

Final Environmental Assessment

Kukui‘ula Conservation District Improvements

Koloa, Kauai, Hawaii

**Tax Map Keys: [4] 2-6-02: 12 and 2-6-03: 3 and 20, and
Portion of Lawai Road**

Prepared For:

**Kukui‘ula Development Company
(Hawaii), LLC
P.O. Box 280
Koloa, Kauai, Hawaii 96756**

Prepared By:

**Wilson Okamoto Corporation
Engineers and Planners
1907 South Beretania Street, Suite 400
Honolulu, Hawaii 96826**

April 2008

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CONSERVATION DISTRICT IMPROVEMENTS**

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Letter from the State Department of Land and Natural Resources Historic Preservation Division Dated March 1, 2005

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Appendix F: *Cultural Impact Assessment for a Conservation District Improvements Project West of Spouting Horn Park in Lawai Ahupuaa, Koloa District, Kauai Island, TMK [4] 2-6-02: 12, 2-6-03: 3 and 20, and Portion of Lawai Road*, Prepared by Cultural Surveys Hawaii, Inc., October 2007

Appendix G: *Kukui'ula Conservation District Improvements Drainage Report*, Prepared by Austin, Tsutsumi & Associates, Inc., December 2007

PREFACE

This Final Environmental Assessment ("EA") and Finding of No Significant Impact ("FONSI") is prepared pursuant to Chapter 343, Hawaii Revised Statutes ("HRS"), and Title 11, Chapter 200, Administrative Rules, Department of Health, State of Hawaii. Proposed is an applicant action by Kukui'ula Development Company (Hawaii), LLC ("Applicant") to undertake passive improvements within an approximately 10.0-acre area located adjacent to and west of Spouting Horn Park in Koloa, Island of Kauai. The proposed improvements are intended to fulfill Condition No. 15. f) of Zoning Ordinance No. PM-2004-370 for the adjacent Kukui'ula development which requires that the Applicant provide public pedestrian access to the shoreline areas west of Spouting Horn Park owned by the Applicant. The proposed Project improvements include development of an approximately 1,700 linear-foot turf grass public pedestrian trail along the makai side of the Lawai Road right-of-way; development of new gravel parking areas within the makai shoulder of the Lawai Road right-of-way; the clearing and removal of existing alien (non-native) vegetation within an area along the rocky coastal land adjacent to and makai of the Lawai Road right-of-way and the National Tropical Botanical Garden ("NTBG") tram road and re-vegetation with native, endemic and indigenous species common to the area or Polynesian-introduced; selective removal of existing large alien (non-native) invasive tree species in the area adjacent to and makai of the re-vegetation area and along the mauka side of the NTBG tram road; maintenance of the existing vegetation within the mauka side of the Lawai Road right-of-way and the NTBG tram road; and resurfacing of an approximately 700 linear-foot segment of the existing 12-foot wide asphalt-paved NTBG tram road. Development of an approximately 16,000 square-foot test area within the western portion of the Project Site will occur prior to implementation of the Project improvements to implement and test the proposed vegetation removal and re-vegetation methods. The preparation of this EA is required in accordance with Chapter 343, HRS, since the proposed improvements are located within the State Conservation District and also involve the use of County lands (Lawai Road).

In conjunction with this Final EA, a Conservation District Use Application ("CDUA") for the proposed Project improvements is being concurrently processed by the DLNR OCCL. As the Project Site is located within the County of Kauai's ("County") Special Management Area ("SMA") boundary, a SMA Use Permit was approved by the County Planning Commission on March 11, 2008 for the proposed improvements.

PROJECT SUMMARY

Applicant: Kukui'ula Development Company (Hawaii), LLC
P.O. Box 280
Koloa, Kauai, Hawaii 96756

Approving Agency: State Department of Land and Natural Resources ("DLNR") Office of Conservation and Coastal Lands ("OCCL")
1151 Punchbowl Street, Room 131
Honolulu, Kauai, Hawaii 96813

Location: Koloa, Kauai, Hawaii

Tax Map Keys ("TMKs"): (4) 2-6-02: 12 and 2-6-03: 3 and 20; and portion of Lawai Road

Affected Area: Approximately 10.0 acres

Recorded Fee Owners: Kukui'ula Development Company (Hawaii), LLC
(TMKs: (4) 2-6-02: 12 and 2-6-03: 3 and 20)

County of Kauai ("County") Department of Public Works
(Lawai Road)

Existing Use: Predominantly undeveloped rocky coastline vegetated primarily with alien species; a portion of Lawai Road; a private paved road owned by the Applicant and used by the National Tropical Botanical Garden's ("NTBG") trams to transport visitors from its visitor center located northeast of the Project Site to the NTBG located to the northwest in Lawai Valley; and a historic coastal trail complex traversing along the inland edge of the coastal embankment, within the central and eastern portions of the Project Site, paralleling the coastline.

State Land Use Classification: Conservation District

Conservation District Subzone: Limited (L) Subzone

County General Plan: Open

Koloa-Poipu-Kalaheo Development Plan: There is no land use designation for the Project Site in the Koloa-Poipu-Kalaheo Development Plan.

County Zoning: There is no County zoning designation for the Project Site as it is located within the State Conservation District.

Special Management Area ("SMA"):

Within the SMA

Proposed Action:

The Applicant proposes to undertake passive improvements within an approximately 10.0-acre area located adjacent to and west of Spouting Horn Park in Koloa, Island of Kauai. The proposed improvements are intended to fulfill Condition No. 15. f) of Zoning Ordinance No. PM-2004-370 for the adjacent Kukui'ula development which requires that the Applicant provide public pedestrian access to the shoreline areas west of Spouting Horn Park owned by the Applicant. The proposed Project improvements include development of an approximately 1,700 linear-foot turf grass public pedestrian trail along the makai side of the Lawai Road right-of-way; development of new gravel parking areas within the makai shoulder of the Lawai Road right-of-way; the clearing and removal of existing alien (non-native) vegetation within an area along the rocky coastal land adjacent to and makai of the Lawai Road right-of-way and the NTBG tram road and re-vegetation with native, endemic and indigenous species common to the area or Polynesian-introduced; selective removal of existing large alien (non-native) invasive tree species in the area adjacent to and makai of the re-vegetation area and along the mauka side of the NTBG tram road; maintenance of the existing vegetation within the mauka side of the Lawai Road right-of-way and the NTBG tram road; and resurfacing of an approximately 700 linear-foot segment of the existing 12-foot wide asphalt-paved NTBG tram road. Development of an approximately 16,000 square-foot test area within the western portion of the Project Site will occur prior to implementation of the Project improvements to implement and test the proposed vegetation removal and re-vegetation methods.

Impacts:

No significant impacts are anticipated from the construction and operation of the proposed Project.

Required Permits & Approvals:State of Hawaii

Department of Health

- National Pollutant Discharge Elimination System ("NPDES") Permit

Department of Land and Natural Resources Office of Conservation and Coastal Lands

- Conservation District Use Permit

Department of Land and Natural Resources Historic Preservation Division

- Chapter 6E, HRS Historic Preservation

County of Kauai

Planning Department

- Special Management Area Use Permit
(Approved by the County Planning Commission on March 11, 2008)

Department of Public Works

- Road Permit
- Grubbing Permit

**Agencies Consulted
In Pre-Assessment
Process:**

Federal

U.S. Army Corps of Engineers

U.S. Fish & Wildlife Service

U.S. National Marine Fisheries Service

State of Hawaii

Department of Business, Economic Development and Tourism,
Office of Planning

Department of Business, Economic Development and Tourism,
Land Use Commission

Department of Health, Office of Environmental Quality Control

Department of Land and Natural Resources

Department of Land and Natural Resources, Office of
Conservation and Coastal Lands

Department of Land and Natural Resources, Division of Forestry
and Wildlife, Na Ala Hele

Department of Land and Natural Resources, Historic Preservation
Division

Office of Hawaiian Affairs

County of Kauai

Planning Department

Department of Public Works

Department of Parks and Recreation

Police Department

Others

National Tropical Botanical Garden

Allerton Gardens Trust in Hawaii

A&B Hawaii Inc.

**Agencies Consulted
In Draft EA Process:**

Federal

U.S. Army Corps of Engineers

U.S. Fish & Wildlife Service

State of Hawaii

Department of Business, Economic Development and Tourism,
Office of Planning
Department of Health, Office of Environmental Quality Control
Department of Health, Environmental Management Division
Board of Land and Natural Resources, Kauai Board Member
Department of Land and Natural Resources, Office of
Conservation and Coastal Lands
Department of Land and Natural Resources, Division of
Conservation and Resources Enforcement
Department of Land and Natural Resources, Division of Forestry
and Wildlife
Department of Land and Natural Resources, Division of Forestry
and Wildlife, Kauai District
Department of Land and Natural Resources, Division of Forestry
and Wildlife, Na Ala Hele
Department of Land and Natural Resources, Land Division, Kauai
District
Department of Land and Natural Resources, Division of Aquatic
Resources
Department of Land and Natural Resources, Historic Preservation
Division
Office of Hawaiian Affairs

County of Kauai

Planning Department
Open Space Commission

Others

National Tropical Botanical Garden
JP Morgan Chase Bank, N.A., Trustee of the Allerton Gardens
Trust
Sierra Club, Kauai Group of the Hawaii Chapter
Kauai Invasive Species Committee
Lihue Public Library

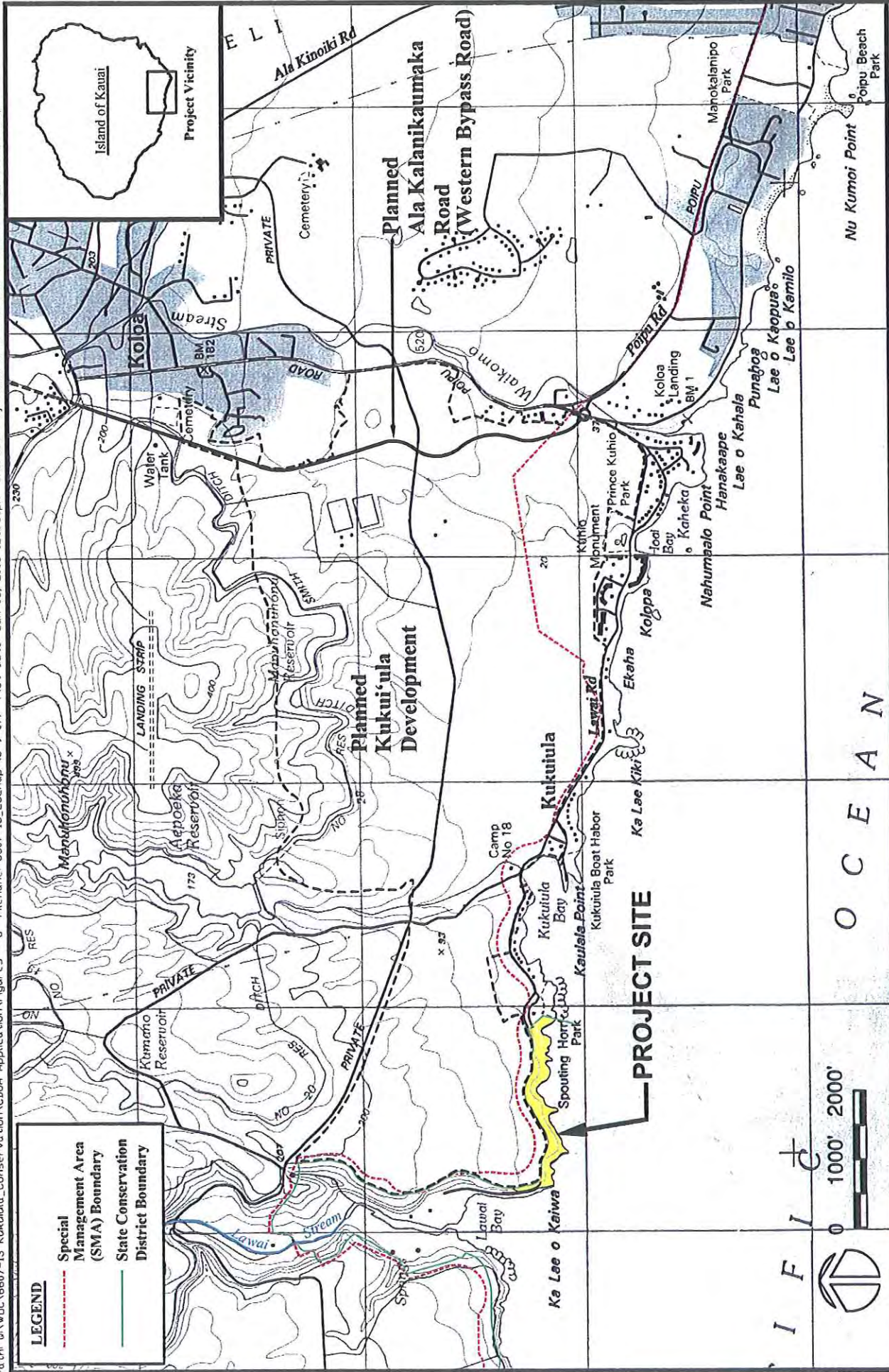
1. INTRODUCTION AND PROJECT SETTING

1.1 Introduction

Kukui'ula Development Company (Hawaii), LLC ("Applicant") proposes to undertake passive improvements within an approximately 10.0-acre area ("Project Site") located adjacent to and west of Spouting Horn Park in Koloa, Island of Kauai. A Location Map depicting the Project Site is included as Figure 1-1. The proposed improvements are intended to fulfill Condition No. 15. f) of Zoning Ordinance No. PM-2004-370 for the adjacent Kukui'ula development which requires that the Applicant provide public pedestrian access to the shoreline areas west of Spouting Horn Park owned by the Applicant. The proposed Project improvements include development of an approximately 1,700 linear-foot turf grass public pedestrian trail along the makai side of the Lawai Road right-of-way; development of new gravel parking areas within the makai shoulder of the Lawai Road right-of-way; the clearing and removal of existing alien (non-native) vegetation within an area along the rocky coastal land adjacent to and makai of the Lawai Road right-of-way and the National Tropical Botanical Garden ("NTBG") tram road and re-vegetation with native, endemic and indigenous species common to the area or Polynesian-introduced; selective removal of existing large alien (non-native) invasive tree species in the area adjacent to and makai of the re-vegetation area and along the mauka side of the NTBG tram road; maintenance of the existing vegetation within the mauka side of the Lawai Road right-of-way and the NTBG tram road; and resurfacing of an approximately 700 linear-foot segment of the existing 12-foot wide asphalt-paved NTBG tram road ("Project"). Development of an approximately 16,000 square-foot test area within the western portion of the Project Site will occur prior to implementation of the Project improvements to implement and test the proposed vegetation removal and re-vegetation methods.

The Project will be developed in conjunction with the planned Kukui'ula development ("Kukui'ula development"), a resort-residential project located on approximately 1,002 acres adjacent to and mauka of the Project Site also under development by the Applicant. The Kukui'ula development, located on former McBryde Sugar Company plantation lands, is shown on Figures 1-1 and 1-2. The Kukui'ula development proposes a maximum of 1,500 units, a resort, an 18-hole golf course, recreational facilities, commercial uses, parks and open space, along with 75 employee housing units and 60 affordable housing units. An Environmental Impact Statement ("EIS") was prepared in April 1989 in conjunction with a County General Plan amendment for the Kukui'ula development. A Supplemental EIS was also subsequently prepared in August 1998 in conjunction with the County General Plan amendment process for the Kukui'ula development's resort core. On July 28, 2004, the County of Kauai ("County") approved a zoning amendment and amendment to the Visitor Destination Area ("VDA") designation for the Kukui'ula development which established Zoning Ordinance No. PM-2004-370.

Preparation of this Environmental Assessment ("EA") pursuant to Chapter 343, Hawaii Revised Statutes ("HRS"), is required since the proposed improvements are located within the State Conservation District and also involves the use of County lands identified as Lawai Road. A Conservation District Use Application ("CDUA") has been prepared for the proposed improvements and is being concurrently processed by the State Department of Land and Natural Resources ("DLNR") Office of Conservation and Coastal Lands ("OCCL"), the Approving Agency for the EA. Since the Project Site is located within the County's Special Management



LEGEND

- Special Management Area (SMA) Boundary
- State Conservation District Boundary

Island of Kauai
Project Vicinity

Scale: 0, 1000', 2000'

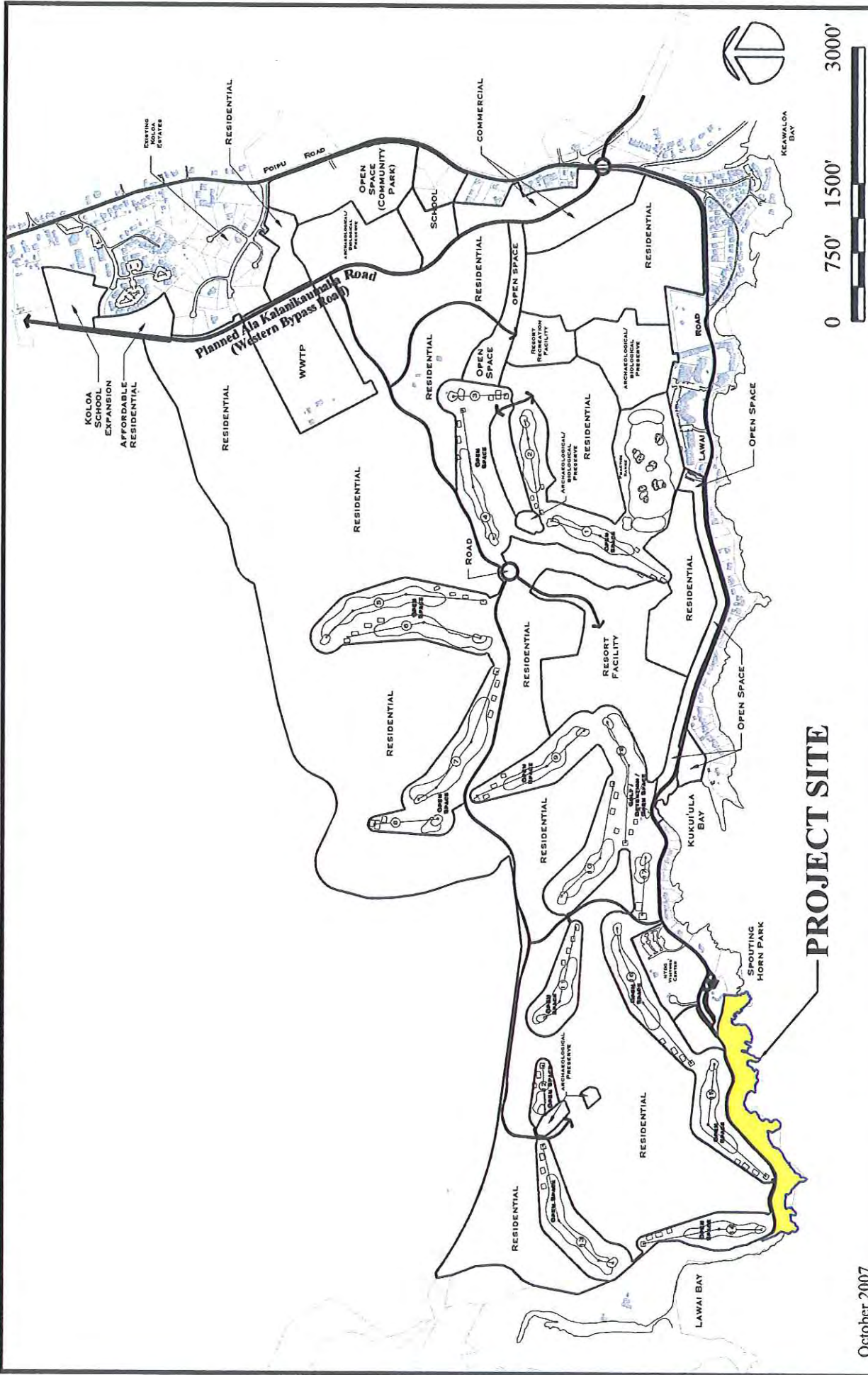
CONSERVATION DISTRICT IMPROVEMENTS
KUKUI'ULA
Koloa, Kauai, Hawaii

Location Map

Prepared for:
Kukulula Development Company (Hawaii), LLC

Figure 1

Prepared by:
Wilson Okamoto Corporation



PROJECT SITE

October 2007

**CONSERVATION DISTRICT
IMPROVEMENTS**

KUKUI'ULA
Koloa, Kauai, Hawaii

Kukui'ula Land Use Plan

Prepared for:
Kukui'ula Development Company (Hawaii), LLC

Figure 1-2

Prepared by:
Wilson Okamoto Corporation

Area ("SMA") boundary, a SMA Use Permit was approved by the County Planning Commission on March 11, 2008 for the proposed improvements.

1.2 Project Location and Setting

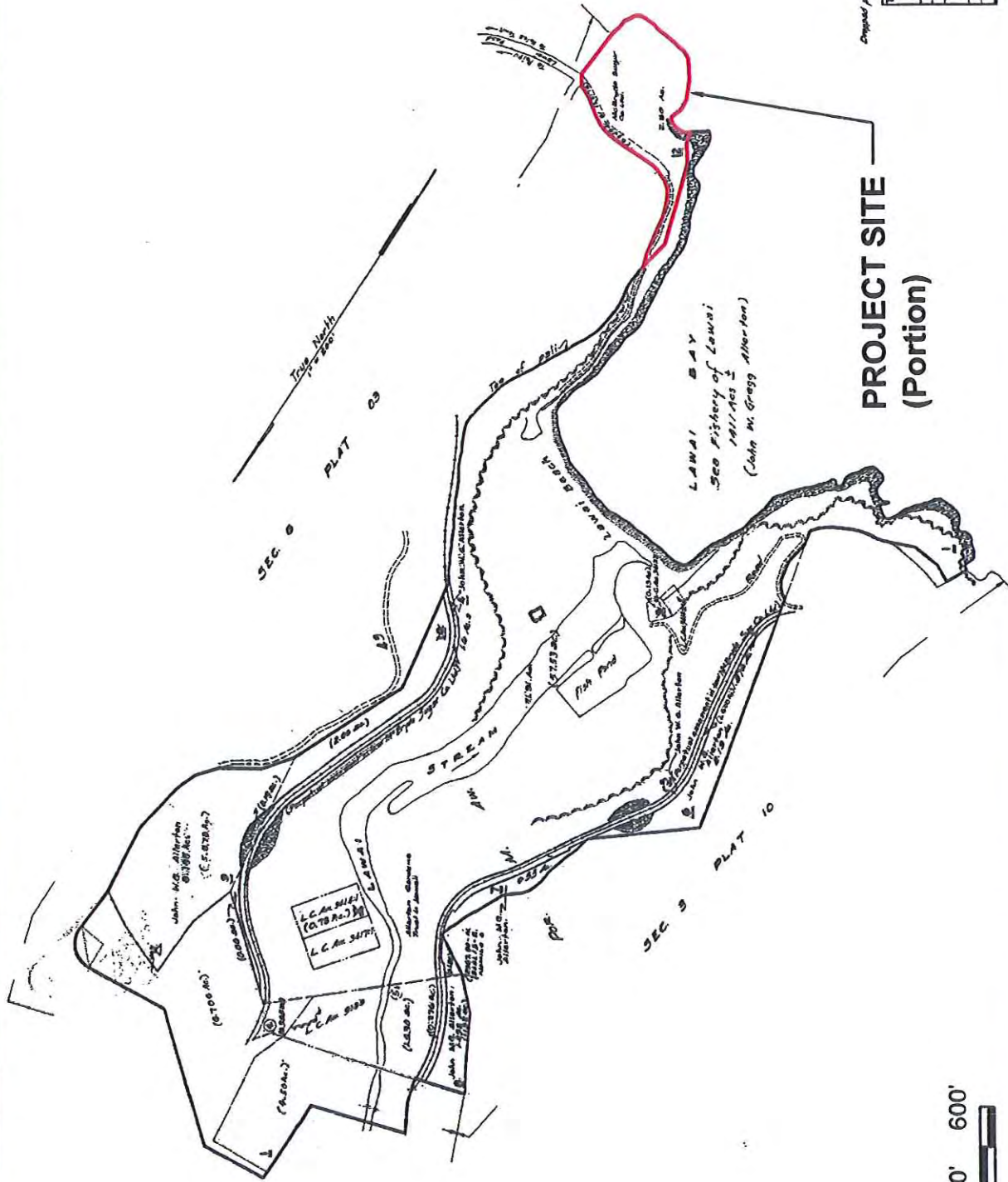
The Project Site is located along the south shore of Kauai, adjacent to and west of Spouting Horn Park, in the Koloa District as shown on Figure 1-1. The Project Site is identified as TMKs: (4) 2-6-02: 12 and 2-6-03: 3 and 20, and a portion of Lawai Road as shown on Figures 1-3 and 1-4. Of the approximately 10.0-acre Project Site, approximately 8.8 acres (TMKs: (4) 2-6-02: 12 and 2-6-03: 3 and 20) are owned by the Applicant. The remaining approximately 1.2 acres of the Project Site include the County-owned segment of Lawai Road which extends approximately 1,760 linear feet west from Spouting Horn Park to the existing NTBG gate.

The approximately 8.8-acre portion of the Project Site owned by the Applicant is comprised of three (3) separate parcels as shown on Figures 1-3, 1-4 and 1-5. The three (3) parcels include Lot M consisting of 3.268 acres (TMK: (3) 2-6-03: 3), Lot N consisting of 3.016 acres (TMK: (4) 2-6-03: 20), and Lot P consisting of 2.5 acres (TMK: 2-6-02: 12). The ALTA/ACSM Land Title Survey Map prepared for the Project Site in March 2003 (Figure 1-5) depicts various acreages for each parcel, including the "Record Area" which is based on the County's Real Property Tax records; the "Observed Area" which is based on existing monuments on the ground during surveying for the March 2003 ALTA survey; the "Less Erosion" area which is the area of erosion which occurred between the time of a previous recorded shoreline survey conducted on April 6, 1936 and the March 2003 ALTA survey; and the "Net Observed Area" which is the difference in acreage between the "Observed Area" and the "Less Erosion" area.

For Lot M, the "Net Observed Area" of 3.268 acres is consistent with the acreage shown on the County's current Real Property Tax records and tax map, and in the title documentation to the Applicant. The "Record Area" for Lot M reflects a larger acreage of 5.300 acres which is based on previous shoreline conditions.

For Lot N, the "Net Observed Area" of 3.016 acres is consistent with the acreage shown on the County's current Real Property Tax records and tax map, and in the title documentation to the Applicant. The "Record Area" for Lot N reflects a larger acreage of 3.762 acres which is based on previous shoreline conditions.

For Lot P, the "Record Area" of 2.5 acres is consistent with the acreage shown on the County's current Real Property Tax records and tax map, and in the title documentation to the Applicant. The "Net Observed Area" includes a lesser land area of 1.94 acres which is likely due to a change in shoreline conditions.



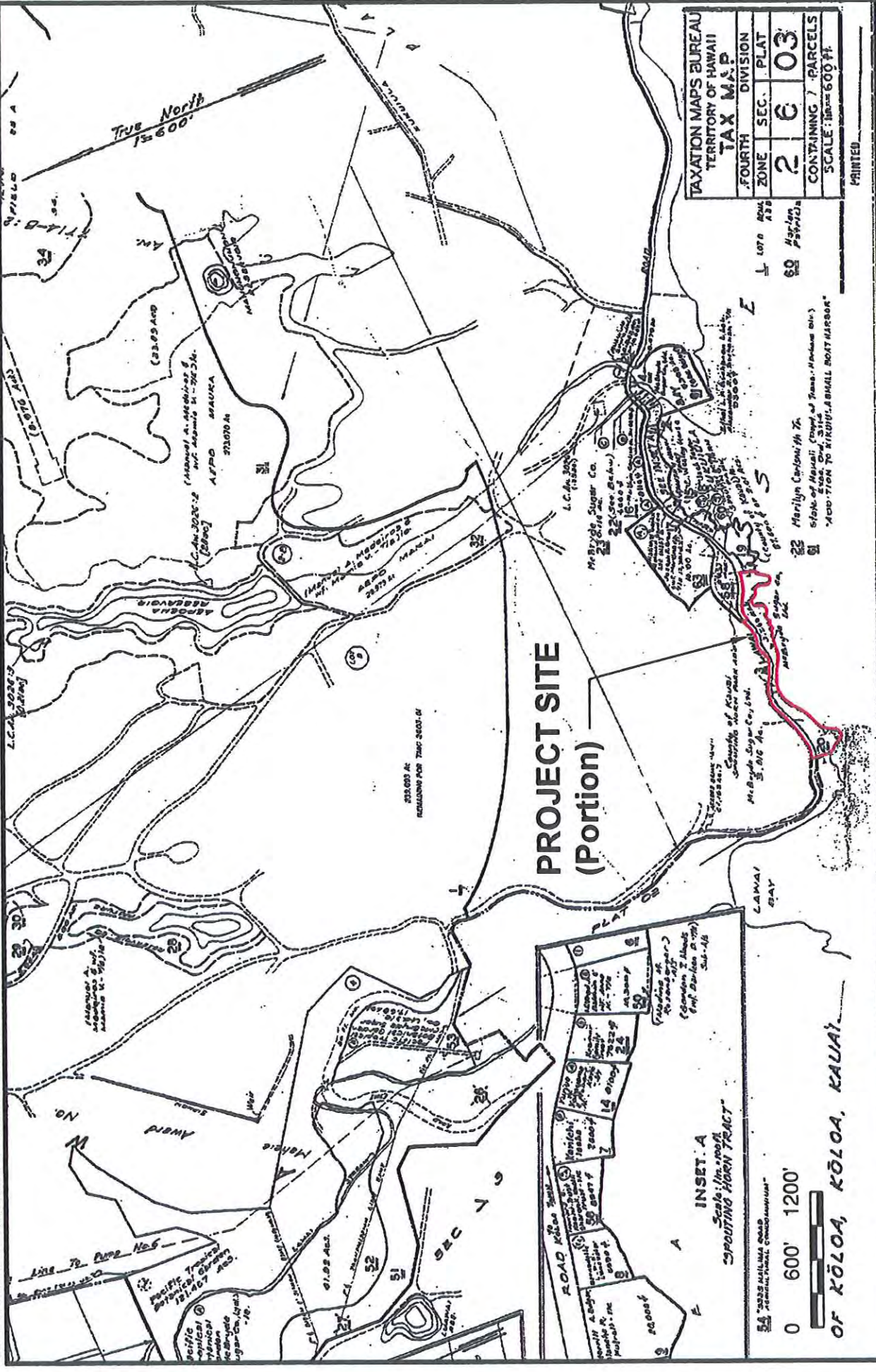
Original parcel 2.3 10.14

TAXATION MAPS BUREAU			
TERRITORY OF HAWAII			
TAX MAP			
FOURTH DIVISION	SECTION	PLAT	
2	6	02	
CONTAINING PARCELS			SCALE: 1" = 200'

**CONSERVATION DISTRICT
IMPROVEMENTS**
KUKU'ULA
Koloa, Kauai, Hawaii

Tax Map Key: 2-6-02: 12
Prepared for:
Kuku'ula Development Company (Hawaii), LLC

Figure 1-3
Prepared by:
Wilson Okamoto Corporation



**CONSERVATION DISTRICT
 IMPROVEMENTS
 KUKUI'ULA
 Koloa, Kauai, Hawaii**

Tax Map Keys: 2-6-03: 3 and 20

Prepared for:
 Kukui'ula Development Company (Hawaii), LLC

Figure 1-4

Prepared by:
 Wilson Okamoto Corporation

1.3 Existing and Surrounding Uses

The following describes the existing uses within the Project Site and the uses surrounding the site. These uses are depicted on the Area Plan included as Figure 1-6 and in the Project Site photos included in Appendix A.

Existing Uses: The Project Site consists predominantly of an undeveloped rocky coastline vegetated primarily with alien species. Within the northern portion of the Project Site, Lawai Road extends west from the vicinity of Spouting Horn Park to the NTBG gate. West of the NTBG gate, a private paved road owned by the Applicant and used by the NTBG's trams to transport visitors from its visitor center located northeast of the Project Site to the NTBG located to the northwest in Lawai Valley, traverses west and then north to the northwestern end of the Project Site. The immediate roadside areas along Lawai Road and the NTBG tram road are vegetated with alien plant species. Within the central and eastern portions of the Project Site, an existing coastal trail complex consisting of a discontinuous historic trail traverses along the inland edge of the coastal embankment, paralleling the coastline.

Surrounding Uses: Land uses bordering the Project Site include the planned Kukui'ula development to the north, Spouting Horn Park to the east, the ocean to the south, and coastline to the west. Other surrounding uses include the NTBG Visitor Center, private and vacation rental residences, and Kukui'ula Small Boat Harbor to the east; and Lawai Bay, Lawai Valley and the NTBG to the northwest.

