECORDS

Project: Nā Pua Makani Wind farm
Date of Interview: 6/25/14 10:30

I, Germaine K. Heleluani have been interviewed by E.L. KAHALANA of Pacific Legacy, Inc. for the above referenced project. I agree that the interview information may be used in a report that may be made public.

Germaine K. Heleluani
Interviewee Signature

06-25-14

Date

