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**PRELIMINARY DRAFT REPORT**  
**Archaeological Literature Review and**  
**Field Inspection in Support of Kalaoa**  
**Solar LLC-HI-Registration Project,**  
**‘O‘oma 1 Ahupua‘a, Kona District,**  
**Hawai‘i Island**

TMKs: (3) 2-2-002:084 por.

*Prepared for:*  
**Nexamp Solar, LLC**  
1050 Queen St, Suite 100  
Honolulu, Hawaii 96814

*On Behalf of:*  
**Hawaiian Electric Company, Inc.**  
1001 Bishop Street, Suite 2900  
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April 2023

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Archaeological Literature Review and Field Inspection in Support of Kalaoa Solar LLC-HI-  
Registration Project, 'O'oma 1 Ahupua'a, Kona District, Hawai'i  
TMK: (3) 2-2-002:084 por.

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April 2023

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## MANAGEMENT SUMMARY

<b>Document Title:</b>	Archaeological Literature Review and Field Inspection in Support of Kalaoa Solar LLC-HI-Registration Project, ‘O‘oma 1 Ahupua‘a, Kona District, Hawaii
<b>Date/Revised Date:</b>	April 2023
<b>Archaeological Permit #:</b>	SHPD Permit No. 23-08
<b>Project Location:</b>	Queen Ka‘ahumanu Highway in Kalaoa, ‘O‘oma 1 Ahupua‘a
<b>Project TMK:</b>	(3) 7-3-010:007 por.
<b>Land Owner:</b>	State of Hawaii, Department of Hawaiian Home Lands
<b>Project Proponents:</b>	Hawai‘i Electric Company (HECO)
<b>Project Tasks:</b>	Archaeological Literature Review and Field Inspection
<b>Project Acreage:</b>	46.93 acres
<b>Principal Investigator:</b>	Dennis Gosser, M.A.
<b>Regulatory Oversight:</b>	Chapter 6E-8, Hawaii Revised Statutes (HRS) and Hawaii Administrative Rules (HAR) Chapter 275
<b>Project Background:</b>	The proposed project involves construction of a solar facility in Kalaoa. Work will include installation of equipment, fencing, site roads, and connectivity to the power source.
<b>SIHP #:</b>	SIHP 50-10-27-06422, a lava tube habitation cave; SIHP 50-10-27-06423. A traditional Hawaiian habitation complex; and SIHP 50-10-27-06437, a lava rock ahu
<b>Findings:</b>	Numerous archaeological investigations have been conducted in the Kalaoa area since modern development began, including the current project area parcel. The project area is in what is archaeologically known as the Transitional Zone (or “barren zone”), which is the drier land situated between the coastal plain and the uplands. Previously identified sites and features are typical of traditional Hawaiian activity in this zone, which include trails, cairns, resource procurement sites, temporary habitation sites (enclosures, lava tube/caves), burial sites, and some agricultural features, typically closer to the upland zone. Additionally, historic period sites associated with ranching (walls) or surveying (cairns) are found.
<b>Human Skeletal Remains:</b>	None identified within the project area. There is potential for human burials in the project area in lava tubes/cave or on the landscape (stacked rock platforms or mounds).
<b>Project Effect:</b>	Based on archival research, the project area was likely used for temporary habitation and resource procurement, followed by ranching during the historic period. Due to the inadequate nature of previous archaeological investigations in the proposed project area, there is insufficient information to determine the proposed project’s effect on potential historic properties.
<b>Mitigation Recommendations:</b>	An archaeological inventory survey (AIS) under the direction of an SHPD-approved work plan is recommended to adequately identify and document any archaeological historic properties that may be present, to assess their significance, to determine the potential impacts of this project on any identified archaeological historic properties, and to identify and ensure appropriate mitigation is implemented, if needed.

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## INTRODUCTION

Under contract to the Nexamp Solar, LLC, Pacific Consulting Services, Inc. (PCSI) has prepared this Archaeological Literature Review and Field Inspection in Support of Kalaoa Solar LLC-HI-Registration Project, ‘O‘oma 1 Ahupua‘a, Kona District, Hawaii<sup>1</sup>. The project proponent is the Hawai‘i Electric Company (HECO), and land owner is Haleakalā Ranch Company. The extent of the proposed project is shown in Figure 1. The project scope of work includes installation of solar arrays, fencing, and equipment.

A historical, cultural, and archaeological background study and field inspection was conducted in order to evaluate any potential effect on historic properties and to recommend mitigation of any adverse effect, if warranted. This work was carried out in accordance with Hawaii Revised Statutes (HRS) Chapter 6E, and Title 13 of the Hawaii Administrative Rules (HAR), Subtitle 13 (State Historic Preservation Division Rules), Chapter 275 (Rules Governing Procedures for Historic Preservation Review for Governmental Projects Covered Under Section 6E-8, HRS).

## PROJECT LOCATION AND DESCRIPTION

The current project is on the east side of Queen Ka‘ahumanu Highways in Kalaoa. The total project area measures 40 acres (ac), or 17 hectares (ha). The Tax Map Key (TMK) parcel is (3) 7-3-010:007, which totals 200.0 acres (Figure 2). The entire project area is undeveloped, as is the land to the east, north, and south. The nearest development on the east side of the highway is roughly 500 meters to the north, which consists of multiple landscaping and garden businesses. On the west side of the highway is Kona Airport and a few businesses along Makako Bay Drive, which is the entrance to Natural Energy Laboratory of Hawaii (NELHA). The project scope of work includes installation of solar arrays, fencing, and equipment. An overall site plan is shown in Figure 3.

## ENVIRONMENTAL SETTING

The project area land is a product of lava flows from Hualālai. ‘O‘oma 1 Ahupua‘a measures approximately 808 ha, or 1998 ac, and extends from the coast at Wawaloli Beach to roughly 570 m above mean sea level (amsl), about 500 meters east of Māmalahoa Highway.

## TOPOGRAPHY AND SOILS

The project area is gently sloping at 86 m to 90 m above mean sea level (amsl) and 1.7 km inland, or east, of the coastline. Soils in the project area are classified as pahoehoe lava flows with two to 20 percent slopes, as shown in Figure 4. The lava flow (Qh1y) occurred 3,000 to 5,000 years B.P.

## HYDROLOGY AND VEGETATION

The project area’s climate is dry. Annual rainfall averages 457.2 millimeters (mm), or 18.0 inches (in) (Giambelluca et al. 2013). There are no perennial or intermittent streams in the vicinity. The project area is undeveloped and historically was used for ranching. Vegetation is limited to fountain grass (*Pennisetum setaceum*).

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<sup>1</sup> PCSI follows the latest edition of the Society for American Archaeology (SAA) Style Guide (2021) regarding textual elements (e.g., numbers, dates, statistical copy, italicization, capitalization, hyphenation, and accents and diacritical marks). The authority for English spelling is the most recent edition of Merriam-Webster’s Collegiate Dictionary. Unless noted, the authorities for Hawaiian spelling and geographic place names are the Hawaiian Dictionary (Pukui and Elbert 1986), the most recent listing of the Hawai‘i Board on Geographic Names (HBGN), and Place Names of Hawaii (Pukui et al. 1976). PCSI uses the official spelling of Hawaii (without an okina) to refer to the State and State agencies (unless an alternative spelling has been officially adopted); spellings presented in quotations and references retain their original punctuation.

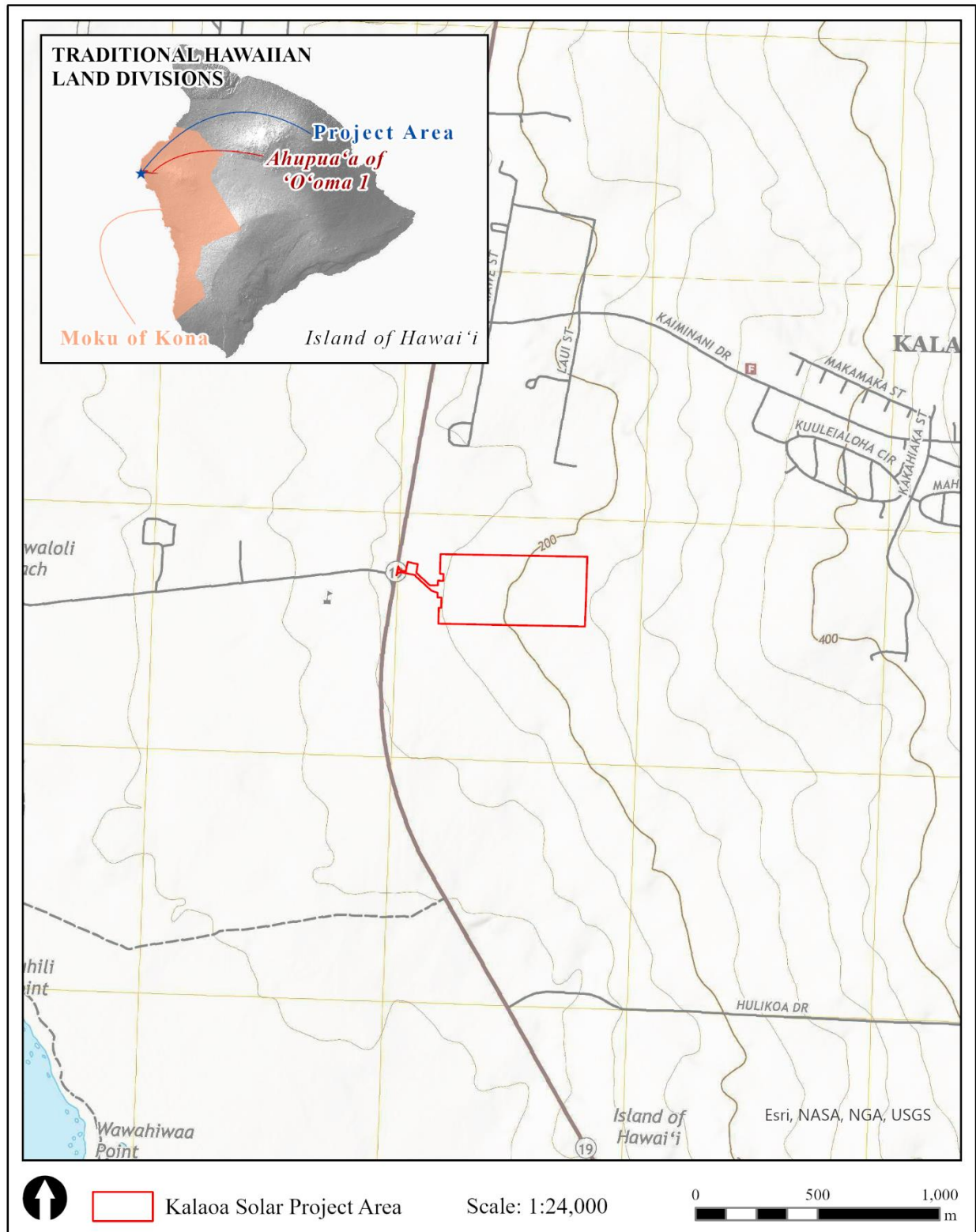


Figure 1. Project Area Location on 7.5-Minute Series USGS Keahole Point Topographical Quadrangle (2017).