LEGEND

Adjacent Property Owners

- 1** Tax Map Key: (4) 2-6-02:1
 Owner: Allerton Gardens Trust in Hawaii
 c/o Industry Consulting Group Inc.
 P.O. Box 810490
 Dallas, TX 75381-0490
- 2** Tax Map Key: (4) 2-6-15:1
 Owner: Kuku'ula Development Company
 (Hawaii), LLC
 P.O. Box 280
 Koloa, HI 96756
- 3** Tax Map Key: (4) 2-6-03:19
 Owner: A&B-Hawaii Inc.
 P.O. Box 156
 Kahului, HI 96732
- 4** Tax Map Key: (4) 2-6-03: 58
 Owner: County of Kauai
 Office of the Mayor
 Public Information Office
 4444 Rice Street, Suite 245
 Lihue, HI 96766



Source: DigitalGlobe Data, May 2007

CONSERVATION DISTRICT IMPROVEMENTS
KUKUI'ULA
 Koloa, Kauai, Hawaii

Area Plan

Prepared for:
 Kuku'ula Development Company (Hawaii), LLC

Figure 1-6

Prepared by:
 Wilson Okamoto Corporation

2. PROJECT DESCRIPTION

2.1 Project Need

The need for the proposed improvements is intended to fulfill Condition No. 15. f) of Zoning Ordinance No. PM-2004-370 for the planned resort-residential Kukui'ula development located adjacent to and mauka of the Project Site. As previously indicated, a zoning amendment and amendment to the VDA designation for the Kukui'ula development was approved by the County on July 28, 2004. As part of the zoning amendment approval, Condition No. 15. f) of Zoning Ordinance No. PM-2004-370 provides the following:

15. *Pertaining to the Project's recreational impacts to the region:*

- f) *The Applicant shall provide public pedestrian access easements to the shoreline areas west of Spouting Horn Park owned by the Applicant consistent with the Project's Conceptual Trails Master Plan.*

Also, in accordance with Condition No. 15. c) of Zoning Ordinance No. PM-2004-370, the Applicant is required to provide a comprehensive pedestrian and biking trail system throughout the Kukui'ula development that will be open to the general public. In accordance with this Condition, the Applicant has developed a Conceptual Path and Trail Plan consisting of a network of pedestrian and biking trail systems within the Kukui'ula development as shown on Figure 2-1. The proposed public pedestrian trail within the Project Site will be developed as part of the Kukui'ula development's comprehensive path and trail system which will be open to the general public. The Applicant will be dedicating easements to the County for all the pedestrian and biking trails within the Kukui'ula development, including the proposed pedestrian trail within the Project Site. Long-term maintenance of the trails will be undertaken by the Applicant.

The proposed clearing and removal of the existing alien (non-native) vegetation and re-vegetation with native, endemic and indigenous species common to the area or Polynesian-introduced, and selective removal of existing large alien (non-native) invasive tree species is intended to encourage the proliferation of native plants presently limited in distribution within and adjacent to the Project Site. Additionally, the vegetation clearing and re-vegetation improvements will restore and visually enhance the coastal views of the area.

2.2 Project Description

The proposed Project includes development of an approximately 1,700 linear-foot turf grass public pedestrian trail along the makai side of the Lawai Road right-of-way; development of new gravel parking areas within the makai shoulder of the Lawai Road right-of-way; the clearing and removal of existing alien (non-native) vegetation within an area along the rocky coastal land adjacent to and makai of the Lawai Road right-of-way and the NTBG tram road and re-vegetation with native, endemic and indigenous species common to the area or Polynesian-introduced; selective removal of existing large alien (non-native) invasive tree species in the area adjacent to and makai of the re-vegetation area and along the mauka side of the NTBG tram road; maintenance of the existing vegetation within the mauka side of the Lawai Road right-of-way and the NTBG tram road; and resurfacing of an approximately 700 linear-foot segment of the existing 12-foot wide asphalt-paved NTBG tram road. Development of an

approximately 16,000 square-foot test area within the western portion of the Project Site will occur prior to implementation of the Project improvements to implement and test the proposed vegetation removal and re-vegetation methods. The proposed improvements are described below and depicted on Figures 2-2 and 2-3.

A turf grass public pedestrian trail ranging in width from 4 feet to 8 feet will be developed along the makai side of the Lawai Road right-of-way, adjacent to the road pavement edge. A Section depicting the proposed trail in relation to Lawai Road is included as Figure 2-4. The varying width of the trail responds to existing conditions along Lawai Road. The pedestrian trail will extend a distance of approximately 1,700 linear feet to the west from the western end of Spouting Horn Park. Low, single-post "No Parking" signs will be strategically placed along the makai side of the turf grass trail to prohibit vehicles from parking on the trail. Although turf grass for the trail's composition is being proposed to complement the natural environment of the area, the Applicant is proposing the potential option of converting the turf grass trail into a granular trail in the future should long-term maintenance become a concern. A future trail connection mauka of Lawai Road and the western end of the proposed pedestrian trail will be provided to the adjacent Kukui'ula development.

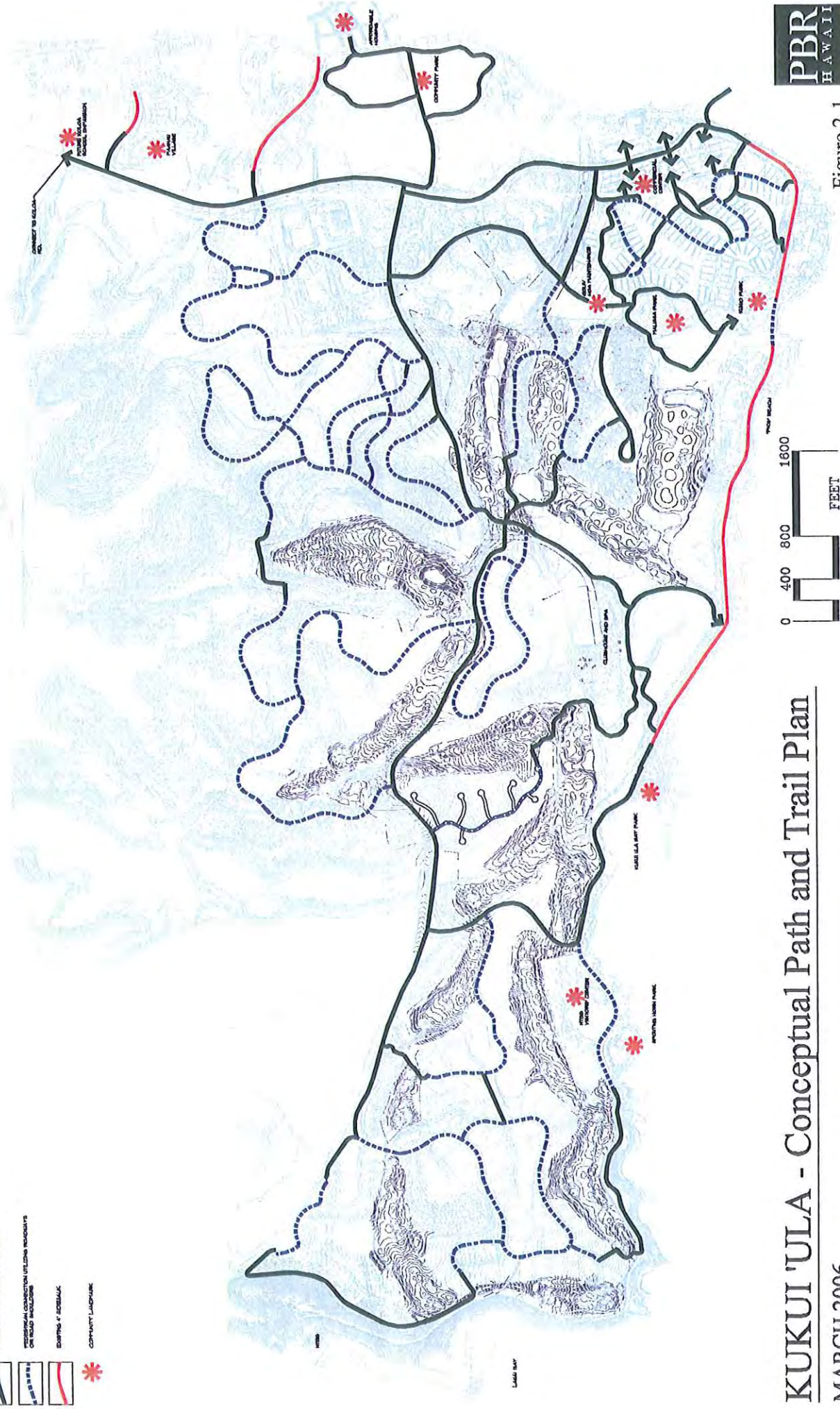
New gravel parking areas will be provided in three (3) locations currently used for parking along the unpaved makai shoulder within the Lawai Road right-of-way. A Section depicting the proposed gravel parking areas in relation to Lawai Road is included as Figure 2-5. Parking for approximately ten (10) vehicles total will be provided within these enhanced parking areas. At the proposed locations of the new gravel parking areas, the turf grass trail alignment will abut along the makai edge of the parking areas.

The existing chain link fence along the makai side of the Lawai Road right-of-way will be removed to accommodate the proposed Project improvements.

The Project improvements will also include the clearing and removal of existing alien (non-native) vegetation within an approximately 2.8-acre area extending along the entire length of the rocky coastal land adjacent to and makai of the Lawai Road right-of-way, the existing NTBG tram road and the southwestern portion of Spouting Horn Park. The makai limits of the vegetation clearing/removal and re-vegetation area will extend a distance ranging from approximately 15 feet to 100 feet from the makai side of the Lawai Road right-of-way, the NTBG tram road and the southwestern boundary of Spouting Horn Park. Following clearing and removal of the vegetation, the area will be re-vegetated with native, endemic and indigenous species common to the area or Polynesian-introduced, consisting of a variety and mixture of trees, low-growing shrubs and groundcovers. The trees are proposed to include the native coastal tree species hala, hau and naio. Shrubs are proposed to include native species such as naupaka, and groundcovers are proposed to include native species such as 'akoko, pohinahina, pa'u o Hi'iaka, 'ilima papa, and naio papa. All of these native plant species are accustomed to growing along rocky coastlines.

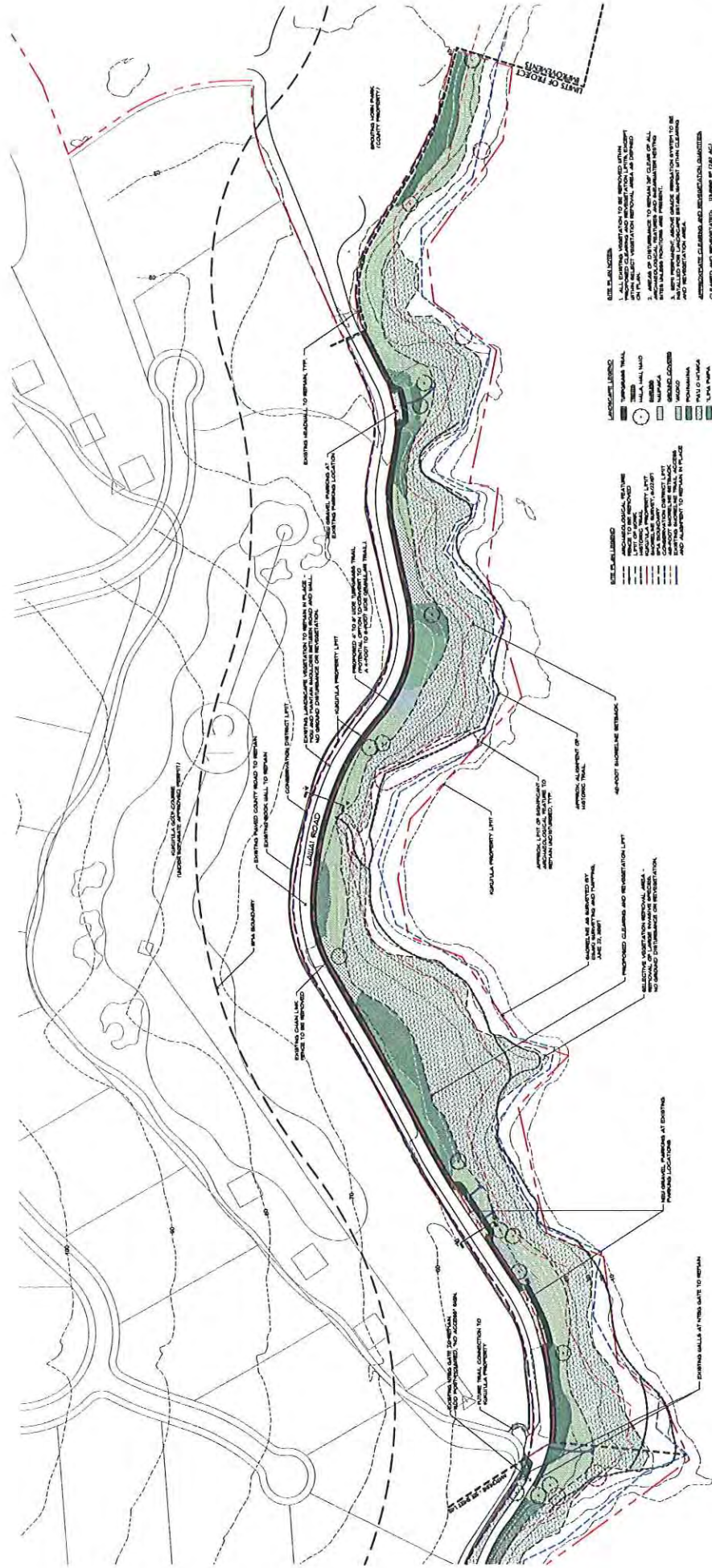
Adjacent to and makai of this proposed re-vegetation area, as well as along the mauka side of the NTBG tram road, selective vegetation removal of existing large alien (non-native) invasive tree species will occur within an approximately 3.0-acre area. Within the area makai of Lawai Road and the NTBG tram road, the limits of the selective vegetation removal will occur mauka of the inland edge of the coastal embankment.

- LEGEND**
- PROPOSED PEDESTRIAN PATHS OR TRAILS
 - EXISTING PEDESTRIAN UTILITY INDICATORS OR ROAD ALIGNMENTS
 - EXISTING UTILITY
 - COMMUNITY LANDMARK



KUKUI 'ULA - Conceptual Path and Trail Plan

MARCH 2006



SHEET
L-01
SCALE 1" = 40'

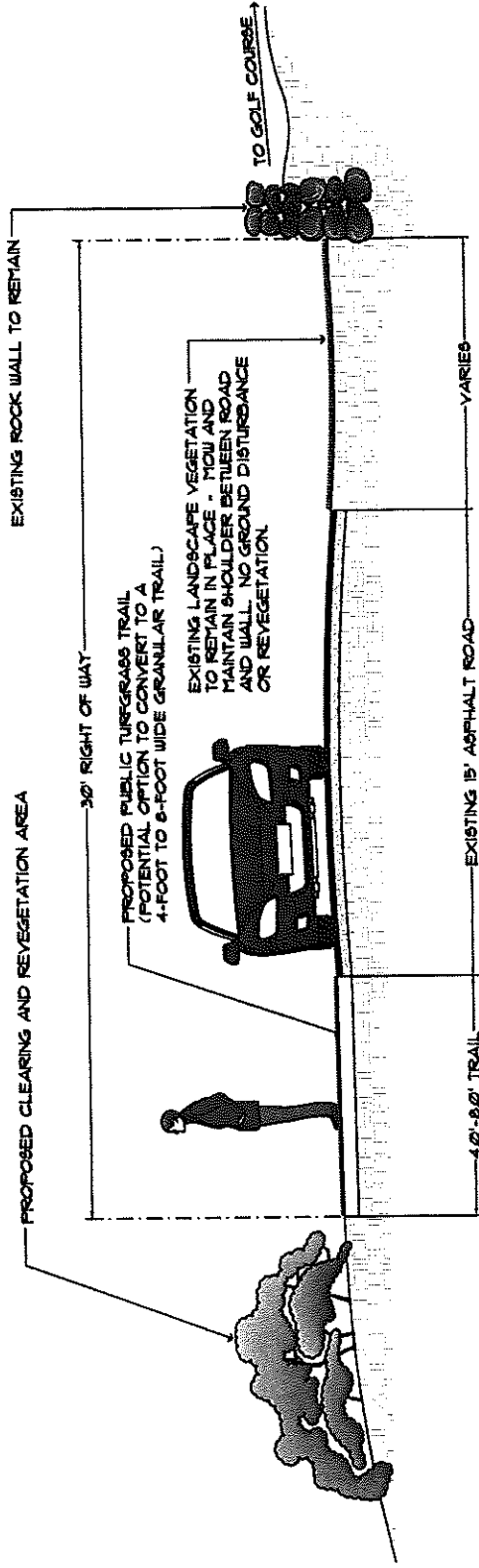
KUKUIJULA CONSERVATION AREA
Conceptual Site Plan - 1
April 04, 2008

McClellan Associates
-LANDSCAPE ARCHITECTS -

- NOTES:**
1. ALL CLEARING, VEGETATION TO BE REMOVED SHALL BE BY THE SELECT VEGETATION REMOVAL, USE AS DIRECTED.
 2. AREAS OF DISTURBANCE TO REMAIN OR CLEAR OF ALL OTHER VEGETATION SHALL BE RESTORED TO ORIGINAL CONDITION WITHIN 90 DAYS OF COMPLETION OF CONSTRUCTION.
 3. ALL DISTURBED AREAS SHALL BE RESTORED TO ORIGINAL CONDITION WITHIN 90 DAYS OF COMPLETION OF CONSTRUCTION.
 4. ALL DISTURBED AREAS SHALL BE RESTORED TO ORIGINAL CONDITION WITHIN 90 DAYS OF COMPLETION OF CONSTRUCTION.
 5. ALL DISTURBED AREAS SHALL BE RESTORED TO ORIGINAL CONDITION WITHIN 90 DAYS OF COMPLETION OF CONSTRUCTION.

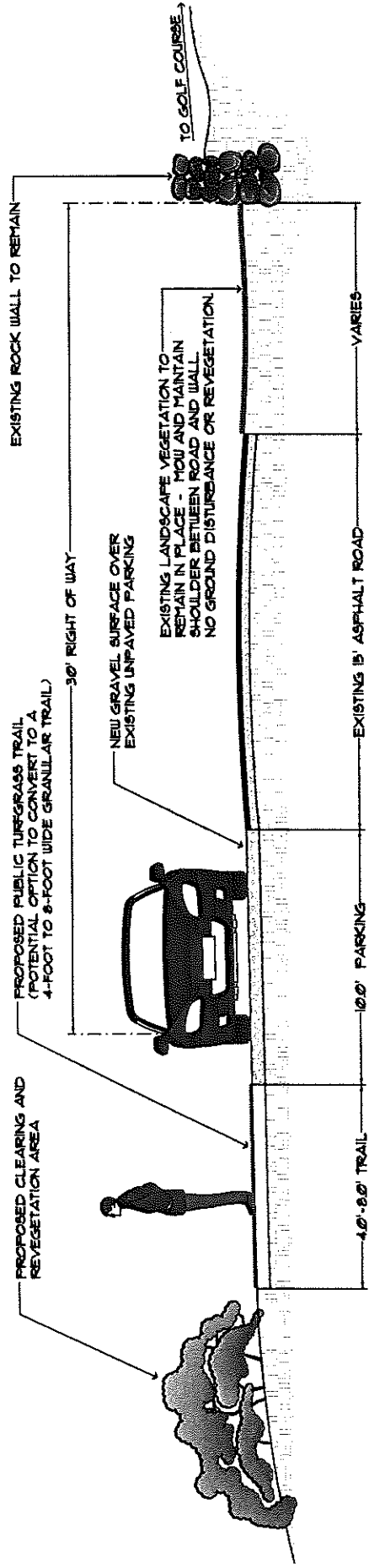
- LEGEND:**
- EXISTING TRAIL NETWORK
 - PROPOSED TRAIL NETWORK
 - EXISTING HOMELINE NETWORK
 - PROPOSED HOMELINE NETWORK
 - EXISTING PROPERTY LINES
 - PROPOSED PROPERTY LINES
 - EXISTING ROAD
 - PROPOSED ROAD
 - EXISTING WATERWAY
 - PROPOSED WATERWAY
 - EXISTING VEGETATION
 - PROPOSED VEGETATION
 - EXISTING OPEN SPACE
 - PROPOSED OPEN SPACE
 - EXISTING UTILITIES
 - PROPOSED UTILITIES

Figure 2-2



TO GOLF COURSE →

Figure 2-4



Within the Project Site, the proposed removal of existing alien vegetation will also include the removal of 29 diseased/declining non-native ironwood trees (*Casuarina equisetifolia*). In November 2005, a total of 49 ironwood trees within the Project Site were identified as being dead and diseased/declining, with 20 of the trees identified by an arborist as being dead. By letter dated December 20, 2005 from the DLNR OCCL, the Applicant was allowed to remove the 20 dead ironwood trees which was subsequently undertaken. A copy of the DLNR OCCL letter is included as Appendix B.

The Applicant proposes to remove a total of approximately 55 ironwood trees from the Project Site. This includes the removal of approximately 40 ironwood trees within the area proposed for vegetation clearing/re-vegetation, and approximately 15 ironwood trees from the area proposed for selective vegetation removal, including approximately three (3) ironwood trees located in the area mauka of the NTBG tram road. These trees proposed for removal are those with an approximately 6-inch caliper. The proposed removal of the 29 diseased/declining ironwood trees is included within the proposed total of approximately 55 ironwood trees to be removed within the Project Site. The ironwood trees are proposed for removal due to their impact on the native plant community resulting from their abundant shading and the accumulation of their needle-like leaves and stems which accumulate in a mat-like nature on the ground, thereby inhibiting the growth of other plants in the immediate area. In addition, approximately 40 to 50 of the existing non-native succulent pencil trees (*Euphorbia tirucalli*) will be removed from the area proposed for vegetation clearing/re-vegetation within the Project Site. The proposed removal of the pencil trees is due to the potential hazard owing to the caustic nature of the milky sap exuded from the plant which is irritating to the skin and can cause blindness if allowed to get into the eyes. The proposed removal of both of these non-native plant species will help to foster a plant assemblage that is more conducive to users of the area and help to restore the area towards a more appropriate native coastal ecosystem.

The vegetation along the existing rock wall mauka of Lawai Road will remain and will be mowed and maintained as part of the proposed improvements. No ground disturbance or re-vegetation will occur in this area.

An approximately 700 linear-foot segment of the existing 12-foot wide asphalt-paved NTBG tram road will be resurfaced from the existing NTBG gate located within the western portion of the Project Site to the northwesternmost end of the Project Site where the road enters the Kukui'ula property near the planned 14th green of the Kukui'ula Golf Course. A barrier of boulders is proposed to be installed along an approximately 200 linear-foot segment on the makai side of the tram road where the terrain steeply declines for safety purposes.

Prior to implementation of the Project improvements, an approximately 16,000 square-foot test area will be developed within the western portion of the Project Site to implement and test the proposed vegetation removal and re-vegetation methods as described below. The proposed location of the test area, shown on Figure 2-3, is representative of the existing vegetation types and densities within the Project Site. This will provide optimal conditions for testing the proposed vegetation removal and re-vegetation methods in order to determine the most effective methods to implement within the Project Site. The proposed methodologies to be undertaken in the development of the test area are described below. Upon implementation of the test area, the Applicant will coordinate with the DLNR OCCL and County to review the

results and confirm the methodology to be used for the vegetation removal and re-vegetation activities within the Project Site.

No grading activities will be undertaken in conjunction with the construction of the Project improvements. Minimal ground disturbance will occur to till in soil along the proposed trail alignment to initiate establishment of the turf grass, to install a permanent below-grade irrigation system for the main irrigation line and the turf grass trail, to remove the existing alien (non-native) vegetation and re-vegetate the area, and to install a temporary above ground irrigation system for the re-vegetated areas.

The removal of the existing alien (non-native) vegetation within the Project Site will be undertaken with the use of mechanical (i.e., hydroAx and chainsaws) and hand clearing (i.e., handsaws and manual trimming tools) methods. The hydroAx will be used to remove existing vegetation within accessible areas makai of the Lawai Road right-of-way. For the removal of the larger vegetation species, hand tools or chainsaws will be used to cut the vegetation to the stump and methods such as wipe-on or brush-on herbicide will be used on the vegetation stumps. Soil will be used to infill small pocket areas within the rocky coastline to help establish the new vegetation, as appropriate.

The main permanent below-grade non-potable irrigation system for the Project Site will include installation of a 3-inch diameter polyvinyl chloride ("PVC") irrigation line that will extend makai from the adjacent Kukui'ula development and across the NTBG tram road within the western portion of the Project Site. From this point, the main irrigation line will extend east approximately 1,600 linear feet along the makai side of the NTBG tram road and Lawai Road. The 3-inch diameter irrigation line will be installed within an approximately 8-inch wide by 12-inch deep trench located across the NTBG tram road and approximately 2 feet makai of the pavement edge of the NTBG tram road and Lawai Road. The trench will be dug with the use of a trencher, except for areas of shallow soils which will require the use of a jackhammer. For the portion crossing the NTBG tram road, the existing asphalt road pavement will be saw-cut prior to the trench being dug. Once the desired trench depth is reached, the 3-inch diameter irrigation line will be installed, followed by backfilling of the ground surface.

Irrigation of the proposed turf grass trail will consist of a permanent below-grade spray irrigation system that will include installation of a 2-inch diameter PVC line located along the entire length of the makai edge of the trail. The 2-inch diameter line will connect to the 3-inch diameter below-grade main irrigation line to be installed along Lawai Road. The 2-inch diameter irrigation line will be installed within an approximately 8-inch wide by 8-inch deep trench. The trench will be dug with the use of a trencher. Once the desired depth is reached, the 2-inch diameter irrigation line will be installed, followed by backfilling of the ground surface. Following preparation of the surface within the trail alignment, the trail will be hydro-seeded to establish the turf grass surface.

Irrigation for the establishment of the re-vegetated areas within the Project Site, including the proposed test area, will include the installation of a temporary aboveground drip irrigation system consisting of a 1-inch diameter poly-urethane irrigation line that will ultimately connect to the 3-inch main irrigation line along the NTBG tram road and Lawai Road. A network of temporary aboveground ¼-inch diameter poly-urethane drip tubing will connect to the 1-inch

diameter line to distribute irrigation water to all of the individual new plants. Following establishment of the new vegetation, the temporary irrigation system will be removed.

No artificial lighting, including street lights, will be provided in conjunction with the proposed Project improvements.

The Project improvements will also include the preservation of an existing coastal trail complex which consists of a discontinuous historic trail that traverses along the inland edge of the coastal embankment within the central and eastern portions of the Project Site, paralleling the coastline, and the preservation of two (2) existing rock shelter cave sites located along the coastal cliff within the eastern portion of the site. The preservation of these three (3) sites will be in accordance with a Preservation Plan prepared in December 2004 and approved by the DLNR Historic Preservation Division ("SHPD") in March 2005. Further discussion of the coastal trail complex and the two (2) rock shelter cave sites and the preservation of these sites is included in Section 3.10 Historic and Archaeological Resources of this EA document.

The Applicant will coordinate obtaining an easement from the County as may be required for use of the County's Lawai Road right-of-way for the proposed improvements.

As previously indicated, the Applicant will maintain all proposed Project improvements, including the proposed pedestrian trail which will be conveyed by easement to the County. All proposed Project improvements will be maintained by the Applicant. As part of the long-term maintenance of the Project improvements, the maintenance of the turf grass trail and re-vegetated areas will be undertaken on a weekly basis, while maintenance of the selective vegetation removal areas will occur on a quarterly basis. Equipment used for the maintenance operations will include hand and power tools, with trucks used to haul the greenwaste from the site to an off-site location. Fertilization of the new vegetation and turf grass trail within the Project Site will be applied by directly injecting all natural biofertilizer into the irrigation water and through the irrigation system. This system of fertilization will reduce the amount of fertilizer that would otherwise be required by up to 70 to 90 percent, thereby largely eliminating fertilizer runoff. Appropriate herbicides will be applied to the cut vegetation stumps at a recommended concentration level with a wipe-on or brush-on technique during the initial vegetation clearing activities and as part of the long-term maintenance operations, as needed. The wipe-on or brush-on method of application will minimize the drift overspray that would otherwise occur with a spray-on technique. The use of herbicides within the Project Site is anticipated to be minimal since it is proposed for use only until the new vegetation is established and as needed during the long-term maintenance operations. The herbicides to be used will be Environmental Protection Agency ("EPA") certified products approved for use in environmentally sensitive areas. The fertilizers and herbicides to be used within the Project Site will be determined in consideration of the sensitive environment and recreational users of the area.

The use of large equipment for the proposed Project improvements will occur only during the initial vegetation clearing activities and to haul greenwaste to an off-site location during the long-term maintenance operations. The contractors will be required to have available on-site granular absorbent materials for use for immediate clean-up in the event of accidental fuel or hydraulic spills from the equipment. The contractors will also be required to have available on-site containers for the storage of the spent spill response materials, which will then be required to be properly disposed of at an off-site location.

2.3 Project Schedule

Overall development of the proposed Project is anticipated to commence by January 2009, with completion by March 2011, subject to the receipt of all necessary permits and plan approvals.

Development of the Project improvements will occur in three (3) phases. The first phase will include construction of the approximately 16,000 square-foot test area within the western portion of the Project Site. Construction of this phase is anticipated to commence by January 2009, with completion by March 2009 during the period that the Wedge-tailed Shearwaters are absent. Upon completion of construction of the test area, the Applicant will coordinate with the State DLNR OCCL, the County and other appropriate agencies to review the results. The duration of this review period is anticipated to occur from March 2009 to November 2009 during the breeding/nesting season of the Wedge-tailed Shearwaters.

The second phase will include construction of the improvements west of the NTBГ gate. Construction of this phase is anticipated to commence by December 2009, with completion by March 2010 during the period that the Wedge-tailed Shearwaters are absent.

The third phase will include construction of the improvements east of the NTBГ gate. Construction of this phase is anticipated to commence by December 2010, with completion by March 2011 during the period that the Wedge-tailed Shearwaters are absent.

Following completion of construction of the Project improvements, the long-term maintenance activities will be undertaken in consideration of the breeding/nesting season of the Wedge-tailed Shearwaters. Maintenance of the turf grass pedestrian trail and re-vegetated areas will be conducted on a weekly basis. During the breeding/nesting season of the Wedge-tailed Shearwaters, a qualified biologist will map the seabird nesting colonies that may be present within the Project Site each year. The boundaries of these seabird nesting colonies will then be delineated with stakes placed in the ground, and all maintenance activities within those boundaries will be restricted until the seabirds have fledged. The application of all natural bio-fertilizer and brush-on herbicide will be undertaken during the period of December to March when the Wedge-tailed Shearwaters are absent.

Maintenance activities within the areas of selective vegetation removal will be conducted during the period of December to March when the Wedge-tailed Shearwaters are absent.

3. DESCRIPTION OF THE EXISTING ENVIRONMENT, PROJECT IMPACTS AND MITIGATION MEASURES

The following is a description of the existing environment, assessment of potential impacts and proposed measures to mitigate potential adverse impacts resulting from the proposed Project.

3.1 Climate

The climate of Kauai, relatively moderate throughout most of the year, is characterized as semi-tropical with two (2) seasons. The summer period from May through September is generally warm and dry, with predominantly northeast trade winds. In contrast, the winter season from October through April is associated with lower temperatures, higher rainfall and less prevalent trade winds.

The semi-arid climate of Koloa is typically dry and sunny. Winds are predominantly trade winds from the east or northeast, with wind speeds averaging about 11 to 12 miles per hour. Occasional storms may generate strong winds from the south (Kona winds) for brief periods. Temperatures in the area are generally very moderate, with average daily temperatures ranging from about 68 degrees Fahrenheit (°F) to 81°F. Average annual rainfall in the Project area is approximately 44 inches, with the summer months being the driest.

3.2 Geology, Topography and Soils

Geology: The Island of Kauai is geologically one of the oldest and structurally complex islands in the State, consisting principally of a large volcano, the Kauai shield, which became active approximately four (4) million years ago. The Island's land mass was formed by two (2) major volcanic series identified as the Waimea Canyon Volcanic Series and the Koloa Volcanic Series. The Waimea Volcanic Series, which is more than 3 million years old, refers to the flows that formed the original volcanic shield and caldera of the Island. The Koloa Volcanic Series, which is less than 1.5 million years old, refers to subsequent flows that overlaid much of the Waimea Volcanic Series formations on the lower slopes of the Island. The Koloa Volcanic Series consists of a range of formations from olivine basalt to nepheline basalt. These rocks are much less permeable than some of the rocks of the Waimea Canyon Volcanic Series as they were deposited as nearly flat layers that tend to be massive and devoid of permeability elements.

The regional geology consists of the Koloa Volcanic Series overlying the Waimea Canyon Series. The Koloa Volcanic Series thickens toward the south coast of the Island and the composition ranges from alkalic olivine basalt through basanites to nephelinites and melilite nephelinites.

Topography: The topography within the Project Site slopes seaward from the area just makai of Lawai Road and the NTBG tram road and within the rocky coastal lands down to the coastline. The Project Site ranges in elevation from approximately 66 feet above mean sea level ("msl") within the northwestern-most portion down to msl along the coastline. The slope of the Project Site ranges from 0 percent to approximately 20 percent.

Soils: The U.S. Department of Agriculture Natural Resources Conservation Service classifies the soils within the Project Site as Rock outcrop (rRO) and Makaweli silty clay loam (MgC) as shown on Figure 3-1. The Rock outcrop (rRO) soil type, which encompasses the majority of the Project Site along the rocky coastline, consists of areas where exposed bedrock covers more than 90 percent of the surface. The rock outcrops are mainly basalt and andesite. The Makaweli silty clay loam (MgC) soil type, which encompasses the area within the northwestern-most portion of the Project Site, consists of well-drained soils developed in material weathered from basic igneous rock. Runoff is medium and the erosion hazard is moderate.

