DRAFT ENVIRONMENTAL ASSESSMENT

BETTE MIDLER, through her agent, Belles Graham Proudfoot Wilson & Chun, LLP, submits the following Draft Environmental Assessment pursuant to the requirements contained in Chapters 343 and 344 of the Hawaii Revised Statutes ("HRS"), Title 11, Chapter 20 and Title 13, Chapter 5, of the Hawaii Administrative Rules ("HAR").

I. APPLICANT/OWNER

1.1 Applicant. The Applicant is BETTE MIDLER, wife of Martin Von Haselberg.

1.2 Owner. The Applicant is the owner of certain real property known as Exclusion 13 of the Haena Hui Partition located in Haena, Halelea, Kauai, Hawaii, identified by Kauai Tax Map Key No. (4) 5-9-003:008 ("Subject Property").

II. APPLICANT'S ADDRESS AND TELEPHONE

2.1 Applicant's Address. The Applicant's address and telephone number are:

1222 16th Avenue So., 3rd Floor
Nashville, Tennessee 37212
Attention: Mr. Charles Sussman
Telephone: (615) 320-9161

2.2 Agent's Address. All communications having to do with this Draft Environmental Assessment should be made to the Applicant's attorney at the following address:

Max W. J. Graham, Jr., Esq.
Belles Graham Proudfoot Wilson & Chun, LLP
4334 Rice Street, Suite 202
Lihue, Kauai, Hawaii 96766
Telephone: (808) 246-6962

III. APPROVING AGENCY

3.1 Agency. The Approving Agency is as follows:

State of Hawaii
Department of Land and Natural Resources
P. O. Box 621
Honolulu, Hawaii 96809

IV. CONSULTED AGENCIES

4.1 Agencies Consulted. The governmental agencies consulted with regard to the Applicant's proposal include the following: the Planning Department of the County of Kauai; the Department of Land and Natural Resources of the State of Hawaii ("DLNR"); the Historic Preservation Division of DLNR; the State Office of Hawaiian Affairs; the Kaua'i-Niihau Islands Burial Council; the Kaua'i Historic Preservation Review Commission; and community and cultural organizations in the Hanalei District of Kauai. In addition, the Applicant has consulted, and is working with, the National Tropical Botanical Gardens ("NTBG") in this matter. NTBG prepared the attached Botanical Inventory (Exhibit "G") and Restoration Site Plan (Exhibit "F"), is preparing many of the species which will be used to re-plant the Subject Property, and will supervise the Restoration.

V. DESCRIPTION OF SUBJECT PROPERTY

5.1 Description. The Subject Property is known as Exclusion 13 of the Haena Hui Partition, is located at Haena, Halelea, Island and County of Kauai, State of

Hawaii, is designated as Kauai Tax Map Key No. (4) 5-9-003:008, and contains 1.34 acres.

5.2 Location. The general location of the Subject Property is shown on the Location Map attached hereto as Exhibit "A". The Subject Property is shown in greater detail (colored in yellow) on a copy of the Kauai Tax Map No. 5-9-03 attached hereto as Exhibit "B".

VI. LAND USE CLASSIFICATIONS

6.1 State Land Use Classification. The Subject Property is located within the State Land Use Commission ("SLUC") Conservation District, as shown (colored in red) on the SLUC Map attached hereto as Exhibit "C".

6.2 Conservation District Subzone. The Subject Property is located within the Limited Subzone of the Conservation District, as shown (colored in red) on the Subzone Map attached hereto as Exhibit "D".

6.3 Special Management Area. The Subject Property is located within the Special Management Area of the County of Kauai ("SMA"), as shown on the SMA Map attached hereto as Exhibit "E".

VII. REQUESTED LAND USE PERMIT

7.1 CDUA. The Applicant has filed a Conservation District Use Application (hereinafter "CDUA") with the Department of Land and Natural Resources ("DLNR") for the issuance of a Conservation District Use Permit ("CDUP") for the following purposes:

a. an after-the-fact permit ("ATF Permit") for the unauthorized removal of 235 non-native trees;

b. an ATF Permit for the unauthorized removal of native hau trees;

c. an ATF Permit for unauthorized landscaping activities; and

d. a permit for the landscaping of the Subject Property pursuant to the Restoration Site Plan attached hereto as Exhibit "F".

VIII. PROPOSED DEVELOPMENT

8.1 Unauthorized Activities. As more fully described in the Botanical Inventory And Recommendations For Restoration ("Botanical Inventory") attached hereto as Exhibit "G", during the summer of 2007 unauthorized clearing and landscaping activities took place on the Subject Property, which resulted in the following:

a. the removal of 120 Java plum trees (Syzygium Cumini), a non-native, invasive species;

b. the removal of 100 octupus trees (Shefflera Actinophylla), a highly invasive, non-native species;

c. the removal of 10 to 20 Madagascar olive trees (Noronhia Emarginata), a non-native, invasive species;

d. the removal of a 50 meter by 10 meter strip of Hau trees (Hibiscus Tiliaceus), a Polynesian-introduced species; and

e. the planting of a row of panax trees (Polyscias Guilfoylei), approximately 100 to 150 feet in length along the west boundary of the Subject Property.

8.2 Restoration. The Applicant proposes to implement the Restoration Site Plan (the "Restoration") as follows:

a. All non-native species will be removed from the Subject Property.

b. All native species currently growing on the Subject Property will be retained.

c. The cleared portions of the Subject Property will be revegetated using the native species listed in Table 1 of the Restoration Site Plan. The location of the proposed revegetation is shown on the Native Landscaping Map attached as Figure 1 to the Restoration Site Plan.

IX. SUBJECT PROPERTY ANALYSIS

9.1 Location/Improvements. The Subject Property is located in Limahuli Valley at Haena, Halelea, Kauai, Hawaii. There are no improvements on the Subject Property.

9.2 Present Use. There are no uses taking place on the Subject Property. The Subject Property is in an area in which the prevailing uses are for residential and conservation purposes. The proposed Restoration of the Subject Property will have no negative impacts on conservation and other uses in the area.

9.3 Botanical. Vegetation within the Subject Property consists primarily of non-native species as described in the Botanical Inventory. There are no known endangered plants on the Subject Property.

9.4 Fauna. As set forth in the letter from David A. Burney, Ph.D., Director of Conservation, National Tropical Botanical Garden, dated July 15, 2009, attached hereto as Exhibit "M", there are no endangered fauna which have been seen either using or inhabiting the Subject Property.

9.5 Soil Types. The Subject Property's soils are part of the Hanalei Series, more specifically defined as Hanalei silty clay (HrB). The Hanalei Series consists of somewhat poorly drained to poorly drained soils on bottom lands on the island of Kauai. These soils developed in alluvium derived from basic igneous rock. They are level to gently sloping. Elevations range from nearly sea level to 300 feet. The annual rainfall amounts to 20 to 120 inches. The mean annual soil temperature is 74° F. The natural vegetation consists of paragrass, sensitive plant, honohono, Java plum, and guava. The Hanalei silty clay (HrB) soils have a profile like that of Hanalei silty clay, 0 to 2 percent slopes, except that it has fewer mottles and the water table is at a depth of more than 3 feet. This soil is used for sugarcane, taro, pasture, and vegetables.

9.6 Soil Characteristics. Surface soils on the Subject Property are of two types: a yellowish-brown humic sandy loam that extends from the west side of the Subject Property through all the higher parts, and a darker and more organic sandy loam in the lower areas, particularly along the east and south side. Slightly higher sandy mounds occur on the Subject Property that offer the opportunity for growing more dune-adapted native species, and these soil variations will be used in the site plan to maximize the diversity of plantings on the site. Soils were hand-augered to a depth of 1.3 m at two contrasting locations, one near the west side of the Subject Property on

sandy substrate, the other near the eastern margin in lower and more organic soils. Both were underlain with a layer of yellow marine sand approximately 50 cm thick, possibly a prehistoric marine overwash deposit. Both profiles were well-drained to the bottom of this unit, where a changeover to darker clay soils corresponded to the approximate depth of the water table. This organic-rich clay extended to the depth of coring. Soil testing revealed that the topsoil was approximately neutral with a moderate amount of major nutrients (N, P, K). These soils are highly suitable for the native plants recommended in Table 1 of the Restoration Site Plan, and extensive soil amendments will not be necessary.

9.7 Site Characteristics. The site consists of mostly level terrain, moderately well-drained, bounded on the north and west by an existing roadway and on the east by a permanently flooded area located on the adjacent property. A small intermittent stream (which originates to the mauka/south of the Subject Property) runs in a south to north direction through the Subject Property and joins the canal (auwai) that bounds the north side of the Subject Property. Views of the Subject Property are shown in the pictures attached hereto as Exhibit "H". Exhibit "H-1" is a view from Road "L" (on the southwest side of the Subject Property) looking to the northeast across the Subject Property. Exhibit "H-2" is a view from Road "L" (on the northwest side of the Subject Property) looking to the east across the Subject Property. Exhibit "H-3" is a view from the center of the Subject Property looking to the southeast. Exhibit "H-4" is an aerial view of the Subject Property.

9.8 Economic Characteristics. The proposed Restoration of the Subject Property will have no adverse economic impacts. The Restoration will have the following economic impacts:

a. Jobs. The Restoration will result in jobs on a temporary basis during the period of work.

b. Housing. The Restoration will not result in the need for additional worker housing. All contractors and their employees will be Kauai residents who are already living on Kauai.

c. Property Values. Since the fair market value of real property is based on the value of the land and physical improvements, the completion of the Restoration may create some increase in the value of the Subject Property. This may result in increased real property taxes on the Subject Property. However, it will not, in and of itself, have a material impact on: the value of surrounding properties; or real property taxes assessed against surrounding properties.

9.9 Social Characteristics. The area around the Subject Property is used for conservation and residential purposes. The proposed Restoration will not change the character or ambience of the area, and will in fact improve the visual characteristics and botanical integrity of the area. The proposed Restoration will not result in any increase in population.

9.10 Flooding and Drainage. The Subject Property is situated within Flood Zone X, as shown on the County of Kauai's flood insurance rate map (Flood Insurance Rate Map 150002-0030E) attached as Exhibit "I". The Restoration will be located within Flood Zone X. The Restoration will meet all of the requirements of the

Flood Plain Management Ordinance of the County of Kauai, as contained in Chapter 15, Article 1, of the Kauai County Code, 1987. The Restoration will have no impact on flooding on or around the Subject Property. Any drainage resulting from the Restoration will be retained on site and subject to best management practices. No additional drainage will be allowed to significantly or negatively impact the Shoreline or ocean.

9.11 Traffic Impacts. The roads which service the Subject Property are Road "L" (a private road subject to an easement in favor of the Subject Property) and Kuhio Highway (a State highway). The Restoration will not result in any increase in traffic on Kuhio Highway.

9.12 Availability of Public Services and Facilities. The Restoration of the Subject Property will not unreasonably burden public agencies to provide additional and necessary amenities, services and/or facilities.

a. Schools. Hanalei Elementary School is located approximately six (6) miles from the Subject Property, and Kapaa High School is approximately twenty (20) miles away. The Kapaa Middle School is approximately twenty-three (23) miles away. The proposed Restoration will not increase the number of potential students attending any of the public or private schools on the island.

b. Wastewater Disposal. The proposed Restoration will not generate any wastewater for which a State Department of Health Individual Wastewater System will be required.

9.13 Solid Waste Disposal. Refuse collection for the area will be provided by the County of Kauai and by private means. Some of the green waste generated by the Restoration will be mulched onsite and used onsite as part of the

Restoration. Any additional materials will be taken to the County of Kauai's Hanalei Transfer Station for disposal in the County Landfill.

9.14 Water. The Department of Water's water storage and transmission facilities are presently adequate to serve the Subject Property with water.

9.15 Electricity, Telephone and Cable Service. Electric, telephone and cable television lines and facilities are located on Kuhio Highway, and are capable of serving the Subject Property. The Subject Property is not currently connected to these services. If and when needed, it shall be the Applicant's responsibility, at the Applicant's expense, to extend service from these utilities to the Subject Property.

9.16 Police and Fire Protection. The Princeville Substation of the Kauai Police Department and the Princeville Substation of the Kauai Fire Department will serve the Subject Property. Both stations are located approximately eight (8) miles from the Subject Property. The proposed Restoration will not, in and of itself, result in the need for an expansion of police or fire protection for the area.

X. IMPACTS UPON RESOURCES OF THE AREA

10.1 Flora. The Applicant's proposal to re-introduce native species on the Subject Property will have no negative impacts on the flora in the area and upon completion:

a. will result in an improvement over the previous condition of the Subject Property;

b. will help control the spread of invasive non-native species in the Limahuli area;

c. will result in an improvement to the integrity of the Limahuli area (as an area dedicated to the preservation of native species); and

d. will be in alignment with the efforts being taken by the National Tropical Botanical Garden ("NTBG") to preserve native species in the Hawaiian Islands.

10.2 Fauna. The proposed Restoration will have no negative impact on any animals or birds using this area.

10.3 Historical and Archaeological. An Archaeological Inventory Survey for the proposed 1.34-Acre Midler Property Project, Haena Ahupua'a, Hanalei District, Kauai TMK: [4] 5-9-003:008 has been prepared by Trevor M. Yucha, B.S., and Hallett Hammatt, Ph.D., of Cultural Surveys Hawaii, Inc. ("CSH") for the Subject Property ("AIS"), a copy of which is attached hereto as Exhibit "J". The AIS was submitted to and approved by the State Historic Preservation Division of DLNR ("SHPD"), as set forth in the letter dated February 25, 2009, from Ms. Nancy A. McMahon, Deputy State Historic Preservation Officer, to David Shideler of CSH, a copy of which is attached hereto as Exhibit "K".

The AIS contains the following findings and recommendations:

a. Fieldwork Effort. The fieldwork component of this archaeological inventory survey was conducted on November 13, 2008, by two CSH archaeologist, Trevor Yucha, B.S., and Douglas Thurman, B.A., under the general supervision of Hallett H. Hammatt, Ph.D (principal investigator). The fieldwork required two person-days to complete.

b. Historic Properties Identified and Recommended Eligibility to the National/Hawai'i Register. SIHP #50-30-02-864 is a complex consisting of a remnant irrigation ditch (Feature A) and an alignment (Feature B). SIHP #50-30-02-864 is interpreted to be associated with pre-contact wetland agricultural cultivation. SIHP #50-30-02-864 is assessed as significant under Criterion D (have yielded, or may be likely to yield information important in prehistory or history) of the National and Hawai'i Registers of Historic Places evaluation criteria.

c. Effect Recommendation. The proposed project will affect historic properties recommended eligible to the Hawai'i Register. CSH's project specific effect recommendation is "effect, with agreed upon mitigation measures." The mitigation measures described below will help alleviate the project's impact on significant historic properties.

d. Mitigation Recommendation. SIHP #50-30-02-864, a complex consisting of a remnant irrigation ditch (Feature A) and an alignment (Feature B), was documented with a detailed written description, photographs, scale drawings, and located with GPS survey equipment. No further work is recommended for SIHP #50-30-02-864.

Due to the sensitive nature of the project area and the potential for project related ground disturbance during restoration, it is recommended that project reforestation proceed under an archaeological monitoring program. It is recommended that an archaeological monitor be present during all subsurface activities involving excavation of more than a cubic meter in a given area.

The Applicant agrees to follow all of the recommendations contained in the AIS. In particular, the Applicant will have an archaeologist on site to monitor all activities involving excavation of more than a cubic meter in a given area.

10.4 Recreational Resources. There are no ongoing recreational activities taking place on the Subject Property. The proposed Restoration will have no impact on any recreational activities that may be taking place in the Limahuli area.

10.5 Scenic Resources. The proposed Restoration will enhance the visual appearance of the area around the Subject Property. The Subject Property is not visible from any public areas, including Kuhio Highway and the Haena beach area.

10.6 Cultural Impacts. A Cultural Impact Assessment for Property Exclusion 13 of the Ha'ena Hui Partition located in Limahuli Valley, Ha'ena Ahupua'a, Hanalei District, Island of Kaua'i TMK: [4] 5-9-003:008 has been prepared by Mishalla Spearing, B.A., Randy Goza, M.A., and Hallett H. Hammatt, Ph.D, of Cultural Surveys of Hawaii, Inc., for the Subject Property ("CIA"), a copy of which is attached hereto as Exhibit "L".

The CIA contains the following findings and recommendations:

a. Document Purpose. The project requires compliance with the State of Hawai'i environmental review process [Hawai'i Revised Statutes ("HRS") Chapter 343], which requires consideration of a proposed project's effect on cultural practices and resources. Through document research and cultural consultation efforts, this report provides information pertinent to the assessment of the proposed project's impacts to cultural practices (per the Office of Environmental Quality Control's Guidelines for Assessing Cultural Impacts). This document is intended to support the

project's environmental review and may also serve to support the project's historic preservation review under HRS Chapter 6E-42 and Hawai'i Administrative Rules Chapter 13-284.

b. Community Consultation. Hawaiian organizations, agencies and community members were contacted in order to identify potentially knowledgeable individuals with cultural expertise and/or knowledge of the project area. The organizations consulted included the State Historic Preservation Division, the Office of Hawaiian Affairs, the Kaua'i-Ni'ihau Islands Burial Council, the Kaua'i Historic Preservation Review Commission, and the community and cultural organizations in the Hanalei District.

c. Results of Background Research. Background research for this project yielded the following results:

(1) Hā'ena is unique among the *ahupua'a* of the Halele'a District with a long reef-fringed coastline and two permanent streams, Limahuli to the west and Mānoa to the east. Hā'ena has three caves, two of which are wet and one is dry.

(2) The project area is generally associated with *mo'olelo* (legends, oral histories) about Pele and her sister Hi'iaka (Hi'iaka-i-ka-poli-o-Pele) in which the sisters find Pele's lover Lohi'au. The Hā'ena caves were traditionally believed to have been dug by Pele during her quest for a suitable home for herself and Lohi'au.

(3) The *ahupua'a* of Hā'ena was permanently inhabited and intensively utilized in pre-Contact times. The area was used for taro, sweet potato and coconut cultivation. One *kuleana* award (LCA 794) has the same footprint as the

current project area and indicates that the land had a number of *lo'i* (taro pondfields). Fishing and collecting seafood was essential to subsistence in Hā'ena.

(4) Past archaeological studies in Hā'ena Ahupua'a have documented a wide variety of historic properties and features representing an intensive use of the landscape by Kānaka Maoli (native Hawaiians) living a traditional subsistence lifestyle. Despite the area's relatively low rainfall and barren/rocky appearance, several hundred historic properties, consisting of thousands of individual features, have been identified near the subject project area. Identified properties include permanent and temporary habitation structures (e.g., stone enclosures, platforms and terraced areas, subterranean lava tubes); agricultural terraces, mounds and walls; trails and trail markers (e.g., *ahu*); petroglyphs; subterranean caves and lava tubes used for a variety of purposes (e.g., shelter, storage and burial); other (non-cave/lava tube) burials; and a variety of religious shrines (e.g., *heiau* and *ko'a*). Radiocarbon dating from several projects documents a human presence in this area.

(5) A single historic property has been identified in the project area. This subsurface agricultural wall recorded by Kennedy (1987a), SIHP # 50-30-02-864, is a complex consisting of a remnant irrigation ditch and an alignment. SIHP # 50-30-02-864 is interpreted to be associated with pre-Contact wetland agricultural cultivation, and is assessed as significant under Criterion D of the National and Hawai'i Registers of Historic Places evaluation criteria (Yucha and Hammatt 2009).

(6) Prior archaeological studies also indicate that burials are commonplace in the sandy dunes of Kaua'i.

(7) Although no *heiau* have been described within or in the immediate vicinity of the project area, several *heiau* have been documented in Hā'ena: Ka-ulu-Paoa Heiau, Ka-ulu-o-Laka and Kilioi and Lohi'au.

(8) In modern times, two tsunamis devastated Hā'ena. The April 1, 1946 tsunami killed 10 of the 60 residents of the town and caused extensive damage. The 1957 tsunami destroyed 25 of the 29 homes in Hā'ena. Hui Kū'ai 'Āina, the Native Hawaiian group that worked and held most of the Hā'ena ahupua'a lands was disbanded in 1967.

d. Results of Community Consultation. CSH contacted 38 people for the purposes of this CIA; 19 people responded; 2 gave short testimonies or comments and 1 *kama'āina* (native born) was interviewed for a more in-depth contribution. Community consultation for this CIA indicates:

(1) The project area and vicinity are likely to have surface and subsurface cultural and historic properties, including human burials. A number of the study participants indicated that there could be *iwi kūpuna* (ancestral remains) in or near the subject project area. Study participants made the following recommendations:

(a) SHPD's main concern is that inadvertent burial finds may be impacted by activities associated with this proposed project.

(b) Four participants mentioned the possibility of burials in the area and recommend that digging or other ground disturbance activities by kept to a minimum to decrease the chances of disturbing any burials, and that if burials are found, they should be left in place.

(2) Two participants voiced concerns about this project leading to the building of a home on the project area. One of these participants specified that a situation like that in Naue, where over 30 sets of Hawaiian human remains and artifacts were found on private property during development, should be avoided. This participant is also concerned about the overall cumulative impacts of ongoing and future developments in Hā'ena and Kaua'i, giving the example of traffic congestion.

(3) The methods of the plant removal are also of concern. One participant praised the past removal process of the java plum trees (*Syzygium cumini*), as most of the past removal was done by hand and there was minimal heavy machinery employed. The participant recommended that the current project use similar techniques. Also, it was noted that there are many stumps on the property and that—as has been done in the past—instead of digging them out of the ground, a machine to grind the stumps in place could be used.

(4) Participants also recommended proper planning and consultation with Hawaiian and community agencies and organizations and SHPD recommend the planner/developer do an informative presentation to the KNIBC prior to any land clearing activities. The KHPRC had several recommendations including:

(a) The applicant consult with the SHPD, KNIBC, Department of Hawaiian Homelands and OHA;

(b) A community input program be initiated by the applicant to obtain information on cultural practices or resources in the project area;

(c) KHPRC members contact CSH directly with names of kūpuna in the area who may participate in the consultation process;

(d) Reference checks be undertaken at the Kaua'i Historical Society, Kaua'i Museum State Archives, Bishop Museum, Libraries, place names resource documents and LCA's and, most notably; and

(e) The replanting plan be sent to KHPRC for review and comment.

(5) KHPRC further asked for clarification regarding the species of the *hau* in the project area, and suggested that rather than Hibiscadelphus spp., it is Hibiscus tiliacens which is more commonly found in the lowland areas.

(6) One participant, a caretaker of the lands just *makai* of the subject project area and author of books on Hā'ena, inquired about who would be responsible for the maintenance and upkeep of the land to prevent overgrowth of invasive species. This participant is primarily concerned about the possible presence of *iwi* that could be disturbed in the process of digging in the proposed project area and cautions project personnel to avoid disturbance of Hawaiian burials (as noted in 1b above). Additionally this interviewee suggested ways for avoiding ground disturbance during the removal of non-native vegetation (3 above), the small likelihood that people may be gathering fruits or herbs on the project area or vicinity and, recommended that in maps, plant names be listed in Hawaiian first, and scientific classification second.

e. Recommendations. Although participants in this CIA generally approve of the proposed project, several expressed concern that the proposed action for Hā'ena may negatively impact Hawaiian beliefs, resources and

practices, particularly with regard to disturbance of burials or *iwi kūpuna*. A good faith effort to develop appropriate measures to address concerns and attention to the following recommendations may help mitigate potentially adverse effects of the proposed project on cultural, historic and natural resources in and near the project area. Based on the findings of this CIA, it is recommended that:

(1) Project proponents address concerns presented by CIA participants by avoiding harm as result of ground disturbance for reforestation to cultural and natural resources (e.g., burials). Of specific interest, participants recommended that the *iwi kūpuna* are not disturbed during the process. Minimizing digging in order to prevent disturbance of burials is recommended.

(2) The proposed reforestation project proceed under an archaeological monitoring program. As suggested in the companion Archaeological Inventory Survey (AIS), due to the sensitive nature of the project area and the potential for project related ground disturbance during restoration, a monitoring program would facilitate the identification and documentation of any additional historic properties that might be discovered during project reforestation especially within the portions of the project area that remain unreachable for backhoe trench excavation. More specifically, it is suggested that an archaeological monitor be present during all subsurface activities involving excavation of more than about 1 cubic meter in a given location. These activities include any vegetation clearing or planting that involves disturbance to or removal of sediment within the project area. Disturbances, such as excavation for tree root balls, may significantly impact or destroy subsurface cultural deposits that are, as yet, unidentified (see Yucha and Hammatt 2009).

(3) Similar methods used in past removal of java plums be considered. Past methods include removing the plants by hand with minimal heavy machinery employed, and removing stumps by using a machine to grind the stumps in place would rather than digging them out of the ground.

(4) The owner be responsible for maintenance and upkeep of vegetation to prevent overgrowth of invasive species.

(5) Generally, it is recommended that project proponents pursue proactive dialog with concerned Hā'ena community members and agencies regarding planning, implementation and maintenance of the proposed reforestation project in order to address issues raised by study participants in this CIA. Proper planning and consultation with Hawaiian and community individuals, agencies and organizations including the KNIBC, OHA, the Department of Hawaiian Homelands and the KHPRC (not satisfied by this CIA effort) should be considered prior to any land clearing activities. It is also recommended that the project proponent send to the KHPRC the replanting plan for review and comment.

The Applicant agrees to make reasonable efforts to follow all of the recommendations contained in the CIA. In particular, the Applicant will have an archaeologist on site to monitor all activities involving excavation of more than about one (1) cubic meter in a given location.

10.7 Future Development/Cumulative Impacts. The proposed Restoration of the Subject Property is not linked to or dependent upon any future development on the Subject Property or in the general area. Any future development (if

any) on the Subject Property will be controlled and regulated by applicable State and County land use laws.

10.8 Air Quality/Noise. The Restoration will have little or no impact on the air quality and ambient noise levels in the area over the long-term. Air quality and ambient noise levels may be affected at a very minimal level during the Restoration activities. All vehicles or equipment used by the Applicant during construction will be properly muffled, housed and maintained to reduce any noise impacts or emission impacts. The Environmental Protection Agency (EPA) and State of Hawaii air quality standards will not be exceeded.

XI. COMPATIBILITY WITH APPLICABLE LAWS

11.1 Compliance with Land Use Laws. The proposed Restoration is compatible with: HRS Chapter 183C (Conservation District); HRS Chapter 205 (Land Use Commission): HRS Chapter 205A (Coastal Zone Management); HRS Chapter 225 (Hawaii State Plan); HAR Chapter 13-5 (Conservation District); the Special Management Area Rules and Regulations of the County of Kauai ("SMA Rules"); and all other applicable laws, ordinances or regulations.

11.2 Compliance with CDUA Criteria. The proposed Restoration will comply with the following criteria, as set forth in Title 13, Subtitle 1, Chapter 5, HAR (Section 13-5-30):

a. Whether the proposed land use is consistent with the purpose of the Conservation District. The proposed Restoration is consistent with the purpose of the Conservation District in that it will: preserve scenic areas; conserve indigenous or endemic plants; prevent soil erosion; and preserve open space areas

whose existing openness, natural condition, or present state of use will enhance the present or potential value of abutting or surrounding communities, and will maintain and enhance the conservation of natural and scenic resources.

b. Whether the proposed land use is consistent with the objectives of the subzone of the land on which the use will occur. The proposed Restoration will promote the objectives of the Limited Subzone in that it will: not unreasonably increase human activities in the area; mitigate potential erosion in the area; and enhance the existence of native flora in Limahuli Valley.

c. Whether the proposed land use complies with provisions and guidelines contained in HRS Chapter 205A, entitled "Coastal Zone Management" (where applicable). The proposed Restoration is exempt from the SMA Permit requirements.

d. Whether the proposed land use will cause substantial adverse impacts to existing natural resources within the surrounding area, community or region. The proposed Restoration will not adversely impact the existing and surrounding environment. The Restoration of native flora in this area will help to protect natural resources within the Conservation District.

e. Whether the proposed land use, including buildings, structures and facilities, is compatible with the locality and surrounding areas, appropriate to the physical conditions and capabilities of the specific parcel or parcels. The Restoration of native flora will be compatible with, and appropriate to, other residential and conservation uses in this area.

f. Whether the existing physical and environmental aspects of the land, such as natural beauty and open space characteristics, will be preserved or improved upon, whichever is applicable. The Restoration of native flora will enhance the natural beauty and open space characteristics of the area. The physical and environmental resources of the Conservation District will be preserved and protected by the Restoration.

g. Whether the subdivision of land will be utilized to increase the intensity of land uses in the Conservation District. The proposed Restoration does not involve the subdivision of land.

h. Whether the proposed land use will be materially detrimental to the public health, safety and welfare. The Restoration will not materially harm or be detrimental to the public health, safety and welfare.

11.3 Compliance with EIS Significance Criteria. The Restoration of the Subject Property will comply with the following criteria as set forth in Title 11, Chapter 200, Section 11-200-12 of the EIS Administrative Rules of the Office of Environmental Quality Control:

a. Whether the proposed action involves an irrevocable commitment to, or loss or destruction of any natural or cultural resources. The Restoration will not result in the loss or destruction of any natural or cultural resources. Natural resources will be enhanced by the Restoration of native flora.

b. Whether the proposed action curtails the range of beneficial uses of the environment. The Restoration will have no negative impact on the Subject Property and its environs. The Restoration will serve to enhance and protect the environment.

c. Whether the proposed action conflicts with the State's long-term environmental policies or goals and guidelines as expressed in HRS Chapter 344, and any revisions thereof and amendments thereto, court decisions or executive orders. The Restoration of native flora will enhance and protect the environmental qualities of the Conservation District. The Restoration will not result in any adverse effects on the public health, safety and welfare. As such, the Restoration will not conflict with the State's long-term policies or goals as articulated in HRS Chapter 344, court decisions or executive orders.

d. Whether the proposed action substantially affects the economic or social welfare of the community or the State. The Restoration will not negatively affect the economic or social welfare of the community or the State.

e. Whether the proposed action substantially affects public health. The Restoration will have no negative impact on public health.

f. Whether the proposed action involves substantial secondary impacts, such as population changes, or affects public facilities. The Restoration will not cause substantial secondary impacts such as: population increases; or a significant increase in usage of the public facilities (i.e., roadways, electric, domestic water usage, park usage, etc.).

g. Whether the proposed action involves a substantial degradation of environmental quality. The Restoration will enhance the environmental quality by removing non-native species and replacing them with native species.

h. Whether the proposed action is individually limited but cumulatively has considerable effect upon the environment or involves a commitment for larger actions. The Applicant's proposal is limited to the Restoration of native species on the Subject Property, and does not require a commitment to allow additional or greater actions on the Subject Property.

i. Whether the proposed action affects a rare, threatened or endangered species, or its habitat. There are no known rare, threatened or endangered species, or such species habitat, on or near the Subject Property, that will be affected by the Restoration.

j. Whether the proposed action affects air or water quality or ambient noise levels. There will be a temporary change in the ambient noise levels during the period of Restoration (which should not affect air or water quality). Restoration activities will be limited to day time hours. Once the Restoration is completed, there will be no change in ambient noise levels. The Restoration will not negatively impact air or water quality in the area.

k. Whether the proposed action substantially affects scenic vistas and view planes identified in County or State plans or studies. The Subject Property is not identified in any County or State plans or studies as being part of a scenic vista, or within the view plane of any scenic vista. The Restoration of native species will preserve, protect, and enhance the visual appearance of the area.

l. Whether the proposed action requires substantial energy consumption. The Restoration will not increase the potential energy consumption on the Subject Property.

XII. COMMENTS

12.1 Community Input. Comments will be solicited from the agencies and community groups identified in Section 4.1. These comments will be incorporated, and addressed, as and when Applicant receives the same.

XIII. CONCLUSION

The Applicant respectfully requests that the Department of Land and Natural Resources: find that Applicant's proposal will not have any significant environmental impacts; find that the Applicant need not prepare an Environmental Impact Statement in this case; and issue a "Negative Declaration" (or a "finding of no significant impact") in this matter, as that term is defined by Title 11, Department of Health, Chapter 200, Environmental Impact Statement (EIS) Rules, Subchapter 2(11-200-2).

DATED: Lihue, Kauai, Hawaii, July 16, 2009.

BELLES GRAHAM PROUDFOOT
WILSON & CHUN, LLP

By _____
MAX W. J. GRAHAM, JR.
Attorney for Applicant
BETTE MIDLER

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EXHIBIT	ITEM
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I	FLOOD MAP
J	ARCHAEOLOGICAL INVENTORY SURVEY
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L	CULTURAL IMPACT ASSESSMENT
M	CERTIFICATION RE: FAUNA

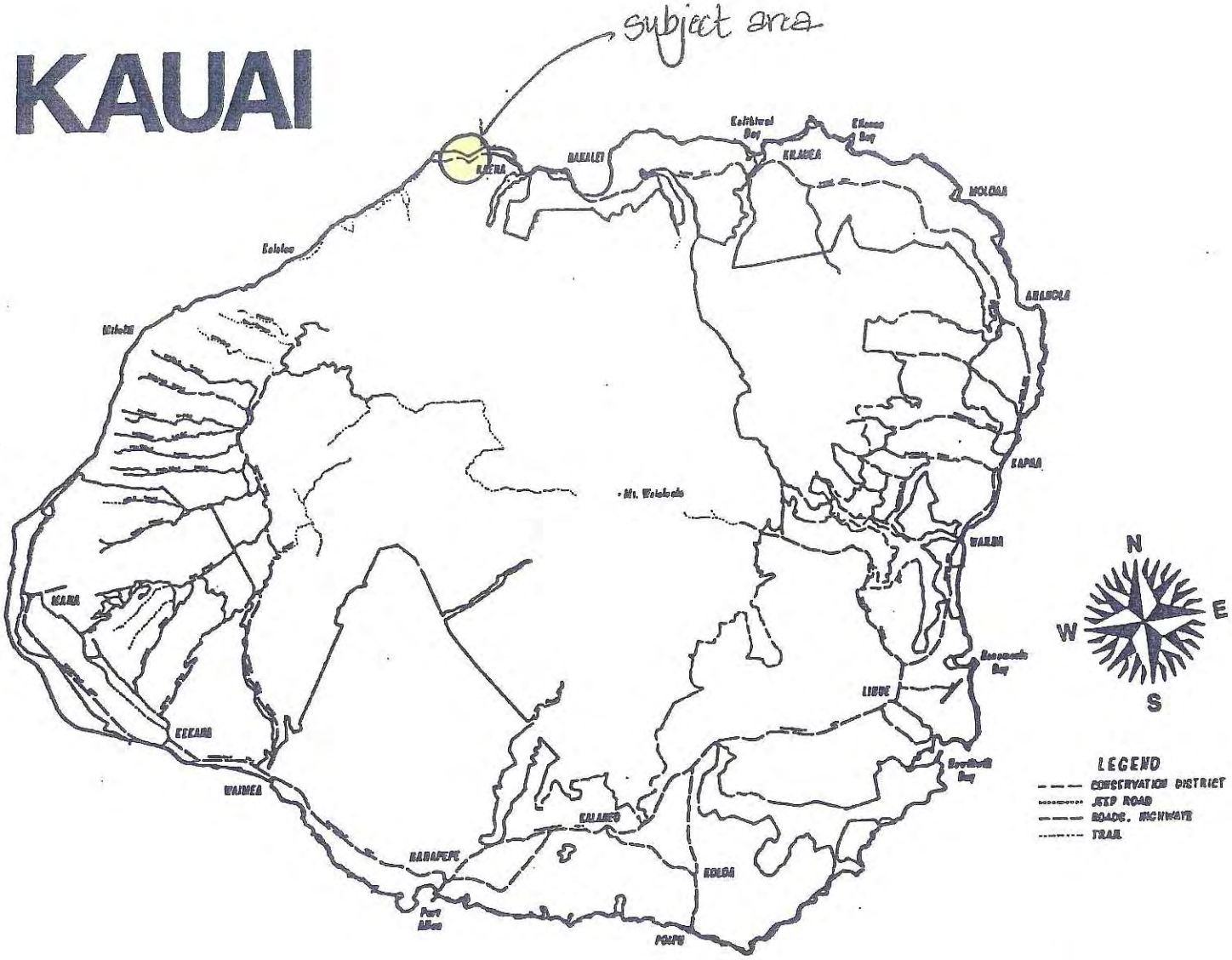

KAUAI
subject area
KAENA
HANALEI
KILAUEA
HOLOKAA
ANAHOLA
KAPAA
WAILUA
Mt. Waialeale
LIHUE
KEKAHA
WAIMEA
KALAHEO
KOLOA
POIPU
N
S
E
W
LEGEND
CONSERVATION DISTRICT
JEEP ROAD
ROADS, HIGHWAYS
TRAIL

EXHIBIT "A"

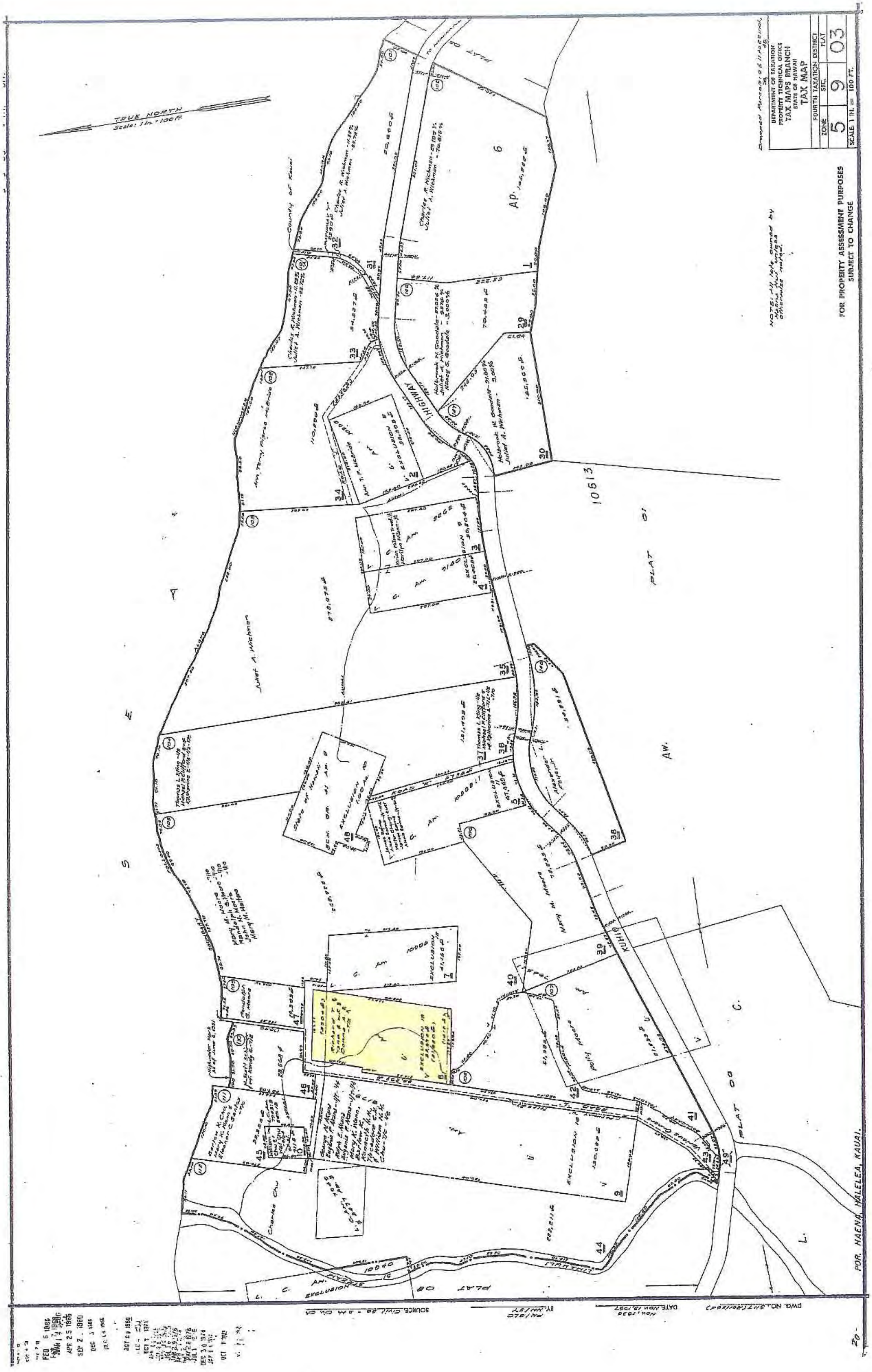

DEPARTMENT OF TAXATION
PROPERTY TECHNICAL OFFICE
TAX MAPS BRANCH
STATE OF HAWAII
TAX MAP
FOURTH TAXATION DISTRICT
ZONE SEC. PLAT
5 9 03
SCALE 1 IN. = 100 FT.
FOR PROPERTY ASSESSMENT PURPOSES
SUBJECT TO CHANGE
TRUE NORTH
HIGHWAY
KUHIO
POR. HAENA, HALELEA, KAUAI.

EXHIBIT "B"


SUBJECT PROPERTY
Haena
Wainiha
HANALEI BAY
Hanalei
HANALEI
WAIPA
WAIOLI
PACIFIC OCEAN
700 P
700 R

EXHIBIT "C"

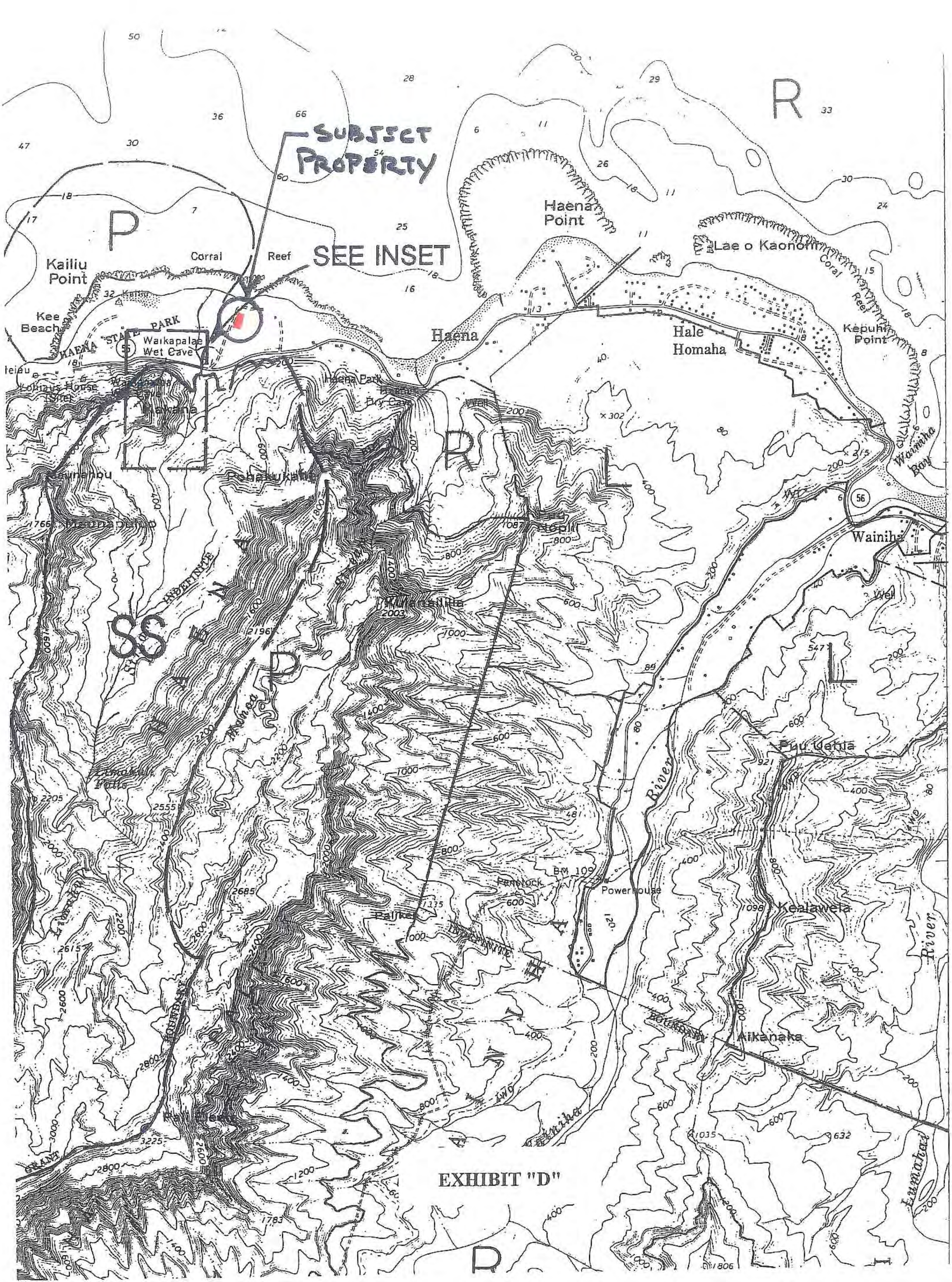
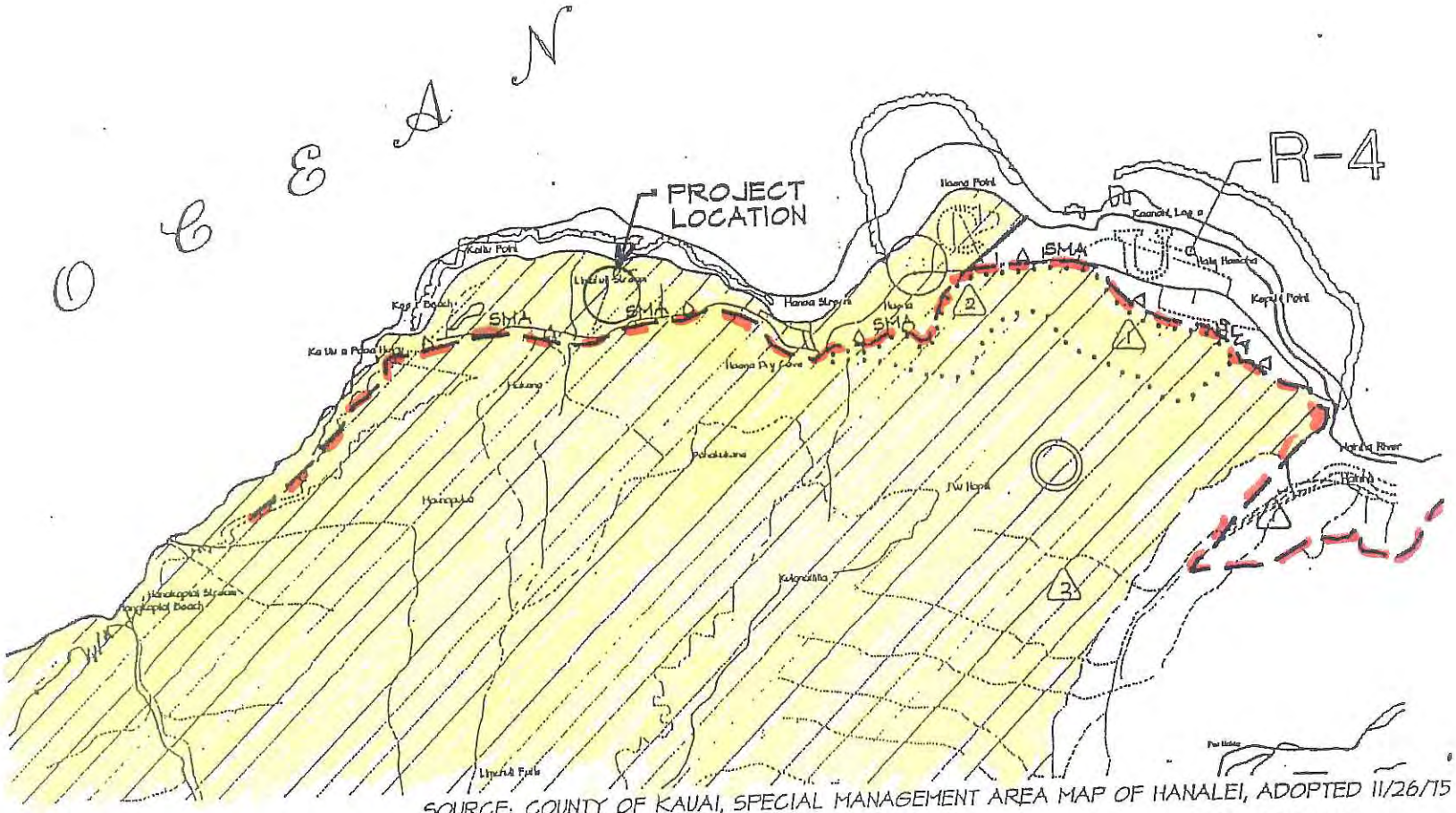

SUBJECT PROPERTY
SEE INSET
Kailiu Point
Corral
Reef
Kee Beach
HAENA STATE PARK
Waikapalae Wet Cave
Haena Point
Lae o Kaonohi
Coral Reef
Haena
Hale Homaha
Kepuhi Point
Haena Park
Wainiha Bay
Wainiha
Well
Puu Ualila
Powerhouse
Penstock
Kealawela
Aikanaka
River
Lumahai River
INDEFINITE
BOUNDARY
GRANT
P
R
L
SS

EXHIBIT "D"

TRUE NORTH

Scale: 1 in. = 3000 Ft.



SOURCE: COUNTY OF KAUAI, SPECIAL MANAGEMENT AREA MAP OF HANALEI, ADOPTED 11/26/75

STATE ZONING:

URBAN DISTRICT	CONSERVATION DISTRICT	SPECIAL MANAGEMENT AREA

COUNTY ZONING:

OPEN	R-4

1 TO COMPLY WITH AMENDMENTS TO CHAPTER 205A, H.R.S., IN ACCORDANCE WITH ACT 200, SESSION LAWS OF HAWAII, 1979.

2 TO CONFORM WITH FEDERAL FLOOD INSURANCE RATE MAP AMENDMENTS AS ADOPTED NOVEMBER 4, 1981

SPECIAL MANAGEMENT AREA MAP

AT HAENA, KAUAI, HAWAII

3000 0 3000

Graphic Scale In Feet

EXHIBIT "E"

RESTORATION SITE PLAN

MIDLER LIMAHULI PROPERTY, KAUAI, HAWAII

Tax Map Key: (4) 5-9-003:008

David A. Burney, Michael De Motta, Lori Terry-Bender, and Kenneth R. Wood

Summary: Following actions by the State Board of Land and Natural Resources for unpermitted removal of invasive non-native trees on the Midler property, TMK (4) 5-9-003:008, which is located in land designated Conservation District, The National Tropical Botanical Garden (NTBG) was contracted by the landowner to provide a site plan and native plants for restoration of the property. Native plantings, to replace the vegetation removed, were part of the State-ordered mitigation. This document consists of background information needed for the restoration, a list of appropriate plant materials to be established on the site, and a site map showing existing woody vegetation to be retained and recommended locations for native plant establishment. Pending approval of this document by representatives of the owner and State authorities, this nursery stock will be delivered by NTBG to a third party to be designated by the owner's representatives for planting on the site.