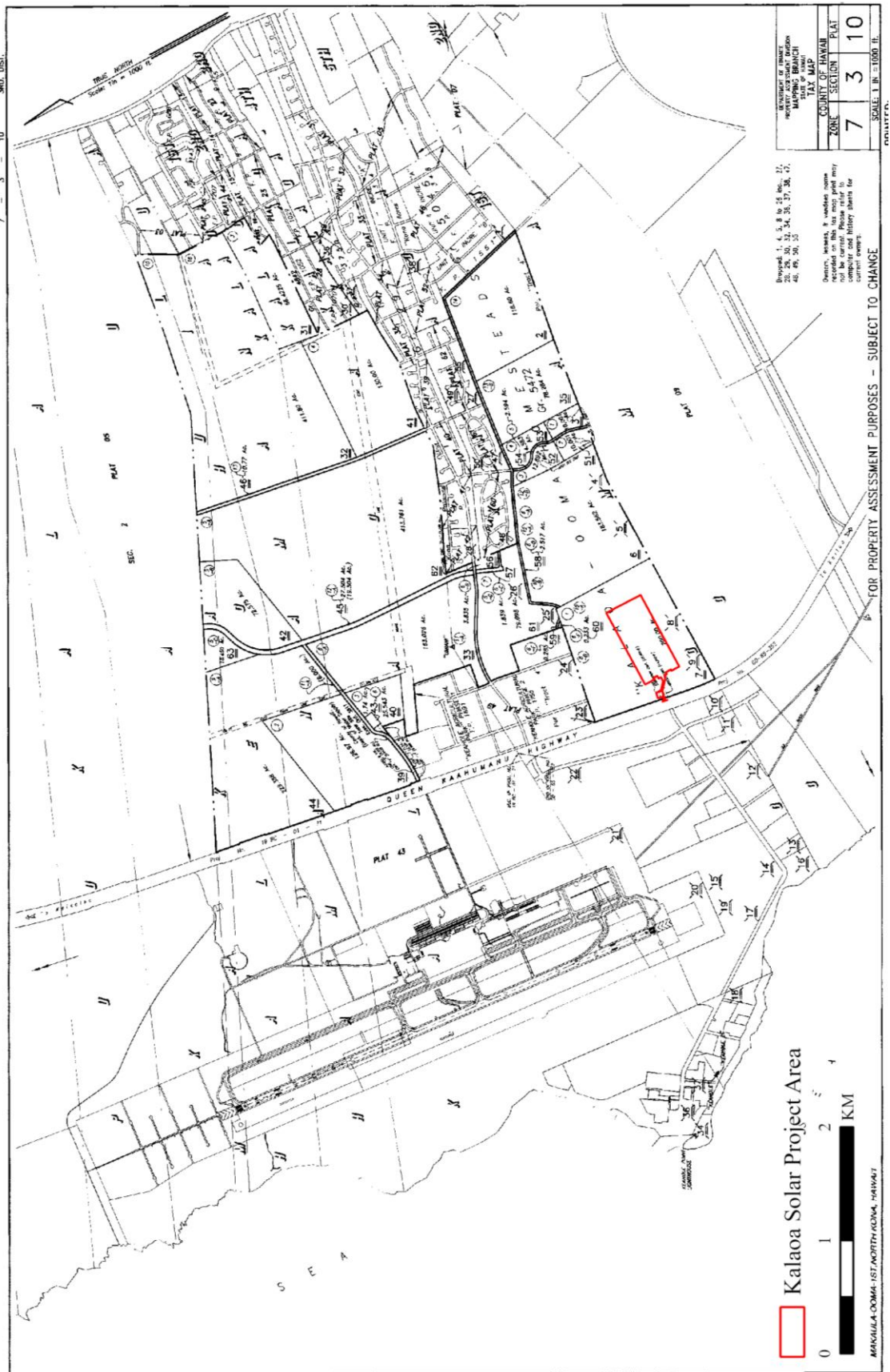
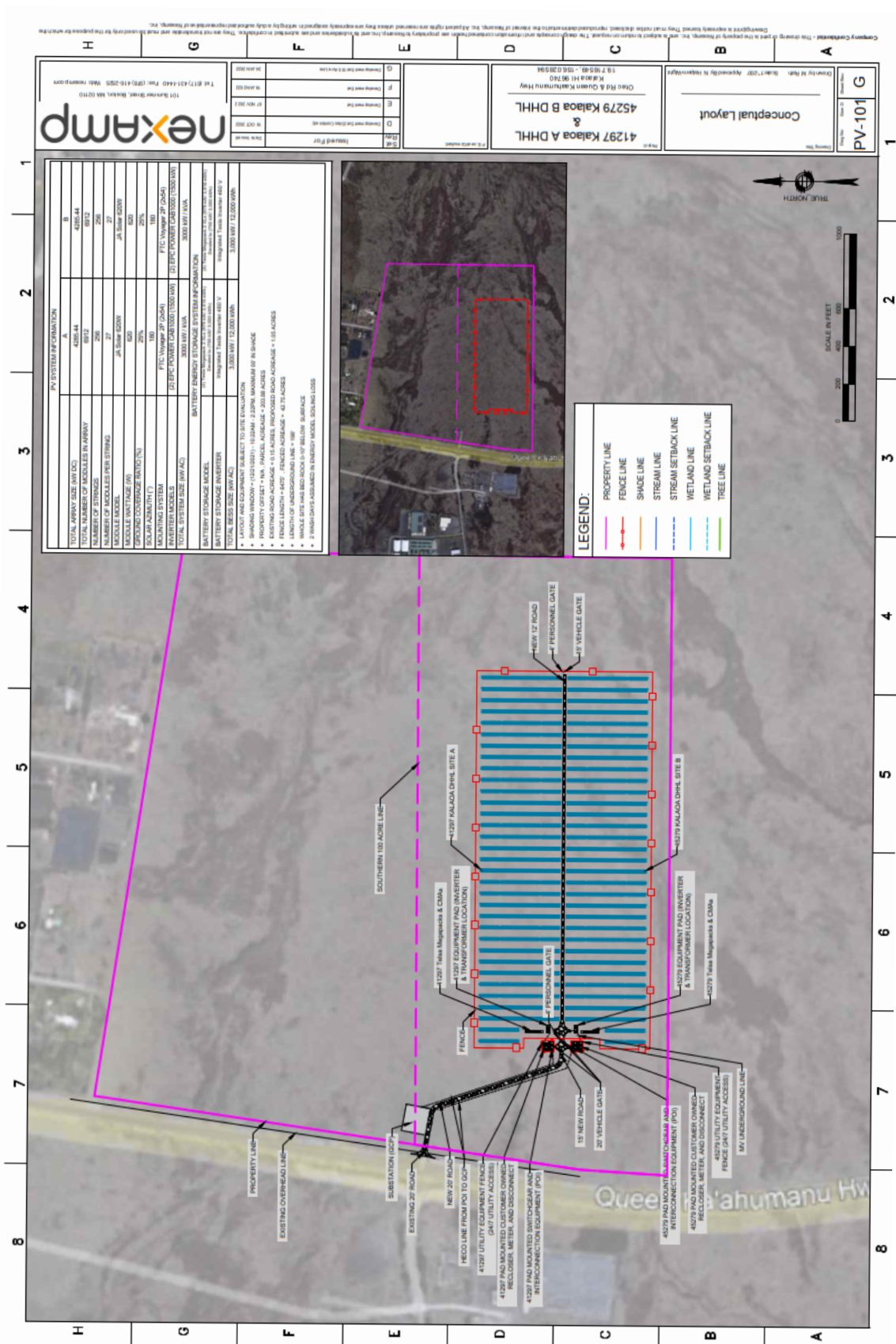


Figure 2. Tax Map Key for Plat (3) 7-3-010 (County of Hawaii 2018).





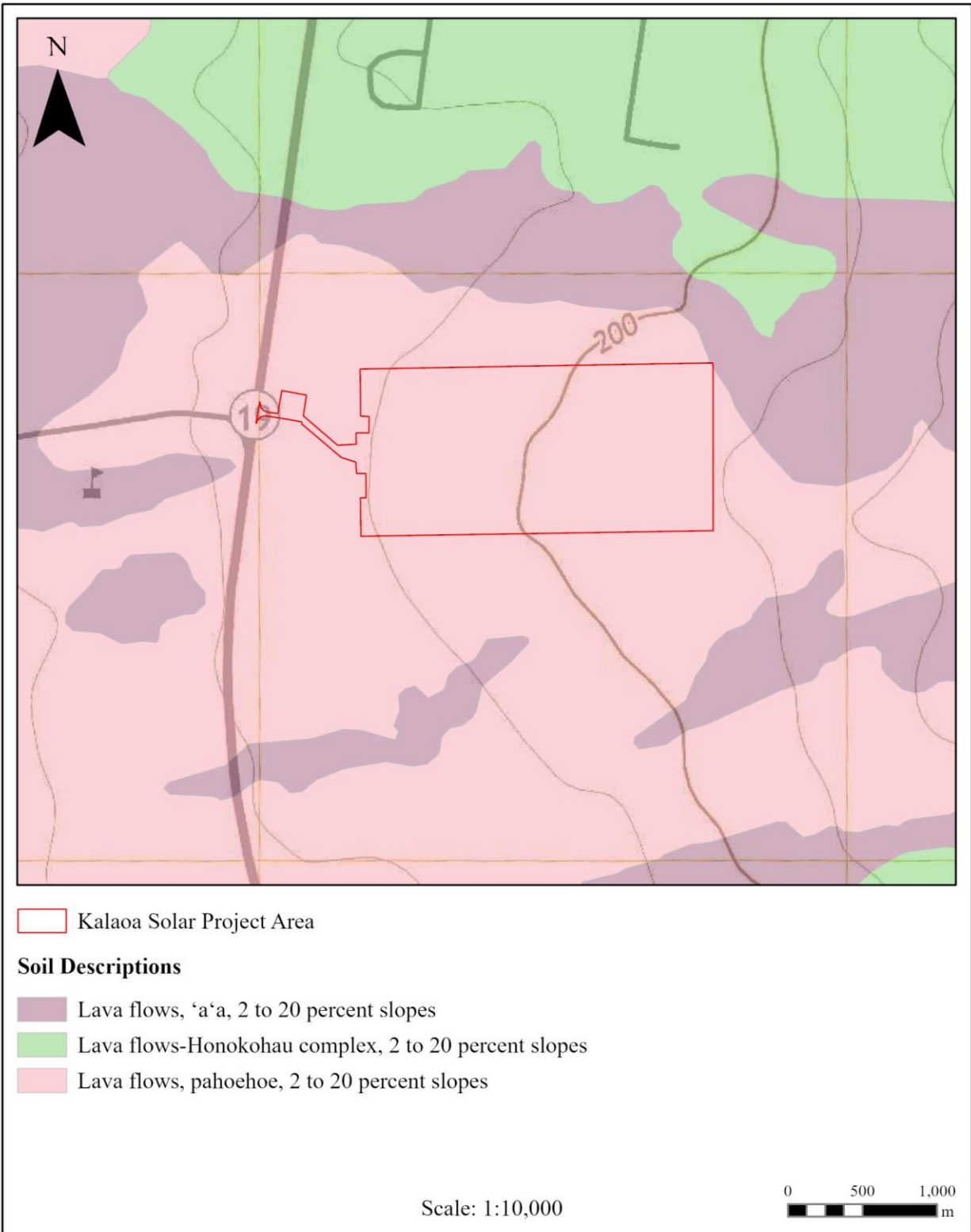


Figure 4. Soil Units Near the Project Area (Data Layer: USDA/NRCS 2015).