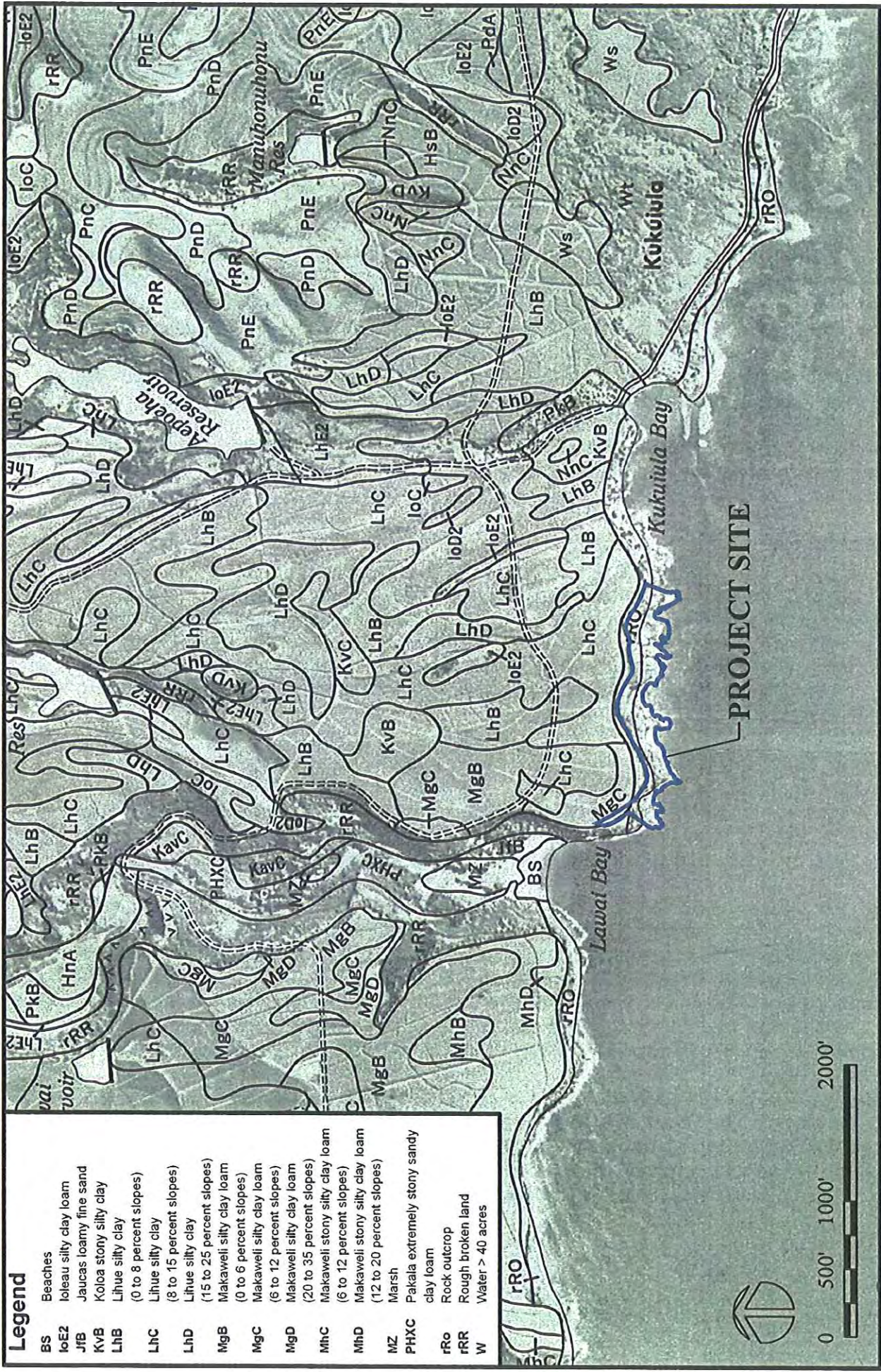
The *Detailed Land Classification - Island of Kauai* published by the University of Hawaii Land Study Bureau ("LSB") evaluates the quality or productive capacity of certain lands on the Island for selected crops and overall suitability in agricultural use. A five-class productivity rating system was established with "A" representing the class of highest productivity and "E" the lowest. The Project Site is classified as "E" rated soils, which is considered very poor characteristics for productive agricultural areas.

The *Agricultural Lands of Importance in the State of Hawaii* ("ALISH") map prepared by the State Department of Agriculture classifies the Project Site as "lands of no agricultural importance".

Impacts and Mitigation Measures

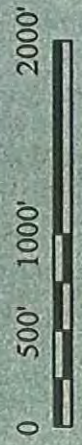
No significant impacts to the geology, topography and soils are anticipated with the construction and operation of the proposed Project. No grading activities will be undertaken in conjunction with the construction of the Project improvements. Minimal ground disturbance will occur to till in soil along the proposed trail alignment to initiate establishment of the turf grass, to install the permanent below-grade irrigation system for the main irrigation line and the turf grass trail, to remove the existing alien (non-native) vegetation and re-vegetate the area, and to install the temporary aboveground irrigation system for the re-vegetated areas. Trenching for the installation of the below-grade irrigation lines will be undertaken with a trencher, except for areas of shallow soils which will require the use of a jackhammer. To trench the area within the NTBG tram road crossing for the irrigation line, the existing asphalt road pavement will be saw-cut prior to the trench being dug. All vegetation removal will be undertaken with the use of mechanical (i.e., hydro-Ax and chainsaws) and hand clearing (i.e., handsaws and manual trimming tools) methods. For the removal of the larger vegetation species, hand tools or chainsaws will be used to cut the vegetation to the stump and methods such as wipe-on or brush-on herbicide will be used on the vegetation stumps. Soil will be used to infill small pocket areas within the rocky coastline to help establish the new vegetation, as appropriate.

Appropriate erosion and sediment controls will be instituted during construction of the Project improvements in compliance with the State Department of Health's ("DOH") National Pollutant Discharge Elimination System ("NPDES") Permit program. Construction of the Project improvements will also be in compliance with the County's Grubbing Permit. Mitigation measures will be instituted following site-specific assessments, incorporating appropriate structural and/or non-structural Best Management Practices ("BMPs").



Legend

BS	Beaches
IoE2	Ioleau silty clay loam
JfB	Jauca loamy fine sand
KvB	Koloa stony silty clay
LhB	Lihue silty clay (0 to 8 percent slopes)
LhC	Lihue silty clay (8 to 15 percent slopes)
LhD	Lihue silty clay (15 to 25 percent slopes)
MgB	Makaweli silty clay loam (0 to 6 percent slopes)
MgC	Makaweli silty clay loam (6 to 12 percent slopes)
MgD	Makaweli silty clay loam (20 to 35 percent slopes)
MhC	Makaweli stony silty clay loam (6 to 12 percent slopes)
MhD	Makaweli stony silty clay loam (12 to 20 percent slopes)
MZ	Marsh
PHXC	Pakala extremely stony sandy clay loam
rRo	Rock outcrop
rRR	Rough broken land
W	Water > 40 acres



**CONSERVATION DISTRICT
IMPROVEMENTS
KUKUI'ULA**
Koloa, Kauai, Hawaii

Soils Map

Prepared for:
Kukui'ula Development Company (Hawaii), LLC

Prepared by:
Wilson Okamoto Corporation

Figure 3-1

During construction of the turf grass trail, rolled fiber filtration tubing will be installed adjacent to the makai side of the trail alignment along its entire length to prevent sediment-laden storm water runoff from flowing makai. The rolled fiber filtration tubing will remain in place until the turf grass is established within the trail. The hydro-seeding of the trail to establish the turf grass will also help to control erosion.

During clearing and removal of the existing vegetation and re-vegetation activities within the rocky coastal area makai of Lawai Road and the NTBG tram road, silt fencing will be installed along the makai boundary of the re-vegetated areas to prevent sediment-laden storm water runoff from flowing makai. Rolled fiber filtration tubing will also be installed at regular intervals in the area between the turf grass trail and the makai boundary of the re-vegetated areas to prevent sediment-laden storm water runoff from flowing makai. The silt fence and rolled fiber filtration tubing will remain in place until the new vegetation is established.

Development of the Project improvements, including the re-vegetation areas, turf grass trail and new gravel parking areas will contribute to permanent erosion control measures in the long-term.

3.3 Water Resources

Surface Water: There are no surface waters within the Project Site. The closest stream is Lawai Stream to the northwest of the Project Site which flows through Lawai Valley and into Lawai Bay. Currently, storm water runoff enters the Project Site from the adjacent mauka Kukui'ula property and continues makai through the Project Site, eventually running into the ocean at low spots within the site. There are no wetlands located within or in the immediate vicinity of the Project Site.

Groundwater: The Island of Kauai is divided into three (3) groundwater sectors consisting of the Lihue Sector comprising the eastern portion of the Island, the Hanalei Sector comprising the northern portion of the Island, and the Waimea Sector comprising the western portion of the Island. The Sectors are divided into aquifer systems which are areas defined by hydrogeological continuity, particularly hydraulic connections among units.

Five (5) aquifer systems make up the Lihue Sector: Kilauea, Anahola, Wailua, Hanamaulu, and Koloa. The Project Site overlies the groundwater of the Koloa aquifer system. Groundwater occurrence and behavior is controlled by the Koloa formation which covers the Koloa aquifer system, except for isolated ridges of the Napali volcanics located inland. Perched water in the Koloa aquifer system is the most common type of groundwater, but basal water occurs near the coast. (Yuen, 1990). The Koloa aquifer system has a sustainable yield of 30 mgd. (State DLNR, Commission on Water Resource Management ("CWRM"), 2000).

Coastal Waters: The coastal waters in the vicinity of the Project Site are classified as Class A waters by the State DOH. Lawai Bay, which is also classified as Class A waters by the State DOH, is located to the northwest of the Project Site. It is the objective of Class A waters that "their use for recreational purposes and aesthetic enjoyment be protected." (*Water Quality Standards, Title 11, Chapter 54, Hawaii Administrative Rules ("HAR")*).

Impacts and Mitigation Measures

No significant impacts on surface waters, groundwater, and near shore coastal waters are anticipated as a result of the construction and operation of the proposed Project.

No grading activities will be undertaken in conjunction with the construction of the Project improvements. Minimal ground disturbance will occur to till in soil along the proposed trail alignment to initiate establishment of the turf grass, to install the permanent below-grade irrigation system for the main irrigation line and the turf grass trail, to remove the existing alien (non-native) vegetation and re-vegetate the area, and to install the temporary aboveground irrigation system for the re-vegetated areas.

Potential water quality impacts to the near shore coastal waters during construction of the Project will be mitigated by adherence to State water quality regulations. A NPDES General Permit for Storm Water Associated with Construction Activity administered by the State DOH will be required to control storm water discharges. Construction of the Project improvements will also be in compliance with the County's Grubbing Permit. Mitigation measures will be instituted following site-specific assessments, incorporating appropriate structural and/or non-structural BMPs.

During construction of the turf grass trail, rolled fiber filtration tubing will be installed adjacent to the makai side of the trail alignment along its entire length to prevent sediment-laden storm water runoff from flowing makai. The rolled fiber filtration tubing will remain in place until the turf grass is established within the trail. The hydro-seeding of the trail to establish the turf grass will also help to control erosion.

During clearing and removal of the existing vegetation and re-vegetation activities within the rocky coastal area makai of Lawai Road and the NTBG tram road, silt fencing will be installed along the makai boundary of the re-vegetated areas to prevent sediment-laden storm water runoff from flowing makai. Rolled fiber filtration tubing will also be installed at regular intervals in the area between the turf grass trail and the makai boundary of the re-vegetated areas to prevent sediment-laden storm water runoff from flowing makai. The silt fence and rolled fiber filtration tubing will remain in place until the new vegetation is established.

The phasing of the implementation of the Project improvements will also minimize the overall amount of exposed surfaces and ground disturbance at a given time, thereby further reducing the amount of storm water runoff that may occur. A gravel pad and wash down area will be placed at the planned construction entrance to the Project Site to prevent tracking of sediment onto Lawai Road and the NTBG tram road.

Since the proposed resurfacing activities of the NTBG tram road will occur over the existing asphalt-paved surface, there is anticipated to be no increase in the impervious surface area or storm water runoff. In resurfacing the tram road, the contractor will be required to brush clean the existing pavement surface and to control dust through water spraying. Following preparation of the existing pavement surface, a tack layer of asphaltic emulsion will be spread over the surface to promote bonding between the existing and new pavement prior to the new pavement being constructed.

Construction activities associated with the proposed improvements will not introduce any materials which could adversely affect groundwater.

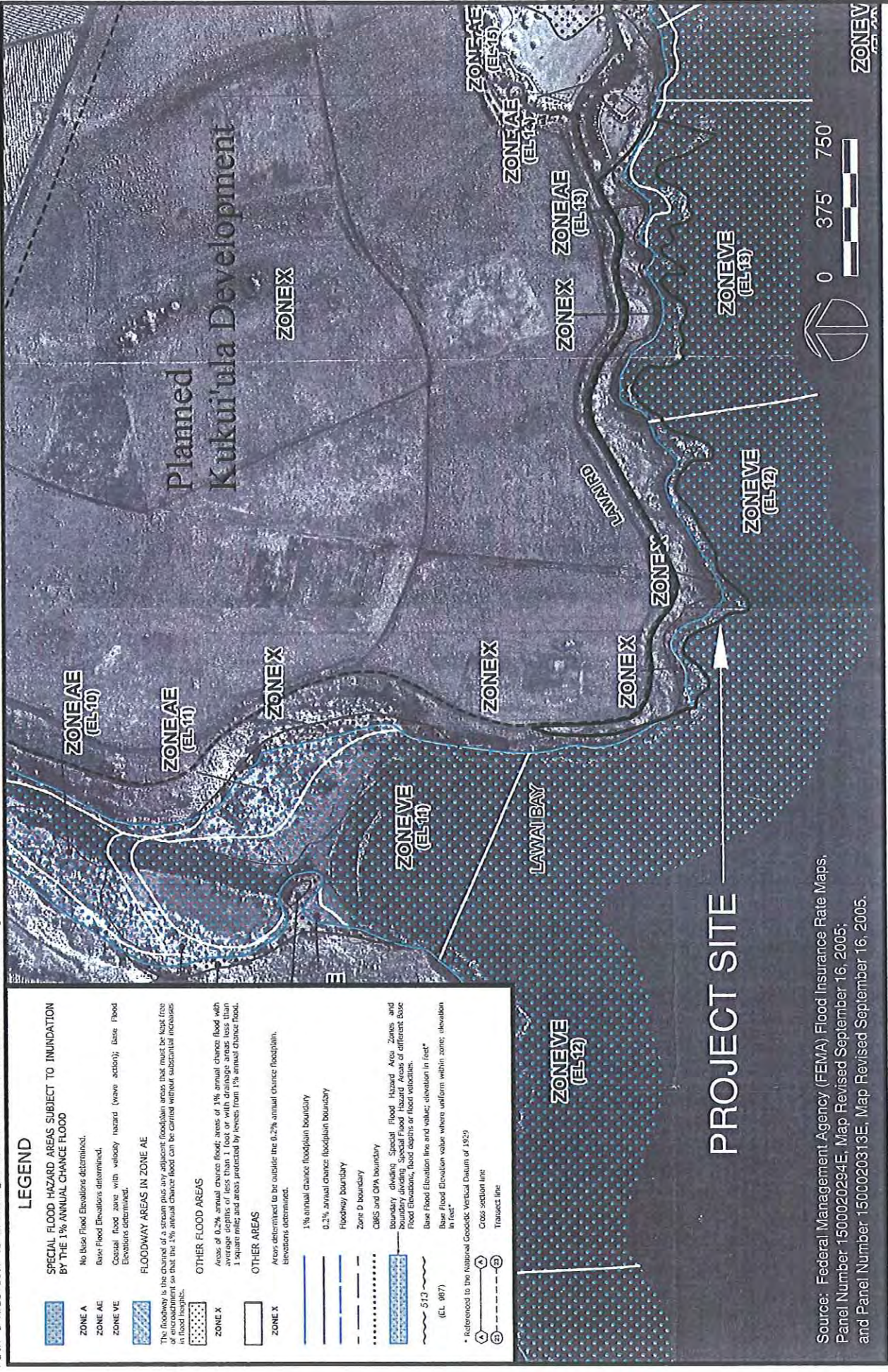
The proposed method of fertilization of the new vegetation and turf grass trail within the Project Site, which will be applied by directly injecting all natural biofertilizer into the irrigation water and through the irrigation system, will substantially reduce the amount of fertilizer that would otherwise be required by up to 70 to 90 percent, thereby largely eliminating fertilizer runoff. The proposed application of appropriate herbicides to the cut vegetation stumps at a recommended concentration level with a wipe-on or brush-on technique will minimize the drift overspray that would otherwise occur with a spray-on technique. The use of herbicides within the Project Site is anticipated to be minimal since it is proposed for use only until the new vegetation is established and as needed during the long-term maintenance operations. The herbicides to be used will be EPA certified products approved for use in environmentally sensitive areas. The fertilizers and herbicides to be used within the Project Site will be determined in consideration of the sensitive environment and recreational users of the area.

With the use of large equipment during construction and long-term maintenance operations of the Project improvements, the contractors will be required to have available on-site granular absorbent materials for use for immediate clean-up in the event of accidental fuel or hydraulic spills from the equipment. The contractors will also be required to have available on-site containers for the storage of the spent spill response materials, which will then be required to be properly disposed of at an off-site location.

Development of the proposed Project improvements will produce no adverse effects from storm runoff to the adjacent coastal waters and adjacent properties. As discussed in Section 3.18.2 Drainage System of this EA, the projected small increase in storm water runoff from the Project Site will be offset by the large reduction of storm water runoff from the adjacent mauka Kukui'ula development due to the planned detention of runoff from that development. Therefore, the overall rate of storm water runoff into the ocean from the Project Site will be less than pre-development levels. Development of the Project improvements, including the re-vegetation areas, turf grass trail and new gravel parking areas will contribute to permanent erosion control measures in the long-term.

3.4 Flood Hazard

According to the Flood Insurance Rate Map ("FIRM") prepared by the Federal Emergency Management Agency ("FEMA"), the majority of the Project Site mauka of the inland edge of the coastal embankment is located within Zone "X", "Areas determined to be outside the 0.2% annual chance floodplain" as shown on Figure 3-2. A sliver of land adjacent to and makai of this area is designated Zone "X", "Areas of 0.2% annual chance flood; areas of 1% annual chance flood with average depths of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees from 1% annual chance flood." An area within the easternmost portion of the Project Site, makai of the Zone "X" flood zone, is designated Zone "AE", "Special flood hazard areas subject to inundation by the 1% annual chance flood with base flood elevations determined". The base flood elevation for the "AE" zone within this portion of the Project Site is 13 feet above msl. The makai-most portions of the Project Site which are mostly located makai of the coastal embankment are designated Zone "VE", "Special flood hazard areas subject to inundation by the 1% annual chance flood; coastal flood zone with velocity



LEGEND

- SPECIAL FLOOD HAZARD AREAS SUBJECT TO INUNDATION BY THE 1% ANNUAL CHANCE FLOOD**
- ZONE A**
No Base Flood Elevations determined.
- ZONE AE**
Base Flood Elevations determined.
- ZONE VE**
Coastal flood zone with velocity hazard (wave action); base Flood Elevations determined.
- FLOODWAY AREAS IN ZONE AE**
The floodway is the channel of a stream plus any adjacent floodplain areas that must be kept free of encroachment so that the 1% annual chance flood can be carried without substantial increases in flood heights.
- OTHER FLOOD AREAS**
Areas of 0.2% annual chance flood, areas of 1% annual chance flood with average depths of less than 1 foot or with drainage areas less than 1 square mile, and areas protected by levees from 1% annual chance flood.
- OTHER AREAS**
Areas determined to be outside the 0.2% annual chance floodplain elevations determined.
- 1% annual chance floodplain boundary
- 0.2% annual chance floodplain boundary
- Hoodway boundary
- Zone B boundary
- CBS and OPA boundary
- boundary dividing Special Flood Hazard Area Zones and boundary dividing Special Flood Hazard Areas of different base Flood Elevations, least depths or least velocities.
- Base Flood Elevation line and value, elevation in feet*
- Base Flood Elevation value where uniform within zone, elevation in feet*
- * Referenced to the National Geodetic Vertical Datum of 1929
- Cross-section line
- Transect line

PROJECT SITE

Source: Federal Management Agency (FEMA) Flood Insurance Rate Maps, Panel Number 1500020294E, Map Revised September 16, 2005; and Panel Number 1500020313E, Map Revised September 16, 2005.

CONSERVATION DISTRICT IMPROVEMENTS KUKUI'ULA
Koloa, Kauai, Hawaii

Flood Zone Map

Prepared for:
Kuku'ula Development Company (Hawaii), LLC

Figure 3-2

Prepared by:
Wilson Okamoto Corporation

hazard (wave action); with base flood elevations determined". The base flood elevations for the "VE" zone within this portion of the Project Site are between 12 and 13 feet above msl.

Impacts and Mitigation Measures

Construction and operation of the proposed Project are not anticipated to result in flooding of the Project Site or lower elevation properties. All proposed Project improvements, except for various areas where selective vegetation removal will occur, are located outside and mauka of the designated flood zones. The proposed selective vegetation removal activities within the designated flood zones will be undertaken in full compliance with the flood plain management requirements of the County. The proposed selective removal of existing large non-native species within the designated Flood Zone "X", which encompasses a small portion of the selective vegetation removal area, will not pose a threat to soil stability. For the removal of these larger vegetation species, hand tools or chainsaws will be used to cut the vegetation to the stump and methods such as wipe-on or brush-on herbicide will be used on the vegetation stumps. No structures will be built within the Project Site as part of the proposed improvements.

3.5 Flora

A botanical survey of the Project Site was conducted by AECOS Consultants in February 2005. The botanical survey is included in Appendix C and is summarized below. The botanical survey area also encompassed an area mauka of the Project Site, along the eastern rim of Lawai Valley. For purposes of this EA, however, the discussion focuses on the botanical resources within the Project Site.

The botanical resources recorded within the Project Site during the survey are dominated by alien species. The floristic make-up of this survey area is typical of lands which have been extensively disturbed, adjacent to previous intensively cultivated sugar cane fields now fallow. Of the 48 species of plants recorded within the Project Site, only four (4) species are native and all are very common indigenous species. Two of these native species, the 'ilima papa (*Sida fallax* Walp.) and the pa'u o Hi'iaka (*Jacquemontia ovalifolia*), were limited to a relatively narrow band along the top of the coastal embankment, makai of Lawai Road, where these species find a harsh but relatively open (unshaded) habitat, and where they generally compete favorably with the alien grass *Chloris radiata*. The other two (2) native species, the 'uhaloa (*Waltheria indica* L.) and the yellow wood sorrel, 'ihi'ae (*Oxalis corniculata* L.), are weedy roadside species.

Vegetation along the makai side of Lawai Road is also comprised predominantly of alien species, including koa haole, common ironwood (*Casuarina equisetifolia*), and various weedy forbs and grasses. However, close to the top of the coastal embankment, remnants of the native plant community were observed, with 'ilima papa (*Sida fallax*) and pa'u o Hi'iaka (*Jacquemontia ovalifolia*) locally abundant but limited in distribution due to the numerous alien trees and shrubs present within this area.

Further west, the vegetation along the makai side of the NTBG tram road includes an assortment of cacti and succulents, many presumably spreading vegetatively from initial plantings. Especially prominent are the caustic pencil tree (*Euphorbia tirucalli*) and night-blooming cereus (*Hylocereus unadatus*), in addition to many of the previously mentioned alien trees, shrubs and herbs. The pencil tree (*Euphorbia tirucalli*) is a potential hazard owing to the caustic nature of the milky sap exuded from the plant where tissue damage occurs from breaking or cutting of the branches. Extreme care must be taken in removing this plant, a task

made difficult by the size of the specimens in this area. The pencil tree (*Euphorbia tirucalli*) is also abundant within the easternmost portion of the Project Site, along the boundary of Spouting Horn Park.

Vegetation along the mauka side of Lawai Road and the NTBG tram road is comprised of alien plant species typical of roadside ruderal communities found on the south coast of the Island. In parts not regularly disturbed, this assemblage is dominated by Guinea grass (*Panicum maximum*) and koa haole (*Leucaena leucocephala*), with some ornamental hibiscus (*Hibiscus rosa-sinensis*) present. The mowed areas contain a diversity of alien herbaceous weeds, including several grasses (especially radiate fingergrass (*Chloris radiata*), Bermuda grass (*Cynodon dactylon*), and beach wiregrass (*Eleusine indica*)).

Impacts and Mitigation Measures

No significant impacts on flora are anticipated from the construction and operation of the proposed Project. No species of special interest, or species listed as threatened or endangered were recorded within the Project Site during the survey. Removal of the existing alien (non-native) vegetation within the Project Site will not have an adverse impact on native and indigenous botanical resources within the site. Removal of the existing alien (non-native) vegetation and re-vegetation with native, endemic and indigenous species common to the area or Polynesian-introduced is anticipated to have a beneficial impact on encouraging the proliferation of native plants presently limited in distribution within and adjacent to the Project Site.

3.6 Vertebrate Fauna

A faunal survey of the Project Site was conducted by Rana Productions, Ltd. in February 2005. The faunal survey is included in Appendix C and is summarized below. The faunal survey area also encompassed an area mauka of the Project Site, along the eastern rim of Lawai Valley. For purposes of this EA, however, the discussion focuses on the faunal resources within the Project Site.

During the survey, a total of 15 avian species, representing 12 separate families, were recorded within the Project Site. All 15 species detected are regularly encountered alien species, common in the low- to mid-elevation areas on the south side of the Island. An additional three (3) species were detected as incidental observations within the Project Site. One species, the Short-eared Owl (*Asio flammeus sandwichensis*) is an endemic sub-species, although not listed under the Federal or State of Hawaii endangered species programs. The other two (2) species recorded were the Ring-necked Pheasant (*Phasianus colchicus*) and Chestnut Munia (*Lonchura atricapilla*), both of which are common, widely distributed alien passerines.

Avian diversity and densities were relatively low. Three (3) species, Japanese White-eye (*Zosterops japonicus*), House Finch (*Carpodacus mexicanus frontalis*), and Nutmeg Mannikin (*Lonchura punctulata topela*) accounted for 48 percent of the total number of birds recorded. No avian species currently protected, or proposed for protection under the Federal Endangered Species Act of 1973, as amended, or State of Hawaii endangered species program were recorded during the survey.

Although no Hawaiian hoary bats (*Lasiurus cinereus semotus*) were detected, it is likely that this endangered species forages for insects over the Project Site. Hawaiian hoary bats are regularly

seen in and around the Koloa and Poipu areas, as well as within most of the lowland areas on the Island.

Although no rodents were detected during the survey, it is likely that roof rats (*Rattus r. rattus*), Norway rats (*Rattus norvegicus*), European house mice (*Mus domesticus*), and possibly Polynesian rats (*Rattus exulans hawaiiensis*) use various resources found within the Project Site. During the survey, scat and signs of dog (*Canis f. familiaris*), cat (*Felis catus*) and horse (*Equus c. caballus*) were encountered within the general study area. No mammalian species currently listed, or proposed for listing under either Federal or State of Hawaii endangered species statutes were recorded during the survey.

There is an active Wedge-tailed Shearwater (*Puffinus pacificus*) nesting colony located in and around the existing rock wall located on the mauka side of Lawai Road, outside of the Project Site. It is probable that the birds also nest makai of Lawai Road in the sea cliffs along this portion of the coastline. Wedge-tailed Shearwaters are a year-round resident pelagic seabird species commonly encountered throughout the Hawaiian Islands. They return to land to their nesting colonies in mid-March or so, and spend the next month-and-a half excavating or refurbishing their burrows and courting. Copulation and a pre-laying exodus occur sometime in early May. Birds return to their colonies to lay their single egg in June, and the peak of egg laying occurs in mid-June. They incubate their eggs for 53 days and fledging occurs in November, with the peak period occurring in the last two (2) weeks of November. At the time of the survey, the colony was so overgrown with Guinea grass and other vegetation that it was impossible to quantify the number of burrows, or to delineate the boundaries of the colony. In previous visits to this colony, adults, eggs and young have been observed, as has predation of chicks and eggs by rats and cats.

Although not detected during the survey, it is likely that the endangered Hawaiian Petrel (*Pterodroma sandwichensis*) and the threatened, endemic sub-species of the Newell's Shearwater (*Puffinus auricularis newelli*) overfly the Project Site between April and the end of November each year. Both species have been well-documented crossing the northern, eastern and southern coastlines of Kauai during the breeding season. Both species of seabirds, especially fledging birds, can become disoriented by exterior lighting on their way to sea in the Fall. When disoriented, these seabirds often collide with manmade and naturally occurring physical features. If the downed birds are not killed outright, the dazed and/or injured birds become easy targets for feral mammals. However, the primary cause of mortality of both of these seabird species is thought to be predation by alien mammalian species at the nesting colonies. There are no nesting colonies or appropriate nesting habitat for either seabird species within or close to the Project Site.

Impacts and Mitigation Measures

No significant impacts on fauna within the Project Site are anticipated from the construction and operation of the proposed Project. The clearing of alien vegetation along the makai side of the Lawai Road right-of-way and the NTBG tram road is not anticipated to have a negative impact on any avian or mammalian species currently protected, or proposed for protection under the Federal Endangered Species Act of 1973, as amended, or under the State of Hawaii endangered species program. Since artificial lighting, including street lights, will not be provided in conjunction with the proposed Project, there will be no associated impacts on wildlife in the area.

The clearing of alien vegetation along the makai side of the Lawai Road right-of-way and the NTBG tram road has the potential to adversely impact the Wedge-tailed Shearwater colony that may be located within the Project Site if care is not taken to limit on-ground disturbance to the months when the birds are not present in their colony. Conversely, the removal of the invasive alien plant species that may currently be covering most of the Wedge-tailed Shearwater colony will greatly enhance the usability of the area for seabird nesting. Removal of the existing cactus, large ironwood trees and dense Guinea grass will also help to facilitate the Wedge-tailed Shearwaters to come and go from their nesting colonies with greater ease and safety.

To ensure that the proposed vegetation clearing within the Project Site does not result in adverse impacts to the resident Wedge-tailed Shearwaters and their nesting colony, the following measures will be implemented:

- The removal of existing vegetation and re-vegetation along the makai side of Lawai Road and the NTBG tram road and the mowing and maintaining of the existing vegetation along the rock wall on the mauka side of Lawai Road will be undertaken so as to not disturb subsurface features such as burrows. The proposed vegetation removal and re-vegetation activities will not be undertaken during the Wedge-tailed Shearwaters breeding season.
- Prior to initiating the removal of the existing vegetation and prior to re-vegetation activities, a qualified biologist will be retained by the Applicant to survey the Project Site to ascertain the location and number of Wedge-tailed Shearwater burrows that may be present. These activities will not be initiated until after the Wedge-tailed Shearwaters have fledged in late November. This survey will be undertaken in consultation with the Kauai District office of the State DLNR Division of Forestry and Wildlife.
- Following the on-ground survey by the qualified biologist, the Applicant will coordinate with the U.S. Fish and Wildlife Service and the State DLNR Division of Forestry and Wildlife to develop a Wedge-tailed Shearwater colony management plan which will include methods for maintaining and improving the Wedge-tailed Shearwater nesting habitat that may be present within the Project Site and for the future management activities related to the Project improvements.
- All personnel associated with the construction and operations/maintenance of the Project improvements will be required to participate in a seabird awareness training program.
- A seabird rescue protocol with on-site rescue supplies will be established for the construction and operations/maintenance phases of the Project. This will include the use of a pet carrier to be maintained at the Kukui'ula project site to temporarily contain any downed seabird which may be recovered in the general project area. The State DLNR Division of Forestry and Wildlife and/or Save our Shearwaters organization will be contacted immediately upon the recovery of any downed seabird for proper action.

- Night time construction activities will not be undertaken in conjunction with the development of the proposed Project improvements.

3.7 Invertebrate Fauna

Although subterranean habitat for the endemic, endangered Kauai cave wolf spider (*Adelocosa anops*) and the Kauai cave amphipod (*Spelaeorchestia koloana*) have been identified in the Koloa-Poipu region, the Project Site is not located within any of the Critical Habitat Units designated for these two (2) cave species by the U.S. Fish & Wildlife Service ("USFWS") final rule published April 9, 2003.

Impacts and Mitigation Measures

Since the Project Site is not located within any of the Critical Habitat Units designated for the endemic, endangered Kauai cave wolf spider and the Kauai cave amphipod by the USFWS final rule published April 9, 2003, it is not anticipated that the development of the Project will have an adverse impact on either species or their habitat. In the unlikely event that either listed species is encountered during development of the Project, construction will be halted, consultation with the USFWS will be initiated, and appropriate mitigative measures will be implemented.

3.8 Air Quality

Ambient air quality in the vicinity of the Project Site is primarily attributed to vehicular-related emissions in the form of carbon monoxide ("CO") generated from traffic traveling along Lawai Road which occurs at relatively low levels.

Impacts and Mitigation Measures

Potential air quality impacts resulting from construction of the Project improvements will be mitigated by complying with the State DOH Administrative Rules, Title 11, Chapter 60, Air Pollution Control. The construction contractor(s) will be responsible for complying with the State DOH regulations that prohibit visible dust emissions at property boundaries. Compliance with State regulations will require adequate measures to control airborne dust by methods such as water spraying and sprinkling of loose or exposed soil or ground surface areas and dust-generating equipment during construction. Regular wetting of surface areas will be implemented during the vegetation clearing activities and these areas will be re-vegetated soon thereafter to control dust. The proposed temporary aboveground irrigation system will also serve to wet surface areas within the re-vegetated areas which will help to control dust. The hydro-seeding of the pedestrian trail to establish the turf grass will also help to control dust.