Background: An inventory by NTBG staff in February, 2007, confirmed that the property had been cleared of numerous non-native trees and is now dominated by non-native herbs and shrubs (see Appendix). The debris from tree clearing was loaded into a truck by a front-end loader tractor and some portions were evidently burned over a two year period.

It is apparent that the removal of large trees has affected the privacy and view-plane of neighboring properties. Other potential implications to consider when large trees are removed include: a) the increase in sound and dust that can normally be deflected by large stands of trees; and b) the potential for greater erosion after vegetation removal. As far as the erosion, the property in consideration is quite level, and has shown no noticeable loss of substrate that is usually associated with increased erosion. The site was evidently used historically for taro cultivation and would have been open for such agriculture. It is suggested by the authors that the trees that were removed represent highly invasive species which have seriously impacted the native forest ecosystems on

the north shore of Kaua`i. The non-native trees removed consisted of approximately 120 Java plums (*Syzygium cumini*), 100 octopus trees (*Schefflera actinophylla*), and 10-20 smaller Madagascar olives (*Noronhia emarginata*). *Syzygium* and *Schefflera* are highly invasive and can spread rapidly and cover large areas. In addition, a thicket of hau (*Hibiscus tiliaceus*) was removed from a 10 X 50 m strip along the southern boundary of the property. Hau trees, generally believed to be a Polynesian introduction, grow in large stands along water-courses and swampy areas. These trees make effective property boundaries, but they spread rapidly and form impenetrable tangles that can be difficult to control and may crowd out native riparian plants.

It should be noted that the more desirable, less invasive species of trees were left untouched including: kukui (*Aleurites moluccana*); noni (*Morinda citrifolia*); hala (*Pandanus tectorius*); MacArthur palms (*Archontophoenix alexandrae*); and royal palms (*Roystonea regia*).

In consultation with the landowner and her representatives, a list of native trees, shrubs, herbs, and ferns has been developed for the restoration of the property (see Table 1; also see Appendix for more details on many of these plants, including pictures). Non-native fruit-bearing species are also suggested, especially citrus (lemon / tangerine) and avocado, yet are not discussed below and are left up to the property owner's preferences. Restoration planting materials were started about a year ago with the aim of producing large specimens of appropriate native plants that can be used to speed up the process of creating a visual/sound/dust screen.

Site Description: The site consists of mostly level terrain, moderately well-drained, bounded on the north and west by existing roadways and on the east by a permanently flooded area located on the adjacent property. A small intermittent stream originates on the south side and joins the canal that bounds the property.

Surficial soils on the property are of two types: a yellowish-brown humic sandy loam that extends from the west side of the property through all the higher parts, and a darker

and more organic sandy loam in the lower areas, particularly along the east and south side. Slightly higher sandy mounds occur on the property that offer the opportunity for growing more dune-adapted native species, and these soil variations are used in the site plan (Figure 1) to maximize the diversity of plantings on the site.

Soils were augered to a depth of 1.3 m at two contrasting locations, one near the west side of the property on sandy substrate, the other near the eastern margin in lower and more organic soils. Both were underlain with a layer of yellow marine sand approximately 50 cm thick, possibly a prehistoric marine overwash deposit. Both profiles were well-drained to the bottom of this unit, where a changeover to darker clay soils corresponded to the approximate depth of the water table. This organic-rich clay extended to the depth of coring.

Soil testing revealed that the topsoil was approximately neutral with a moderate amount of major nutrients (N, P, K). These soils are highly suitable for the native plants recommended in Table 1, and extensive soil amendments will not be necessary.

Much of the present vegetation on the site is composed of an array of highly invasive weedy species, including many seedlings and saplings of the invasive trees previously removed. This vegetation will require extensive mechanical control, but no additional removal of large trees will be necessary to carry out this restoration.

Proposed Restoration: Following the removal of invasive weeds on the site, native plantings will be installed in accordance with Table 1 at the approximate locations shown on Figure 1. A large-format version of this map will be made available to the landowner's representative, State officials, and the landscaper contracted to do the work. NTBG staff will deliver the listed plants and provide advice regarding their installment and maintenance. Periodic monitoring of the plantings by NTBG staff will assist the landowner in planning for the care of the new plants.

Table 1 indicates that the plants supplied will consist of 405 trees, 200 shrubs, and 660 ground covers, including vines, grasses, sedges, and ferns. This large assemblage will assure the replacement of the invasive trees removed previously, and provide for noise and visual screening, dust and erosion control, and competition with non-native species colonizing the site. Native plants selected are ecologically and biogeographically appropriate to the site, as they naturally occur in the adjacent Limahuli Garden and Preserve or elsewhere nearby.

Conclusions. NTBG staff members believe that if the property is replanted and restored using native plant species described in these recommendations, then such restoration:

1. Will result in an improvement over the previous condition of the property;
2. Will help control the spread of invasive non-native species in the Limahuli area;
3. Will result in an improvement to the integrity of the Limahuli area (as an area dedicated to the preservation of native species); and
4. Will be in alignment with the efforts being taken by NTBG to preserve native species in the Hawaiian Islands.

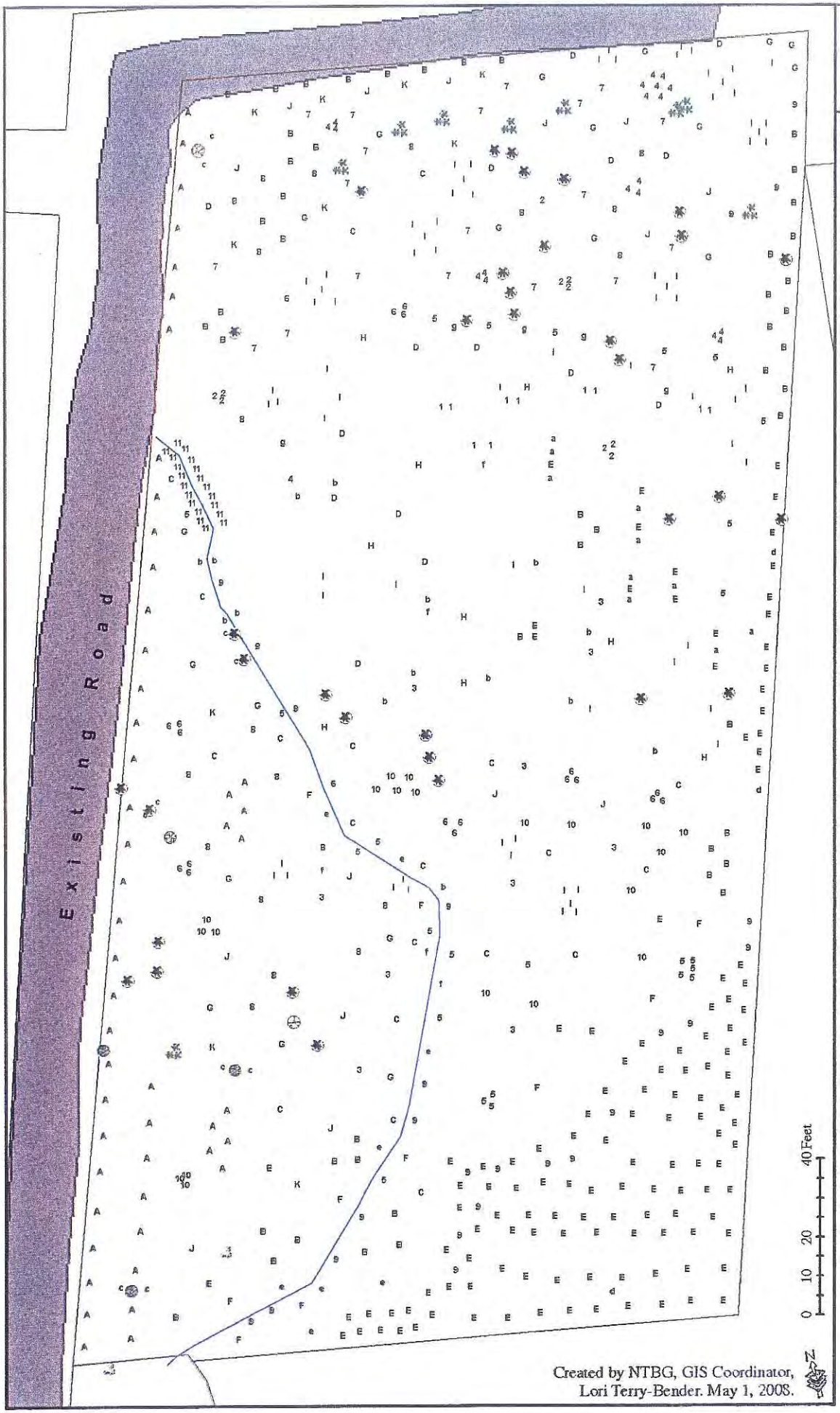
Table 1. Native plants recommended for restoration of the Midler Limahuli property. These plants are ready for outplanting pending approval of this Site Plan. See Figure 1 for recommended approximate locations.

		No.	
Trees			
A	Acacia koaia	50	
B	Cordia subcordata	50	
C	Metrosideros polymorpha	20	
D	Munroidendron racemosum	15	
E	Pandanus tectorius	130	
F	Pisonia wagneriana	10	
G	Pittosporum napaliensis	20	
H	Pritchardia napaliensis(7 gal)	10	
I	Pritchardia napaliensis(1 gal)	75	
J	Rauvolfia sandwicensis	15	
K	Sapindus oahuensis	10	
Shrubs			
1	Artemisia australis	10	
2	Chenopodium oahuense	10	
3	Dodonaea viscosa	10	
4	Gossypium tomentosum	20	
5	Hibiscus waimeae	25	
6	Lipochaeta connata var. acris	20	
7	Myoporum sandwicensis	20	
8	Nototrichium sandwicensis	20	
9	Pipturus kauaiensis	25	
10	Scaevola taccada	20	
11	Wilkstroemia uva-ursi	20	
Ground covers, including vines, sedges, grasses, and ferns			
a	Alyxia stellata	100	a=1 group of 10 plants
b	Carex wahuensis	150	b=1 group of 10 plants
c	Canavalia spp.	10	
d	Cyclosorus interruptus	75	d=1 group of 25 plants
e	Cyperus javanicus	200	e=1 group of 25 plants
f	Nephrolepis cordifolia	25	f=1 group of 5 plants
g	Sporobolus virginicus	100	g=1 group of 25 plants

Figure 1. Map of Midler Limahuli property showing location of recommended plantings. (next page)

Native Landscaping Map

B. Midler property, Kauai, HI



Created by NTBG, GIS Coordinator, Lori Terry-Bender. May 1, 2008.

Trees

- A Acacia koaia
- B Cordia subcordata
- C Metrosideros polymorpha
- D Munroidendron racemosum
- E Pandanus tectorius
- F Pisonia wagneriana
- G Pittosporum napaliensis
- H Pritchardia napaliensis (7 gal)
- I Pritchardia napaliensis (1 gal)
- J Rauvolfia sandwicensis
- K Sapindus oahuensis

Shrubs

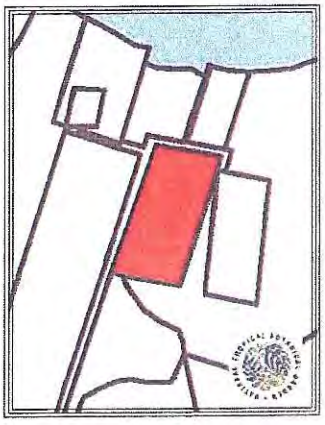
- 1 Artemisia australis
- 2 Chenopodium oahuense
- 3 Dodonaea viscosa
- 4 Gossypium tomentosum
- 5 Hibiscus waimeae
- 6 Lipochaeta connata var. acris
- 7 Myoporum sandwicensis
- 8 Nototrichium sandwicensis
- 9 Pipturus kauaiensis
- 10 Scaevola taccada
- 11 Wilkstroemia uva-ursi

Ground covers

- a Alyxia stellata
- b Carex wahuensis
- c Canavalia spp.
- d Cyclosorus interruptus
- e Cyperus javanicus
- f Nephrolepis cordifolia
- g Sporobolus virginicus

Existing Vegetation

- Cordyline terminalis
- Musa spp.
- Morinda citrifolia
- Pandanus tectorius
- Aleurites moluccana
- Java Plum
- Coconut Palm



Botanical Inventory and Recommendations for Restoration Midler Property, Limahuli, Kaua`i, Hawai`i Tax Map Key: (4) 5-9-003:008

KENNETH R. WOOD, MIKE DEMOTTA & DAVID BURNEY

NATIONAL TROPICAL BOTANICAL GARDEN, 3530 PAPALINA RD, KALAHEO, HAWAI`I 96741, USA kwood@ntbg.org

Summary: The authors were asked to conduct a botanical inventory at the Midler property, Limahuli, Kaua`i, Hawai`i TMK (4) 5-9-003:008, to review and record the number of trees and species which were recently cut down at said property. This report summarizes our findings with a discussion on the conservation implications of the tree removals, along with an annotated checklist of groundcover, shrub, and tree species which are recommended to be used by property owner to restore and enhance the land.

Discussion: On 9 February 2007, K. R. Wood (NTBG Research Biologist) and Mike DeMotta (NTBG Assistant-Director of Horticulture) conducted a botanical inventory on TMK (4) 5-9-003:008, Limahuli, Kaua`i, Hawai`i. We were able to meet up with two north shore landscapers (i.e., Tommy Taylor; Mark Soppeland) who were familiar with the property and with the recent clearing of trees at the site and who walked us through the property to familiarize us with boundaries. The property was substantially cleared of numerous non-native species of large trees and is now dominated by non-native herbs and shrubs (see Table 1). The debris from tree clearing was loaded into a truck by a front-end loader tractor and some portions were evidently burned over a two year period.

It is apparent that the removal of large trees has affected the privacy and view-plane of neighboring properties. Other potential implications to consider when large trees are removed include: a) the increase in sound and dust that can normally be deflected by large stands of trees; and b) the potential for greater erosion after vegetation removal. As far as the erosion, the property in consideration is quite level, and has shown no noticeable loss of substrate that is usually associated with increased erosion. The site was

evidently used historically for taro cultivation and would have been open for such agriculture. It is suggested by the authors that the main trees that were removed (i.e., *Syzygium* and *Schefflera*-see record of trees removed), represent highly invasive species (Smith 1985) which have seriously impacted the native forest ecosystems on the north shore of Kaua`i. *Syzygium* and *Schefflera* are invasive and can spread rapidly and cover large areas.

It should be noted that the more desirable, less invasive species of trees were left untouched including: *Aleurites moluccana* – kukui; *Morinda citrifolia* – noni; *Pandanus tectorius* – hala; *Archontophoenix alexandrae* – MacArthur palms; and *Roystonea regia* – royal palms.

Record of Trees Removed: During our inventory we counted the number of large trees removed and the following list is a record of our observations:

Syzygium cumini – Java plum – non-native/invasive.
Approximately 120 trees of this non-native invasive species appeared to have been removed. Evidently, the Java plums represented the bulk of the canopy trees on property and were concentrated in a 900 sq m area [30 x 30 m]. Around 25–30 of these Java plums were large trees with >2 ft diameter trunks. Previous to this clearing, the region around the central auwai had canopy cover of Java plums with an open understory. On the adjacent Moore property boundary, a row of Java plums were removed [northern boundary along auwai in addition to the eastern boundary]. Java plums can be unpopular because of the mess made by fallen fruits.

Schefflera actinophylla – octopus tree – non-native/invasive.
Approximately 100 trees of the highly invasive octopus tree were removed. The majorities were in the understory of the Java plums and a few were evidently canopy trees. They are native to Australia and New Guinea. This species is now extensively naturalized, "and is one of the worst weed trees currently invading the wet forests of the Hawaiian Islands" (Staples and Herbst 2005; Smith 1985).

Noronhia emarginata – Madagascar olive – non-native/invasive.
The Madagascar olives on the property were understory and as they were only occasional and relatively small compared to the *Schefflera* and *Syzygium*, it is difficult to estimate the number removed. Since the bordering regions only have a few of these trees interspersed in the understory, we suspect that approximately 10–20 trees were removed. The seeds of the Madagascar olive are considered toxic and should be avoided (Staples and Herbst 2005).

Hibiscus tiliaceus – hau – Polynesian introduction.
Hau trees were removed from a 50 m x 10 m strip along the southern boundary of the property. This site was too wet for most other tree species to grow. The hau trees are known to grow in large stands along water-courses and swampy areas. As these trees spread and sprawl and form impenetrable tangles, they can make effective property boundaries, although they can become difficult to control.

Recommendations for future plant restoration. A checklist of native trees, shrubs, herbs, and ferns are being recommended for future restoration of the property (see 'Native Trees for Restoration' below). Non-native fruit bearing species are also suggested, especially citrus (lemon / tangerine) and avocado, yet are not discussed below and are left up to the property owner's preferences. It is suggested that restoration plantings are started as soon as possible and numerous large (ca. 10 ft) trees of perhaps *Cordia* and *Pandanus* be purchased and planted for initial re-vegetation to speed up the process of creating a visual/sound screen.

The planting of trees for restoration will add privacy to the neighboring properties; help deflect sound and dust; and add an esthetic sense of beauty to the landscape. The use of native plants will also be progressive in the trend to help restore endemic and indigenous species back into the landscape and may be instructional in how other property owners can also restore landscape using species that were previously natural to the region.

It is recommended that the stream be planted with taro cultivars, banana, and other Polynesian canoe plants. Without the presence of large weedy trees at this time there is also an opportunity to restore the original auwai and lo`i site. Species of native *Pipturus* and *Boehmeria* could be considered. It should be noted that the native fern *Cyclosorus interruptus* occurs on the eastern perimeter in saturated soil, and should be encouraged throughout the more soil-saturated regions of the property.

In our annotated list of recommended species below, we identify species that can be either planted in regions with good rich soil substrate and others which should utilize the regions of sandy substrate on the northern end of the property. In addition, we identify plants that will make preferable boundaries and hedges (i.e., *Myoporum, Dodonaea, Nototrichium, Pandanus,* and *Pittosporum*), and encourage Polynesian introductions such as *Thespesia* and *Calophyllum.* The list of recommended native grasses and sedges will accent the property with a fuller, more connected landscape appearance and maintain substrate stability including species of *Eragrostis, Heteropogon, Cyperus, Sporobolus,* and *Carex*. Additional ground covers include species of *Scaevola sericea, Sida fallax, Carex, Dianella,* and *Bidens*. For complete list of recommendations see Table 2.

Summary and Conclusions. It is the opinion of the authors that if the property is replanted and restored using native plant species described in these recommendations, then such restoration:

1. Will result in an improvement over the previous condition of the property;
2. Will help control the spread of invasive non-native species in the Limahuli area;
3. Will result in an improvement to the integrity of the Limahuli area (as an area dedicated to the preservation of native species); and
4. Will be in alignment with the efforts being taken by the National Tropical Botanical Garden to preserve native species at Limahuli Gardens and in the surrounding area.

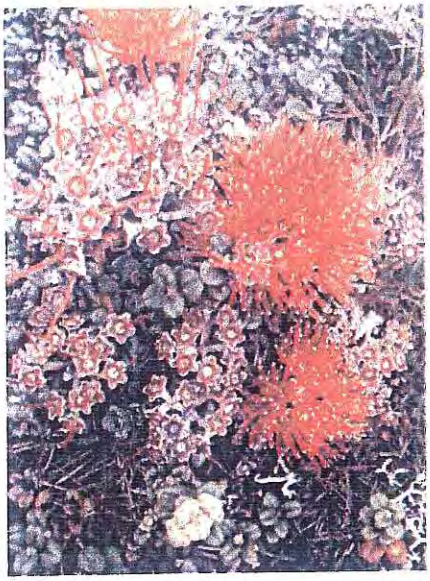
Native Trees for Restoration [listed alphabetically by genus]:

Acacia koa – koa [or ***Acacia koaia*** – koaia]
Acacia koa is a fast growing and highly valued native hardwood tree species found throughout the Hawaiian Islands. The koaia form can be seen growing naturally around Hanakapiai along the Na Pali trail on red clay slopes above the ocean. Koa and koaia grow well in full sun and in soil with good drainage. They will do well as accent trees, and will make a good sight barriers along the southern and eastern sides of the property.

Calophyllum inophyllum – kamani
The kamani tree was introduced by the Polynesians and can be found in coastal sites throughout the Hawaiian Islands. Although it is only occasionally seen, it makes an excellent wind-break and has a valuable hard wood. Kamani has large dark green leaves and grows to more than 30 ft tall. It is drought tolerant and will grow in all soil types. This tree species could be used as a sound and sight barrier on the northern and western sides of the property.

Cordia subcordata – kou
Kou is a large, drought tolerant tree with valuable hard wood which produces small attractive orange flowers throughout much of the year. *Cordia* has large light green leaves, will grow well in all soil types, and is a relatively fast growing tree. It requires full sun and

could serve as a sight barrier tree on the northern and eastern boundaries of the property.



Metrosideros polymorpha – ʻōhiʻa

The native ʻōhiʻa is a common mesic to wet forest tree found on all islands at all elevations. It is a slow grower but will get bushy and tall with time. It usually will flower in the spring and does best in full sun but can tolerate shady to partial sunlight. ʻŌhiʻa grows best in moist soil conditions and will make a good sound & sight barrier. Suggested for the south and east side of property.

Munroidendron racemosum – ʻohe pali ku

Munroidendron is only known from Kauaʻi, making it floristically unique. It is very rare with a few of its better populations found on the Na Pali Coast. It grows best in full sun with soil substrate and good drainage. *Munroidendron* is a very beautiful and fast growing tree with stunning flowers and fruits. It will make a good secondary sound and sight barrier and should be considered for the southern and eastern sides of the property.

Pandanus tectorius – hala

Hala is a native tree that is quite common around Limahuli and the Na Pali coast. They grow to be large trees of up to 30 or 40 ft and have a high tolerance to all soil types. They will

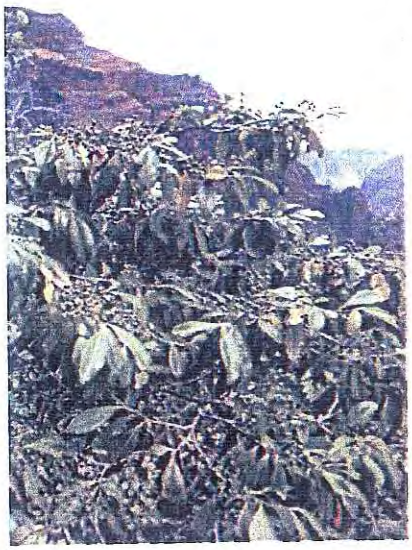
develop a large canopy and are recommended to replace the hau on the southern property boundary or to be used occasionally throughout the property as visual and sound screens.

Pipturus kauaiensis. – māmaki
Endemic to Kaua`i, this species is found along the Na Pali coast valleys. It will grow up to 10 ft tall and produces attractive green leaves with a white underside. It is highly valued as a medicinal plant with its leaves being used to brew an herbal tea. The māmaki will grow in partial to full sun and makes an ideal understory shrub. It will tolerate wet soil conditions on the southern and eastern sides of the property.

Pittosporum spp. – hō‘awa
The hō‘awa is a medium sized tree with several species that can be found throughout Kaua`i. They are often found in mesic forest. Most hō‘awa have large dark green, shiny leaves with fragrant flowers and grow well in full to partial sun. They prefer soil over sand and make an excellent understory tree or shrub. They could serve well as a sound and sight barrier on the north, south and east sides of the property.

Pritchardia limahuliensis – loulu

This endemic species of fan palm is found primarily in Limahuli Valley. Its leaves are fan shaped and the tree can be fairly slow growing, although with time they can grow to thirty feet tall. The loulu were once very common in the lowlands of Hawai`i, yet have suffered from development and agriculture. *Pritchardia limahuliensis* will grow well in rich soil and in full sun. It is recommended as an accent tree on the southern and eastern borders of the property.



Psydrax odoratum – alahe`e

Alahe`e is a common native hardwood tree with dark green shiny leaves found in dry forest and coastal sites throughout Hawai`i. It will grow best in full sun but can grow in shade. Soil is best but the alahe`e will grow in sandy substrate as well. It is drought tolerant and produces small, white fragrant flowers. This tree species works well as a sound and sight barrier and is often used as a native hedge. Consider planting this species on all sides.

Rauvolfia sandwicensis – hao

Hao is a common native tree species in dry to mesic forest and can be found in all the Na Pali Coast valleys. It prefers full sun

and is drought tolerant. It is a fast growing tree with attractive, shiny, dark green leaves. Hao grows well in full sun and will grow in partially sandy soil. Recommended as an accent tree, hao will do well as an understory component for all sides of property.

Sapindus oahuensis – lonomea

Lonomea is an endemic hardwood found in dry forest and coastal sites on O`ahu and Kaua`i. It will get very tall with time and is drought and wind tolerant. It grows relatively fast and will be an excellent sound and sight barrier. It can be considered for planting on all sides.

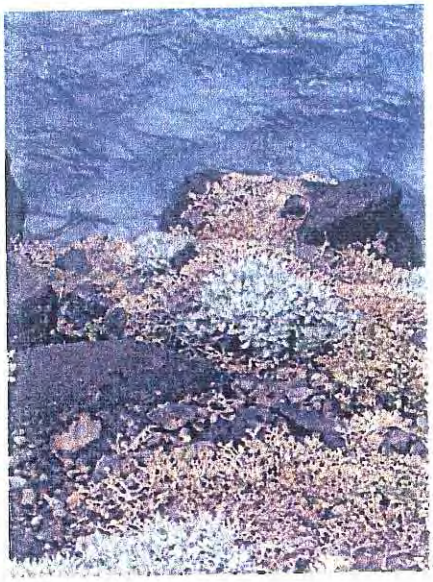
Thespesia populnea – milo

The milo tree is a Polynesian introduction and is quite common along the coastlines of all the Hawaiian Islands. It will grow up to 30 ft tall and produces very attractive heart-shaped leaves. Milo is in the hibiscus family and produces light yellow flowers throughout most of the year. It is drought tolerant and valued as a wind-break and by artisans for its attractive hard wood. It will grow in all soil types and can be used as a sight barrier on the northern and western sides of the property.

Native Herbs, Shrubs and Sub-Shrubs for Restoration:

Achyranthes splendens – hinahina

Hinahina is often a coastal shrub and has small round silvery leaves which are extremely attractive. It can grow up to 4 feet tall and is quite drought tolerant. Hinahina requires full sun and can grow in any soil type. It is recommended to be used as hedge or mixed with coastal tree species on the northern end of the property.



Artemisia australis – ʻāhinahina

The ʻāhinahina is a coastal shrub found on all islands. It is generally found on cliff and steep hillside habitats and can grow up to 4 ft tall. ʻĀhinahina has green to silvery foliage and grows in all soil types. Preferring full sun it is recommended for the northern end of the property.

Bidens forbesii – koʻokoʻolau

This native shrub species is common in Limahuli Valley and will grow up to 4 ft tall. It is in the aster family and produces large clusters of yellow flowers. Planted in large groups, it would make a good groundcover or understory planting. Koʻokoʻolau can be grown in partial shade to full sun and is recommended for both the southern and eastern sides of the property.

Chenopodium oahuense – ʻāweoweo

The ʻāweoweo is a sprawling shrub up to 4 ft tall with small silvery green leaves. It is common in coastal habitats, especially rocky cliffs and will grow in any soil types. ʻĀweoweo mixes well with other listed groundcovers. It is drought tolerant and ideal in full sun on the northern and western sandy slopes of the property.

Dianella sandwicensis – `uki`uki
This common plant in the lily family is found on all of the Hawaiian Islands and in varied habitats. It has long narrow lance-shaped leaves and a clumping growth habit that makes an excellent ground-cover in partial shade to full sun. `Uki`uki prefers good soil and would do well on the southern and eastern sides of the property.

Myoporum sandwicensis – naio
The naio or false sandalwood is a vigorous coastal shrub that can grow up to 8 ft tall. It is found in all soil types, is fast growing, and is drought and salt tolerant. It is recommended as a secondary hedge and will make an excellent sight and sound barrier. Naio should be ideally grown in full sun but can grow in part shade. Naio is recommended for the northern and western side of the property.

Nototrichium sandwicensis – kulu'ī
The kulu'ī is a medium sized shrub that grows up to 8 ft tall. It has silvery leaves with a very bushy and somewhat sprawling habit if grown in full sun. Grown in shade it will get taller and become greener. It is recommended as either an understory shrub or will make an attractive hedge. The kulu'ī can be grown in all soil types throughout the property.

Scaevola sericea – naupaka

This common coastal shrub is ideal as a hedge in well drained soil or sand. It has large light green leaves that provide a soft texture in the landscape. Naupaka is drought tolerant and occurs naturally on all the beaches of Kaua`i. It will do well in full sun on the northern and western sides of the property.

Sida fallax – `ilima

`Ilima is a common coastal shrub with a prostrate growth habit. The flowers are an attractive orange and were traditionally used in lei making. Ilima is ideal in full sun and well drained soil or sand. It spreads rapidly and flowers regularly and is an excellent groundcover that provides erosion control.

Wikstroemia uva-ursi – ‘ākia

The ‘ākia is a sprawling shrub that grows up to 3 ft tall. It has dark green leaves with yellow flowers and attractive orange to red fruits. It is commonly used in landscaping for hedges and works well for erosion control. It will grow in all soil types and is a groundcover suited for all sides of property.

Native Grasses and Sedges for Restoration:

Carex wahuensis

Carex wahuensis is a common native sedge found throughout the natural forests of Kaua`i, including Limahuli Valley. It has a clumping growth habit with long dark green leaves. It is attractive as a ground cover when planted in large groups. This species of *Carex* will grow in full shade or full sun.

Cyperus javanicus – ‘ahu‘awa

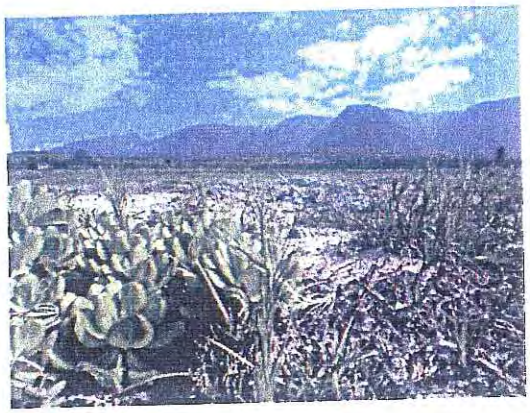
This indigenous sedge is found around lowland coastal and cliff sites as well as on offshore islets. It is drought tolerant, hardy in all soil types, and will also grow around seeps and moist soil areas. `Ahu`awa produces blue-green foliage and will spread as a clumping plant. It could serve as a ground cover in full sun and will help with erosion control on the northern side of the property.

Eragrostis variabilis – kāwelu

The kāwelu grass is a native species with a clumping growth form. It occurs in all soil types and in most habitats and is well suited for dry conditions. Kāwelu can be spread out to compliment a native restoration planting or planted close together to control weeds. We recommend planting kāwelu in full sun to partial shade.

Heteropogon contortus – pili

Similar to *Eragrostis variabilis*, pili will grow well in all soil types. This grass was traditionally used by the Polynesians for thatching.



Sporobolus virginicus – `aki`aki

`Aki`aki is a native coastal grass with a spreading growth habit. It sends rhizomes through soil or sand and will become a dense groundcover up to 6 to 8 inches tall. `Aki`aki is ideal for erosion control and can out-compete with weeds. This species is recommended for sites with sandy soil.

Native Ferns for Restoration:

Cyclosorus interruptus – neke

Cyclosorus interruptus is a native fern which often occurs in inundated soils. There is currently a natural population on the adjacent property to the east. This species does well in full sun to partial shade.

Microlepia strigosa – palapalai

Palapalai is a common mesic forest fern found on all of the Hawaiian Islands and is a popular lei-making species with its lacey light green fronds. It prefers good soil and partial shade but can be grown in full sun. With a spreading growth form, it could serve as a ground cover on the south and east sides of the property.

Nephrolepis cordifolia – kupukupu

Kupukupu does well in both mesic and wet conditions and is a popular groundcover. It spreads rather quickly and forms a dense mat in good soil. This sword fern has dark green leaves and is used in lei-making. It is drought tolerant and will grow in partial to full sun.

Table 1. Checklist of vascular plants observed on property.

Class	Family	Genus	Species	Common Name	Status
Dicot	Asteraceae	*Ageratum*	*conyzoides* L.	maile hohono, maile honohono, maile kula	nat
Dicot	Euphorbiaceae	*Aleurites*	*moluccana* (L.) Willd.	kukui, kuikui, candlenut	pol
Monocot	Arecaceae	*Archontophoenix*	*alexandrae* (F. Mueller) H. Wendlad &Drude	Alexander palm	nat
Monocot	Poaceae	*Axonopus*	*compressus* (Sw.) Beauv.	carpetgrass	nat
Dicot	Fabaceae	*Canavalia*	*cathartica* Thouars	maunaloa	nat
Dicot	Caricaceae	*Carica*	*papaya* L.	papaya, mīkana, hē'Ī, milikana, papaia, pawpaw	nat
Dicot	Euphorbiaceae	*Chamaesyce*	*hyssopifolia* (L.) Small	spurge	nat
Dicot	Rubiaceae	*Coffea*	*arabica* L.	Arabian coffee	nat
Monocot	Poaceae	*Coix*	*lachryma-jobi* L.	Job's-tears, pū'ohe'ohe, kūkaekōlea, 'ohe'ohe, pūpū kōlea	nat
Monocot	Araceae	*Colocasia*	*esculenta* (L.) Schott	kalo, taro	pol
Monocot	Commelinaceae	*Commelina*	*diffusa* Burm.f.	honohono, honohono wai, mākolokolo, dayflower	nat
Dicot	Asteraceae	*Conyza*	*bonariensis* (L.) Cronquist	hairy horseweed, ilioha, 'awī'awī, pua mana, lani wela (Ni'ihau)	nat
Monocot	Agavaceae	*Cordyline*	*fruticosa* (L.) A.Chev.	kī, ti	pol
Dicot	Asteraceae	*Crassocephalum*	*crepidioides* (Benth.) S.Moore		nat
Fern	Thelypteridaceae	*Cyclosorus*	*interruptus* (Willd.) H.Ito	neke	ind
Monocot	Cyperaceae	*Cyperus*	*papyrus* L.	papyrus	nat
Monocot	Poaceae	*Digitaria*	*insularis* (L.) Mez ex Ekman	sourgrass	nat
Monocot	Poaceae	*Eleusine*	*indica* (L.) Gaertn.	wiregrass, mānienie ali'i	nat
Dicot	Asteraceae	*Emilia*	*fosbergii* Nicolson	pualele (Ni'ihau)	nat
Dicot	Asteraceae	*Erechtites*	*valerianifolia* (Wolf) DC.	fireweed	nat

Class	Family	Genus	Species	Common Name	Status
Dicot	Asteraceae	*Erigeron*	*karvinskianus* DC.	daisy fleabane	nat
Monocot	Zingiberaceae	*Hedychium*	*flavescens* N.Carey ex Roscoe	yellow ginger, 'awapuhi melemele	nat
Dicot	Malvaceae	*Hibiscus*	*tiliaceus* L.	hau	ind
Dicot	Campanulaceae	*Hippobroma*	*longiflora* (L.) G.Don	star-of-Bethlehem, pua hōkū	nat
Dicot	Fabaceae	*Indigofera*	*suffruticosa* Mill.	indigo, 'inikō, 'inikoa, kolū	nat
Monocot	Cyperaceae	*Kyllinga*	*nemoralis* (J.R.Forst. & G.Forst.) Dandy ex Hutch. & Dalziel	kili'o'opu, mau'u mokae	nat
Dicot	Onagraceae	*Ludwigia*	*octovalvis* (Jacq.) P.H.Raven	primrose willow, kāmole, alohalua,	nat
Monocot	Poaceae	*Melinis*	*repens* (Willd.) Zizka	Natal redtop, Natal grass	nat
Dicot	Fabaceae	*Mimosa*	*pudica* L. var. *unijuga* (Duchass. & Walp.) Griseb.	sensitive plant, sleeping grass, pua hilahila	nat
Dicot	Rubiaceae	*Morinda*	*citrifolia* L.	noni, Indian mulberry	pol
Monocot	Musaceae	*Musa*	*x_paradisiaca* L.	mai'a, banana	pol
Dicot	Oleaceae	*Noronhia*	*emarginata* (Lam.) Poir.	Madagascar-olive	nat
Monocot	Poaceae	*Oplismenus*	*hirtellus* (L.) P.Beauv.	basketgrass, honohono kukui,	nat
Monocot	Pandanaceae	*Pandanus*	*tectorius* Parkinson ex Z	hala, pū hala, screwpine	ind
Monocot	Poaceae	*Paspalum*	*conjugatum* P.J.Bergius	Hilo grass, mau'u Hilo,	nat
Dicot	Lauraceae	*Persea*	*americana* Mill.	avocado, alligator pear	nat
Fern	Polypodiaceae	*Phymatosorus*	*grossus* (Langsdorff & Fischer) Brownlie	laua'e, maile-scented fern	nat
Dicot	Phytolaccaceae	*Phytolacca*	*octandra* L.	southern pokeberry	nat
Dicot	Asteraceae	*Pluchea*	*carolinensis* (Jacq.) G.Don	sourbush, marsh fleabane	nat
Dicot	Euphorbiaceae	*Polyscias*	*guilfoylei* (W. Bull) L. H. Bailey	panax	cult.
Dicot	Rubiaceae	*Richardia*	*brasiliensis* Gomes		nat
Monocot	Arecaceae	*Roystonea*	*regia* (Kunth) O.F. Cook	royal palm	cult.

Class	Family	Genus	Species	Common Name	Status
Dicot	Araliaceae	*Schefflera*	*actinophylla* (Endl.) Harms	octopus tree, umbrella tree	nat
Dicot	Fabaceae	*Senna*	*surattensis* (Burm.f.) H.S.Irwin & Barneby	kolomona, kalamona	nat
Dicot	Solanaceae	*Solanum*	*americanum* Mill.	glossy nightshade, pōpolo, ʻolohua, polopolo, pōpolohua (Niʻihau)	ind
Dicot	Asteraceae	*Sphagneticola*	*trilobata* (L.) Pruski	wedelia	nat
Dicot	Asteraceae	*Synedrella*	*nodiflora* (L.) Gaertn.	nodeweed	nat
Dicot	Myrtaceae	*Syzygium*	*cumini* (L.) Skeels	Java plum, jambolan plum	nat
Monocot	Poaceae	*Urochloa*	*maxima* (Jacq.) R.D. Webster	Guinea grass	nat
Dicot	Asteraceae	*Youngia*	*japonica* (L.) DC.	Oriental hawksbeard	nat

Table 2. Checklist of native vascular plants recommended for property restoration.

Class	Family	Genus	Species	Common Name	Status
Dicot	Fabaceae	*Acacia*	*koa* A.Gray	koa	end
Dicot	Amaranthaceae	*Achyranthes*	*splendens* Mart. Ex Moq.		end
Dicot	Euphorbiaceae	*Aleurites*	*moluccana* (L.) Willd.	kukui, kuikui, candlenut	pol
Dicot	Asteraceae	*Artemisia*	*australis* Less.	ʻāhinahina, hinahina, hinahina kuahiwi	end
Dicot	Asteraceae	*Bidens*	*forbesii* Sherff	koʻokoʻolau, koʻolau	end
Dicot	Urticaceae	*Boehmeria*	*grandis* (Hook. & Arn.) A.Heller	ʻākōlea	end
Dicot	Clusiaceae	*Calophyllum*	*inophyllum* L.	kamani, kamanu, Alexandrian laurel	pol
Dicot	Fabaceae	*Canavalia*	*napaliensis* H.St.John	ʻāwikiwiki, puakauhi	end, SOC
Monocot	Cyperaceae	*Carex*	wahuensis C.A.Mey.		end

Class	Family	Genus	Species	Common Name	Status
Dicot	Euphorbiaceae	*Chamaesyce*	*celastroides* (Boiss.) Croizat & O.Deg. var. *stokesii* (C.N.Forbes) O.Deg. & I.Deg.	ʻakoko, koko, ʻekoko, kōkōmālei	end
Dicot	Amaranthaceae	*Charpentiera*	*densiflora* Sohmer	pāpala	end, SOC
Dicot	Chenopodiaceae	*Chenopodium*	*oahuense* (Meyen) Aellen	ʻāheahea, alaweo huna (Niʻihau), ʻāweoweo,	end
Monocot	Araceae	*Colocasia*	*esculenta* (L.) Schott	kalo, taro	pol
Dicot	Boraginaceae	*Cordia*	*subcordata* Lam.	kou	ind
Monocot	Agavaceae	*Cordyline*	*fruticosa* (L.) A.Chev.	kī, ti	pol
Fern	Thelypteridaceae	*Cyclosorus*	*interruptus* (Willd.) H.Ito	neke	ind
Monocot	Cyperaceae	*Cyperus*	*cyperinus* (Retz.) Suringar		ind
Monocot	Cyperaceae	*Cyperus*	*javanicus* Houtt.	ʻahuʻawa, ʻehuʻawa	ind
Monocot	Liliaceae	*Dianella*	*sandwicensis* Hook. & Arn.	ʻukiʻuki, ʻuki	ind
Dicot	Sapindaceae	*Dodonaea*	viscosa Jacq.	ʻaʻaliʻi, ʻaʻaliʻi kū	ind
Monocot	Poaceae	*Eragrostis*	*variabilis* (Gaudich.) Steud.	kāwelu, ʻemoloa, kalamālō	end
Dicot	Malvaceae	*Gossypium*	*tomentosum* Nutt. ex Seem.	maʻo, huluhulu, Hawaiian cotton	end
Monocot	Poaceae	*Heteropogon*	*contortus* (L.) P.Beauv. ex Roem. & Schult.	pili, lule, pili grass, twisted beardgrass, tanglehead	ind?
Dicot	Malvaceae	*Hibiscus*	*waimeae* A.Heller subsp. *hannerae* (O.Deg. & I.Deg.) D.M.Bates	kokiʻo keʻokeʻo, kokiʻo kea	end, E
Dicot	Asteraceae	*Lipochaeta*	*connata* (Gaudich.) DC. var. *acris* (Sherff) R.C.Gardner	nehe	end
Dicot	Myrtaceae	*Metrosideros*	*polymorpha* Gaudich.	ʻōhiʻa, ʻōhiʻa lehua, lehua	end
Fern	Dennstaedtiaceae	*Microlepia*	*strigosa* (Thumb.) C. Presl	palapalai	ind
Dicot	Rubiaceae	*Morinda*	*citrifolia* L.	noni, Indian mulberry	pol

Class	Family	Genus	Species	Common Name	Status
Dicot	Araliaceae	*Munroidendron*	*racemosum* (C.N.Forbes) Sherff		end, E
Monocot	Musaceae	*Musa*	*x_paradisiaca* L.	mai'a, banana	pol
Dicot	Myoporaceae	*Myoporum*	*sandwicense* A.Gray	naio, naeo, naieo, bastard sandalwood	ind
Fern	Nephrolepidaceae	*Nephrolepis*	*cordifolia* (L.) C.Presl		ind
Dicot	Amaranthaceae	*Nototrichium*	*sandwicense* (A.Gray) Hillebr.	kulu'I	end
Dicot	Apocynaceae	*Ochrosia*	*kauaiensis* H.St.John	hōlei	end, SOC
Monocot	Pandanaceae	*Pandanus*	*tectorius* Parkinson ex Z	hala, pū hala, screwpine	ind?
Dicot	Phytolaccaceae	*Phytolacca*	*sandwicensis* Endl.	pōpolo kū mai, pōpolo	end, SOC
Dicot	Urticaceae	*Pipturus*	*kauaiensis* A.Heller	māmaki, māmake	end
Dicot	Nyctaginaceae	*Pisonia*	*wagneriana* Fosberg	pāpala kēpau, pāpala	end, SOC
Dicot	Pittosporaceae	*Pittosporum*	*napaliense* Sherff	hō'awa, hā'awa	end, SOC
Monocot	Arecaceae	*Pritchardia*	*limahuliensis* H. St. John	loulu	end
Dicot	Rubiaceae	*Psydrax*	*odorata* (G.Forst.) A.C.Sm. & S.P.Darwin	alahe'e, 'ōhe'e, walahe'e	ind
Dicot	Apocynaceae	*Rauvolfia*	*sandwicensis* A.DC.	hao	end
Dicot	Sapindaceae	*Sapindus*	*oahuensis* Hillebr. ex Radlk.	lonomea (Kaua'i), āulu, kaulu	end
Dicot	Goodeniaceae	*Scaevola*	*sericea* Vahl	naupaka kahakai, huahekili, naupaka kai, auaka (Ni'ihau)	ind
Dicot	Malvaceae	*Sida*	*fallax* Walp.	'ilima	ind
Dicot	Solanaceae	*Solanum*	*americanum* Mill.	glossy nightshade, pōpolo, pōpolohua (Ni'ihau)	ind?
Monocot	Poaceae	*Sporobolus*	*virginicus* (L.) Kunth	'aki'aki, mahiki, mānienie, mānienie 'aki'aki, seashore rushgrass	ind
Dicot	Malvaceae	*Thespesia*	*populnea* (L.) Sol. ex Corrêa	milo, portia tree	ind?

Class	Family	Genus	Species	Common Name	Status
Dicot	Urticaceae	*Touchardia*	*latifolia* Gaudich.	olonā	end
Dicot	Thymelaeaceae	*Wikstroemia*	*uva-ursi* A.Gray	ʻākia, kauhi	end

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EXHIBIT "H-1"

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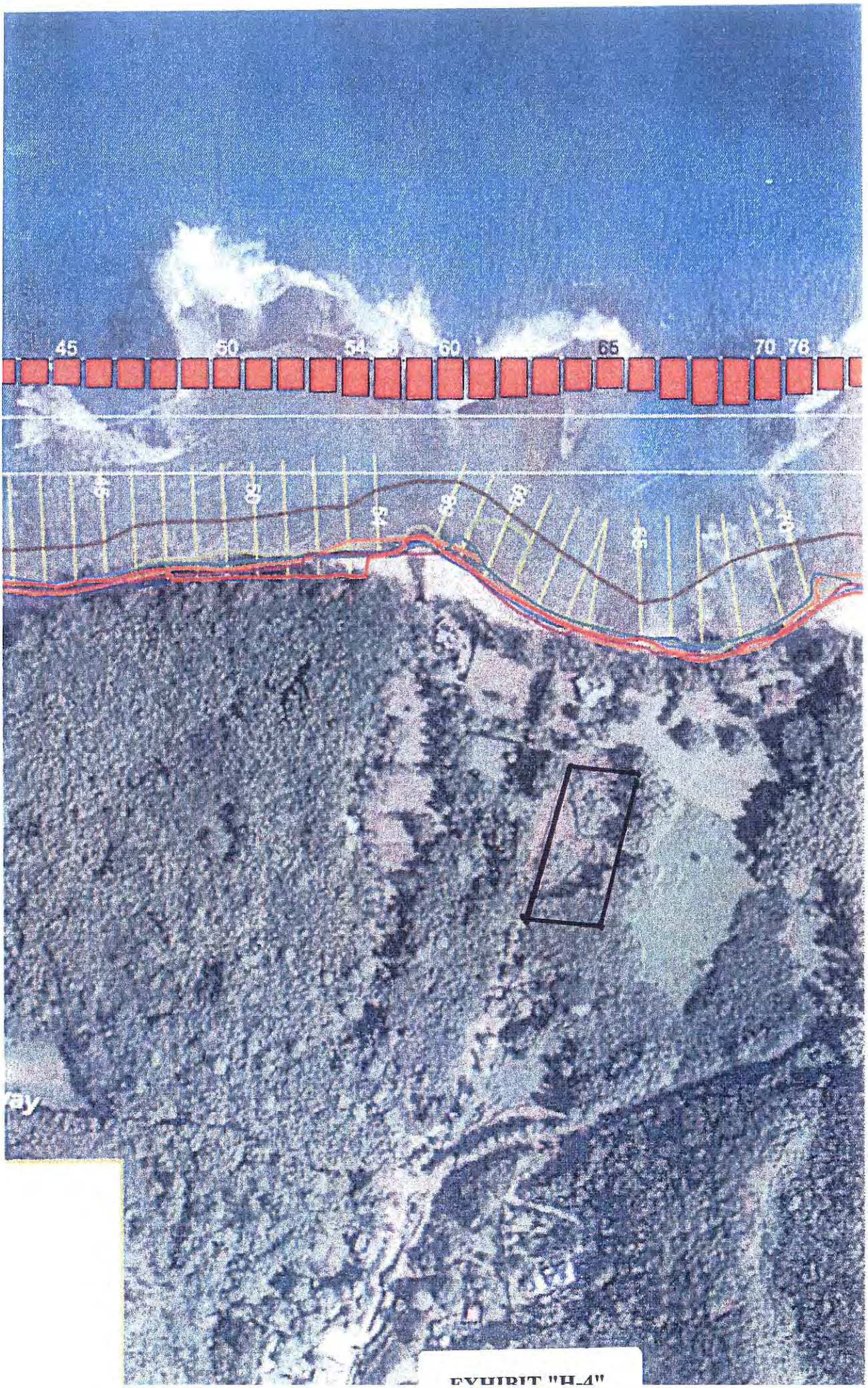
EXHIBIT "H-3"



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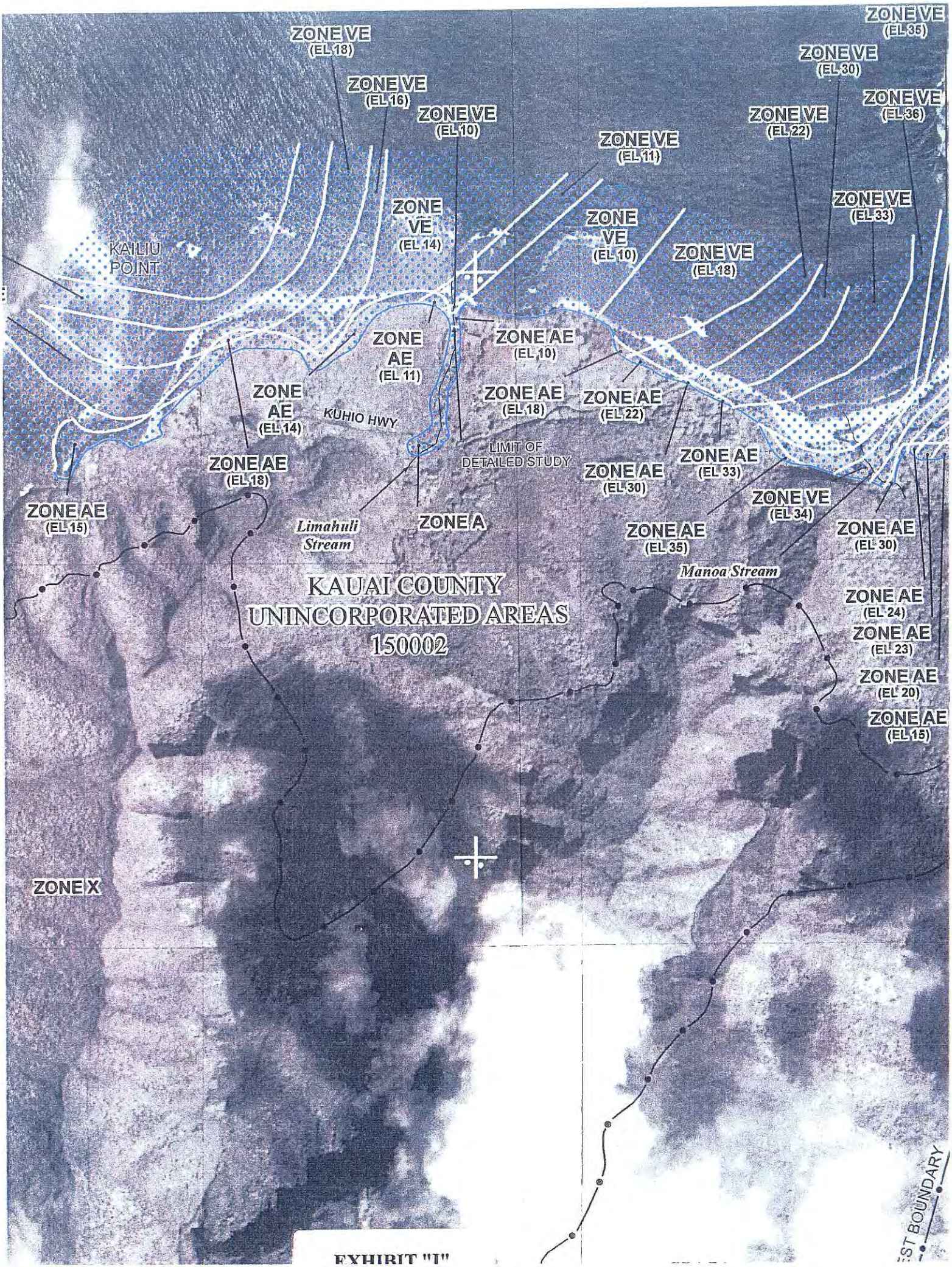
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EXHIBIT "I"

Final
Archaeological Inventory Survey
for the proposed 1.34-Acre Midler Property Project, Hā'ena Ahupua'a, Hanalei District, Kaua'i
TMK: [4] 5-9-003:008

Prepared for
Belles, Graham, Proudfoot, Wilson & Chun LLP

Prepared by
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and
Hallett H. Hammatt, Ph.D.