## HISTORICAL BACKGROUND

This section presents the ethno-historical and archaeological background information of the project area. Data from the background research were compiled to create an overview of traditional Hawaiian and historic-era land use and subsistence practices. Previous archaeological research in the study area is reviewed, along with results of the field inspection, and anticipated archaeological findings are discussed.

### TRADITIONAL HISTORY AND LAND USE

‘O‘oma 1 Ahupua‘a is in today’s North Kona, or Kona ‘*akau* (north). The ‘O‘oma can be translated literally as “concave” (Pukui and Elbert 1986:344). Traditionally large districts on Hawai‘i were divided into ‘*okana* (sub-district) or *kalana* (Land division smaller than a district). Kona ‘*akau* was divided into two *kalana*. The south portion was known as Kona *kai* ‘*ōpua*, interpretively translated by Maly (1998:6) as “Kona of the distant horizon clouds above the ocean.” The north portion, which is the location of the current project area, was known as Kekaha, which cultural historian Kepā Maly (1998:6) states is “descriptive of an arid coastal place.” Traditionally, people of Kekaha referred to the land as *Kekaha-wai-‘ole o nā Kona* (Waterless Kekaha of the Kona district), or simply as the ‘*āina kaha* (Maly 1998:6). This area reached from Pu‘uanahulua Ahupua‘a in the north to Lanihau 1-2 Ahupua‘a in the south. Maly translated a boundary description of Kekaha from a saying:

O Hikuhia i ka uka o Nā-pu‘u a me Kekahawai‘ole, mai Ke-ahu-a-Lono i ke ‘ā o Kanikū a hō‘ea i ke kula o Kanoenoe i ka pu‘u o Pu‘u-o-Kaloa.

[Kekaha extends from] the uplands of Hikuhia, which is in the uplands of Nā-pu‘u and the waterless Kekaha; and extend from Keahualono on the rocky plain of Kanikū, to the hill of Pu‘uokaloa [at Keahuolu] [*Ka‘ao Ho‘oniua Pu‘uwai no Ka-Miki in Ka Hōkū o Hawai‘i*, October 18, 1917; Maly translator in Clark et al. 2017].

Archaeological evidence shows the earliest settlement of the Hawaiian Islands occurred no earlier than AD 1000 (Kirch 2011). Based on traditional history and the bounty of resources that the area could provide, windward, or *ko‘olau*, coast was a place of early settlement on the island, while the leeward, or *kona*, likely occurred after AD 1200. The current project area is in the “Transitional Zone” (between the coastal settlements and the upland agricultural areas), which would have been used for temporary habitation during resource procurement.

As of the 1400s there were two concentrations of power on the island: the “Kona” chiefs of Kohala, Kona, and Ka‘ū, and the “I” chiefs of Hamakua, Hilo, and Puna (Cordy 2000:205–207). When ‘Umi-a-Liloa came to power, sometime between the early 1400s and early 1600s, he united the island and chose Kona as the seat of power. Population density in the Kona region probably increased during the time of Umi-a-Liloa’s rule (Fornander 1919:313). Based on royal oral traditions it is thought that from 1500 to the mid-1700s many attempts were made to overthrow the lineage. This tumultuous period ended under Kamehameha I, a direct descendant of ‘Umi-a-Liloa, who unified the Hawaiian Islands (less Kaua‘i) at the end of the 18th century (Cordy 2000:205–208).

To the south of Kekaha was the Kona Field System (State Inventory of Historic Places [SIHP] 50-10-37-06601) consisted of the upland slopes from Kailua to Kealakekua and was the agricultural base for the Kona chiefdoms (Rasmussen 2008:11). During the early 1800s, the English missionary William Ellis visited the area and recorded the following:

The environs were cultivated to a considerable extent; small gardens were seen among the barren rocks on which the houses are built, wherever soil could be found sufficient to nourish the sweet potato and in many places these seemed to be growing literally in the fragments of lava, collected in small heaps around their roots.

[W]alked towards the mountains, to visit the high and cultivated parts of the district. After travelling over the lava for about a mile, the hollows in the rocks began to be filled with a

1 light brown soil; about half a mile further, the surface was entirely covered with a rich  
2 mould, formed by decayed vegetable matter and decomposed lava.

3 Here they enjoyed the agreeable shade of bread-fruit and ohia trees. ... The path now lay  
4 through a beautiful part of the country, quite a garden compared with that through which  
5 they had passed on first leaving the town. It was generally divided into small fields, about  
6 fifteen rods square, fenced with low stone walls, built with fragments of lava gathered from  
7 the surface of the enclosures. These fields were planted with bananas, sweet potatoes,  
8 mountain taro, paper mulberry plants, melons, and sugar-cane, which flourished  
9 luxuriantly in every direction [Ellis 1827:31–32].

10 In North Kona, only the uplands supported dry taro. *Kaha* was a term given to places that faced the  
11 shore but were not good for planting (Handy and Handy 1972:97). In Handy and Handy (1972), water  
12 collection is described based on Mary Kawena Pukui's translation of a Hawaiian newspaper article:

13 Another "waterless land" in Kona lay in the area called Kekaha, described by John  
14 Elemakule in the newspaper Hoku o Hawaii of September 3, 1929, translated also by Mrs.  
15 Pukui. Hawaiians living there obtained their drinking water from caves, which were  
16 numerous thereabouts. To catch water dripping from the ceiling the people made troughs  
17 of 'ohi'a, koa, and kukui wood, dubbing them out to a depth of from three to six feet, as  
18 though for a canoe hull. Gourd containers and wooden calabashes (bowls) were also used  
19 to catch drops from the ceiling of the cave. The interior of these caves was dark, so the  
20 Hawaiians used torches made of kukui nuts when collecting their water vessels. As troughs  
21 and other containers filled, water was dipped out slowly with a small coconut shell cup and  
22 poured into a gourd water bottle, using for a funnel the neck of another bottle gourd, cut  
23 off, or a ti leaf folded back on itself. The water was dipped carefully so as not to put  
24 sediment into the water bottle Handy and Handy 1972:114–115].

25 As noted above regarding the place name Kekaha, the coast of Kekaha was known for *aku*  
26 (skipjack, *Katsuwonus pelamis*) fishing:

27 Fishing for aku—lawai'a hi aku—was greatly enjoyed by chiefs and commoners in the old  
28 days and during the reign of Kamehameha I, but the aku diminished during the reign of  
29 Kamehameha II and the early years of Kamehameha III and has now disappeared from the  
30 places once well known to ka po'e kahiko and from the localities that were famous for the  
31 abundance of aku. They filled double canoes and boats in such numbers that most of them  
32 rotted. The aku and the 'ahi fishes disappeared during the time of Kamehameha III from  
33 Kaunolu, Haleohi'u and Kekaha on Hawaii—from Kawaihae to the cape of Makaula  
34 Kamakau 1991:94].

35 Also in Kekaha is Kaloko, where there is a cave that is a famous burial place. It has been speculated  
36 that the cave referred to was not the underwater cave at Kaloko Pond, but a secret cave further inland  
37 (Barrère 1975; Kelly 1971). The following is a description from Kamakau (1964):

38 Kaloko [pond] is another famous burial pit; it is at Kaloko, in Kekaha, Hawaii. [In a cave  
39 that opens into the side of the pond] were laid Kahekili, the ruler of Maui, his sister Kalola,  
40 and her daughter, Keku'iapo'iwa Liliha, the grandmother of Kamehameha III. This is the  
41 burial cave, ana huna, where Kame'eiamoku and Hoapili hid the bones of Kamehameha I  
42 so that they would never be found [Kamakau 1964:41].

43 Kauikeaouli (Kamehameha III), son Kamehameha I and Keōpūolani, was raised at 'O'oma by  
44 Kaikio'ewa until age five. Originally Kamehameha I's advisor Kuakini (later governor of Hawai'i and  
45 O'ahu) was to be *kahu* (guardian) of Kauikeaouli. The following is an account of his birth in 1813 from  
46 Kamakau and how Chief Kaikio'e'wa (cousin of Kamehameha I and later governor of Kaua'i) came to be  
47 *kahu* of Kauikeaouli:



1 While she was carrying the child [Kau-i-ke-aouli] several of the chiefs begged to have the  
2 bringing up of the child, but she refused until her *kahu*, Ka-lua-i-konahale, known as Kua-  
3 kini, came with the same request. She bade him be at her side when the child was born lest  
4 some one else get possession of it. He was living this side of Keauhou in North Kona, and  
5 Ke-opu-o-lani lived on the opposite side. On the night of the birth the chiefs gathered about  
6 the mother. Early in the morning the child was born but as it appeared to be stillborn Kua-  
7 kini did not want to take it. Then came Ka-iki-o-‘ewa from some miles away, close to  
8 Kuamo‘o, and brought with him his prophet who said, “The child will not die, he will live.”  
9 This man, Ka-malo-‘ihi or Ka-pihe by name, came from the Napua line of kahunas  
10 descended from Makua-kau-mana whose god was Ka-‘onohi-o-ka-la (similar to the child  
11 of God). The child was well cleaned and laid upon a consecrated place and the seer (*kaula*)  
12 took a fan (*pe‘ahi*), fanned the child, prayed, and sprinkled it with water, at the same time  
13 reciting a prayer addressed to the child of God, something like that used by the Roman  
14 Catholics. . .

15 . . . The child began to move, then to make sounds, and at last it came to life. The seer gave  
16 the boy the name of “The red trail” (Ke-aweawe‘ula) signifying the roadway by which the  
17 god descends from the heavens.

18 Ka-iki-o-‘ewa became the boy’s guardian and took him to rear in an out-of-the-way place  
19 at ‘O‘oma, Kekaha. Here Keawe-a-mahi, the lesser chiefs, the younger brothers and sisters  
20 of Ka-iki-o-‘ewa, and their friends were permitted to carry the child about and hold him on  
21 their laps (*uha*). Ka-pololu was the chief who attended him; Ko‘ipepeleleu and Ulu-nui’s  
22 mother [were] the nurses who suckled him. Later Ka-‘ai-kane gave him her breast after she  
23 had given birth to Ke-kahu-pu‘u. Here at ‘O‘oma he was brought up until his fifth year,  
24 chiefly occupied with his toy boats rigged like warships and with little brass cannon loaded  
25 with real powder mounted on [their] decks. The firing off of these cannons amused him  
26 immensely [Kamakau 1992:264].

## 27 POST-CONTACT LAND USE

28 Following the death of Kamehameha I in 1819, his successor Liholiho abolished the traditional  
29 *kapu* system (traditional Hawaiian code of conduct of laws and regulation). This negatively affected the  
30 Hawaiian religious system and the significance of *heiau* (temple) (Clark and Rechtman 2006:15). Ellis had  
31 made note of the *heiau* during his visit to the area:

32 The number of heiaus, and depositories of the dead, which we passed, convinced us that  
33 this part of the island must formerly have been populous. The latter were built with  
34 fragments of lava, laid up evenly on the outside, generally about eight feet long, from four  
35 to six broad, and about four feet high. Some appeared very ancient, other had evidently  
36 been standing but a few years [Ellis 1827:72–73].

37 Throughout Hawaii these religious structures, along with other traditional Hawaiian features, were  
38 modified or dismantled to construct roads, walls, animal pens, gates, and shelters (Maly 1998:A-16).  
39 Through the 1800s the population in Kona decreased. Ellis recorded 3,000 inhabitants in Kailua village  
40 around 1923 (Ellis 1827). In the 1830s this pattern was seen throughout Kona Moku, as observed by the  
41 missionaries Asa Thurston and Artemis Bishop:

42 We have been sensible for some time that the number of inhabitants in this island is on the  
43 decrease. There is an almost constant moving of the people to the leeward islands,  
44 especially since the removal of the governor [Kuakini] to Oahu. Some leave by the order  
45 of the chiefs, and other go on their own responsibility. At a late census of this district  
46 [Kona] the number of inhabitants fell short of 13,000 [Thurston and Bishop 1933:236].