No significant air quality impacts are anticipated from the operation of the proposed Project due to the passive nature of the improvements.

3.9 Noise

Ambient noise in the vicinity of the Project Site is predominantly attributed to vehicular traffic along Lawai Road which occurs at relatively low levels.

Impacts and Mitigation Measures

Construction noise will be unavoidable during the duration of the construction period of the proposed Project. Operation of construction equipment such as trucks, trencher, hydroAx, jackhammers, chainsaws, and pavers will raise ambient noise levels in the Project vicinity. Unavoidable construction noise impacts will be mitigated by complying with the provisions of the

State DOH Administrative Rules, Title 11, Chapter 46, "Community Noise Control" regulations which require a noise permit if the noise levels from construction activities are expected to exceed the allowable noise levels stated in the Rules. The hours of permitted construction noise operations specified in the Rules will be adhered to and enforced. It shall be the contractor's responsibility to minimize noise by properly maintaining noise mufflers and other noise-attenuating equipment, and to maintain noise levels within regulatory limits. Construction activities that generate noise which may disturb potential nesting colonies of the Wedge-tailed Shearwaters within the Project Site will not be undertaken during the Wedge-tailed Shearwaters breeding season.

No significant noise impacts are anticipated from the operation of the proposed Project due to the passive nature of the improvements.

3.10 Historic and Archaeological Resources

An archaeological inventory survey of the Project Site was conducted by Cultural Surveys Hawaii in June 2002. The archaeological inventory survey is included in Appendix D and is summarized below.

The settlement pattern of the Lawai Ahupua'a indicates that permanent habitation and intensive agriculture (irrigated and non-irrigated) was focused on the valley floor flood plain, with intensive agricultural pursuits occurring on the table lands between Lawai Kai and Kukui'ula Bay. The historical documentation indicates house sites, taro lo'i and some kula were situated on the alluvial flood plain within Lawai Valley. No kuleana were awarded on the table lands or within the Project Site. Archaeological evidence suggests permanent occupation in the Koloa area (ca. A.D. 1200-1400), although earlier dates (ca. A.D. 600-1200) for temporary shoreline sites have been recorded.

Based on previous data, the Project Site was not a focus of habitation or agriculture during the pre-contact era. The only previous archaeological survey that focused specifically on the Project Site (i.e., Kikuchi 1963) located and described two "looted" shoreline shelter caves.

Three (3) archaeological sites were located within the Project Site during the inventory survey, including a coastal trail complex paralleling the coastline and two (2) rock shelter cave sites located within the eastern portion of the Project Site, makai of Lawai Road.

Coastal Trail Complex (State Site 50-30-10-990): Site -990 is a discontinuous shoreline trail which traverses along the coastal embankment within the central and eastern portions of the Project Site. The trail is not discernable in places where it crosses exposed outcrop and where the vegetation is extremely dense. Ranging in width from 1.6 feet to 4.9 feet, with an average width of 2.3 feet, the trail follows a logical route along the inland edge of the cliffs above the tidal flats. Large sections of the trail are currently used by the public for coastal access. For most of its length, the trail is a dirt path. The trail site includes four (4) separate features: Feature A is the paved curb stone section of the trail; Feature B is a short retaining wall section of the trail; Feature C is a short section of cut basalt block stairs with an associated wall section; and Feature D is another short section of cut basalt block stairs.

The trail complex is historic in age, but likely follows a pre-historic trail corridor. The trail also likely relates to historic access from Lawai Kai to the Koloa Landing area east of the Project

Site. Although just a modern trodden dirt path in places, the trail represents a time when foot transit was the primary means of transportation. The remaining stone constructed sections of the trail are in good condition and exhibit quality masonry work.

Rock Shelter (State Site 50-30-10-3071): Site -3071 is a rock shelter located along the coastal embankment within the eastern portion of the Project Site near Spouting Horn Park. The site consists of a natural rock overhang that measures 32.8 feet north-south at the entrance by 18.7 feet east-west. The interior height of the ceiling within the shelter has a maximum height of 8.5 feet. The interior of the shelter is undulating and filled with boulders and cobbles. No midden or artifacts were observed within the rock shelter. It appears that the site has been looted, used in modern times, and affected by wave action.

Rock Shelter (State Site 50-30-10-3072): Site -3072 is a rock shelter located along the coastal embankment within the eastern portion of the Project Site near Spouting Horn Park. The site consists of a natural rock overhang that measures 20 feet northwest-southeast at the entrance by 6.9 feet northeast-southwest. The interior height of the ceiling within the shelter has a maximum height of 4.5 feet. The interior of the shelter is filled with boulders and cobbles. Two (2) dirt piles located outside of the shelter's entrance may correlate with looting activities. No midden or artifacts were observed within the rock shelter. It appears that the site has been looted, used in modern times, and affected by wave action.

The two (2) rock shelter sites, previously located and described by Kikuchi (1963), were listed on the State Register of Historic Places on September 30, 1988 and remain on the State Register.

The three (3) site types are indicative of the type of former land use within this narrow shoreline cliff area. The shelter caves were for temporary use by fishermen, presumably from pre-contact into modern times. The trail allowed for coastal access within a similar time range, although the cut stone steps and curbing are indicative of historic construction techniques.

Impacts and Mitigation Measures

No significant impacts on archaeological/historic resources within the Project Site are anticipated from the construction and operation of the proposed Project.

The significance assessments for the three (3) archaeological sites located within the Project Site are based on the broad criteria established for the State and National Registers of Historic Places:

- A. Site reflects major trends or events in the history of the state or nation.
- B. Site is associated with the lives of persons significant in our past.
- C. Site is an excellent example of a site type.
- D. Site may be likely to yield information important in prehistory or history.

The coastal trail (Site 50-30-10-990) is assessed solely under Criterion D. Although certain sections of the trail exhibit quality workmanship (i.e. Criterion C), the discontinuous nature of the trail argues against site integrity. The two (2) rock shelter caves (Sites 50-30-10-3071 and -3072) are also assessed as significant under Criterion D.

Following consultation with the SHPD and in consideration that the two (2) shelter cave sites (Sites 50-30-10-3071 and -3072) remain on the State Register of Historic Places, it was determined that these two (2) sites and the coastal trail site (Site 50-30-10-990) will be preserved. By letter dated September 17, 2002, the SHPD accepted the archaeological inventory survey report and agreed with the commitment to preserve the three (3) historic sites. A copy of this letter is attached in Appendix D.

A preservation plan for the coastal trail complex (Site 50-30-10-990) and the two (2) shelter cave sites (Sites 50-30-10-3071 and -3072) was prepared by Cultural Surveys Hawaii in December 2004. The preservation plan is included in Appendix E and is summarized below. The preservation plan was approved by the SHPD by letter dated March 1, 2005, a copy of which is included in Appendix E. The preservation plan was also approved by the County's Kauai Historic Preservation Review Commission ("KHPRC") by memorandum dated December 8, 2004, a copy of which is included in Appendix E.

The preservation plan describes mitigation measures to protect these archaeological sites during the proposed vegetation removal and re-vegetation improvements within the Project Site, and long-term preservation measures for the sites. The preservation measures were developed in accordance with the Draft Hawaii Administrative Rules, Title 13, Sub-Title 13, Chapter 277, "Rules Governing Requirements for Archaeological Site Preservation and Development". During the preparation of the preservation plan, consultation with the County's KHPRC, the Royal Order of Kamehameha, Kaumuali'i Chapter, and other ethnic Hawaiian organizations was conducted.

Preservation Plan for Coastal Trail Complex (Site 50-30-10-990): Preservation of the coastal trail will take the form of avoidance and protection (conservation). The coastal trail is located entirely outside and makai of the area within the Project Site that is proposed for vegetation removal and re-vegetation activities, and traverses through portions of the makai edges of the areas proposed for selective vegetation removal. At this time, no stabilization or restoration of the coastal trail is deemed necessary. To ensure that the trail is not inadvertently impacted during implementation of the Project, a 20-foot buffer zone will be designated on each side of the trail prior to the selective vegetation removal activities. On the landward (mauka) side of the trail, the buffer zone will be flagged. On the seaward (makai) side of the trail, the buffer zone will be flagged where appropriate since the seaward buffer zone may often be difficult to demarcate since the trail follows the steep cliff embankment. A 20-foot buffer zone will also be flagged on both sides of Features A to D associated with the trail. If selective removal of existing vegetation is necessary within the buffer zones, only hand removal of vegetation will be allowed, and an archaeologist will monitor all activity within the buffer zone. The monitor will also hold a briefing with the work crew prior to implementation of the proposed Project activities to explain the significance of the coastal trail site. Where the trail is discontinuous (specifically at the western end), the buffer zone will cover areas where the trail most likely occurred.

Long-term preservation of the coastal trail will be passive preservation in the form of avoidance and conservation.

Preservation Plan for Rock Shelter Sites (Sites 50-30-10-3071 and -3072): Preservation of the two (2) rock shelter cave sites will take the form of avoidance and protection (conservation). Both shelter sites are located entirely outside of and makai of the areas within the Project Site that are proposed for vegetation removal and re-vegetation activities. No reconstruction or stabilization of the sites will be undertaken. Although the two (2) shelter sites are located on the coastal embankment cliff, a 20-foot buffer zone will be designated around each site prior to the selective removal of existing vegetation in the nearby areas to ensure that the sites are not inadvertently impacted. An archaeologist will monitor all activity near the buffer zone during the selective vegetation removal activities. The monitor will also hold a briefing with the work crew prior to implementation of the proposed Project activities to explain the significance of the shelter cave sites.

Long-term preservation of the two (2) shelter sites will be passive preservation in the form of avoidance and conservation.

Should any previously unidentified burial, archaeological or historic sites be found during the course of implementation activities within the Project Site, the Applicant will stop work in the immediate vicinity and the SHPD will be notified immediately. The significance of these finds will then be determined and appropriate mitigation measures will be approved by the SHPD and the Kauai/Niihau Islands Burial Council, as appropriate. Subsequent work will proceed after SHPD authorization has been received and mitigative measures have been implemented.

3.11 Cultural Resources

A cultural impact assessment was undertaken for the Project by Cultural Surveys Hawaii in October 2007. The cultural impact assessment is included in Appendix F and is summarized below.

It is noted that the cultural impact assessment is based on the Project improvements which were originally proposed for the Project Site. The original Project proposal included similar improvements to those currently proposed, although at a more extensive level. The primary difference with the original proposal included the removal of existing alien (non-native) vegetation and re-vegetation with native, endemic and indigenous species common to the area or Polynesian-introduced within the entire rocky coastal area makai of Lawai Road up to the inland edge of the coastal embankment, and within the mauka side of Lawai Road along the existing rock wall; and the construction of a 4-foot wide, approximately 2,300 linear-foot granular public trail within the area makai of Lawai Road, paralleling the coastline, with three (3) overlook areas proposed along the trail. The other improvements proposed in the original plan were the same as those currently proposed, including the provision of gravel parking areas within the makai Lawai Road right-of-way, the resurfacing of the existing NTBG tram road, and the preservation of the existing historic coastal trail complex and the two (2) existing rock shelter cave sites.

Subsequent to the community consultation phase of the cultural impact assessment, modifications were made to the proposed Project as described in this EA which included a reduction in the level of improvements originally proposed. The modifications were made due to

long-term maintenance considerations and the potential impacts due to the more extensive nature of the improvements originally proposed. Generally, if substantive changes are made to a project proposal following the community consultation phase, the cultural consultation participants would be re-contacted to inform them of the project changes and to invite further comment for a revised cultural impact assessment. For the proposed Project modifications, however, Cultural Surveys Hawaii determined that it was not necessary to re-open the community consultation phase of the cultural impact assessment since: 1) the scope and modified improvements proposed for the Project have not substantially changed and have, in fact, been reduced; 2) the Project Site boundaries remain unchanged; and 3) the Project was well-received by the community consultation participants and did not raise any substantial cultural concerns.

Based on research of historic documents, cultural documentation, and archaeological studies, it is apparent that the Lawai Ahupua'a and the current Project Site extended well back in pre-contact times. It is likely that Lawai was inhabited and tilled before the neighboring Koloa Field System was developed, as it is a typical traditional valley setting with habitation sites on or near the narrow beach and the taro *lo'i* along the flood plain.

During the pre-contact era, *heiau* are known to have existed. The presence of multiple *heiau* within the *ahupua'a* suggests the relative importance of Lawai in traditional times. *Heiau* were located in both the uplands and near the shore. Cultural accounts, as well as LCA documentation, indicated settlement within the *ahupua'a* was focused along Lawai Stream, the lower valley and along the shore. The sheltered waters and sandy shoreline of Lawai Bay would have allowed for harvesting of marine resources and provided an ideal landing site for canoes. Traditional burial interment practices included cave burials within the slopes of Lawai Valley and in caves along the coastal regions of Lawai Kai.

Forest areas miles inland would have been utilized for a variety of purposes, such as gathering of timber, avian resources, medicinal and ceremonial plants, and famine food resources.

Nineteenth-century documents (namely, Land Commission Award records and historic maps) provide a picture of the settlement pattern for the Lawai Ahupua'a; permanent habitation and intensive agriculture (irrigated and non-irrigated) focused on the valley floor flood plain and presumed intensive agricultural pursuits on the table lands between Lawai Kai and Kukui'ula Bay. The historical documentation, especially *Mahele* and *kuleana* data, indicates house sites, taro *lo'i* and some *kula* were situated on the alluvial flood plain within Lawai Valley. No *kuleana* were awarded within the present Project Site. Queen Emma's residence was located on the tablelands *mauka* of the current Project Site and her house was later moved to the Valley Floor. Archaeological evidence suggests permanent occupation in the Koloa area ca. A.D. 1200 to 1400, although earlier dates (ca. A.D. 600 to 1200) for temporary shoreline sites have been recorded (Rosendahl 1990, Toenjes et.al 1991, and Hammatt et.al. 1998).

By the late 1870s, Queen Emma leased the land of Lawai to Duncan McBryde for 15 years, though she reserved a house lot and several acres of taro patch land. In 1886, after the Queen's death, Mrs. Elizabeth McBryde purchased the entire *ahupua'a*. The upper lands were planted in sugar cane, and the valley was leased to Chinese rice growers and taro planters.

By the early decades of the 20th century, western commercial entrepreneurial interests had transformed the Lawai landscape into sugar cane fields and pasture lands, and had dispersed remaining native residents. Mrs. Elizabeth McBryde bought the 12,000 acres in the Kona section of Kauai in 1886 and, in 1899, her lands along with the McBryde estate joined to form the McBryde Sugar Company. The McBryde Sugar Company started its railroad operations in 1899. Expansion of the cane fields and plantation rail lines was rapid. The Lawai Stream Valley was surrounded east and west by sugar cane lands, and Field 216 lay just *mauka* of Lawai Road near the Project Site. By 1947, all cane-hauling activities were taken over by trucking.

In 1964, Robert Allerton established the Pacific Tropical Botanical Garden. In 1986, it became the National Tropical Botanical Gardens.

The community contacts queried for this cultural impact assessment identified a few ongoing cultural practices within the Project Site in the broader context of the encompassing Lawai Ahupua'a landscape. Fishing and marine resource (namely *opihi*) gathering practices continue to occur along the coastal areas of Lawai Kai. Although native stream animals supplied the Hawaiian diet with a rich source of protein, none of the community contacts queried identified any ongoing fishing activities associated with Lawai Stream. Ms. Sabra Kauka, cultural practitioner and *kumu*, commented that she gathers plants such as *'ilima kahakai* (*Sida* spp.) for lei-making and upon occasion for making tea along the coast in and around the Project Site, but noted that the native plants are being increasingly squeezed out by invasive species.

Community members queried spoke about traditional Hawaiian sites in the Lawai Ahupua'a outside of the Project Site. Ms. Kehualani Kekua mentioned that the Hawaiians built a small *heiau* named Mamalu near the area on which the Allerton Home was built, believing it would have functioned as an agricultural *heiau*. Kupuna Betty Snowden stated that the *heiau* "Niukapukapu" played a significant and historical role in the Hawaiian culture in the area of Lawai Kai. Three (3) archaeological sites were located within the Project Site, including a coastal trail complex (Site 50-30-10-990) and two rock shelter cave sites (50-30-10-3071 and – 3072). The shoreline trail is a mix of modern and historic sections currently in use by the public for coastal access. The two (2) rock shelter sites were both placed on the State Register of Historic Places. A preservation plan has since been prepared for these three (3) sites and approved by the SHPD and KHPRC.

No human burials have been documented within the Project Site. The community members queried discussed native Hawaiian burials located in caves within the Lawai Ahupua'a outside of the Project Site. Ms. Kehaulani Kekua mentioned that further inland, the *kupuna* know of several caves that served as burial sites for the ancestors. Kupuna Betty Snowden stated that Pu'u Kiloia is the repository of the *'Ohana No Iwi* or family bones and suggested that at one time, it was the favored place of repose for those sacrificed at Niukapukapu.

In traditional times, trails served to connect the various settlements throughout the *ahupua'a* and districts of the Hawaiian Islands. As previously indicated, the coastal trail complex (Site 50-30-10-990) within the Project Site is currently in use by the public for coastal access. According to historic research, Mr. Alexander McBryde, who lived in Lawai Valley where the only access in Queen Emma's day had been by trail down the cliffs, created a road along the shore from "Spouting Horn" by blasting away the *pali* to make the narrow horse and buggy trail (Allerton

1972:9). NTBG Librarian Richard Hanna also noted that the Allertons built trails in the 1950s and 1960s which were destroyed in the 1982 hurricane.

Dr. David Burney of the NTBG mentioned the cultural and environmental significance of the rock wall along Lawai Road and surrounding area, emphasizing that the Project Site and proximity is a nesting ground for the indigenous Wedge-tailed Shearwaters and an important destination for school groups on educational tours, as well as a social gathering place for community members.

Impacts and Mitigation Measures

None of the community contacts queried for the cultural impact assessment identified any strong cultural concerns about the proposed Project. However, a few of the participants expressed concerns and, in some cases, made suggestions regarding the re-vegetation plan for the proposed Project as follows:

1. Cautioned against removing the ironwood trees (*Casuarina* spp.) in the Project Site before native replacement trees are well-established, as the trees provide a windbreak and shade for the Wedge-tailed Shearwaters that nest in the rock wall along Lawai Road.
2. Cautioned against grading or landscaping the Project Site in a way that could lead to runoff and (further) degradation of the watershed.
3. Expressed concern about the decline of certain native species with ethnobotanical value such as 'ilima (*Sida* spp.).

As previously indicated, the clearing of existing alien (non-native) vegetation along the makai side of the Lawai Road right-of-way and the NTBG tram road has the potential to adversely impact the Wedge-tailed Shearwater colony that may be located within the Project Site if care is not taken to limit on-ground disturbance to the months when the birds are not present in their colony. Conversely, the removal of the invasive alien plant species that may currently be covering most of the Wedge-tailed Shearwater colony will greatly enhance the usability of the area for seabird nesting. Removal of the existing cactus, large ironwood trees and dense Guinea grass will also help to facilitate the Wedge-tailed Shearwaters to come and go from their nesting colonies with greater ease and safety. To ensure that the proposed vegetation clearing within the Project Site does not result in adverse impacts to the resident Wedge-tailed Shearwaters and their nesting colony, the proposed vegetation removal and re-vegetation activities will not be undertaken during the Wedge-tailed Shearwaters breeding season.

No grading activities will be undertaken in conjunction with the construction of the proposed Project improvements. Minimal ground disturbance will occur to till in soil along the proposed trail alignment to initiate establishment of the turf grass, to install the permanent below-grade irrigation system for the main irrigation line and the turf grass trail, to remove the existing alien (non-native) vegetation and re-vegetation of the area, and to install the temporary aboveground irrigation system for the re-vegetated areas.

Potential water quality impacts to the near shore coastal waters during construction of the Project will be mitigated by adherence to State water quality regulations. A NPDES General Permit for Storm Water Associated with Construction Activity administered by the State DOH

will be required to control storm water discharges. Construction of the Project improvements will also be in compliance with the County's Grubbing Permit. Mitigation measures will be instituted following site-specific assessments, incorporating appropriate structural and/or non-structural BMPs.

During construction of the turf grass trail, rolled fiber filtration tubing will be installed adjacent to the makai side of the trail alignment along its entire length to prevent sediment-laden storm water runoff from flowing makai. The rolled fiber filtration tubing will remain in place until the turf grass is established within the trail. The hydro-seeding of the trail to establish the turf grass will also help to control erosion.

During clearing and removal of the existing vegetation and re-vegetation activities within the rocky coastal area makai of Lawai Road and the NTBG tram road, silt fencing will be installed along the makai boundary of the re-vegetated areas to prevent sediment-laden storm water runoff from flowing makai. Rolled fiber filtration tubing will also be installed at regular intervals in the area between the turf grass trail and the makai boundary of the re-vegetated areas to prevent sediment-laden storm water runoff from flowing makai. The silt fence and rolled fiber filtration tubing will remain in place until the new vegetation is established.

No native vegetation species will be removed from the Project Site. The proposed removal of the existing alien (non-native) vegetation and re-vegetation with native, endemic and indigenous species common to the area or Polynesian-introduced is anticipated to have a beneficial impact on encouraging the proliferation of native plants presently limited in distribution within and adjacent to the Project Site.

Based on the above, the proposed Project will have minimal impact upon native Hawaiian cultural resources, beliefs and practices.

3.12 Visual Resources

Existing public views of the Project Site are predominantly of roadside and other alien vegetation species consisting of *koa haole*, common ironwood (*Casuarina equisetifolia*), and various weedy forbs and grasses; and portion of Lawai Road. Glimpses of the coastline and ocean can be seen through openings in the vegetation makai of Lawai Road. Further west within the Project Site, views include the NTBG tram road and roadside vegetation consisting of an assortment of cacti and succulents, and alien trees, shrubs and herbs. Views from the northwesternmost portion of the Project Site include the Kukui'ula property to the east and Lawai Bay and a portion of Lawai Valley to the west.

Impacts and Mitigation Measures

The proposed vegetation clearing/removal and re-vegetation improvements within the Project Site will restore and visually enhance the coastal views of the area. With the proposed vegetation clearing and re-vegetation activities, the currently overgrown, alien (non-native) vegetation makai of Lawai Road and the NTBG tram road will be replaced with native, endemic and indigenous species common to the area or Polynesian-introduced which will improve and complement the scenic and natural environment of the area. The proposed re-vegetation of the coastal lands within the Project Site with trees and low-growing native shrubs and groundcover plantings will help to maintain and preserve the scenic public views to and along the coastline.

The scenic environment will be further enhanced with the visual greenbelt to be provided by the proposed turf grass pedestrian trail along the makai side of the Lawai Road right-of-way.

3.13 Traffic

Existing access to the Project Site is provided by Lawai Road, a two-way, two-lane County roadway that is generally oriented in the east-west direction, providing access to Spouting Horn Park and the coastal area further west. Existing access in the nearby Project vicinity is shown on Figure 3-3. Further east of the Project Site, Lawai Road follows the coastline in the westerly direction after its "Y" intersection with Poipu Road and terminates at the NTBG gate west of Spouting Horn Park. Within the segment of Lawai Road which traverses through the Project Site, the pavement width is approximately 15 feet wide.

West of Lawai Road and the NTBG gate is an approximately 12-foot wide asphalt-paved private road owned by the Applicant that provides access to the NTBG facility in Lawai Valley and to the mauka adjacent Kukui'ula property. Vehicular access through the secured NTBG gate is accessible only by authorized personnel of the NTBG and the Applicant.

Lawai Road and the private paved access road to the west are used by the NTBG to transport visitors in trams from the NTBG Visitor Center located east of the Project Site near Spouting Horn Park to the NTBG facility located in Lawai Valley northwest of the Project Site. The NTBG trams operate seven days a week and depart the NTBG Visitor Center on an hourly basis during the daytime hours.

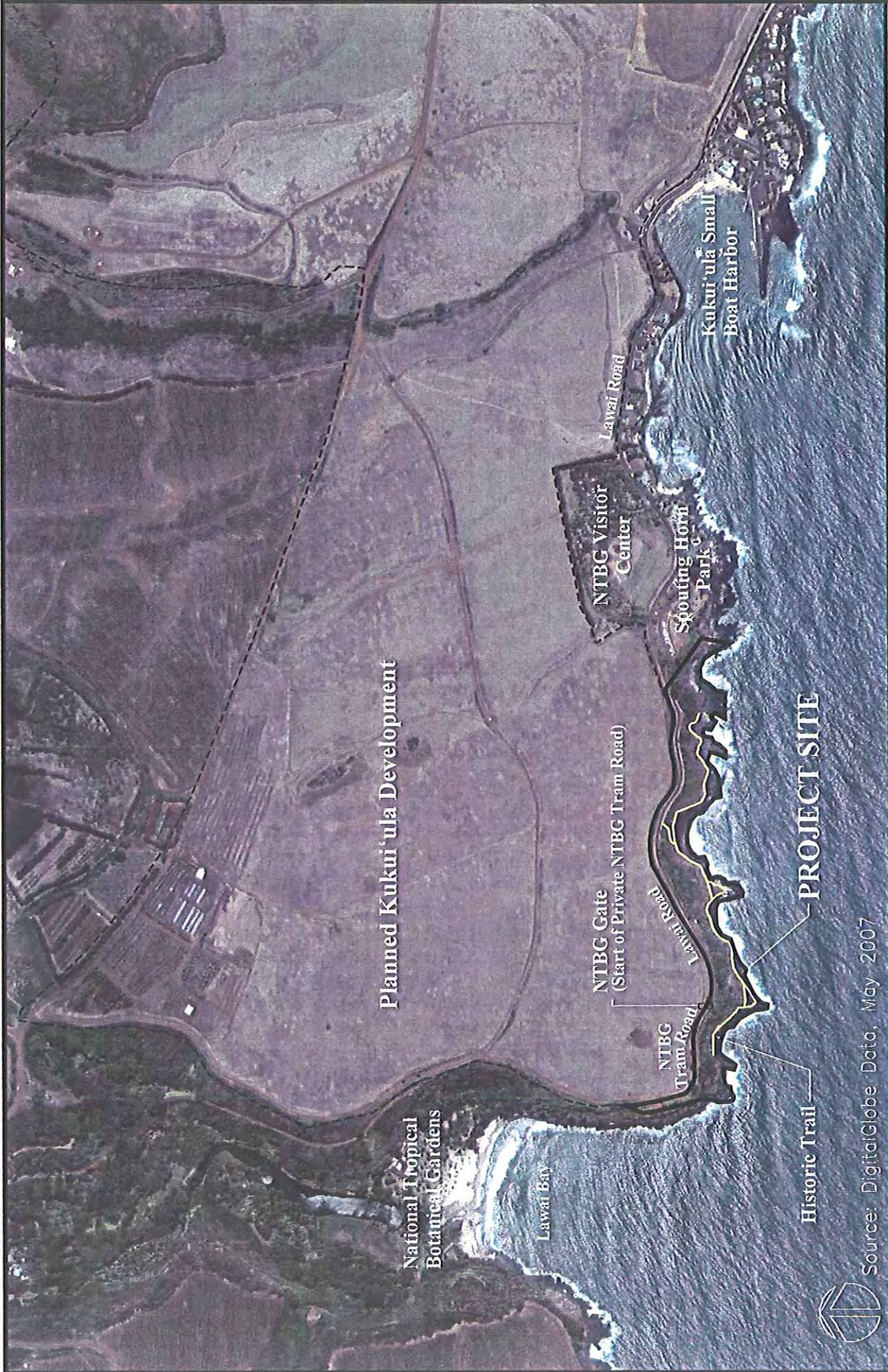
Aside from use by the NTBG trams, existing vehicular traffic along the portion of Lawai Road within the Project Site is relatively low, with most of the traffic attributed to motorists accessing the coastline area for recreational purposes.

Impacts and Mitigation Measures

Short-term impacts on traffic in the immediate Project vicinity will result from the construction of the proposed improvements. Construction access to the Project Site will be from the west along an unpaved road within the mauka Kukui'ula property, and then through the NTBG gate. During construction of the turf grass trail, new gravel parking areas, and the clearing/removal of existing vegetation and re-vegetation activities, the makai portion of Lawai Road will be coned off in the vicinity where the Project activities are occurring, thereby allowing through vehicular access along the mauka portion of the road. Traffic control will be provided by flagmen, signage or security personnel, as needed. During the duration of the resurfacing activities of the private road west of the NTBG gate, coordination will be undertaken with the NTBG to temporarily re-route its tram route along an existing unpaved road within the makai portion of the Kukui'ula property which connects to the NTBG Visitor Center parcel to the east and the existing NTBG tram road to the west, mauka of the Project Site.

As the Project improvements will be conducted in three (3) phases, the construction traffic impacts will be temporary in nature and will shift to different locations within the Project Site as the previous phase is completed.

No significant long-term impacts on vehicular traffic associated with the operation of the proposed Project improvements are anticipated due to the passive nature of the improvements.



**CONSERVATION DISTRICT
IMPROVEMENTS**

KUKUI'ULA
Koloa, Kauai, Hawaii

Existing Access

Prepared for:
Kuku'ula Development Company (Hawaii), LLC

Figure 3-3

Prepared by:
Wilson Okamoto Corporation

3.14 Socio-Economic Characteristics

The Project Site is located just to the west of the Poipu Census Tract ("CT") 406. The following is an overview of the socio-economic characteristics of the Poipu CT.

Population and Housing: Based on the 2000 Census, the population in Poipu has increased just slightly since the 1990 Census. In 1990, Poipu (CT 406) had a population of 1,068 and in 2000 the population had increased to 1,075. During the same 10-year period, the population of the Island of Kauai had increased 14.2 percent, from 51,177 to 58,463. The slight population change in Poipu is indicative of stability.

- The median age of the population in Poipu is higher than on Kauai at 48.6 versus 38.4;
- By racial mix, there are more Whites and less Asians and Native Hawaiian and other Pacific Islanders in Poipu than Kauai;
- Households in Poipu have a smaller average size, but slightly higher married-couple families and more non-family householders than Kauai; and
- There are substantially more vacant units in Poipu than Kauai.

Economy: According to the 2000 Census, the labor force for the Poipu CT was 59.7 percent, compared to 63.1 percent for Kauai. The median household income for the Poipu CT was \$51,442, which is greater than the median household income for Kauai which was \$45,020. The per capita income for Poipu was \$35,800, which is higher than the \$20,301 per capita income for Kauai.

Impacts and Mitigation Measures

In the short term, the Project will confer positive benefits in the local area. Direct economic benefits will result from construction expenditures both through the purchase of material from local suppliers and through the employment of local labor, thereby stimulating that sector of the economy. Indirect economic benefits may include benefits to local retailing businesses resulting from construction activities.

Construction activities associated with the proposed Project will create some adverse short-term impacts such as temporary disruption of traffic, unavoidable noise impacts, and air quality impacts in the vicinity of the Project Site. The construction contractor(s) will be required to mitigate potential vehicular traffic impacts through appropriate traffic control measures (see Section 3.13 Traffic). Unavoidable construction noise impacts will be mitigated by complying with the provisions of the State DOH Administrative Rules, Title 11, Chapter 46, Community Noise Control (see Section 3.9 Noise). Potential air quality impacts during construction of the proposed Project will be mitigated by complying with the State DOH Administrative Rules, Title 11, Chapter 60, Air Pollution Control (see Section 3.8 Air Quality).

There are no significant adverse long-term socio-economic impacts anticipated with the operation of the proposed Project. In the long-term, the proposed Project improvements will provide public pedestrian access to the shoreline areas west of Spouting Horn Park and restore and visually enhance the coastal views of the area.

3.15 Police, Fire and Ambulance Service

Police protection service in the Project area is provided by the County Police Department's Waimea District. The Waimea Police Station is located to the northwest of the Project Site along Kaunualii Highway at the intersection with Menehune Road. There is also a mini police substation located approximately 3.0 miles to the east of the Project Site in Poipu Kai at the Pe'e Road/Poipu Road intersection.

Fire protection service for the Project area is provided by the County's Koloa Fire Station located at the intersection of Poipu Road and Lawai Road, approximately 1.8 miles east of the Project Site.

Emergency medical service in the Project area is provided by American Medical Response, a private ambulance service contracted by the County, located on Poipu Road across from the Koloa Fire Station, approximately 1.8 miles east of the Project Site.

Impacts and Mitigation Measures

Construction of the Project improvements will not adversely impact the response time of police, fire and ambulance services in the nearby vicinity since Lawai Road will remain passable during the duration of construction activities.

No significant long-term impacts on police, fire and ambulance services associated with the operation of the Project are anticipated due to the passive nature of the improvements.

3.16 Recreational Facilities and Public Access

Existing County parks in the region include the Anne Knudsen District Park, Waikomo Neighborhood Park and Weliweli Neighborhood Park. County beach parks in the region include Poipu Beach Park and Brennecke Beach Park in Poipu and the Spouting Horn Park adjacent to and east of the Project Site. The State's Kukui'ula Small Boat Harbor is located to the east of the Project Site with facilities including a boat launching ramp, pier, parking lot, and comfort station. The region has two (2) golf courses, including the Kiahuna Golf Club located to the east of the Project Site and the Poipu Bay Golf Course located further to the east in Poipu.

Recreational activities which occur within the Project Site include shoreline fishing along the rocky coastline.