Cultural Surveys Hawai'i, Inc.
Kailua, Hawai'i
(Job Code: HAENA 1)

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Management Summary

Reference	Archaeological Inventory Survey for the Proposed 1.34-Acre Midler Property Project, Hā'ena Ahupua'a, Hanalei District, Island of Kaua'i TMK [4] 5-9-003:008 (Yucha and Hammatt 2008)
Date	February 2009
Project Number (s)	Cultural Surveys Hawai'i (CSH) job code: HAENA 1
Investigation Permit Number	The fieldwork component of the archaeological inventory survey investigation was carried out under archaeological permit number 09-20 issued by the Hawai'i State Historic Preservation Division/ Department of Land and Natural Resources (SHPD/DLNR), per Hawai'i Administrative Rules (HAR) Chapter 13-282.
Project Location	The project area comprises TMK: [4] 5-9-003:008 which is bounded to the west by a private access road that extends approximately 189 m southwest to connect to Highway 560. The project area is depicted on the 1983 Hā'ena USGS 7.5-minute topographic quadrangle.
Land Jurisdiction	Private
Agencies	State of Hawai'i Department of Health/Office of Environmental Quality Control (OEQC), SHPD/DLNR
Project Description	The proposed project involves the removal of non-native plants, the trimming of native *hau (Hibiscus tiliaceus)*, and the restoration of the property with native species pursuant to a plan prepared by the National Tropical Botanical Gardens.
Project Acreage	1.34 acres
Area of Potential Effect (APE) and Survey Acreage	For the purposes of this archaeological inventory survey the APE is defined as the 1.34-Acre parcel.
Historic Preservation Regulatory Context	This document was prepared to support the proposed project's historic preservation review under Hawai'i Revised Statutes (HRS) Chapter 6E-42 and Hawai'i Administrative Rules (HAR) Chapter 13-284.
Fieldwork Effort	The fieldwork component of the this archaeological inventory survey was conducted on November 13, 2008 by two CSH archaeologists, Trevor Yucha, B.S. and Douglas Thurman, B.A., under the general supervision of Hallett H. Hammatt, Ph.D (principal investigator). The fieldwork required two person-days to complete.
Historic Properties Identified and Recommended Eligibility to the National/Hawai'i Register	SIHP # 50-30-02-864 is a complex consisting of a remnant irrigation ditch (Feature A) and an alignment (Feature B). SIHP # 50-30-02-864 is interpreted to be associated with pre-contact wetland agricultural cultivation. SIHP # 50-30-02-864 is assessed as significant under Criterion D (have yielded, or may be likely to yield information important in prehistory or history) of the National and Hawai'i Registers of Historic Places evaluation criteria.

Effect Recommendation	The proposed project will affect historic properties recommended eligible to the Hawai'i Register. CSH's project specific effect recommendation is "effect, with agreed upon mitigation measures." The mitigation measures described below will help alleviate the project's impact on significant historic properties.
Mitigation Recommendation	SIHP # 50-30-02-864, a complex consisting of a remnant irrigation ditch (Feature A) and an alignment (Feature B), was documented with a detailed written description, photographs, scale drawings, and located with GPS survey equipment. No further work is recommended for SIHP # 50-30-02-864. Due to the sensitive nature of the project area and the potential for project related ground disturbance during restoration, it is recommended that project reforestation proceed under an archaeological monitoring program. It is recommended that an archaeological monitor be present during all subsurface activities involving excavation of more than a cubic foot in a given area.

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Section 1 Introduction

1.1 Project Background

At the request of Belles Graham Proudfoot Wilson and Chun, LLP, Cultural Surveys Hawai'i Inc. (CSH) completed an archaeological inventory survey for the proposed 1.34-Acre Midler property project, Hā'ena Ahupua'a, Hanalei District, Kaua'i. The project area comprises TMK: [4] 5-9-003:008 which is bounded to the west by a private access road that extends approximately 189 m southwest to connect to Highway 560. The project area is depicted on the 1983 Hā'ena USGS 7.5-minute topographic quadrangle (Figure 1 to Figure 3).

The project area is privately owned by Bette Midler. The proposed project involves the removal of non-native plants, the trimming of native *hau (Hibiscus tiliaceus)*, and the restoration of the property with native species pursuant to a plan prepared by the National Tropical Botanical Gardens.

This document was prepared to support the proposed project's historic preservation review under Hawai'i Revised Statutes (HRS) Chapter 6E-42 and Hawai'i Administrative Rules (HAR) Chapter 13-284. In consultation with the Hawai'i State Historic Preservation Division (SHPD), this investigation was also designed to fulfill the State requirements for an archaeological inventory survey per HAR Chapter 13-13-276. The investigation includes an effect recommendation and treatment/mitigation recommendations for the historic properties recommended Hawai'i Register eligible. This document is intended to support project-related historic preservation consultation.

1.2 Scope of Work

The following archaeological inventory survey scope of work is designed to satisfy the Hawai'i state requirements for archaeological inventory surveys:

1) Historic and archaeological background research, including a search of historic maps, written records, Land Commission Award documents, and the reports from prior archaeological investigations. This research will focus on the specific project area's past land use, with general background on the pre-contact and historic settlement patterns of the *ahupua'a* and district. This background information will be used to compile a predictive model for the types and locations of historic properties that could be expected within the project area.
2) A complete (100 %) systematic pedestrian inspection of the project area to identify any potential surface historic properties. Surface historic properties will be recorded with an evaluation of age, function, interrelationships, and significance. Documentation will include photographs, scale drawings, and, if warranted, limited controlled excavation of select sites and/or features.
3) Based on the project area's environment and the results of the background research, subsurface testing with a combination of hand and backhoe excavation to identify and document subsurface historic properties that would not be located by surface pedestrian

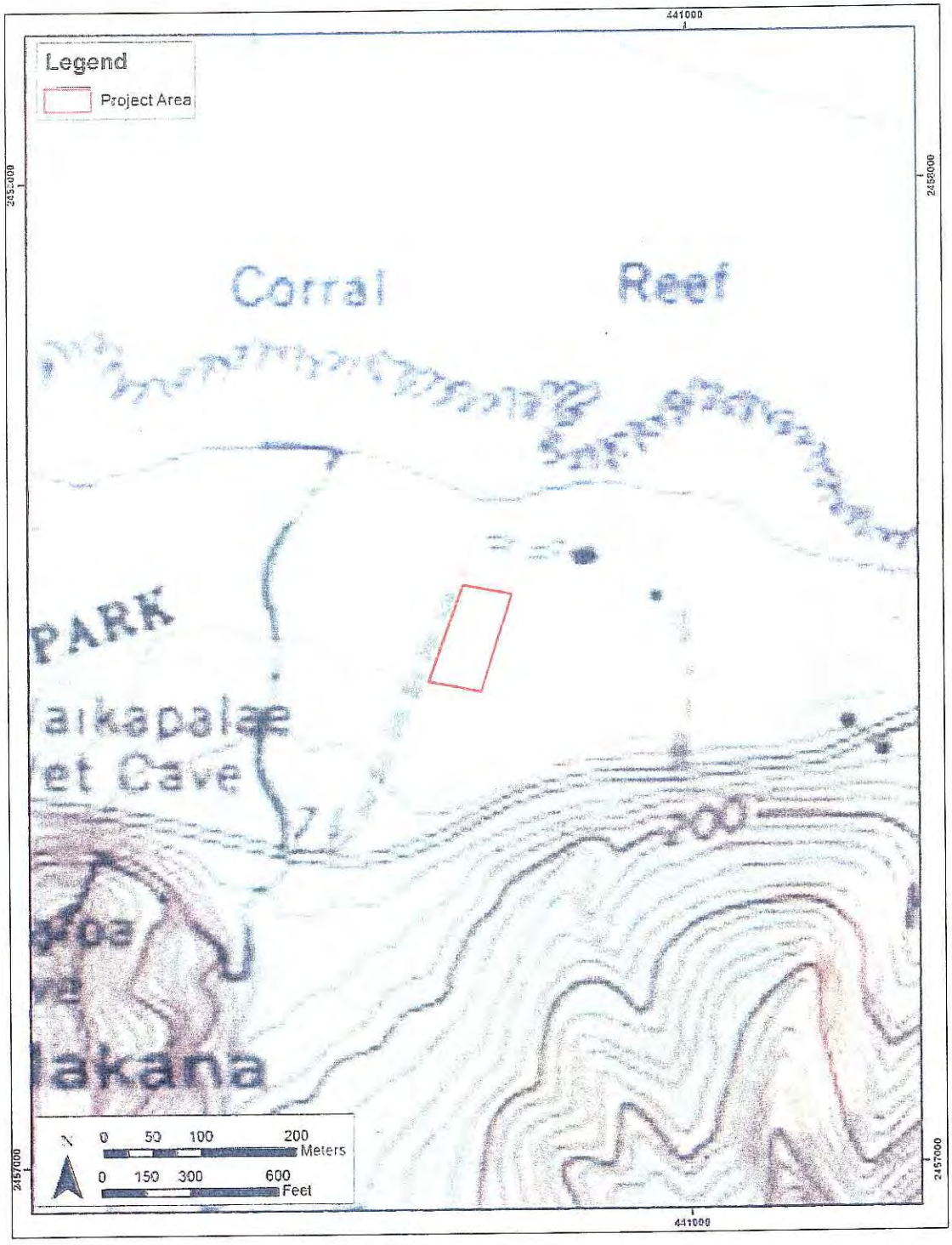

Figure 1. Portion of USGS 7.5-Minute Series Topographic Map, Hā'ena Quadrangle showing the project area

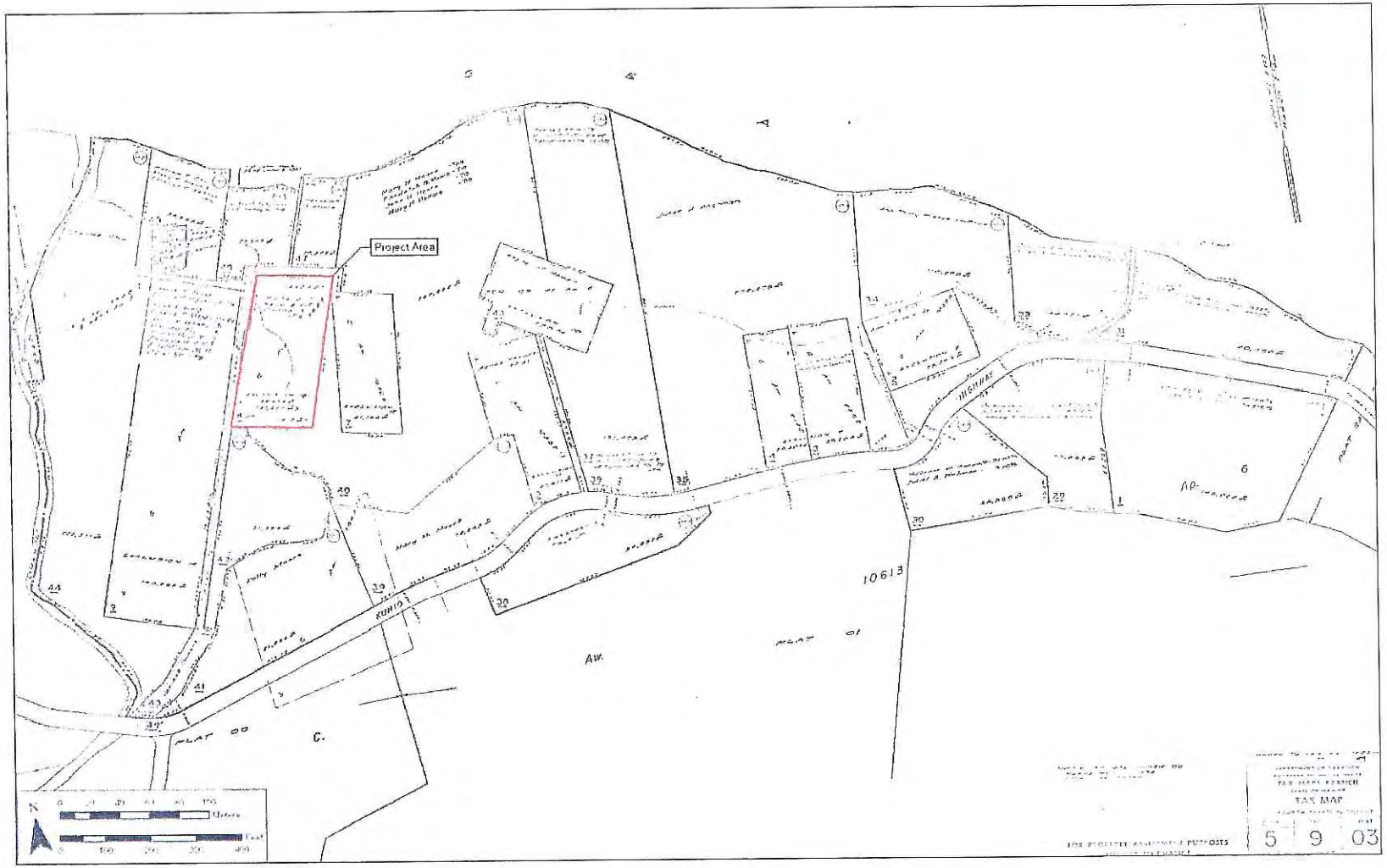

Figure 2. Overlay of Tax Map Key 5-9-03, showing project area location

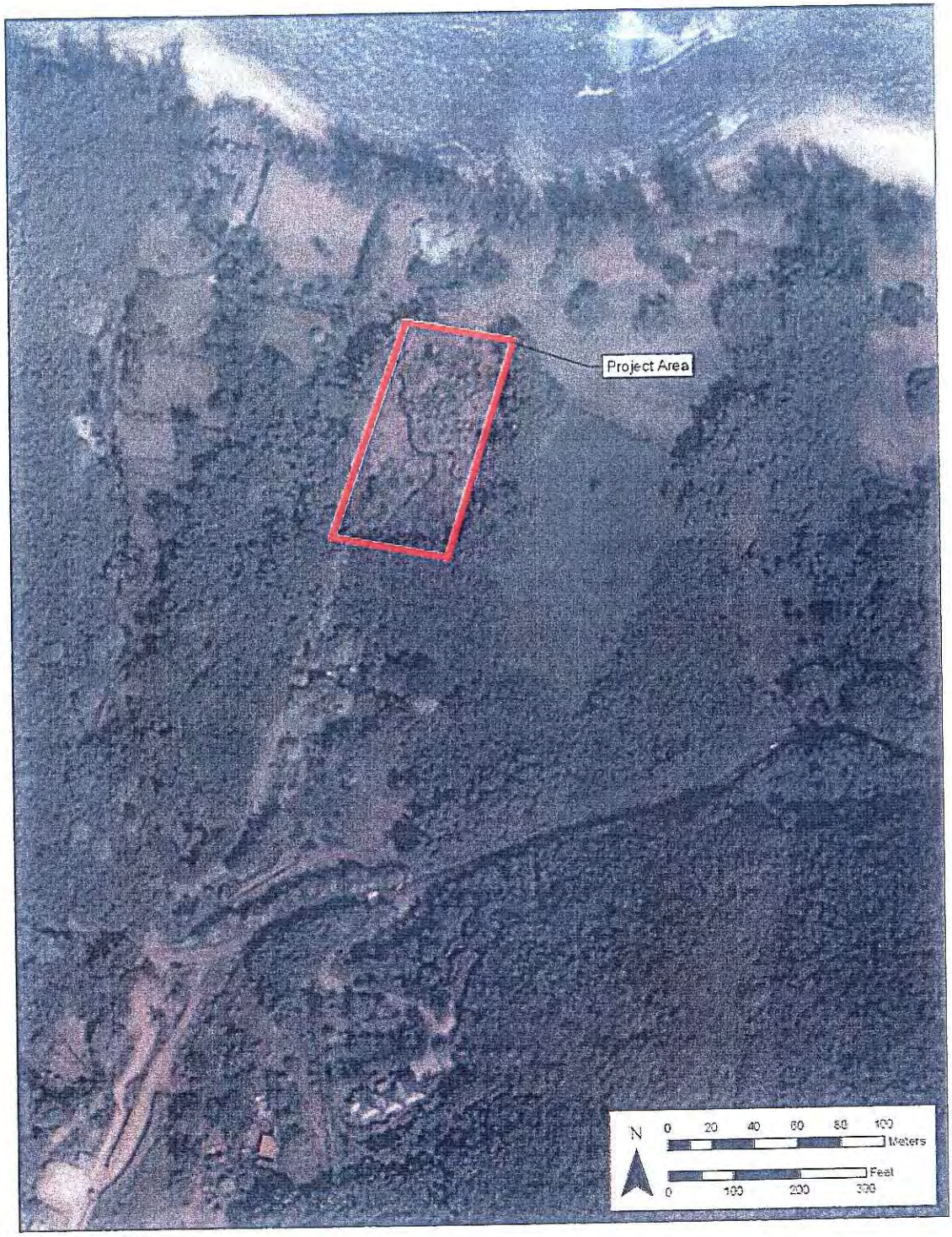

Figure 3. Aerial photograph showing the location of the project area (source: U.S.G.S Orthoimagery 2005)

inspection may be appropriate. Appropriate samples from these excavations will be analyzed for cultural and chronological information. All subsurface historic properties identified will be documented to the extent possible, including geographic extent, content, function/derivation, age, interrelationships, and significance.

4) As appropriate, limited consultation with knowledgeable individuals regarding the project area's history, past land use, and the function and age of the historic properties documented within the project area.

5) As appropriate, laboratory work to process and gather relevant environmental and/or archaeological information from collected samples.

6) Preparation of an inventory survey report, which will include the following:

   a) A project description;

   b) A section of a USGS topographic map showing the project area boundaries and the location of all recorded historic properties;

   c) Historical and archaeological background sections summarizing prehistoric and historic land use of the project area and its vicinity;

   d) Descriptions of all historic properties, including selected photographs, scale drawings, and discussions of age, function, laboratory results, and significance, per the requirements of HAR 13-276. Each historic property will be assigned a Hawai'i State Inventory of Historic Properties number;

   e) If appropriate, a section concerning cultural consultations [per the requirements of HAR 13-276-5(g) and HAR 13-275/284-8(a)(2)].

   f) A summary of historic property categories, integrity, and significance based upon the Hawai'i Register of Historic Places criteria;

   g) A project effect recommendation;

   h) Treatment recommendations to mitigate the project's adverse effect on any historic properties identified in the project area that are recommended eligible to the Hawai'i Register of Historic Places.

1.3 Environmental Setting

1.3.1 Natural Environment

The project area is located approximately 95.0 m south of the shoreline and 170.0 m east of the Hā'ena State Park. Lands within the project area are generally level with an elevation between 1.8 to 2.1 m (6 to 7 ft) above mean sea level (a.m.s.l.)

According to the U.S Department of Agriculture (USDA) soil survey (Foote et al. 1972) the sediments within the project area consist of Hanalei Silty Clay (HrB), Mokuleia Fine Sandy Loam (Mr), and Marsh (MZ) (Figure 4). Soils of the Hanalei series are described as "somewhat poorly drained to poorly drained soils... developed in alluvium derived from basic igneous rock" (Foote et al. 1972). Soils of the Mokuleia series are described as "well-drained soils...formed

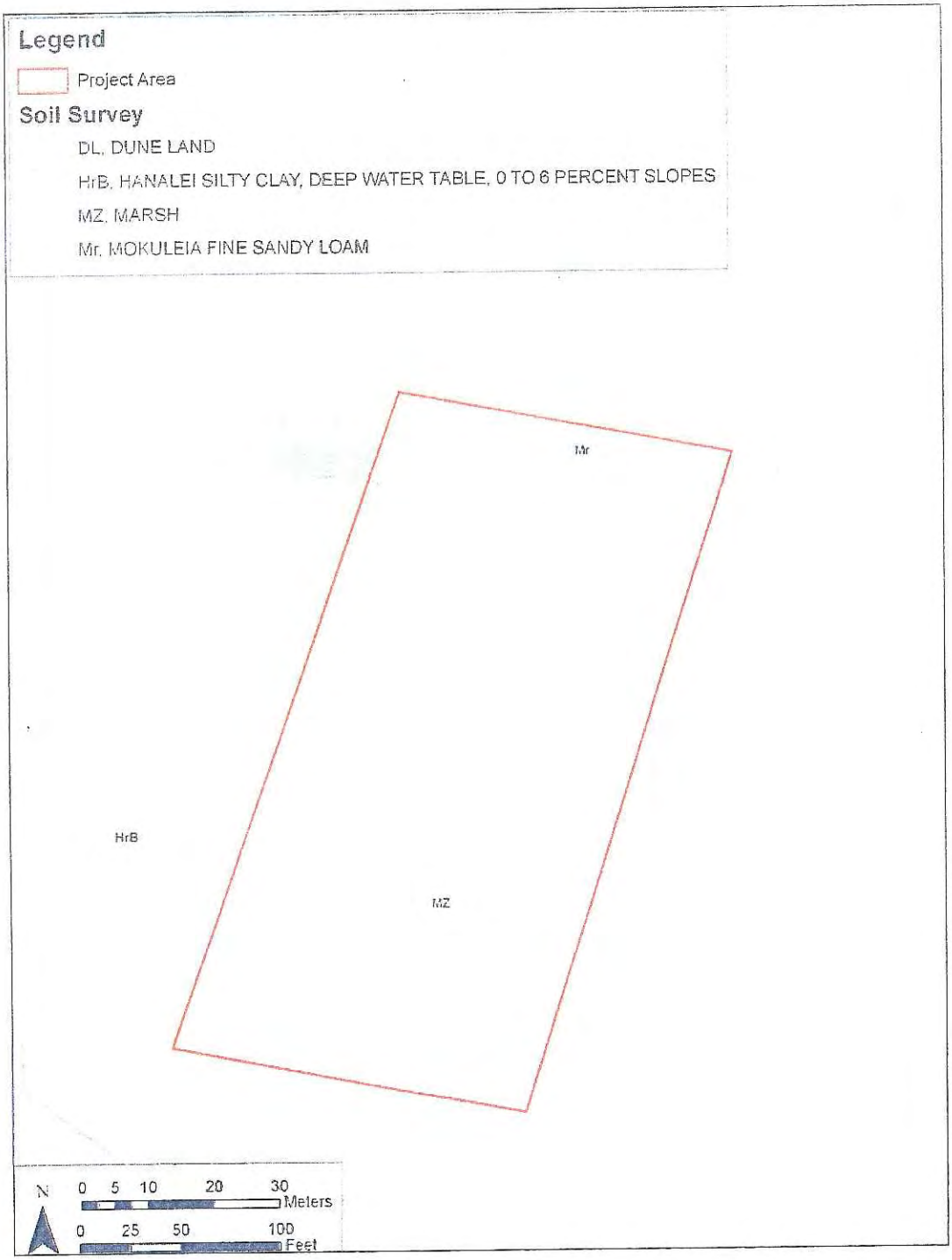

Figure 4. Portion of USGS 7.5-Minute Series Topographic Map, Hā'ena Quadrangle with Overlay of USDA soil survey (Foote et al. 1972)

in recent alluvium deposited over coral sand" (Foote et al. 1972). Marsh soils are described as "wet, periodically flooded areas covered dominantly with grasses and bulrushes or other herbaceous plants" (Foote et al. 1972).

The project area receives an average of 2000 to 3000 mm (78.4 to 118.1 in) of mean annual rainfall (Giambelluca et al. 1986). Vegetation within the project area consists of java plum (*Syzygium cumini*), octopus tree (*Schefflera actinophylla*), Madagascar olive (*Noronhia emarginata*), *hau* (*Hibiscus tiliaceus*), *kukui* (*Aleurites moluccana*), *noni* (*Morinda citrifolia*), *hala* (*Pandanus tectorius*), MacArthur palms (*Archontophoenix alexandrae*), royal palms (*Roystonea regia*), and *ti* (*Cordyline fruticosa*)

1.3.2 Built Environment

The project area itself remains undeveloped. The project area is bounded to the west by a basalt gravel access road leading to two residential properties to the north and connecting the project area to Highway 560 located approximately 189 m to the south. The project area is bounded to the south by another residential property and to the east by marshland. The bordering residential properties contain house lots, driveways, and other small structures.

Section 2 Methods

2.1 Field Methods

The fieldwork component of the archaeological inventory survey investigation was carried out under archaeological permit number 08-14 issued by the Hawai'i State Historic Preservation Division/Department of Land and Natural Resources (SHPD/DLNR), per Hawai'i Administrative Rules (HAR) Chapter 13-282. The fieldwork was conducted on November 13, 2008 by two CSH archaeologists, Trevor Yucha, B.S. and Douglas Thurman, B.A., under the general supervision of Hallett H. Hammatt, Ph.D (principal investigator). The fieldwork required two person-days to complete.

2.1.1 Pedestrian Survey

A 100 percent pedestrian inspection of the approximately 1.34-acre project area confirmed that there were no surface historic properties. Accordingly, the inventory survey focused on a program of subsurface testing to locate any buried cultural deposits.

2.1.2 Subsurface Testing

Access, by backhoe, was limited within the project area due to thick vegetation cover and the presence of three natural and/or manmade drainage channels that cross cut and surrounded the subject parcel. Accordingly, trench excavations were relocated along the relatively open and accessible western boundary of the project area. This area is the only portion of the project area that has not been tested during previous subsurface excavation (Kennedy 1987).

A total of seven trenches were excavated along the western boundary of the project area. A standard backhoe with a two-foot wide bucket was used to excavate each test trench. Generally, trenches excavated to assess subsurface stratigraphy and prospect for subsurface cultural deposits were approximately 6 m long, 1 m wide, and between 1.3 to 3.0 m deep. When possible, trenches were excavated down to or below the water table.

2.1.3 Documentation of Stratigraphy

The stratigraphy in each trench was drawn and photographed. The sediments were described for each of the trenches using standard USDA soil description observations/ terminology. Sediment descriptions include Munsell color, texture, consistency, structure, plasticity, cementation, origin of sediments, descriptions of any inclusions such as cultural material and/or roots and rootlets, lower boundary distinctiveness and topography, and other general observations. The ends of each test trench were located using Garmin GPS map 60CSx GPS survey technology (accuracy 5-10 m). Following all documentation and sampling each trench was backfilled.

2.2 Laboratory Methods

Trench excavation within the project area yielded only a single historic artifact (portion of a slate roofing tile). Following the completion of fieldwork, the collected item was analyzed using current standard archaeological laboratory techniques.

2.3 Document Review

Historical documents, maps and existing archaeological information pertaining to the sites in the vicinity of this project were researched at the State Historic Preservation Division and the CSH library. Information on Land Commission Awards was accessed through Waihona 'Aina Corporation's Māhele Data Base (www.waihona.com).

Section 3 Traditional Background Research

3.1 Overview

This section focuses on the traditional background of the *ahupua'a* of Hā'ena, in general; and specifically on the inland/near-coastal portions of this *ahupua'a*.

Hā'ena Ahupua'a is located in the *moku* (traditional district) of Halele'a. Hā'ena is unique among the *ahupua'a* of the Halele'a District with a long reef-fringed coastline and two permanent streams - Limahuli to the west and Mānoa to the east. The subject project area is located west of the town of Hanalei, just east of Limahuli Stream, north of Highway 560, and just south of Kaua'i's northern coastline.

3.2 Place Names

Translations presented without attribution in this subsection are from Pukui et al. (1974), unless indicated otherwise.

Hale-le'a: The traditional name for Hā'ena's *moku* literally translates as, "house of happiness". Chants speak of Hale-le'a as the most beautiful place in Hawai'i. Handy and Handy (1972:417-418) propose that the the area is known as "house of delight" due to the presence of the "greatest hula shrine in the islands."

Hā'ena translates literally as "red-hot". Interpretations range from, "a possible reference to the strong taboos that surrounded this place" (Wichman 1998:125), to an association with the romance between Pele and Lohi'au (see below –3.3.1 Pele traditions).

Limahuli (Stream and Valley) translates literally as "turning hand". It is also the name of the wind that occurs in the valley: *He Limahuli ka manaki o Haena.* Limahuli Stream cuts through the reef at Poholokeiki. Poholo literally means to sink, vanish or disappear; *keiki* means child. Thus, Poholokeiki means sinking or vanishing child (Andrade 2001:77).

Mākua translates literally as "ancestor". Mākua Bay fronts Hā'ena State Beach. The bay is a favored place of fisherman and most of the year the bay is accessible for canoes (Andrade 2008:43).

Mānoa translates literally as "vast". Mānoa Stream runs into Mākua Bay.

Pu'u Kahuaiki translates literally as "small site hill". Large reef (*'āpapa*) to the east of Limahuli Stream; the surf site Bobo's is on this reef. Clark (2002:86) relates that the "iki" and "nui" (see below) refers to the depth of the reefs.

Pu'u Kahuanui translates literally as "large site hill". This is the large reef (*'āpapa*) to the west of Limahuli Stream. Clark (2002:86) relates, Pu'u Kahuanui was the highest of the reefs and therefore the last reef to fished during a day of fishing.

Lohi'au's (see 3.3.1 Pele traditions below) sister was Kahuanui. Pu'u Kahuanui was her surfing domain, and the same spot where Lohi'au surfed after Hi'iaka brought him back to life. The "surf-raising" wind (*makani he'enalu*) associated with this surfing area is known as Kolokini.

Kai-kua'au-o-Hā'ena, Kaua'i's only lagoon, translates literally as "lagoon sea of Hā'ena". The lagoon protects Makua Bay, just east of the project area that is enclosed by Papa-loa, "long reef". Ka-'aulama-poko, "light from a short-burning torch", is a near shore fishing hole thus named since it has good night fishing that is dependent on "short-burning" *kukui* nut torches. 'Āweoweo (bigeye fish) gather in Ka-lua-'āweoweo, "'āweoweo hole", the fishing hole "at the farthest point from land." This 53 cm long fish has white flesh that was cooked, dried, or eaten raw (Wichman 1998:125).

Makana translates literally as "gift". It is the approximately 1,120 foot peak and cliff that appears on USGS maps on the ridge between Hā'ena and Nā Pali, near the coast. Andrade (2001:63) states that Makana "gives Hā'ena its distinctive look".

The cliff was one of the very few places in all of Hawai'i from which firebrands of *hau* or pāpala wood were hurled for fireworks, accounts say the wind would carry the firebrands a mile or more over the sea (Wichman 1998:128). The effect was similar to fireworks and called *'ōahi* ("hurling fire, as from a cliff for ancient spectacle"). It was described in 1885: "The buoyancy of the wood causes it to float in mid-air, rising or falling according to the force of the wind, sometimes darting far seaward, and again drifting towards the land" (Sinclair 1885 in Rock 1913:139).

The most famous documented firebrand display was for Queen Emma in 1860 (Davies n.d.:59). Knudsen (1956:226) gives a detailed account of watching *'ōahi* at Kamaile a 2,500 foot high peak over Nu'alolo Landing, Kaua'i and then of his own sponsorship of an *'ōahi* at Makana Peak, Hā'ena. Traditionally six to twenty foot lengths of peeled and dried *hau* and papala wood were used. Sometimes the two ends were ignited. The hollow core of the papala gave a singular effect of shooting sparks. The wind caught the blazing light dry wood and carried the brands fabulous distances on their descent.

3.3 Mo'olelo Associated with Specific Place Names

Hā'ena is the site of the romance between Pele and Lohi'au, the king of Kaua'i, which is thought to have given the area its name:

A Lohi'au-ipo i Hā'ena lā,
'ena 'ena Ke aloha Ke hiki mai

and beloved Lohi'au at Red-hot,
hot the love that comes

It has been suggested (Handy and Handy 1972:417-418) that this romance provided the name for not only Hā'ena, but for the entire district, Halele'a – "House of Delight".

3.3.1 Pele traditions

Probably the best known traditions of Hā'ena concern the visits of Pele and her sister Hi'iaka-i-ka-poli-o-Pele. The tradition begins with Pele going into a deep sleep in Puna, Hawai'i and her spirit-form being attracted by the sound of drums to the house of Lohi'au (the house was named "Hāla'auola" or "Tree of Life"), a highborn chief of Kaua'i, at Hā'ena. In some accounts Pele

swims (Emerson 1915:4) and in others she flies. The house for dancing was long and beautifully draped with mats of all kinds. It was full of chiefs engaged in the sports of that time (Westervelt 1916:75). During the subsequent nuptial festivities three supernatural *mo'o* women are introduced, "the guardians of Hā'ena" led by Kilinoe. Something of a contest for the affections of Lohi'au develops between Pele and Kilinoe. Pele chants and:

> When Pele ceased chanting winds without number began to come near, scraping over the land. The surf on the reef was roaring. The white sand of the beach rose up. Thunder followed the rolling, rumbling tongue of branching lightning. Mist crept over the precipices. Running water poured down the face of the cliffs. Red water and white water fled seaward, and the stormy heart of the ocean rose in tumbled heaps...Here have come the winds and destructive storms of Hā'ena. (Westervelt 1916:83)

The fierce storm abates as the sleeping Pele is awakened by her sister back in Puna, Hawai'i Island, "The spirit of Pele heard the wind, Naue, passing down to the sea, and soon came the call of Hi'iaka over the waters".

Fornander (1919 Vol. VI, Part II page 343) notes, "At Hā'ena, Kaua'i, Pele caught Lohi'au between Kahuakaiapaoa, his friend and Mapu, the music teacher, beating the drum that had disturbed her sleep" and that "Malaehaakoa and his wife Wailuanuiahoino lived at Hā'ena, Kaua'i he was a grandson of Kanoalani" (Fornander 1919 Vol. VI, Part II page 344).

Pele searched for a home for herself and Lohi'au, after failing to find any fire on Kaua'i. She traveled from island to island until she finally settled in Kīlauea on the Big Island. Hi'iaka, who had been an egg that Pele carried beneath her armpit during her travels, was transformed at that time into her human form. Pele then begged Hi'iaka to go to Kaua'i and return with Lohi'au, whom she longed to see. She also warned Hi'iaka not to kiss Lohiau. Hi'iaka was accompanied on the trip by Wahine'ōma'o, a woman that was an expert lehua lei maker. The two women had many adventures during their travels and finally arrived in Hā'ena to discover that Lohi'au was dead (Joesting 1984:31). "Hi'iaka saw his spirit standing by the opening of a cave out on the *pali* of Hā'ena" (Westervelt 1916:127).

As Hi'iaka and Wahine'ōma'o ascend to a cave where Lohi'au's body is guarded by two *mo'o*, Hi'iaka invokes the sun to stand still at the stream mouth called "Hea" (*muli o Hea*) since it is late in the day. A battle with the *mo'o* women guardians (Kilioe and Aka) ensues and only after rituals and incantations lasting several days does Hi'iaka succeed in resurrecting Lohi'au. Rice (1923:15) places the scene of Hi'iaka's work to resurrect Lohi'au at "the *pali* above the wet caves where the body of Lohi'au had been laid."

Wichman (1998:129) relates the tradition that the upper wet cave, Wai-a-Kanaloa "water made by Kanaloa," was excavated by Pele "who struck the cliff here with her staff Pā'oa when she was searching for a home, but was met by water instead." This event fits into the period when Pele was first looking for a home and safety from her sister Nāmakaokaha'i although they are also likely associated with her efforts to make a home for herself and Lohi'au. Rice (1923:8) relates that Pele attempted to find a suitable home twice at Hā'ena striking water both times, an allusion almost certainly to the origin of the two wet caves of Wai-a-Kanaloa and Waiakapala'e.

Following their arrival at Kīlauea, Hi'iaka requested that Wahine'ōma'o inform Pele that they had returned with Lohi'au. Pele hurried to the rim of Kīlauea Hi'iaka, and observed Hi'iaka suddenly turn to Lohi'au, embrace, and kiss him. Outraged, Pele covered Lohi'au with lava (Joesting 1984:31). After the confrontation over Lohi'au's affections, "Hi'iaka returned to Kaua'i. Her brothers restored Lohi'au to life once more and sent him after Hi'iaka. The two married and spent the rest of their life together at Kē'ē" (Wichman 1998:130).

Fornander (1919 Vol. VI, Part II pages 251-252) discusses the antiquity of the chant and concludes "the legend originated after the time of Maweke's grandchildren" which he determined to be post circa A.D. 1160. Today, a wall remnant of Lohi'au's house is still visible at Kē'ē Beach, west of the project area.

3.3.2 Nāpiliwale Rock Formation

There are several traditions associated with landscape features within Hā'ena. Wichman (1998:127) provides the following account of the Nāpiliwale ("clinging ones") rock formation and the Piliwale sisters, who attempted to eat everything they could find on Kaua'i. Fortunately, Lohi'au and his sister, Kahua outsmarted the women:

> Nāpiliwale, "clinging ones," a stone formation on the Mānoa ridge, looks like two running figures with their skirts flying up behind them. It was the custom for the four Piliwale sisters to visit a chief's court and remain until all the food in the area had been consumed. Therefore, their appearance heralded a forthcoming famine. They had prodigious appetites and their favorite foods were the freshwater shrimp, the *wī*, freshwater snails, and the fiddlehead of the fern *hō'io*. Two of these sisters came to Hā'ena for a visit. Because they were *kupua* and could not tolerate the sun, Lohi'au and his sister Kahua built them a shelter in Maniniholo Cave and another on the ridge where they could enjoy the view. They were fed their favorite foods all through the night and were entertained by every hula dancer of the school at Kē'ē. As the night winds grew chill, Kahua ordered the sides of the shed enclosed with mats. The sisters so enjoyed themselves that they forgot the time. Then at dawn Kahua drew aside the wall coverings and the sisters, with cries of dismay, raced down the ridge to the cave. The sun's rays caught them as they ran and they turned to stone. They remain there as a warning to the other two sisters not to visit Kaua'i. (Wichman 1998:127)

3.4 'Ōlelo No'eau

Several *'Ōlelo No'eau* are associated with Hā'ena and aspects of its lifeways. 'Ōlelo No'eau presented without attribution in this subsection are from Pukui (1983), unless indicated otherwise.

Ka i'a 'ula weli i ke kai.	The red fish that causes a red color to show in the sea.

The *'alalauwā*, a small red fish [a young *āweoweo]* whose appearance in great numbers was regarded as a sign that a member of the royal family would soon die.

Pupū ke kai i ka 'alalauwā. The sea is so thick with *'alalauwā* fish that it is difficult to make a passage.

Said of a situation where it is difficult to make progress.

3.5 Subsistence and Settlement

The *ahupua'a* of Hā'ena was permanently inhabited and intensively utilized in pre-Contact times, based on archaeological, historical, and oral-historical documentation (e.g., Andrade 2008; Handy 1940; Silva 1995). The main settlement was located along the coast – *mauka* of the mountains, where extensive agricultural lands, fishing villages, and fishponds provided ready sources of protein. Given its location adjacent to Limahuli Stream and just *mauka* of the coastline, the subject project area was a fertile land with well-watered lowlands, and abundant marine resources.

Menehune are believed to have been the first settlers in Kaua'i and "King Kaumuali'i's census takers in the early 19th century ... register[ed] 65 persons as Menehune amongst the 2,000 recorded inhabitants of Wainiha Valley" (Handy and Handy 1972:405). "Hā'ena seems to be the last place where Menehune gathered in large numbers ... ; their leader was alarmed by the growing number of his men folk who were living with and having families with women of the people who arrived later as voyagers" (Andrade 2008:8-9). Hā'ena was apparently the gathering place for Menehune prior to their migration from Kaua'i. The Menehune *ali'i* apparently feared his people would continue to marry Hawaiians and lose their identity.

Earle deduced a number of interesting points about life in Hā'ena on the basis of early historic records. He estimates that the average size of a household at Hā'ena in 1847 was 8.1 persons compared to the Halele'a District average of 5.6 persons (Earle 1973:147); that in 1850, 96% of the land awards included taro lands (Earle 1973:149); that 85% of the house lots were located in the sandy strip near the shore (Earle 1973:149); that in Hā'ena there was almost no clustering of house lots (Earle 1978:164); that warfare between local communities was not present (Earle 1973:164); and that agricultural resources at Halele'a District were particularly underutilized (Earle 1973:163). His work on mean distances from house lots to taro fields and the sea suggests a greater marine orientation at Hā'ena than elsewhere (Earle 1973:150).

3.5.1 Agricultural cultivation

Handy (1940:58-60, 153) describes taro and sweet potato cultivation within Hā'ena Ahupua'a in the 1930s. While some *lo'i* and sweet potato continued to be under cultivation, most fields have been abandoned:

> Extensive areas of small terraces (*lo'i*), now abandoned and used only for pasture, fill the lower part of Limahuli Valley. The sloping and flat lands east and west of Limahui Stream between the sand dunes and the mountain sides were developed in terraces, irrigated by ditches from Limahuli Stream. About a dozen of these terraces are now under cultivation in taro. The rest are used a pasture or abandoned under brush and grass. The swampy area commencing a few hundred yards east of the stream used to be planted.

> There were many small terraces in lower Manoa Valley and on the flatland immediately adjacent to the hills. All this land is now unused. (Handy 1940:58-60)

> On Kauai sweet potatoes are still planted in many places near the seashore where sandy soil is mixed with humus. Such planting may be seen on the delta and near the dunes at Anahola. Similar planting is now occasional but used to be universal near the shore at Moloaa. The narrow coastal strip between the hillsides and the sea at Kalihi-kai and Anini is also ideal for this type of planting and there are now a number of flourishing patches. The coastal plain of Hā'ena is similar in places where there are plantations. (Handy 1940:153)

Handy and Handy's (1972) study of Hawaiian "planters" tells us about a unique taro cultivation process and other agricultural activities. Also of note is that Hā'ena was a "favored" planting area for coconut (Handy and Handy 1972:172):

> A few hundred yards east of Limahuli Stream there is a swampy area where taro was grown in a unique way that was praticed only here and in the marshes of Mana and Wai'eli, west of Kekaha. Swamp earth was piled up on rafts that were partly submerged, probably resting on the soft bottom of the swamp, and in the earth on these rafts wet taro was planted.
>
> On sandy areas along the coastal plain sweet potatoes were grown. Formerly many varieties of banana were planted in Limahuli and Manoa Valleys, as well as many kinds of sugar cane and several varieties of *'awa*. (Handy and Handy 1972:419)

3.5.2 Marine Resources

Octopus or *he'e,* lobster or *ula*, and various fish were essential to subsistence in Hā'ena. Andrade (2008:1) tells us that these fish included *manini* (convict tang), *kala* (unicorn fish), *nenue* (*Kuphosus bigibbus*).

In addition to netting fish, "a unique method of gathering fish from nearby Limahuli stream" was utilized. Andrade (2008:50) cites a conversation with *kupuna* Samson Mahuiki regarding how his mother, Rachel, taught him to catch fish in the stream and on the reef. She was also well known for her expertise at catching *he'e* (octopus):

> Just wall 'em (one branch of Limahuli stream) with the stones and mud, so simple. The thing was so easy, we even catch *'o'opu* (a freshwater goby), any small opening on the side that's where the *'o'opu* going be.... No need special equipment, just take that mud and seal that water. She was very knowledgeable for the reef as well. Oh what you call, food supply from the reef, like with the *loli*, with the *wana*, the *pukas*, hown to use 'em. (Andrade 2008:50)

3.6 Caves (*'A'a'ā*)

Hā'ena has three caves, two of which are wet and one is dry. Maniniholo (traveling manini fish) is the dry cave. Waikanaloa (water of Kanaloa) and Waikapalae (water of Kapalae) are the wet caves and contain fresh water. As mentioned above, the caves were traditionally believed to have been dug by Pele during her quest for a suitable home for herself and Lohi'au.

Maniniholo was the chief fisherman of the Menehune. The legend of Maniniholo tells us that he dug the cave searching for the supernatural being who stole the Menehune's fish. He and his workers gathered so much food from the reefs and bay of Hā'ena that they formed a pile of fish to retrieve the next day. When the group returned, they discovered the food had disappeared. Maniniholo saw little *'e'epa* (imps) hiding within the crevices and realized they must be the thieves. He and his workers dug into the stone, creating the cave, and killed the *'e'epa*. The legend continues with the exodus of the Menehune from Makua Bay after they all gathered in front of Maniniholo Cave (Pacific Worlds & Associates 2001).

Waikanaloa: Kanaloa and his brother Kāne were two of the four major Hawaiian gods. Kanaloa and Kane, the god of creation, were known for digging sources of drinking water during their travels. Waikanaloa is said to have been dug by Kanaloa (Pacific Worlds & Associates 2001).

Waikapalae: Kapalae was a *kupua* or supernatural being who appeared in several forms including a beautiful woman. She is said to have enchanted a chief from Wainiha with whom she had a baby. The chief's friends tried to kill her when she told them he was dead. However, she escaped by diving into the water. Her long hair, spread out in the water, and colored the pool. As Kapalae grew older the brown water turned to gray. "For this reason, the cave was known either as Wai-a-kapa-lae, 'water of terror', or as Wai-a-kapa-la'e, 'water of shiny tapa" (Pacific Worlds & Associates 2001).

The lake of freshwater within Waikanaloa was known as Halaaniani, "clear pandanus". Wichman (1998:129) relates the tradition that the lake:

> was set aside for the *ali'i*; commoners could not bath in it. The waters were thought to be able to restore an ailing person back to health. The chiefs either drank from a calabash filled with the water, or - better - swam in the underground lake.

3.7 *Ilina* (Burials)

Bennett (1931:26) the author of the first systematic review of Kaua'i's archaeology writes,

> Burials may be found in almost any sand dune on the island of Kauai....The common explanation of so many bones in the dunes is that they are the remains of a great battle, but the skeletons of women and children as well as the presence of flexed burials, together with the absence of weapons around these sites, exclude any such notions. It is not improbable that the easy digging in the dunes favored their use for whoeslae burial of the dead after battles, but this is different than having a battle on the dunes.

> Alexander (1, p.74) says that the common people were buried in the dunes and that the graves were little thought of. However, the ivory pendants (palaoa) are sometimes found, and these were symbolic of chiefly rank. The dunes were probably used as the most convenient location for quick burial, and mostly though not exclusively, used by the common people. (Bennett 1931:26)

Also of note is the comment made by William T. Brigham, who later became the director of the Bishop Museum. During his visit to Hā'ena in 1865, Brigham observed "a burial place in the sands on the beach, and we saw several skulls and other bones lying exposed" (Pacific Worlds & Associates 2001). Iwi have been found in sand deposits throughout the Hawaiian Islands.

3.8 Heiau

Although no *heiau* have been described within or in the immediate vicinity of the project area, several *heiau* have been documented in Hā'ena.

Ka-ulu-Paoa Heiau is at the foot of Kē'ē cliff in west Hā'ena and literally means "the inspiration [of] Paoa. (Lohi'au and his friend Paoa trained in hula here)" (Pukui et al. 1974:94). Wichman (1998:132) tells us that this was a school for genealogists and historians. When chiefs graduated from Ka-ulu-Paoa, firebrands commemorated the event.

In the 20th century, despite the condition of the *heiau*, which had been ruins for many years, chanters including Mary Kawena Pukui came to Ka-ulu-Paoa to test themselves. Accompanied by her teacher, Pukui chanted but failed to do so loudly enough to be heard over the wind and ocean (Joesting 1984:34).

Henry E. Kekahuna, Hawaiian folklorist, mapped and described Ka-ulu-Paoa in 1959:

> The ancient, most renowned hula seminary of the island of Kaua'i, Ka Ulu o Paoa, institution for the growth (*ulu*) of knowledge of the art of hula dancing, founded by Paoa, nestles at the base of the cliff on the west side of the famed fire-throwing cliff of Makana (*Ka Pali O Ahi o Makana*). It is adjoined by the northern side of its celebrated heiau of the same name, that slopes downward toward the sea. Thus it is commemorated Pauao, a dearest chiefly friend of chief Lohiau (Lohiau o Ha'ena), who centuries ago was king of the island of Kaua'i, and who together with Paoa, is associated in relation with the great volcano goddess Madame Pele.
>
> The noted hula seminary, with its strict tabus imposed during training, was the most famous in all the Hawaiian islands. Many graduates of notable hula seminaries elsewhere came to Ha'ena to seek higher learning through post-graduate courses. Before aspirants were permitted to enter as students, they were selected through severe tests of the heiau division. If these tests were successfully passed, the elect then entered the seminary. (Pacific Worlds & Associates 2001)

Ka-ulu-o-Laka is a *heiau* for hula dancers and literally means "the inspiration [of] Laka (goddess of the hula)" (Pukui et al. 1974:94). Ka-ulu-o-Laka is close to Ka-ulu-Paoa. Wichman

(1998:132) reports that Ka-ulu-o-Laka was not only a school for hula, but also for chanting, composing religious chants, as well as songs.

Thrum (1906:43), who conducted an island wide *heiau* study, identified two in Hā'ena, Kilioi and Lohiau. Kilioi *heiau* is better known as Ka-ulu-Paoa Heiau; Thrum may have confused the name with the neighboring Kilioe stone. Thrum (1906:43) reported that Kilioi was a "heiau consisting of two platforms, highly terraced; very famous, very sacred and an immense structure."

Kilioi was a teacher at Ka-ulu-o-Laka, the famous hula *halau* at Ke'e dedicated to Laka, the goddess of hula. Kilioi is also the name of the boulder above the former *hālau*. Pikos or navel cords were wedged into the rocks surrounding the boulder (Joesting 1984:32).