1 Land use in the 1800s was dominated by cattle ranching in the Kohala and Kona regions. Captain  
2 George Vancouver had gifted cattle, sheep, and goats to Kamehameha I at Kawaihae in 1793, and later at  
3 Kealahou (Fornander 1996:336; Judd 1978:16; Kamakau 1992:164; Maly and Wilcox 2000:21). Their  
4 introduction proved detrimental to agricultural fields and walls were built throughout the region in order to  
5 limit the range of the wild animals. In Kona, cattle were driven from the uplands to Kailua Bay for shipping,  
6 which involved lassoing, pulling them into the bay, lashing them onto the gunwales of waiting whaleboats  
7 and delivering them to waiting ships (Rasmussen 2008:15). Though shipping cattle from Kailua ended in  
8 1956, ranching in the region continued until the 1970s (Kona Historical Society 2000:22–23).

9 Traditional land divisions of the fifteenth and sixteenth centuries persisted until the 1848 Mahele,  
10 which introduced private property into Hawaiian society (Kamakau 1991:54). During the Mahele, the Land  
11 Commission required the Hawaiian chiefs and *konohiki* (land agents for the *ali'i*) to present their claims to  
12 the Land Commission. In return they were granted awards for the land quit-claimed to them by  
13 Kamehameha III. The remaining unclaimed land was then sold publicly, “subject to the rights of the native  
14 tenants” (Chinen 1958:29). The new western system of ownership resulted in many losing their land. Often  
15 claims would be made for discontinuous cultivated plots with varying crops, but only one parcel would be  
16 awarded.

17 In the case of land claims made for Konohiki lands, approval by the Land Commissioners was  
18 required before the award was made. If approved, then the awardee obtained a Royal Patent (RP) from the  
19 Minister of the Interior, which indicated that the government’s interest in the land had been settled with a  
20 commutation fee. This fee was typically no more than one-third of the value of the unimproved land. This  
21 fee was paid either with cash, or, more commonly, the return of one-third of the awardee’s lands, or total  
22 value of the lands awarded (Barrère 1975:28).

23 Following the Māhele of 1848, two acts were passed in 1850 that changed land ownership in  
24 Hawai‘i. On 10 July 1850, the Alien Land Ownership Act was adopted, which allowed foreigners to own  
25 land. On 6 August 1850, the Kuleana Act of 1850 was adopted, which allowed *hoa‘āina* (common people  
26 of the land, native tenants) to make claims to the Land Commission. The new western system of ownership  
27 resulted in many losing their land. Often *kuleana* (property) claims would be made for discontinuous  
28 cultivated plots with varying crops, but only one parcel would be awarded.

29 The Crown Lands became Government Lands when the Hawaiian Government was overthrown in  
30 1895, making them public domain for sale by fee simple (Hammatt 2013:A-5). Patents were the certificates  
31 issued for the sale of such lands. Beginning in 1900, when Hawai‘i became a U.S. territory, the certificates  
32 were called Land Patents, or Land Patent Grants (Hammatt 2013:A-5). The Crown Lands became  
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35 Beginning in 1900, when Hawai‘i became a U.S. territory, the certificates were called Land Patents, or  
36 Land Patent Grants (Hammatt 2013:A-5).

37 At the Māhele, ‘O‘oma 1 was awarded to Moses Kekūāiwa (brother of Kamehameha IV and V,  
38 and Victoria Kāmāmalu). He died in late 1848 and his father, Mataio Kekuanā‘a, relinquished the land in  
39 commutation (Clark and Ketner 2022:33). There were no *kuleana* claims made for land in the *ahupua‘a*.  
40 The Hawaiian government began selling and leasing the land after the Mahele. In 1865, S.C. Wiltse, a  
41 government surveyor and land agent, compiled a description of various lands in Kona and wrote the  
42 following regarding ‘O‘oma 1 and 2: “The best part of these lands have been sold, their remains to the Govt.  
43 the first part, 2 or 300 Ac. And the seaward part some 1500 Ac., about 500 of which is 3rd rate land, the  
44 balance rocks” (HSA – Interior Department, Lands in Rechtman and Clark 2013:32).

45 The earliest Land Grant in ‘O‘oma 1 was Grant 2031 to Koanui in 1856 for 24.5 acres. This was at  
46 the most inland point of the *ahupua‘a*. It was not until the 1900s that more Land Grants were awarded, and  
47 all were one to five kilometers inland, or east, of the current project area. The lower elevation portion of  
48 ‘O‘oma 1 became homestead land, designated the ‘Akahipu‘u Section. A survey map by J.S. Emerson dated

1 1888 shows few features (Figure 5), but there is “Kama’s grass h.” on the coast in ‘O‘oma 2. Another  
2 feature, which Emerson noted in his field book and on the map is Kahokukahi, where there was an *ana*  
3 *kaua* (refuge cave) used during times of war: “The point is on the entrance of the cave, Kahokukahi . . . The  
4 above is the vertical entrance of a famous ana kaua, which extends for a long distance to the E. and to the  
5 W ... “ (J.S. Emerson Field Book 291:137 in Clark and Ketner 2022:39).

6 Eight homestead lots were sold in ‘O‘oma 1 between 1895 and 1899, which ranged in size from 15  
7 to 25 acres (Figure 6). The remainder of the land was retained by the government, some of which was leased  
8 for grazing. Correspondence with the Minister of Interior from Wiltse, Emerson, and others concerning  
9 ‘O‘oma 1 and its division into homestead lots it provided in Table 1.

10 In the early 20th century, coffee, sisal, sugarcane, Irish potatoes, oranges, and grapes were grown  
11 on Hawai‘i Island and shipped to Honolulu markets and other ports. As Hawaii transitioned into a market  
12 economy, populations began to accumulate around labor centers, displacing the community organization  
13 of the *ahupua‘a* system. Population declined along the Kona coast, with small concentrations at Kailua and  
14 Keauhou villages.

15 Little change occurred in the Kekaha area until the 1960s. This was when the Queen Ka‘ahumanu  
16 Highway was extended and construction began for the new Keāhole Airport. With the main highway came  
17 more development, which resulted in many cultural resources management projects. In addition to the  
18 airport on the coast, there is also Hawaii Ocean Science and Technology Park (HOST Park). In the 1970s  
19 and 1980s, the Keahole Agricultural Park was developed to the north of the project area and residential  
20 subdivisions were developed inland, or east, of the project area. As for the project area, it remains  
21 undeveloped and is accessed by the entrance to a power substation.

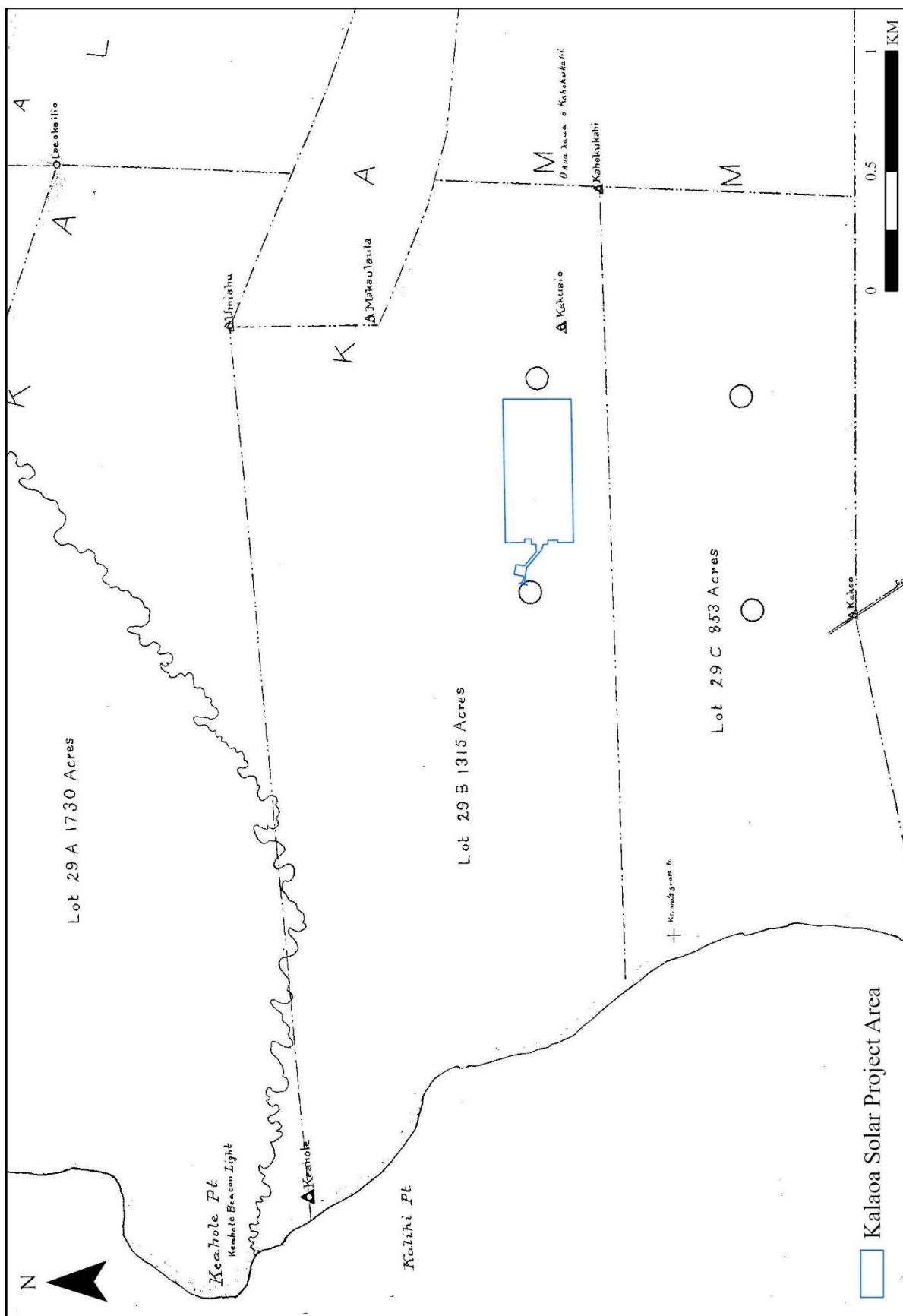




Table 1. Correspondence with the Minister of Interior Regarding ‘O‘oma 1 from 1856 to 1915.