Currently, there are four (4) defined shoreline access points used by the public that originate from the makai edge of the Lawai Road right-of-way within the Project Site as depicted on Figures 2-2 and 2-3. All of these shoreline access points are located near areas currently used for parking along the unpaved makai shoulder within the Lawai Road right-of-way, except for one that is located just east of the NTBG gate. As shown on Figures 2-2 and 2-3, one shoreline access point is located off of the proposed turf grass pedestrian trail near the new gravel parking area within the eastern portion of the Project Site. Two (2) other shoreline access points are located off of the proposed turf grass pedestrian trail near the new gravel parking area located within the west-central portion of the Project Site. The fourth shoreline access point is located just east of the NTBG gate.

An existing coastal trail complex consisting of a discontinuous historic trail traverses along the inland edge of the coastal embankment within the central and eastern portions of the Project

Site, paralleling the coastline, as shown on Figure 3-3. This shoreline trail is a mix of modern and historic sections, with large sections of the trail currently used by the public for coastal access. For most of its length, the trail is a dirt path.

Impacts and Mitigation Measures

During construction of the Project improvements, recreational use and public access to and along the coastline within the Project Site will remain unaffected, except for specific areas where the construction activities are occurring. Since the Project improvements will be constructed in phases, the construction activities will shift to different locations within the Project Site as the previous phase is completed, thereby allowing continued recreational use and public access to the remaining areas within the site.

In the long-term, the proposed Project will enhance the recreational use of the Project area by providing public pedestrian access to the shoreline areas west of Spouting Horn Park. The proposed scenic public pedestrian trail along the makai side of the Lawai Road right-of-way will be developed as part of the Kukui'ula development's comprehensive path and trail system which will be open to the general public. A future trail connection mauka of Lawai Road and the western end of the proposed pedestrian trail will be provided to the adjacent Kukui'ula development.

All of the existing shoreline access points will remain unaffected by the proposed Project improvements as direct access will continue to be provided from the adjacent turf grass pedestrian trail, and the proposed vegetation clearing/removal and re-vegetation improvements will be kept clear of and will not impede the current access trails.

New gravel parking areas will be provided in three (3) locations currently used for parking by the public along the unpaved makai shoulder within the Lawai Road right-of-way, adjacent to the proposed public pedestrian trail. Public parking for approximately 10 vehicles total will be provided within these enhanced parking areas.

The Project improvements will include the preservation of the existing historic coastal trail complex that traverses along the inland edge of the coastal embankment within the central and eastern portions of the Project Site.

3.17 Solid Waste Disposal

The County Department of Public Works ("DPW") maintains an Island-wide solid waste collection and disposal system. The existing Kekaha Landfill is the primary disposal site for solid waste on the Island. The County is currently seeking a lateral extension of the Kekaha Landfill which could extend its capacity by about six (6) years, and is also seeking another landfill site.

Impacts and Mitigation Measures

No significant impacts to solid waste disposal are anticipated from the construction and operation of the proposed Project. During initial clearing and removal of the existing alien (non-native) vegetation within the Project Site, the vegetation will be transported to a green waste site within the adjacent Kukui'ula property for composting.

Operation of the Project will generate little solid waste and, therefore, will not impact the Kekaha Landfill. During maintenance operations of the Project improvements, the green waste material accumulated from the vegetated areas will be transported to an off-site location for composting.

3.18 Utilities

3.18.1 Water System

The land comprising the adjacent Kukui'ula development has been irrigated during most of the last century with water from the Lawai Stream, using an irrigation system owned by McBryde Sugar Company, Limited. A major portion of the water is now controlled by the Applicant. The existing non-potable water system in the Project vicinity includes the irrigation system, irrigation wells, and eight (8) reservoirs located mauka of the Project Site and the Kukui'ula development. The irrigation system includes the Lawai Intake and the Lawai Intake Ditch. The irrigation system inflow averages approximately 4 million gallons per day ("mgd"), and may be supplemented by the Poeleele Well and the Kauai Pine Well which can provide an estimated total of 6 mgd.

An existing 2-inch PVC waterline is located within the portion of Lawai Road within the northeast corner of the Project Site and extends eastward along the road.

Impacts and Mitigation Measures

No significant impacts are anticipated on the existing water system in the Project vicinity as a result of the construction and operation of the proposed Project improvements. Non-potable water will be used to irrigate the proposed turf grass pedestrian trail and re-vegetated areas within the Project Site. The source of non-potable water will be the surface water from the existing irrigation system owned by the McBryde Sugar Company, Limited located mauka of the Project Site. Operation of the Project improvements will not result in a significant increase in water consumption demand. The average daily water demand for irrigation of the re-vegetated areas within the Project Site is estimated to be approximately 9,650 gallons per day ("gpd"), with the peak daily water demand estimated to be approximately 14,455 gpd.

The non-potable irrigation water will be conveyed to the Project Site via a 3-inch diameter PVC below-grade main irrigation line that will extend makai from the adjacent Kukui'ula development and across the NTBG tram road within the western portion of the Project Site. From this point, the main irrigation line will extend east approximately 1,600 linear feet along the makai side of the NTBG tram Road and Lawai Road.

Irrigation of the proposed turf grass pedestrian trail will consist of a permanent below-grade spray irrigation system that will include installation of a 2-inch diameter PVC line located along the entire length of the makai edge of the trail. The 2-inch diameter irrigation line will connect to the 3-inch diameter below-grade main irrigation line to be installed along Lawai Road.

Irrigation for the establishment of the re-vegetated areas within the Project Site, including the proposed test area, will include installation of a temporary aboveground drip irrigation system consisting of a 1-inch diameter poly-urethane irrigation line that will ultimately connect to the 3-inch below-grade main irrigation line. A network of temporary aboveground ¼-inch diameter poly-urethane drip tubing will connect to the 1-inch diameter poly-urethane line to distribute

irrigation water to all of the individual new plants. Following establishment of the new vegetation, the temporary irrigation system will be removed.

3.18.2 Drainage System

A drainage report was prepared for the proposed Project improvements by Austin, Tsutsumi & Associates, Inc. in December 2007. The drainage report is included in Appendix G and is summarized below. The purpose of the drainage report is to describe how the proposed Project improvements meet the requirements of the County's Stormwater Runoff System Manual (2001).

Currently, storm water runoff enters the Project Site from the off-site mauka Kukui'ula property and continues makai through the Project Site, eventually running into the ocean at low spots within the site. Within the Project Site, the existing storm water runoff rate for the 2-year, 1-hour storm event is 9.69 cubic feet per second ("cfs").

The existing and proposed drainage system for the Kukui'ula development was assessed in the Drainage System Master Plan Report for Kukui'ula (March 2003) and the Supplement No. 2 to the Drainage System Master Plan Report for Kukui'ula (March 2005). That report takes into account the storm water runoff patterns and runoff rates from the Kukui'ula development and how they will be handled. The Kukui'ula Drainage System Master Plan Report, as supplemented, was approved by the County DPW on April 25, 2006.

Impacts and Mitigation Measures

Generally, the proposed Project improvements will allow existing storm water runoff patterns to be maintained. The planned off-site improvements within the Kukui'ula development will help to improve and control the storm water runoff that currently enters the Project Site. The Kukui'ula development will include vegetated buffers along its boundaries with drainage basins, swales and landscaping to control the existing erosion.

It is noted that for drainage purposes, the drainage report for the Project Site assumes a gravel surface for the proposed pedestrian trail. For mitigation purposes, however, the drainage report assumes a turf grass trail.

The proposed Project improvements will result in nominal change to the amount of hard surfaces, although the surfaces will remain porous (i.e., compacted gravel). Since the proposed resurfacing activities of the NTBG tram road will occur over the existing asphalt-paved surface, there is anticipated to be no increase in the impervious surface area or storm water runoff. In resurfacing the tram road, the contractor will be required to brush clean the existing pavement surface and to control dust through water spraying. Following preparation of the existing pavement surface, a tack layer of asphaltic emulsion will be spread over the surface to promote bonding between the existing and new pavement prior to the new pavement being constructed. From the standpoint of vegetative cover, the proposed re-vegetation within the Project Site will improve the area by covering areas which are currently barren, exposed and rutted earth.

The overall improvements within the Project Site will not significantly change the drainage area characteristics, as the only change in surface treatment will be the addition of a pervious gravel path and gravel parking areas. The proposed re-vegetated areas will actually improve existing

drainage infiltration and sediment control as planting is added or restored, and areas will be cleared and maintained.

The proposed Project improvements will result in a total storm water runoff rate of 10.73 cfs for the 2-year, 1-hour storm event. This represents an increase of 1.04 cfs in storm water runoff from existing conditions.

It is noted that much of the storm water runoff from the mauka Kukui'ula property that currently runs into the ocean will be detained within the Kukui'ula development with the planned improvements for that site. Storm water discharge from the Kukui'ula development will be reduced to less than existing conditions, which will greatly contribute to the prevention of erosion that currently occurs within the Project Site. Therefore, although the improvements within the Project Site will result in a slight increase in the storm water runoff rate from existing conditions, overall, there will be a net decrease in storm water runoff from the Project Site due to the planned detention of runoff from the Kukui'ula development. As indicated in the Drainage Master Plan Report for Kukui'ula, the 100-year, 24-hour storm water runoff rate from the planned Kukui'ula development will be reduced from an existing peak runoff of 5,090 cfs to a proposed peak runoff of 4,369 cfs due to the planned increased detention volume.

To address the potential of erosion and sediment due to storm water runoff, temporary and permanent erosion control measures and BMPs will be implemented prior to, during and following construction of the proposed Project improvements.

Potential water quality impacts to the near shore coastal waters during construction of the Project will be mitigated by adherence to State water quality regulations. A NPDES General Permit for Storm Water Associated with Construction Activity administered by the State DOH will be required to control storm water discharges. Construction of the Project improvements will also be in compliance with the County's Grubbing Permit. Mitigation measures will be instituted following site-specific assessments, incorporating appropriate structural and/or non-structural BMPs.

During construction of the turf grass trail, rolled fiber filtration tubing will be installed adjacent to the makai side of the trail alignment along its entire length to prevent sediment-laden storm water runoff from flowing makai. The rolled fiber filtration tubing will remain in place until the turf grass is established within the trail. The hydro-seeding of the trail to establish the turf grass will also help to control erosion.

During clearing and removal of the existing vegetation and re-vegetation activities within the rocky coastal area makai of Lawai Road and the NTBG tram road, silt fencing will be installed along the makai boundary of the re-vegetated areas to prevent sediment-laden storm water runoff from flowing makai. Rolled fiber filtration tubing will also be installed at regular intervals in the area between the turf grass trail and the makai boundary of the re-vegetated areas to prevent sediment-laden storm water runoff from flowing makai. The silt fence and rolled fiber filtration tubing will remain in place until the new vegetation is established.

The phasing of the implementation of the Project improvements will also minimize the overall amount of exposed surfaces and ground disturbance at a given time, thereby further reducing the amount of storm water runoff that may occur.

As previously indicated, Project-related construction vehicles will access the Project Site from the west along an unpaved road within the Kukui'ula property, and then through the NTBG gate. A gravel pad and wash down area will be placed at the planned construction entrance to the Project Site to prevent tracking of sediment onto the NTBG tram road and Lawai Road.

Development of the Project improvements, including the re-vegetation areas, turf grass trail and new gravel parking areas will contribute to permanent erosion control measures in the long-term.

In summary, the proposed Project improvements will produce no adverse effects from storm water runoff to the adjacent coastal waters and adjacent properties. The projected small increase in storm water runoff from the Project Site will be offset by the projected large reduction of storm water runoff from the adjacent mauka Kukui'ula development. Therefore, the overall rate of storm water runoff into the ocean from the Project Site will be less than pre-development levels. In addition, the implementation of temporary and permanent erosion control measures and BMPs prior to, during and following Project implementation will ensure that storm water runoff quality will be maintained and will not degrade the surrounding environment.

4. RELATIONSHIP TO LAND USE PLANS AND POLICIES

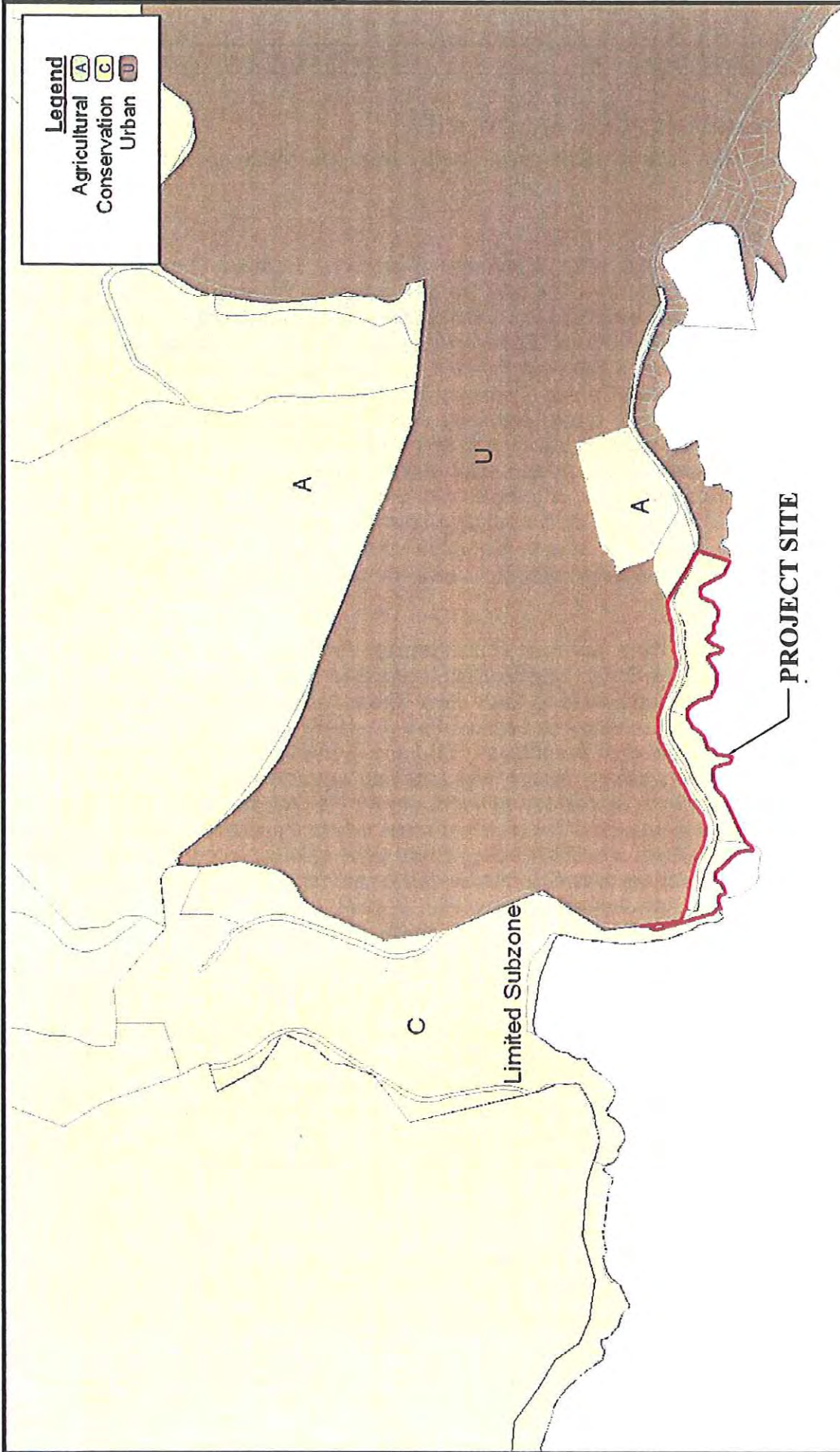
The Project's consistency with relevant State and County land use plans and policies is discussed below.

4.1 State Land Use District

The State Land Use Law, Chapter 205, HRS, is intended to preserve, protect and encourage the development of lands in the State for uses that are best suited to the public health and welfare of Hawaii's people. The State Land Use Commission classifies all lands in the State into four (4) land use districts: Urban, Agricultural, Conservation, and Rural. The Project Site is within the State Conservation District as shown in Figure 4-1. As stated in Chapter 205-2 (e), HRS, "*Conservation districts shall include areas necessary for protecting watersheds and water sources; preserving scenic and historic areas; providing park lands, wilderness, and beach reserves; conserving indigenous or endemic plants, fish, and wildlife, including those which are threatened or endangered; preventing floods and soils erosion; forestry; open space areas whose existing openness, natural conditions, or present state of use, if retained, would enhance the present or potential value of abutting or surrounding communities, or would maintain or enhance the conservation of natural or scenic resources; areas of value for recreational purposes; other related activities; and other permitted uses not detrimental to a multiple use conservation concept.*"

Within the Conservation District, there are four (4) subzones: Protective (P), Limited (L), Resource (R), and General (G). The Project Site is within the Limited (L) subzone as shown in Figure 4-1. The objective of this subzone is to "*limit uses where natural conditions suggest constraints on human activities.*" According to Section 13-5-12, HAR, Conservation District, State DLNR, the Limited (L) subzone shall encompass: "*(1) Land susceptible to floods and soil erosion; lands undergoing major erosion damage and requiring corrective attention by the county, state, or federal governments; and (2) Lands necessary for the protection of the health, safety, and welfare of the public by reason of the land's susceptibility to inundation by tsunamis, flooding, volcanic activity or landslides, or which have a general slope of forty percent or more.*" The proposed Project improvements are allowed in the Limited (L) subzone and require a permit from the State Board of Land and Natural Resources ("BLNR") (Section 13-5-23, HAR, Conservation District, State DLNR). A CDUA has been prepared for the proposed improvements and is being concurrently processed by the DLNR OCCL, the Approving Agency for the EA.

The proposed Project is consistent with the Conservation District designation. The Project will enhance the recreational use of the Project area by providing public pedestrian access to the shoreline areas west of Spouting Horn Park. The proposed vegetation clearing/removal and re-vegetation improvements within the Project Site will restore and visually enhance the coastal views of the area. With the proposed vegetation clearing and re-vegetation activities, the currently overgrown, alien (non-native) vegetation makai of Lawai Road and the NTBG tram road will be replaced with native, endemic and indigenous species common to the area or Polynesian-introduced which will improve and complement the scenic and natural environment of the area. The proposed re-vegetation of the coastal lands within the Project Site with trees and low-growing native shrubs and groundcover plantings will help to maintain and preserve the scenic public views to and along the coastline. The scenic environment will be further enhanced with the visual greenbelt to be provided by the proposed turf grass pedestrian trail along the makai side of the Lawai Road right-of-way.



**CONSERVATION DISTRICT
IMPROVEMENTS**
KUKUI'ULA
Koloa, Kauai, Hawaii

**Existing State Land Use Districts and
Conservation District Subzones Map**

Prepared for:
Kukui'ula Development Company (Hawaii), LLC

Prepared by:
Wilson Okamoto Corporation

Figure 4-1

The Project improvements will include the preservation of an existing coastal trail complex which consists of a discontinuous historic trail that traverses along the inland edge of the coastal embankment within the central and eastern portions of the Project Site, paralleling the coastline, and the preservation of two (2) existing rock shelter cave sites located along the coastal cliff within the eastern portion of Area One. The two (2) rock shelter sites were listed on the State Register of Historic Places on September 30, 1988 and remain on the State Register. The preservation of these three (3) sites will be in accordance with a Preservation Plan prepared in December 2004 and approved by the SHPD in March 2005 and the KHPRC in December 2004. Long-term preservation of these three (3) sites will be passive preservation in the form of avoidance and conservation. Further discussion of the coastal trail complex and the two (2) rock shelter cave sites and the preservation of these sites is included in Section 3.10 Historic and Archaeological Resources of this EA.

Removal of the existing alien (non-native) vegetation and re-vegetation with native, endemic and indigenous species common to the area or Polynesian-introduced is anticipated to have a beneficial impact on encouraging the proliferation of native plants presently limited in distribution within and adjacent to the Project Site. The removal of the invasive alien plant species that may currently be covering most of the Wedge-tailed Shearwater colony that may be located within the Project Site will greatly enhance the usability of the area for seabird nesting. Removal of the existing cactus, large ironwood trees and dense Guinea grass will also help to facilitate the Wedge-tailed Shearwaters to come and go from their nesting colonies with greater ease and safety.

The proposed Project is consistent with the objective of the Limited (L) subzone. According to the FIRM prepared by FEMA, the majority of the Project Site mauka of the inland edge of the coastal embankment is located within Zone "X", "Areas determined to be outside the 0.2% annual chance floodplain". A sliver of land adjacent to and makai of this area is designated Zone "X", "Areas of 0.2% annual chance flood; areas of 1% annual chance flood with average depths of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees from 1% annual chance flood." An area within the easternmost portion of the Project Site, makai of the Zone "X" flood zone, is designated Zone "AE", "Special flood hazard areas subject to inundation by the 1% annual chance flood with base flood elevations determined". The base flood elevation for the "AE" zone within this portion of the Project Site is 13 feet above msl. The makai-most portions of the Project Site which are mostly located makai of the coastal embankment are designated Zone "VE", "Special flood hazard areas subject to inundation by the 1% annual chance flood; coastal flood zone with velocity hazard (wave action); with base flood elevations determined". The base flood elevations for the "VE" zone within this portion of the Project Site are between 12 and 13 feet above msl.

Construction and operation of the proposed Project are not anticipated to result in flooding of the Project Site or lower elevation properties. All proposed Project improvements, except for various areas where selective vegetation removal will occur, are located outside and mauka of the designated flood zones. The proposed selective vegetation removal activities within the designated flood zones will be undertaken in full compliance with the flood plain management requirements of the County. The proposed selective removal of existing large non-native species within the designated Flood Zone "X", which encompasses a small portion of the selective vegetation removal area, will not pose a threat to soil stability. For the removal of these larger vegetation species, hand tools or chainsaws will be used to cut the vegetation to

the stump and methods such as wipe-on or brush-on herbicide will be used on the vegetation stumps. No structures will be built within the Project Site as part of the proposed improvements.

Development of the Project improvements, including the re-vegetation areas, turf grass trail and new gravel parking areas will contribute to permanent erosion control measures in the long-term.

4.2 Hawaii State Plan

Hawaii State Plan: The Hawaii State Plan, embodied in Chapter 226, HRS, serves as a guide for goals, objectives, policies, and priorities for the State. The State Plan provides a basis for determining priorities, allocating limited resources, and improving coordination of State and County plans, policies, programs, projects, and regulatory activities. The proposed Project is consistent with the following State Plan objectives and policies.

Section 226-11 Objectives and policies for the physical environment – land-based, shoreline, and marine resources.

(b)(2) Ensure compatibility between land-based and water-based activities and natural resources and ecological systems.

(b)(3) Take into account the physical attributes of areas when planning and designing activities and facilities.

Section 226-13 Objectives and policies for the physical environment – land, air, and water quality.

(b)(3) Promote effective measures to achieve desired quality in Hawaii's surface, ground, and coastal waters.

No grading activities will be undertaken in conjunction with the construction of the Project improvements. Minimal ground disturbance will occur to till in soil along the proposed trail alignment to initiate establishment of the turf grass, to install the permanent below-grade irrigation system for the main irrigation line and the turf grass trail, to remove the existing alien (non-native) vegetation and re-vegetate the area, and to install the temporary aboveground irrigation system for the re-vegetated areas.

Potential water quality impacts to the near shore coastal waters during construction of the Project will be mitigated by adherence to State water quality regulations. A NPDES General Permit for Storm Water Associated with Construction Activity administered by the State DOH will be required to control storm water discharges. Construction of the Project improvements will also be in compliance with the County's Grubbing Permit. Mitigation measures will be instituted following site-specific assessments, incorporating appropriate structural and/or non-structural BMPs.

During construction of the turf grass trail, rolled fiber filtration tubing will be installed adjacent to the makai side of the trail alignment along its entire length to prevent sediment-laden storm water runoff from flowing makai. The rolled fiber filtration tubing will remain in place until the turf grass is established within the trail. The hydro-seeding of the trail to establish the turf grass will also help to control erosion.

During clearing and removal of the existing vegetation and re-vegetation activities within the rocky coastal area makai of Lawai Road and the NTBG tram road, silt fencing will be installed along the makai boundary of the re-vegetated areas to prevent sediment-laden storm water runoff from flowing makai. Rolled fiber filtration tubing will also be installed at regular intervals in the area between the turf grass trail and the makai boundary of the re-vegetated areas to prevent sediment-laden storm water runoff from flowing makai. The silt fence and rolled fiber filtration tubing will remain in place until the new vegetation is established.

Since the proposed resurfacing activities of the NTBG tram road will occur over the existing asphalt-paved surface, there is anticipated to be no increase in the impervious surface area or storm water runoff. In resurfacing the tram road, the contractor will be required to brush clean the existing pavement surface and to control dust through water spraying. Following preparation of the existing pavement surface, a tack layer of asphaltic emulsion will be spread over the surface to promote bonding between the existing and new pavement prior to the new pavement being constructed.

The phasing of the implementation of the Project improvements will also minimize the overall amount of exposed surfaces and ground disturbance at a given time, thereby further reducing the amount of storm water runoff that may occur. A gravel pad and wash down area will be placed at the planned construction entrance to the Project Site to prevent tracking of sediment onto Lawai Road and the NTBG tram road.

Construction activities associated with the proposed improvements will not introduce any materials which could adversely affect groundwater.

Development of the proposed Project improvements will produce no adverse effects from storm runoff to the adjacent coastal waters and adjacent properties. As discussed in Section 3.18.2 Drainage System of this EA, the projected small increase in storm water runoff from the Project Site will be offset by the large reduction of storm water runoff from the adjacent mauka Kukui'ula development due to the planned detention of runoff from that development. Therefore, the overall rate of storm water runoff into the ocean from the Project Site will be less than pre-development levels. Development of the Project improvements, including the re-vegetation areas, turf grass trail and new gravel parking areas will contribute to permanent erosion control measures in the long-term.

The proposed method of fertilization of the new vegetation and turf grass trail within the Project Site, which will be applied by directly injecting all natural biofertilizer into the irrigation water and through the irrigation system, will substantially reduce the amount of fertilizer that would otherwise be required by up to 70 to 90 percent, thereby largely eliminating fertilizer runoff. The proposed application of appropriate herbicides to the cut vegetation stumps at a recommended concentration level with a wipe-on or brush-on technique will minimize the drift overspray that would otherwise occur with a spray-on technique. The use of herbicides within the Project Site is anticipated to be minimal since it is proposed for use only until the new vegetation is established and as needed during the long-term maintenance operations. The herbicides to be used will be EPA certified products approved for use in environmentally sensitive areas. The fertilizers and herbicides to be used within the Project Site will be determined in consideration of the sensitive environment and recreational users of the area.

With the use of large equipment during construction and long-term maintenance operations of the Project improvements, the contractors will be required to have available on-site granular absorbent materials to be used for immediate clean-up in the event of accidental fuel or hydraulic spills from such equipment. The contractors will also be required to have available on-site containers for the storage of the spent spill response materials, which will then be required to be properly disposed of at an off-site location.

Section 226-12 Objective and policies for the physical environment – scenic, natural beauty, and historic resources.

(b)(1) Promote the preservation and restoration of significant natural and historic resources.

(b)(3) Promote the preservation of views and vistas to enhance the visual and aesthetic enjoyment of mountains, ocean, scenic landscapes, and other natural features.

The Project improvements will include the preservation of an existing coastal trail complex which consists of a discontinuous historic trail that traverses along the inland edge of the coastal embankment within the central and eastern portions of the Project Site, paralleling the coastline, and the preservation of two (2) existing rock shelter cave sites located along the coastal cliff within the eastern portion of Area One. The two (2) rock shelter sites were listed on the State Register of Historic Places on September 30, 1988 and remain on the State Register. The preservation of these three (3) sites will be in accordance with a Preservation Plan prepared in December 2004 and approved by the SHPD in March 2005 and the KHPRC in December 2004. Long-term preservation of these three (3) sites will be passive preservation in the form of avoidance and conservation. Further discussion of the coastal trail complex and the two (2) rock shelter cave sites and the preservation of these sites is included in Section 3.10 Historic and Archaeological Resources of this EA.

The proposed vegetation clearing/removal and re-vegetation improvements within the Project Site will restore and visually enhance the coastal views of the area. With the proposed vegetation clearing and re-vegetation activities, the currently overgrown, alien (non-native) vegetation makai of Lawai Road and the NTBG tram road will be replaced with native, endemic and indigenous species common to the area or Polynesian-introduced which will improve and complement the scenic and natural environment of the area. The proposed re-vegetation of the coastal lands within the Project Site with trees and low-growing native shrubs and groundcover plantings will help to maintain and preserve the scenic public views to and along the coastline. The scenic environment will be further enhanced with the visual greenbelt to be provided by the proposed turf grass pedestrian trail along the makai side of the Lawai Road right-of-way.

4.3 Hawaii Coastal Zone Management Program

The National Coastal Zone Management Program was created through passage of the Coastal Zone Management Act of 1972. Hawaii's Coastal Zone Management Program, adopted as Chapter 205A, HRS, provides a basis for protecting, restoring and responsibly developing coastal communities and resources. A discussion of the Project's consistency with the objectives and policies of the Coastal Zone Management Program is provided below.

(1) Recreational Resources

Objective:

(A) *Provide coastal recreational opportunities accessible to the public.*

Policies

- (A) *Improve coordination and funding of coastal recreational planning and management; and*
- (B) *Provide adequate, accessible, and diverse recreational opportunities in the coastal zone management area by:*
- (i) *Protecting coastal resources uniquely suited for recreational activities that cannot be provided in other areas;*
 - (ii) *Requiring replacement of coastal resources having significant recreational value, including but not limited to surfing sites, fishponds, and sand beaches, when such resources will be unavoidably damaged by development; or requiring reasonable monetary compensation to the state for recreation when replacement is not feasible or desirable;*
 - (iii) *Providing and managing adequate public access, consistent with conservation of natural resources, to and along shorelines with recreational value;*
 - (iv) *Providing an adequate supply of shoreline parks and other recreational facilities suitable for public recreation;*
 - (v) *Ensuring public recreational use of county, state, and federally owned or controlled shoreline lands and waters having recreational value consistent with public safety standards and conservation of natural resources;*
 - (vi) *Adopting water quality standards and regulating point and nonpoint sources of pollution to protect, and where feasible, restore the recreational value of coastal waters.*
 - (vii) *Developing new shoreline recreational opportunities, where appropriate, such as artificial lagoons, artificial beaches, and artificial reefs for surfing and fishing; and*
 - (viii) *Encouraging reasonable dedication of shoreline areas with recreational value for public use as part of discretionary approvals or permits by the land use commission, board of land and natural resources, and county authorities; and crediting such dedication against the requirements of section 46-6.*

The proposed Project will enhance the recreational use of the Project area by providing public pedestrian access to the shoreline areas west of Spouting Horn Park. The proposed scenic public pedestrian trail along the makai side of the Lawai Road right-of-way will be developed as part of the Kukui'ula development's comprehensive path and trail system which will be open to the general public. A future trail connection mauka of Lawai Road and the western end of the proposed pedestrian trail will be provided to the adjacent Kukui'ula development.

All of the four (4) existing shoreline access points within the Project Site will remain unaffected by the proposed Project improvements as direct access will continue to be provided from the adjacent turf grass pedestrian trail, and the proposed vegetation clearing/removal and re-vegetation improvements will be kept clear of and will not impede the current access trails.

New gravel parking areas will be provided in three (3) locations currently used for parking by the public along the unpaved makai shoulder within the Lawai Road right-of-way, adjacent to the proposed public pedestrian trail. Public parking for approximately ten (10) vehicles total will be provided within these enhanced parking areas.

The Project improvements will include the preservation of the existing historic coastal trail complex that traverses along the inland edge of the coastal embankment within the central and eastern portions of the Project Site.

Potential water quality impacts to the near shore coastal waters during construction of the Project will be mitigated by adherence to State water quality regulations. A NPDES General Permit for Storm Water Associated with Construction Activity administered by the State DOH will be required to control storm water discharges. Construction of the Project improvements will also be in compliance with the County's Grubbing Permit. Mitigation measures will be instituted following site-specific assessments, incorporating appropriate structural and/or non-structural BMPs, such as silt fencing and rolled fiber filtration tubing to prevent sediment-laden storm water runoff from flowing makai.

Development of the proposed Project improvements will produce no adverse effects from storm runoff to the adjacent coastal waters and adjacent properties. As discussed in Section 3.18.2 Drainage System of this EA, the projected small increase in storm water runoff from the Project Site will be offset by the large reduction of storm water runoff from the adjacent mauka Kukui'ula development due to the planned detention of runoff from that development. Therefore, the overall rate of storm water runoff into the ocean from the Project Site will be less than pre-development levels. Development of the Project improvements, including the re-vegetation areas, turf grass trail and new gravel parking areas will contribute to permanent erosion control measures in the long-term.

(2) *Historic Resources*

Objective:

(A) *Protect, preserve and, where desirable, restore those natural and manmade historic and prehistoric resources in the coastal zone management area that are significant in Hawaiian and American history and culture.*

Policies:

(A) *Identify and analyze significant archaeological resources;*

(B) *Maximize information retention through preservation of remains and artifacts or salvage operations; and*

(C) *Support state goals for protection, restoration, interpretation, and display of historic resources.*

The Project improvements will include the preservation of an existing coastal trail complex which consists of a discontinuous historic trail that traverses along the inland edge of the coastal embankment within the central and eastern portions of the Project Site, paralleling the coastline, and the preservation of two (2) existing rock shelter cave sites located along the coastal cliff within the eastern portion of Area One. The two (2) rock shelter sites were listed on the State Register of Historic Places on September 30, 1988 and remain on the State Register. The

preservation of these three (3) sites will be in accordance with a Preservation Plan prepared in December 2004 and approved by the SHPD in March 2005 and the KHPRC in December 2004. Long-term preservation of these three (3) sites will be passive preservation in the form of avoidance and conservation. Further discussion of the coastal trail complex and the two (2) rock shelter cave sites and the preservation of these sites is included in Section 3.10 Historic and Archaeological Resources of this EA.