Thrum (1906:43) also reported that Lohi'au, at Kē'ē, Hā'ena Point, is a "walled heiau dedicated to Laka, goddess of the hula".

Section 4 Historical Background Research

Historical researcher Carol Silva (1995:8) states that:

> Politically, little is known relative to chiefly lines that managed this [Halele'a] district prior to and during Kaumalii's [sovereign of Kaua'i until his death in 1824]. The oral traditions are mute; chants recorded of the area are not conclusive in identifying chiefs other than Lohiau, Paoa and Malaeha'akoa of the Pele-Hi'iaka tradition. All of these chiefs were immediately associated with Haena... Silva (1995:8)

While we know little about the earliest rulers, Fornander (1878) provides some insight:

> That the ruling families of Kauai were the highest tapu chiefs in the group is evident from the avidity with which chiefs and chifesses of the other islands sought alliances with them. They were always considered as the purest of the 'blue blood' of the Hawaiian aristocracy... (Fornander 1878:Vol.1:291-292)

4.1 Early Historic Period

By the first decades of the 19th century, the inhabitants of Hā'ena would have long experienced the social pressures and consequences of western contact. "As early as 1788, Hawaiians began enlisting as seamen on the foreign ships that stopped at Island ports, and their number increased rapidly with the growth of whaling in the Pacific" (Schmitt 1973:16). As harbor facilities were developed in Kauai during the early 1800s, these burgeoning ports became centers of a population drawn from increasingly isolated (economically and socially) areas like Hā'ena. Newly-introduced diseases cut the population severely.

Missionary censuses of the 1830s chart the diminishing population of Hā'ena. In 1834, the total population of Kekaha is recorded as 1,244, comprising 21% of the total North Kona population of 5,957 (Schmitt 1973:31). The North Kona figure represents a population loss of 692 since the previous census of 1831 (during which no figure specific to Kekaha was noted), which recorded 6,649 persons in the district (Schmitt 1973:9). One factor - inter-island migration - inducing the diminishing population of Kona was specifically noted by missionaries in 1832: "We have been sensible for some time that the number of inhabitants in this island is on the decrease. There is an almost constant moving of the people to the leeward islands, especially since the removal of the governor (Kuakini) to O'ahu. Some leave by order of the chiefs, and others go on their own responsibility" (cited in Schmitt 1973:16).

The movement of people from Hawai'i Island to O'ahu and Kaua'i, in particular, was also related to economic opportunities to own land in the so-called "leeward islands."

4.2 Middle to Late 19th Century

The middle 19th century brought great changes to Hā'ena, including private and public land ownership laws known as the Māhele (literally, 'to divide' or 'to section'). Coulter's (1931) population density estimates for 1853 (Figure 5) shows that a few hundred people lived in the vicinity of the subject project area at this time.

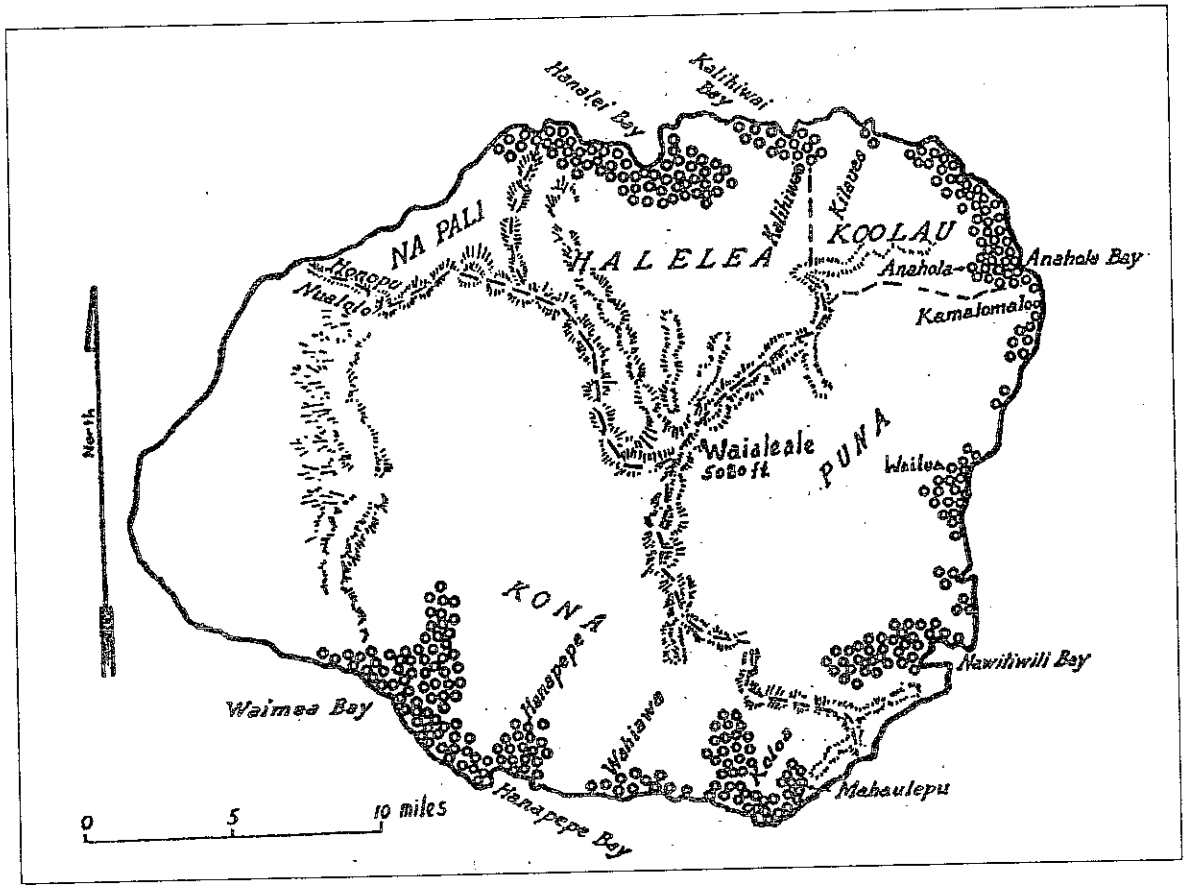

Figure 5. 1853 (Coulter 1931:16) population density estimates; each symbol represents 50 people

4.2.1 The Māhele

In the middle 19th century, during the time of Kamehameha III, a series of legal and legislative changes were brought about in the name of 'land reform' (see the works of Jon Chinen 1958, 1971 for a thorough and well-written explanation). Prior to the Māhele, all land belonged to the *akua* (gods), held in trust for them by the paramount chief, and managed by subordinate chiefs. Following the enactment of a series of new laws from the middle 1840s to middle 1850s, Kamehameha III divided the land into four categories: certain lands to be reserved for himself and the royal house were known as Crown Lands; lands for the government were known as Government Lands; lands claimed by *ali'i* and their *konohiki* (supervisors) were called Konohiki Lands; and, small plots claimed by the *maka'āinana* were called *kuleana* (Chinen 1958:8-15).

The Kuleana Act of 1850 allowed *maka'āinana,* in principle, to own land parcels at which they were currently and actively cultivating and/or residing. In theory, this 'set aside' of hundreds of thousands of acres as potential *kuleana* parcels ultimately led to about 10,000 claimants obtaining approximately 30,000 acres, while 252 chiefs, for example, divided up about a million acres. Many or most Hawaiians were simply disenfranchised by these acts.

During the Māhele, the bulk of the *ahupua'a* of Hā'ena was awarded to Abner Pākī (father of Bernice Pauahi). Waihona 'Āina lists 34 LCAs in Hā'ena, although 5 are numbered incorrectly and 7 were not awarded, so 22 land commission awards were granted to native Hawaiians. Claims in and within the vicinity of the subject area are shown on Figure 6 and are summarized in the Table 1. The testimony associated with these awards indicates taro *lo'i* with a few house lots and a *loko* or fishpond in close proximity to the present project area.

One *kuleana* award, LCA 7942 awarded to Kuapiko, has the same footprint as the current project area. Kuapiko claimed the land had 10 *lo'i* (see Appendix A), although the Foreign and Native testimony both state that the property contained 5 *lo'i* and "3 very small" ones.

LCA 10965 awarded to Wahieloa is just to the east and was "held ... from the days of Kaumualii" who died in 1824. LCA 9179, awarded to Kaukapawa is just to the west of the project area and had also been held from the same period. These awards both contained *lo'i* and a house lot.

Other land grants in the immediate vicinity include LCA7943:2 to the northwest, LCA 7945 to the south, and LCA 10965 to the east. They contained *lo'i* (LCA 7943:2 and 10965), and a house lot (LCA 7945 and 10965). No LCAs were awarded north of (*makai*) the project area.

Upon the death of Pākī in 1855 and his wife Laura Konia in 1857, their Hā'ena lands passed to Bernice Pauahi. These Hā'ena lands were sold to William H. Pease, a surveyor in 1858 and following his death were conveyed to William Kinney in 1872. In 1875, Pease transfered approximately 2,500 acres to Kenoi Kaukaha and 37 other individuals as tenants in common. Hui Kū'ai 'Āina, as the group was known, worked and held the lands until 1967. Hā'ena continued to be primarily under taro cultivation in the 1880s. Mahuiki and Company, "taro planters", owned 900 acres of land and maintained 400 of those acres in taro cultivation (Silva 1995:39)

E. Kekela, the *konohiki* for Hā'ena, held LCA 7949:3, just east of the subject project area. She was Pākī's mother's sister, and was one of the only female *konohiki* (Andrade 2001:118-119) The land contained "loko kalo" (taro pond field) and was called "Kanaele".

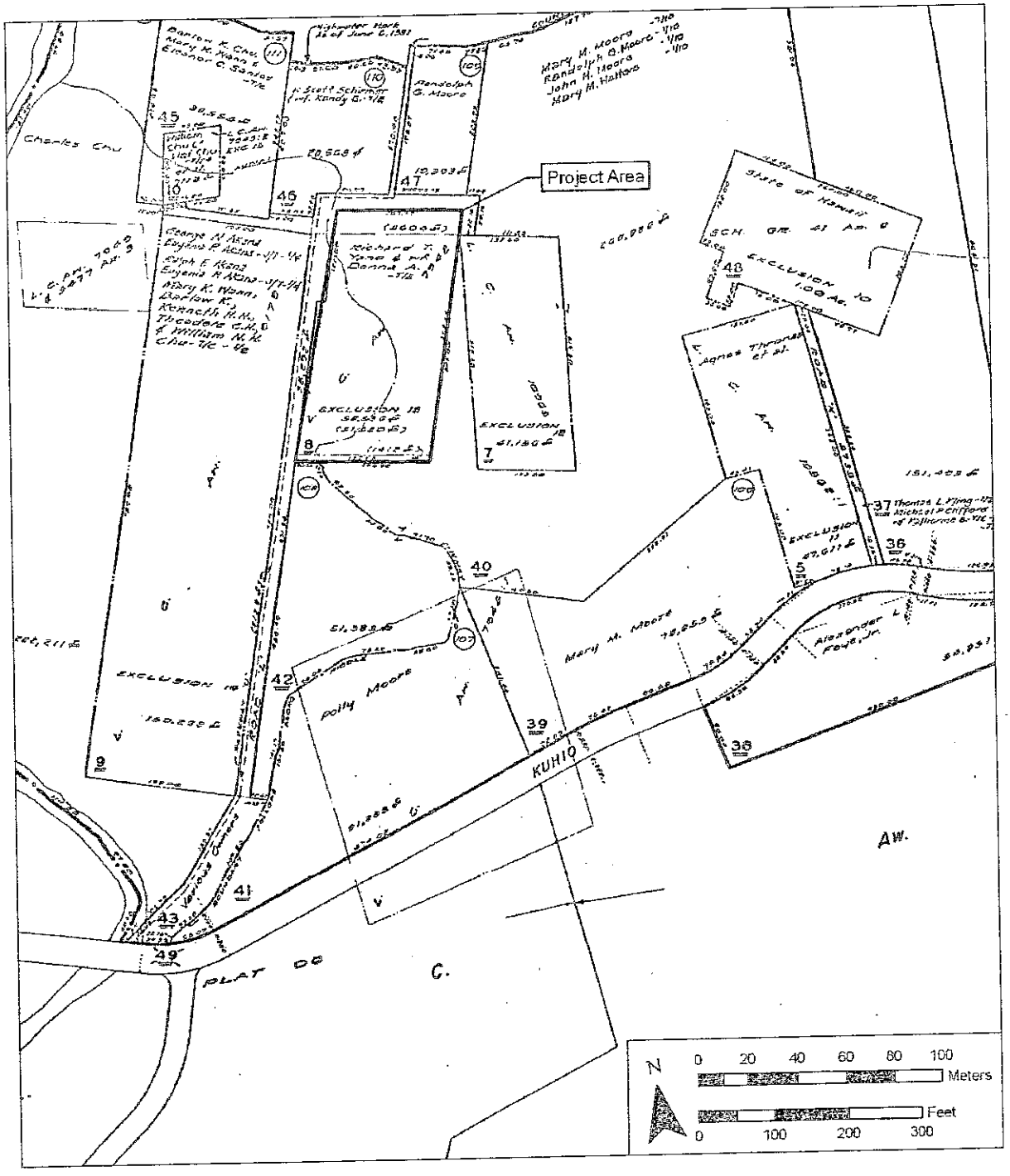

Figure 6. Portion of TMK map showing LCAs in and within the vicinity of the project area

Table 1. LCAs in and within the immediate vicinity of the project area

LCA # & TMK	Claimant	*'Ili*	Land Use	Awarded/ Landscape Features
7942	Kuapiko	Laloaole, Moolalaole	10 *lo'i*	1 *'āp.* 1 Ac 1 rood 14 rods
7943	Keahiahi	Puukahua	5 *lo'i*	1 *'āp.* 2 Acs 1 rood 24 rods
7945:1	Kekula Kao wahine; Makumahu heir	Pe'ekauai, Mahau	1) house lot in Mahau 2) 10 *lo'i & kula*	2 *'āp.*; 2 Acs 3 roods 19 rods; beach *makai*
7949:3	E. Kekela	Kalole		
7998	Haole	Kē'ē	8 *lo'i* & several smaller ones	0.25 acre
8200C	Mokuohai, Kaenaku, heir	Kē'ē & Hā'ena	house lot & *loko* adjoining	TMK shows 160,031 sq. ft. *'Āpana* 1; 3 *'Āpana* 4.25 Acs
8262	Ohule	Waikapu	house lot, *kula* & 5 *lo'i*	1 *'āp.* 3 roods 24 rods; beach
9140	Kukukaelele	Kahakaheana, Kahau	1) house lot 2) 4 *lo'i*	1 *'āp.* 2 rood 28 rods; beach
9179	Kaukapawa; Kumukamalii & Pukoula, sons	Kaia	house lot, *kula* & 26 *lo'i*	1 *'āp.* 3 Acs 72 rods; *makai* by sea beach
10396	Nahiala'a wahine	Waikapu	*Lo'i*	1 *'āp.* 3 roods 10 rods
10562:1	I. Opu, Kuaihelani	Mānoa	1) *kalo & loko* 2 *kula*	1 *'āp.* Mahau 23 rods; public road *makai*
10613	Pākī, Abner	Hā'ena *Ahupua'a*	none given	Not surveyed; boundary between Hā'ena & Wainiha contested
10965	Wahieloa	Kaloli	House lot & 6 *lo'i*	1 *'āp.*; 3 roods 31 rods

In 1895, Eric Knudsen, a member of Kaua'i's prominent ranching family, described Hā'ena's landscape. Knudsen was visiting the caves *mauka* of the project area.

> Crossing the flat lands of Wainiha and Haena we came to the big dry cave which we all rode into and then on to the Wet Caves. The road followed the beach and all the land between the shore line and the cliffs was planted to taro. We tied up our horses and walked along the kuaunas [the side or border of a kalo patch] between the patches and soon reached the nearest cave. (Knudsen 1891 in Pacific Worlds & Associates 2001)

Horses were the most prevalent means of transportation until the early 20th century due to the rough landscape. Additionally, developed in the late 1800s cattle ranching had and horses were necessary for herding.

4.3 Twentieth Century

A small Hawaiian community numbering about 60 continued at Hā'ena into the mid 20th century. The first census conducted after the annexation of Hawai'i was conducted in 1900. At that time seven households were recorded in Hā'ena. Ten years later, the census recorded 15 households (Silva 1995). Although there is no written documentation of agricultural, fishing, or ranching activities for the area, it is likely that Hā'ena continued to depend on agricultural and fishing endeavors, and some cattle grazing was conducted in the area. Figure 7 shows coastal Hā'ena and the project area's vicinity in 1924 with a lack of forests and development.

When the April 1, 1946 tsunami devastated Hā'ena, the area was described as "a small year round population of Hawaiians, numbering about 60". Ten people were killed and the tsunami caused extensive damage. In the vicinity of Hā'ena the water rose to heights generally between 6 and 9 m. At the head of Hā'ena Bay it crossed a shore platform about 1 m above sea level and 160 m wide, and rose on the cliff at the landward side of the platform to a height of 13.5 m. (Shepard et al. 1950:413).

The 1957 tsunami destroyed 25 of the 29 homes in Hā'ena (Honolulu Advertiser 1957). Based on the damage caused by the tsunamis, it is not surprising that the 1965 USGS map (Figure 8) shows little development for the entire northeast shoreline. The project area's proximity to reefs, caves, and Highway 56 is however shown.

As mentioned previously Hui Kū'ai 'Āina, the Native Hawaiian group that worked and held most of the Hā'ena Ahupua'a lands was disbanded in 1967.

4.3.1 Current Land Use

While the present project area is undeveloped, surrounding areas have seen increasing modern residential use.

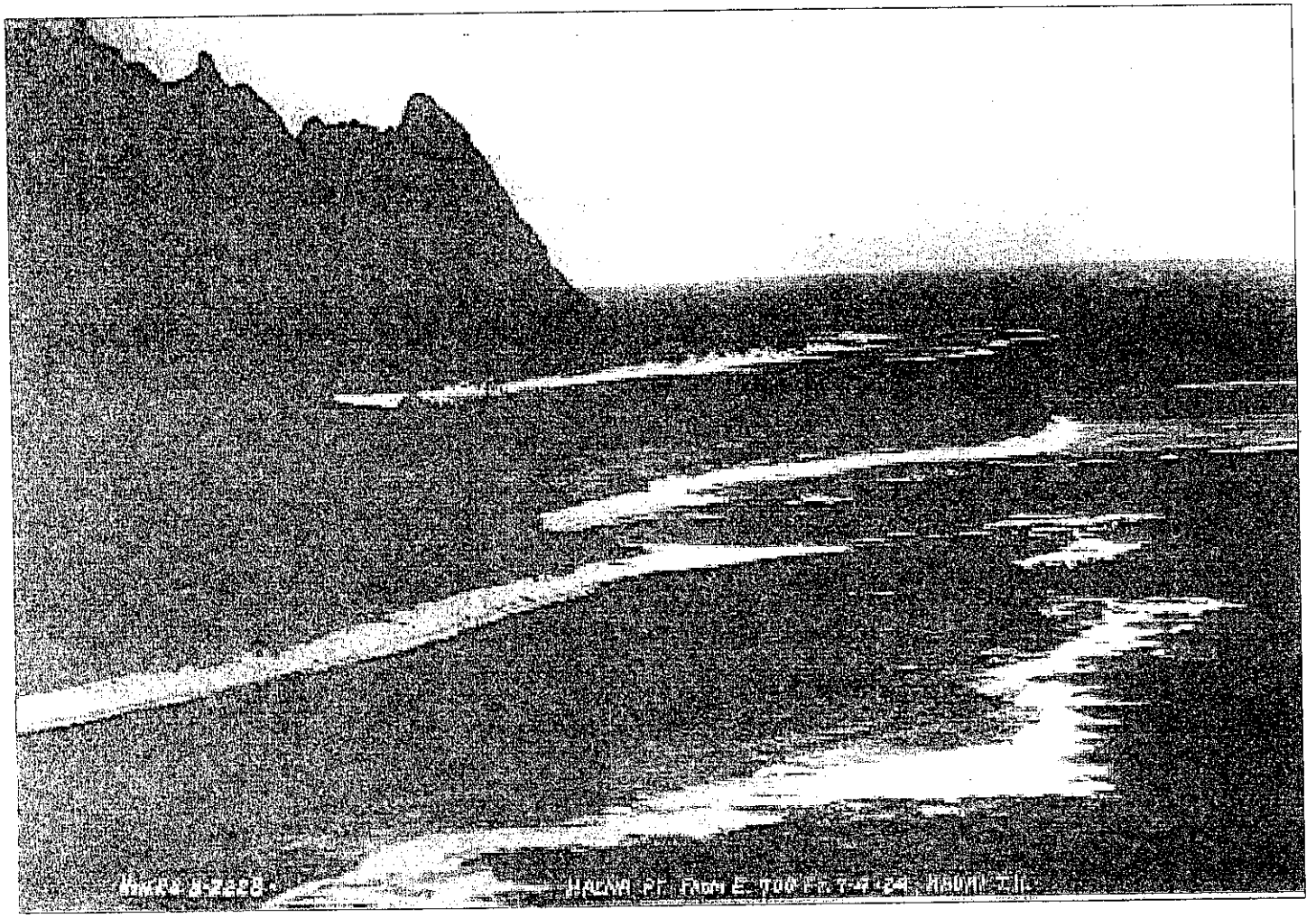

Figure 7. 1924 photograph of coastal Hā'ena, showing the lack of forests and development (Hawai'i State Archives)

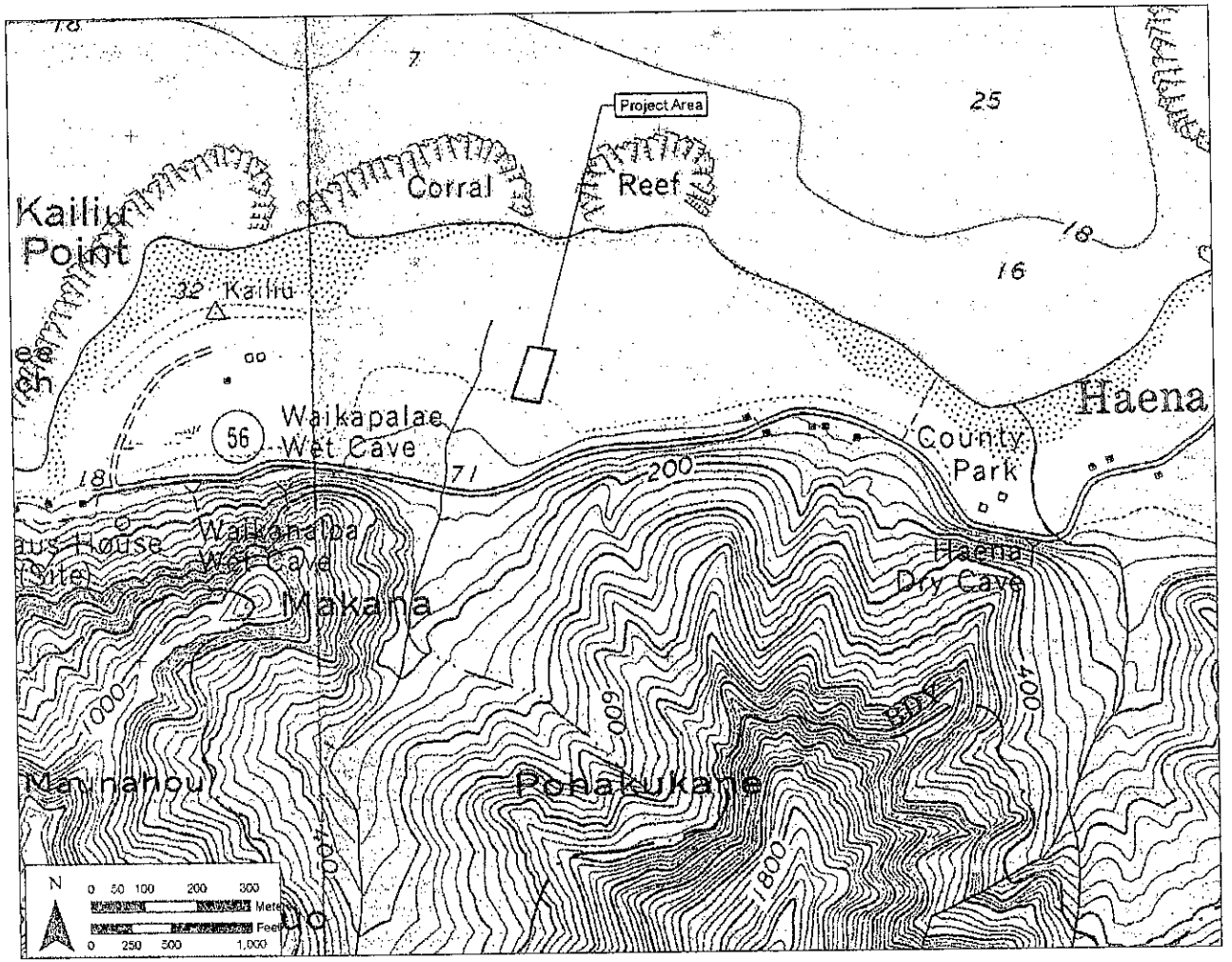

Figure 8. Portion of 1965 USGS quadrangle map showing project area

4.4 Previous Archaeological Research

Previous archaeological studies in the vicinity of the current project area are presented in Table 2 and shown in Figure 9. The following is a summary of these archaeological studies:

Only one archaeological study (Emory 1929), specifically on the *ahupua'a* of Hā'ena, predates 1977. Until the late 1970s, the few studies and traveler's accounts touching on the prehistory of Hā'ena were largely focused on the wet and dry caves, and the "ruins at Kē'ē."

In Thomas Thrum's (1907) list of *heiau* of Kaua'i he names two at Hā'ena:

> Kilioi... Hā'ena.- A heiau consisting of two platforms highly terraced; very famous, very sacred and an immense structure
>
> Lohiau.... Kē'ē, Hā'ena Point. - A walled heiau dedicated to Laka, goddess of the hula.

Wendell Bennett (1931: 136-138) conducted field work on Kaua'i in 1928 and 1929. He describes three historic properties as Kauluapaoa Heiau (SIHP# 50-30-02-0154), Lohiau's dancing pavilion and shrine (SIHP# 50-30-02-0155), and the house or *heiau* of Lohi'au (SIHP# 50-30-02-0154) and draws heavily on Emory's (1928) work.

In 1977, Archaeological Research Center Hawai'i, Inc. (ARCH) conducted a preliminary archaeological investigation of the approximately 60-acre Hā'ena State Park (Griffin et al. 1977). The study area was divided into Section A to C. Section A was subdivided into 8 area and consisted of, "the main residential area of Hā'ena west of Limahuli Stream...the entire terrain can be said to have been used for habitation between A.D. 1200 and 1900" (Griffin et al. 1977:50). Section B consisted primarily of wetland agricultural features (*lo'i*). Section C consisted of two areas of wetland agricultural features, two wet caves (Waikanaloa and Waikapalae - Refer to Section 3.6), one rockshelter, and the house site of Lohi'au. The abundance of artifacts, shell midden, cultural layers, and archaeological features discovered during subsurface testing within the study area confirms the significance of this portion of Hā'ena Ahupua'a through the span of human occupation (Griffin et al. 1977).

In 1979, ARCH conducted an archaeological and ethnohistorical investigation of the Chu property, TMK [4] 5-9-003:010 (Hammatt and Meeker 1979). Surface modifications within the study area included two abandoned wetland agriculture (*lo'i*) systems consisting of 39 and 50 rectangular planting areas fed by two separate irrigation ditches (SIHP# 50-30-02-0458). Additionally, a historic homestead and two small platforms were identified. Subsurface excavations within the study area yielded artifacts, midden, a habitation area dating to within the late prehistoric to historic era (Hammatt and Meeker 1979).

In 1979, a joint archaeological field school by the University of Illinois at Urbana-Champaign and the University of Hawai'i conducted archaeological testing and excavation within portions of Hā'ena State Park (Riley and Clark 1979). An abundance of artifacts, related to both marine and terrestrial food procurement and woodworking, as well as shell midden were recovered during subsurface excavation. Subsurface features included fire pits, earthen ovens (*imu*), stone alignments, post molds, refuse piles, and a pavement (Riley and Clark 1979).

Table 2. Previous archaeological studies in the vicinity of the project area

Source	Location	Nature of Study	Findings
Thrum 1907	Hā'ena Ahupua'a Kē'ē Beach area	Island-wide Heiau Study	"Kilioi" and "Lohiau"
Emory 1929	Hā'ena Ahupua'a Kē'ē Beach area	Popular discussion of archaeological sites	Describes 3 sites: Kauluapaoa Heiau, Lohi'au`s Dancing Pavilion and Shrine, and house or *heiau* of Lohi'au
Bennett 1931	Hā'ena Ahupua'a Kē'ē Beach area	Archaeological survey	SIHP# 50-30-02-154 Kauluapaoa Heiau SIHP# 50-30-02-155 Lohi'au`s Dancing Pavilion and Shrine SIHP# 50-30-02-156 house or *heiau* of Lohi'au
Griffin et al. 1977	Hā'ena State Park	Archaeological survey	Prehistoric cultural layers
Riley and Clark 1979	Hā'ena State Park	Archaeological survey	Prehistoric cultural layers
Hammatt and Meeker 1979	TMK [4] 5-9-003-010	Archaeological survey	Prehistoric cultural layers
Kennedy 1987	TMK [4] 5-9-003:008	Archaeological Investigation	Subsurface rock wall
Kennedy 1987	TMK [4] 5-9-006:001	Archaeological Investigation	Four agricultural stone terraces
Kennedy 1988	TMK [4] 5-9-006:012	Archaeological survey and testing	Agricultural features: 2 rock walls, subsurface stone concentrations
Kennedy 1989	TMK [4] 5-9-002:051	Subsurface testing	1 artifact recovered
Kennedy 1989	TMK [4] 5-9-005:003	Archaeological Survey with Subsurface Testing	No cultural material identified.
Wickler 1989	TMK [4] 5-9-005:007	Archaeological Survey with Subsurface Testing	No significant cultural material identified.

Source	Location	Nature of Study	Findings
Patolo and Cleghorn 1991	TMK [4] 5-9-006:002, 003, 004, 005, 006, 008, and 009; portions of TMK [4] 5-9-001: 013	Mapping and survey	SIHP# 50-30-02-1005 Agricultural complex of 88 features
Williams 1991	TMK [4] 5-9-003:046	Emergency archaeological mitigation	SIHP# 50-30-02-1004 Pre-contact habitation area
Hammatt et al. 1993	TMK [4] 5-9-005:023	Archaeological Survey	SIHP# 50-30-02-4013 Late prehistoric-early historic cultural layer
Moore and Kennedy 1995	TMK [4] 5-9-002:051, 052	Subsurface testing	No cultural material recovered.
Kruse et al. 1997	TMK [4] 5-9-006:002, 003, 004, 005, 006, 008, and 009; portions of TMK [4] 5-9-001: 013	Archaeological Survey and Mapping	Mapping previously identified SIHP# 50-30-02-1005 Agricultural complex of 88 features
Calis 2001	TMK [4] 5-9-003:039	Inventory Survey	SIHP# 50-30-02-988 34 archaeological features identified related to taro agriculture
Elmore and Kennedy 2001	TMK [4] 5-9-003:010	Final Inventory Survey Report	SIHP# 50-30-02-670, habitation cultural deposit SIHP# 50-30-02-458 complex of terraced pond fields previously recorded by Earle in 1973.
Major and Carpenter 2001	Hā'ena State Park	Supplemental Archaeological Inventory	SIHP# 50-30-02-7000 to -7009, -7011, and -7014 assigned to previously identified historic properties
Ostroff and Kennedy 2001	TMK [4] 5 -9-005:020	Inventory Survey	No cultural material recovered

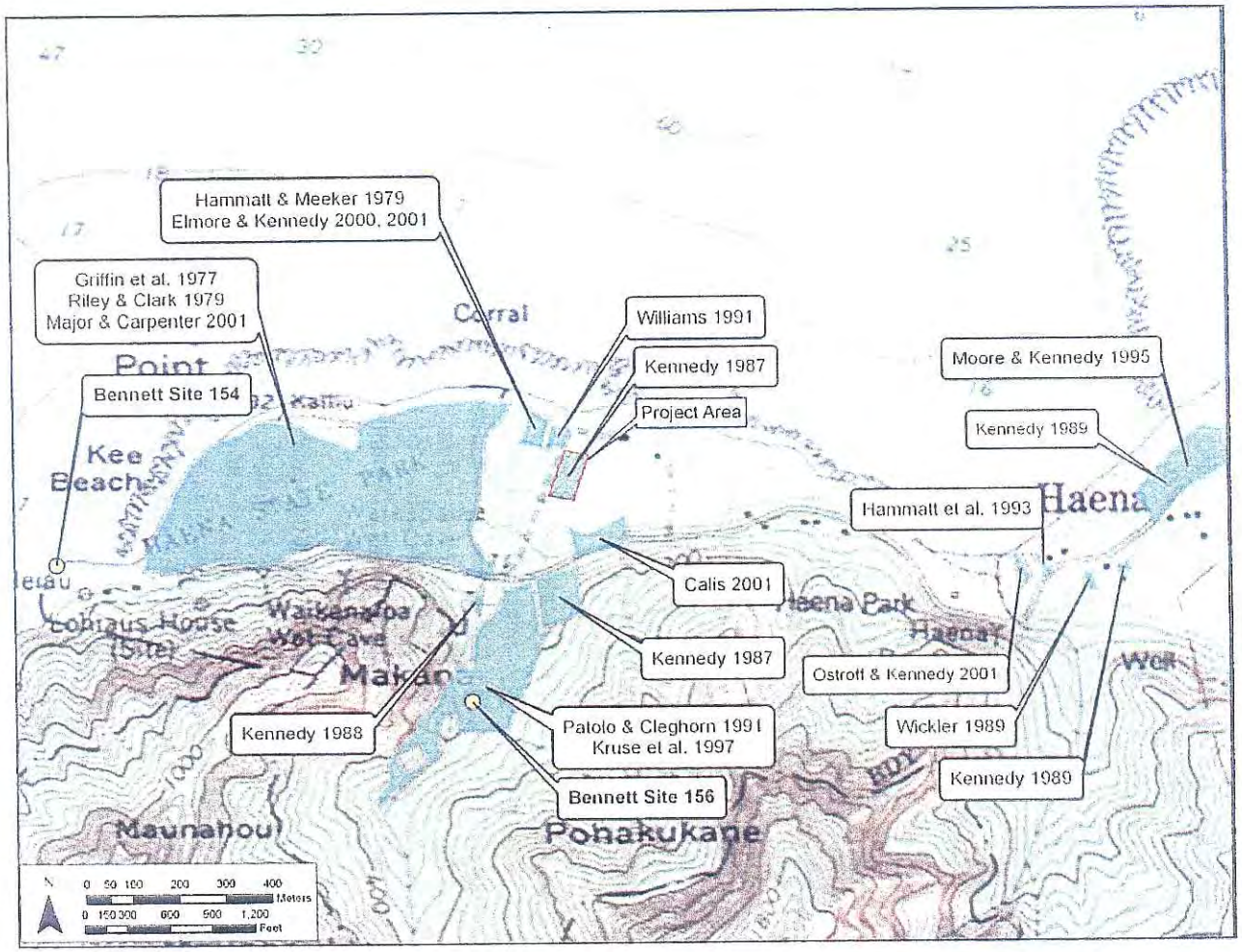

Figure 9. Portion of USGS 7.5-Minute Series Topographic Map, Hā'ena Quadrangle showing previous archaeological studies in the vicinity of the project area

In 1987, Archaeological Consultants of Hawai'i, Inc. conducted archaeological investigations within the current project area land parcel, TMK [4] 5-9-003:008 (Kennedy 1987). No surface historic properties were observed during pedestrian inspection. A total of one test trench (T-1) and six test bores (T-2 to T-6) were excavated within or near the current project area. A terrace wall overlain by a layer of agricultural soil was identified within the T-1 test trench (Kennedy 1987). This agricultural site was later given SIHP # 50-30-02-864 by the SHPD (this SIHP # is used to designate features described in the field work results of the present study. No further archaeological work was recommended for the study area.

In 1987, Archaeological Consultants of Hawai'i, Inc. conducted archaeological investigations within TMK [4] 5-9-006:001 adjacent to Highway 560. A surface survey of the parcel identified four parallel basalt stone terraces. A total of 15 test bores and one test pit were excavated within the study area. Thin agricultural soils and charcoal scatters were observed during subsurface excavation (Kennedy 1987). No further archaeological work was recommended for the study area.

In 1988, Archaeological Consultants of Hawai'i, Inc. conducted limited subsurface testing within a portion of TMK [4] 5-9-006: 012 south of Highway 560 (Kennedy 1988). Two rock walls were identified within the study area as being associated with wetland agricultural cultivation. A total of four test trenches were excavated within the study area. Three of these four trenches contained stacked rock structures and were also identified as wetland agricultural features (Kennedy 1988). No further archaeological work was recommended for this portion of the study area.

In 1989, Archaeological Consultants of Hawai'i, Inc. conducted a preliminary surface survey with limited subsurface testing within TMK [4] 5-9-002:051 north of Highway 560 (Kennedy 1989). No surface structures were identified within the study area. A total of four test trenches were excavated within the study area yielding a single sharpening stone. No historic properties were identified.

In 1989, Archaeological Consultants of Hawai'i, Inc. conducted an archaeological inventory survey and subsurface testing within TMK [4] 5-9-005:003 south of Highway 560 (Kennedy 1989). No surface structures were identified within the study area. A total of four test trenches were excavated within the study area. No significant subsurface cultural deposits were identified.

In 1989, International Archaeological Research Institute, Inc. conducted an archaeological inventory survey with subsurface testing within TMK [4] 5-9-005:007 south of Highway 560 (Wickler 1989). No surface structures were identified within the study area. A total of 20 test bore were excavated within the study area. No significant subsurface cultural deposits were identified. No further archaeological work was recommended for this portion of the study area.

In 1991, the Applied Research Group, Bishop Museum, conducted archaeological mapping and survey of the Limahuli Valley Botanical Garden (Patolo and Cleghorn 1991). Pedestrian survey within the study area identified one historic property, SIHP# 50-30-02-1005, consisting of 88 archaeological features. SIHP # 50-30-02-1005 was determined to be an agricultural system supporting dry land and wetland agricultural cultivation as well as several possible habitation areas (Patolo and Cleghorn 1991). A program of data recovery was recommended prior to any ground disturbance.

In 1991, the Applied Research Group, Bishop Museum, conducted an emergency archaeological mitigation of SIHP # 50-30-02-1004 within TMK [4] 5-9-003:046 (Williams 1991). House construction within the study area "...exposed a substantial multi-component occupation deposit within the dune" (Williams 1991:1). During the mitigation effort, excavated walls from house construction were faced, profiles were drawn, and sediment was screened for cultural material. Additional fieldwork included controlled excavation in the area of the proposed cesspool. Midden, faunal remains, and basalt stone artifacts were recovered during excavation of SIHP # 50-30-02-1004. SIHP# 50-30-02-1004 was determined to be a pre-contact habitation area (Willimans 1991). Future monitoring of the study are and adjacent properties was recommended.

In 1993, CSH conducted an archaeological inventory survey with subsurface testing at the Cooke House lot Hā'ena, Kaua'i (Hammatt et al. 1993). A 30 cm thick cultural layer, designated SHIP # 50-30-02-4013, was exposed on the mauka end of the property. This layer was radiocarbon dated to the late prehistoric-early historic era (1665-1940). On site archaeological monitoring was recommended.

In 1995, Archaeological Consultants of Hawai'i, Inc. conducted an archaeological inventory survey with subsurface testing for a property located at TMK [4] 5-9-002:052 in Hā'ena Ahupua'a, Hanalei District (Moore and Kennedy 1995). No historic properties were identified as a result of the survey. One inadvertent burial was found on the property during house construction (SHIP # 50-30-02-1986).

In 1997, Exploration Associates, Ltd. conducted additional archaeological survey and mapping of the Limahuli Valley Botanical Garden (Kruse et al. 1997). A map of a previously undocumented (Patolo and Cleghorn 1991) portion of the study area was generated. Archaeological monitoring was recommended for proposed improvements within the project area (Kruse et al. 1997).

In 2001, Archaeological Consultants of the Pacific, Inc. conducted an archaeological inventory survey for properties located at TMK [4] 5-9-003:010 at Limahuli in Hā'ena Ahupua'a, Hanalei District (Elmore and Kennedy 2001). The survey consisted of a 100% surface survey, three mechanically excavated trenches, two manually excavated test units and four shovel tests. Two historic properties were identified: SIHP# 50-30-02-670, an historic era subsurface habitation cultural deposit; and a small portion (comprised of a drainage ditch) of SIHP# 50-30-02-458, a complex of terraced pond fields previously recorded by Earle in 1973. Data recovery investigations were recommended for SIHP# 50-30-02-670.

In 2001, Scientific Consultant Services Inc. conducted an archaeological survey of two lots (106 and 107) within SHIP # 30-02-988 in the Limahuli National Tropical Botanical Gardens, Hā'ena Ahupua'a, Halele'a District (Calis 2001). The inventory survey of SIHP# 50-30-02-988 was the second in a three phase project to rehabilitate an abandoned lo'i kalo (irrigated taro) agricultural system. A total of 34 archaeological features were identified and documented including both irrigated taro and dry land agriculture fields, buried wall foundations, and an undisturbed *imu*. Radiocarbon dating of four charcoal samples yielded dates that firmly correlate to pre-contact Hawai'i (Calis 2001).

In 2001, Archaeological Consultants of the Pacific, Inc. conducted an archaeological inventory survey for properties located at TMK [4] 5-9-005:20 in Hā'ena Ahupua'a, Hanalei

District (Ostroff and Kennedy 2001). The survey consisted of a 100% surface survey and four mechanically excavated trenches. No historic properties were identified. On call monitoring was recommended for future construction activities within the study area.

In 2001, the State of Hawai'i Department of Land and Natural Resources conducted a supplemental archaeological inventory of the Hā'ena State Park, Kaua'i (Major and Carpenter 2001). This survey corresponded to Phase I of a multiple phase *lo'i* rehabilitation project. Archaeologists cleared, mapped, and described surface features related to a *lo'i* complex (SIHP # 50-30-02-7009). Additionally, several other previously identified historic properties were assigned State Inventory of Historic Properties numbers. The complex consisted of 38 irrigated pond fields, two *'auwai* and two potential habitation features. Controlled archaeological excavation and monitoring were recommended to gather further information on the stratigraphy of the fields and construction of terraces.

Section 5 Results of Fieldwork

5.1 Pedestrian Inspection

As discussed in the Methods Section, above, a brief 100 percent pedestrian inspection of the project area's surface confirmed that there were no surface historic properties present. As there were no surface historic properties, the archaeological inventory survey focused on the identification of subsurface cultural deposits.

5.2 Subsurface Excavation

The current archaeological inventory survey involved the excavation of backhoe test trenches within the project area (Figure 10). Access, by backhoe, was limited within the project area due to thick vegetation cover and the presence of three natural and/or manmade drainage channels that cross cut and surrounded the subject parcel.

Currently, a total of approximately 86.6 percent of the project area is covered by dense vegetation (Figure 11). Vegetation consists primarily of non-native trees, shrubs, and grasses along with several common native plants. Information provided in the project's Draft Environmental Impact Statement (DEIS) as well as recent aerial photography suggest that the majority of this vegetation growth has occurred since the summer of 2007 when unauthorized clearing and landscaping activity took place (Figure 12).

Additionally three drainages located within the project area prohibit access by heavy machinery. The primary drainage extends from near the southwest corner of the project area to the northeast and then turns back to near the northwest corner (See Figure 10 and Figure 12). Kennedy (1987:2) describes this primary drainage as "a permanently flowing and deeply cut stream (which may well be an old *'auwai*)". A secondary drainage is located adjacent to the eastern edge of the project area near the northeast corner (Figure 13). This drainage is likely a natural intermittent stream that flows south to north connecting to the tertiary drainage canal. The tertiary drainage is a modern manmade canal that extends roughly east to west along the northern boundary of the project area and under the modern access road (Figure 14). This drainage canal connects to the primary drainage along the western edge of the access road, which continues flowing *makai*.

Trench excavations were relocated along the relatively open and accessible western boundary of the project area. This area contains a trimmed hedge of panax trees (*Polyscias guilfoylei*) surrounding scattered pockets of low shrubs and grasses that have overgrown the remnant trunks of previously removed java plum (*Syzygium cumini*) and octopus trees (*Shefflera actinophylla*). This area is the only portion of the project area that has not been tested during previous subsurface excavation (Kennedy 1987) (See Figure 10).

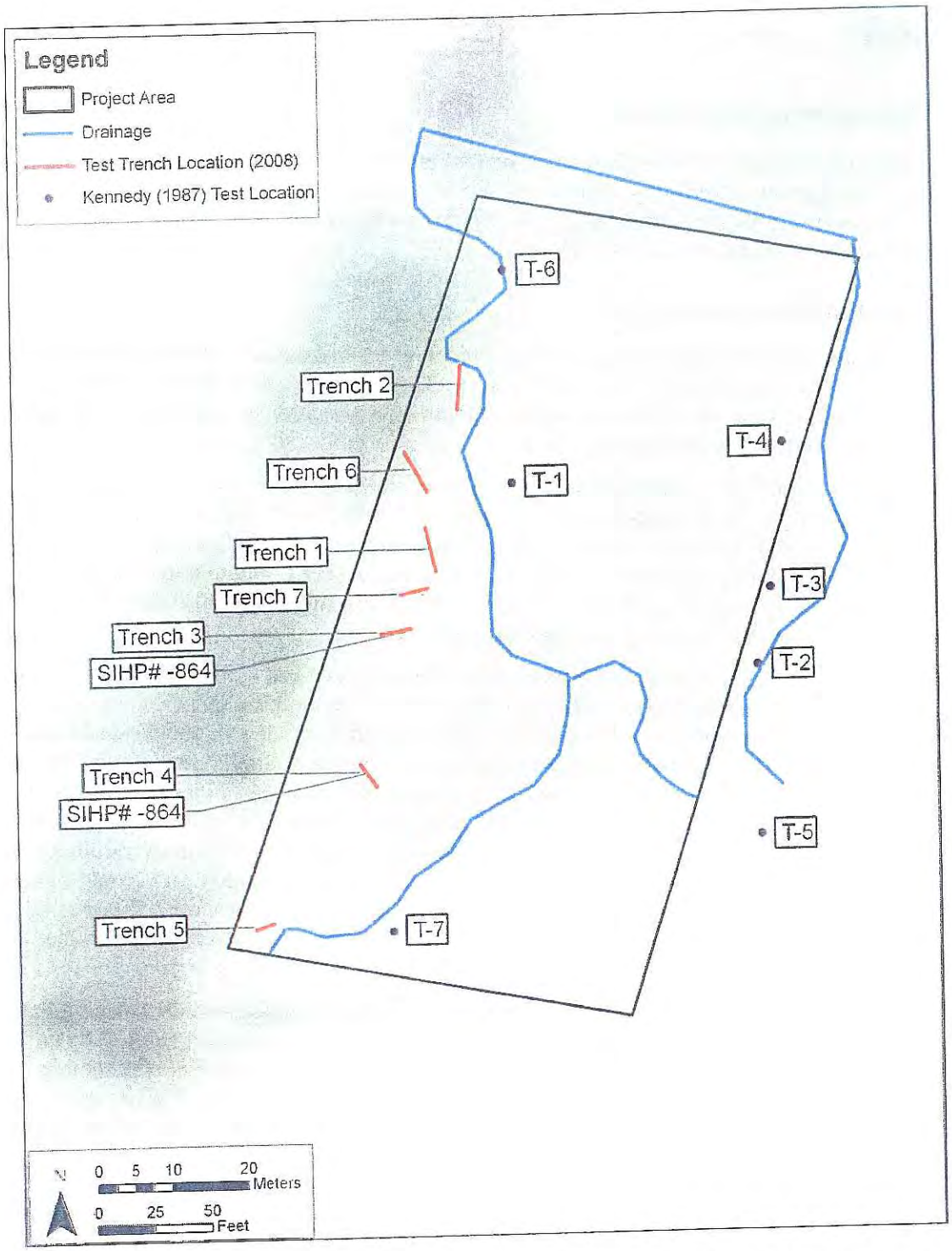

Figure 10. Portion of 1983 Hā'ena USGS 7.5-minute topographic quadrangle showing current test trench locations (2008) and previous test bore/trench location (Kennedy 1987)

Figure 11. View from the northwest corner of the project area (at left) showing current vegetation growth, view to south

Figure 12. Aerial photograph showing project area and drainages (Courtesy: Google Earth 2008)

Figure 13. View from the northeast corner of the project area showing the edge of the secondary drainage and current vegetation growth, view to southwest

Figure 14. Tertiary drainage ditch along northern boundary of project area, view to west

5.3 Stratigraphic Summary

A total of seven backhoe trenches were excavated along the western boundary of the project area. Based on previous archaeological excavations, the stratigraphy within the project area is largely expected. A stratigraphic profile was taken at each backhoe trench. In general the observed and documented stratigraphy consisted of a modern A horizon (Statum I) overlaying marine sand, clay loam, and terrestrial clay. The marine sand (Stratum II), which is generally thicker in the *makai* portion of the project area, is likely wind deposited. The underlying layer of clay loam (Stratum III) was interpreted as an agricultural soil deposit based on the presence of rootlets and carbonized plant matter and the location of a possible remnant *'auwai* (SIHP # 50-30-02-864 Feature A) and a stone alignment (SIHP # 50-30-02-864 Feature B) within the layer. The underlying layer of terrestrial clay (Stratum IV), containing small water worn basalt cobbles, extends to beyond the water table and is likely an alluvial deposit. One additional layer (Stratum V) was encountered adjacent to the edge of SIHP # 50-30-02-864 Feature A and consisted of a disturbed mix of sand and clay. Stratum V is likely the remnant of an embankment or back dirt pile created during the excavation of SIHP # 50-30-02-864 Feature A *'auwai*.

5.4 Trench Documentation

5.4.1 Trench 1

Length:	6 m
Width:	1 m
Maximum Depth:	2.35 m
Orientation:	N-S

The stratigraphy of Trench 1 (Figure 15 to Figure 17 and Table 3) consisted of a modern A horizon (Stratum I), marine sand (Stratum II), an agricultural clay loam (Stratum III), and terrestrial clay (Stratum IV). The water table was encountered at a depth of 2.35 m below surface. No midden, artifacts, or cultural modifications were encountered.