Date	Place	Description
10 August 1855	Land in Ooma 1	In letter by J. Fuller to the Min. of Interior (Young) giving a report of the land sales made in Kona, Hawaii showing that 24 1/2 acres of land in the above place, had been sold to Koanui.
5 September 1865	Land of Ooma 1 and 2	In a letter from S.C. Wiltse to the Min. of Interior giving a list of names and description of Govt. lands which is attached, stating that there still remains to the government the forest part of the above land of 200 or 300 acres and the makai part, some 1500 acres of which 500 is 3 <sup>rd</sup> rate land and the balance, rocks.
25 April 1866	Ahupuaa of Ooma 1	In report by J.H. Kalaiheana showing that the above ahupuaa belongs to the Govt., excepting the center portion which has been sold.
11 May 1870	Land of Ooma 1	In report by H.N. Greenwall redistribution of above land, etc.
28 April 1875	Lands of Ooma 1 and 2	In letter from A.S. Cleghorn and Co. to the Min. of interior applying to lease the above lands.
16 May 1888	Land of Ooma 1	In letter from J. W. H. I. Kihe to the Min. of Interior inquiring as to whether Kauhine owns land in the above place and Kalaoa - States that Kama, Kaakau and Hueu own land within the boundaries supposed to have been sold to Kauhine &c. Report of the Govt. Survey Office and docs relating thereto, attached.
26 December 1888	Lands of Ooma 1 and 2	In petition from J.W.H.I. Kihe to the Min. of Interior praying that the above lands and all remnants adjoining same be sold to them etc. Docs, relating thereto, attached.
4 March 1889	Land of Ooma 1	In a statement by J.S. Emerson showing that Lot 29B - in Kalaoa 5 and the above place will be sold at auction.
4 October 1889	Lands of Ooma 1 and 2	In petition from J.W.H.I. Kihe to the Min. of Interior praying that the above lands be laid out into homestead lots – Report of the Govt. Survey Office, attached.
7 October 1889	Lots in Ooma 1	In letter from J. Kaelemakule to the Min. of Interior requesting that the application made by Kahinu and Lilinoe be changed so that Kalhinu will receive lot 51 and Lilinoe lot 49 in the above place
3 July 1890	Land of Ooma 1	In letter from K.M. Kaihemakawalu et. al. to the Min. of Interior requesting that the above land lying mauka of the Govt. road be cut up into homestead lots and given to the poor people of said district.
21 September 1891	Lands of Ooma 1 and Kalaoa 5	J. H. Waipuiani. -To- Min. of Interior That he had been asked to survey and divided Lot 5 in the above lands, into two lots, etc.
4 June 1915	Lots in Ooma 1	Commissioner of Public Lands - -To- -Governor- Requesting approval to the taking possession of Lot 14 in the above tract, held by Iokepa Maiola, under Right of Purchase Lease No.28 for non-compliance with conditions of said lease. Governor's approval attached.

## PREVIOUS ARCHAEOLOGY

Numerous archaeological investigations have been conducted in the Kalaoa area since modern development began, including the current project area parcel. The project area is in what is archaeologically known as the Transitional Zone (or “barren zone”), which is the drier land situated between the coastal plain and the uplands. Previously identified sites and features are typical of traditional Hawaiian activity in this zone, which include trails, cairns, resource procurement sites, temporary habitation sites (enclosures, lava tube/caves), burial sites, and some agricultural features, typically closer to the upland zone. Additionally, historic period sites associated with ranching (walls) or surveying (cairns) are found.

Archaeologist Ross Cordy’s (1985) working paper summarized all previous archaeological work up to 1985 and presented anticipated future finds and preservation issues. For the Transitional Zone, he anticipated:

widely scattered remnants of temporary occupation (caves, cave-sink complexes, C-shaped shelters, shell scatters, etc), markers (cairns) and perhaps some inland-heading trails are expected. Cultural deposits in the temporary occupation sites are again anticipated to be shallow site density will be low but might increase in the upper Barren Zone. Some historic border walls may also be found in this zone [Cordy 1985:43].

The Upland Zone, 430–2,200 foot elevations is the agricultural zone of Kalaoa and ‘O‘oma ahupua‘a. For this area he anticipated:

field remains (walls or alignments as field borders, clearing mounds, cleared fields, etc.) and housing (platforms, enclosures, pavings, etc.). The housing would reflect temporary field shelters and some permanent houses (at least in the late 1800s). Depths of the deposits in these sites cannot yet be predicted. Unfortunately, no archaeological work was done in this zone before the current houses were built, so work in the remaining areas of this zone is doubly important [Cordy 1985:43].

Cordy also discussed the possibility of burial sites:

One type of site that has yet to be found in these ahupua‘a are burial sites. A few caves in the Barren Zone had the remains of single individuals. But given 400 years of prehistoric human occupation in these ahupua‘a, many more burials are expected. It is anticipated that such burials will be in the coastal and/or Barren Zones. Because larger platforms have been investigated, burial caves seem the likely sites to expect [Cordy 1985:43].

A detailed discussion of previous archaeological investigations and identified sites near the Kalaoa Solar project area is presented below, which are indicative of sites that may be present in the current project area. The project locations are shown in Figure 7 and previously identified sites are shown in Figure 8. In Table 2, all previous archaeological investigations conducted in the transitional zone near the Kalaoa Solar project area are summarized. All site numbers mentioned follow SIHP 50-10-27-.

### Queen Ka‘ahumanu Highway Corridor and Airport

*Ching and Rosendahl 1968*

The Department of Land and Natural Resources (DLNR) and the University of Hawaii Department of Anthropology conducted a reconnaissance level archaeological survey in the Kalaoa area in 1968 for planned construction of Queen Kaahumanu Highway and the Keahole Airport (Ching and Rosendahl 1968). The survey was conducted by helicopter with ground checks by 4-wheel drive vehicles and by landing the helicopter. All identified sites were caves, which included a single site in O‘oma 2, one in Kalaoa 5, and four in Kalaoa 1-4. According to Cordy (1985:12), additional work was conducted along the road corridor near the current project area, but there is no report, map, or other data to be found, with the exception of some information on trails.



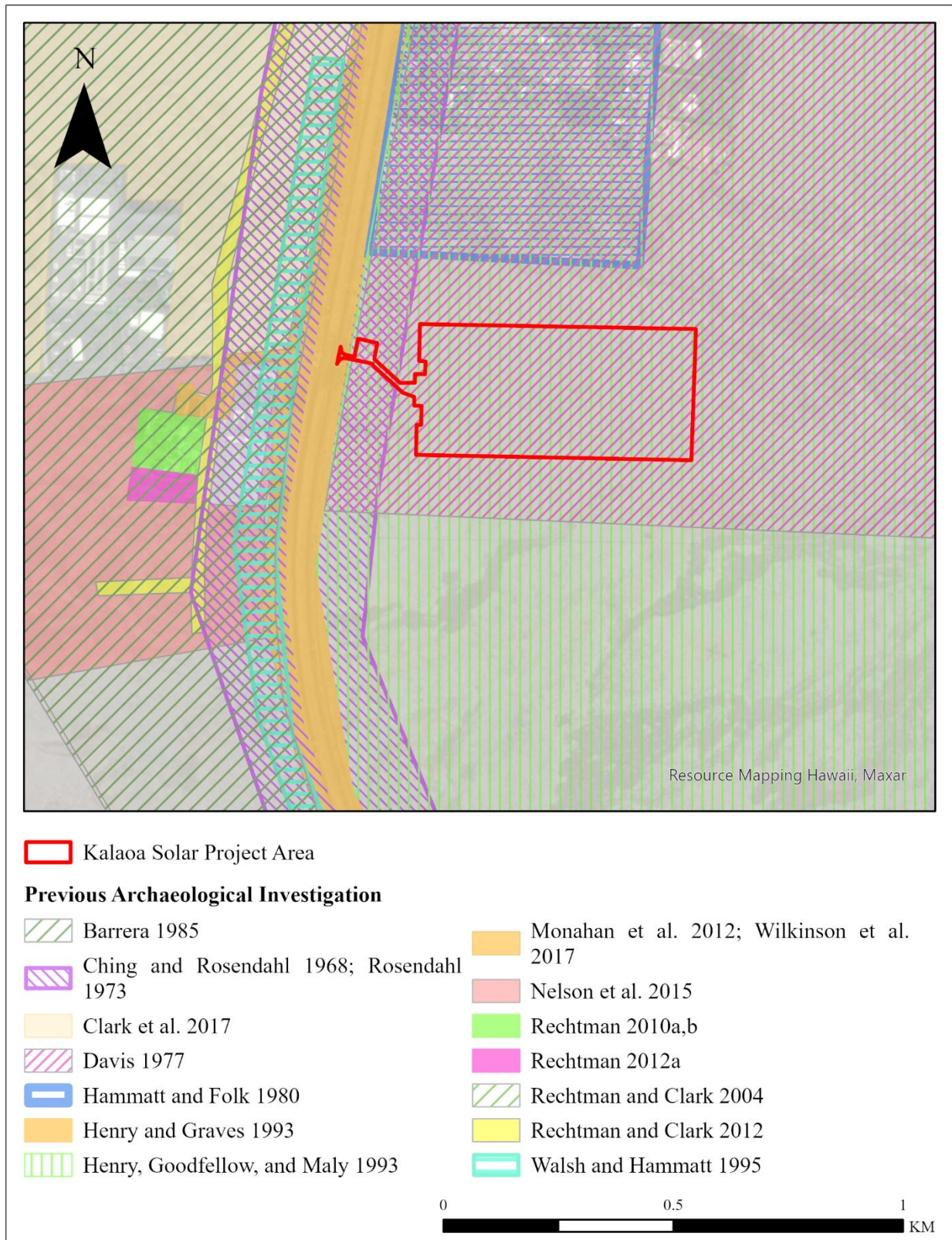


Figure 7. Previously Archaeological Investigations Near the Kalaoa Solar Project Area.





Figure 8. Previously Identified Sites Near the Kalaoa Solar Project Area.



Table 2. List of Previous Archaeological Studies and Identified Sites (See Table 3) Near the Project Area.

Reference	TMK (3)	Project Title in North Kona District, Island of Hawaii	SIHP 50-50-10-27-
Ching and Rosendahl 1968	7-3	Archaeological Surface Survey of the Kailua-Kawaihae Road (Section II, Honokōhau to Keāhole Point) and the Keāhole Point Airport	00262, [H-27-14-T1]
Davis 1977	7-3	Archaeological Survey of the Proposed Agricultural Park at Ke-ahole	00262, 06417–06437
Hammatt and Folk 1980	7-3	Archaeological Excavations Within the Proposed Keahole Agricultural Park, Kalaoaooma	00262, 06417–06437
Barrera 1985	7-3	Ke-ahole Point, Hawaii: Archaeological Reconnaissance	00002, 10151–10154, 10158, 10162
Cordy 1985	7-3	Working Paper No. 1: Hawai‘i Archaeology, ‘O‘oma and Kalaoa Ahupua‘a, Kekaha	[Summary of Previous Archaeological Findings]
Walker and Rosendahl 1989	7-3-010:027 por.	Archaeological Inventory Survey, Pu‘uhonua Subdivision Development Parcel, Land of Kalaoa 5th	5747, 05761–5778
Haun and Henry 2000	7-3-010:003	Archaeological Inventory Survey TMK:7-3-3-010:003, Land of O‘oma 1	05747, 23413, 23414, 23422–23424
Haun et al. 2003	7-3-010:027 por.	Archaeological Data Recovery, Sites 5748, 5749, 5750, 5753, 5755, 5756, 5761, 5762, 5764, 5771, and 5774, Puuhonua Subdivision Parcel, Land of Kalaoa 5	5748, 5749, 5750, 5753, 5755, 5756, 5761, 5762, 5764, 5771, and 5774,
Head and Rosendahl 2003	7-3	Archaeological Inventory Survey Kailua to Keahole Region State Lands LUC Project-500-acre University Site Lands of Makaula, Haleohiu, Hamanamana, and Kalaoa 1-4	15262–15307
Henry et al. 1993	7-3	Archaeological Assessment Study Kailua to Keāhole Region State Lands LUC Project, Lands of Makaula, Hale‘ohi‘u, Kalaoa 1-4, Kalaoa-‘O‘oma, and ‘O‘oma 2	18456–18462, 18476–18477, 18519, 18524, 18531–18533
Henry and Graves 1993	7-3	Phased Archaeological Inventory Survey Phase I - Site Identification Keahole-Kailua 69kV Transmission Line Project	15314, 15317
Walsh and Hammatt 1995	7-3	An Archaeological Inventory Survey of the New Queen Kaahumanu Highway Right-Of-Way Between Palani Road and Keahole Airport Within the Ahupua‘a of Keahuolu, Kealakehe, Honokohau, Kaloko, Kohanaiki, O‘oma 2, Kalaoa-O‘oma, and Kalaoa 1-4, Kekaha	No sites near the project area
Clark and Rechtman 2006	7-3-010:006	An Archaeological Inventory Survey of a Proposed Road Corridor on State Owned Land	05747, 24996, 24997