(3) Scenic and Open Space Resources

Objective:

- (A) *Protect, preserve, and where desirable, restore or improve the quality of coastal scenic and open space resources.*

Policies:

- (A) *Identify valued scenic resources in the coastal zone management area;*
(B) *Ensure that new developments are compatible with their visual environment by designing and locating such developments to minimize the alteration of natural landforms and existing public views to and along the shoreline;*
(C) *Preserve, maintain, and, where desirable, improve and restore shoreline open space and scenic resources; and*
(D) *Encourage those developments which are not coastal dependent to locate in inland areas.*

The proposed vegetation clearing/removal and re-vegetation improvements within the Project Site will restore and visually enhance the coastal views of the area. With the proposed vegetation clearing and re-vegetation activities, the currently overgrown, alien (non-native) vegetation makai of Lawai Road and the NTBG tram road will be replaced with native, endemic and indigenous species common to the area or Polynesian-introduced which will improve and complement the scenic and natural environment of the area. The proposed re-vegetation of the coastal lands within the Project Site with trees and low-growing native shrubs and groundcover plantings will help to maintain and preserve the scenic public views to and along the coastline. The scenic environment will be further enhanced with the visual greenbelt to be provided by the proposed turf grass pedestrian trail along the makai side of the Lawai Road right-of-way.

(4) Coastal Ecosystems

Objective:

- (A) *Protect valuable coastal ecosystems, including reefs, from disruption and minimize adverse impacts on all coastal ecosystems.*

Policies:

- (A) *Exercise an overall conservation ethic, and practice stewardship in the protection, use, and development of marine and coastal resources;*
(B) *Improve the technical basis for natural resource management;*
(C) *Preserve valuable coastal ecosystems, including reefs, of significant biological or economic importance;*

- (D) *Minimize disruption or degradation of coastal water ecosystems by effective regulation of stream diversions, channelization, and similar land and water uses, recognizing competing water needs; and*
- (E) *Promote water quantity and quality planning and management practices that reflect the tolerance of fresh water and marine ecosystems and maintain and enhance water quality through the development and implementation of point and nonpoint source water pollution control measures.*

No grading activities will be undertaken in conjunction with the construction of the Project improvements. Minimal ground disturbance will occur to till in soil along the proposed trail alignment to initiate establishment of the turf grass, to install the permanent below-grade irrigation system for the main irrigation line and the turf grass trail, to remove the existing alien (non-native) vegetation and re-vegetate the area, and to install the temporary aboveground irrigation system for the re-vegetated areas.

Potential water quality impacts to the near shore coastal waters during construction of the Project will be mitigated by adherence to State water quality regulations. A NPDES General Permit for Storm Water Associated with Construction Activity administered by the State DOH will be required to control storm water discharges. Construction of the Project improvements will also be in compliance with the County's Grubbing Permit. Mitigation measures will be instituted following site-specific assessments, incorporating appropriate structural and/or non-structural BMPs.

During construction of the turf grass trail, rolled fiber filtration tubing will be installed adjacent to the makai side of the trail alignment along its entire length to prevent sediment-laden storm water runoff from flowing makai. The rolled fiber filtration tubing will remain in place until the turf grass is established within the trail. The hydro-seeding of the trail to establish the turf grass will also help to control erosion.

During clearing and removal of the existing vegetation and re-vegetation activities within the rocky coastal area makai of Lawai Road, silt fencing will be installed along the makai boundary of the re-vegetated areas to prevent sediment-laden storm water runoff from flowing makai. Rolled fiber filtration tubing will also be installed at regular intervals in the area between the turf grass trail and the makai boundary of the re-vegetated areas to prevent sediment-laden storm water runoff from flowing makai. The silt fence and rolled fiber filtration tubing will remain in place until the new vegetation is established.

Since the proposed resurfacing activities of the NTBG tram road will occur over the existing asphalt-paved surface, there is anticipated to be no increase in the impervious surface area or storm water runoff. In resurfacing the tram road, the contractor will be required to brush clean the existing pavement surface and to control dust through water spraying. Following preparation of the existing pavement surface, a tack layer of asphaltic emulsion will be spread over the surface to promote bonding between the existing and new pavement prior to the new pavement being constructed.

The phasing of the implementation of the Project improvements will also minimize the overall amount of exposed surfaces and ground disturbance at a given time, thereby further reducing the amount of storm water runoff that may occur. A gravel pad and wash down area will be

placed at the planned construction entrance to the Project Site to prevent tracking of sediment onto Lawai Road and the NTBG tram road.

Development of the proposed Project improvements will produce no adverse effects from storm runoff to the adjacent coastal waters and adjacent properties. As discussed in Section 3.18.2 Drainage System of this EA, the projected small increase in storm water runoff from the Project Site will be offset by the large reduction of storm water runoff from the adjacent mauka Kukui'ula development due to the planned detention of runoff from that development. Therefore, the overall rate of storm water runoff into the ocean from the Project Site will be less than pre-development levels. Development of the Project improvements, including the re-vegetation areas, turf grass trail and new gravel parking areas will contribute to permanent erosion control measures in the long-term.

The proposed method of fertilization of the new vegetation and turf grass trail within the Project Site, which will be applied by directly injecting all natural biofertilizer into the irrigation water and through the irrigation system, will substantially reduce the amount of fertilizer that would otherwise be required by up to 70 to 90 percent, thereby largely eliminating fertilizer runoff. The proposed application of appropriate herbicides to the cut vegetation stumps at a recommended concentration level with a wipe-on or brush-on technique will minimize the drift overspray that would otherwise occur with a spray-on technique. The use of herbicides within the Project Site is anticipated to be minimal since it is proposed for use only until the new vegetation is established and as needed during the long-term maintenance operations. The herbicides to be used will be EPA certified products approved for use in environmentally sensitive areas. The fertilizers and herbicides to be used within the Project Site will be determined in consideration of the sensitive environment and recreational users of the area.

With the use of large equipment during construction and long-term maintenance operations of the Project improvements, the contractors will be required to have available on-site granular absorbent materials to be used for immediate clean-up in the event of accidental fuel or hydraulic spills from such equipment. The contractors will also be required to have available on-site containers for the storage of the spent spill response materials, which will then be required to be properly disposed of at an off-site location.

(5) *Economic Uses*

Objective:

- (A) *Provide public or private facilities and improvements important to the State's economy in suitable locations.*

Policies:

- (A) *Concentrate coastal dependent development in appropriate areas;*
(B) *Ensure that coastal dependent developments such as harbors and ports, and coastal related development such as visitor facilities and energy generating facilities, are located, designed, and constructed to minimize adverse social, visual, and environmental impacts in the coastal zone management area; and*
(C) *Direct the location and expansion of coastal dependent developments to areas presently designated and used for such developments and permit reasonable*

long-term growth at such areas, and permit coastal dependent development outside of presently designated areas when:

- (i) Use of presently designated locations is not feasible;*
- (ii) Adverse environmental effects are minimized; and*
- (iii) The development is important to the State's economy.*

The proposed Project improvements will be developed in conjunction with the planned Kukui'ula development, a resort-residential project located on approximately 1,002 acres to be developed by the Applicant. The proposed improvements are intended to fulfill Condition No. 15. f) of Zoning Ordinance No. PM-2004-370 for the Kukui'ula development which requires that the Applicant provide public pedestrian access to the shoreline areas west of Spouting Horn Park owned by the Applicant.

(6) Coastal Hazards

Objectives:

- (A) *Reduce hazard to life and property from tsunami, storm waves, stream flooding, erosion, subsidence, and pollution.*

Policies

- (A) *Develop and communicate adequate information about storm wave, tsunami, flood, erosion, subsidence, and point and nonpoint source pollution hazards;*
- (B) *Control development in areas subject to storm wave, tsunami, flood, erosion, hurricane, wind, subsidence, and point and nonpoint pollution hazards;*
- (C) *Ensure that developments comply with requirements of the Federal Flood Insurance Program;*
- (D) *Prevent coastal flooding from inland projects.*

According to the FIRM prepared by FEMA, the majority of the Project Site mauka of the inland edge of the coastal embankment is located within Zone "X", "Areas determined to be outside the 0.2% annual chance floodplain". A sliver of land adjacent to and makai of this area is designated Zone "X", "Areas of 0.2% annual chance flood; areas of 1% annual chance flood with average depths of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees from 1% annual chance flood." An area within the easternmost portion of the Project Site, makai of the Zone "X" flood zone, is designated Zone "AE", "Special flood hazard areas subject to inundation by the 1% annual chance flood with base flood elevations determined". The base flood elevation for the "AE" zone within this portion of the Project Site is 13 feet above msl. The makai-most portions of the Project Site which are mostly located makai of the coastal embankment are designated Zone "VE", "Special flood hazard areas subject to inundation by the 1% annual chance flood; coastal flood zone with velocity hazard (wave action); with base flood elevations determined". The base flood elevations for the "VE" zone within this portion of the Project Site are between 12 and 13 feet above msl.

Construction and operation of the proposed Project are not anticipated to result in flooding of the Project Site or lower elevation properties. All proposed Project improvements, except for various areas where selective vegetation removal will occur, are located outside and mauka of the designated flood zones. The proposed selective vegetation removal activities within the designated flood zones will be undertaken in full compliance with the flood plain management

requirements of the County. The proposed selective removal of existing large non-native species within the designated Flood Zone "X", which encompasses a small portion of the selective vegetation removal area, will not pose a threat to soil stability. For the removal of these larger vegetation species, hand tools or chainsaws will be used to cut the vegetation to the stump and methods such as wipe-on or brush-on herbicide will be used on the vegetation stumps. No structures will be built within the Project Site as part of the proposed improvements.

(7) Managing Development

Objective:

(A) *Improve the development review process, communication, and public participation in the management of coastal resource and hazards.*

Policies:

- (A) *Use, implement, and enforce existing law effectively to the maximum extent possible in managing present and future coastal zone development;*
- (B) *Facilitate timely processing of applications for development permits and resolve overlapping or conflicting permit requirements; and*
- (C) *Communicate the potential short and long-term impacts of proposed significant coastal developments early in their life cycle and in terms understandable to the public to facilitate public participation in the planning and review process.*

Government agencies, organizations and the general public are being notified of the proposed Project and provided an opportunity to comment on the Project through the environmental review and land use permit approvals process. Short- and long-term impacts which may result from the construction and operation of the proposed Project have been assessed in this EA.

(8) Public Participation

Objective:

(A) *Stimulate public awareness, education, and participation in coastal management.*

Policies:

- (A) *Promote public involvement in coastal zone management processes;*
- (B) *Disseminate information on coastal management issues by means of educational materials, published reports, staff contact, and public workshops for persons and organizations concerned with coastal issues, developments, and government activities; and*
- (C) *Organize workshops, policy dialogues, and site-specific mediations to respond to coastal issues and conflicts.*

Government agencies, organizations and the general public are being notified of the proposed Project and provided an opportunity to comment on the Project through the environmental review and land use permit approvals process.

(9) Beach Protection

Objective:

- (A) *Protect beaches for public use and recreation.*

Policies:

- (A) *Locate new structures inland from the shoreline setback to conserve open space, minimize interference with natural shoreline processes, and minimize loss of improvements due to erosion;*
- (B) *Prohibit construction of private erosion-protection structures seaward of the shoreline, except when they result in improved aesthetic and engineering solutions to erosion at the sites and do not interfere with existing recreational and waterline activities; and*
- (C) *Minimize the construction of public erosion-protection structures seaward of the shoreline.*

The portion of the Project Site makai of Lawai Road and the NTBG tram road consists of undeveloped rocky coastline vegetated primarily with alien species. There are no beach areas within the Project Site. Existing public recreational uses within the Project Site will remain unaffected by the proposed improvements. There will be no structures or erosion-protection structures constructed as part of the Project improvements.

(10) Marine Resources

Objective:

- (A) *Promote the protection, use, and development of marine and coastal resources to assure their sustainability.*

Policies:

- (A) *Ensure that the use and development of marine and coastal resources are ecologically and environmentally sound and economically beneficial;*
- (B) *Coordinate the management of marine and coastal resources and activities to improve effectiveness and efficiency;*
- (C) *Assert and articulate the interests of the State as a partner with federal agencies in the sound management of ocean resources within the United States exclusive economic zone;*
- (D) *Promote research, study, and understanding of ocean processes, marine life, and other ocean resources in order to acquire and inventory information necessary to understand how ocean development activities relate to and impact upon ocean and coastal resources; and*
- (E) *Encourage research and development of new, innovative technologies for exploring, using, or protecting marine and coastal resources.*

The proposed Project is not anticipated to have any adverse impacts on marine and coastal resources. Potential water quality impacts to the near shore coastal waters during construction of the Project will be mitigated by adherence to State water quality regulations. A NPDES General Permit for Storm Water Associated with Construction Activity administered by the State DOH will be required to control storm water discharges. Construction of the Project

improvements will also be in compliance with the County's Grubbing Permit. Mitigation measures will be instituted following site-specific assessments, incorporating appropriate structural and/or non-structural BMPs, such as silt fencing and rolled fiber filtration tubing to prevent sediment-laden storm water runoff from flowing makai.

Development of the proposed Project improvements will produce no adverse effects from storm runoff to the adjacent coastal waters and adjacent properties. As discussed in Section 3.18.2 Drainage System of this EA, the projected small increase in storm water runoff from the Project Site will be offset by the large reduction of storm water runoff from the adjacent mauka Kukui'ula development due to the planned detention of runoff from that development. Therefore, the overall rate of storm water runoff into the ocean from the Project Site will be less than pre-development levels. Development of the Project improvements, including the re-vegetation areas, turf grass trail and new gravel parking areas will contribute to permanent erosion control measures in the long-term.

4.4 County of Kauai General Plan

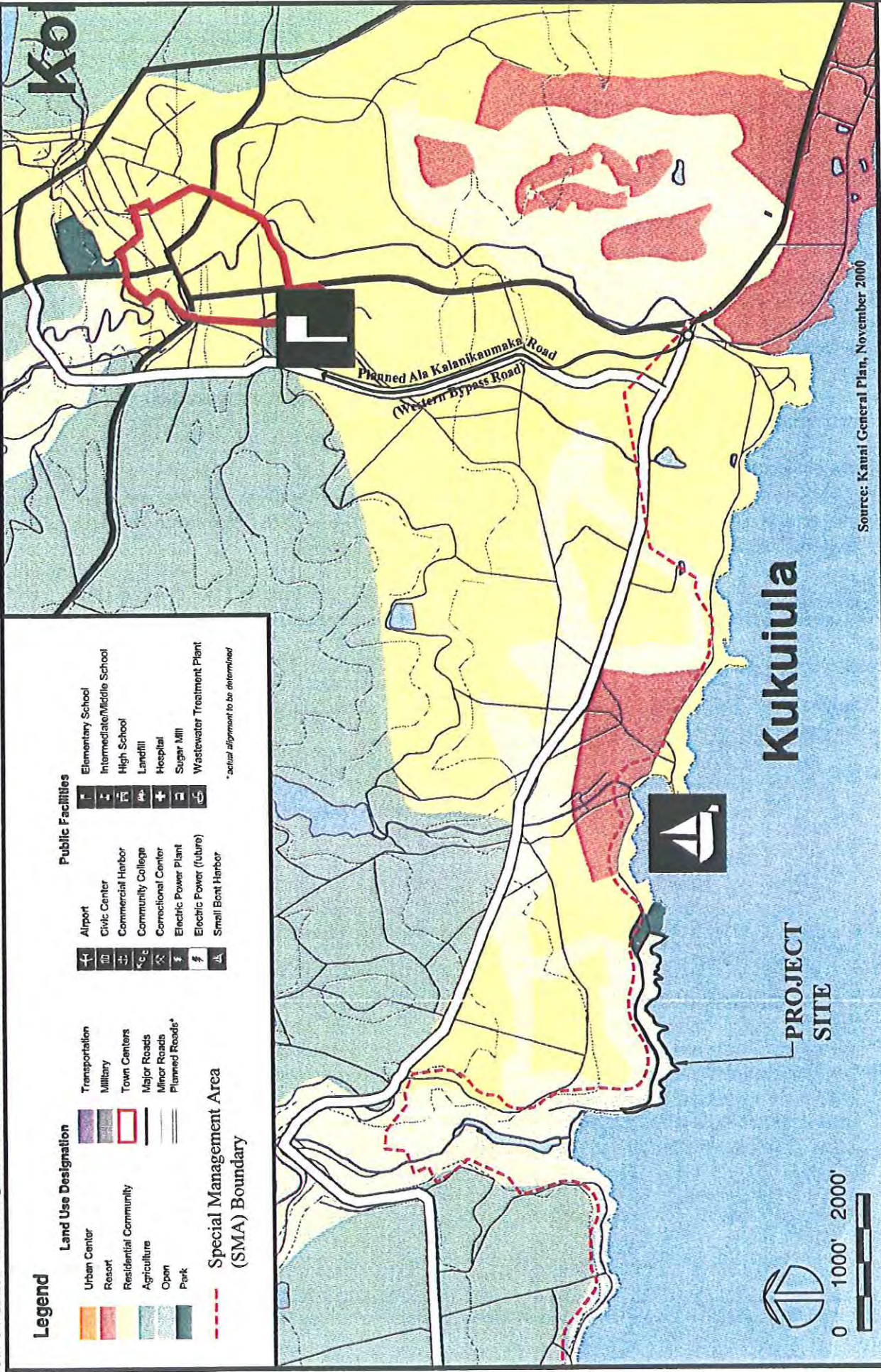
The County General Plan provides broad policy statements to guide land use regulations, new developments and facilities, and planning for County facilities and services. Relevant sections of the General Plan and their consistency with the Project are as follows:

General Plan Land Use Map Designation: The Koloa-Poipu-Kalaheo Planning District Land Use Map of the General Plan designates the Project Site as Open as shown in Figure 4-2.

The General Plan policy for the Open designation is as follows (Section 5.3.1 Policy):

- (a) *The intent of the Open designation is to preserve, maintain or improve the natural characteristics of non-urban land and water areas that:*
 - (1) *are of significant value to the public as scenic or recreation resources;*
 - (2) *perform essential physical and ecological functions important to the welfare of surrounding lands, waters, and biological resources;*
 - (3) *have the potential to create or exacerbate soil erosion or flooding on adjacent lands;*
 - (4) *are potentially susceptible to natural hazards such as flood, hurricane, tsunami, coastal erosion, landslide or subsidence; or*
 - (5) *form a cultural, historic or archaeological resource of significant public value.*

- (b) *Lands designated Open shall include: important landforms such as mountains, coastal bluffs, cinder cones, and stream valleys; native plant and wildlife habitat; areas of predominantly steep slopes (20 percent or greater); beaches and coastal areas susceptible to coastal erosion or hurricane, tsunami, or storm-wave inundation; wetlands and flood plains; important scenic resources; and known natural, historic and archaeological resources. Open shall also include parks, golf courses, and other areas committed to outdoor recreation.*



Source: Kauai General Plan, November 2000

**CONSERVATION DISTRICT
IMPROVEMENTS
KUKU'ULA**
Koloa, Kauai, Hawaii

Kauai General Plan Land Use Map

Figure 4-2

Prepared for:
Kukui'ula Development Company (Hawaii), LLC

Prepared by:
Wilson Okamoto Corporation

Prepared by:
Wilson Okamoto Corporation

- (c) *Lands designated Open shall remain predominantly free of development involving buildings, paving and other construction. With the exception of kuleanas and other small lots of record, any construction that is permitted shall be clearly incidental to the use and open character of the surrounding land.*

The proposed Project is consistent with the Open designation as the passive nature of the improvements is complementary to the open character of the nearby surrounding area and will not include the development of any buildings or structures. The proposed vegetation clearing/removal and re-vegetation improvements within the Project Site will restore and visually enhance the coastal views of the area, and will help to maintain and preserve the scenic public views to and along the shoreline.

General Plan Policies: The proposed Project is consistent with the following applicable policies:

3.3 *Historic and Archaeological Resources*

3.3.2 *Policy*

3.3.2.1 *Historic and Archaeological Sites*

Preserve important archaeological and historic sites and provide: (1) a buffer area between the site and adjacent uses; and (2) public pedestrian access, as appropriate to the site.

The Project improvements will include the preservation of an existing coastal trail complex which consists of a discontinuous historic trail that traverses along the inland edge of the coastal embankment within the central and eastern portions of the Project Site, paralleling the coastline, and the preservation of two (2) existing rock shelter cave sites located along the coastal cliff within the eastern portion of Area One. The two (2) rock shelter sites were listed on the State Register of Historic Places on September 30, 1988 and remain on the State Register. The preservation of these three (3) sites will be in accordance with a Preservation Plan prepared in December 2004 and approved by the SHPD in March 2005 and the KHPRC in December 2004. Long-term preservation of these three (3) sites will be passive preservation in the form of avoidance and conservation. Further discussion of the coastal trail complex and the two (2) rock shelter cave sites and the preservation of these sites is included in Section 3.10 Historic and Archaeological Resources of this EA.

3.4 *Watersheds, Streams and Water Quality*

3.4.2 *Policy*

- (b) *Site Development. Plan, design and develop sites to:*
- (3) *Promote the use of permeable surfaces for driveways and parking and limit increases of impervious areas;*
 - (4) *Limit land disturbance activities such as clearing and grading, and cut and fill to reduce erosion and sediment loss;*

(c) *Construction Site Erosion and Sediment control*

- (1) *Reduce erosion and, to the extent practicable, retain sediment onsite during and after construction.*
- (2) *Prior to land disturbance, prepare and implement an approved erosion and sediment control plan or similar administrative document that contains erosion and sediment control provisions.*

No grading activities will be undertaken in conjunction with the construction of the Project improvements. Minimal ground disturbance will occur to till in soil along the proposed trail alignment to initiate establishment of the turf grass, to install the permanent below-grade irrigation system for the main irrigation line and the turf grass trail, to remove the existing alien (non-native) vegetation and re-vegetate the area, and to install the temporary aboveground irrigation system for the re-vegetated areas.

Potential water quality impacts to the near shore coastal waters during construction of the Project will be mitigated by adherence to State water quality regulations. A NPDES General Permit for Storm Water Associated with Construction Activity administered by the State DOH will be required to control storm water discharges. Construction of the Project improvements will also be in compliance with the County's Grubbing Permit. Mitigation measures will be instituted following site-specific assessments, incorporating appropriate structural and/or non-structural BMPs.

During construction of the turf grass trail, rolled fiber filtration tubing will be installed adjacent to the makai side of the trail alignment along its entire length to prevent sediment-laden storm water runoff from flowing makai. The rolled fiber filtration tubing will remain in place until the turf grass is established within the trail. The hydro-seeding of the trail to establish the turf grass will also help to control erosion.

During clearing and removal of the existing vegetation and re-vegetation activities within the rocky coastal area makai of Lawai Road and the NTBG tram road, silt fencing will be installed along the makai boundary of the re-vegetated areas to prevent sediment-laden storm water runoff from flowing makai. Rolled fiber filtration tubing will also be installed at regular intervals in the area between the turf grass trail and the makai boundary of the re-vegetated areas to prevent sediment-laden storm water runoff from flowing makai. The silt fence and rolled fiber filtration tubing will remain in place until the new vegetation is established.

Since the proposed resurfacing activities of the NTBG tram road will occur over the existing asphalt-paved surface, there is anticipated to be no increase in the impervious surface area or storm water runoff. In resurfacing the tram road, the contractor will be required to brush clean the existing pavement surface and to control dust through water spraying. Following preparation of the existing pavement surface, a tack layer of asphaltic emulsion will be spread over the surface to promote bonding between the existing and new pavement prior to the new pavement being constructed.

The phasing of the implementation of the Project improvements will also minimize the overall amount of exposed surfaces and ground disturbance at a given time, thereby further reducing the amount of storm water runoff that may occur. A gravel pad and wash down area will be placed at the planned construction entrance to the Project Site to prevent tracking of sediment onto Lawai Road and the NTBG tram road.

Development of the proposed Project improvements will produce no adverse effects from storm runoff to the adjacent coastal waters and adjacent properties. As discussed in Section 3.18.2 Drainage System of this EA, the projected small increase in storm water runoff from the Project Site will be offset by the large reduction of storm water runoff from the adjacent mauka Kukui'ula development due to the planned detention of runoff from that development. Therefore, the overall rate of storm water runoff into the ocean from the Project Site will be less than pre-development levels. Development of the Project improvements, including the re-vegetation areas, turf grass trail and new gravel parking areas will contribute to permanent erosion control measures in the long-term.

The proposed method of fertilization of the new vegetation and turf grass trail within the Project Site, which will be applied by directly injecting all natural biofertilizer into the irrigation water and through the irrigation system, will substantially reduce the amount of fertilizer that would otherwise be required by up to 70 to 90 percent, thereby largely eliminating fertilizer runoff. The proposed application of appropriate herbicides to the cut vegetation stumps at a recommended concentration level with a wipe-on or brush-on technique will minimize the drift overspray that would otherwise occur with a spray-on technique. The use of herbicides within the Project Site is anticipated to be minimal since it is proposed for use only until the new vegetation is established and as needed during the long-term maintenance operations. The herbicides to be used will be EPA certified products approved for use in environmentally sensitive areas. The fertilizers and herbicides to be used within the Project Site will be determined in consideration of the sensitive environment and recreational users of the area.

With the use of large equipment during construction and long-term maintenance operations of the Project improvements, the contractors will be required to have available on-site granular absorbent materials to be used for immediate clean-up in the event of accidental fuel or hydraulic spills from such equipment. The contractors will also be required to have available on-site containers for the storage of the spent spill response materials, which will then be required to be properly disposed of at an off-site location.

3.6 *Native Hawaiian Rights*

3.6.1 *Policy*

Under the State Constitution and the County Charter, the County of Kaua'i is empowered to promote the health, safety and welfare of all inhabitants without discrimination as to ethnic origin. As part of carrying out its responsibilities under the Constitution and the Charter, the County recognizes the rights of native Hawaiians and the laws concerning lands and waters that have been established through the State Constitution, State and Federal laws, and State and Federal court decisions. No County ordinance or rule shall modify or diminish these rights:

- *Traditional and customary rights of Native Hawaiians, such as for access and gathering, provided under the State Constitution and Hawai'i Revised Statutes, as interpreted by the courts (i.e., the PASH case).*
- *Preservation of historic properties and archaeological resources provided under the federal Archaeological Resources Protection Act of 1979; the National Historic Preservation Act of 1966; and the Hawai'i Historic Preservation Act.*

The proposed Project will enhance the recreational uses and gathering practices which currently occur within the Project Site by providing public pedestrian access to the shoreline areas west of Spouting Horn Park. The proposed scenic public pedestrian trail along the makai side of the Lawai Road right-of-way will be developed as part of the Kukui'ula development's comprehensive path and trail system which will be open to the general public. A future trail connection mauka of Lawai Road and the western end of the proposed pedestrian trail will be provided to the adjacent Kukui'ula development.

All of the four (4) existing shoreline access points within the Project Site will remain unaffected by the proposed Project improvements as direct access will continue to be provided from the adjacent turf grass pedestrian trail, and the proposed vegetation clearing/removal and re-vegetation improvements will be kept clear of and will not impede the current access trails.

The Project improvements will include the preservation of an existing coastal trail complex which consists of a discontinuous historic trail that traverses along the inland edge of the coastal embankment within the central and eastern portions of the Project Site, paralleling the coastline, and the preservation of two (2) existing rock shelter cave sites located along the coastal cliff within the eastern portion of Area One. The two (2) rock shelter sites were listed on the State Register of Historic Places on September 30, 1988 and remain on the State Register. The preservation of these three (3) sites will be in accordance with a Preservation Plan prepared in December 2004 and approved by the SHPD in March 2005 and the KHPRC in December 2004. Long-term preservation of these three (3) sites will be passive preservation in the form of avoidance and conservation. Further discussion of the coastal trail complex and the two (2) rock shelter cave sites and the preservation of these sites is included in Section 3.10 Historic and Archaeological Resources of this EA.

4.5 Koloa-Poipu-Kalaheo Development Plan

The County's Koloa-Poipu-Kalaheo Development Plan, adopted by County ordinance in 1983, provides physical, social and economic measures which relate specifically to these communities. There is no land use designation for the Project Site in the Koloa-Poipu-Kalaheo Development Plan.

The proposed Project is consistent with the following goals and objectives of the Koloa-Poipu-Kalaheo Development Plan:

- (3) *History and Archaeology.*
 - (A) *Increase the body of knowledge about and the public's understanding of the area's history and archaeology.*
 - (B) *Develop a program for its use and preservation.*

The Project improvements will include the preservation of an existing coastal trail complex which consists of a discontinuous historic trail that traverses along the inland edge of the coastal embankment within the central and eastern portions of the Project Site, paralleling the coastline, and the preservation of two (2) existing rock shelter cave sites located along the coastal cliff within the eastern portion of Area One. The two (2) rock shelter sites were listed on the State Register of Historic Places on September 30, 1988 and remain on the State Register. The preservation of these three (3) sites will be in accordance with a Preservation Plan prepared in December 2004 and approved by the SHPD in March 2005 and the KHPRC in December 2004. Long-term preservation of these three (3) sites will be passive preservation in the form of avoidance and conservation. Further discussion of the coastal trail complex and the two (2) rock shelter cave sites and the preservation of these sites is included in Section 3.10 Historic and Archaeological Resources of this EA.

- (5) *Flooding, Tsunami, Coastal Waters, Beaches.*
 - (A) *Improve drainage to alleviate flood hazards.*
 - (B) *Encourage uses and a development pattern and/or controls which enhance and protect coastal waters and beaches, and encourage construction of structures which do not promote flood and tsunami dangers.*

According to the FIRM prepared by FEMA, the majority of the Project Site mauka of the inland edge of the coastal embankment is located within Zone "X", "Areas determined to be outside the 0.2% annual chance floodplain". A sliver of land adjacent to and makai of this area is designated Zone "X", "Areas of 0.2% annual chance flood; areas of 1% annual chance flood with average depths of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees from 1% annual chance flood." An area within the easternmost portion of the Project Site, makai of the Zone "X" flood zone, is designated Zone "AE", "Special flood hazard areas subject to inundation by the 1% annual chance flood with base flood elevations determined". The base flood elevation for the "AE" zone within this portion of the Project Site is 13 feet above msl. The makai-most portions of the Project Site which are mostly located makai of the coastal embankment are designated Zone "VE", "Special flood hazard areas subject to inundation by the 1% annual chance flood; coastal flood zone with velocity hazard (wave action); with base flood elevations determined". The base flood elevations for the "VE" zone within this portion of the Project Site are between 12 and 13 feet above msl.

Construction and operation of the proposed Project are not anticipated to result in flooding of the Project Site or lower elevation properties. All proposed Project improvements, except for various areas where selective vegetation removal will occur, are located outside and mauka of the designated flood zones. The proposed selective vegetation removal activities within the designated flood zones will be undertaken in full compliance with the flood plain management requirements of the County. The proposed selective removal of existing large non-native species within the designated Flood Zone "X", which encompasses a small portion of the selective vegetation removal area, will not pose a threat to soil stability. For the removal of these larger vegetation species, hand tools or chainsaws will be used to cut the vegetation to the stump and methods such as

wipe-on or brush-on herbicide will be used on the vegetation stumps. No structures will be built within the Project Site as part of the proposed improvements.

(8) *Recreation.*

- (C) *Develop a plan for public access to coastal and mauka areas where private properties block such access.*

The proposed Project will enhance the recreational use of the Project area by providing public pedestrian access to the shoreline areas west of Spouting Horn Park. The proposed scenic public pedestrian trail along the makai side of the Lawai Road right-of-way will be developed as part of the Kukui'ula development's comprehensive path and trail system which will be open to the general public. A future trail connection mauka of Lawai Road and the western end of the proposed pedestrian trail will be provided to the adjacent Kukui'ula development.

All of the four (4) existing shoreline access points within the Project Site will remain unaffected by the proposed Project improvements as direct access will continue to be provided from the adjacent turf grass pedestrian trail, and the proposed vegetation clearing/removal and re-vegetation improvements will be kept clear of and will not impede the current access trails.

The Project improvements will include the preservation of the existing historic coastal trail complex that traverses along the inland edge of the coastal embankment within the central and eastern portions of the Project Site.

- (9) *Visual Resources. Determine visual resource priorities and plan for their preservation and/or development.*

The proposed vegetation clearing/removal and re-vegetation improvements within the Project Site will restore and visually enhance the coastal views of the area. With the proposed vegetation clearing and re-vegetation activities, the currently overgrown, alien (non-native) vegetation makai of Lawai Road and the NTBG tram road will be replaced with native, endemic and indigenous species common to the area or Polynesian-introduced which will improve and complement the scenic and natural environment of the area. The proposed re-vegetation of the coastal lands within the Project Site with trees and low-growing native shrubs and groundcover plantings will help to maintain and preserve the scenic public views to and along the coastline. The scenic environment will be further enhanced with the visual greenbelt to be provided by the proposed turf grass pedestrian trail along the makai side of the Lawai Road right-of-way.