5.4.2 Trench 2

Length:	6 m
Width:	1 m
Maximum Depth:	1.8 m
Orientation:	NW-SE

The stratigraphy of Trench 2 (Figure 18 to Figure 20 and Table 4) consisted of a modern A horizon (Stratum I), marine sand (Stratum II), an agricultural clay loam(Stratum III), and

Figure 15. Trench 1, view to north

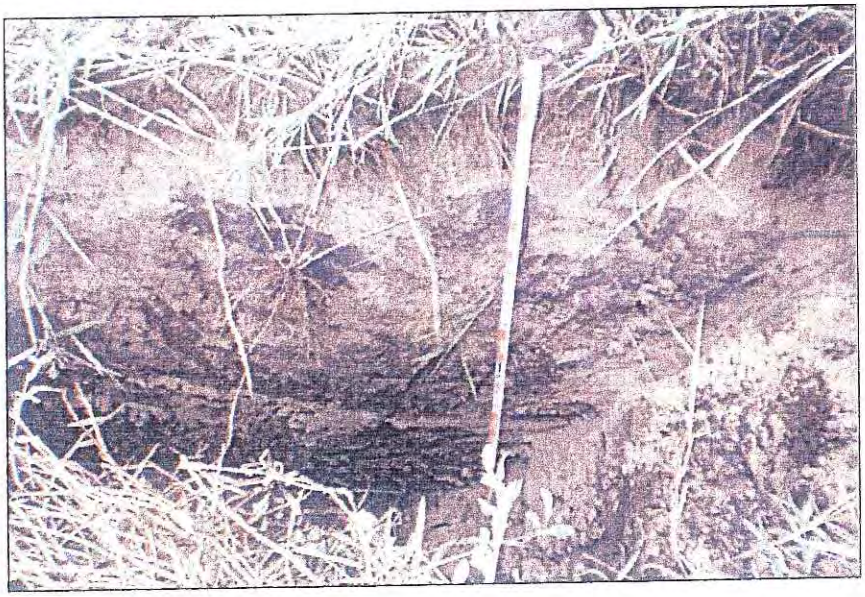

Figure 16. Trench 1, view to east

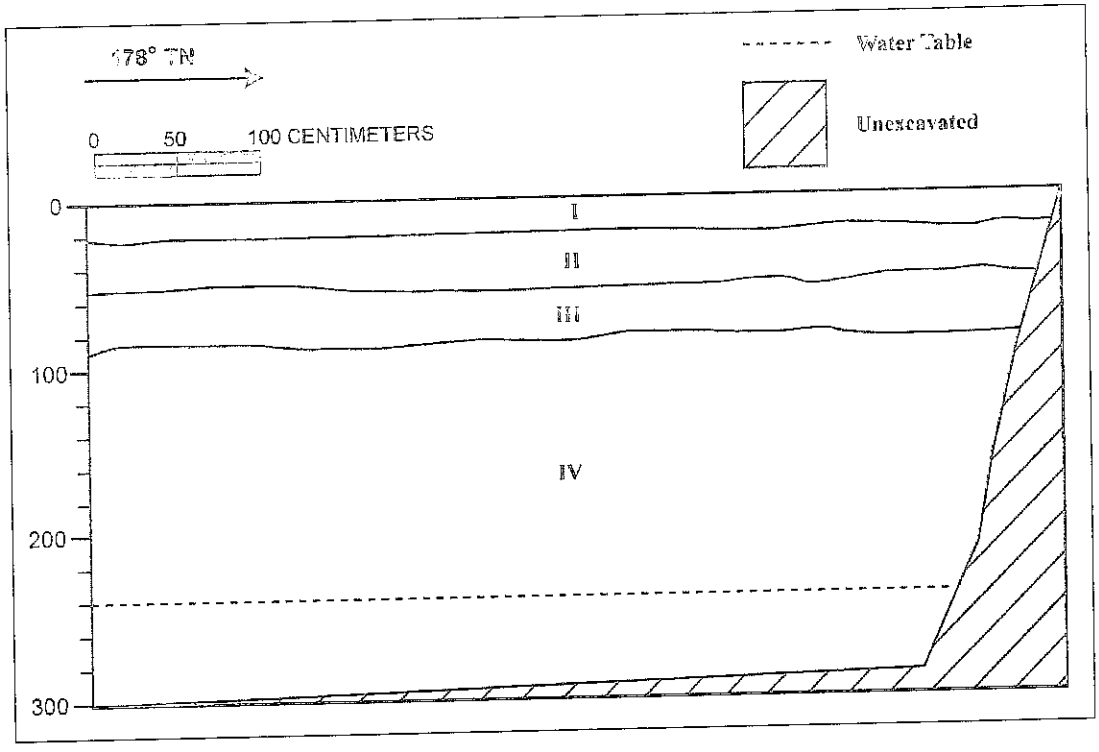

Figure 17. Trench 1, profile of east wall

Table 3. Strata observed at Trench 1

Stratum	Depth (cmbs)	Description
I	0-20	10 YR 3/4, dark yellowish brown; silty sand; structureless; loose moist consistency; non plastic; no cementation; mixed origin. Modern A horizon.
II	20-50	10 YR 6/4 light yellowish brown; sand; structureless; loose moist consistency; non plastic; no cementation; marine origin. Aeolian deposit.
III	50-85	GLEY 1 4/1 dark greenish gray with 10 YR 3/3 dark brown mottling; clay loam; fine crumb structure; firm moist consistency; slightly plastic; no cementation; terrestrial origin. Agricultural soil with rootlets and carbonized plant matter.
IV	85-BOE*	10 YR 3/2 very dark grayish brown; clay; fine crumb structure; very firm moist consistency; plastic; no cementation; terrestrial origin. Alluvial clay with water worn basalt cobbles and pebbles

* Base of Excavation

Figure 18. Trench 2, view to east

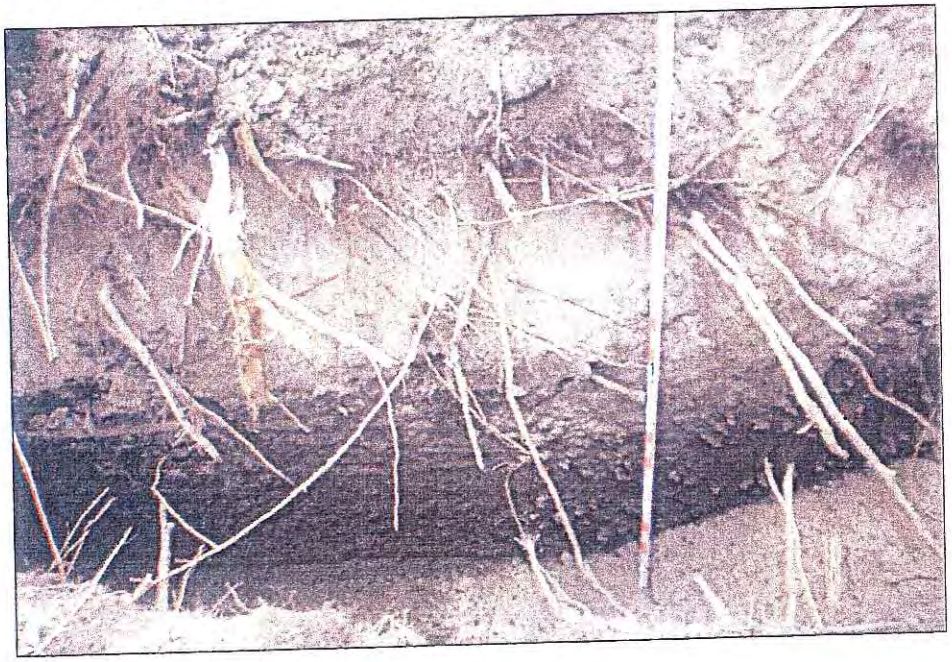

Figure 19. Trench 2, view to south

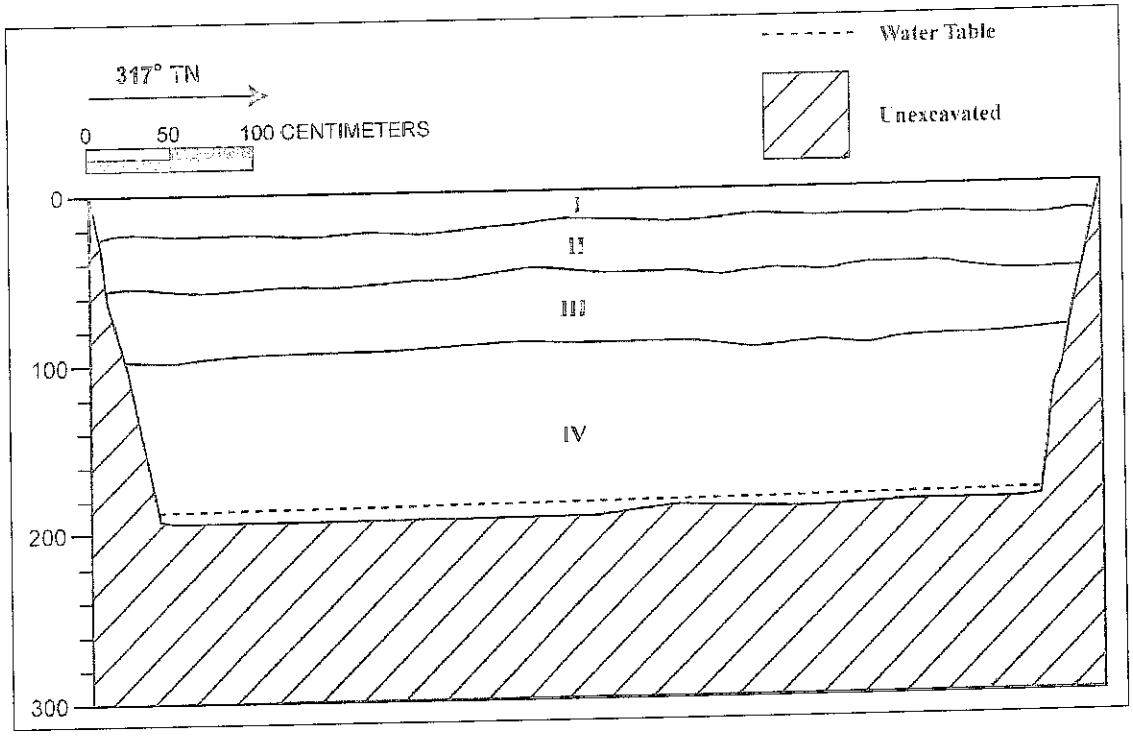

Figure 20. Trench 2, profile of south wall

Table 4. Strata observed at Trench 2

Stratum	Depth (cmbs)	Description
I	0-20	10 YR 3/4, dark yellowish brown; silty sand; structureless; loose moist consistency; non plastic; no cementation; mixed origin. Modern A horizon.
II	20-50	10 YR 6/4 light yellowish brown; sand; structureless; loose moist consistency; non plastic; no cementation; marine origin. Aeolian deposit.
III	50-90	GLEY 1 4/1 dark greenish gray with 10 YR 3/3 dark brown mottling; clay loam; fine crumb structure; firm moist consistency; slightly plastic; no cementation; terrestrial origin. Agricultural soil with rootlets and carbonized plant matter.
IV	90-BOE*	10 YR 3/2 very dark grayish brown; clay; fine crumb structure; very firm moist consistency; plastic; no cementation; terrestrial origin. Alluvial clay with water worn basalt cobbles and pebbles

* Base of Excavation

terrestrial clay (Stratum IV). The water table was encountered at a depth of 1.75 m below surface. No midden or cultural modifications were encountered. A single piece of edge-tapered slate roofing tile was observed within Stratum II at 35 cm below surface. The tile segment measures 6.4 cm long by 4.5 cm wide by 0.4 cm thick and weighs 18.3 g.

5.4.3 Trench 3

Length:	6 m
Width:	1 m
Maximum Depth:	1.5 m
Orientation:	NE-SW

The stratigraphy of Trench 3 (Figure 21 to Figure 23 and Table 5) consisted of a modern A horizon (Stratum I), marine sand (Stratum II), an agricultural clay loam (Stratum III), terrestrial clay (Stratum IV), and mixed sand and clay sediment (Stratum V). SIHP # 50-30-02-864 Feature A was observed in both the north and south trench sidewalls and consisted of a 1.15 m wide by 0.75 m deep pit-like extension of Stratum III originating at the base of Stratum I and bisecting Stratum II (See Figure 22). A minimum of four basalt cobbles were observed lining the boundary of Feature A. Stratum V (mixed sand and clay) is likely a man-made embankment or back dirt pile associated with the excavation of Feature A through sand (Stratum II) and clay (Stratum IV). SIHP # 50-30-02-864 Feature A was determined to be a remnant pre-contact irrigation ditch (*'auwai*) based on shape, association with agricultural soils (Stratum III), and location within an area of known agricultural use.

5.4.4 Trench 4

Length:	6 m
Width:	1 m
Maximum Depth:	1.6 m
Orientation:	E-W

The stratigraphy of Trench 4 (Figure 24 to Figure 27 and Table 6) consisted of a modern A horizon (Stratum I), an agricultural clay loam (Stratum III), and terrestrial clay (Stratum IV). SIHP # 50-30-02-864 Feature B, located entirely within a lens of Stratum III, consisted of an alignment of large basalt cobbles to small boulders (See Figure 26). The alignment is constructed of 1-2 courses measuring 2.15 m long with a maximum height of 0.25 m. No evidence of Stratum III or Feature B were observed within the opposite (north) trench sidewall. SIHP # 50-30-02-864Feature B was determined to be a remnant pre-contact wetland agriculture (*lo'i*) wall based on construction, associated with agricultural soils (Stratum III), and location in an area of known agricultural use.

Figure 21. Trench 3, view to southwest

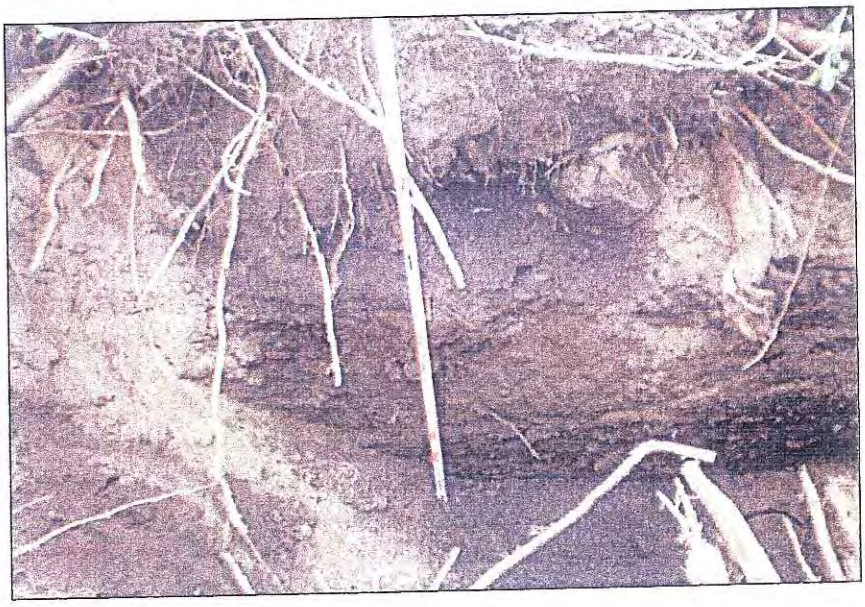

Figure 22. Trench 3 showing SIHP # 50-30-02-864 Feature A, view to southeast

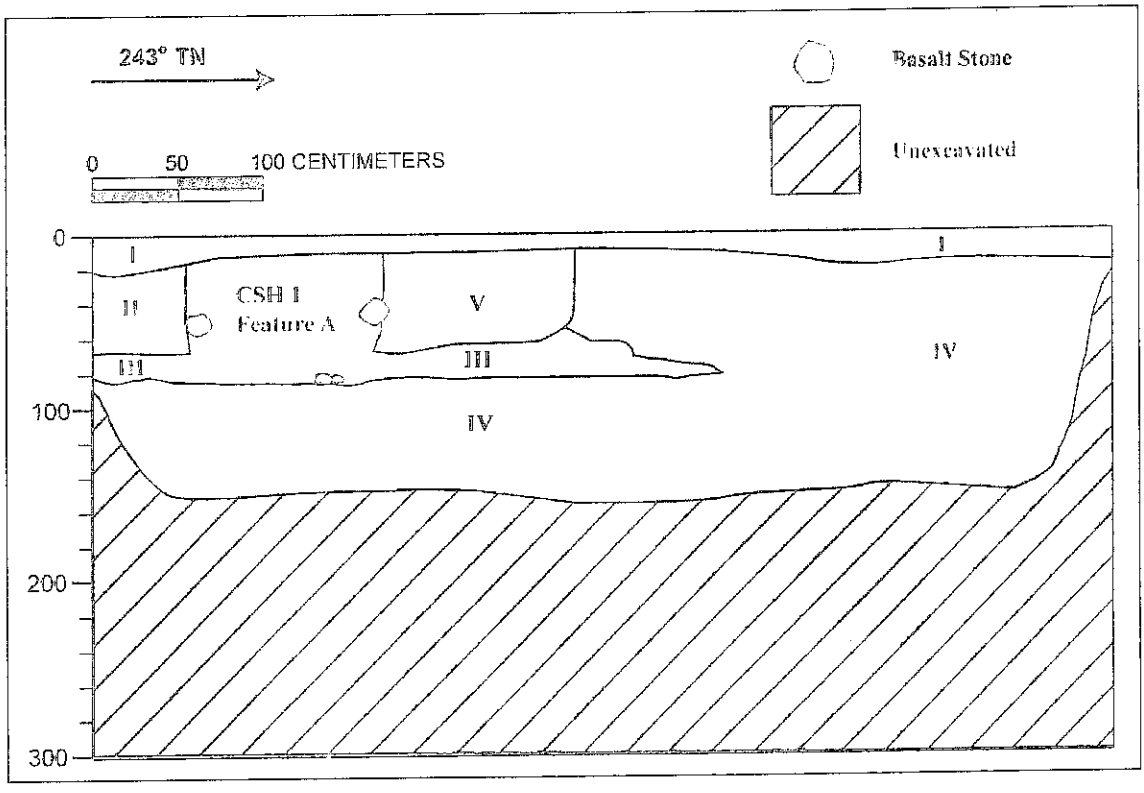

Figure 23. Trench 3, profile of southeast wall

Table 5. Strata observed at Trench 3

Stratum	Depth (cmbs)	Description
I	0-20	10 YR 3/4 dark yellowish brown; silty sand; structureless; loose moist consistency; non plastic; no cementation; mixed origin. Modern A horizon.
V	10-65	10 YR 5/8 yellowish brown sand, 10 YR 6/4 light yellowish brown sand, GLEY 1 4/1,dark greenish gray with 10 YR 3/3 dark brown mottling clay loam; structureless; loose moist consistency; non plastic; no cementation; mixed origin. Associated with SIHP # 50-30-02-864 Feature A
II	20-65	10 YR 6/4 light yellowish brown; sand; structureless; loose moist consistency; non plastic; no cementation; marine origin. Aeolian deposit.
III	65-80	GLEY 1 4/1,dark greenish gray with 10 YR 3/3 dark brown mottling; clay loam; fine crumb structure; firm moist consistency; slightly plastic; no cementation; terrestrial origin. Agricultural soil with rootlets and carbonized plant matter.
IV	20-BOE*	10 YR 3/2 very dark grayish brown; clay; fine crumb structure; very firm moist consistency; plastic; no cementation; terrestrial origin. Alluvial clay with water worn basalt cobbles and pebbles

* Base of Excavation

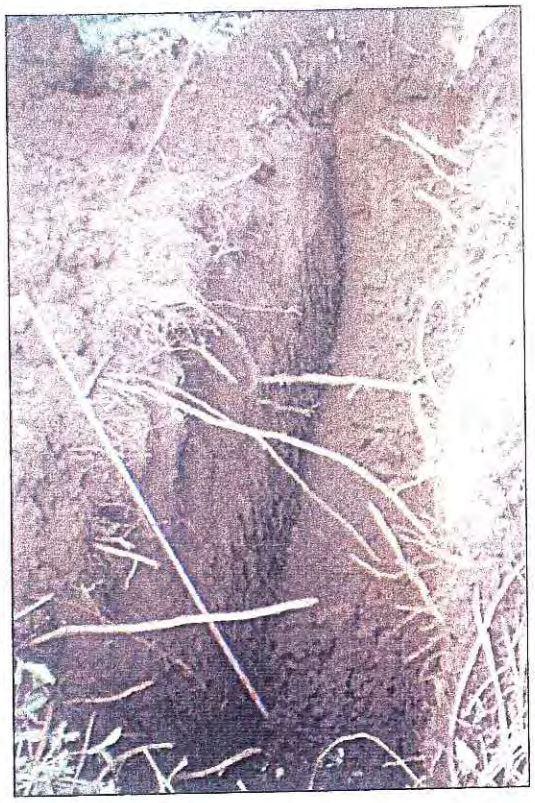

Figure 24. Trench 4, view to southwest

Figure 25. Trench 4, view to south

Figure 26. Trench 4 showing SIHP # 50-30-02-864 Feature B, view to south

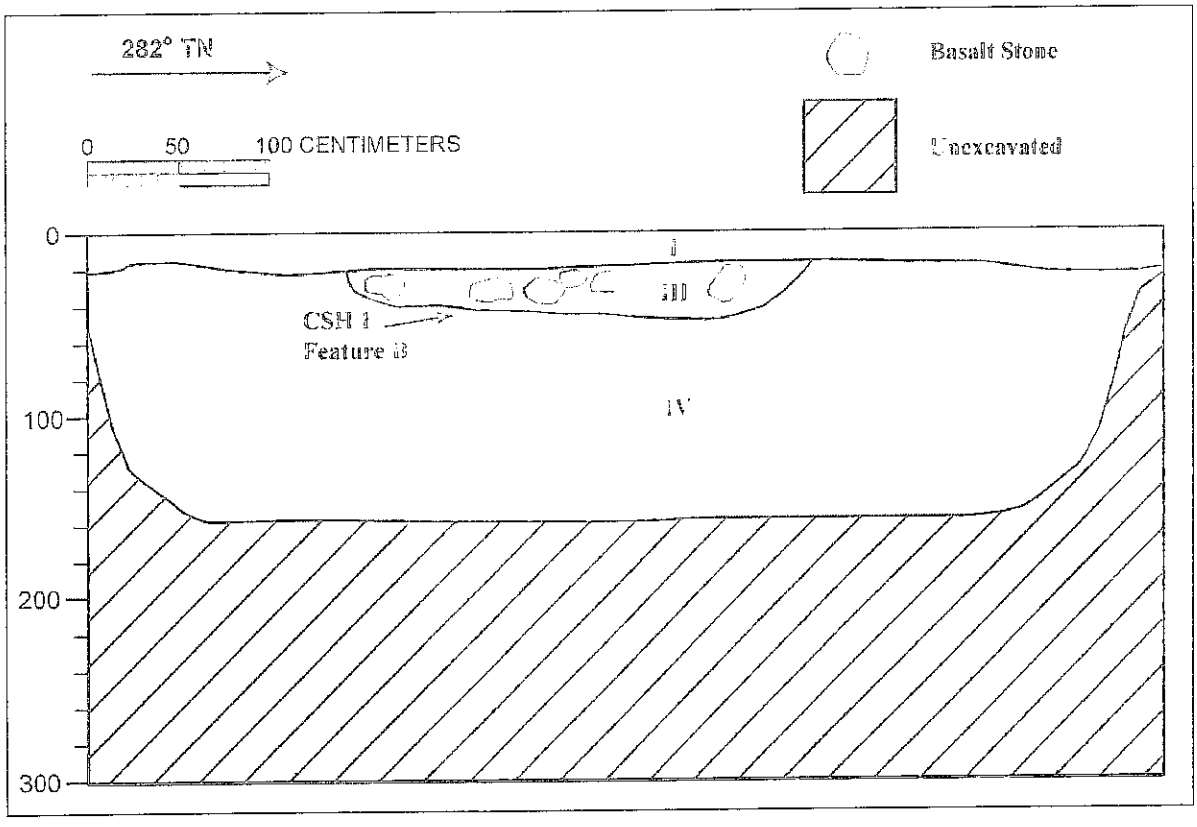

Figure 27. Trench 4, profile of south wall

Table 6. Strata observed at Trench 4

Stratum	Depth (cmbs)	Description
I	0-20	10 YR 3/4, dark yellowish brown; silty sand; structureless; loose moist consistency; non plastic; no cementation; mixed origin. Modern A horizon.
III	20-40	GLEY 1 4/1 dark greenish gray with 10 YR 3/3 dark brown mottling; clay loam; fine crumb structure; firm moist consistency; slightly plastic; no cementation; terrestrial origin. Agricultural soil with rootlets and carbonized plant matter.
IV	20-BOE*	10 YR 3/2 very dark grayish brown; clay; fine crumb structure; very firm moist consistency; plastic; no cementation; terrestrial origin. Alluvial clay with water worn basalt cobbles and pebbles

* Base of Excavation

5.4.5 Trench 5

Length:	4 m
Width:	1 m
Maximum Depth:	1.5 m
Orientation:	E-W

The stratigraphy of Trench 5 (Figure 28 to Figure 30 and Table 7) consisted of a modern A horizon (Stratum I) containing abundant tree roots and rootlets overlaying terrestrial clay (Stratum IV). No midden, artifacts, or cultural modifications were encountered.

5.4.6 Trench 6

Length:	6 m
Width:	1 m
Maximum Depth:	2.3 m
Orientation:	NW-SE

The stratigraphy of Trench 6 (Figure 31 to Figure 33 and Table 8) consisted of a modern A horizon (Stratum I), marine sand (Stratum II), an agricultural clay loam (Stratum III), and terrestrial clay (Stratum IV). The water table was encountered at a depth of 2.35 m below surface. No midden, artifacts, or cultural modifications were encountered.

5.4.7 Trench 7

Length:	6 m
Width:	1 m
Maximum Depth:	2.1 m
Orientation:	E-W

The stratigraphy of Trench 7 (Figure 34 to Figure 36 and Table 9) consisted of a modern A horizon (Stratum I), marine sand (Stratum II), an agricultural clay loam (Stratum III), and terrestrial clay (Stratum IV). A remnant tree stump and root system prevented the excavation of a portion of the trench below Stratum I. No midden, artifacts, or cultural modifications were encountered.

Figure 28. Trench 5, view to northwest

Figure 29. Trench 5, view to north

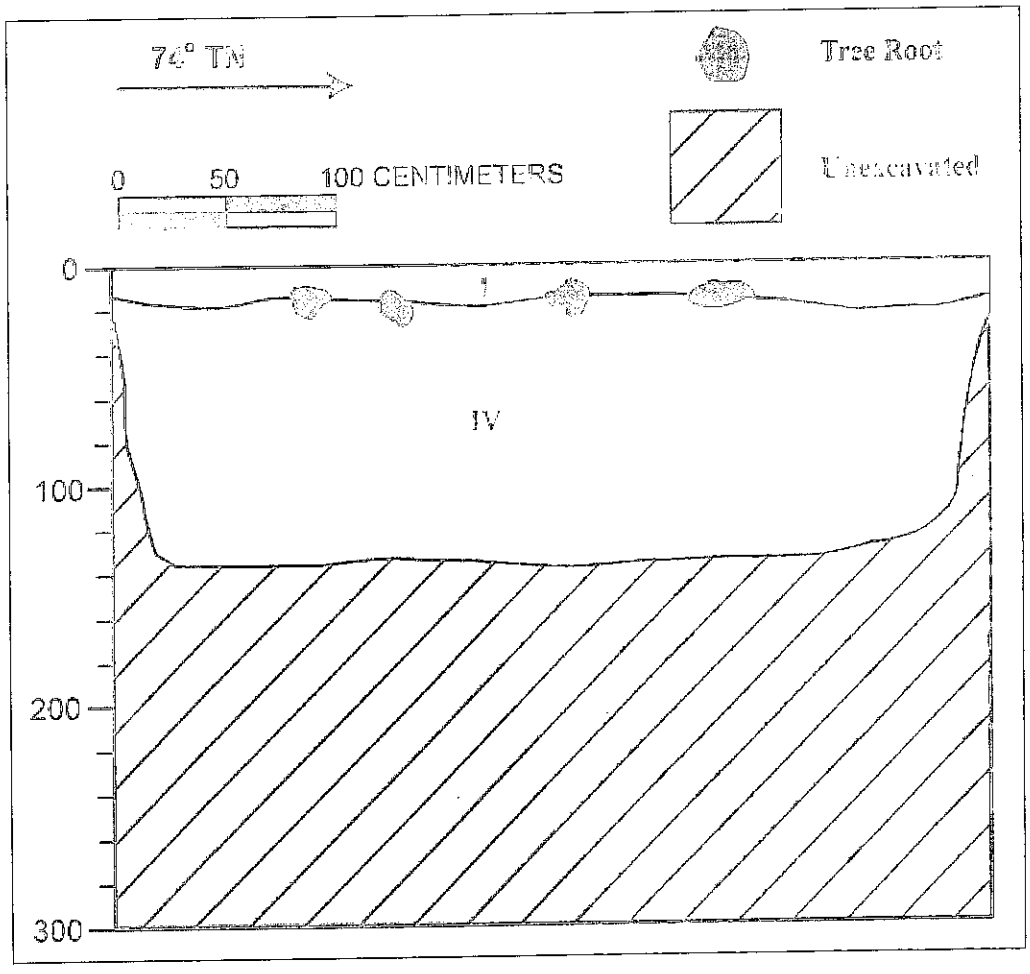

Figure 30. Trench 5, profile of north wall

Table 7. Strata observed at Trench 5

Stratum	Depth (cmbs)	Description
I	0-20	10 YR 3/4, dark yellowish brown; silty sand; structureless; loose moist consistency; non plastic; no cementation; mixed origin. Modern A horizon.
IV	20-BOE*	10 YR 3/2 very dark grayish brown; clay; fine crumb structure; very firm moist consistency; plastic; no cementation; terrestrial origin. Alluvial clay with water worn basalt cobbles and pebbles

* Base of Excavation

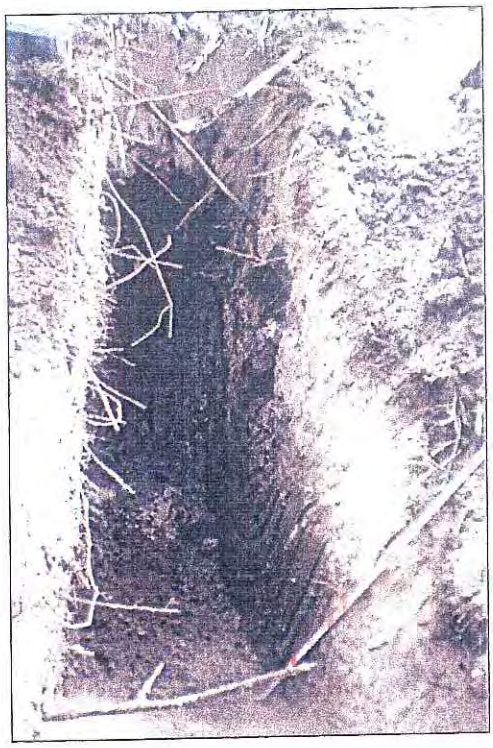

Figure 31. Trench 6, view to southeast

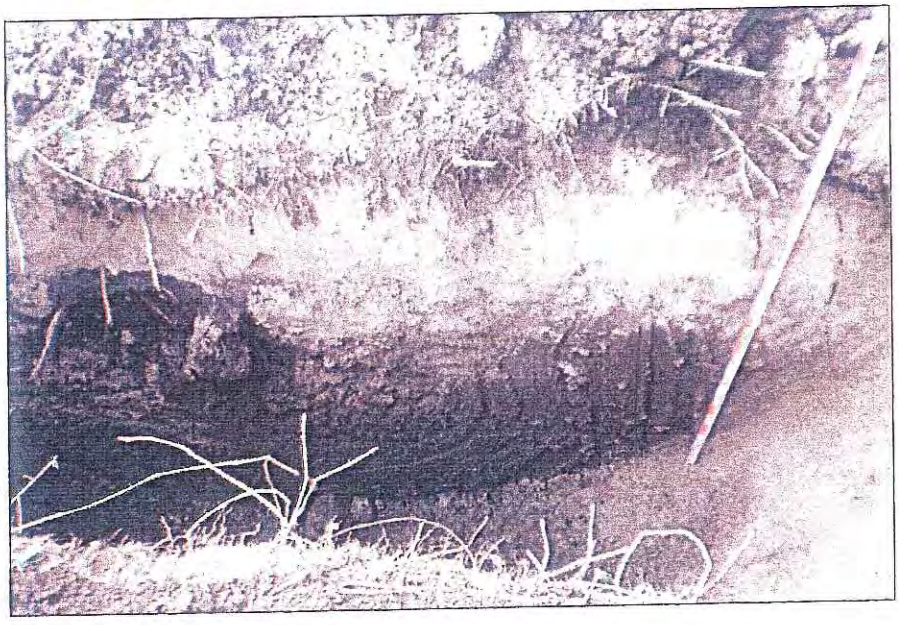

Figure 32. Trench 6, view to south

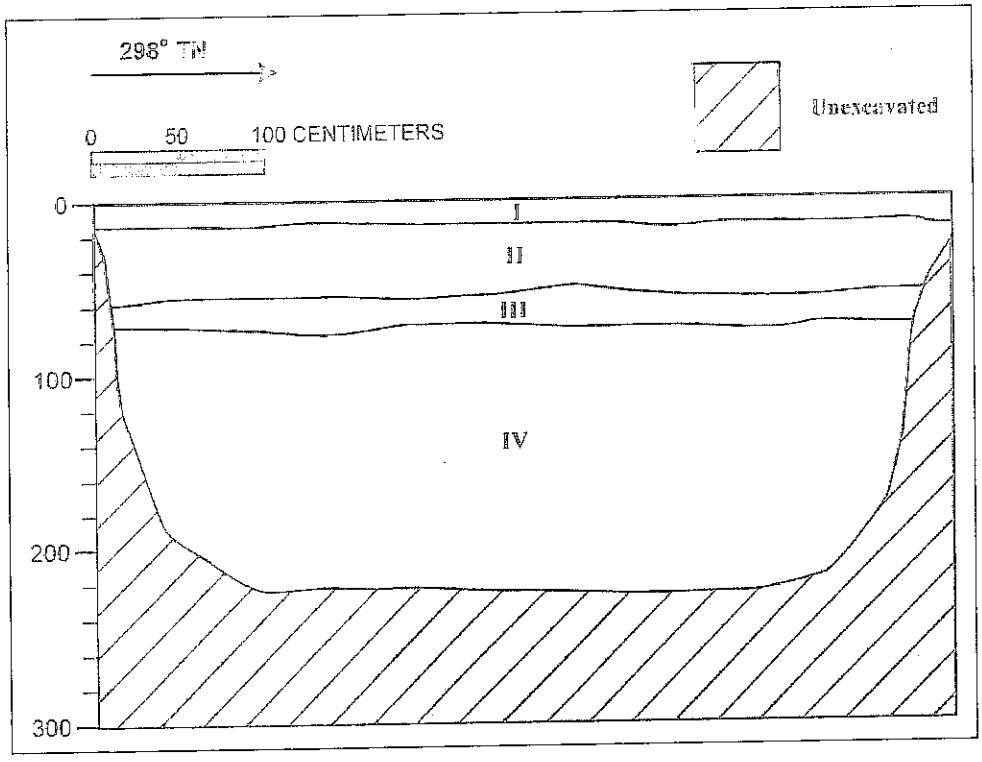

Figure 33. Trench 6, profile of south wall

Table 8. Strata observed at Trench 6

Stratum	Depth (cmbs)	Description
I	0-10	10 YR 3/4, dark yellowish brown; silty sand; structureless; loose moist consistency; non plastic; no cementation; mixed origin. Modern A horizon.
II	10-50	10 YR 6/4 light yellowish brown; sand; structureless; loose moist consistency; non plastic; no cementation; marine origin. Aeolian deposit.
III	50-70	GLEY 1 4/1 dark greenish gray with 10 YR 3/3 dark brown mottling; clay loam; fine crumb structure; firm moist consistency; slightly plastic; no cementation; terrestrial origin. Agricultural soil with rootlets and carbonized plant matter.
IV	70-BOE*	10 YR 3/2 very dark grayish brown; clay; fine crumb structure; very firm moist consistency; plastic; no cementation; terrestrial origin. Alluvial clay with water worn basalt cobbles and pebbles

* Base of Excavation

Figure 34. Trench 7, view to northwest

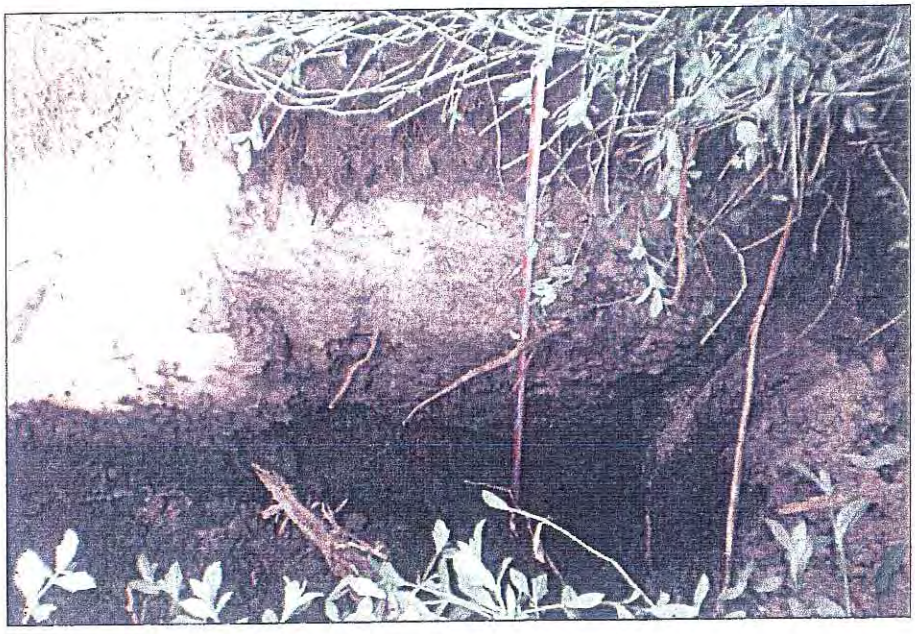

Figure 35. Trench 7, view to north

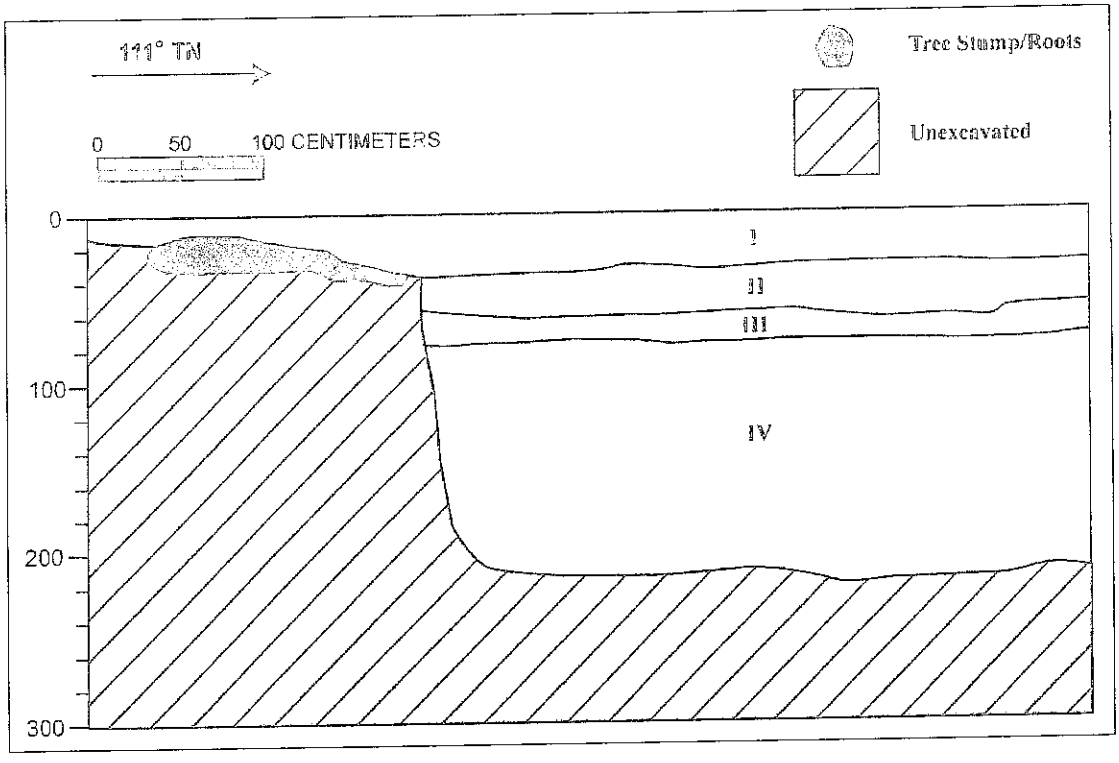

Figure 36. Trench 7, profile of north wall

Table 9. Strata observed at Trench 7

Stratum	Depth (cmbs)	Description
I	0-30	10 YR 3/4, dark yellowish brown; silty sand; structureless; loose moist consistency; non plastic; no cementation; mixed origin. Modern A horizon.
II	30-55	10 YR 6/4 light yellowish brown; sand; structureless; loose moist consistency; non plastic; no cementation; marine origin. Aeolian deposit.
III	55-70	GLEY 1 4/1 dark greenish gray with 10 YR 3/3 dark brown mottling; clay loam; fine crumb structure; firm moist consistency; slightly plastic; no cementation; terrestrial origin. Agricultural soil with rootlets and carbonized plant matter.
IV	70-BOE*	10 YR 3/2 very dark grayish brown; clay; fine crumb structure; very firm moist consistency; plastic; no cementation; terrestrial origin. Alluvial clay with water worn basalt cobbles and pebbles

* Base of Excavation

Section 6 Summary and Interpretation

In compliance with and to fulfill applicable Hawai'i state historic preservation legislation, CSH completed this archaeological inventory survey investigation for the proposed 1.34-Acre Midler Property Project. Per the Hawai'i state requirements for archaeological inventory surveys [HAR Chapter 13-276], this inventory survey investigation includes the results of cultural, historical, and archaeological background research, and fieldwork. The background research focused on summarizing the project area's pre-contact and post-contact land use, cultural significance, and types and locations of potential cultural resources within the project area and its vicinity.

As part of its inventory survey field effort, carried out on November 13, 2008, CSH conducted systematic pedestrian inspection of the project area. No surface historic properties were identified. Following the pedestrian inspection CSH conducted a subsurface testing regimen consisting of the excavation of seven backhoe trenches to prospect for subsurface cultural deposits. A single subsurface historic property was identified; SIHP # 50-30-02-864.

SIHP # 50-30-02-864 is a complex consisting of two pre-contact subsurface features. Feature A is a remnant irrigation ditch identified during excavation of Test Trench 3. Feature B is an alignment identified during excavation of Test Trench 4. Both features are located within or contain agricultural soils (Stratum III) consisting of rootlets and carbonized plant matter. SIHP# 50-30-02-864 was determined to be the subsurface remnant of a wetland agricultural system that was likely fed by the primary drainage canal (possible remnant *'auwai)* located within the current project area. These finding are expected, based on background research and previous archaeological investigations. The area encompassing the western portion of the current project area was used for wetland agriculture.

Section 7 Significance Assessments

The single historic property identified by the current study was evaluated for significance according to the broad criteria established for the National and Hawai'i Registers of Historic Places. The five criteria are:

A Associated with events that have made an important contribution to the broad patterns of our history;

B Associated with the lives of persons important in our past;

C Embodies the distinctive characteristics of a type, period, or method of construction, represents the work of a master, or possesses high artistic value;

D Have yielded, or is likely to yield information important for research on prehistory or history;

E Have an important value to the native Hawaiian people or to another ethnic group of the state due to associations with cultural practices once carried out, or still carried out, at the property, or due to associations with traditional beliefs, events or oral history accounts – these associations being important to the group's history and cultural identity.

SIHP # 50-30-02-864 is a complex consisting of a remnant irrigation ditch (Feature A) and an alignment (Feature B). SIHP # 50-30-02-864 is interpreted to be associated with pre-contact wetland agricultural cultivation. SIHP # 50-30-02-864 is assessed as significant under Criterion D (have yielded, or may be likely to yield information important in prehistory or history) of the National and Hawai'i Registers of Historic Places evaluation criteria.

Section 8 Project Effect and Mitigation Recommendations

The following project effect discussion and cultural resource management recommendations are intended to facilitate project planning and support the proposed project's required historic preservation consultation. This discussion is based on the results of this archaeological inventory survey investigation and CSH's communication with agents for the project proponents regarding the project's potential impacts to the historic properties described in the Results of Fieldwork section, above.

8.1 Project Effect

The proposed project will affect historic properties recommended eligible to the Hawai'i Register. CSH's project specific effect recommendation is "effect, with agreed upon mitigation measures." The mitigation measures described below will help alleviate the project's impact on significant historic properties.

8.2 Mitigation Recommendations

To reduce the proposed project's potential adverse effect on significant historic properties, the following mitigation measures are recommended.

SIHP# 50-30-02-864, a complex consisting of a remnant irrigation ditch (Feature A) and an alignment (Feature B), was documented with a detailed written description, photographs, scale drawings, and located with GPS survey equipment. No further work is recommended for SIHP# 50-30-02-864. However, due to the sensitive nature of the project area and the potential for project related ground disturbance during restoration, it is recommended that project reforestation proceed under an archaeological monitoring program. This monitoring program will facilitate the identification and documentation of any additional historic properties that might be discovered during project reforestation especially within the portions of the project area that remain unreachable for backhoe trench excavation. It is recommended that an archaeological monitor be present during all subsurface activities involving excavation of more than about 1 cubic meter in a given location. These activities include any vegetation clearing or planting that involves disturbance to or removal of sediment within the project area. Disturbances, such as excavation for tree root balls, may significantly impact or destroy subsurface cultural deposits that are, as yet, unidentified.

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KAHOOLAWE ISLAND RESERVE COMMISSION
LAND
STATE PARKS

February 25, 2009

Mr. David Shideler
Cultural Surveys Hawai'i
P.O. Box 1114
Kailua, Hawai'i 96734

LOG NO: 2009.0999
DOC NO: 0902WT62
Archaeology

Dear Mr. Shideler:

SUBJECT: 6E-42 Historic Preservation Review—
DRAFT Archaeological Inventory Survey—
For the Proposed 1.34 Acre Midler Property Project,
Hā'ena Ahupua'a, Hanalei District, Kaua'i, Hawai'i
TMK: (4) 5-9-003: 008

Thank you for providing the opportunity to review this resubmittal of the Draft archaeological Inventory Survey (DAIS) *(Draft Archaeological Inventory Survey for the proposed 1.34 Acre Midler Property Project, Hā'ena Ahupua'a, Hanalei District, Kaua'i, Hawai'i, TMK: (4) 5-9-003: 008 [Yucha and Hammatt PhD, January 2009])* which we received on February 19, 2009.

This survey was undertaken as part of an effort to rehabilitate this parcel by removing non-native plants and planting indigenous plants. The survey recorded one historic property through subsurface testing; SIHP #50-30-02-864, a complex of a remnant of an irrigation ditch (Feature A) and an alignment associated with pre-contact wetland agriculture (Feature B).

We requested the following revisions, which have been made:

1) References: There are numerous references in the References Cited section that are not in the body of the report. Please carefully edit your reports to make sure all the references match. We suggest that in the future the reference sections will not be boiler plated.

2) The photos of the trench profiles are not very clear due to hanging vegetation and roots, and the sides of the trenches were not faced which would have resulted in clearer profiles. In the future, please have your field archaeologists take some time to clear the vegetation and face the portion of the excavation they are going to be using to represent the stratigraphy of that excavation.

This report is accepted and meets the minimum standards for compliance with 6E-10 and Hawaii Administrative Rules (HAR) §13-13-276 *Rules Governing Standards for Archaeological Inventory Survey and Studies.*

Please send one hardcopy of the document, clearly marked FINAL, along with a copy of this review letter and a text-searchable PDF version on CD to the attention of Wendy Tolleson and the "SHPD Library" at the Kapolei SHPD office.

Please contact Wendy Tolleson at (808) 692-8024 if you have any questions or concerns regarding this letter.

EXHIBIT "K"

Aloha,

Nancy A. McMahon (Deputy SHPO)
State Historic Preservation Officer

Cultural Impact Assessment for Property Exclusion 13 of the Hā'ena Hui Partition located in Limahuli Valley, Hā'ena Ahupua'a, Hanalei District, Island of Kaua'i TMK: [4]5-9-003:008

Prepared for

Belles Graham Proudfoot Wilson & Chun LLP

Prepared by

Mishalla Spearing, B.A.,

Randy Groza, M.A.,

and

Hallett H. Hammatt, Ph.D.