Reference	TMK (3)	Project Title in North Kona District, Island of Hawaii	SIHP 50-50-10-27-
Rechtman 2010a	7-3-043:083	Field Inspection of a Roughly One Acre Lot within the HOST Park at NELHA, 'O'oma 1st Ahupua'a	No site identified
Rechtman 2010b	7-3-043:083	Field Inspection of a Roughly Four Acre Lot (Lot 12A) within the HOST Park at NELHA, O'oma 1st Ahupua'a	No sites identified
Monahan et al. 2012	7-3-009, 7-3-043, 7-4-008	Archaeological Inventory Survey for the Proposed Queen Ka'ahumanu Highway Widening Phase 2 Project, Kalaoa, Kalaoa-'O'oma, 'O'oma 2, Kohanaiki, Kaloko, Honokohau 1-2 and Kealakehe	28808–28815, 29272, 29275, 29345–29347
Rechtman 2012a	7-3-043:089 por.	Field Inspection of a Roughly Three Acre Area Immediately Adjacent to the Roughly Four Acre Lot (Lot 12A) within the HOST park at NELHA, 'O'oma 1st Ahupua'a	No sites identified
Rechtman and Clark 2013	7-3-43:portions 073, 080, 083, 089, 091	Archaeological Inventory Survey Update for the Proposed NELHA Roads C, D, and E, 'O'oma 1st and 2nd and Kalaoa 5th Ahupua'a	06432, 29272, 29273, 29274
Nelson et al. 2015	7-3-043:080 (por.), 085, 089 (por.), 090, and 091 (por.).	An Archaeological Inventory Survey of a Roughly 110-acre Portion of the NELHA HOST Park Situated South of Makako Bay Drive	00002, 06432, 10153 30380–30386
Clark et al. 2017	7-3-043:072, 073, 074, and 078 (por.).	An Archaeological Inventory Survey of a roughly 210-acre portion of the NELHA HOST Park situated North of Makako Bay Drive	30320, 30330–30336, 30338–30343, 30348, 30361–30363, 30368–30370, 30374, 30375, 30380–30386
Wilkinson et al. 2017	7-2-005; 7-3-009, 043, 049, 051, 058; 7-3-043:091, 083; 7-4-020.	Supplemental Archaeological Inventory Survey Report for the Proposed Queen Ka'ahumanu Highway Widening Phase 2 Project, Kalaoa, Kalaoa-'O'oma, 'O'oma 2, Kohanaiki, Kaloko, Honokohau 1-2 and Kealakehe Ahupua'a	00002
HICRIS <sup>a</sup> [Escott 2019]	7-3-010:061 por.	[Intensive Survey]	00262, 31109, 31110
Bautista et al. 2020	7-3-009, 010, 043, 049, 051, 058; 7-4-008, 020	Archaeological Monitoring Report for the Queen Ka'ahumanu Highway Widening Phase 2 Project	00002, 10154, 29272

<sup>a</sup> Hawaii Cultural Resource Information System

1 Roughly 800 m north of the current project area is SIHP 00262, which comprises the ‘O‘oma  
2 Refuge Caves. At the time of survey in 1968, the multiple chambers of the lava tube contained cultural  
3 materials: in the central habitation area there was “shell (opihi, cowrie), kukui nut shell, fish bone  
4 (especially vertebrae), and hala nut”; in the main chamber there was “bone (human?) fishhook blank and  
5 quadrangular polished micro-adze. . . The vicinity of an apparent hearth yielded a fire plow stick; and a  
6 smaller chamber previously walled off contained “Wana spine and coral files, two shark teeth, the barb half  
7 of a two piece bone fishhook, the knob end of a bone hook shank, two (matching) shank fragments of a two  
8 piece bone hook, and an unfinished one piece bone hook” (Ching and Rosendahl 1968:11). This site was  
9 discussed in detail in Ching (1971:100, 111). The following is an explanation the caves’ purpose:

10 [Caves of Refuge] were designed as hiding places for a select few in times of distress  
11 brought about by war or threat of war. . . [they] were for the protection of the high born and  
12 selected retainers in troubled times. As such they were constructed not only as hiding places  
13 but also as fortresses. The location of these caves was known only to the people of the area  
14 and was kept secret in order to insure grater security for the chief in times of unrest . . .  
15 Caves of this type were ingeniously constructed and camouflaged to blend perfectly into  
16 their surroundings. Great quantities of stone had to be moved and set into place [Ching  
17 1971:99].

18 Approximately 600 m to the south of the current project area is Site H-27-14-T1, which is a lava  
19 tube shelter. No SIHP designation of later mention of this site could be found in any archaeological  
20 literature. The site is described as “a lava tube shelter, averaging four feet in height. The area enclosed is  
21 roughly 25 feet by 50 feet. Occupational debris noted includes shell, kukui nut, coral, and evidence of fire.  
22 A stone octopus-lure sinker was found on the pahoeohoe approximately 40 feet makai” (Ching and  
23 Rosendahl 1968:10).

#### 24 *Henry and Graves 1993*

25 Phase I archaeological inventory survey was conducted for the Keahole-Kailua 69kV Transmission  
26 Line project (Henry and Graves 1993), which comprised a 15.0 to 30.0 m wide corridor on the east side of  
27 Queen Ka‘ahumanu Highway from Kalaoa 1-4 Ahupua‘a to Keahuou Ahupua‘a, roughly 4.0 km. The first  
28 phase of the survey involved variable intensity ground survey based on previous survey coverage to identify  
29 and plot sites. The second planned phase of the survey was to involve detailed site recordation and  
30 subsurface testing, however no record of Phase II work was identified during background research for this  
31 report.

32 During Phase I work, 25 sites (22 new and 3 previously identified) with 60 component features (34  
33 new and 26 previously identified) were recorded. The features included the following formal types: *ahu*,  
34 cupboard, filled crack, lava tube, modified blister, modified outcrop, mound, pahoeohoe excavation, rock  
35 ring, terrace, trail, and wall. Functional interpretations included agriculture, boundary, habitation,  
36 indeterminate, marker, quarry, storage, and transportation. Two of these sites, SIHP 15314 and 15317, were  
37 in the vicinity of the current project area. SIHP 15314 is a modified blister interpreted as a habitation site.  
38 SIHP 15317 is a pahoeohoe excavation interpreted as a quarry.

#### 39 *Walsh and Hammatt 1995*

40 Archaeological inventory survey with limited subsurface testing was within 10,973 linear meters  
41 of the Queen Ka‘ahumanu Highway right-of-way (approximately 91.0 m wide) between Palani Road and  
42 the Keahole Airport entrance road (Walsh and Hammatt 1995). A total of 17 sites were identified, which  
43 included five previously identified and twelve newly identified. Formal feature types included trail,  
44 modified outcrop, *ahu*, wall, mound, petroglyph enclosure, road, terrace, midden, alignment, ash deposit,  
45 midden scatter, and pahoeohoe excavation. Functional categories included transportation, temporary  
46 habitation, boundary/ranching, markers, symbolism, quarry, agriculture, and unknown. No sites were  
47 identified in the vicinity of the current project area.

1           *Monahan et al. 2012 [Monahan et al. (2011), Monahan and Wilkinson (2012), and Monahan and*  
2 *Yucha (2012)]*

3           Archaeological inventory survey was conducted for the proposed Queen Ka‘ahumanu Highway  
4 Widening Phase 2 Project (Monahan et al. 2012). The final report was as a consolidation of three previous  
5 reports Monahan et al. (2011), Monahan and Wilkinson (2012), and Monahan and Yucha (2012). The 8.37  
6 km long and 91.4-meter-wide project corridor consisted of approximately 50 percent existing highway and  
7 previously-disturbed land. A total of 75 historic properties were reported in Monahan et al. (2012) of which  
8 55 were newly identified. None of the identified sites are in the current project area, and 12 are in the  
9 vicinity (SIHP 28808–28815, 29272, 29275, 29345, 29346, 28811–28813). These sites included a mounds  
10 of indeterminate function and age, pahoehoe excavations interpreted as prehistoric (pre-Contact) quarrying,  
11 lava tubes interpreted as prehistoric (pre-Contact) indeterminate/possible water catchment in function, a  
12 lava tube used for burial, a possible filled crevice of indeterminate function and age, and coral-filled  
13 pahoehoe crevice of indeterminate function and age.

14           *Wilkinson et al. 2017*

15           A supplemental archaeological inventory survey was conducted in 2016 for widening of Queen  
16 Ka‘ahumanu Highway after the APE for the original project was expanded (Wilkinson et al. 2017). The  
17 new APE included a remnant section of SIHP 00002, the Māmalahoa Trail.

18           *Bautista et al. 2020*

19           Archaeological monitoring was conducted from 2015 to 2018 during the Queen Ka‘ahumanu  
20 Highway widening project (Bautista et al. 2020). No new archaeological sites were identified. Near the  
21 Kalaoa Solar project area, interim protective measures were employed at SIHP 00002, 10154, 29272.

## 22   **Keahole Agricultural Park**

23           *Davis (1977)*

24           In 1977, reconnaissance level archaeological survey by Davis (1977) covered part of ‘O‘oma 1,  
25 Kalaoa 1–4, and Kalaoa 5 for the planned Keahole Agricultural Park. Twenty-one new sites were recorded  
26 in the vicinity of the current project area. Three (06422, 06423, and 06437), possibly four (06436), of the  
27 sites appear to be in the current project area. SIHP 06422 is a lava tube habitation cave. SIHP 06423 is site  
28 complex that includes a small lava tube shelter cave, a low enclosing wall of upright lava slabs, a large  
29 circular platform or “elevated” pavement with an ahu in the center, several small platforms and pavements,  
30 and six rock mounds of varying size. SIHP 06436 and 06437 are well-constructed lava rock ahu.

31           The exact site locations are unclear because they are based on georeferencing a site map from the  
32 1977 report. Additionally, three sites are described as in the area—06429, a lava blister shelter cave with  
33 human skeletal remains; 06430, a lava blister shelter cave; and 06435, an *ahu*), but do not appear on the  
34 site map or in any later archaeological reports. Site types in the lower elevation of the survey area  
35 (Transitional or “Barren” Zone) included modified lava-tube sinks and shelter caves, ahu (rock mounds and  
36 cairns), low stone platforms, low-walled shelters and/or hunting blinds, and quarry areas. In the high  
37 elevation of the survey area (Upland Forest Zone), agricultural sites were recorded, which included house  
38 enclosures, stone platforms, high-stacked ahu, walls, and rock mounds indicative of sweet potato crops.