4.6 County Comprehensive Zoning Ordinance

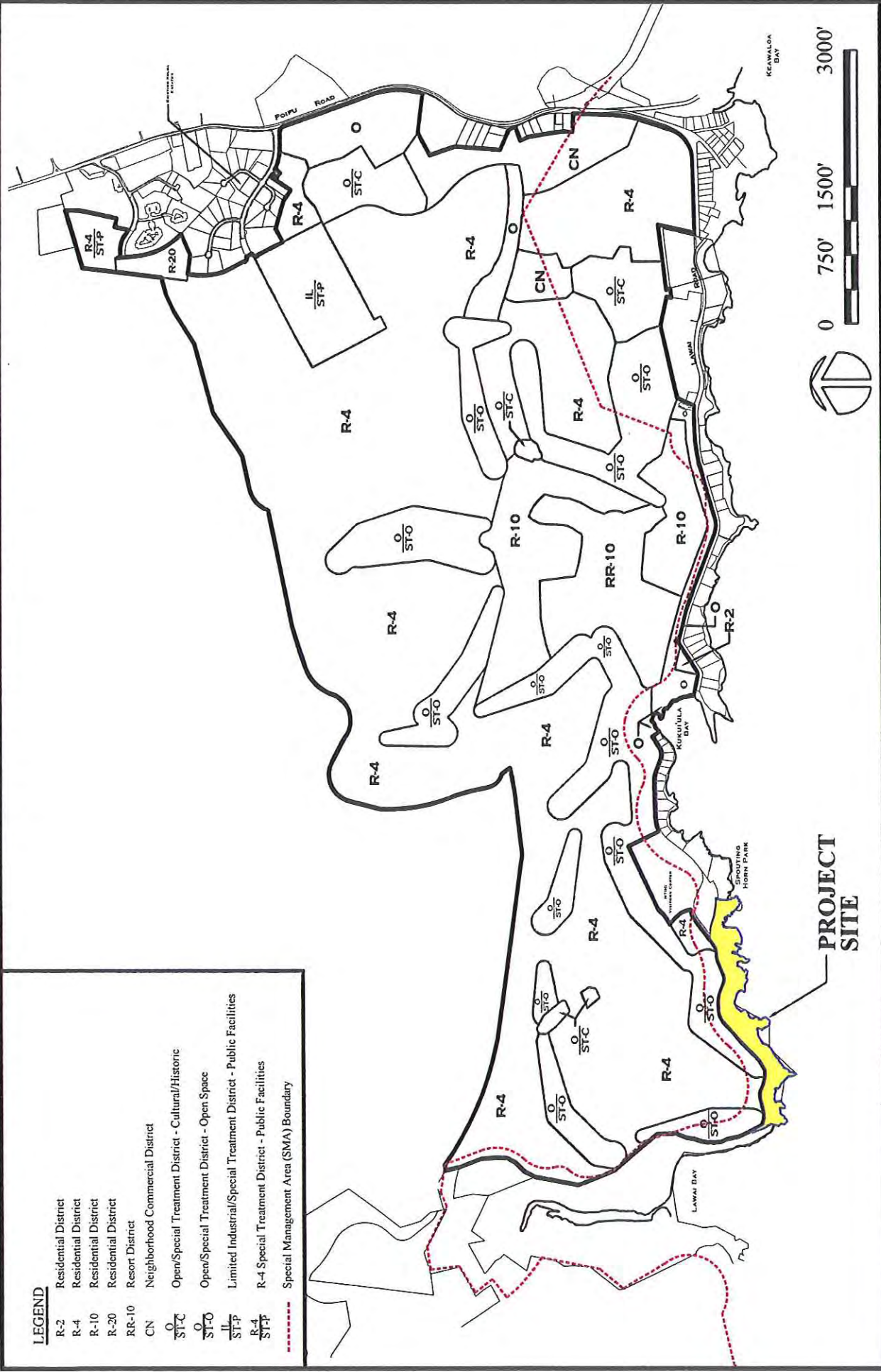
The County's Comprehensive Zoning Ordinance ("CZO") sets forth standards for land development and construction of buildings and other structures in the County. The CZO establishes land use districts and delineates the respective types of permitted uses and the development that can take place in those districts.

Since the Project Site is located within the State Conservation District, there is no County zoning designation for the site. The Project Site is subject to the land use development standards of the

State DLNR Administrative Rules, Title 13, Chapter 5, Conservation District. The existing County zoning designations of the areas adjacent to the Project Site are shown in Figure 4-3.

4.7 County Special Management Area

The Project Site is located within the SMA boundary established pursuant to the Hawaii Coastal Zone Management Law, Chapter 205A, HRS as shown in Figure 4-3. A SMA Use Permit was approved by the County Planning Commission on March 11, 2008 for the proposed improvements.



CONSERVATION DISTRICT IMPROVEMENTS

KUKU'ULA

Koloa, Kauai, Hawaii

Existing County Zoning and Special Management Area Map

Figure 4-3

Prepared for:
 Kuku'ula Development Company (Hawaii), LLC

Prepared by:
 Wilson Okamoto Corporation

5. ALTERNATIVES TO THE PROPOSED ACTION

5.1 No Action Alternative

The No Action Alternative is not a viable alternative since the need for the proposed Project improvements is intended to fulfill Condition No. 15. f) of Zoning Ordinance No. PM-2004-370 for the planned resort-residential Kukui'ula development located adjacent to and mauka of the Project Site which requires that the Applicant provide public pedestrian access to the shoreline areas west of Spouting Horn Park owned by the Applicant.

Also, in accordance with Condition No. 15. c) of Zoning Ordinance No. PM-2004-370, the Applicant is required to provide a comprehensive pedestrian and biking trail system throughout the Kukui'ula development that will be open to the general public. In accordance with this Condition, the Applicant has developed a Conceptual Path and Trail Plan consisting of a network of pedestrian and biking trail systems within the Kukui'ula development as shown in Figure 2-1. The proposed public pedestrian trail within the Project Site will be developed as part of the Kukui'ula development's comprehensive path and trail system which will be open to the general public. The Applicant will be dedicating easements to the County for all of the pedestrian and biking trails within the Kukui'ula development, including the proposed public pedestrian trail within the Project Site, in accordance with Condition No. 15. c) of Zoning Ordinance No. PM-2004-370.

The No Action Alternative would preclude all short- and long-term beneficial and adverse physical, environmental and socio-economic impacts described in this EA.

5.2 Alternative Location for the Public Pedestrian Trail

The public pedestrian trail within the Project Site was previously proposed to be located further makai of Lawai Road, within the rocky coastline area. The trail was proposed to be a 3- to 4-foot wide coastal trail to be constructed of crushed basalt located mauka of the existing historic coastal trail complex within the Project Site. The public pedestrian trail was proposed to extend a distance of approximately 2,300 lineal feet from the northeastern end of the Project Site at Lawai Road near Spouting Horn Park to the western portion of the site. A total of three (3) overlook areas constructed of lava rock pavers were proposed to be located along the public pedestrian trail. Due to the rocky conditions of the coastline, cut and fill activities and the construction of shallow retaining walls would have been required to provide for a level trail and overlook areas. Due to the potential construction-related coastal impacts associated with these improvements, this public pedestrian trail proposal was precluded.

The use of the existing historic coastal trail (Site 50-30-10-990) located along the inland edge of the coastal embankment within the makai portion of the Project Site for the proposed public pedestrian trail was precluded since long-term passive preservation of the coastal trail is planned in the form of avoidance and conservation. As discussed in Section 3.10 Historic and Archaeological Resources of this EA, the trail complex is historic in age, but likely follows a pre-historic trail corridor. The discontinuous trail consists of a dirt path in places, with other sections constructed of stone. A preservation plan for the coastal trail complex, along with two (2) rock shelter cave sites, was approved by the SHPD by letter dated March 1, 2005 and by the County's KHPRC by memorandum dated December 4, 2004.

6. REQUIRED PERMITS AND APPROVALS

The following is a list of permits and approvals which may be required prior to construction of the proposed Project:

State of Hawaii

Department of Health

- National Pollutant Discharge Elimination System ("NPDES") Permit

Department of Land and Natural Resources Office of Conservation and Coastal Lands

- Conservation District Use Permit

Department of Land and Natural Resources Historic Preservation Division

- Chapter 6E, HRS Historic Preservation

County of Kauai

Planning Department

- Special Management Area Use Permit
(Approved by the County Planning Commission on March 11, 2008)

Department of Public Works

- Road Permit
- Grubbing Permit

7. NOTICE OF DETERMINATION

A. Applicant

Kukui'ula Development Company (Hawaii), LLC
P.O. Box 280
Koloa, Kauai, Hawaii 96756

Contact: Mr. Roby Snow
Telephone: (808) 742-6264
Facsimile: (808) 742-5245

B. Approving Agency

State Department of Land and Natural Resources ("DLNR") Office of Conservation and Coastal Lands ("OCCL")

C. Description of Proposed Action

The Applicant proposes to undertake passive improvements within an approximately 10.0-acre area located adjacent to and west of Spouting Horn Park in Koloa, Island of Kauai. The proposed improvements are intended to fulfill Condition No. 15. f) of Zoning Ordinance No. PM-2004-370 for the adjacent Kukui'ula development which requires that the Applicant provide public pedestrian access to the shoreline areas west of Spouting Horn Park owned by the Applicant. The proposed Project improvements include development of an approximately 1,700 linear-foot turf grass public pedestrian trail along the makai side of the Lawai Road right-of-way; development of new gravel parking areas within the makai shoulder of the Lawai Road right-of-way; the clearing and removal of existing alien (non-native) vegetation within an area along the rocky coastal land adjacent to and makai of the Lawai Road right-of-way and the NTBG tram road and re-vegetation with native, endemic and indigenous species common to the area or Polynesian-introduced; selective removal of existing large alien (non-native) invasive tree species in the area adjacent to and makai of the re-vegetation area and along the mauka side of the NTBG tram road; maintenance of the existing vegetation within the mauka side of the Lawai Road right-of-way and the NTBG tram road; and resurfacing of an approximately 700 linear-foot segment of the existing 12-foot wide asphalt-paved NTBG tram road. Development of an approximately 16,000 square-foot test area within the western portion of the Project Site will occur prior to implementation of the Project improvements to implement and test the proposed vegetation removal and re-vegetation methods.

D. Determination and Reasons Supporting Determination

The Kukui'ula Conservation District Improvements Draft EA was filed with the State Office of Environmental Quality Control ("OEQC") and published in the February 23, 2008 publication of The Environmental Notice. A total of nine (9) comment letters were received during the 30-day public review period which ended on March 24, 2008. Based on the significance criteria set forth in Section 11-200-12 of Title 11, Chapter 200, Administrative Rules, State Department of Health, the State Department of Land and Natural Resources Office of Conservation and Coastal Lands has determined that the proposed Project will not have a significant effect on the

environment, and that a Finding of No Significant Impact ("FONSI") will be filed with the State OEQC.

The findings supporting this determination are discussed below:

1) Involves an irrevocable commitment to loss or destruction of any natural or cultural resource;

The proposed Project will not involve the loss or destruction of any natural or cultural resources. The Project improvements will include the preservation of an existing coastal trail complex which consists of a discontinuous historic trail that traverses along the inland edge of the coastal embankment within the central and eastern portions of the Project Site, paralleling the coastline, and the preservation of two (2) existing rock shelter cave sites located along the coastal cliff within the eastern portion of Area One. The two (2) rock shelter sites were listed on the State Register of Historic Places on September 30, 1988 and remain on the State Register. The preservation of these three (3) sites will be in accordance with a Preservation Plan prepared in December 2004 and approved by the SHPD in March 2005 and the KHPRC in December 2004. Long-term preservation of these three (3) sites will be passive preservation in the form of avoidance and conservation. Further discussion of the coastal trail complex and the two (2) rock shelter cave sites and the preservation of these sites is included in Section 3.10 Historic and Archaeological Resources of this EA.

No botanical species of special interest, or species listed as threatened or endangered were recorded within the Project Site. No existing native plants will be removed within the Project Site as part of the proposed improvements. Removal of the existing alien (non-native) vegetation and re-vegetation with native, endemic and indigenous species common to the area or Polynesian-introduced is anticipated to have a beneficial impact on encouraging the proliferation of native plants presently limited in distribution within and adjacent to the Project Site.

The proposed vegetation clearing/removal and re-vegetation improvements within the Project Site will restore and visually enhance the coastal views of the area. With the proposed vegetation clearing and re-vegetation activities, the currently overgrown, alien (non-native) vegetation makai of Lawai Road and the NTBGM tram road will be replaced with native, endemic and indigenous species common to the area or Polynesian-introduced which will improve and complement the scenic and natural environment of the area. The proposed re-vegetation of the coastal lands with trees and low-growing native shrubs and groundcover plantings will help to maintain and preserve the scenic public views to and along the coastline.

Removal of the existing non-native vegetation and re-vegetation with native species appropriate to the area is anticipated to have a beneficial impact and will enhance with gathering practices which currently occur within the Project Site by encouraging and enhancing the proliferation of native plants presently limited in distribution within and adjacent to the site.

The clearing of alien vegetation along the makai side of the Lawai Road right-of-way and the NTBGM tram road is not anticipated to have a negative impact on any avian or mammalian species currently protected, or proposed for protection under the Federal Endangered Species Act of 1973, as amended, or under the State of Hawaii endangered species program. Since artificial lighting, including street lights, will not be provided in conjunction with the proposed

Project, there will be no associated impacts on wildlife in the area. The removal of the invasive alien plant species that may currently be covering most of the Wedge-tailed Shearwater colony within the Project Site will greatly enhance the usability of the area for seabird nesting. Removal of the existing cactus, large ironwood trees and dense Guinea grass will also help to facilitate the Wedge-tailed Shearwaters to come and go from their nesting colonies with greater ease and safety.

2) Curtails the range of beneficial uses of the environment;

The intention of the proposed Project is to commit the Project Site to the proposed use over the long-term. Beneficial uses of the Project Site and environment would not be curtailed since the Project is an appropriate use for the site in terms of planning and State and County land use designations.

3) Conflicts with the State's long-term environmental policies or goals and guidelines as expressed in Chapter 344 HRS, and any revisions thereof and amendments thereto, court decisions, or executive orders;

The proposed Project is consistent with the State's applicable long-term environmental policies and goals set forth in Chapter 344, HRS. The proposed Project will enhance the recreational use of the Project area by providing public pedestrian access to the shoreline areas west of Spouting Horn Park. Removal of the existing alien (non-native) vegetation and re-vegetation with native, endemic and indigenous species common to the area or Polynesian-introduced is anticipated to have a beneficial impact on encouraging the proliferation of native plants presently limited in distribution within and adjacent to the Project Site. The proposed vegetation clearing/removal and re-vegetation improvements within the Project Site will also restore and visually enhance the coastal views of the area.

The Project improvements will include the preservation of an existing coastal trail complex which consists of a discontinuous historic trail that traverses along the inland edge of the coastal embankment within the central and eastern portions of the Project Site, paralleling the coastline, and the preservation of two (2) existing rock shelter cave sites located along the coastal cliff within the eastern portion of Area One. The two (2) rock shelter sites were listed on the State Register of Historic Places on September 30, 1988 and remain on the State Register. The preservation of these three (3) sites will be in accordance with a Preservation Plan prepared in December 2004 and approved by the SHPD in March 2005 and the KHPRC in December 2004. Long-term preservation of these three (3) sites will be passive preservation in the form of avoidance and conservation. Further discussion of the coastal trail complex and the two (2) rock shelter cave sites and the preservation of these sites is included in Section 3.10 Historic and Archaeological Resources of this EA.

Development of the proposed Project improvements will produce no adverse effects from storm runoff to the adjacent coastal waters and adjacent properties. As discussed in Section 3.18.2 Drainage System of this EA, the projected small increase in storm water runoff from the Project Site will be offset by the large reduction of storm water runoff from the adjacent mauka Kukui'ula development due to the planned detention of runoff from that development. Therefore, the overall rate of storm water runoff into the ocean from the Project Site will be less than pre-development levels. Development of the Project improvements, including the re-vegetation

areas, turf grass trail and new gravel parking areas will contribute to permanent erosion control measures in the long-term.

During initial clearing and removal of the existing alien (non-native) vegetation within the Project Site, the vegetation will be transported to a green waste site within the adjacent Kukui'ula property for composting. During the long-term maintenance operations of the Project improvements, the green waste material accumulated from the vegetated areas will be transported to an off-site location for composting.

4) Substantially affects the economic or social welfare of the community or State;

In the short-term, the Project will confer positive benefits in the local area. Direct economic benefits will result from construction expenditures both through the purchase of material from local suppliers and through the employment of local labor, thereby stimulating that sector of the economy. Indirect economic benefits may include benefits to local retailing businesses resulting from construction activities.

In the long-term, the proposed Project improvements will provide public pedestrian access to the shoreline areas west of Spouting Horn Park and restore and visually enhance the coastal views of the area.

5) Substantially affects public health;

The proposed Project is not anticipated to adversely affect public health. Construction activities associated with the Project are anticipated to result in short-term impacts to noise and air quality in the immediate vicinity of which measures in accordance with the State DOH Administrative Rules, Title 11, Chapter 46, "Community Noise Control", and Title 11, Chapter 60, "Air Pollution Control" will be implemented to mitigate these impacts. In the long-term, no significant air quality or noise impacts are anticipated from the operation of the proposed Project due to the passive nature of the improvements.

The proposed method of fertilization of the new vegetation and turf grass trail within the Project Site, which will be applied by directly injecting all natural biofertilizer into the irrigation water and through the irrigation system, will substantially reduce the amount of fertilizer that would otherwise be required by up to 70 to 90 percent, thereby largely eliminating fertilizer runoff. The proposed application of appropriate herbicides to the cut vegetation stumps at a recommended concentration level with a wipe-on or brush-on technique will minimize the drift overspray that would otherwise occur with a spray-on technique. The use of herbicides within the Project Site is anticipated to be minimal since it is proposed for use only until the new vegetation is established and as needed during the long-term maintenance operations. The herbicides to be used will be EPA certified products approved for use in environmentally sensitive areas. The fertilizers and herbicides to be used within the Project Site will be determined in consideration of the sensitive environment and recreational users of the area.

With the use of large equipment during construction and long-term maintenance operations of the Project improvements, the contractors will be required to have available on-site granular absorbent materials to be used for immediate clean-up in the event of accidental fuel or hydraulic spills from such equipment. The contractors will also be required to have available on-

site containers for the storage of the spent spill response materials, which will then be required to be properly disposed of at an off-site location.

6) Involves substantial secondary impacts, such as population changes or effects on public facilities;

The proposed Project is not anticipated to induce increased population growth or result in adverse effects on public facilities due to the passive nature of the improvements. The need for the proposed improvements is intended to fulfill Condition No. 15.f.) of Zoning Ordinance No. PM-2004-370 for the planned adjacent Kukui'ula development which requires that the Applicant provide public pedestrian access to the shoreline areas west of Spouting Horn Park owned by the Applicant. The proposed Project improvements will provide public pedestrian access to the shoreline areas west of Spouting Horn Park and restore and visually enhance the coastal views of the area.

7) Involves a substantial degradation of environmental quality;

The proposed Project is not anticipated to involve a substantial degradation of environmental quality. Construction activities associated with the Project are anticipated to result in short-term impacts to noise and air quality in the immediate vicinity of which measures will be implemented to mitigate these impacts.

In the long-term, no significant air quality or noise impacts are anticipated from the operation of the proposed Project due to the passive nature of the improvements.

The proposed Project is not anticipated to have any adverse impacts on marine and coastal resources. Potential water quality impacts to the near shore coastal waters during construction of the Project will be mitigated by adherence to State water quality regulations. A NPDES General Permit for Storm Water Associated with Construction Activity administered by the State DOH will be required to control storm water discharges. Construction of the Project improvements will also be in compliance with the County's Grubbing Permit. Mitigation measures will be instituted following site-specific assessments, incorporating appropriate structural and/or non-structural BMPs, such as silt fencing and rolled fiber filtration tubing to prevent sediment-laden storm water runoff from flowing makai.

Development of the proposed Project improvements will produce no adverse effects from storm runoff to the adjacent coastal waters and adjacent properties. As discussed in Section 3.18.2 Drainage System of this EA, the projected small increase in storm water runoff from the Project Site will be offset by the large reduction of storm water runoff from the adjacent mauka Kukui'ula development due to the planned detention of runoff from that development. Therefore, the overall rate of storm water runoff into the ocean from the Project Site will be less than pre-development levels. Development of the Project improvements, including the re-vegetation areas, turf grass trail and new gravel parking areas will contribute to permanent erosion control measures in the long-term.

8) *Is individually limited but cumulatively has a considerable effect upon the environment or involves a commitment for larger actions;*

The Project itself is not anticipated to have a significant adverse cumulative effect on the environment, nor will it involve a commitment for larger actions. The Project is being developed in conjunction with the larger adjacent Kukui'ula development which, given its resort and second home nature, is not anticipated to have a considerable cumulative effect upon the environment. The proposed Project improvements are intended to fulfill Condition No. 15. f) of Zoning Ordinance No. PM-2004-370 for the Kukui'ula development which requires that the Applicant provide public pedestrian access to the shoreline areas west of Spouting Horn Park owned by the Applicant.

9) *Substantially affects a rare, threatened or endangered species, or its habitat;*

No significant impacts on flora are anticipated from the construction and operation of the proposed Project. No species of special interest, or species listed as threatened or endangered were recorded during the botanical survey. Removal of the existing alien (non-native) vegetation within the Project Site will not have an adverse impact on native and indigenous botanical resources within the site. Removal of the existing alien (non-native) vegetation and re-vegetation with native, endemic and indigenous species common to the area or Polynesian-introduced is anticipated to have a beneficial impact on encouraging the proliferation of native plants presently limited in distribution within and adjacent to the Project Site.

No significant impacts on fauna within the Project Site are anticipated from the construction and operation of the proposed Project. The clearing of alien vegetation along the makai side of the Lawai Road right-of-way and the NTBG tram road is not anticipated to have a negative impact on any avian or mammalian species currently protected, or proposed for protection under the Federal Endangered Species Act of 1973, as amended, or under the State of Hawaii endangered species program. Since artificial lighting, including street lights, will not be provided in conjunction with the proposed Project, there will be no associated impacts on wildlife in the area.

The clearing of alien vegetation along the makai side of the Lawai Road right-of-way and the NTBG tram road has the potential to adversely impact the Wedge-tailed Shearwater colony that may be located within the Project Site if care is not taken to limit on-ground disturbance to the months when the birds are not present in their colony. Conversely, the removal of the invasive alien plant species that may currently be covering most of the Wedge-tailed Shearwater colony will greatly enhance the usability of the area for seabird nesting. Removal of the existing cactus, large ironwood trees and dense Guinea grass will also help to facilitate the Wedge-tailed Shearwaters to come and go from their nesting colonies with greater ease and safety.

To ensure that the proposed vegetation clearing within the Project Site does not result in adverse impacts to the resident Wedge-tailed Shearwaters and their nesting colony, the following measures will be implemented:

- The removal of existing vegetation and re-vegetation along the makai side of Lawai Road and the NTBG tram road and the mowing and maintaining of the existing vegetation along the rock wall on the mauka side of Lawai Road will be undertaken

so as to not disturb subsurface features such as burrows. The proposed vegetation removal and re-vegetation activities will not be undertaken during the Wedge-tailed Shearwaters breeding season.

- Prior to initiating the removal of the existing vegetation and prior to re-vegetation activities, a qualified biologist will be retained by the Applicant to survey the Project Site to ascertain the location and number of Wedge-tailed Shearwater burrows that may be present. These activities will not be initiated until after the Wedge-tailed Shearwaters have fledged in late November. This survey will be undertaken in consultation with the Kauai District office of the State DLNR Division of Forestry and Wildlife.
- Following the on-ground survey by the qualified biologist, the Applicant will coordinate with the U.S. Fish and Wildlife Service and the State DLNR Division of Forestry and Wildlife to develop a Wedge-tailed Shearwater colony management plan which will include methods for maintaining and improving the Wedge-tailed Shearwater nesting habitat that may be present within the Project Site and for future management activities related to the Project improvements.
- All personnel associated with the construction and operations/maintenance of the Project improvements will be required to participate in a seabird awareness training program.
- A seabird rescue protocol with on-site rescue supplies will be established for the construction and operations/maintenance phases of the Project. This will include the use of a pet carrier to be maintained at the Kukui'ula project site to temporarily contain any downed seabird which may be recovered in the general project area. The State DLNR Division of Forestry and Wildlife and/or Save our Shearwaters organization will be contacted immediately upon the recovery of any downed seabird for proper action.
- Night time construction activities will not be undertaken in conjunction with the development of the proposed Project improvements.

The Project Site is not located within any of the Critical Habitat Units designated for the endemic, endangered Kauai cave wolf spider and Kauai cave amphipod by the USFWS final rule published April 9, 2003.

10) Detrimentially affects air or water quality or ambient noise levels;

Construction activities associated with the proposed Project will create some adverse short-term impacts such as temporary unavoidable noise and air quality impacts in the vicinity of the Project Site. Unavoidable construction noise impacts will be mitigated by complying with the provisions of the State DOH Administrative Rules, Title 11, Chapter 46, Community Noise Control. Potential air quality impacts during construction of the proposed Project will be mitigated by complying with the State DOH Administrative Rules, Title 11, Chapter 60, Air Pollution Control.

In the long-term, no significant air quality or noise impacts are anticipated from the operation of the proposed Project due to the passive nature of the improvements.

No grading activities will be undertaken in conjunction with the construction of the Project improvements. Minimal ground disturbance will occur to till in soil along the proposed trail alignment to initiate establishment of the turf grass, to install the permanent below-grade irrigation system for the main irrigation line and the turf grass trail, to remove the existing alien (non-native) vegetation and re-vegetate the area, and to install the temporary aboveground irrigation system for the re-vegetated areas.

Potential water quality impacts to the near shore coastal waters during construction of the Project will be mitigated by adherence to State water quality regulations. A NPDES General Permit for Storm Water Associated with Construction Activity administered by the State DOH will be required to control storm water discharges. Construction of the Project improvements will also be in compliance with the County's Grubbing Permit. Mitigation measures will be instituted following site-specific assessments, incorporating appropriate structural and/or non-structural BMPs, such as silt fencing and rolled fiber filtration tubing to prevent sediment-laden storm water runoff from flowing makai.

Development of the proposed Project improvements will produce no adverse effects from storm runoff to the adjacent coastal waters and adjacent properties. As discussed in Section 3.18.2 Drainage System of this EA, the projected small increase in storm water runoff from the Project Site will be offset by the large reduction of storm water runoff from the adjacent mauka Kukui'ula development due to the planned detention of runoff from that development. Therefore, the overall rate of storm water runoff into the ocean from the Project Site will be less than pre-development levels. Development of the Project improvements, including the re-vegetation areas, turf grass trail and new gravel parking areas will contribute to permanent erosion control measures in the long-term.

The proposed method of fertilization of the new vegetation and turf grass trail within the Project Site, which will be applied by directly injecting all natural biofertilizer into the irrigation water and through the irrigation system, will substantially reduce the amount of fertilizer that would otherwise be required by up to 70 to 90 percent, thereby largely eliminating fertilizer runoff. The proposed application of appropriate herbicides to the cut vegetation stumps at a recommended concentration level with a wipe-on or brush-on technique will minimize the drift overspray that would otherwise occur with a spray-on technique. The use of herbicides within the Project Site is anticipated to be minimal since it is proposed for use only until the new vegetation is established and as needed during the long-term maintenance operations. The herbicides to be used will be EPA certified products approved for use in environmentally sensitive areas. The fertilizers and herbicides to be used within the Project Site will be determined in consideration of the sensitive environment and recreational users of the area.

With the use of large equipment during construction and long-term maintenance operations of the Project improvements, the contractors will be required to have available on-site granular absorbent materials to be used for immediate clean-up in the event of accidental fuel or hydraulic spills from such equipment. The contractors will also be required to have available on-site containers for the storage of the spent spill response materials, which will then be required to be properly disposed of at an off-site location.

11) *Affects or is likely to suffer damage by being located in an environmentally sensitive area such as a flood plain, tsunami zone, beach, erosion-prone area, geologically hazardous land, estuary, fresh water, or coastal waters;*

According to the FIRM prepared by FEMA, the majority of the Project Site mauka of the inland edge of the coastal embankment is located within Zone "X", "Areas determined to be outside the 0.2% annual chance floodplain". A sliver of land adjacent to and makai of this area is designated Zone "X", "Areas of 0.2% annual chance flood; areas of 1% annual chance flood with average depths of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees from 1% annual chance flood." An area within the easternmost portion of the Project Site, makai of the Zone "X" flood zone, is designated Zone "AE", "Special flood hazard areas subject to inundation by the 1% annual chance flood with base flood elevations determined". The base flood elevation for the "AE" zone within this portion of the Project Site is 13 feet above msl. The makai-most portions of the Project Site which are mostly located makai of the coastal embankment are designated Zone "VE", "Special flood hazard areas subject to inundation by the 1% annual chance flood; coastal flood zone with velocity hazard (wave action); with base flood elevations determined". The base flood elevations for the "VE" zone within this portion of the Project Site are between 12 and 13 feet above msl.

Construction and operation of the proposed Project are not anticipated to result in flooding of the Project Site or lower elevation properties. All proposed Project improvements, except for various areas where selective vegetation removal will occur, are located outside and mauka of the designated flood zones. The proposed selective vegetation removal activities within the designated flood zones will be undertaken in full compliance with the flood plain management requirements of the County. The proposed selective removal of existing large non-native species within the designated Flood Zone "X", which encompasses a small portion of the selective vegetation removal area, will not pose a threat to soil stability. For the removal of these larger vegetation species, hand tools or chainsaws will be used to cut the vegetation to the stump and methods such as wipe-on or brush-on herbicide will be used on the vegetation stumps. No structures will be built within the Project Site as part of the proposed improvements.

Potential water quality impacts to the near shore coastal waters during construction of the Project will be mitigated by adherence to State water quality regulations. A NPDES General Permit for Storm Water Associated with Construction Activity administered by the State DOH will be required to control storm water discharges. Construction of the Project improvements will also be in compliance with the County's Grubbing Permit. Mitigation measures will be instituted following site-specific assessments, incorporating appropriate structural and/or non-structural BMPs, such as silt fencing and rolled fiber filtration tubing to prevent sediment-laden storm water runoff from flowing makai.

Development of the proposed Project improvements will produce no adverse effects from storm runoff to the adjacent coastal waters and adjacent properties. As discussed in Section 3.18.2 Drainage System of this EA, the projected small increase in storm water runoff from the Project Site will be offset by the large reduction of storm water runoff from the adjacent mauka Kukui'ula development due to the planned detention of runoff from that development. Therefore, the overall rate of storm water runoff into the ocean from the Project Site will be less than pre-development levels. Development of the Project improvements, including the re-vegetation

areas, turf grass trail and new gravel parking areas will contribute to permanent erosion control measures in the long-term.

The proposed method of fertilization of the new vegetation and turf grass trail within the Project Site, which will be applied by directly injecting all natural biofertilizer into the irrigation water and through the irrigation system, will substantially reduce the amount of fertilizer that would otherwise be required by up to 70 to 90 percent, thereby largely eliminating fertilizer runoff. The proposed application of appropriate herbicides to the cut vegetation stumps at a recommended concentration level with a wipe-on or brush-on technique will minimize the drift overspray that would otherwise occur with a spray-on technique. The use of herbicides within the Project Site is anticipated to be minimal since it is proposed for use only until the new vegetation is established and as needed during the long-term maintenance operations. The herbicides to be used will be EPA certified products approved for use in environmentally sensitive areas. The fertilizers and herbicides to be used within the Project Site will be determined in consideration of the sensitive environment and recreational users of the area.

With the use of large equipment during construction and long-term maintenance operations of the Project improvements, the contractors will be required to have available on-site granular absorbent materials to be used for immediate clean-up in the event of accidental fuel or hydraulic spills from such equipment. The contractors will also be required to have available on-site containers for the storage of the spent spill response materials, which will then be required to be properly disposed of at an off-site location.

12) Substantially affects scenic vistas and viewplanes identified in county or state plans or studies;

There are no scenic vistas or view planes identified by any County or State plans or studies relative to the Project Site. The proposed vegetation clearing/removal and re-vegetation improvements within the Project Site will restore and visually enhance the coastal views of the area. With the proposed vegetation clearing and re-vegetation activities, the currently overgrown, alien (non-native) vegetation makai of Lawai Road and the NTBG tram road will be replaced with native, endemic and indigenous species common to the area or Polynesian-introduced which will improve and complement the scenic and natural environment of the area. The proposed re-vegetation of the coastal lands within the Project Site with trees and low-growing native shrubs and groundcover plantings will help to maintain and preserve the scenic public views to and along the coastline. The scenic environment will be further enhanced with the visual greenbelt to be provided by the proposed turf grass pedestrian trail along the makai side of the Lawai Road right-of-way.

13) Requires substantial energy consumption;

Operation of the proposed Project will not result in an increase in energy consumption demand due to the passive nature of the improvements.