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EXHIBIT "L"

Management Summary

Reference	Cultural Impact Assessment for Property Exclusion 13 of the Hā'ena Hui Partition located in Limahuli Valley, Hā'ena Ahupua'a, Hanalei District, Island of Kaua'i (TMK: [4]5-9-003:008)
Date	March 2009
Project Number(s)	Cultural Surveys Hawai'i (CSH) Job Code: HAENA 2.
Project Location	The project area is located east of Limahuli Stream at the Hā'ena Hui Partition in Limahuli Valley, Hā'ena Ahupua'a, Hanalei District on the Island of Kaua'i
Land Jurisdiction and Funding	Private
Agencies	State of Hawai'i Department of Health/Office of Environmental Quality Control (OEQC), State of Hawai'i Department of Land and Natural Resources/State Historic Preservation Division (SHPD)
Project Description	The owner of the proposed project has applied for a Conservation District Use Permit authorizing the removal of non-native plants; the trimming of native *hau* (possibly, *Hibiscadelphus* spp.); and the restoration of the property with native species pursuant to a plan prepared by the National Tropical Botanical Gardens.
Project Acreage	1.34 acres
Area of Potential Effect (APE)	For the purposes of this CIA, the APE is defined as the approximately 1.34-acre project area footprint within the larger context of Hā'ena Ahupua'a.
Document Purpose	The project requires compliance with the State of Hawai'i environmental review process [Hawai'i Revised Statutes (HRS) Chapter 343], which requires consideration of a proposed project's effect on cultural practices and resources. CSH undertook this CIA at the request of Belles Graham Proudfoot Wilson & Chun, LLP. Through document research and cultural consultation efforts, this report provides information pertinent to the assessment of the proposed project's impacts to cultural practices (per the Office of Environmental Quality Control's Guidelines for Assessing Cultural Impacts). This document is intended to support the project's environmental review and may also serve to support the project's historic preservation review under HRS Chapter 6E-42 and Hawai'i Administrative Rules Chapter 13-284.
Community Consultation	Hawaiian organizations, agencies and community members were contacted in order to identify potentially knowledgeable individuals with cultural expertise and/or knowledge of the project area. The organizations consulted included the State Historic Preservation Division (SHPD), the Office of Hawaiian Affairs (OHA), the Kaua'i-Ni'ihau Islands Burial Council (KNIBC), the Kaua'i Historic Preservation Review Commission (KHPRC), and community and

	cultural organizations in the Hanalei District.
Results of Results of Background Research	Background research for this project yielded the following results: 1. Hā'ena is unique among the *ahupua'a* of the Halele'a District with a long reef-fringed coastline and two permanent streams, Limahuli to the west and Mānoa to the east. Hā'ena has three caves, two of which are wet and one is dry. 2. The project area is generally associated with *mo'olelo* (legends, oral histories) about Pele and her sister Hi'iaka (Hi'iaka-i-ka-poli-o-Pele) in which the sisters find Pele's lover Lohi'au. The Hā'ena caves were traditionally believed to have been dug by Pele during her quest for a suitable home for herself and Lohi'au. 3. The *ahupua'a* of Hā'ena was permanently inhabited and intensively utilized in pre-Contact times. The area was used for taro, sweet potato and coconut cultivation. One *kuleana* award (LCA 794) has the same footprint as the current project area and indicates that the land had a number of *lo'i* (taro pondfields). Fishing and collecting seafood was essential to subsistence in Hā'ena. 4. Past archaeological studies in Hā'ena Ahupua'a have documented a wide variety of historic properties and features representing an intensive use of the landscape by Kānaka Maoli (native Hawaiians) living a traditional subsistence lifestyle. Despite the area's relatively low rainfall and barren/rocky appearance, several hundred historic properties, consisting of thousands of individual features, have been identified near the subject project area. Identified properties include permanent and temporary habitation structures (e.g., stone enclosures, platforms and terraced areas, subterranean lava tubes); agricultural terraces, mounds and walls; trails and trail markers (e.g., *ahu*); petroglyphs; subterranean caves and lava tubes used for a variety of purposes (e.g., shelter, storage and burial); other (non-cave/lava tube) burials; and a variety of religious shrines (e.g., *heiau* and *ko'a*). Radiocarbon dating from several projects documents a human presence in this area. 5. A single historic property has been identified in the project area. This subsurface agricultural wall recorded by Kennedy (1987a), SIHP # 50-30-02-864, is a complex consisting of a remnant irrigation ditch and an alignment. SIHP # 50-30-02-864 is interpreted to be associated with pre-Contact wetland agricultural cultivation, and is assessed as significant under Criterion D of the National and Hawai'i Registers of Historic

	Places evaluation criteria (Yucha and Hammatt 2009). 6. Prior archaeological studies also indicate that burials are commonplace in the sandy dunes of Kaua'i. 7. Although no *heiau* have been described within or in the immediate vicinity of the project area, several *heiau* have been documented in Hā'ena: Ka-ulu-Paoa Heiau, Ka-ulu-o-Laka and Kilioi and Lohi'au. 8. In modern times, two tsunamis devastated Hā'ena. The April 1, 1946 tsunami killed 10 of the 60 residents of the town and caused extensive damage. The 1957 tsunami destroyed 25 of the 29 homes in Hā'ena. Hui Kū'ai 'Āina, the Native Hawaiian group that worked and held most of the Hā'ena ahupua'a lands was disbanded in 1967.
Results of Community Consultation	CSH contacted 38 people for the purposes of this CIA; 19 people responded; 2 gave short testimonies or comments and 1 *kama'āina* (native born) was interviewed for a more in-depth contribution. Community consultation for this CIA indicates: 1. The project area and vicinity are likely to have surface and subsurface cultural and historic properties, including human burials. A number of the study participants indicated that there could be *iwi kūpuna* (ancestral remains) in or near the subject project area. Study participants made the following recommendations: a. SHPD's main concern is that inadvertent burial finds may be impacted by activities associated with this proposed project. b. Four participants mentioned the possibility of burials in the area and recommend that digging or other ground disturbance activities by kept to a minimum to decrease the chances of disturbing any burials, and that if burials are found, they should be left in place. 2. Two participants voiced concerns about this project leading to the building of a home on the project area. One of these participants specified that a situation like that in Naue, where over 30 sets of Hawaiian human remains and artifacts were found on private property during development, should be avoided. This participant is also concerned about the overall cumulative impacts of ongoing and future developments in Hā'ena and Kaua'i, giving the example of traffic congestion. 3. The methods of the plant removal are also of concern. One participant praised the past removal process of the java plum

	trees (*Syzygium cumini*), as most of the past removal was done by hand and there was minimal heavy machinery employed. The participant recommended that the current project use similar techniques. Also, it was noted that there are many stumps on the property and that—as has been done in the past—instead of digging them out of the ground, a machine to grind the stumps in place could be used. 4. Participants also recommended proper planning and consultation with Hawaiian and community agencies and organizations. and SHPD recommend the planner/developer do an informative presentation to the KNIBC prior to any land clearing activities. The KHPRC had several recommendations including: a. the applicant consult with the SHPD, KNIBC, Department of Hawaiian Homelands and OHA, b. a community input program be initiated by the applicant to obtain information on cultural practices or resources in the project area, c. KHPRC members contact CSH directly with names of kūpuna in the area who may participate in the consultation process, d. reference checks be undertaken at the Kaua'i Historical society, Kaua'i Museum State Archives, Bishop Museum, Libraries, place names resource documents and LCA's and, most notably, e. the replanting plan be sent to KHPRC for review and comment. 5. KHPRC further asked for clarification regarding the species of the *hau* in the project area, and suggested that rather than Hibiscadelphus spp., it is Hibiscus tiliacens which is more commonly found in the lowland areas. 6. One participant, a caretaker of the lands just *makai* of the subject project area and author of books on Hā'ena, inquired about who would be responsible for the maintenance and upkeep of the land to prevent overgrowth of invasive species. This participant is primarily concerned about the possible presence of *iwi* that could be disturbed in the process of digging in the proposed project area and cautions project personnel to avoid disturbance of Hawaiian burials (as noted in 1b above). Additionally this interviewee suggested ways for avoiding ground disturbance during the removal of non-native vegetation

	(3 above), the small likelihood that people may be gathering fruits or herbs on the project area or vicinity and, recommended that in maps, plant names be listed in Hawaiian first, and scientific classification second.
Recommendations	Although participants in this CIA generally approve of the proposed project, several expressed concern that the proposed action for Hā'ena may negatively impact Hawaiian beliefs, resources and practices, particularly with regard to disturbance of burials or *iwi kūpuna.* A good faith effort to develop appropriate measures to address concerns and attention to the following recommendations may help mitigate potentially adverse effects of the proposed project on cultural, historic and natural resources in and near the project area. Based on the findings of this CIA, it is recommended that: 1. Project proponents address concerns presented by CIA participants by avoiding harm as result of ground disturbance for reforestation to cultural and natural resources (e.g., burials). Of specific interest, participants recommended that the *iwi kūpuna* are not disturbed during the process. Minimizing digging in order to prevent disturbance of burials is recommended. 2. The proposed reforestation project proceed under an archaeological monitoring program. As suggested in the companion Archaeological Inventory Survey (AIS), due to the sensitive nature of the project area and the potential for project related ground disturbance during restoration, a monitoring program would facilitate the identification and documentation of any additional historic properties that might be discovered during project reforestation especially within the portions of the project area that remain unreachable for backhoe trench excavation. More specifically, it is suggested that an archaeological monitor be present during all subsurface activities involving excavation of more than about 1 cubic meter in a given location. These activities include any vegetation clearing or planting that involves disturbance to or removal of sediment within the project area. Disturbances, such as excavation for tree root balls, may significantly impact or destroy subsurface cultural deposits that are, as yet, unidentified (see Yucha and Hammatt 2009). 3. Similar methods used in past removal of java plums be considered. Past methods include removing the plants by hand with minimal heavy machinery employed, and removing stumps by using a machine to grind the stumps in place would rather than digging them out of the ground.

	4. The owner be responsible for maintenance and upkeep of vegetation to prevent overgrowth of invasive species. 5. Generally, it is recommended that project proponents pursue proactive dialog with concerned Hā'ena community members and agencies regarding planning, implementation and maintenance of the proposed reforestation project in order to address issues raised by study participants in this CIA. Proper planning and consultation with Hawaiian and community individuals, agencies and organizations including the KNIBC, OHA, the Department of Hawaiian Homelands and the KHPRC (not satisfied by this CIA effort) should be considered prior to any land clearing activities. It is also recommended that the project proponent send to the KHPRC the replanting plan for review and comment.

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Section 1 Introduction

1.1 Project Background

At the request of Belles Graham Proudfoot Wilson & Chun, LLP, Cultural Surveys Hawai'i, Inc. (CSH) prepared this Cultural Impact Assessment (CIA) for the approximately 1.34-acre project area footprint of the Exclusion 13 of the Hā'ena Hui Partition located in Limahuli Valley, Hā'ena Ahupua'a, Hanalei District, Island of Kaua'i (TMK (4) 5-9-003:008) as shown on Figures 1-3. The project area is located on privately owned land east of Limahuli Stream.

The owner of the project area, which is located within a conservation district, has applied for a Conservation District Use Permit authorizing the following: (1) removal of non-native plants; (2) trimming of native *hau* (possibly, *Hibiscadelphus* spp.) and; (3) restoration of the property with native species pursuant to a plan prepared by the National Tropical Botanical Gardens.

Broadly, this CIA considers the Area of Potential Effect (APE) to be the project area footprint within the larger context of Hā'ena Ahupua'a.

1.2 Document Purpose

The project requires compliance with the State of Hawai'i environmental review process [Hawai'i Revised Statutes (HRS) Chapter 343], which requires consideration of a proposed project's effect on cultural practices. Through document research and cultural consultation efforts, this report provides information pertinent to the assessment of the proposed project's impacts to cultural practices and resources (per the OEQC's Guidelines for Assessing Cultural Impacts). The document is intended to support the project's environmental review and may also serve to support the project's historic preservation review under HRS Chapter 6E-42 and Hawai'i Administrative Rules Chapter 13-284.

1.3 Companion Archaeological Inventory Survey of the Project Area

An Archaeological Inventory Survey (AIS) was conducted by CSH for the project area. The results of the archaeological study are presented in a companion report titled, "Archaeological Inventory Survey for the proposed 1.34-Acre Midler Property Project, Hā'ena Ahupua'a, Hanalei District, Kaua'i (TMK: [4] 5-9-003:008)" (Yucha and Hammatt 2009). Results of the AIS are enumerated in Section 5.3.2. below.

Figure 1. Portion of USGS 7.5-Minute Series Topographic Map, Hā'ena Quadrangle showing the survey area

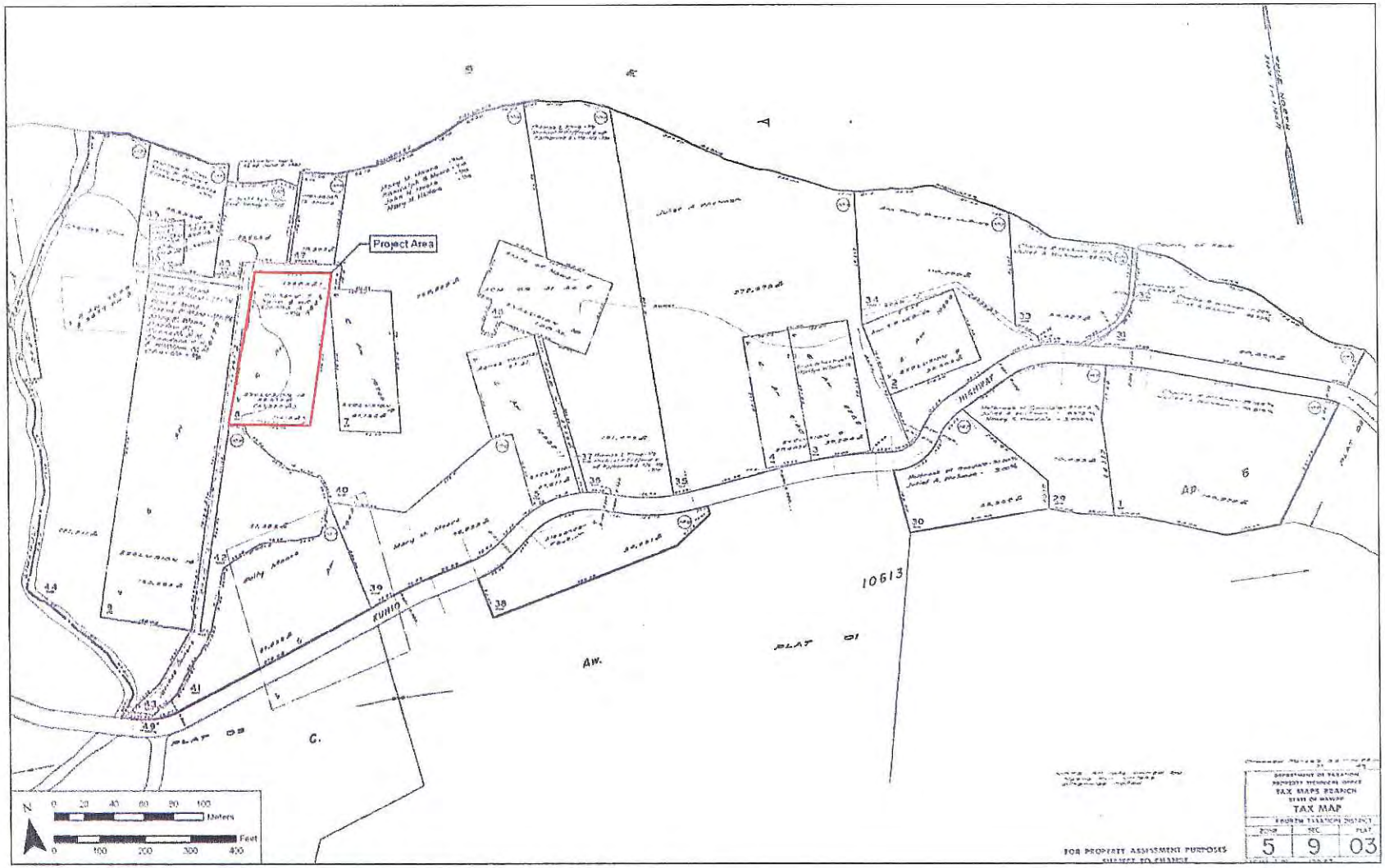

Figure 2. Overlay of Tax Map Key 5-9-03, showing project area location

Figure 3. Aerial photograph showing the location of the project area (source: U.S.G.S Orthoimagery 2005)

1.4 Scope of Work

The scope of work for this CIA includes:

1. Examination of cultural and historical resources, including Land Commission documents, historic maps, and previous research reports, with the specific purpose of identifying traditional Hawaiian activities including gathering of plant, animal, and other resources or agricultural pursuits as may be indicated in the historic record.
2. A review of previous archaeological work at and near the subject parcel that may be relevant to reconstructions of traditional land use activities; and to the identification and description of cultural resources, practices, and beliefs associated with the parcel.
3. Consultation and interviews with knowledgeable parties regarding traditional cultural practices at or near the parcel; present uses of the parcel; and/or other (non-Hawaiian) practices, uses, or traditions associated with the parcel.
4. Preparation of a report summarizing the results of these research activities.

1.5 Environmental Setting

1.5.1 Natural Environment

The *ahupua'a* of Hā'ena is relatively small (less than 3 square miles). About half of Hā'ena lies on a large, low, narrow coastal terrace which extends from the eastern edge of the Nā Pali cliffs at Ke'e Beach east to the mouth of Wainiha Stream. The coastal plain is never more than a third of a mile wide and is bounded by high ridges of the Nā Pali formation of the Waimea Canyon volcanic series. Hā'ena is uniquely situated as the major access point to the entire Nā Pali coast. The rough mountainous uplands have been deeply dissected by high gradient streams fed by high rainfall, which even at the coast averages about 75 inches a year. Hā'ena is drained by two shallow streams, Limahuli Stream to the east and Mānoa Stream to the west. These stream valleys were foci for agriculture and habitation. They were also sources of lithic raw material: the streams dissected dike formations, revealing and transporting finer grained basalt and volcanic glass suitable for tool manufacture. The flat Hā'ena beach terrace is bordered by a thin, elongated, back shore dune which parallels the beach. This has accumulated largely from the action of trade winds and high winter surf, but also from the actions of seismic sea waves. These seismic sea waves have been reported to reach 32-foot elevation at Hā'ena Point (MacDonald and Abbott 1974:258) and must have been well-known to the ancient Hawaiians. It has been suggested that "the dune crest is almost certainly a historic land form whose deposition is controlled by 20th century exotic tree growth, particularly ironwood" (Griffin et al. 1977:11).

According to the U.S Department of Agriculture (USDA) soil survey (Foote et al. 1972) the sediments within the project area consist of Hanalei Silty Clay (HrB), Mokuleia Fine Sandy Loam (Mr), and Marsh (MZ) (Figure 4). Soils of the Hanalei series are described as "somewhat poorly drained to poorly drained soils... developed in alluvium derived from basic igneous rock" (Foote et al. 1972). Soils of the Mokuleia series are described as "well-drained soils...formed

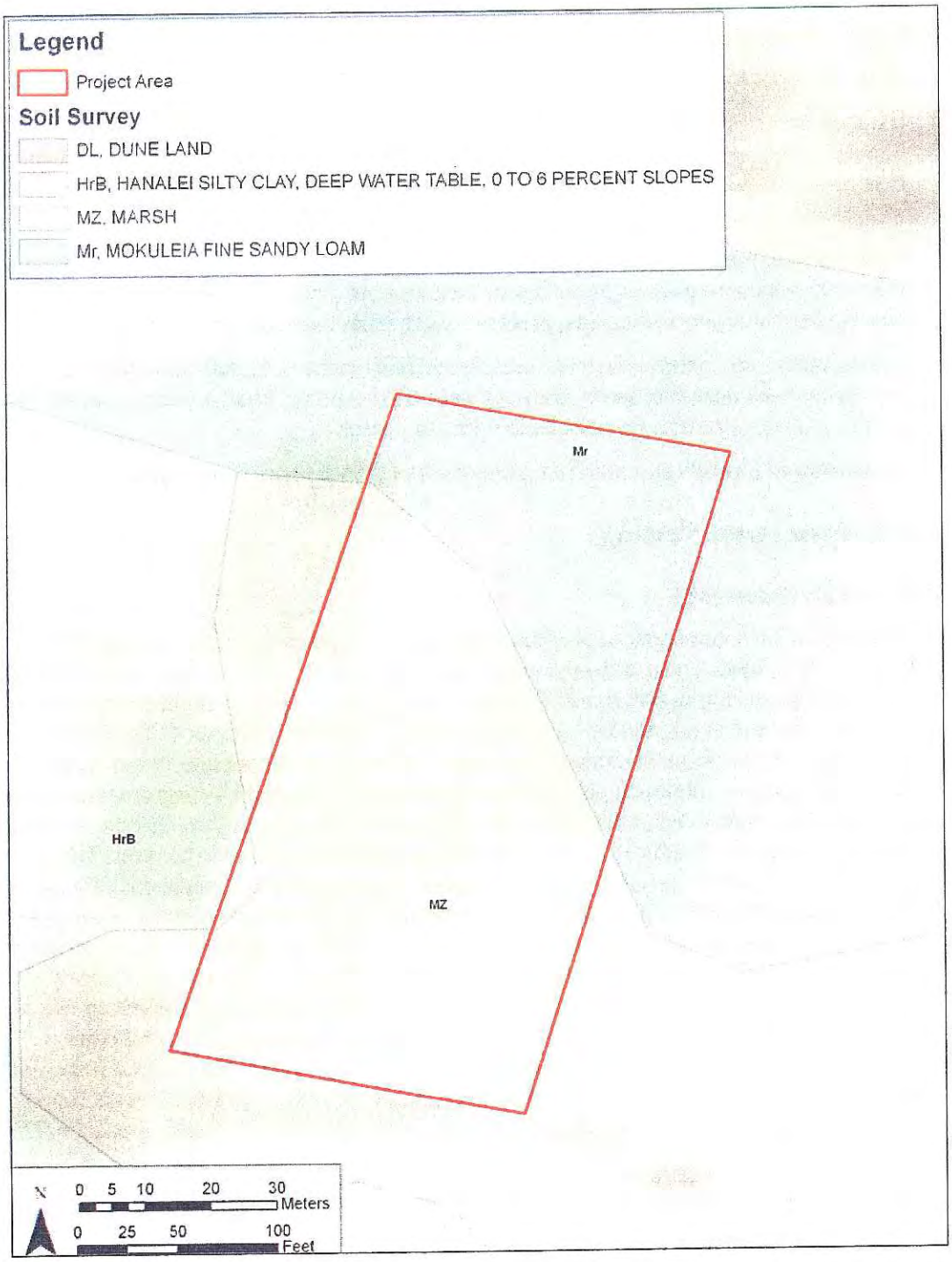

Figure 4. Portion of USGS 7.5-Minute Series Topographic Map, Hā'ena Quadrangle with Overlay of USDA soil survey (Foote et al. 1972)

in recent alluvium deposited over coral sand" (Foote et al. 1972). Marsh soils are described as "wet, periodically flooded areas covered dominantly with grasses and bulrushes or other herbaceous plants" (Foote et al. 1972).

The vegetation in the coastal area of Hā'ena is mostly exotic with ironwood (*Casuarina equisetifolia*) and tropical almond (*Terminalia catappa*), particularly common and well represented near the present study area. The native beach *naupaka* (*Scaevola sericea*) and coconut (*Cocos nucifera*) are also common. The project area and vicinity includes native species such as *hau* (possibly, *Hibiscadelphus* spp. and/or *Hibiscus tiliaceus*) and may contain other Hawaiian native plants.

1.5.2 Built Environment

The project area itself remains undeveloped. The project area is bounded to the west by a basalt gravel access road leading to two residential properties to the north and connecting the project area to Highway 560 located approximately 160 m to the south. The project area is bounded to the south by another residential property and to the east by marshland. The bordering residential properties contain house lots, driveways, and small structures.

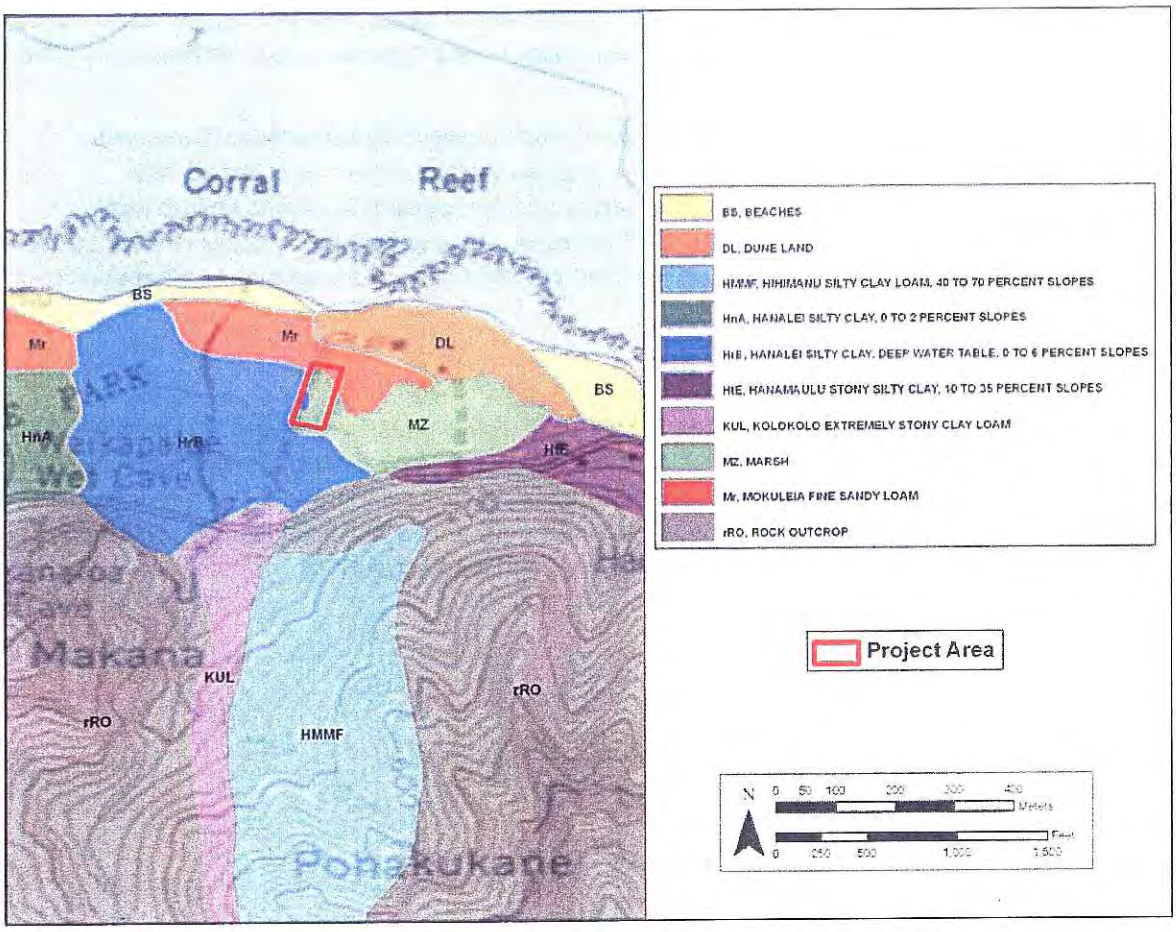

Figure 5. Overlay of Soil Survey of the State of Hawai'i (Sato et al. 1973), indicating soil types within project area

Section 2 Methods

Historical documents, maps and existing archaeological information pertaining to the sites in the vicinity of this project were researched at the CSH library. Information on Land Commission Awards was accessed through Waihona 'Āina Corporation's Māhele Data Base (www.waihona.com) as well as other online resources (e.g., http://www.ulukau.org/cgi-bin/vicki?l=en). The State Historic Preservation Division (SHPD), Office of Hawaiian Affairs (OHA), Kaua'i-Ni'ihau Islands Burial Council (KNIBC), Kaua'i Historic Preservation Review Commission (KHPRC), and community and cultural organizations in Hanalei were contacted in order to identify potentially knowledgeable individuals with cultural expertise and/or knowledge of the project area and the surrounding vicinity. The names for potential community contacts were also provided by colleagues at CSH and from the authors' familiarity with people who live in the vicinity of the project area. The cultural specialist conducting research on this assessment employed snowball sampling methods, an informed consent process and semi-structured interviews according to standard ethnographic methods (as suggested by Bernard 2005). Some of the prospective community contacts were not available to be interviewed as part of this project. A discussion of the consultation process can be found in Section 6 on Community Consultations. Please refer to Table 3, Section 6 for a complete list of individuals and organizations contacted.

Section 3 Traditional Background

3.1 Overview

This section focuses on the traditional background of the *ahupua'a* of Hā'ena in general, and specifically on the inland/near-coastal portions of this *ahupua'a*.

Hā'ena Ahupua'a is located in the *moku* (traditional district) of Halele'a (Figure 5). Hā'ena is unique among the *ahupua'a* of the Halele'a District with a long reef-fringed coastline and two permanent streams, Limahuli to the west and Mānoa to the east. The subject project area is on the coastal plain of Hā'ena, west of the town of Hanalei, just east of Limahuli Stream, north of Highway 560, and just south of Kaua'i's northern coastline.

3.2 Place Names

Translations presented without attribution in this subsection are from Pukui et al. (1973), unless indicated otherwise.

Hale-le'a The traditional name for Hā'ena's *moku* literally translates as, "house of happiness." Chants speak of Hale-le'a as the most beautiful place in Hawai'i. Handy and Handy (1972:417-418) propose that the area is known as "house of delight" due to the presence of the "greatest hula shrine in the islands."

Hā'ena translates literally as "red-hot." Interpretations range from, "a possible reference to the strong taboos that surrounded this place" (Wichman 1998:125), to an association with the romance between Pele and Lohi'au (see Section 3.3.1 Pele traditions).

Limahuli (Stream and Valley) translates literally as "turning hand." It is also the name of the wind that occurs in the valley: *He Limahuli ka manaki o Haena*. **Limahuli Stream** cuts through the reef at **Poholokeiki**. Poholo literally means to sink, vanish or disappear; *keiki* means child. Thus, Poholokeiki means sinking or vanishing child (Andrade 2001:77).

Mākua translates literally as "ancestor." **Mākua Bay** fronts Ka'ena State Beach. The bay is a favored place of fisherman and most of the year the bay is accessible for canoes (Andrade 2008:43).

Mānoa translates literally as "vast." **Mānoa Stream** runs into **Mākua Bay**.

Pu'u Kahuaiki translates literally as "small site hill." Large reef (*'āpapa*) to the east of Limahuli Stream; the surf site Bobo's is on this reef. Clark (2002:86) relates that the "iki" and "nui" (see below) refer to the depth of the reefs.

Pu'u Kahuanui translates literally as "large site hill." This is the large reef (*'āpapa*) to the west of Limahuli Stream. Clark (2002:86) relates, Pu'u Kahuanui was the highest of the reefs and therefore the last reef to be fished during a day of fishing.

Lohi'au's (see 3.3.1 Pele traditions below) sister was Kahuanui. Pu'u Kahuanui was her surfing domain, and the same spot where Lohi'au surfed after Hi'iaka brought him back to life. The "surf-raising" wind (*makani he'enalu*) associated with this surfing area is known as Kolokini.

Kai-kua'au-o-Hā'ena, Kaua'i's only lagoon, translates literally as "lagoon sea of Hā'ena." The lagoon protects Mākua Bay, just east of the project area that is enclosed by **Papa-loa**, "long reef." **Ka-'aulama-poko**, "light from a short-burning torch," is a near shore fishing hole thus named since it has good night fishing that is dependent on "short-burning" *kukui* nut torches. *'Āweoweo* (bigeye fish) gather in **Ka-lua-'āweoweo**, "'āweoweo hole," the fishing hole "at the farthest point from land." This 53 cm long fish has white flesh that was cooked, dried, or eaten raw (Wichman 1998:125).

Makana translates literally as "gift." It is the approximately 1,120-foot peak and cliff that appears on USGS maps on the ridge between Hā'ena and Nā Pali, near the coast. Andrade (2001:63) states that Makana "gives Hā'ena its distinctive look."

The cliff was one of the very few places in all of Hawai'i from which firebrands of *hau* or *pāpala* wood were hurled for fireworks, accounts say the wind would carry the firebrands a mile or more over the sea (Wichman 1998). The effect was similar to fireworks and called *'ōahi* ("hurling fire, as from a cliff for ancient spectacle"). It was described in 1885: "The buoyancy of the wood causes it to float in mid-air, rising or falling according to the force of the wind, sometimes darting far seaward, and again drifting towards the land" (Sinclair 1885 in Rock 1913:139).

The most famous documented firebrand display was for Queen Emma in 1860 (Davies n.d.:59). Knudsen (1956:226) gives a detailed account of watching *'ōahi* at Kamaile a 2,500 foot high peak over Nu'alolo Landing, Kaua'i and then of his own sponsorship of an *'ōahi* at Makana Peak, Hā'ena. Traditionally six to twenty -foot lengths of peeled and dried *hau* and *pāpala* wood were used. Sometimes the two ends were ignited. The hollow core of the *pāpala* gave a singular effect of shooting sparks. The wind caught the blazing light dry wood and carried the brands fabulous distances on their descent.

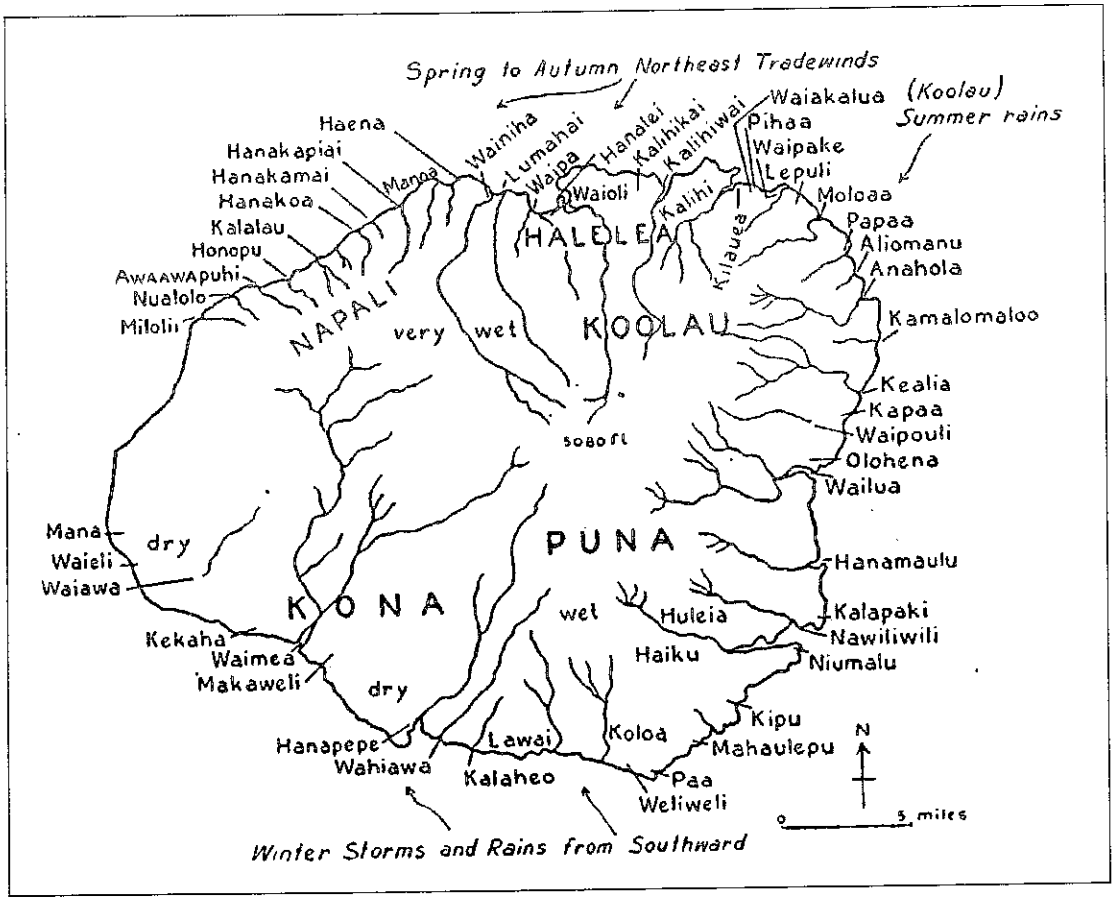

Figure 6. Moku (traditional districts) and *ahupua'a* of Kaua'i; Hā'ena is within Halele'a (Handy 1940:59)

3.3 Mo'olelo (Stories) Associated with Specific Place Names

Hā'ena is the site of the romance between Pele and Lohi'au, the king of Kaua'i, which is thought to have given the area its name:

A Lohi'au-ipo i Hā'ena lā,	and beloved Lohi'au at red-hot,
'ena 'ena Ke aloha Ke hiki mai	hot the love that comes

It has been suggested (Handy and Handy 1972:417-418) that this romance provided the name for not only Hā'ena, but for the entire district, Halele'a – "House of Delight."

3.3.1 Pele traditions

Probably the best known traditions of Hā'ena concern the visits of Pele and her sister Hi'iaka-i-ka-poli-o-Pele. The tradition begins with Pele going into a deep sleep in Puna, Hawai'i and her

spirit-form being attracted by the sound of drums to the house of Lohi'au, a highborn chief of Kaua'i, at Hā'ena. The house was named "Hāla'auola" or "Tree of Life." In some accounts Pele swims and in others she flies . "The house for dancing was long and beautifully draped with mats of all kinds. It was full of chiefs engaged in the sports of that time" (Westervelt 1916:75). During the subsequent nuptial festivities three supernatural *mo'o* (lizard, water spirit) women are introduced, "the guardians of Hā'ena" led by Kilinoe. Something of a contest for the affections of Lohi'au develops between Pele and Kilinoe. Pele chants and:

> When Pele ceased chanting winds without number began to come near, scraping over the land. The surf on the reef was roaring. The white sand of the beach rose up. Thunder followed the rolling, rumbling tongue of branching lightning. Mist crept over the precipices. Running water poured down the face of the cliffs. Red water and white water fled seaward, and the stormy heart of the ocean rose in tumbled heaps...Here have come the winds and destructive storms of Hā'ena. (Westervelt 1916:83)

The fierce storm abates as the sleeping Pele is awakened by her sister back in Puna, Hawai'i Island: "The spirit of Pele heard the wind, Naue, passing down to the sea, and soon came the call of Hi'iaka over the waters" (Westervelt 1916:85).

Fornander (1919 Vol. VI, Part II page 343) notes, "At Hā'ena, Kaua'i, Pele caught Lohi'au between Kahuakaiapaoa, his friend and Mapu, the music teacher, beating the drum that had disturbed her sleep" and that "Malaehaakoa and his wife Wailuanuiahoino lived at Hā'ena, Kaua'i he was a grandson of Kanoalani" (Fornander 1919 Vol. VI, Part II page 344).

Pele searched for a home for herself and Lohi'au, after failing to find any fire on Kaua'i. She traveled from island to island until she finally settled in Kīlauea on the Big Island. Hi'iaka, who had been an egg that Pele carried beneath her armpit during her travels, was transformed at that time into her human form. Pele then begged Hi'iaka to go to Kaua'i and return with Lohi'au, whom she longed to see. She also warned Hi'iaka not to kiss Lohi'au. Hi'iaka was accompanied on the trip by Wahine'ōma'o, a woman who was an expert *lehua lei* maker. The two women had many adventures during their travels and finally arrived in Hā'ena to discover that Lohi'au was dead (Joesting 1984:31). "Hi'iaka saw his spirit standing by the opening of a cave out on the pali of Hā'ena" (Westervelt 1916:127).

As Hi'iaka and Wahine'ōma'o ascend to a cave where Lohi'au's body is guarded by two *mo'o*, Hi'iaka invokes the sun to stand still at the stream mouth called "Hea" (*muli o Hea*) since it is late in the day. A battle with the *mo'o* women guardians (Kilioe and Aka) ensues and only after rituals and incantations lasting several days does Hi'iaka succeed in resurrecting Lohi'au. Rice (1923:15) places the scene of Hi'iaka's work to resurrect Lohi'au at "the *pali* above the wet caves where the body of Lohi'au had been laid."

Wichman (1998:129) relates the tradition that the upper wet cave, Wai-a-Kanaloa "water made by Kanaloa," was excavated by Pele "who struck the cliff here with her staff Pā'oa when she was searching for a home, but was met by water instead." This event fits into the period when Pele was first looking for a home and safety from her sister Nāmakaokaha'i although they are also likely associated with her efforts to make a home for herself and Lohi'au. Rice (1923:8)

relates that Pele attempted to find a suitable home twice at Hā'ena striking water both times, an allusion almost certainly to the origin of the two wet caves of Wai-a-Kanaloa and Waiakapala'e.

Following their arrival at Kīlauea, Hi'iaka requested that Wahine'ōma'o inform Pele that they had returned with Lohi'au. Pele hurried to the rim of Kīlauea Hi'iaka, and observed Hi'iaka suddenly turn to Lohi'au, embrace, and kiss him. Outraged, Pele covered Lohi'au with lava (Joesting 1984:31). After the confrontation over Lohi'au's affections, "Hi'iaka returned to Kaua'i. Her brothers restored Lohi'au to life once more and sent him after Hi'iaka. The two married and spent the rest of their life together at Kē'ē" (Wichman 1998:130).

Fornander (1919 Vol. VI, Part II pages 251-252) discusses the antiquity of the chant and concludes "the legend originated after the time of Maweke's grandchildren" which he determined to be post circa A.D. 1160. Today, a wall remnant of Lohi'au's house is still visible at Kē'ē Beach, west of the project area.

3.3.2 Nāpiliwale Rock Formation

There are several traditions associated with landscape features within Hā'ena. Wichman (1998:127) provides the following account of the Nāpiliwale ("clinging ones") rock formation and the Piliwale sisters, who attempted to eat everything they could find on Kaua'i. Fortunately, Lohi'au and his sister Kahua outsmarted the women:

> Nāpiliwale, "clinging ones," a stone formation on the Mānoa ridge, looks like two running figures with their skirts flying up behind them. It was the custom for the four Piliwale sisters to visit a chief's court and remain until all the food in the area had been consumed. Therefore, their appearance heralded a forthcoming famine. They had prodigious appetites and their favorite foods were the freshwater shrimp, the *wī*, freshwater snails, and the fiddlehead of the fern *hō'io*. Two of these sisters came to Hā'ena for a visit. Because they were *kupua* and could not tolerate the sun, Lohi'au and his sister Kahua built them a shelter in Maniniholo Cave and another on the ridge where they could enjoy the view. They were fed their favorite foods all through the night and were entertained by every hula dancer of the school at Kē'ē. As the night winds grew chill, Kahua ordered the sides of the shed enclosed with mats. The sisters so enjoyed themselves that they forgot the time. Then at dawn Kahua drew aside the wall coverings and the sisters, with cries of dismay, raced down the ridge to the cave. The sun's rays caught them as they ran and they turned to stone. They remain there as a warning to the other two sisters not to visit Kaua'i. (Wichman 1998:127)

3.4 'Ōlelo No'eau (Proverbs and Poetic Sayings)

Several 'Ōlelo No'eau are associated with Hā'ena and aspects of its lifeways. 'Ōlelo No'eau presented in this subsection are from Pukui (1983:150).

Ka i'a 'ula weli i ke kai.	The red fish that causes a red color to show in the sea.

The *'alalauwā*, a small red fish whose appearance in great numbers was regarded as a sign that a member of the royal family would soon die.

The *'alalauwā* is a young *āweoweo*, as discussed above.

Pupū ke kai i ka 'alalauwā. The sea is so thick with 'alalauwā fish that it is difficult to make a passage.

Said of a situation where it is difficult to make progress. (Pukui 1983:302).

3.5 Subsistence and Settlement

The *ahupua'a* of Hā'ena was permanently inhabited and intensively utilized in pre-Contact times, based on archaeological, historical, and oral-history documentation (e.g., Andrade 2008; Handy 1940; Silva 1995). Andrade (2008:30) describes Hā'ena as "well endowed with natural resources. Extending from uplands to coastal plain, it descended from cloud-shrouded peaks broadening out to include a fishery encompassing several large reefs and bays fronting the ahupua'a." The main settlement was located along the coast, *mauka* of the mountains, where extensive agricultural lands, fishing villages, and fishponds provided ready sources of protein. Given its location adjacent to Limahuli Stream and just *mauka* of the coastline, the subject project area was a fertile land with well-watered lowlands, and abundant marine resources.

According to Andrade, *menehune,* although recently referred to as legendary leprechauns or fairies, they were an actual people who were included in a census at the beginning of the nineteenth century. Fornander points out that the term *menehune* in Tahitian had become the name for the lowest laboring class of people, suggesting a Tahitian origin for the term for the legendary workers (Fornander 1917-1918:23). They are believed to have been the first settlers in Kaua'i and "King Kaumuali'i's census takers in the early 19th century ... register[ed] 65 persons as Menehune amongst the 2,000 recorded inhabitants of Wainiha Valley" (Handy and Handy 1972:405). "Hā'ena seems to be the last place where Menehune gathered in large numbers ... ; their leader was alarmed by the growing number of his men folk who were living with and having families with women of the people who arrived later as voyagers" (Andrade 2008:8-9). Hā'ena was apparently the gathering place for Menehune prior to their migration from Kaua'i. The Menehune *ali'i* apparently feared his people would continue to marry Hawaiians and lose their identity.

Earle (1978) deduced a number of interesting points about life in Hā'ena on the basis of early historic records. He estimates that the average size of a household at Hā'ena in 1847 was 8.1 persons compared to the Halele'a District average of 5.6 persons (Earle 1978:147); that in 1850, 96% of the land awards included taro lands (Earle 1978:149); that 85% of the house lots were located in the sandy strip near the shore (Earle 1978:149); that in Hā'ena there was almost no clustering of house lots (Earle 1978:164); that warfare between local communities was not present (Earle 1978:164); and that agricultural resources at Halele'a District were particularly underutilized (Earle 1978:163). His work on mean distances from house lots to taro fields and the sea suggests a greater marine orientation at Hā'ena than existed elsewhere (Earle 1978:150).

3.5.1 Agricultural

E. Craighill Handy (1940:58-60, 153) describes taro and sweet potato cultivation within Hā'ena Ahupua'a in the 1930s. While some *lo'i* (taro pondfields) and sweet potato continued to be under cultivation, most fields had been abandoned:

> Extensive areas of small terraces (lo'i), now abandoned and used only for pasture, fill the lower part of Limahuli Valley. The sloping and flat lands east and west of Limahui Stream between the sand dunes and the mountain sides were developed in terraces, irrigated by ditches from Limahuli Stream. About a dozen of these terraces are now under cultivation in taro. The rest are used a pasture or abandoned under brush and grass. The swampy area commencing a few hundred yards east of the stream used to be planted.
>
> There were many small terraces in lower Manoa Valley and on the flatland immediately adjacent to the hills. All this land is now unused. (Handy 1940:58-60)

The only evidence of the extensive *lo'i* complex that formerly grew within Mānoa Valley, west of the project area, is the stone-faced terraces and *'auwai* (irrigation ditches/canals) that are now overgrown with shrubs and trees (Andrade 2008:53).

> On Kauai sweet potatoes are still planted in many places near the seashore where sandy soil is mixed with humus. Such planting may be seen on the delta and near the dunes at Anahola. Similar planting is now occasional but used to be universal near the shore at Moloaa. The narrow coastal strip between the hillsides and the sea at Kalihi-kai and Anini is also ideal for this type of planting and there are now a number of flourishing patches. The coastal plain of Haena is similar in places where there are plantations. (Handy 1940:153)

Handy and Handy's (1972) study of Hawaiian "planters" tells us about a unique taro cultivation process and other agricultural activities. Also of note is that Hā'ena was a "favored" planting area for coconut (Handy and Handy 1972:172):

> A few hundred yards east of Limahuli Stream there is a swampy area where taro was grown in a unique way that was practiced only here and in the marshes of Mana and Wai'eli, west of Kekaha. Swamp earth was piled up on rafts that were partly submerged, probably resting on the soft bottom of the swamp, and in the earth on these rafts wet taro was planted.
>
> On sandy areas along the coastal plain sweet potatoes were grown. Formerly many varieties of banana were planted in Limahuli and Manoa Valleys, as well as many kinds of sugar cane and several varieties of *'awa*. (Handy and Handy 1972:419)

3.5.2 Marine Resources

Octopus or *he'e,* spiny lobster or *ula,* and various fish were essential to subsistence in Hā'ena. Andrade (2008:1) tells us that these fish included *manini* (convict tang), *kala* (unicorn fish), *nenue* (*Kuphosus bigibbus*).

In addition to netting fish, "a unique method of gathering fish from nearby Limahuli stream" was utilized. Andrade (2008:50) cites a conversation with *kupuna* Samson Mahuiki regarding how his mother, Rachel, taught him to catch fish in the stream and on the reef. She was also well known for her expertise at catching *he'e*:

> Just wall 'em (one branch of Limahuli stream) with the stones and mud, so simple. The thing was so easy, we even catch *'o'opu* (a freshwater goby), any small opening on the side that's where the *'o'opu* going be.... No need special equipment, just take that mud and seal that water. She was very knowledgeable for the reef as well. Oh what you call, food supply from the reef, like with the *loli*, with the *wana*, the *pukas*, how to use 'em. (Andrade 2008:50)

3.6 Caves ('A'a'ā)

Hā'ena has three caves, two of which are wet and one is dry. **Maniniholo** (traveling manini fish) is the dry cave. **Waikanaloa** (water of Kanaloa) and **Waikapalae** (water of Kapalae) are the wet caves and contain fresh water. As mentioned above, the caves were traditionally believed to have been dug by Pele during her quest for a suitable home for herself and Lohi'au.

Maniniholo was the chief fisherman of the *Menehune*. The legend of Maniniholo tells us that he dug the cave searching for the supernatural being who stole the *Menehunes'* fish. He and his workers gathered so much food from the reefs and bay of Hā'ena that they formed a pile of fish to retrieve the next day. When the group returned, they discovered the food had disappeared. Maniniholo saw little *'e'epa* (imps) hiding within the crevices and realized they must be the thieves. He and his workers dug into the stone, creating the cave, and killed the *'e'epa*. The legend continues with the exodus of the *Menehune* from Makua Bay after they all gathered in front of Maniniholo Cave (Pacific Worlds & Associates 2001).

Waikanaloa: Kanaloa and his brother Kāne were two of the four major Hawaiian gods. Kanaloa and Kāne were known for digging sources of drinking water during their travels. Waikanaloa is said to have been dug by Kanaloa (Pacific Worlds & Associates 2001).

Waikapalae: Kapalae was a *kupua* or supernatural being who appeared in several forms including a beautiful woman. She is said to have enchanted a chief from Wainiha with whom she had a baby. The chief's friends tried to kill her when she told them he was dead. However, she escaped by diving into the water. Her long hair, spread out in the water, and colored the pool. As Kapalae grew older the brown water turned to gray. "For this reason, the cave was known either as Wai-a-kapa-lae, 'water of terror', or as Wai-a-kapa-la'e, 'water of shiny tapa'" (Pacific Worlds & Associates 2001).

The lake of fresh water within Waikanaloa was known as **Halaaniani**, "clear pandanus." Wichman (1998:129) relates the tradition that the lake:

> ...was set aside for the *ali'i*; commoners could not bathe in it. The waters were thought to be able to restore an ailing person back to health. The chiefs either

drank from a calabash filled with the water, or - better - swam in the underground lake.

3.7 Iiina (Burials)

Wendell C. Bennett (1931:26), the author of the first systematic review of Kaua'i's archaeology, writes,

> Burials may be found in almost any sand dune on the island of Kauai....The common explanation of so many bones in the dunes is that they are the remains of a great battle, but the skeletons of women and children as well as the presence of flexed burials, together with the absence of weapons around these sites, exclude any such notions. It is not improbable that the easy digging in the dunes favored their use for wholesale burial of the dead after battles, but this is different than having a battle on the dunes.
>
> Alexander (1, p.74) says that the common people were buried in the dunes and that the graves were little thought of. However, the ivory pendants (*palaoa*) are sometimes found, and these were symbolic of chiefly rank. The dunes were probably used as the most convenient location for quick burial, and mostly though not exclusively, used by the common people. (Bennett 1931:26)

Also of note is the comment made by William T. Brigham, who later became the director of the Bishop Museum. During his visit to Hā'ena in 1865, Brigham observed "a burial place in the sands on the beach, and we saw several skulls and other bones lying exposed" (Pacific Worlds & Associates 2001). Iwi have been found in sand deposits throughout the Hawaiian Islands.

3.8 Heiau (Place of Worship, Temple)

Although no *heiau* have been described within or in the immediate vicinity of the project area, several *heiau* have been documented in Hā'ena.

Ka-ulu-Paoa Heiau is at the foot of Kē'ē cliff in west Hā'ena and literally means "the inspiration [of] Paoa. (Lohi'au and his friend Paoa trained in hula here)" (Pukui et al. 1973:94). Wichman (1998:132) tells us that this was a school for genealogists and historians. When chiefs graduated from Ka-ulu-Paoa, firebrands commemorated the event.

In the 20th century, despite the condition of the *heiau*, which had been ruins for many years, chanters including Mary Kawena Pukui came to Ka-ulu-Paoa to test themselves. Accompanied by her teacher, Pukui chanted but failed to do so loudly enough to be heard over the wind and ocean (Joesting 1984:34).