39           *Hammatt and Folk 1980*

40           This report was not able to be accessed in HICRIS (Hawaii Cultural Resource Information System)  
41 during preparation of this report. The archaeological work was contracted by the State of Hawaii and  
42 included excavation at sites recorded by Davis (1977), including SIHP 06422, 06423, 06437, and 06436. A  
43 review of the report (Hammatt and Folk 1980) by SHPD archaeologist Patricia Beggerly is available in  
44 HICRIS, which is dated 20 August 1980. The review indicates a substantial number of revisions and  
45 additional data was needed to complete an acceptable final report. The following is a summary of the report  
46 from Cordy (1985), which indicates no site location map was included in the report:

1 In 1980, ARCH did more work in the Keahole Agricultural Park area inland of the highway  
2 (Hammatt and Folk 1980). A remaining small section in Kalaoa 1 near the highway was surveyed, at the  
3 reconnaissance level. Sites were found, but unfortunately no site location map is in the report in our files.  
4 Attempts are being made to find such a map. In the area that Davis surveyed in 1977, excavations occurred  
5 in 19 sites, with the major focus of excavations at 6 sinkholes with tube shelters. 1-15 units were dug at  
6 each site, and a large amount of perish[a]ble material was recovered from the shelters. 3 sites were dated  
7 (Cordy 1985:14).

8 *HICRIS [Escott 2019]*

9 According to HICRIS, an intensive survey in a portion of TMK (3) 7-3-010:061, which is the  
10 location of SIHP 00262, the 'O'oma Refuge Caves. Two new sites were identified: SIHP 31109, a cairn  
11 interpreted as a marker of indeterminate age, and SIHP 31110 a complex of pahoehoe excavations  
12 interpreted as a resource procurement site of indeterminate age. HICRIS cites Escott (2019) as the sponsor  
13 for the survey. No report or additional documentation could be located during preparation of this report  
14 regarding the survey.

15 **Natural Energy Laboratory Hawaii Authority (NELHA), Hawaii Ocean Science and Technology**  
16 **(HOST)**

17 *Barrera 1985*

18 On the west side of the highway, opposite the current project area, an archaeological survey was  
19 conducted by Barrera (1985) prior to development of the Natural Energy Laboratory Hawaii Authority  
20 (NELHA), Hawaii Ocean Science and Technology (HOST) Park. A total of 45 sites were recorded, which  
21 were distributed across the HOST project area from the coast to the highway. Six of the sites were in the  
22 vicinity of the current project area: SIHP 10151, a midden scatter consisting of one shell of a limpet  
23 (*Cellana* sp.), one shell of a cowrie (*Cypraea* sp.), and one shell of a *Drupa ricina*, covering a 1.0 by 5.0 m  
24 area; SIHP 10152, a 1.0 m by 1.0 m stone mound measuring 90 cm high; SIHP 10153, a 1.2 m by 1.2 m  
25 stone mound measuring 90 cm high; SIHP 10154, a 13.0 m long habitation structure measuring 3.0 m wide  
26 and 1.0 m high; SIHP 10158, a 1.0 by 1.2 m cavity in pahoehoe, 1.5 m in depth; and SIHP 10162, a 1.2 m  
27 by 1.2 m stone mound measuring 90 centimeters high.

28 *Rechtman and Clark 2013*

29 Archaeological inventory survey was conducted in a 200-foot-wide corridor extending 6000 feet  
30 in the NELHA HOST park (Rechtman and Clark 2013). This area was previously surveyed by Barrera  
31 (1985). One previously identified site, SIHP 06432 (a historic period boundary was recorded by Davis  
32 1977), and three newly identified sites, SIHP 29272, 29273, and 29274, were recorded. The new identified  
33 sites included a pre-Contract trail used into the historic period and a level area in 'a'a, which was interpreted  
34 as a pre-Contact or historic period temporary rest spot or work area (SIHP 29272); a pre-Contract trail with  
35 stepping stone alignments (SIHP 29273); and a complex of two cairns on pahoehoe bedrock, which are  
36 interpreted as historic period survey markers (SIHP 29274)

37 *Nelson et al. 2015*

38 Archaeological inventory survey was conducted in a 110-portion of the NELHA HOST park  
39 (Nelson et al. 2015). A total of 14 archaeological sites comprising 20 features were recorded. These  
40 included the previously recorded site SIHP 06432 by Davis (1977), and previously recorded sites SIHP  
41 00002, 10153, 10164, 10165, 10173, and 10178 by Barrera (1985). Seven newly identified sites were  
42 recorded. SIHP 30380 is a lava blister with a scatter of marine shell, a coral file/abrader, a limestone abrader,  
43 kukui nut shell fragments, and charcoal and an associated steeping stone trail segment. The site was likely  
44 used as pre-Contact shelter. SIHP 30381 is a lava blister with a few marine shells and shell *lūhe'e* lure.  
45 There is also an associated steeping stone trail segment. The site was likely used as pre-Contact shelter.  
46 SIHP 30382 is a modified lava blister likely used as a temporary shelter or rest area during the pre-Contact

period and later. SIHP 30383, 30385, 30386 each comprise a rock ring of indeterminate function and age. Lastly, SIHP 30384 is a cobble alignment of indeterminate function and age.

*Clark and Rechtman 2017*

Archaeological inventory survey was conducted in a 210-portion of the NELHA HOST park (Clark and Rechtman 2017). Seventy-three archaeological sites comprising 381 features were recorded. Twelve of the sites were previously identified. Of the sixty-one newly identified sites, 19 are in the vicinity of the current project area. These sites include a lava blister interpreted as a pre-Contact shelter (SIHP 30320), rock rings of indeterminate age and function (SIHP 30321 to 30343), a cairn interpreted as a historic survey marker (SIHP 30348), cairns interpreted as markers of indeterminate age (SIHP 30361 to 30363, 30368 to 30369), and pāhoehoe excavations interpreted as possible quarries or indeterminate age (SIHP 30374, 30375).

## **Pu‘uhonua Subdivision and Vicinity**

*Walker and Rosendahl 1989*

Archaeological inventory survey was conducted at the 140-acre Pu‘uhonua Subdivision Parcel prior to development (Walker and Rosendahl 1989). A total of 34 site were recorded, which included three boundary walls, two habitation enclosures, two trails, one possible burial platform, four marker cairns, two quarries characterized by pahoehoe excavations, and one marker platform. The site complexes were interpreted as simple habitations (10), habitations with agricultural components (2), habitations with associated burials (2), habitation/refuge (1), habitation with rock art (1), habitation/refuge/burial/water catchment (1), quarry (1), and one complex characterized by two mounds of indeterminate function. Near the current project area, were SIHP 05747, a historic boundary wall; SIHP 05766; SIHP 05774, a terrace a C-shape; SIHP 05775, a cairn; and SIHP 05777, a cairn.

*Haun and Henry 2000*

Archaeological inventory survey was conducted at a 50-acre parcel immediately south of Walker and Rosendahl (1989) survey area, Pu‘uhonua Subdivision. A total of 17 sites with 186 component features were recorded. The features included pahoehoe excavations, mounds, terraces, quarries, filled cracks, cairns, walls, pavements, trails, alignments, cupboards, and lava tube/caves. Functional features types included agriculture, temporary habitation, resource procurement, marker, transportation, livestock control, storage, ceremonial, refuge, tool manufacture, and indeterminate.

*Haun et al. 2003*

Data recovery was conducted at four open-air sites (SIHP 05748, 05755, 05762, and 05774) and eight sinkhole overhangs and/or lava tubes (SIHP 05749, 05750, 05753, 05756, 05761, 05764, 05771, and 05773). At SIHP 05774, a 1.0 m by 1.0 m test unit was excavated which revealed two stratigraphic layers, which are described below:

EU-1 was placed in the center of the terrace to investigate a shallow depression c. 20 cm below the surrounding cobble wall. Excavation of the 1.0 x 1.0 m unit revealed two stratigraphic layers overlying bedrock to a maximum depth of 110 cm bs. Layer I consists of basalt rubble fill and finer pebble infilling between pahoehoe slabs to a maximum depth of 80 cm bs. Layer I overlies bedrock at 25 cm bs in the southwestern corner of the unit, where the Layer I deposit was the most shallow. No cultural material was recovered from Layer I. Layer II underlies Layer I from a maximum depth of 80 cm to 110 cm bs in the eastern portion of the unit. Layer II consists of dark brown (1 0YR 3/3) silt mixed with occasional basalt cobbles. A single volcanic glass tertiary flake was recovered from Layer II. The flake weighs 0.8 g and measures 1.3 cm in length by 1.5 cm in width and 0.5 cm in thickness. Subsistence remains include *Isognomon pema* (NISP = 3; Wt=0.5 g),



unidentified avian bone (NISP= 1; Wt= 0.1 g), an unidentified bone fragment (NISP= 1; Wt= 0.1 g), and charcoal (NISP= 136; Wt= 8.1 g) [Haun et al. 2003:63].

*Clark and Rechtman 2006*

Archaeological inventory survey was conducted for a proposed road corridor along the south border of Pu‘uhonua Subdivision in Kalaoa 5th Ahupua‘a (Clark and Rechtman 2006). One previously recorded archaeological site (SIHP 05747) and two newly identified sites (SIHP 24996 and 24997) were recorded. SIHP 05747 is a historic boundary wall previously recorded by Walker and Rosendahl (1989) and Haun and Henry (2000). SIHP 24996 is a lava tube habitation and SIHP 24997 consists of an *ahu* and a historic survey marker possibly associated with the old ‘O‘oma-Kalaoa Homestead road.

## **Kailua to Keāhole Region State Lands LUC Project**

*Henry et al. 1993*

Archaeological assessment was conducted for the State Lands LUC Project, which included approximately 2,640 acres of State-owned lands on the east side of the highway (Henry et al. 1993) and included the current project area. In addition to compiling previously identified sites and background information, aerial and pedestrian surveys were conducted, which resulted in the identification of 42 new sites. None of the identified sites were in the current project area, and 15 of the sites were in the vicinity. Site were mostly associated with temporary habitation, likely for resource procurement or travel between the coast and uplands. Formal feature types of the 15 sites include *ahu* (SIHP 18477, 18531, 18532, 18533), alignment (SIHP 18531, 18533), C-Shape (SIHP 18531, 18533), cave (SIHP 18457, 18462), enclosure (SIHP 18531, 18533), historic shack (SIHP 18533), modified blister (SIHP 18461, 18531, 18532, 18533), modified depression (SIHP 18533), modified lava tube (SIHP 18456, 18459, 18460, 18473, 18474), modified outcrop (SIHP 18475, 18476, 18519, 18531, 18532, 18533), mound (SIHP 18531, 18532, 18533), overhang (SIHP 18533), pahoehoe excavation (SIHP 18524, 18532, 18533), petroglyph (SIHP 18473), platform (SIHP 18531, 18533), terrace (SIHP 18531, 18533), trail (SIHP 18458), and wall (SIHP 18531, 18533). The functional features included agriculture (SIHP 18461, 18475, 18476, 18519, 18531, 18532, 18533), habitation (SIHP 18457, 18462, 18531, 18533), possible habitation (SIHP 18456, 18459, 18460), marker (SIHP 18477, 18532, 18533), transportation (SIHP 18458), burial (SIHP 18473), rock art (SIHP 18473), boundary (SIHP 18531, 18533), and quarry (SIHP 18524, 18532, 18533). In each of the seven surveys transects, agricultural complexes were identified, which were designated SIHP 18529 through 18535. Related to these seven site complexes, the authors posit that they might be a northern extension of the Kona Field System:

Density of agricultural features increases with elevation, with the loosely scattered features of the lower barren zone giving way to denser concentrations in the upper barrens and a virtually continuous band of agricultural features in the uplands. This pattern is consistent with previous observations of agricultural field systems in North Kona-South Kohala, and supports the observation that such systems represent a northern extension of the Kona Field System [Henry et al. 1993:66].

*Head and Rosendahl 1993*

Archaeological inventory survey was conducted in a 500-acre portion of the State-owned lands State Lands LUC Project (Head and Rosendahl 1993). A total of 43 sites were identified, 16 of which had been previously identified by Davis (1977). The formal site types assigned included midden deposit, modified outcrop, terrace, enclosure, stacked rock, mound, wall, pahoehoe excavation, alignment, modified lava tube, cupboard, petroglyph, modified depression, steppingstone trail, cairn, platform, pavement, utilized lava tube, cleared area, and pecked stone. Functional types included habitation, agriculture, indeterminate, multiple, transportation, habitation (refuge), communication, marker, recreation, ceremonial, quarry, and boundary. The report also argues that numerous (approximately 3,000) minor agricultural features identified in the project area may represent a northern extension of the Kona Field

System, as previously argued in Henry et al. (1993). These features were counted and grouped by transect, and assigned to SIHP 18891. The authors also note that the agricultural features in the 500-acre portion of the State Lands LUC project area “generally lack the diversity of those in areas closer to the core of the Kona Field System, and it appears that the features were not as intensively used” (Head and Rosendahl 1993:55).

## ANTICIPATED FINDS

In view of the prior archaeological findings and past land use, there is potential for traditional Hawaiian archaeological sites associated with dryland agriculture, temporary habitation, or burial. During the historic period the project area was used for ranching, therefore, archaeological sites associated with ranching activities may be present.

## FIELD INSPECTION

A field inspection of the proposed project area was conducted on 6 April 2023. The purpose of the field inspection was to assess the current land use and overall character of the area. The locations of photographs (Figure 10) are shown in Figure 9.

## FIELD INSPECTION RESULTS

Currently the project area is undeveloped (except for a HECO substation located at the western boundary of the project area), with minimal evidence of prior ground disturbance. The area is covered in pahoehoe basalt outcrop and fountain grass where soil development has occurred (Figure 10).

## SUMMARY AND ASSESSMENT

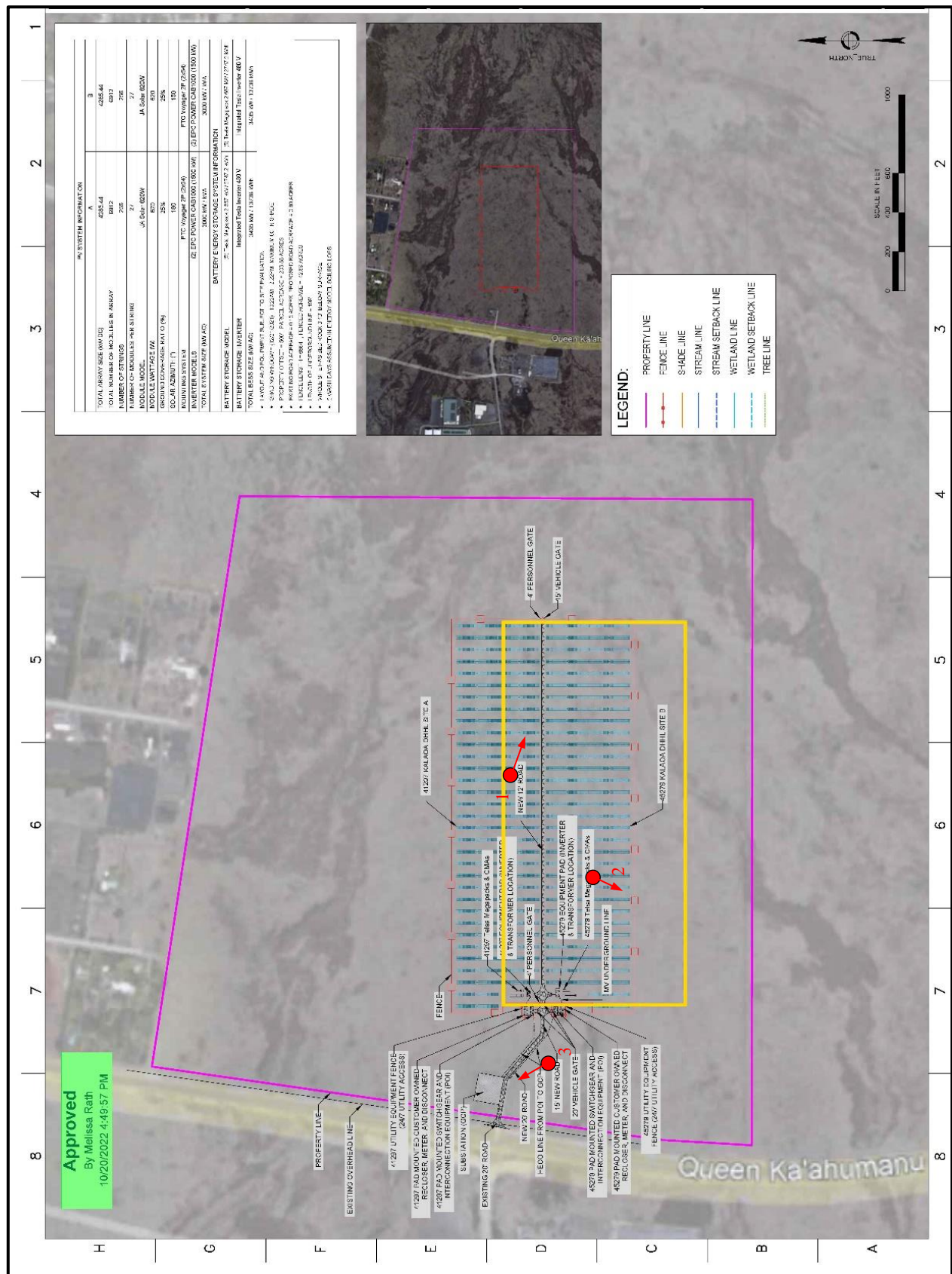
The proposed Kalaoa Solar LLC-HI-Registration Project is situated east of Queen Ka‘ahumanu Highway in Kalaoa, ‘O‘oma 1 Ahupua‘a. The project proponent is HECO, and land owner is the State of Hawaii, Department of Hawaiian Home Lands. The project area includes 20 acres of TMK (3) 7-3-010:007 (por.) (see Figures 1 and 2). An archaeological literature review that addresses historical, cultural, and archaeological background, and a field inspection were conducted in order to evaluate any potential effect on historic properties in the project area, and to recommend mitigation of any adverse effect, if warranted. This work was carried out in accordance with Hawaii Revised Statutes (HRS) Chapter 6E, and Title 13 of the Hawaii Administrative Rules (HAR), Subtitle 13 (State Historic Preservation Division Rules), Chapter 275 (*Rules Governing Procedures for Historic Preservation Review for Governmental Projects Covered Under Sections 6E-7 and 6E-8, HRS*).

Two previous archaeological investigations have been conducted in the project area (Davis 1977; Henry et al. 1993); neither investigation was likely conducted to the current SHPD standards for an archaeological inventory survey. Previously identified traditional Hawaiian sites in the vicinity are primarily associated with temporary habitation. During the historic period the project area was used for ranching, therefore, archaeological sites associated with ranching activities may be present.

## RECOMMENDATIONS

Based on archival research, the project area was likely used for temporary habitation and resource procurement, followed by ranching during the historic period. Due to the inadequate nature of previous archaeological investigations in the proposed project area, there is insufficient information to determine the proposed project’s effect on potential historic properties. An archaeological inventory survey (AIS) under the direction of an SHPD-approved work plan is recommended to adequately identify and document any archaeological historic properties that may be present, to assess their significance, to determine the potential impacts of this project on any identified archaeological historic properties, and to identify and ensure appropriate mitigation is implemented, if needed.







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Figure 10. Current Conditions within the Proposed Project Area. Top Left: Photo 1, View to East Showing the Pahoe-hoe Outcropping and Fountain Grass. Top Right: Photo 2, View to South Showing the Gradual Slope. Bottom: Photo 3, View to Northwest of the Existing HECO Substation.



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## GLOSSARY OF HAWAIIAN TERMS

*ahupua* ‘a—land division and community

Land division usually extending from the uplands to the sea, so called because the boundary was marked by a heap (*ahu*) of stones surmounted by an image of pig (*pua* ‘a) or because a pig or other tribute was laid on the altar as tax to the chief. The landlord or owner of an *ahupua* ‘a might be a *konohiki* (Pukui and Elbert 1986:9)

*aina ho* ‘oilina—inherited land

Inherited property or estate (Pukui and Elbert 1986:11)

‘*akau*— north

North (when one faces west, the direction of the sun's course, the right hand is to the north) (Pukui and Elbert 1986:13)

*aku*— skipjack

Bonito, skipjack (*Katsuwonus pelamis*), an important food (Pukui and Elbert 1986:15)

*ali* ‘i—chief or chiefess

Chief, chiefess, officer, ruler, monarch, peer, headman, noble, aristocrat, king, queen, commander (Pukui and Elbert 1986:20); implies hereditary rank

*ana kua*—refuge cave

*heiau*—ceremonial structure or place

Pre-Christian place of worship, shrine (Pukui and Elbert 1986:64)

*hoa* ‘āina—common people of the land, native tenants

Tenant, caretaker, as on a *kuleana* (Pukui and Elbert 1986:73)

‘*ili*—division of land smaller than an *ahupua* ‘a

Land section, next in importance to *ahupua* ‘a an usually a subdivision of an *ahupua* ‘a (Pukui and Elbert 1986:97)

*kahu*—guardian

Honored attendant, guardian, nurse, keeper of ‘*unihipili* bones, regent, keeper, administrator, warden, caretaker, master, mistress; pastor, minister, reverend, or preacher of a church (Pukui and Elbert 1986:113)

*kalana*— Land division smaller than a district

Division of land smaller than a moku or district (Pukui and Elbert 1986:121)

*konohiki*—land managers

Headman of an *ahupua* ‘a land division under the chief; land or fishing rights under the control of the *konohiki* (Pukui and Elbert 1986:166)

*kula*—dryland field

Plain, field, open country, pasture. An act of 1884 distinguished dry or *kula* land from wet or taro land (Pukui and Elbert 1986:179)

*kuleana*—small piece of land under the responsibility of a tenant

Right, privilege, concern, responsibility, title, business, property, estate, portion, jurisdiction, authority, liability, interest, claim, ownership, tenure, affair, province (Pukui and Elbert 1986:179)

*moku*—district

District, island, islet, section, forest, grove, clump, severed portion, fragment, cut, laceration, scene in a play (Pukui and Elbert 1986:252)

‘*okana*—sub-district

District or subdistrict, usually comprising several *ahupua* ‘a (Pukui and Elbert 1986:281)

1     ‘uala—Hawaiian sweet potato

2     The sweet potato (*Ipomoea batatas*), a perennial, wide-spreading vine, with heart-shaped, angled,  
3     or lobed leaves and pinkish-lavender flowers. The tuberous roots are a valuable food, and they vary  
4     greatly in many ways, as in color and shape. Though of South American origin, the plant has been  
5     a staple food since ancient times in many parts of Polynesia, as well as in some other regions (Pukui  
6     and Elbert 1986:362)