Henry E. Kekahuna, Hawaiian folklorist, mapped and described Ka-ulu-Paoa in 1959:

> The ancient, most renowned hula seminary of the island of Kaua'i, Ka Ulu o Paoa, institution for the growth (ulu) of knowledge of the art of hula dancing, founded by Paoa, nestles at the base of the cliff on the west side of the famed fire-throwing cliff of Makana (Ka Pali O Ahi o Makana). It is adjoined by the northern

> side of its celebrated heiau of the same name, that slopes downward toward the sea. Thus it is commemorated Pauao, a dearest chiefly friend of chief Lohiau (Lohiau o Ha'ena), who centuries ago was king of the island of Kaua'i, and who together with Paoa, is associated in relation with the great volcano goddess Madame Pele.
>
> The noted hula seminary, with its strict tabus imposed during training, was the most famous in all the Hawaiian islands. Many graduates of notable hula seminaries elsewhere came to Ha'ena to seek higher learning through post-graduate courses. Before aspirants were permitted to enter as students, they were selected through severe tests of the heiau division. If these tests were successfully passed, the elect then entered the seminary. (Pacific Worlds & Associates 2001)

Ka-ulu-o-Laka is a *heiau* for hula dancers and literally means "the inspiration [of] Laka (goddess of the hula)" (Pukui et al. 1974:94). Ka-ulu-o-Laka is close to Ka-ulu-Paoa. Wichman (1998:132) reports that Ka-ulu-o-Laka was not only a school for hula, but also for chanting, composing religious chants, as well as songs.

Thrum (1906:43), who conducted an island wide *heiau* study, identified two in Hā'ena, **Kilioi** and **Lohi'au**. Kilioi *heiau* is better known as Ka-ulu-Paoa Heiau; Thrum may have confused the name with the neighboring Kilioe stone. Thrum (1906:43) reported that Kilioi was a "heiau consisting of two platforms, highly terraced; very famous, very sacred and an immense structure."

Kilioi was a teacher at Ka-ulu-o-Laka, the famous hula *hālau* (group) at Ke'e dedicated to Laka, the goddess of hula. Kilioi is also the name of the boulder above the former *hālau*. *Piko* (navel cords) were wedged into the rocks surrounding the boulder (Joesting 1984:32).

Thrum (1906:43) also reported that Lohi'au, at Ke'e, Hā'ena Point, is a "walled heiau dedicated to Laka, goddess of the hula."

Section 4 Historical Background

Historical documents about Hā'ena focus on early observations by explorers, missionaries and others. These types of information often provide bits and pieces of Native Hawaiian perceptions and ideas about the *ahupua'a*. These early observations also inform us about how climatic and natural-resource conditions have changed over the last 200 years or so.

Historical researcher Carol Silva (1995) states that:

> Politically, little is known relative to chiefly lines that managed this [Halele'a] district prior to and during Kaumalii's [sovereign of Kaua'i until his death in 1824]. The oral traditions are mute; chants recorded of the area are not conclusive in identifying chiefs other than Lohiau, Paoa and Malaeha'akoa of the Pele-Hi'iaka tradition. All of these chiefs were immediately associated with Haena....(1995:8)

While we know little about the earliest rulers, Fornander (1878) provides some insight:

> That the ruling families of Kauai were the highest tapu chiefs in the group is evident from the avidity with which chiefs and chiefesses of the other islands sought alliances with them. They were always considered as the purest of the 'blue blood' of the Hawaiian aristocracy....(Fornander 1878:Vol.1:291-292)

4.1 Early Historic Period

By the first decades of the 19th century, the inhabitants of Hā'ena had experienced the social pressures and consequences of western contact. "As early as 1788, Hawaiians began enlisting as seamen on the foreign ships that stopped at Island ports, and their number increased rapidly with the growth of whaling in the Pacific" (Schmitt 1973:16). As harbor facilities were developed in Kauai during the early 1800s, these burgeoning ports became centers of a population drawn from increasingly isolated (economically and socially) areas like Hā'ena. Newly-introduced diseases cut the population severely. Missionary censuses of the 1830s chart the diminishing population of Hā'ena.

4.2 Middle to Late 19th Century

The middle 19th century brought great changes to Hā'ena, including private and public land ownership laws known as the Māhele (literally, 'to divide' or 'to section'). Coulter's (1931) population density estimates for 1853 (Figure 7) show that a few hundred people lived in the vicinity of the subject project area at this time.

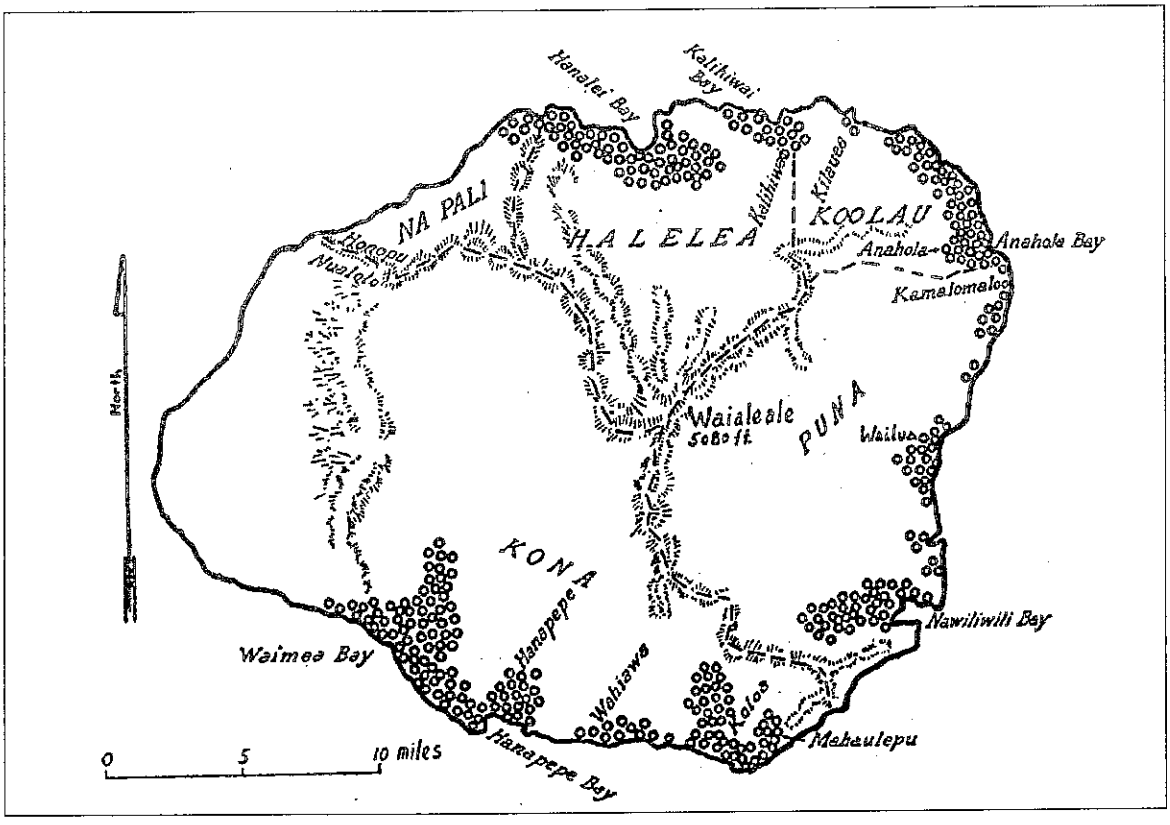

Figure 7. 1853 (Coulter 1931:16) population density estimates; each symbol represents 50 people

4.2.1 The Māhele

In the middle 19th century, during the time of Kamehameha III, a series of legal and legislative changes were brought about in the name of 'land reform' (see the works of Jon Chinen [1958 and 1971] for a thorough and well-written explanation). Prior to the Māhele, all land belonged to the *akua* (gods), held in trust for them by the paramount chief, and managed by subordinate chiefs. Following the enactment of a series of new laws from the middle 1840s to middle 1850s, Kamehameha III divided the land into four categories: certain lands to be reserved for himself and the royal house were known as Crown Lands; lands for the government were known as Government Lands; lands claimed by *ali'i* and their *konohiki* (supervisors) were called Konohiki Lands; and small plots claimed by the *maka'āinana* (commoners) were called *kuleana* (Chinen 1958:8-15).

The Kuleana Act of 1850 allowed *maka'āinana,* in principle, to own land parcels on which they were currently and actively cultivating and/or residing. In theory, this 'set aside' of hundreds of thousands of acres as potential *kuleana* parcels ultimately led to about 10,000 claimants obtaining approximately 30,000 acres, while 252 chiefs, for example, divided up about a million acres. Many or most Hawaiians were simply disenfranchised by these acts.

During the Māhele, the bulk of the *ahupua'a* of Hā'ena was awarded to Abner Pākī (father of Bernice Pauahi). Waihona 'Āina lists 34 LCAs in Hā'ena, although 5 are numbered incorrectly and 7 were not awarded, so 22 land commission awards were granted to native Hawaiians. Claims in and within the vicinity of the subject area are shown on Figure 8 and are summarized in the Table 1. The testimony associated with these awards indicates taro *lo'i* with a few house lots and a *loko* or fishpond in close proximity to the present project area.

One *kuleana* award, LCA 7942 awarded to Kuapiko, has the same footprint as the current project area. Kuapiko claimed the land had 10 *lo'i* (see Appendix A), although the Foreign and Native testimony both state that the property contained 5 *lo'i* and "3 very small" ones.

LCA 10965 awarded to Wahieloa is just to the east and was "held ... from the days of Kaumualii" who died in 1824. LCA 9179, awarded to Kaukapawa is just to the west of the project area and had also been held from the same period. These awards both contained *lo'i* and a house lot.

Other land grants in the immediate vicinity include LCA7943:2 to the northwest, LCA 7945 to the south, and LCA 10965 to the east. They contained *lo'i* (LCA 7943:2 and 10965), and a house lot (LCA 7945 and 10965). No LCAs were awarded north of (*makai*) the project area.

E. Kekela, the *konohiki* for Hā'ena, held LCA 7949:3, just east of the subject project area. She was Pākī's mother's sister, and was one of the few female *konohiki* (Andrade 2001:118-119). The land contained "loko kalo" (taro pondfield) and was called "Kanaele" (see Appendix A). Andrade (2008:91) notes that few women were awarded land but possibly due to Kekela's role, some women in Hā'ena filed claims for land.

Upon the death of Pākī in 1855 and his wife Laura Konia in 1857, their Hā'ena lands passed to their daughter Bernice Pauahi. These Hā'ena lands were sold to William H. Pease, a surveyor, in 1858 and following his death were conveyed to William Kinney in 1872. In 1875, Kinney transferred approximately 2,500 acres to Kenoi Kaukaha and 37 other individuals as tenants in common. Hā'ena continued to be primarily under taro cultivation in the 1880s. Mahuiki and Company, "taro planters," owned 900 acres of land and maintained 400 of those acres in taro cultivation (Silva 1995:39).

In 1895, Eric Knudsen, a member of Kaua'i's prominent ranching family, described Hā'ena's landscape. Knudsen was visiting the caves *mauka* of the project area.

> Crossing the flat lands of Wainiha and Haena we came to the big dry cave which we all rode into and then on to the Wet Caves. The road followed the beach and all the land between the shore line and the cliffs was planted to taro. We tied up our horses and walked along the kuaunas [the side or border of a kalo patch] between the patches and soon reached the nearest cave. (Knudsen 1891 in Pacific Worlds & Associates 2001)

Horses were the most common means of transportation until the early 20th century due to the rough landscape. Additionally, cattle ranching had developed in the late 1800s and horses were necessary for herding.

4.2.2 Hui Kū'ai 'Āina O Hā'ena

According to Andrade (2008: 103-104), Hui Kū'ai 'Āina, a group of native Hawaiians, worked and held lands in Hā'ena until 1967. The concept of a *hui* is to own and live on a land collectively, which had been done for the past two thousand years. The group was formed by the native Hawaiians to buy land after the Mahele and Kuleana Act, after realizing that the land provided to them by the Mahele was insufficient for survival and to attempt to retain some features of the traditional way of the ancestors. This practice was common after the Mahele and Kuleana Act. Much of the *kuleana* and *hui* land was bought by missionary descendants and early *haole* entrepreneurial families.It was difficult for the Hā'ena *hui* to retain their old ways as the influence of the Western legal system and capitalism, but this particular *ahupua'a* stayed intact longer than most *hui* lands. However, a suit for partition was initiated in 1955 by two wealthy *haole*, having purchased shares from family members and heirs of individuals who had been part of the original *hui*, privatizing the land. Andrade summarizes the progression of the *ahupua'a* saying:

> With the completion of the suit for partition, the lands of Hā'ena were finally entirely privatized. This ahupua'a, which for close to two thousand years had provided a wealth of resources extending from the mountains out into the sea cultivated and shared by an entire community, was now fragmented and parceled out. In time, it would become, in a great number of cases a site for vacation rentals, second homes for wealthy citizens from a far away continent, and residences for those with considerable access to monetary resources. Few aboriginal people have managed to hold on to their landholdings. These remnants of the original Native population persist in the face of ever climbing real property taxes fueled by speculative development and "flip that house" mentality. However, within surviving families, the skills of traditional fishermen and farmers, the stories passed down from many generations, and a unique sense of humor and identity rooted and nurtured in the special place that is Hā'ena continue to be manifested (Andrade 2008:115).

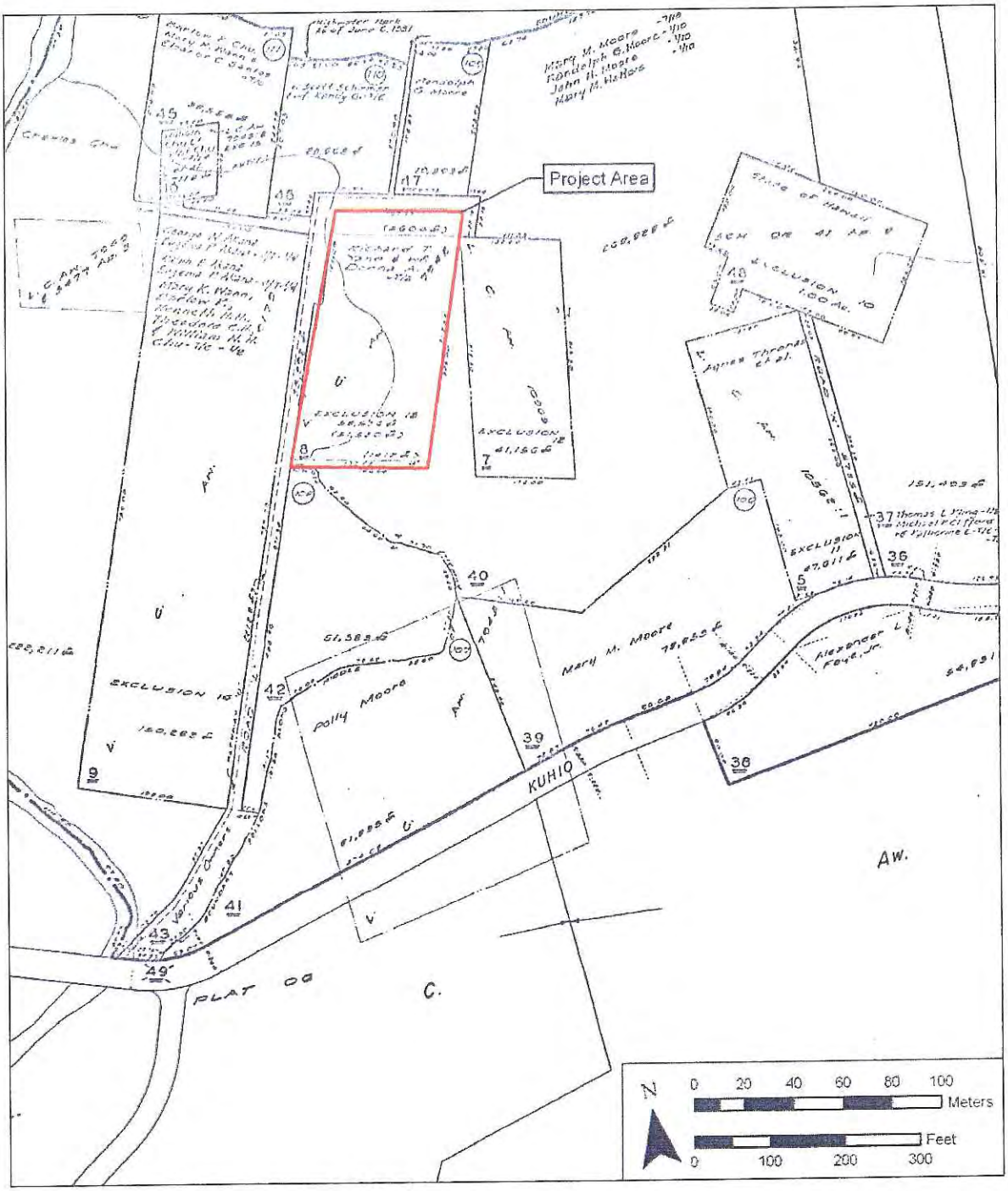

Figure 8. Portion of TMK map showing LCA 7942 (project area) and LCAs in the vicinity

Table 1. LCAs in and within the immediate vicinity of the project area

LCA # & TMK	Claimant	'Ili	Land Use	Awarded/ Landscape Features
7942	Kuapiko	Laloaole, Moolalaole	10 *lo'i*	1 ap. 1 Ac 1 rood 14 rods
7943	Keahiahi	Puukahua	5 *lo'i*	1 ap. 2 Acs 1 rood 24 rods
7945:1	Kekula Kao wahine; Makumahu heir	Pe'ekauai, Mahau	1) house lot in Mahau 2) 10 *lo'i & kula*	2 āp.; 2 Acs 3 roods 19 rods; beach *makai*
7949:3	E. Kekela	Kalole		
7998	Haole	Ke'e	8 *lo'i* & several smaller ones	0.25 acre
8200C	Mokuohai, Kaenaku, heir	Ke'e & Hā'ena	house lot & *loko* adjoining	TMK shows 160,031 sq. ft. *'Āpana* 1; 3 *'āpana* 4.25 Acs
8262	Ohule	Waikapu	house lot, *kula* & 5 *lo'i*	1 ap. 3 roods 24 rods; beach
9140	Kukukaelele	Kahakaheana, Kahau	1) house lot 2) 4 *lo'i*	1 ap. 2 rood 28 rods; beach
9179	Kaukapawa; Kumukamalii & Pukoula, sons	Kaia	house lot, *kula* & 26 *lo'i*	1 ap. 3 Acs 72 rods; *makai* by sea beach
10396	Nahiala'a wahine	Waikapu	*Lo'i*	1 ap. 3 roods 10 rods
10562:1	I. Opu, Kuaihelani	Mānoa	1) *kalo & loko* 2 *kula*	1 ap. Mahau 23 rods; public road *makai*
10613	Pākī, Abner	Hā'ena *Ahupua'a*	none given	Not surveyed; boundary between Hā'ena & Wainiha contested
10965	Wahieloa	Kaloli	House lot & 6 *lo'i*	1 ap.; 3 roods 31 rods

4.3 Twentieth Century

A small Hawaiian community numbering about 60 continued at Hā'ena into the mid 20th century. The first census conducted after the annexation of Hawai'i was conducted in 1900. At that time seven households were recorded in Hā'ena. Ten years later, the census recorded 15 households (Silva 1995). Although there is no written documentation of agricultural, fishing, or

ranching activities for the area, it is likely that Hā'ena continued to depend on agricultural and fishing endeavors, and some cattle grazing was conducted in the area. Figure 9 shows coastal Hā'ena and the project area's vicinity in 1924 with a lack of forests and development.

When the April 1, 1946 tsunami devastated Hā'ena, the area was described as "a small year round population of Hawaiians, numbering about 60." Ten people were killed and the tsunami caused extensive damage. In the vicinity of Hā'ena the water rose to heights generally between 6 and 9 m. At the head of Hā'ena Bay it crossed a shore platform about 1 m above sea level and 160 m wide, and rose on the cliff at the landward side of the platform to a height of 13.5 m. (Shepard et al. 1950:413).

The 1957 tsunami destroyed 25 of the 29 homes in Hā'ena (Honolulu Advertiser 1957). Based on the damage caused by the tsunamis, it is not surprising that the 1965 USGS map (Figure 10) shows little development for the entire northeast shoreline. The project area's proximity to reefs, caves, and Highway 56 is however shown.

As mentioned previously Hui Kū'ai 'Āina, the Native Hawaiian group that worked and held most of the Hā'ena *ahupua'a* lands, was disbanded in 1967.

4.3.1 Current Land Use

While the present project area is undeveloped, surrounding areas have seen increasing modern residential use.

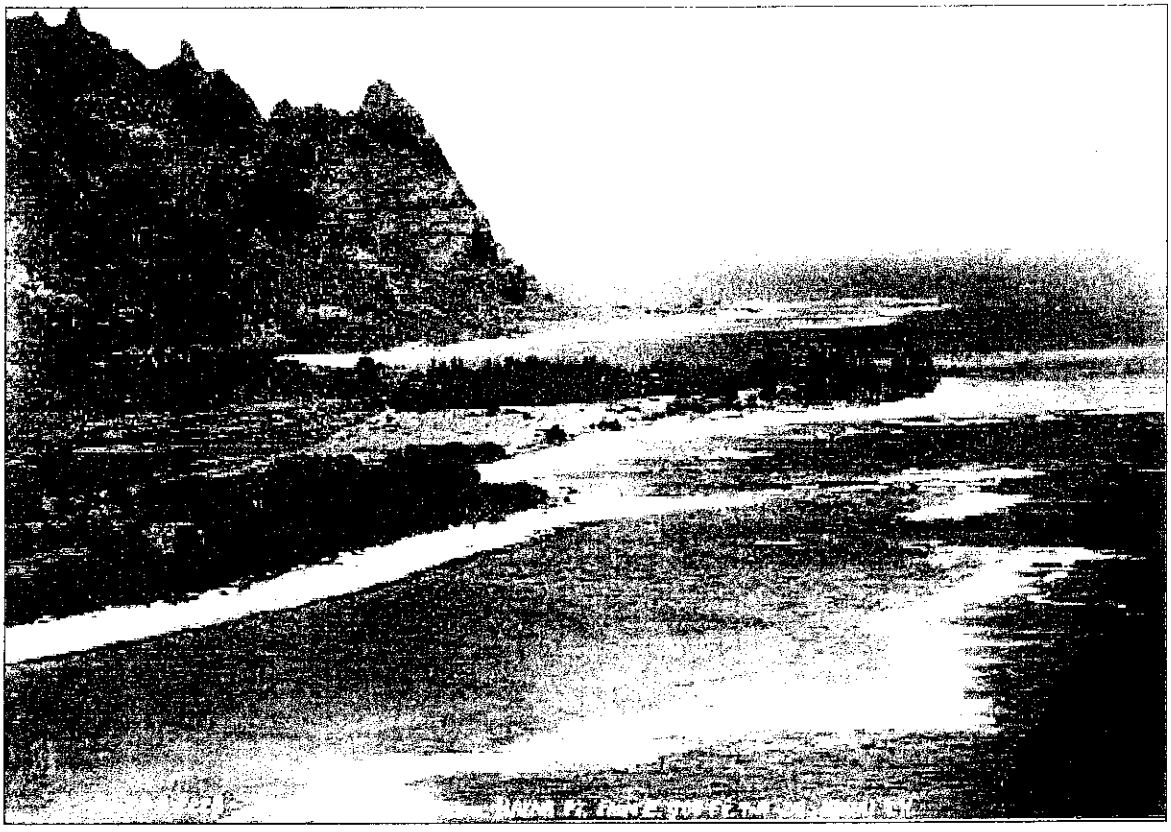

Figure 9. 1924 photograph of coastal Hā'ena, showing the lack of forests and development (Hawai'i State Archives)

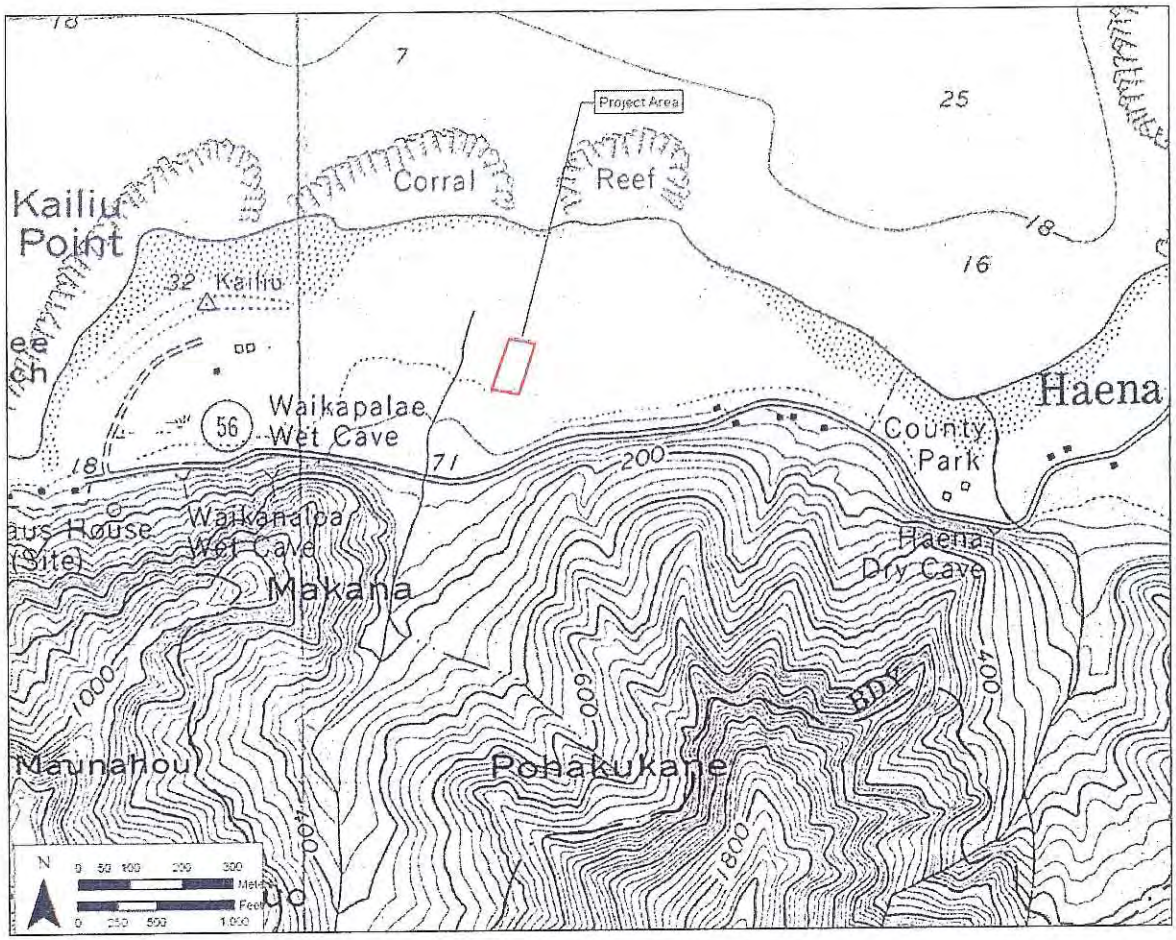

Figure 10. Portion of 1965 USGS quadrangle map showing project area

Section 5 Archaeological Research

5.1 Overview

The two main purposes of this section are: (1) to establish a general context for the project area by providing an overview summary of relevant archaeological evidence for Hā'ena Ahupua'a and; (2) to provide a detailed discussion of the archaeological evidence within and immediately adjacent to the project area. This review shows there are a significant number of historic properties and features in Hā'ena Ahupua'a reflecting a long period of pre-Contact settlement.

5.2 Hā'ena Ahupua'a

As described below, dozens of archaeological studies in Hā'ena Ahupua'a have documented a wide variety of historic properties and features representing an intensive use of the landscape by Kānaka Maoli (native Hawaiian) living a traditional subsistence lifestyle. Despite the area's relatively low rainfall and barren/rocky appearance, several hundred historic properties, consisting of thousands of individual features, have been identified near the subject project area. Identified properties include permanent and temporary habitation structures (e.g., stone enclosures, platforms and terraced areas, subterranean lava tubes); agricultural terraces, mounds and walls; trails and trail markers (e.g., *ahu*); petroglyphs; subterranean caves and lava tubes used for a variety of purposes (e.g., shelter, storage and burial); other (non-cave/lava tube) burials; and a variety of religious shrines (e.g., *heiau* and *ko'a*). Radiocarbon dating from several projects documents a human presence in this area. Table 2 presents a *representative* sample of results from archaeological studies in the Hā'ena *ahupua'a*.

Table 2. Representative sample of results from archaeological studies in Hā'ena *ahupua'a*

Source	Location	Nature of Study	Findings
Thrum 1906	Hā'ena Ahupua'a Kē'ē Beach area	Island-wide Heiau Study	Identifies 2 *heiau* which he names "Kilioi" and "Lohi'au"
Emory 1928	Hā'ena Ahupua'a Kē'ē Beach area	Popular discussion of archaeological sites	Describes 3 historic properties: Kauluapaoa Heiau, Lohi'au's Dancing Pavilion and Shrine, and house site or heiau of Lohi'au
Bennett 1931	Hā'ena Ahupua'a Kē'ē Beach area	Archaeological survey	Describes 3 historic properties: 154-Kauluapaoa Heiau, 155-Lohi'au's Dancing Pavilion and Shrine, and 156- House site or heiau of Lohi'au
Earle 1973	Hā'ena Ahupua'a	Drainages of Hā'ena for doctoral dissertation	
Griffin et al. 1977	Hā'ena State Park	Archaeological survey	Pre-Contact cultural layers
Hammatt et al. 1978	Hā'ena State Park	Archaeological survey	Pre-Contact cultural layers
Hammatt and Meeker 1979	Hā'ena State Park	Archaeological survey	Pre-Contact cultural layers
Riley and Clark 1979	Hā'ena State Park	Archaeological survey	Pre-Contact cultural layers
Yent 1980	Hā'ena State Park	Archaeological survey	Pre-Contact c cultural layers
Hammatt and Folk 1983	Bonham Property Hā'ena Point	Archaeological testing	Minimal cultural material recovered.
Yent and Ota 1983	Hā'ena State Park	Inadvertent finds; exposed cultural material	Four human burials
Hammatt 1987	TMK (4) 5-9-2: 21	Inventory survey	Cultural layer
Kennedy 1987a	TMK (4) 5-9-03:8 Limahuli	Archaeological Investigation	SIHP # 50-30-02-864 Subsurface rock wall

Source	Location	Nature of Study	Findings
Kennedy 1987b	TMK (4) 5-9-06:1 Limahuli	Archaeological Investigation	Four agricultural stone terraces
Kikuchi 1987	Kaua'i Island	Fishpond Study	Lists 5 fishponds at Hā'ena & 1 at "Waipā, Hā'ena"
Kennedy 1988	TMK (4) 5-9-06:12	Archaeological survey and testing	Agricultural features: 2 rock walls, subsurface stone concentrations
McMahon 1988	TMK (4) 5-9-02:41	Inadvertent finds	Four burials encountered during construction activities
Armhurst 1989	Kē'ē Beach Park	Inadvertent find	Petroglyph of a human figure
Hammatt 1989	Residential Property TMK (4) 5-9-02-34	Archaeological Reconnaissance	Pre-Contact cultural layers
Hammatt and Shideler 1989a	Zimmerman property TMK (4) 5-9-02:34 at Hā'ena Point	Excavations	SIHP # 50-30-02-1809 Cultural layer
Hammatt and Shideler 1989b	Property TMK (4) 5-9-02-35 at Hā'ena Point	Excavations	SIHP # 50-30-02-1809
Hammatt and Shideler 1989c	Anawalt property TMK (4) 5-9-02-31 at Hā'ena Point	Excavations	SIHP # 50-30-02-1809 Two burials; cultural layer is limited
Kennedy 1989	TMK (4) 5-9-02: 51	Subsurface testing	1 artifact recovered
Kennedy 1989b	TMK (4) 5-9-5: 03	Archaeological Survey with Subsurface Testing	No cultural material identified.
Rosendahl 1989	TMK (4) 5-9-02:30	Development Parcel Field Inspection	Minimal; coral abrader and basalt flakes
Wickler 1989	TMK (4) 5-9-05:7	Archaeological Survey with Subsurface Testing	Minimal
Folk 1990	TMK (4) 5-9-02:48	Excavations	Continuation of SIHP # 50-30-01-1809
Hammatt 1990	TMK (4) 5-9-02: 31	Monitoring and	

Source	Location	Nature of Study	Findings
		burial treatment plan	
Patolo and Cleghorn 1991	Lower Limahuli Valley TMK (4) 5-9-06: 2, 3, 4, 5, 6, 8, and 9; portions of TMK (4) 5-9-1: 13	Mapping and survey	SIHP # 50-30-02-1005 88 features comprising a single complex
Pietrusewsky 1991	Zimmerman Property TMK (4) 5-9-02:34 at Hā'ena Point	Osteological Study	A minimum of 3 individuals
Williams 1991	Mouth of Limahuli Valley	Emergency archaeological mitigation	SIHP # 50-30-02-1004 Artifacts; C-14 dates to 13th century
Pietrusewsky 1992	Anawalt property TMK (4) 5-9-02-31 at Hā'ena Point	Osteological Study	Remains of 31 individuals described
Hammatt et al. 1993	Cooke House lot TMK (4) 5-9-5:23	Archaeological Survey	SIHP # 50-30-02-4013 Late pre-Contact-early historic cultural layer
Denham and Kennedy 1993	Zimmerman property TMK (4) 5-9-02:35 at Hā'ena Point	Inadvertent discovery of human remains	585 pre-European contact type artifacts; human remains of at least 18 individuals
Kruse 1994	TMK (4) 5-9-02: 20	Monitoring report	1 burial
Kawachi 1994	TMK (4) 5-9-07: 8	Monitoring report	SIHP # 50-30-02-1600 No cultural material observed.
Shun 1994	TMK (4) 5-9-02:056	Archaeological Investigation	No cultural material recovered.
Soldo and Dixon 1994	Frey residence TMK (4) 5-9-02: 36	Archaeological monitoring	SIHP # 50-30-02-1031 Pre-Contact and historic deposits
Hammatt et al. 1995	TMK (4) 5-9-02: 30	Inventory survey	SIHP # 50-30-02-1809 Cultural layer
Moore and Kennedy	TMK (4) 5-9-02:51,	Subsurface testing	No cultural material

Source	Location	Nature of Study	Findings
1995	52		recovered.
Rechtman 1994	Anawalt property TMK (4) 5-9-02-31 at Hā'ena Point	Archaeological monitoring	31 human burials
Silva 1995	Hā'ena State Park	Historical and Cultural Report	Research conducted for the cultural and historical land use of Hā'ena
Carpenter 1996	Hā'ena State Park	Burial treatment plan	
McMahon 1996	Faye Property TMK (4) 5-9-02:51, 52	Inadvertent finds	Two burials
Kruse et al. 1997	Portion of P-1 Road TMK (4) 5-9-06;2-9; and portions of 5-9-01:3	Archaeological Survey and Mapping	Minimal, mentions previously-identified SIHP # 50-30-02-1005, no new features identified
Hammatt and Shideler 1998	Property TMK (4) 5-9-02:50 Hā'ena Point	Inventory Survey	No cultural material recovered
McGerty & Spear 1999	Hā'ena Beach Park	Inventory Survey	SIHP # 50-30-02-788 Cultural layer
Calis 2000	Property TMK (4) 5-9-03:39 Limahuli Gardens	Inventory Survey	SIHP # 50-30-02-988 34 archaeological features identified related to taro agriculture
Calis 2001	Final Report of property TMK (4) 5-9-03:39 Limahuli Gardens	Inventory Survey	SIHP # 50-30-02-988 34 archaeological features identified related to taro agriculture
Elmore and Kennedy 2000	Property TMK (4) 5-9-03:10,45 Limahuli	Inventory Survey	Previously-identified historic cultural layer (SIHP # 50-30-02-670); encountered a small portion of Site 50-30-02-458
Elmore and	Property TMK (4) 5-9-03:10,45	Final Inventory	Recommend SIHP # 50-30-02-670 significant; data

Source	Location	Nature of Study	Findings
Kennedy 2001	Limahuli	Survey Report	recovery investigations also recommended
Major and Carpenter 2001	Hā'ena State Park	Supplemental Archaeological Inventory	SIHP # 50-30-02-7009 Hā'ena Lo'i Complex; SIHP # 50-30-02-7014 Poi mill foundation
Ostroff and Moore 2001	Property TMK (4) 5-9-02: 19 Hā'ena	Inventory Survey	No cultural material recovered
Ostroff and Kennedy 2001	Property TMK 5(4) -9-05:20 Hā'ena	Inventory Survey	No cultural material recovered
Dye 2002	Property TMK (4) 5-9-02: 62 Hā'ena	Inventory Survey	No cultural material recovered
Rechtman and Clark 2002	Property TMK (4) 5-9-2: 69, 70 Hā'ena	Inventory Survey	1 previously identified mausoleum and 1 burial
Sullivan and Dega 2002	Tillotson Estate, TMK (4) 5-9-002:34 Hā'ena	Monitoring Report	2 burials, associated with SIHP # 50-30-02-1809
McElroy 2003	Pavia Property TMK (4) 5-9-02: 65 Hā'ena	Inventory Survey	Minimal cultural layer found in fill material
Rechtman 2004a	Property TMK (4)-5-9-2: 58 Hā'ena	Inventory Survey	No cultural material recovered
Rechtman 2004b	Property TMK (4) 5-9-02: 25 Hā'ena	Inventory Survey	No cultural material recovered
Yucha and Hammatt 2009	TMK (4) 5-9-03:8	Inventory Survey	See section 5.3.2.

5.3 Results in the Project Area

Two archaeological inventory surveys have been conducted within the subject project area. Both of the studies found subsurface evidence of agricultural activities.

5.3.1 Kennedy (1987)

In 1987, Kennedy conducted an AIS of the current project area. No surface artifacts or structures were observed, however, the remains of an agricultural wall were discovered as a result of subsurface testing (SIHP # 50-30-02-864). Agricultural soils were also observed in

association with the wall. Stratigraphically, Kennedy notes the property bears "some resemblance to the geology of Hā'ena near Kē'ē Beach as reported by Griffin et al (1977)" (Kennedy 1987:5). Kennedy also notes that soils east of the *'auwai* are more marshy and less well drained than in other areas of the property, and the agricultural matrices observed are more course grained in quality than in other areas. The agricultural layer also appeared to be very shallow and sterile beach sand was encountered in less than 2 m below ground surface in most test units (Kennedy 1987:6-7). No other features or artifacts were identified and Kennedy recommended no further work was necessary as construction and cultivation related to agriculture in Hā'ena Ahupua'a were already well documented (Kennnedy 1987).

5.3.2 Yucha and Hammatt (2009)

CSH (Yucha and Hammatt 2009) conducted an AIS of the project area as part of the current study. A total of seven backhoe trenches were excavated primarily along the western property line between the access road and the *'auwai* due to the extensive amount of vegetation within the property. A single subsurface historic property was recorded by (Kennedy 1987a), (SIHP# 50-30-02-864); it is a complex consisting of two pre-Contact subsurface features. The property was determined to be the subsurface remnant of a wetland agricultural system that was likely fed by the primary drainage canal (possible remnant *'auwai*) located within the current project area. Feature A is a remnant irrigation ditch identified during excavation of Test Trench 3. Feature B is an alignment identified during excavation of Test Trench 4. Both features are located within or contain agricultural soils.

SIHP # 50-30-02-864 is interpreted to be associated with pre-Contact wetland agricultural cultivation, and is assessed as significant under Criterion D (have yielded, or may be likely to yield information important in prehistory or history) of the National and Hawai'i Registers of Historic Places evaluation criteria.

Section 6 Community Consultation

6.1 Overview

Throughout the course of this CIA, an effort was made to contact and consult with Hawaiian cultural organizations, government agencies, and individuals who might have knowledge of and/or concerns about cultural resources and practices specifically related to the project area in the context of Hā'ena Ahupua'a. This effort was made through the use of letters, e-mails, telephone calls, and in-person interviews.

CSH originally sent out a letter, map and aerial photograph dated November 18, 2008, describing the project area. The text of the letter was as follows:

> At the request of Belles Graham Proudfoot Wilson & Chun, LLP, Cultural Surveys Hawai'i Inc. (CSH) is conducting a Cultural Impact Assessment (CIA) for the property described as Exclusion 13 of the Hā'ena Hui Partition located in Lima-huli Valley, Hā'ena Ahupua'a, Hanalei District on the Island of Kaua'i. The Kaua'i Tax Map Key number identifying this property is TMK (4) 5-9-003:008.
>
> The owner of the proposed project, which is located within a conservation district, has applied for a Conservation District Use Permit authorizing the following: The removal of non-native plants; The trimming of native Hau; The restoration of the property with native species pursuant to a plan prepared by the National Tropical Botanical Gardens.
>
> The purpose of this cultural study is to assess potential impacts to cultural practices resulting from the proposed development. We are seeking your *kōkua* and guidance regarding the following aspects of our study:
>
> **General history of present and past land use of the project area.**
>
> **Knowledge of cultural sites which may be impacted by future development of the project area - for example, historic sites, archaeological sites, and burials.**
>
> **Knowledge of traditional gathering practices in the project area, both past and ongoing.**
>
> **Cultural associations of the project area, such as legends and traditional uses.**
>
> **Referrals of *kūpuna* or elders and *kama'āina* who might be willing to share their cultural knowledge of the project area and the surrounding *ahupua'a* lands.**
>
> **Any other cultural concerns the community might have related to Hawaiian cultural practices within or near the vicinity of the project area.**

A number of attempts (2-4) were made to contact individuals, organizations, and agencies apposite to the subject CIA.

Table 3. Summary of Community Consultation

Name	Affiliation, Background	Comments
Andrade, Carlos, Ph.D.	Hawaiian Studies Professor at UH Mānoa and author of books on Hā'ena	CSH interviewed Dr. Andrade on November 26, 2008. See section 7.1 below.
Ayau, Halealoha	Hui Mālama O Nā Kūpuna O Hawai'i Nei	CSH sent letter and maps November 18, 2008. On November 19, 2008, Mr. Ayau responded that he does not have any information for this project and that he is not a cultural expert for this area.
Burney, David, Ph.D.	Director of Conservation, National Tropical Botanical Garden	On December 16, 2008 CSH received an email from Dr. David Burney, In his email, he stated that he supported the project, saying he wanted to "help expedite this any way I can." He also recommended "to avoid a more difficult restoration process, we need to get started as soon as possible with clearing, before the re-grown weeds from the first clearing become a weedy forest again." He also stated, "I am fairly certain that there are no traditional gathering activities occurring on the site." Dr. Burney also provided CSH with a Site Plan, included in Appendix B of this CIA.
Cabebe, Andrew	Kaua'i *kama'āina*, referred by OHA	CSH sent letter and maps January 31, 2009. Subsequent contact efforts were made February 5 and 18, 2009.
Cayan, Phyllis "Coochie"	State Historic Preservation Division (O`ahu Office)	Ms. Cayan responded via email on December 3, 2008. See section 6.2 and Appendix C.
Chandler, Jeff	Hui Maka 'Āinana O Makana	CSH sent letter and maps January 29, 2009. Subsequent contact effort was made February 5, 2009.
Ching, Mike	Ching Family Store	CSH sent letter and maps December 4, 2008 via email. On December 4, 2008, Mr. Ching declined to participate saying he did not have any information to share.

Name	Affiliation, Background	Comments
Chuan, Ray	Kaua'i Friends of the Environment	CSH sent letter and maps November 18, 2008. Subsequent contact effort was made January 29, 2009.
DeMotta, Mike	Assistant Director of Living Collections and Horticulture	CSH sent letter and maps December 15, 2008 via email. Mr. DeMotta referred CSH to David Burney and also commented that gathering rights should not be an issue for the proposed project.
Drake, Lyah	Kaua'i Museum Outreach Coordinator	CSH sent letter and maps December 15, 2008 via email. On December 15, 2008, Ms. Drake referred the outreach letter to others.
Forrest, Kainoa Chandler	President of the Hanalei Hawaiian Civic Club	CSH sent letter and maps November 18, 2008. Subsequent contact efforts were made January 29 and February 11, 2009.
Harada, Keikilani	Treasurer of the Hanalei Hawaiian Civic Club	CSH sent letter and maps November 18, 2008. Subsequent contact effort was made January 29, 2009..
Haraguchi, Rodney	Kaua'i Taro Growers Association	CSH sent letter and maps November 18, 2008. Subsequent contact efforts were made December 4, 2008 and January 29, 2009.
Hermosua, Hanalei	Vice-President of the Hanalei Civic Club	CSH sent letter and maps November 18, 2008. Subsequent contact effort was made January 29, 2009.
Hubbard, Mark	Former Chairperson, Kaua'i-Ni'ihau Islands Burial Council	CSH sent letter and maps via email November 18, 2008. On November 18, 2008, Mr. Hubbard referred CSH to Presley Wann.
Inciong, Keala	*kama'āina* with ties to Hā'ena, referred by SHPD	CSH sent letter and maps January 29, 2009. Subsequent contact effort was made February 12, 2009.
Kaohi, Lionel	Hawaiian Civic Club Kaumuali'i	CSH sent letter and maps via email and post November 18 and 24, 2008. On December 4, 2008, Mr. Kaohi declined to participate.
Kekua, Kehaulani	Director of Kaua'i Culture & Heritage Center and Kumu Hula	CSH sent letter and maps November 18, 2008. Subsequent contact efforts were made November 22, 2008 and January 29, 2009.

Name	Affiliation, Background	Comments
Kruse, John	Interim Chairperson, Kaua'i-Ni'ihau Islands Burial Council	CSH sent letter and maps November 18, 2008. Subsequent contact efforts were made December 8, December 15, 2008 and January 29, 2009.
Mahuiki, Ezer and Mele	Kaua'i *kama'āina,* family ties to Hui Kū'ai 'Āina	CSH sent letter and maps January 30, 2009. Subsequent contact efforts were made February 5 and February 6, 2009.
Mahuiki, Samson	Kaua'i *kama'āina*, family ties to Hui Kū'ai 'Āina	CSH sent letter and maps January 30, 2009. Subsequent contact efforts were made February 5 and February 6, 2009.
McMahon, Nancy	State Historic Preservation Division, Kaua'i Archaeologist	CSH sent letter and maps November 18, 2008. On November 19, 2008, Ms. McMahon referred CSH to Carlos Andrade, Barbara Say, Chipper Wichman and the Wichman family, Barlow Chu family Chandler family, Mahuiki Family and the Hoshimoto family.
Mijares, Scott	Save Kaua'i	CSH sent letter and maps November 18 and November 24, 2008. On November 25, 2008, Mr. Mijares referred CSH to Louise Sausen, Nani Rogers, Ka'iulani Huff, Stacy Sproat, or Kathy Ham Young.

Name	Affiliation, Background	Comments
Nāmu'o, Clyde	Administrator, Office of Hawaiian Affairs	CSH contacted Clyde Nāmu'o, Administrator of the Office o Hawaiian Affairs on November 18, 2008. In a response sent to CSH on December 30, 2008 (Appendix D), OHA praises the removal of non-native plants and replacement of native species. OHA made reference to the subject parcel being within a larger area purchased by the "Hā'ena Hui" or "Hui Kū'ai 'Āina O Hā'ena" around 1870 and commented that, "sadly, beginning in 1955 these lands were transferred from this Hawaiian community when the lands were first partitioned, as process which was completed circa 1967." OHA recommended CSH speak to Carlos Andrade, Jeff Chandler, Andrew Cabebe, Louise Sausen and Presley Wann.
Oi, Tommy	Department of Land and Natural Resources Kaua'i Division	CSH sent letter and maps via email on November 18 and November 24, 2008. On December 4, 2008 Mr. Oi declined to participate.
Rogers, Nani	Ho'okipa Network, kama'āina of Kapa'a	Ms. Rogers responded via email on December 2, 2008. See comments below this table in Section 6.4.1..
Sausen, Louise	Hanalei *kama'āina*	CSH sent letter and maps January 29, 2009. Subsequent contact effort was made February 6, 2009.
Say, Barbara	Kaua'i-Ni'ihau Islands Burial Council member	See comments below this table in Section 6.4.2.
Silva , Carol	Kaua'i Cultural Specialist	CSH sent letter and maps via email November 18, 2008. Subsequent contact efforts were made November 24, 2008, January 9 and 29, 2009.
Soppeland, Mark	Kaua'i archaeologist and resident of the property neighboring the project area	CSH interviewed Mr. Soppeland on December 12, 2008. On February 25, 2009, Mr. Soppeland declined to include his interview in this CIA.

Name	Affiliation, Background	Comments
Sproat, Stacy	Waipā Foundation	CSH sent letter and maps via email November 18, 2008. Subsequent contact efforts were made on November 24, December 3 and 4, 2008.
Stokes, Ken	Ho'okipa Network	CSH sent letter and maps via email. November 18, 2008. Subsequent contact efforts were made on November 22, 28 and December 4, 2008.
Trembath, Healani	Alu Like Na Kūpuna Group	CSH sent letter and maps via email December 4, 2008. Ms. Trembath referred CSH to the Department of Hawaiian Home Lands and other Anahola organizations.
Tsuchiya, Rick	Kaua'i Historic Preservation Review Commission	See Section 6.4 and Appendix E.
Wann, Presley	Kaua'i-Ni'ihau Islands Burial Council member	Mr. Wann responded via telephone on December 4, 2008. See section 6.5.4 below.
Wichman, Charles "Chipper"	Jr. Chief Executive Officer and Director of the National Tropical Botanical Garden	CSH sent letter and maps via post November 18, 2008. Subsequent contact efforts were made on December 4 and December 8, 2008.
Winter, Kāwika	Director, Limahuli Garden and Preserve	CSH sent letter and maps via post December 15, 2008. Subsequent contact effort was made on January 29, 2009.
Yokatake, Valerie	Secretary of the Hanalei Hawaiian Civic Club	CSH sent letter and maps via post November 18, 2008. Subsequent contact effort was made on January 29, 2009.

6.2 State Historic Preservation Division Response Letter

CSH contacted Phyllis "Coochie" Cayan, State Historic Preservation Division (SHPD) History and Culture Branch Chief, on November 18, 2008. In a letter response of November 28, 2008 (Figure 10), Ms.Cayan, provided the following concerns about the potential for burials in the area:

> The SHPD's main concern in this area is due to its immediate proximity to sandy shoreline would be inadvertent burials that may be impacted by the activities associated with this proposed project. As you know, there have been numerous burials in this general area and it may be helpful for the project manager to do an informative presentation to the Kaua'i-Ni'ihau Islands Burial Council (KNIBC) prior to any land clearing activities. The KNIBC may be able to direct you to all to other cultural resource folks who know this proposed project area and may be willing to share mana'o.

Ms. Cayan also referred CSH to the following people: Barbara Say, John Kruse, Jeff Chandler, Carlos Andrade, the Ching family, the Wichman family, the Kaua'i Museum, Nā Kūpuna Group at Alu Like, the Mahuiki family and the Inciong family (see Appendix C)

6.3 Office of Hawaiian Affairs (OHA)

CSH contacted Clyde Nāmu'o, Administrator of the Office o Hawaiian Affairs on November 18, 2008. In a response sent to CSH on December 30, 2008 (Figure 11), Mr. Nāmu'o praises the removal of non-native plants and replacement of native species. He also makes reference to the subject parcel being within a larger area purchased by the "Hā'ena Hui" or "Hui Kū'ai 'Āina O Hā'ena" around 1870. He states that these lands were sadly transferred from the Hawaiian community beginning in 1955 and completed in 1967. He also recommended CSH speak to Carlos Andrade, Jeff Chandler, Andrew Cabebe, Louise Sausen and Presley Wann (see Appendix D).

6.4 Kaua'i Historic Preservation Review Commission (KHPRC)

CSH contacted Rick Tsuchiya of the KHPRC on November 18, 2008. In a response sent to CSH on December 23, 2008 (Figure 12), the KHPRC explains that they did not have a quorum to make a motion and pass a recommendation. However, they do list the standard recommendations offered by the KHPRC and some comments generated during discussion of the information presented. These recommendations include:

1. The applicant consult with the SHPD, Burial Council, Department of Hawaiian Homelands and OHA.
2. A community input program be initiated by the applicant to obtain information on cultural practices or resources in the project area.
3. That KHPRC members contact CSH directly with names of kūpuna in the area who may participate in the consultation process.

4. That reference checks be undertaken at the Kaua'i Historical society, Kaua'i Museum State Archives, Bishop Museum, Libraries, place names resource documents and LCA's.

5. The replanting plan be sent to KHPRC for review and comment.

The KHPRC also asked for further clarification regarding the species of the *hau* in the project area. They believe that instead of the *Hibiscadelphus* spp. it is the *Hibiscus tiliacens* which is more commonly found in the lowland areas (see Appendix E.)

6.5 . Brief Responses from Project Participants

6.5.1 Aunty Nani Rogers

CSH received a statement from Nani Rogers via email on December 2, 2008. Aunty Nani is a Native Hawaiian, born and raised in Kapa'a, and she is a member of the Ho'okipa Network, which strives to preserve Kaua'i. When asked if there were any culturally significant sites in the project area, Aunty Nani writes in her email:

> I am no ma'a [accustomed, used to, knowing thoroughly] with cultural knowledge of the Haena area except that it is full of burial sites from Naue to Ke'e. My statement would be to strongly oppose any development that may harm any of our wahi pana [storied places] and iwi kupuna in the whole of Haena and the Limahuli ahupua'a.

6.5.2 Barbara Say

On February 6, 2009 CSH conducted a phone interview with Barbara Say, a Kaua'i Ni'ihau Islands Burial Council member. She currently lives in Wailua but lived in Hanalei for over 40 years. She refers to Hā'ena as once being her "icebox" and her children's "playground." She shared that her husband would go diving off the shore and would bring back lobster, octopus and squid. She says she and her family "ate a lot from the ocean."

Mrs. Say shares her concern that this project may lead to the property being developed in the future. She says that Hā'ena is a "sensitive place." Although she likes the landowner, she cautions against more development, citing the situation with Mr. Joe Brescia's property on Naue. She states that it is a possibility that there will be *iwi kūpuna* found during this project if there is some digging involved and recommends special care if there is activity in the ground. She is concerned with the general development of Hā'ena "taking away" from what it once was. She says that Kaua'i is becoming too overcrowded and the infrastructure, such as the roads, can not sustain a larger population.

She also recommended CSH speak to Presley Wann and Carlos Andrade, who both grew up in the area.

6.5.3 Presley Wann

On December 12, 2008, CSH conducted a phone interview with Presley Wann, a Kaua'i Ni'ihau Islands Burial Council member. After reviewing the project description and figures, he commented that the plan "sounds great. If they are just planning to restore the property with native vegetation and not to build on it, then I fully support that. My family has *kuleana* lands right there, and my daughter is involved in native species restoration work with Waipā. I know that she would be excited about this project. So, I offer my support." When asked what should be done if *iwi* are found he recommended that they should be left in place. "It shouldn't be a big deal though because they are planting, not building a house or something. So they can work around the burials if they are found."

Section 7 Kama'āina "Talk Story" Interview

Kama'āina and *kūpuna* with knowledge of Hā'ena Ahupua'a, the Hanalei District and the proposed project area were contacted for a more in-depth contribution to this assessment. The approach of CSH to cultural impact studies provides these community contacts an opportunity to review transcriptions and/or interview notes and to make any corrections, deletions or additions to the substance of their testimony. For this CIA, one person, a respected authority on Hā'ena, generously shared his *mana'o* (thoughts, ideas, theories) in a face-to-face talk story interview.

7.1 Dr. Carlos Andrade

On November 26th, 2008, CSH interviewed Dr. Carlos Andrade at the Center for Hawaiian Studies where Dr. Andrade is currently serving as the director. Dr. Andrade is native to Kaua'i and he has been involved in *ahupua'a* research and restoration projects on the island. He has researched Hā'ena in depth for his book: *Haena: Through the Eyes of the Ancestors*. Dr. Andrade is a caretaker for the *makai* side of the property and lives just *mauka* of the property. He is familiar with both the property's boundary lines as well as the type of vegetation growing there. Further, Dr. Andrade was present at the time that the non-native vegetation was being removed and witnessed the manner in which workers approached the removal process. He is a bit skeptical that there is no future plan to build on the property, but his biggest concern is in regards to unmarked Hawaiian burials, which he believes are located on the site. As he notes;

> Traditionally, burial sites have been connected with sand dunes and there are dunes on this property. Where there are sand dunes you are going to find Hawaiian burials. This is just common knowledge. The question is not whether or not they are there, but where are they? The disturbance of any Hawaiian burials is going to be the root of conflict; great care must be taken not to disturb them.

When asked if there were any ongoing cultural practices in the area, Dr. Andrade stated "For the most part people respect private property. The practices that may be going on would include the gathering of fruits or herbs."

The following are Dr. Andrade's suggestions for the removal process of the non-native species:

> Well, I was there to see the removal of the java plums, and thought that they did a great job in the removal process. There was minimal heavy machinery employed and much of the removal was done by hand. I would assume that they would use the same level of sensitivity and care in the planting process. Also, I know that there are a lot of stumps on the property. There are other ways of dealing with them than just digging them out. Such as these machines that grind up the stumps in place. I would hope that they would use this kind machine in the removal of the stumps.

Dr. Andrade's main concern is the disturbance of the iwi kūpuna, which could be found during the plant removal process. He says:

> First thing, do not disturb the *iwi*, period. The potential of disturbing Hawaiian remains on this property is very high. You have to minimize digging in order to minimize the chances of disturbing any burials, and unfortunately, there are no such things as ground x-rays yet where we can see unmarked graves.

Another important point Dr. Andrade made was in regard to the care of the site.

> The reason the property was overgrown with invasive species in the first place was because no one was taking care of the land. My question is: who is going to take care of this property?

Dr. Andrade recommended that in the future maps, plant names should be listed in Hawaiian first, not "*haole*/scientific classification."

Section 8 Traditional Cultural Landscape

8.1 Overview

Discussions of specific aspects of traditional Hawaiian culture as they may relate to the project area are presented below. This section examines traditional cultural resources and practices identified within the project area in the broader context of the encompassing the project area in Limahuli Valley and the Hā'ena Ahupua'a landscape. Excerpts from the previous two sections, including the *kama'āina* interview and statements about the proposed project area, are incorporated throughout this section where applicable.

8.2 Hawaiian Habitation and Agriculture

The *ahupua'a* of Hā'ena was permanently inhabited and intensively utilized in pre-Contact times, based on archaeological, historical, and oral-historical documentation (e.g., Andrade 2008; Handy 1940; Silva 1995). Andrade (2008:30) describes Hā'ena as "well endowed with natural resources. Extending from uplands to coastal plain, it descended from cloud-shrouded peaks broadening out to include a fishery encompassing several large reefs and bays fronting the ahupua'a." The main settlement was located along the coast, *mauka* of the mountains, where extensive agricultural lands, fishing villages, and fishponds provided ready sources of protein. Given its location adjacent to Limahuli Stream and just *mauka* of the coastline, the subject project area was a fertile land with well-watered lowlands, and abundant marine resources. In the 1930's, Handy (1940:58-60, 153) describes taro and sweet potato cultivation within Hā'ena *ahupua'a* as continuing to be under cultivation, however, most fields were abandoned. The only evidence of the extensive *lo'i* complex that formerly grew within Mānoa Valley, west of the project area, is the stone-faced terraces and *'auwai* that are now overgrown with shrubs and trees (Andrade 2008:53). Handy and Handy's (1972) study of Hawaiian "planters" tells us about a unique taro cultivation process and other agricultural activities. Also of note is that Hā'ena was a "favored" planting area for coconut (Handy and Handy 1972:172).

According to past archaeological studies and the LCA records, there were multiple taro *lo'i*, house lots and a *loko* or fishpond in close proximity to the present project area. One *kuleana* award, LCA 7942 awarded to Kuapiko, has the same footprint as the current project area. Kuapiko claimed the land had 10 *lo'i* (see Appendix A), although the Foreign and Native testimony both state that the property contained 5 *lo'i* and "3 very small" ones. E. Kekela, the *konohiki* for Hā'ena, held LCA 7949:3, just east of the subject project area. She was Abner Pākī's mother's sister, and was one of the only female *konohiki* (Andrade 2001:118-119).

None of the participants consulted or interviewed for this assessment spoke about Hawaiian habitation and other forms of land use.

8.3 Marine and Freshwater Resources and Other Gathering Practices

As mentioned above, the main settlement at Hā'ena was located along the coast with extensive fishing villages, and fishponds, adjacent to Limahuli Stream and just *mauka* of the coastline In addition to netting fish, "a unique method of gathering fish from nearby Limahuli

stream" was utilized. Andrade (2008:50) cites a conversation with *kupuna* Samson Mahuiki regarding how his mother, Rachel, taught him to catch fish in the stream and on the reef. She was also well known for her expertise at catching *he'e*, *'o'opu*, *loli* and *wana*. . Octopus and spiny lobster or *ula*, and various fish were essential to subsistence in Hā'ena. Andrade (2008:1) tells us that these fish included *manini*, *kala* and *nenue*.

One participant, Barbara Say referred to Hā'ena's coastline as her and her family's "icebox." Her husband would go diving, fishing for lobster, octopus and squid. One participant, Dr. Andrade, alluded to the possibility that people may be gathering in "fruits and herbs" in the project area or vicinity.

8.4 Wahi Pana (Storied Places)

Hā'ena is rich in *mo'olelo* usually associated with the visits of Pele and her sister Hi'iaka (Hi'iaka-i-ka-poli-o-Pele) primarily concerning confrontations over the sisters' lover Lohi'au's affections, Lohi'au's death and resurrections. There are several traditions associated with landscape features within Hā'ena such as the Nāpiliwale ("clinging ones") rock formation and the Piliwale sisters, who attempted to eat everything they could find on Kaua'i. Fortunately, Lohi'au and his sister, Kahua outsmarted the women. Today, a wall remnant of Lohi'au's house is still visible at Kē'ē Beach, west of the project area. Hā'ena has three caves, two of which are wet and one is dry. Maniniholo (traveling manini fish) is the dry cave. The legend of Maniniholo, the chief fisherman of the Menehune tells us that he dug the cave searching for the supernatural being who stole the Menehune's fish. Waikanaloa (water of Kanaloa) and Waikapalae (water of Kapalae) are the wet caves and contain fresh water. As mentioned earlier, the caves were traditionally believed to have been dug by Pele during here quest for a suitable home for herself and Lohi'au.

None of the participants discussed *wahi pana* in any great detail for this CIA.

8.5 Cultural and Historic Properties, including Iiina (Burials)

Bennett (1931:26) the author of the first systematic review of Kaua'i's archaeology writes, "Burials may be found in almost any sand dune on the island of Kauai." Alexander (1, p.74) says that the common people were buried in the dunes and that the graves were little thought of. However, the ivory pendants (*palaoa*) are sometimes found, and these were symbolic of chiefly rank. The dunes were probably used as the most convenient location for quick burial, and mostly though not exclusively, used by the common people. (Bennett 1931:26) Also of note is the comment made by William T. Brigham, who later became the director of the Bishop Museum. During his visit to Hā'ena in 1865, Brigham observed "a burial place in the sands on the beach, and we saw several skulls and other bones lying exposed" (Pacific Worlds & Associates 2001).

Phyllis "Coochie" Cayan of the SHPD, Aunty Nani Rogers, Dr. Carlos Andrade and Presley Wann acknowledge the potential of finding *iwi kūpuna* in the project area.

Although no *heiau* have been described within or in the immediate vicinity of the project area, several *heiau* have been documented in Hā'ena. Ka-ulu-Paoa Heiau is at the foot of Kē'ē cliff in west Hā'ena and was an ancient, most renowned hula seminary of the island of Kaua'i. Thrum (1906:43), who conducted an island wide *heiau* study, identified two in Hā'ena, Kilioi *heiau* is

better known as Ka-ulu-Paoa Heiau; Thrum may have confused the name with the neighboring Kilioe stone. Thrum (1906:43) reported that Kilioi was a "heiau consisting of two platforms, highly terraced; very famous, very sacred and an immense structure." Thrum (1906:43) also reported that Lohi'au, at Ke'e, Hā'ena Point, is a "walled heiau dedicated to Laka, goddess of the hula".

According to past archaeology reports, identified sites include permanent and temporary habitation structures (e.g., stone enclosures, platforms and terraced areas, subterranean lava tubes); agricultural terraces, mounds and walls; trails and trail markers (e.g., *ahu*); petroglyphs; subterranean caves and lava tubes used for a variety of purposes (e.g., shelter, storage and burial); other (non-cave/lava tube) burials; and a variety of religious shrines (e.g., *heiau* and *ko'a*).

While participants in this assessment did not speak to specific cultural and historic properties, as mentioned above, several emphasized the likelihood of burials in the project area and vicinity.

Section 9 Summary and Recommendations

9.1 Summary

At the request of Belles Graham Proudfoot Wilson & Chun, LLP, CSH prepared this CIA for the approximately 1.34-acre project area footprint of the Exclusion 13 of the Hā'ena Hui Partition located in Limahuli Valley, Hā'ena Ahupua'a, Hanalei District, Island of Kaua'i (TMK (4) 5-9-003:008).

In addition to conducting background research into the traditional and historic importance of the project area, in the context of Hā'ena Ahupua'a, including results from archaeological studies, CSH also made a substantial effort to consult with community members and organizations. CSH attempted to contact 38 people the purposes of this CIA; 19 people responded; 2 gave short testimonies or comments and one *kama'āina* was interviewed for a more in-depth contribution.

The project area is located on privately-owned land. The owner of the proposed project, which is located within a conservation district, has applied for a Conservation District Use Permit authorizing the following: (1) removal of non-native plants; (2) trimming of native *hau* (possibly, *Hibiscadelphus* spp.); (3) restoration of the property with native species pursuant to a plan prepared by the National Tropical Botanical Gardens. Broadly, this CIA considered the Area of Potential Effect (APE) to be the project area footprint within the larger context of Hā'ena Ahupua'a.

Background research conducted for this project yielded the following results:

1. Hā'ena is unique among the *ahupua'a* of the Halele'a District with a long reef-fringed coastline and two permanent streams, Limahuli to the west and Mānoa to the east. Hā'ena has three caves, two of which are wet and one is dry.
2. The project area is generally associated with mo'olelo (legends, oral histories) about Pele and her sister Hi'iaka (Hi'iaka-i-ka-poli-o-Pele) in which the sisters find Pele's lover Lohi'au. The Hā'ena caves were traditionally believed to have been dug by Pele during her quest for a suitable home for herself and Lohi'au.
3. The ahupua'a of Hā'ena was permanently inhabited and intensively utilized in pre-Contact times. The area was used for taro, sweet potato and coconut cultivation. One kuleana award (LCA 794) has the same footprint as the current project area and indicates that the land had a number of lo'i (taro pondfields). Fishing and collecting seafood was essential to subsistence in Hā'ena.
4. Past archaeological studies in Hā'ena Ahupua'a have documented a wide variety of historic properties and features representing an intensive use of the landscape by Kānaka Maoli (native Hawaiians) living a traditional subsistence lifestyle. Despite the area's relatively low rainfall and barren/rocky appearance, several hundred historic properties, consisting of thousands of individual features, have been identified near the subject project area. Identified properties include permanent and temporary habitation structures (e.g., stone enclosures, platforms and terraced areas, subterranean lava tubes);

agricultural terraces, mounds and walls; trails and trail markers (e.g., ahu); petroglyphs; subterranean caves and lava tubes used for a variety of purposes (e.g., shelter, storage and burial); other (non-cave/lava tube) burials; and a variety of religious shrines (e.g., heiau and ko'a). Radiocarbon dating from several projects documents a human presence in this area.

5. A single historic property has been identified in the project area. This subsurface agricultural wall recorded by Kennedy (1987a), SIHP # 50-30-02-864, is a complex consisting of a remnant irrigation ditch and an alignment. SIHP # 50-30-02-864 is interpreted to be associated with pre-Contact wetland agricultural cultivation, and is assessed as significant under Criterion D of the National and Hawai'i Registers of Historic Places evaluation criteria (Yucha and Hammatt 2009).
6. Prior archaeological studies also indicate that burials are commonplace in the sandy dunes of Kaua'i.
7. Although no heiau have been described within or in the immediate vicinity of the project area, several heiau have been documented in Hā'ena: Ka-ulu-Paoa Heiau, Ka-ulu-o-Laka and Kilioi and Lohi'au.
8. In modern times, two tsunamis devastated Hā'ena. The April 1, 1946 tsunami killed 10 of the 60 residents of the town and caused extensive damage. The 1957 tsunami destroyed 25 of the 29 homes in Hā'ena. Hui Kū'ai 'Āina, the Native Hawaiian group that worked and held most of the Hā'ena ahupua'a lands was disbanded in 1967.

CSH contacted 38 people for the purposes of this CIA; 19 people responded; 2 gave short testimonies or comments and 1 *kama'āina* was interviewed for a more in-depth contribution. The findings of this CIA suggest that there are a few key areas of cultural interest and concern regarding the proposed project. Community consultation shows:

1. The project area and vicinity are likely to have surface and subsurface cultural and historic properties, including human burials. A number of the study participants indicated that there could be iwi kūpuna in or near the subject project area. Study participants made the following recommendations:
    a. SHPD's main concern is that inadvertent burial finds may be impacted by activities associated with this proposed project.
    b. Four participants mentioned the possibility of burials in the area and recommend that digging or other ground disturbance activities by kept to a minimum to decrease the chances of disturbing any burials, and that if burials are found, they should be left in place.
2. Two participants voiced concerns about this project leading to the building of a home on the project area. One of these participants specified that a situation like that in Naue, where over 30 sets of Hawaiian human remains and artifacts were found on private property during development, should be avoided. This participant is also concerned about the overall cumulative impacts of ongoing and future developments in Hā'ena and Kaua'i, giving the example of traffic congestion.

3. The methods of the plant removal are also of concern. One participant praised the past removal process of the java plum trees (Syzygium cumini), as most of the past removal was done by hand and there was minimal heavy machinery employed. The participant recommended that the current project use similar techniques. Also, it was noted that there are many stumps on the property and that—as has been done in the past—instead of digging them out of the ground, a machine to grind the stumps in place could be used.
4. Participants also recommended proper planning and consultation with Hawaiian and community agencies and organizations and SHPD , recommend the planner/developer do an informative presentation to the KNIBC prior to any land clearing activities. The KHPRC had several recommendations including:
    a. the applicant consult with the SHPD, KNIBC, Department of Hawaiian Homelands and OHA,
    b. a community input program be initiated by the applicant to obtain information on cultural practices or resources in the project area,
    c. KHPRC members contact CSH directly with names of kūpuna in the area who may participate in the consultation process,
    d. reference checks be undertaken at the Kaua'i Historical society, Kaua'i Museum State Archives, Bishop Museum, Libraries, place names resource documents and LCA's and, most notably,
    e. the replanting plan be sent to KHPRC for review and comment.
5. KHPRC further asked for clarification regarding the species of the hau in the project area, and suggested that rather than Hibiscadelphus spp., it is Hibiscus tiliacens which is more commonly found in the lowland areas.
6. Dr. Carlos Andrade, a caretaker of the lands just makai of the subject project area and author of books on Hā'ena, inquired about who would be responsible for the maintenance and upkeep of the land to prevent overgrowth of invasive species. As noted in 1b above, Dr. Andrade is primarily concerned about the possible presence of iwi that could be disturbed in the process of digging in the proposed project area and cautions project personnel to avoid disturbance of Hawaiian burials (as noted in 1b above). He suggested ways for avoiding ground disturbance during the removal of non-native vegetation (3 above). Additionally Dr. Andrade mentioned that, although people "for the most part respect private property.... Practices...may be going on...[that] include the gathering of fruits or herbs." He also recommended that in maps, plant names be listed in Hawaiian first, and scientific classification second.
7. One participant, a caretaker of the lands just makai of the subject project area and author of books on Hā'ena, inquired about who would be responsible for the maintenance and upkeep of the land to prevent overgrowth of invasive species. This participant is primarily concerned about the possible presence of iwi that could be disturbed in the process of digging in the proposed project area and cautions project personnel to avoid disturbance of Hawaiian burials (as noted in 1b above). Additionally this interviewee suggested ways for avoiding ground disturbance during the removal of non-native

vegetation (3 above), the small likelihood that people may be gathering fruits or herbs on the project area or vicinity and, recommended that in maps, plant names be listed in Hawaiian first, and scientific classification second.

9.2 Recommendations

Although participants in this CIA generally approve of the proposed project, several expressed concern that the proposed action for Hā'ena may negatively impact Hawaiian beliefs, resources and practices, particularly with regard to disturbance of burials or *iwi kūpuna*. A good faith effort to develop appropriate measures to address concerns and attention to the following recommendations may help mitigate potentially adverse effects of the proposed project on cultural, historic and natural resources in and near the project area. Based on the findings of this CIA, it is recommended that:

1. Project proponents address concerns presented by CIA participants by avoiding harm as result of ground disturbance for reforestation to cultural and natural resources (e.g., burials). Of specific interest, participants recommended that the *iwi kūpuna* are not disturbed during the process. Minimizing digging in order to prevent disturbance of burials is recommended.
2. The proposed reforestation project proceed under an archaeological monitoring program. As suggested in the companion Archaeological Inventory Survey (AIS), due to the sensitive nature of the project area and the potential for project related ground disturbance during restoration, a monitoring program would facilitate the identification and documentation of any additional historic properties that might be discovered during project reforestation especially within the portions of the project area that remain unreachable for backhoe trench excavation. More specifically, it is suggested that an archaeological monitor be present during all subsurface activities involving excavation of more than about 1 cubic meter in a given location. These activities include any vegetation clearing or planting that involves disturbance to or removal of sediment within the project area. Disturbances, such as excavation for tree root balls, may significantly impact or destroy subsurface cultural deposits that are, as yet, unidentified (see Yucha and Hammatt 2009).
3. Similar methods used in past removal of java plums be considered. Past methods include removing the plants by hand with minimal heavy machinery employed, and removing stumps by using a machine to grind the stumps in place would rather than digging them out of the group.
4. The owner be responsible for maintenance and upkeep of vegetation to prevent overgrowth of invasive species.
5. Generally, it is recommended that project proponents pursue proactive dialog with concerned Hā'ena community members and agencies regarding planning, implementation and maintenance of the proposed reforestation project in order to address issues raised by study participants in this CIA. Proper planning and consultation with Hawaiian and community individuals, agencies and organizations including the KNIBC, OHA, the Department of Hawaiian Homelands and the

KHPRC (*not satisfied by this CIA effort*) should be considered prior to any land clearing activities. It is also recommended that the project proponent send to the KHPRC the replanting plan for review and comment.

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Appendix A Land Commission Awards

These Land Commission Awards were downloaded from Ulukau: the Hawaiian Electronic Library, Māhele Database (Waihona 'Āina 2000b) at http://www.ulukau.org/cgi-bin/vicki?l=en.

Claim Number:	07942
Claimant Name:	Kuapiko
Alternate Name:	
Secondary Claimant:	
Mokupuni (Island):	Kaua'i
Moku (District):	Halele'a
Ahupua'a (Division):	Haena
'Ili (Section):	Lalaole, Moolalaole
Royal Patent:	6307

No. 7942, Kuapiko
Native Register Volume 9, page 363

Hear ye, ye Land Commissioners sitting at Hale Kauwila in Honolulu, Oahu, greetings: I, Kuapiko, a Hawaiian subject, live at Lalaole in the Ahupua'a of Haena District 3, island of Kauai, Hawaiian Islands. I have measured my ten taro lo'i on this 31st day of January 1848. It is 33 fathoms long by 30 fathoms wide. It is a land with a right of occupancy from former times.
KUAPIKO
Haena, Kauai
30 January 1848

No. 7942, Kuapiko, Claimant
Foreign Testimony Volume 12, page 92

Kuhiahi, sworn, says I know the lands of Kuapiko in moo Lalaole Haena. It consists of 5 lois & 3 very small ones.

Bounded as follows:
Mauka by moo kalo "Peekauai"
Napali by moo kalo "Koia"
Makai by moo Lalaole's Koele
Koolau by moo "Kanaeloiki."

These lands were given to the husband of Kuapiko's wife by the Konohiki. It was held by him till his death in 1846 when the widow married Kuapiko. They have been held in peaceable possession from the days of Kamualii up to this time.

Naiwi, sworn, says I know the moo kalo of Kuapiko. My testimony agrees with that of Keahiahi.

No. 7942, Kuapiko
Native Testimony Volume 12, page 97

Keahiahi, sworn, Kuapiko has five large taro lois and three small lois.
Mauka by Lae, taro moo
Napali by Koia, taro moo
Makai by Lalaole koele
Koolau by Kanaele ili land.

This is old land which had been from Kalani who lived in Haena. When this woman's first husband died, she remarried in 1846, no objections to the present.

Naiui, sworn, verifies Keahiahi's statements concerning Kuapiko's land.

[Award 7942; R.P. 6307; Moolalaole Haena Halelea; 1 ap.; 1 Ac 1 rood 14 rods]

Claim Number:	07949
Claimant Name:	Kekela, E., wahine
Alternate Name:	
Secondary Claimant:	
Mokupuni (Island):	Kaua'i
Moku (District):	Halele'a
Ahupua'a (Division):	Haena, Waioli
'Ili (Section):	Keleke, Kalole, Makanaulua, Kaoneana
Royal Patent:	5269

No. 7949, E. Kekela
Native Register Volume 9, page 365

Hear ye, ye Commissioners to Quiet Land Titles living at Hale Kauwila, Honolulu, Oahu, greetings: I, E. Kekela, a woman Konohiki, a Hawaiian subject, having authority over the ko'eles in the Ahupua'a of Haena, island of Kauai hereby tell of the number of ko'eles to which there is a right from formerly until this 31 day of January 1848. It is not possible for me to tell their dimensions because they are so numerous.

I hereby give their names:

Paki
Kahookumaka
Oahu,
Kapalaa, there are two
Akole and Haleahuine
Mailiili
Peekauai
Kalaole and Kailiili
Koi
Kanaele
Keokea.

KEKELA
Haena, Kauai

31 January 1848

No. 7949, Kekela, Claimant
Foreign Testimony Volume 12, page 90

No. 5477

Kamakama, sworn, says I know the land of Kekela the Konohiki of Haena. They consist of 5 pieces as follows:

No. 1 is house lot in Waioli.
No. 2 is house lot in Kalele - Haena.
No. 3 is Loko kalo in ili Kalole called "Kanaele."
No. 4 is Loko kalo in ili Kalole called Esetere.
No. 5 is Loko in ili Kekenineulua called Paki.

No. 1 is house lot & bounded:
Mauka by kula Aupuni
Napali by Wana's house lot
Makai by public road on beach
Koolau by Meseko's house lot.

No. 2 is bounded:
Mauka by Konohiki's kula
Kapali by Konohiki's kula
Makai road on beach
Koolau by Konohiki's kula.

No. 3 is bounded:
Mauka by Kalaelehua's loi
Napali by Puuiki's loi
Makai by Nakeu's loi
Koolau by Opu's loi.

No. 4 is bounded:
Mauka by loi "Koia"
Napali by Koia brook
Makai by public road on beach
Koolau by Kaukapawa's loi.

No. 5 is bounded:
Mauka by Kapohunaka's loi
Napali by Nanahu's moo "Kahiipaia"
Makai by Naiwi's moo Kamookahi

Koolau by Kanehakili's lois.

Kekela became Konohiki of Haena about 1839 & occupied the house lot No. 2 & soon after [s]he made the 3 Lokos.

The house lot in Waioli was given by Palekaia about the same time or a little later. These claims have not been disputed up to this time. Opu & Keahiaka have houses in Kekela's house lot in Haena & Nihoa on the lot in Waioli.

Keahiahi, sworn, says I know the lands of Kekela as before mentioned. It is all true.

No. 7949 and 5477, Kekela
Native Testimony Volume 12, page 95

Kaneiakama, sworn, he has seen Kekela's lands in Haena in five parcels.

Section 1 - Kaoneana in Waioli.
Section 2 - Kalele.
Section 3 - Kanaele.
Section 4 - Ekekela in Kaloli ili.
Section 5 - Makanalua.

Section 1:
Mauka by Government pasture
Napali by Wana's fence
Makai by Foot trail
Koolau by Maleko's enclosure.

Section 2 - House lot.
Mauka and Napali by Konohiki pasture
Makai by Government road
Koolau by Konohiki pasture.

Section 3:
Mauka by Kalailehua
Napali by Puniki's loi
Makai by Nakeu's loi
Koolau by Opu's loi.

Section 4 - Ekekela.
Mauka by Koia
Napali by Koia river
Makai by road
Koolau by Kaukapawa.

Section 5 - Paki.
Mauka by Kahookumaka's land
Napali by Nanahu's land
Makai by Kamookahi land
Koolau by Kanehakili.

Kekela was Konohiki for Haena in 1839, he [she] lived on the house lot and worked in the three lois. The house lot in Waioli was from Palekaia, no objections. Opu and Keahiaka have houses in Kekela's lot. Nihoa, claimant, lived on Waioli's lot

Keahiahi, sworn, he has seen Kekela's claims in the same way as Kanaeiakama, no objections.

[Award 7949; R.P. 5269; Makanaulua Haena Halelea; 1 ap.; 30 rods; Waioli Halelea; 1 ap.; 2 roods; Haena Halelea; 1 ap.; 2 roods 14 rods; Kalolo Haena Halelea; 1 ap.; 1.3 Acs; See also 5477 not awarded;]

Claim Number:	**10562**
Claimant Name:	**Opu, I**
Alternate Name:	**Opu, J**
Secondary Claimant:	**Kupono, Aio**
Mokupuni (Island):	**Kaua'i**
Moku (District):	**Halele'a**
Ahupua'a (Division):	**Haena**
'Ili (Section):	**Haena, Manoa**
Royal Patent:	**6993**

No. 10562, Opu
Native Register Volume 9, page 294

Hear ye, William L. Lee, J. H. Smith, Kaauwai, John Ii and north Namauu, the persons designated as commissioners to quiet land titles, greetings: We, who are associated together have measured our mo'o and our house lot in District 3, Ahupua'a of Haena, island of Kauai, on

this 27th day of January, 1848. Our taro mo'o has a single circumference. It is 12 chains long by 7 chains wide. The house lot is 40 or more fathoms long by 25 or more fathoms wide.
We, who are combined, are:
I. OPU, KUPONO, AIO
Haena, Kauai
January 27, 1848

2 Opu
The house lot diagram is below:

[DIAGRAM]

Hear ye, ye Commissioners to quiet land titles sitting at Hale Kauwila. I, E. Kekela, a Hawaiian women, am living at Kalele house lot in the Ahupua'a of Haena on the island of Kauai, District 3 of the Hawaiian islands. my house occupants have measured /the house lot/ on this 29th day of January, 1848, and the dimensions are shown clearly on the diagram above. By the house occupants:
I. OPU, KUAIHELANI
Haena, Kauai
January 29, 1848

No. 10562, J. Opu, Claimant, Waioli, Mar 6th, 1850
Foreign Testimony Volume 12, page 90

Kekela, sworn, says I know this land of Opu in Haena. They are in two pieces as follows:

No. 1 is a moo kalo called "Kamakapili" & a large Loko adjoining called "Keaweloko."
No. 2. is a piece of kula fenced in with a stone Wall. In ili "Manoa."

No. 1 is bounded:
Mauka by Aio's lois
Napali by Nakeu's lois
Makai by public road on beach
Koolau by loi called "Malupo."

No. 2 is bounded:
Mauka by Manoa brook
Napali by Keahiaka's kula
Makai by Loko "Malupo"
Koolau by moo kalo "Keokea."

I gave the moo Kanakapili & the yard that is fenced in 1839. The Loko Keaualoko was then in possession of Opu & had been for some Years. These lands have all been held in peaceable possession till now.

Opu has a house in my yard which I recognize as a claim for a house lot.

No. 1052(?), J. Opu
Native Testimony Volume 12, page 94
[Should be 10562]

Kekela, sworn, [s]he has seen Opu's lands in Haena in two parcels.

Section 1 - Kaumakapili with a pond adjoining named Keawaloko.
Mauka by Aio's lois
Napali Nakau's taro moo
Makai by trail
Koolau by Kupono pond.

Section 2:
Mauka by Manoa river
Napali by Keahiaka's planting lot
Makai by Malupo
Koolau by (Keokea) white sands.

Kamakapili and the farm lot were given by Kekela in 1839, no disputes for Keaweloho, it is ancient. Opu has a house lot right in Kekela's house lot.

[Award 10562; R.P. 6993; Haena Halelea; 1 ap.; 1 Ac 2 roods 18 rods; Manoa Haena Halelea; 1 ap.; 1 Ac 3 roods 21 rods]

Claim Number:	10965
Claimant Name:	Wahieloa
Alternate Name:	
Secondary Claimant:	
Mokupuni (Island):	Kaua'i
Moku (District):	Halele'a
Ahupua'a (Division):	Haena
'Ili (Section):	Kaloli

Royal Patent:

No. 10965, Wahieloa, Haena, Kauai, January 31, 1848
Native Register Volume 9, page 255

Hear ye, ye Land Commissioners, greetings: I, Wahieloa and Hukiku, living at Kaloli, of the Ahupua'a of Haena, District 3, island of Kauai, have measured on this 31st day of January A.D. 1848, our six taro lo'i. We are combined in the one circumference. The length is 50 fathoms, the width is 44 fathoms. The right is from former times.
WAHIELOA and HUKIKU

No. 10965, Wahieloa, Claimant
Foreign Testimony Volume 12, page 93

Keahiahi, sworn, says I know Claimant's lands in Haena. It consists of house lot & a moo Kalo all in one piece. These lands have been held by Claimant from the days of Kaumualii, in peaceable possession to this present time.

Bounded as follows:
Mauka by loi "Kanaeleiki"
Napali by Nuhanu's lois
Makai by Sand beach
Koolau by "Kaluahonu."

Punihi, sworn, says I know the lands of Wahieloa. All that Keahiahi has testified is true.

No. 10965, Wahieloa
Native Testimony Volume 12, page 98

Keahiahi, sworn, he has seen claimant's land, of a house lot with 3 lois, in Haena and this was received from Kaumualii, title is good.

Mauka by Kanaele iki land
Napali by Nuuanu land
Makai by Puuone
Koolau by Kaluahonu.

Puuiki, sworn, verifies Keahiahi's testimony, Haenaloa is the name of the land.

[Award 10965; no R.P.; Haena Halelea; 1 ap.; 3 roods 31 rods]

Appendix B Restoration Site Plan

RESTORATION SITE PLAN

MIDLER LIMAHULI PROPERTY, KAUAI, HAWAII

Tax Map Key: (4) 5-9-003:008

David A. Burney, Michael De Motta, Lori Terry-Bender, and Kenneth R. Wood

Summary: Following actions by the State Board of Land and Natural Resources for unpermitted removal of invasive non-native trees on the Midler property, TMK (4) 5-9-003:008, which is located in land designated Conservation District, The National Tropical Botanical Garden (NTBG) was contracted by the landowner to provide a site plan and native plants for restoration of the property. Native plantings, to replace the vegetation removed, were part of the State-ordered mitigation. This document consists of background information needed for the restoration, a list of appropriate plant materials to be established on the site, and a site map showing existing woody vegetation to be retained and recommended locations for native plant establishment. Pending approval of this document by representatives of the owner and State authorities, this nursery stock will be delivered by NTBG to a third party to be designated by the owner's representatives for planting on the site.

Background: An inventory by NTBG staff in February, 2007, confirmed that the property had been cleared of numerous non-native trees and is now dominated by non-native herbs and shrubs (see Appendix). The debris from tree clearing was loaded into a truck by a front-end loader tractor and some portions were evidently burned over a two year period.

It is apparent that the removal of large trees has affected the privacy and view-plane of neighboring properties. Other potential implications to consider when large trees are removed include: a) the increase in sound and dust that can normally be deflected by large stands of trees; and b) the potential for greater erosion after vegetation removal. As far as the erosion, the property in consideration is quite level, and has shown no noticeable loss of substrate that is usually associated with increased erosion. The site was evidently used historically for taro cultivation and would have been open for such agriculture. It is suggested by the authors that the trees that were removed represent highly invasive species which have seriously impacted the native forest ecosystems on the north shore of Kaua`i. The non-native trees removed consisted of approximately 120

Java plums (Syzygium cumini), 100 octopus trees (Schefflera actinophylla), and 10-20 smaller Madagascar olives (Noronhia emarginata). Syzygium and Schefflera are highly invasive and can spread rapidly and cover large areas. In addition, a thicket of hau (Hibiscus tiliaceus) was removed from a 10 X 50 m strip along the southern boundary of the property. Hau trees, generally believed to be a Polynesian introduction, grow in large stands along water-courses and swampy areas. These trees make effective property boundaries, but they spread rapidly and form impenetrable tangles that can be difficult to control and may crowd out native riparian plants.

It should be noted that the more desirable, less invasive species of trees were left untouched including: kukui (Aleurites moluccana); noni (Morinda citrifolia); hala (Pandanus tectorius); MacArthur palms (Archontophoenix alexandrae); and royal palms (Roystonea regia).

In consultation with the landowner and her representatives, a list of native trees, shrubs, herbs, and ferns has been developed for the restoration of the property (see Table 1; also see Appendix for more details on many of these plants, including pictures). Non-native fruit-bearing species are also suggested, especially citrus (lemon / tangerine) and avocado, yet are not discussed below and are left up to the property owner's preferences. Restoration planting materials were started about a year ago with the aim of producing large specimens of appropriate native plants that can be used to speed up the process of creating a visual/sound/dust screen.

Site Description: The site consists of mostly level terrain, moderately well-drained, bounded on the north and west by existing roadways and on the east by a permanently flooded area located on the adjacent property. A small intermittent stream originates on the south side and joins the canal that bounds the property.

Surficial soils on the property are of two types: a yellowish-brown humic sandy loam that extends from the west side of the property through all the higher parts, and a darker and more organic sandy loam in the lower areas, particularly along the east and south side. Slightly higher sandy mounds occur on the property that offer the opportunity for growing more dune-adapted native species, and these soil variations are used in the site plan (Figure 1) to maximize the diversity of plantings on the site.

Soils were augered to a depth of 1.3 m at two contrasting locations, one near the west side of the property on sandy substrate, the other near the eastern margin in lower and more organic soils. Both were underlain with a layer of yellow marine sand approximately 50 cm thick, possibly a prehistoric marine overwash deposit. Both profiles were well-drained to the bottom of this unit, where a changeover to darker clay soils

corresponded to the approximate depth of the water table. This organic-rich clay extended to the depth of coring.

Soil testing revealed that the topsoil was approximately neutral with a moderate amount of major nutrients (N, P, K). These soils are highly suitable for the native plants recommended in Table 1, and extensive soil amendments will not be necessary.

Much of the present vegetation on the site is composed of an array of highly invasive weedy species, including many seedlings and saplings of the invasive trees previously removed. This vegetation will require extensive mechanical control, but no additional removal of large trees will be necessary to carry out this restoration.

Proposed Restoration: Following the removal of invasive weeds on the site, native plantings will be installed in accordance with Table 1 at the approximate locations shown on Figure 1. A large-format version of this map will be made available to the landowner's representative, State officials, and the landscaper contracted to do the work. NTBG staff will deliver the listed plants and provide advice regarding their installment and maintenance. Periodic monitoring of the plantings by NTBG staff will assist the landowner in planning for the care of the new plants.

Table 1 indicates that the plants supplied will consist of 405 trees, 200 shrubs, and 660 ground covers, including vines, grasses, sedges, and ferns. This large assemblage will assure the replacement of the invasive trees removed previously, and provide for noise and visual screening, dust and erosion control, and competition with non-native species colonizing the site. Native plants selected are ecologically and biogeographically appropriate to the site, as they naturally occur in the adjacent Limahuli Garden and Preserve or elsewhere nearby.

Conclusions. NTBG staff members believe that if the property is replanted and restored using native plant species described in these recommendations, then such restoration:

1. Will result in an improvement over the previous condition of the property;
2. Will help control the spread of invasive non-native species in the Limahuli area;
3. Will result in an improvement to the integrity of the Limahuli area (as an area dedicated to the preservation of native species); and

4. Will be in alignment with the efforts being taken by NTBG to preserve native species in the Hawaiian Islands.

Table 1. Native plants recommended for restoration of the Midler Limahuli property. These plants are ready for outplanting pending approval of this Site Plan. See Figure 1 for recommended approximate locations.

	Trees	No.
A	Acacia koaia	50
B	Cordia subcordata	50
C	Metrosideros polymorpha	20
D	Munroidendron racemosum	15
E	Pandanus tectorius	130
F	Pisonia wagneriana	10
G	Pittosporum napaliensis	20
H	Pritchardia napaliensis(7 gal)	10
I	Pritchardia napaliensis(1 gal)	75
J	Rauvolfia sandwicensis	15
K	Sapindus oahuensis	10
	Shrubs	
1	Artemisia australis	10
2	Chenopodium oahuense	10
3	Dodonaea viscosa	10
4	Gossypium tomentosum	20
5	Hibiscus waimeae	25
6	Lipochaeta connata var. acris	20
7	Myoporum sandwicensis	20
8	Nototrichium sandwicensis	20
9	Pipturus kauaiensis	25
10	Scaevola taccada	20
11	Wilkstroemia uva-ursi	20
	Ground covers, including vines, sedges, grasses, and ferns	
a	Alyxia stellata	100 a=1 group of 10 plants

b	Carex wahuensis	150	b=1 group of 10 plants
c	Canavalia spp.	10	
d	Cyclosorus interruptus	75	d=1 group of 25 plants
e	Cyperus javanicus	200	e=1 group of 25 plants
f	Nephrolepis cordifolia	25	f=1 group of 5 plants
g	Sporobolus virginicus	100	g=1 group of 25 plants

Appendix C State Historic Preservation Division Response

LINDA LINGLE
GOVERNOR OF HAWAII

LAURA H. THIELEN
CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT

RUSSELL Y. TSUJI
FIRST DEPUTY

KEN C. KAWAHARA
DEPUTY DIRECTOR - WATER

AQUATIC RESOURCES
BOATING AND OCEAN RECREATION
BUREAU OF CONVEYANCES
COMMISSION ON WATER RESOURCE MANAGEMENT
CONSERVATION AND COASTAL LANDS
CONSERVATION AND RESOURCES ENFORCEMENT
ENGINEERING
FORESTRY AND WILDLIFE
HISTORIC PRESERVATION
KAHOOLAWE ISLAND RESERVE COMMISSION
LAND
STATE PARKS

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
STATE HISTORIC PRESERVATION DIVISION
601 KAMOKILA BOULEVARD, ROOM 555
KAPOLEI, HAWAII 96707

November 28, 2008

MEMORANDUM

Log No: 2008.5400
Doc No: 0811PC09

TO: Katie Taladay, Cultural Surveys Hawaii, Inc.
P.O. Box 1114, Kailua, Hawaii 96734

FROM: Phyllis Coochie Cayan, History and Culture Branch Chief

Subject: **Cultural Impact Assessment (CIA) for the Property Described as Exclusion 13 of the Ha'ena Hui Partition Located in Lima-Huli Valley, Ha'ena Ahupua'a, Hanalei District, Island of Kaua'i TMK: (4) 5-9-003:008.**

This is in response to your e-letter dated November 18, 2008 regarding a CIA for the property describes as Exclusion 13 of the Ha'ena Hui Partition located in Lima-Huli Valley, Ha'ena Ahupua'a, Hanalei District on the island of Kaua'i, TMK: (4) 5-9-003:008. This CIA is to assess potential impacts to cultural practices resulting from the proposed project by the owner for a CDUA to: (1) remove non-native plants; (2) trim native hau; and (3) restore the property with native species pursuant to a plan prepared by the National Tropical Botanical Gardens.

The SHPD's main concern in this area due to its immediate proximity to sandy shoreline would be inadvertent burials that may be impacted by the activities associated with this proposed project. As you know, there have been numerous burials in this general area and it may be helpful for the project manager to do an informative presentation to the Kaua'i-Niihau Islands Burials Council (KNIBC) prior to any land clearing activities. The KNIBC may be able to direct you all to other cultural resource folks who know this proposed project area and may be willing to share mana'o.

The following is not a definitive list of resources however; you may want to contact the following persons and/or groups for more comments regarding cultural impacts in the proposed project area:

Barbara Say, KNIBC district representative
John Kruse, KNIBC acting chairman
Jeff Chandler, Historic Sites Specialist at Ha'ena State Park
Carlos Andrade, Ph.D. at UH-Manoa, author of "Ha'ena: Through the Eyes of Our Ancestors"
The Ching Family (see Ching Store in Hanalei)
The Wichman Family
The Kaua'i Museum
Na Kupuna Group at Alu Like Inc. (Lihue Unit)
The Mahuiki Family
The Inciong Family

Any questions may be directed to me at 808-692-8025 or by email to Phyllis.L.Cayan @hawaii.gov.

C: Dr. Pua Aiu, Ph.D., SHPD Administrator
Nancy McMahon, Deputy SHPO and State Archaeologist

Appendix D Office of Hawaiian Affairs Response

PHONE (808) 594-1888 FAX (808) 594-1865

STATE OF HAWAI'I
OFFICE OF HAWAIIAN AFFAIRS
711 KAPIOLANI BOULEVARD, SUITE 500
HONOLULU, HAWAI'I 96813

HRD08/4076

December 30, 2008

Katie Taladay, Cultural Research Specialist
Cultural Surveys Hawai'i
P.O. Box 1114
Kailua, Hawai'i 96734

RE: Cultural Impact Assessment consultation
Limahuli Garden and Preserve
Limahuli, Hā'ena Ahupua'a, Hanalei District, Kaua'i
Tax Map Key: (4) 5-9-003:008

Aloha e Katie Taladay,

The Office of Hawaiian Affairs (OHA) is in receipt of your November 18, 2008 letter initiating consultation and seeking comments ahead of a cultural impact assessment (assessment) for a proposed undertaking on the above mentioned tax map key parcel (parcel). The parcel is situated within the conservation district and the owner of the property has submitted a conservation district use application which would allow for: (1) removal of non-native plants; (2) trimming of native hau; (3) restoration of the property with native species pursuant to a plan prepared by the National Tropical Botanical Gardens.

OHA applauds the applicant's intent to remove non-native plants and replace them with native species. The subject parcel appears to be situated within a larger area which was purchased by the "Hā'ena **Hui**", also known as the "Hui Kū'ai 'Āina o Hā'ena" circa 1870. Sadly, beginning in 1955 these lands were transferred from this Hawaiian community when the lands were first partitioned, a process which was completed circa 1967.

OHA recommends consultation with the following individuals who may be willing to share their cultural knowledge of the assessment area with you: Carlos Andrade, Jeff Chandler, Andrew Cabebe, Louise Sausen and Presley Wann.

OHA hopes to continue working with you to develop a paradigm shift in assessments which will truly identify the impacts proposed undertakings will have on cultural resources and traditional practices. OHA respectfully maintains the position that all parties bear a responsibility to work towards building successful working relationships with individuals, organizations and communities throughout Hawai'i which will result in a true understanding of what resources and practices are important to the Hawaiian people

Thank you for initiating consultation at this early stage and we look forward to the opportunity to review the draft assessment and provide additional comments. Should you have any questions, please contact Keola Lindsey, Lead Advocate-Culture at (808) 594-1904 or keolal@oha.org.

'O wau iho nō me ka 'oia'i'o,

Clyde W. Nāmu'o
Administrator

C: OHA-Kaua'i CRC Office

Appendix E Kaua'i Historic Preservation Review Commission

COUNTY OF KAUAI
PLANNING DEPARTMENT
4444 RICE STREET, SUITE A473
LIHUE, KAUAI, HAWAII 96766-1326

MEMORANDUM

DATE: December 23, 2008

TO: Cultural Survey's Hawaii, Inc. Attn. Katie Taladay

FROM: Kauai Historic Preservation Review Commission

SUBJECT: Cultural Impact Assessment (CIA) For TMK 5-9-03:8, Haena, Kauai

---

The Kauai Historic Preservation Review Commission (KHPRC) met on December 4, 2008 to review your letter requesting input regarding potential impacts to cultural practices as a result of the proposed project.

Due to a potential conflict of interest situation, the KHPRC did not have a quorum to make a motion and vote on their recommendations. However, the following are standard recommendations offered by the KHPRC on CIAs and some of the comments that arose during discussion on the information presented:

- That the applicant consult with the State Historic Preservation Division (and Burial Council), the Department of Hawaii Homelands and the Office of Hawaiian Affairs;
- That a community input program (eg. Flyers, notices, meeting with community association, newspaper, canoe clubs, civic clubs, etc.) be initiated by the applicant to obtain information on cultural practices or resources in the project area;
- That individual KHPRC members contact CSH directly with the names of kupuna in the area who may participate in the consultation process;
- That reference checks be undertaken at the Kauai Historical Society, Kauai Museum, State Archives, Bishop Museum, Libraries, Place Names resource documents, and LCA's.

Item 2 of the scope of work pertaining to "trimming of native hau (Hibiscadelphus spp)" should be further clarified. Is it the hibiscus tiliacens which is more commonly found in these lowland areas? It was further requested that the replanting plan be sent to the KHPRC for review and comment.

Please feel free to contact us should you have any questions regarding this matter.

Mahalo.

cc: State Historic Preservation Division

NATIONAL TROPICAL BOTANICAL GARDEN
Chartered by Congress to Create a National Resource in Conservation, Research, and Education

15 July, 2009

Max W. J. Graham, Jr., Esq.
Belles Graham Proudfoot Wilson & Chun, LLP
4334 Rice Street, Suite 202
Lihue, Kauai, Hawaii 96766

Dear Mr. Graham:

On behalf of the National Tropical Botanical Garden, I wish to confirm that to the best of our knowledge there are no endangered vertebrates on the Midler Property, located in Hanalei District, County of Kaua`i, TMK (4) 5-9-003:008.

In addition to my own field work on the location, two other qualified biologists at NTBG, Ken Wood and Mike De Motta, have also inspected the property thoroughly in the course of restoration planning, and they confirm that no endangered or threatened birds, mammals, or reptiles have been noted to reside on the property.

Please feel free to contact me if you need additional information.

Best regards,

David A. Burney

David A. Burney, Ph.D.
Director of Conservation
National Tropical Botanical Garden
3530 Papalina Road
Kalaheo, HI 96741

EXHIBIT "M"