8. REFERENCES

1. County of Kauai, Planning Department. *Kauai General Plan*. November 2000
2. County of Kauai. *Koloa-Poipu-Kalaheo Development Plan*. 1983.
3. Department of Land and Natural Resources (DLNR), Commission on Water Resource Management. *Ground Water Hydrologic Unit Map – Island of Kauai*. 2000.
4. Hawaii State Department of Business, Economic Development and Tourism. *Hawaii Census 2000*.
5. Macdonald, Gordon A., A.T. Abbott and Frank L. Peterson. *Volcanoes in the Sea, The Geology of Hawaii*. Second Edition 1986.
6. R.M. Towill Corporation. *Kukui'ula Planned Community Final Environmental Impact Statement*. Prepared for A&B Properties, Inc. April 1989.
7. Sterns, Harold T. *Geology of the State of Hawaii*. Second Edition 1985.
8. Townscape, Inc. *Kukui'ula Bay Resort Final Supplemental Environmental Impact Statement*. Prepared for Kukui'ula Development Company, Inc. August 1998.
9. United States Department of Agriculture Soil Conservation Service. *Soil Survey of Islands of Kauai, Oahu, Maui, Molokai, and Lanai, State of Hawaii*, August 1972.
10. U.S. Census Bureau. *Census 2000 Summary 100 Percent Data*.
11. Yuen, George, And Associates. *Water Resources Protection Plan: Volumes I and II*. June 1990.

9. CONSULTATION

9.1 Pre-Assessment Consultation

The following agencies and organizations were consulted during the preparation of the Draft EA. Those who formally replied are indicated by an asterisk (*). All written comments and responses are reproduced herein.

Federal

U.S. Army Corps of Engineers
U.S. Fish & Wildlife Service
U.S. National Marine Fisheries Service

State of Hawaii

Department of Business, Economic Development and Tourism, Office of Planning
* Department of Business, Economic Development and Tourism, Land Use Commission
Department of Health, Office of Environmental Quality Control
Department of Land and Natural Resources
* Department of Land and Natural Resources, Office of Conservation and Coastal Lands
* Department of Land and Natural Resources, Division of Forestry and Wildlife, Na Ala Hele
* Department of Land and Natural Resources, Historic Preservation Division
* Office of Hawaiian Affairs

County of Kauai

Planning Department
Department of Public Works
Department of Parks and Recreation
Police Department

Others

* National Tropical Botanical Garden
Allerton Gardens Trust in Hawaii
A&B Hawaii Inc.

9.2 Draft Environmental Assessment Consultation

The following agencies and organizations were consulted during the public review period of the Draft EA. Those who formally replied are indicated by an asterisk (*). All written comments and responses are reproduced herein.

Federal

U.S. Army Corps of Engineers
* U.S. Fish & Wildlife Service

State of Hawaii

- Department of Business, Economic Development, and Tourism, Office of Planning
- Department of Health, Office of Environmental Quality Control
- * Department of Health, Environmental Management Division
- Board of Land and Natural Resources, Kauai Board Member
- * Department of Land and Natural Resources, Office of Conservation and Coastal Lands
- Department of Land and Natural Resources, Division of Conservation and Resources Enforcement
- * Department of Land and Natural Resources, Division of Forestry and Wildlife
- * Department of Land and Natural Resources, Division of Forestry and Wildlife, Kauai District
- Department of Land and Natural Resources, Division of Forestry and Wildlife, Na Ala Hele
- * Department of Land and Natural Resources, Land Division, Kauai District
- Department of Land and Natural Resources, Division of Aquatic Resources
- * Department of Land and Natural Resources, Historic Preservation Division
- * Office of Hawaiian Affairs

County of Kauai

- Planning Department
- Open Space Commission

Others

- National Tropical Botanical Garden
- JP Morgan Chase Bank, N.A., Trustee of the Allerton Gardens Trust
- * Sierra Club, Kauai Group of the Hawaii Chapter
- Kauai Invasive Species Committee
- Lihue Public Library

Pre-Assessment Consultation Correspondence



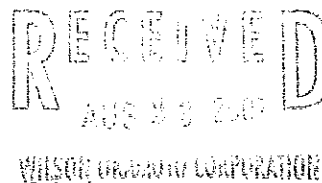
STATE OF HAWAII
DEPARTMENT OF BUSINESS, ECONOMIC DEVELOPMENT & TOURISM

LAND USE COMMISSION

P.O. Box 2359
Honolulu, Hawaii 96804-2359
Telephone: 808-587-3822
Fax: 808-587-3827

August 22, 2007

Ms. Frances Yamada
Wilson Okamoto Corporation
1907 South Beretania Street, Suite 400
Honolulu, Hawaii 96826



Dear Ms. Yamada:

Subject: Pre-Assessment Consultation
Draft Environmental Assessment ("EA")
Kukui`ula Conservation District Improvements
TMK No.: [4] 2-6-02: 12 and 2-6-03: 3 and 20, and Portion of
Lawai Road, Koloa, Island of Kauai

We are in receipt of your August 15, 2007, correspondence soliciting comments on the Draft EA for proposed passive improvements within an approximately 10.0-acre area located within the State Land Use Conservation District adjacent to and west of Spouting Horn Park in Koloa, Island of Kauai.

1. We confirm that the site of the proposed improvements is located in the State Land Use Conservation District and is the purview of the Department of Land and Natural Resources.
2. You have accurately described the relation of the proposed improvements with the decision and order approving the reclassification of land in Land Use Commission Docket No. A93-696 Kukui`ula Development Company, Inc.
3. Subject to satisfying the requirements of Chapter 343, Hawaii Revised Statutes, and given the location, scope, and nature of the proposed activity, we have no further comments to offer at this time.

Thank you for the opportunity to be involved in the pre-assessment consultation process. Please feel free to contact Cameron Lowry of my office at 587-3822, if you have any questions or need clarification.

Sincerely,

ANTHONY J. H. CHING
Executive Officer



6607-13
December 3, 2007

1907 South Beretania Street
Artesian Plaza, Suite 400
Honolulu, Hawaii, 96826 USA
Phone 808 946 2277
Fax 808 946 2253
www.wilsonokamoto.com

Mr. Anthony J. H. Ching, Executive Officer
State of Hawaii
Department of Business, Economic Development & Tourism
Land Use Commission
P.O. Box 2359
Honolulu, Hawaii 96804-2359

Subject: Pre-Assessment Consultation
Draft Environmental Assessment ("EA")
Kukui'ula Conservation District Improvements
Tax Map Keys: (4) 2-6-02: 12 and 2-6-03: 3 and 20, and Portion of Lawai
Road
Koloa, Island of Kauai, Hawaii

Dear Mr. Ching:

Thank you for your letter of August 22, 2007 confirming that the project site is located in the State Conservation District and is the purview of the State Department of Land and Natural Resources, and that the Land Use Commission has no further comments at this time.

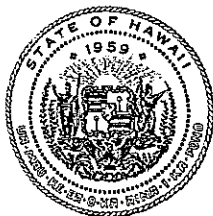
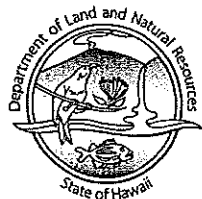
Your letter, along with this response, will be included in the forthcoming Draft EA. We appreciate your participation in the pre-assessment consultation phase of the Project.

Sincerely,

Frances Yamada
Senior Planner

cc: Mr. Roby Snow, Kukui'ula Development Company (Hawaii), LLC

LINDA LINGLE
GOVERNOR OF HAWAII



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

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

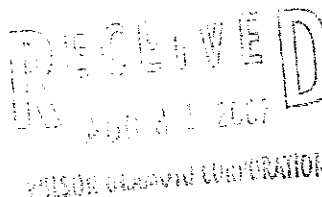
STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
Office of Conservation and Coastal Lands

POST OFFICE BOX 621
HONOLULU, HAWAII 96809

AUG 30 2007

Corr.: KA-08-34

Ms. Frances Yamada, Senior Planner
Wilson Okamoto Corporation
1907 South Beretania Street, Suite 400
Honolulu, Hawaii 96826



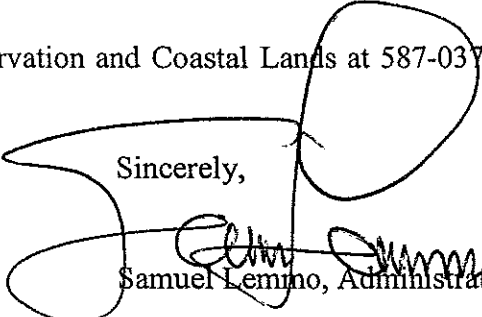
Dear Ms. Yamada:

Subject: Early Consultation for a Draft Environmental Assessment for Landscaping Improvements at the Kukui'ula Development at Koloa, Kauai, TMKs: (4) 2-6-02:012; (4) 2-6-03:3&20

Thank you for your August 15, 2007 letter regarding a proposed landscaping project. We acknowledge that an environmental assessment and Conservation District Use Application are being prepared for the project.

Please contact the Office of Conservation and Coastal Lands at 587-0377 should you have any questions or are need of assistance.

Sincerely,


Samuel Lemino, Administrator

C: Chairperson



6607-13
December 3, 2007

1907 South Beretania Street
Artesian Plaza, Suite 400
Honolulu, Hawaii, 96826 USA
Phone 808 946 2277
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www.wilsonokamoto.com

Mr. Sam Lemmo, Administrator
State of Hawaii
Department of Land and Natural Resources
Office of Conservation and Coastal Lands
P.O. Box 621
Honolulu, Hawaii 96809

Subject: Pre-Assessment Consultation
Draft Environmental Assessment ("EA")
Kukui'ula Conservation District Improvements
Tax Map Keys: (4) 2-6-02: 12 and 2-6-03: 3 and 20, and Portion of Lawai
Road
Koloa, Island of Kauai, Hawaii

Dear Mr. Lemmo:

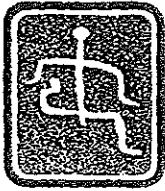
Thank you for your letter of August 30, 2007 (Corr.: KA-08-34) acknowledging that an Environmental Assessment and Conservation District Use Application are being prepared for the subject project.

Your letter, along with this response, will be included in the forthcoming Draft EA. We appreciate your participation in the pre-assessment consultation phase of the Project.

Sincerely,

Frances Yamada
Senior Planner

cc: Mr. Roby Snow, Kukui'ula Development Company (Hawaii), LLC



NA ALA HELE
Hawai'i Trail & Access System

August 21, 2007

Ref: K07:01 Kukui'ula

Ms. Frances Yamada
Wilson Okamoto Corporation
1907 South Beretania Street, Suite 400
Honolulu, Hawaii 96826

RECEIVED
AUG 23 2007

WILSON OKAMOTO CORPORATION

Subject: Pre-Assessment Consultation
Draft Environmental Assessment ("EA")
Kukui'ula Conversation District Improvements
Tax Map Keys: 2-6-2-12; 2-6-3-3-3 and 20, and Portion of Lawai Road
Koloa, Island and County of Kauai, Hawaii

Dear Ms. Yamada,

Thank you for the opportunity to comment on the subject proposed improvements.

Records fail to disclose any historic or ancient trails that may be claimed by the State of Hawaii through its Board of Land and Natural Resources.

Therefore, the Na Ala Hele Trails and Access Program offers no comments on the subject project.

Sincerely,

Doris Moana Rowland
Na Ala Hele Abstractor
Division of Forestry and Wildlife



6607-13
December 3, 2007

1907 South Beretania Street
Artesian Plaza, Suite 400
Honolulu, Hawaii, 96826 USA
Phone: 808 946 2277
Fax: 808 946 2253
www.wilsonokamoto.com

Ms. Doris Moana Rowland, Abstractor
Na Ala Hele Hawaii Trail & Access System
State of Hawaii
Department of Land and Natural Resources
Division of Forestry and Wildlife
1151 Punchbowl Street, Room 325
Honolulu, Hawaii 96813

Subject: Pre-Assessment Consultation
Draft Environmental Assessment ("EA")
Kukui'ula Conservation District Improvements
Tax Map Keys: (4) 2-6-02: 12 and 2-6-03: 3 and 20, and Portion of Lawai
Road
Koloa, Island of Kauai, Hawaii

Dear Ms. Rowland:

Thank you for your letter of August 21, 2007 (Ref: K07:01 Kukui'ula) indicating that the Na Ala Hele Trails and Access Program has no comments regarding the subject Project.

Your letter, along with this response, will be included in the forthcoming Draft EA. We appreciate your participation in the pre-assessment consultation phase of the Project.

Sincerely,

Frances Yamada
Senior Planner

cc: Mr. Roby Snow, Kukui'ula Development Company (Hawaii), LLC

LINDA LINGLE
GOVERNOR OF HAWAII



STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES

STATE HISTORIC PRESERVATION DIVISION
601 KAMOKILA BOULEVARD, ROOM 555
KAPOLEI, HAWAII 96707

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

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
KAROO LAWE ISLAND RESERVE COMMISSION
LAND
STATE PARKS

RECEIVED
SEP 19 2007

WILSON OKAMOTO CORPORATION

September 12, 2007

France Yamada, Senior Planner
Wilson Okamoto Corp
1907 South Beretania Street, Suite 400
Honolulu, Hawaii 96826

LOG NO: 2007.2808
DOC NO: 0709NM06
Archaeology

Dear Mr. Yamada:

**SUBJECT: Chapter 6E-42 - Historic Preservation Review – Pre- Assessment Consultation for
DEA for Kukuiula Development Conservation District Improvements
Kukuiula, Koloa District, Island of Hawai'i
TMK: (4) 2- 6-02 12 and 2-6-03: 03 and 20 and portions of Lawai Road**

There are three historic properties in the project area and your background information include these sites. These sites include the unique historic trail, and two cave sites which are on the State Register of Historic Places. We have approved preservation plan for these sites and are waiting its implementation.

If you have any questions, please call Nancy McMahon at 808-241-6390.

Aloha,


Melanie Chinen, Administrator
State Historic Preservation Division

NM:jen



6607-13
December 3, 2007

1907 South Beretania Street
Artesian Plaza, Suite 400
Honolulu, Hawaii, 96826 USA
Phone 808 946 2277
Fax 808 946 2253
www.wilsonokamoto.com

Ms. Melanie Chinen, Administrator
State of Hawaii
Department of Land and Natural Resources
State Historic Preservation Division
601 Kamokila Boulevard, Room 555
Kapolei, Hawaii 96707

Subject: Pre-Assessment Consultation
Draft Environmental Assessment ("EA")
Kukui'ula Conservation District Improvements
Tax Map Keys: (4) 2-6-02: 12 and 2-6-03: 3 and 20, and Portion of Lawai
Road
Koloa, Island of Kauai, Hawaii

Dear Ms. Chinen:

Thank you for your letter of September 12, 2007 (LOG NO: 2007.2808, DOC NO: 0709NM06 Archaeology) confirming that your Department has approved the preservation plan for the historic trail, and two cave sites which are on the State Register of Historic Places.

Your letter, along with this response, will be included in the forthcoming Draft EA. We appreciate your participation in the pre-assessment consultation phase of the Project.

Sincerely,

Frances Yamada
Senior Planner

cc: Mr. Roby Snow, Kukui'ula Development Company (Hawaii), LLC

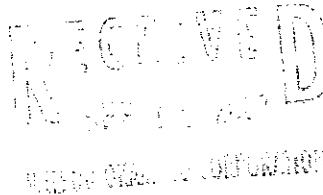


STATE OF HAWAII
OFFICE OF HAWAIIAN AFFAIRS
711 KAPI'OLANI BOULEVARD, SUITE 500
HONOLULU, HAWAII 96813

September 6, 2007

HRD07_1617C

Frances Yamada, Senior Planner
Wilson Okamoto Corporation
1907 South Beretania Street
Artesian Plaza, Suite 400
Honolulu, Hawai'i 96826



Re: Pre-Assessment Consultation
Draft Environmental Assessment (EA)
Kukui'ula Conservation District Improvements
Tax Map Keys: (4) 2-6-02:12 and 2-6-03: 3 and 20, and Portion of Lawai Road
Koloa, Island of Kaua'i, Hawai'i

Dear Frances Yamada:

The Office of Hawaiian Affairs (OHA) is in receipt of your August 15, 2007 letter initiating consultation ahead of a draft Environmental Assessment (EA) for proposed passive improvements within an approximately 10.0-acre area located within the State Conservation District adjacent to and west of Spouting Horn Park in Koloa, Island of Kaua'i.

Based on the information contained within your letter, the proposed improvements are in fulfillment of Condition No. 15.f) of Zoning Ordinance No. PM-2004-370 for the Kukui'ula development which requires that the Applicant provide public pedestrian access to the shoreline areas west of Spouting Horn Park owned by the applicant.

While OHA applauds the efforts to remove existing alien vegetation from certain portions of the project area followed by the planting of endemic, indigenous or Polynesian introduced plant species common to the project area, we urge caution in the use of paint-on or spray-on herbicide during the alien vegetation removal and hope consideration has been given to any negative affects these herbicides may have on the natural environment.

OHA seeks clarification on how the proposed 8-foot wide pedestrian trail, which will extend a distance of approximately 1,700 linear feet within the project area. It is unclear whether mechanical excavations will be necessary in order to develop the proposed trail alignment.

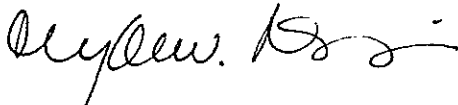
Frances Yamada, Senior Planner
Wilson Okamoto Corporation
September 6, 2007
Page 2

Should the use of heavy construction machinery within the project area be necessary, the applicant or their contractors should be prepared to address any fuel or hydraulic spills immediately in an appropriate manner.

It is unclear at this point whether public access to the project area will be restricted or prevented while the proposed improvements are occurring. OHA seeks assurances that the proposed improvements will have no impact on any constitutionally protected traditional and customary practices which occur within the project area. Should this project move forward and any Native Hawaiian cultural, traditional, or burial sites be identified all work should immediately cease and the appropriate agencies notified pursuant to applicable law.

Thank you for the opportunity to provide comments at this early stage of the draft EA process and we look forward to the opportunity to review the completed draft EA and provide additional comments at that time. Should you have any questions please contact Keola Lindsey, Lead Advocate-Culture at 594-1904 or keolal@oha.org.

'O wau iho nō,



Clyde W. Nāmu'o
Administrator

C: Kanani Kagawa, OHA- Community Resource Coordinator, Kaua'i



6607-13
December 3, 2007

1907 South Beretania Street
Artesian Plaza, Suite 400
Honolulu, Hawaii, 96826 USA
Phone: 808 946 2277
Fax: 808 946 2253
www.wilsonokamoto.com

Mr. Clyde W. Namuo, Administrator
State of Hawaii
Office of Hawaiian Affairs
711 Kapiolani Boulevard, Suite 500
Honolulu, Hawaii 96813

Subject: Pre-Assessment Consultation
Draft Environmental Assessment ("EA")
Kukuiūla Conservation District Improvements
Tax Map Keys: (4) 2-6-02: 12 and 2-6-03: 3 and 20, and Portion of Lawai
Road
Koloa, Island of Kauai, Hawaii

Dear Mr. Namuo:

Thank you for your letter of September 6, 2007 (HRD07_1617C) regarding the subject Project.

Fertilization of the new vegetation areas and turf grass public pedestrian trail within the Project Site will be applied by directly injecting biofertilizer into the irrigation water and through the proposed irrigation system. This system of fertilization will reduce the amount of fertilizer that would otherwise be required by up to 70 to 90 percent, thereby largely eliminating fertilizer runoff. Appropriate herbicides will be applied to the cut vegetation stumps at a recommended concentration level with a wipe-on or brush-on technique during the initial vegetation clearing activities and as part of the long-term maintenance operations, as needed. The wipe-on or brush-on method of application will minimize the drift overspray that would otherwise occur with a spray-on technique.

The proposed 4- to 8-foot wide turf grass public pedestrian trail will be developed along the makai side of the Lawai Road right-of-way, adjacent to the road pavement edge. The removal of the existing alien (non-native) vegetation within the trail alignment will be undertaken with the use of mechanical (i.e., hydroAx and chainsaws) and hand clearing (i.e., handsaws and manual trimming tools) methods. The hydroAx will be used to remove existing vegetation within accessible areas makai of the Lawai Road right-of-way.

The use of large equipment for the proposed Project improvements will occur only during the initial vegetation clearing activities and to haul greenwaste to an off-site location during the long-term maintenance operations. The contractors will be required to have available on-site granular absorbent materials for use for immediate clean-up in the event of accidental fuel or hydraulic spills from the equipment. The contractors will also be required to have available on-site containers for the storage of the spent spill response materials, which will then be required to be properly disposed of at an off-site location.

During construction of the Project improvements, recreational use and public access to and along the coastline within the Project Site will remain unaffected, except for specific areas where the construction activities are occurring. Since the Project improvements will



6607-13

Letter to Mr. Clyde W. Namuo

December 3, 2007

Page 2

be constructed in phases, the construction activities will shift to different locations within the Project Site as the previous phase is completed, thereby allowing continued recreational use and public access to the remaining areas within the site. In the long-term, the proposed Project will enhance the recreational uses and gathering practices which currently occur within the Project Site by providing public pedestrian access to the shoreline areas west of Spouting Horn Park.

Should any previously unidentified burial, archaeological or historic sites be found during the course of implementation activities within the Project Site, the Applicant will stop work in the immediate vicinity and the State Department of Land and Natural Resources ("DLNR") Historic Preservation Division ("SHPD") will be notified immediately. The significance of these finds will then be determined and appropriate mitigation measures will be approved by the SHPD and the Kauai/Niihau Islands Burial Council, as appropriate. Subsequent work will proceed after SHPD authorization has been received and mitigative measures have been implemented.

The above information will be included in the Draft EA.

Your letter, along with this response, will be included in the forthcoming Draft EA. We appreciate your participation in the pre-assessment consultation phase of the Project.

Sincerely,

A handwritten signature in cursive script, appearing to read 'Frances Yamada'.

Frances Yamada
Senior Planner

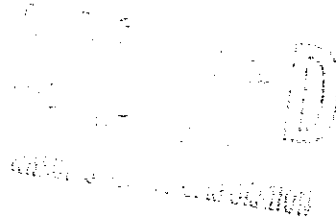
cc: Mr. Roby Snow, Kukui'ula Development Company (Hawaii), LLC



NATIONAL TROPICAL BOTANICAL GARDEN
Chartered by Congress To Create A National Resource In Tropical Botany

September 6, 2007

Frances Yamada, Senior Planner
Wilson Okamoto Corporation
1907 South Beretania Street, Suite 400
Honolulu, HI 96826



Dear Frances:

**SUBJECT: Pre-Assessment Consultation - Kukui'ula Conservation District Improvements
Tax Map Keys: (4) 2-6-02: 12 and 2-6-03: 3 and 20, and Portion of Lāwa'i Road,
Kōloa, Island of Kaua'i, Hawaii**

Thank you for the opportunity to comment on the proposed Kukui'ula Conservation District Improvements along Lāwa'i Beach Road. As you know I have been in discussions with Roby Snow and others at KDCH about this project over the past year or so. I feel that as it is currently presented it is a viable plan that can be executed without negative environmental consequences.

When completed the project will improve the habitat and replace naturalized alien vegetation with low growing native plant species. This is a very positive outcome that will benefit the native sea birds that nest along this coast in the rock walls and shrubby vegetation. Because of the seabird nesting in the project area and the documented Green Sea Turtle nesting at Lāwa'i-kai it is my hope that these improvements will not result in the addition of street lights or other bright lights that could disturb these native species.

I am interested to seeing and possibly commenting on the Draft EA for the project so please mail me a copy when it is prepared. Thanks again for the opportunity to comment at the Pre-Assessment stage of the CDUA process.

Aloha,

Chipper Wichman
Director and CEO

cc: Roby Snow, Kukui'ula Development Company (Hawaii), LLC

3530 Papalina Road, Kalaheo, Kauai, Hawaii TEL: (808) 332-7324 FAX: (808) 332-9765



6607-13
December 3, 2007

1907 South Beretania Street
Artesian Plaza, Suite 400
Honolulu, Hawaii, 96826 USA
Phone 808 946 2277
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www.wilsonokamoto.com

Mr. Chipper Wichman, Director and CEO
National Tropical Botanical Garden
3530 Papalina Road
Kalaheo, Kauai, Hawaii 96741

Subject: Pre-Assessment Consultation
Draft Environmental Assessment ("EA")
Kukui'ula Conservation District Improvements
Tax Map Keys: (4) 2-6-02: 12 and 2-6-03: 3 and 20, and Portion of Lawai
Road
Koloa, Island of Kauai, Hawaii

Dear Mr. Wichman:

Thank you for your letter of September 6, 2007 indicating your concurrence with the subject Project improvements. Please be apprised that no artificial lighting, including street lights, will be provided in conjunction with the proposed Project and, as such, there will be no associated impacts on wildlife in the area. This information will be included in the Draft EA.

As requested, a copy of the forthcoming Draft EA will be provided to you for your review and comment. Your letter, along with this response, will be included in the Draft EA. We appreciate your participation in the pre-assessment consultation phase of the Project.

Sincerely,

Frances Yamada
Senior Planner

cc: Mr. Roby Snow, Kukui'ula Development Company (Hawaii), LLC

Draft Environmental Assessment Correspondence



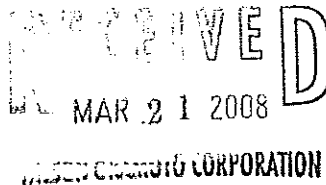
United States Department of the Interior



FISH AND WILDLIFE SERVICE
Pacific Islands Fish and Wildlife Office
300 Ala Moana Boulevard, Room 3-122, Box 50088
Honolulu, Hawaii 96850

In Reply Refer To:
2008-TA-0128

Ms. Frances Yamada
Wilson Okamoto Corporation
1907 S. Beretania Street, Suite 400
Honolulu, Hawaii 96826



MAR 20 2008

Dear Ms. Yamada:

The U.S. Fish and Wildlife Service (Service) has reviewed the draft Environmental Assessment (DEA) for the Kukui ula Landscaping Project (proposed project) provided online on February 23, 2008. These comments are provided in accordance with the National Environmental Policy Act of 1969 (42 U.S.C. 4321 et seq.; 83 Stat. 852) (NEPA); and other authorities mandating Federal oversight of environmental resources including the Migratory Bird Treaty Act (16 U.S.C. 703 et seq.), as amended (MBTA); and the Endangered Species Act of 1973 (16 U.S.C. 1531 et seq.; 87 Stat. 884), as amended (ESA).

The proposed project is a portion of a larger pedestrian and bicycle trail system on the island of Kauai. The overall goal of the proposed project is to develop a 1,700 linear foot turf grass or gravel pedestrian trail on the ocean side of Lawai Road. The proposal includes removal of trees and exotic vegetation along both sides of the trail and development of three new gravel parking areas. Also included in the DEA is a commitment to long term maintenance of the network. The project area covers 6.4 acres of land and is located adjacent to an active Wedge-tailed shearwater (*Puffinus pacificus*) nesting colony, a species protected under MBTA. The federally threatened Newell's shearwater (*Puffinus auricularis newelli*) and the federally endangered Hawaiian petrel (*Pterodroma phaeopygia sandwichensis*) are known to fly through the area. However, because there is no lighting associated with the proposed project we anticipate that this project will not impact the listed Newell's shearwater and Hawaiian petrel.

We are concerned that the DEA does not adequately address the protection of the active nesting colony of Wedge-tailed shearwaters. The project schedule outlined in Section 2.3 of the DEA suggests that the project will begin in September 2008, with completion occurring in November 2008. Section 3.6 of the DEA states that proposed vegetation removal and re-vegetation activities will not be undertaken during the Wedge-tailed shearwater breeding season. However, the project schedule is in direct conflict with the breeding/ nesting season of Wedge-tailed shearwaters which is March through mid November.

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Therefore, we recommend the following changes to Section 3.6; page 3-11, bullet point 2. The DEA states "Following removal of existing vegetation and prior to re-vegetation..." please change to "Prior to initiating the removal of existing vegetation and prior to re-vegetation...". End of same bullet point add "These activities will not be initiated until after the Wedge-tailed have fledged in late November". In coordination with our office you should develop a management plan for this Wedge-tailed shearwater nesting colony for the future management activities related to this pedestrian and bicycle trail network (Section 3.6; page 3-11, bullet point 3).

You concluded on page 3-10 that "No significant impacts on fauna within the project site are anticipated from the construction and operation of the proposed project." Based on the current information provided in the DEA, we disagree with this. We based this decision on the current proposed schedule coinciding with nesting season and the lack of a completed management plan that adequately addresses the Wedge-tailed shearwater nesting colony.

With incorporation of our recommendations, we would support your conclusion. We appreciate the opportunity to comment on the proposed project. If you have questions regarding these comments, please contact Aaron Nadig of my staff (phone: 808-792-9400, fax: 808-792-9581).

Sincerely,



for Patrick Leonard
Field Supervisor

CC:
Hawaii DLNR, Michael Cain



6607-13
April 10, 2008

Mr. Patrick Leonard, Field Supervisor
United States Department of the Interior
Fish and Wildlife Service
Pacific Islands Fish and Wildlife Office
P.O. Box 50088
Honolulu, Hawaii 96850

1907 South Beretania Street
Artesian Plaza, Suite 400
Honolulu, Hawaii, 96826 USA
Phone 808 946 2277
Fax 808 946 2253
www.wilsonokamoto.com

Subject: Draft Environmental Assessment ("EA")
Kukui'ula Conservation District Improvements
Tax Map Keys: (4) 2-6-02: 12 and 2-6-03: 3 and 20, and Portion of Lawai
Road
Koloa, Island of Kauai, Hawaii

Dear Mr. Leonard:

Thank you for your letter of March 20, 2008 (Ref: 2008-TA-0128) regarding the subject Draft EA.

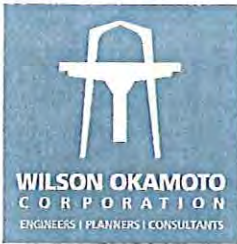
We acknowledge that since there will be no artificial lighting, including street lights, provided in conjunction with the proposed Project improvements, the Project will not impact the federally threatened Newell's Shearwater (*Puffinus auricularis newelli*) and the federally endangered Hawaiian Petrel (*Pterodroma sandwichensis*).

In consideration of the breeding/nesting season of the Wedge-tailed Shearwaters (*Puffinus pacificus*), the development schedule for the proposed Project will be adjusted. Overall development of the proposed Project is anticipated to commence by January 2009, with completion by March 2011, subject to the receipt of all necessary permits and plan approvals.

Development of the Project improvements will occur in three (3) phases. The first phase will include construction of the approximately 16,000 square-foot test area within the western portion of the Project Site. Construction of this phase is anticipated to commence by January 2009, with completion by March 2009 during the period that the Wedge-tailed Shearwaters are absent. Upon completion of construction of the test area, the Applicant will coordinate with the State Department of Land and Natural Resources ("DLNR") Office of Conservation and Coastal Lands, the County of Kauai and other appropriate agencies to review the results. The duration of this review period is anticipated to occur from March 2009 to November 2009 during the breeding/nesting season of the Wedge-tailed Shearwaters.

The second phase will include construction of the improvements west of the National Tropical Botanical Garden ("NTBG") gate. Construction of this phase is anticipated to commence by December 2009, with completion by March 2010 during the period that the Wedge-tailed Shearwaters are absent.

The third phase will include construction of the improvements east of the NTBG gate. Construction of this phase is anticipated to commence by December 2010, with completion by March 2011 during the period that the Wedge-tailed Shearwaters are absent.



6607-13
Letter to Mr. Patrick Leonard
April 10, 2008
Page 2

Following completion of construction of the Project improvements, the long-term maintenance activities will be undertaken in consideration of the breeding/nesting season of the Wedge-tailed Shearwaters. Maintenance of the turf grass pedestrian trail and re-vegetated areas will be conducted on a weekly basis. During the breeding/nesting season of the Wedge-tailed Shearwaters, a qualified biologist will map the seabird nesting colonies that may be present within the Project Site each year. The boundaries of these seabird nesting colonies will then be delineated with stakes placed in the ground, and all maintenance activities within those boundaries will be restricted until the seabirds have fledged. The application of low-impact bio-fertilizer and brush-on herbicide will be undertaken during the period of December to March when the Wedge-tailed Shearwaters are absent.

Maintenance activities within the areas of selective vegetation removal will be conducted during the period of December to March when the Wedge-tailed Shearwaters are absent.

The above information on the adjusted development schedule for the proposed Project will be incorporated in the Final EA.

In accordance with your recommendations, the following changes will be made to **Section 3.6 Vertebrate Fauna – Impacts and Mitigation Measures**, and to Significance Criteria 9) in **Chapter 7 Notice of Determination** in the Final EA:

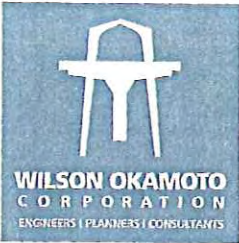
(Bullet Point 2):

- Prior to initiating the removal of existing vegetation and prior to re-vegetation activities, a qualified biologist will be retained by the Applicant to survey the Project Site to ascertain the location and number of Wedge-tailed Shearwater burrows that may be present. These activities will not be initiated until after the Wedge-tailed Shearwaters have fledged in late November. This survey will be undertaken in consultation with the Kauai District office of the State Department of Land and Natural Resources Division of Forestry and Wildlife.

(Bullet Point 3):

- Following the on-ground survey by the qualified biologist, the Applicant will coordinate with the U.S. Fish and Wildlife Service and the State DLNR Division of Forestry and Wildlife to develop a Wedge-tailed Shearwater colony management plan which will include methods for maintaining and improving the Wedge-tailed Shearwater nesting habitat that may be present within the Project Site and for the future management activities related to the Project improvements.

Based on the above information, we maintain that the proposed Project improvements will result in a net benefit to the Wedge-tailed Shearwater colony present within and adjacent to the Project Site. The Applicant will closely consult with the U.S. Fish and Wildlife Service and the State DLNR Division of Forestry and Wildlife in the development of the Wedge-tailed Shearwater colony management plan. The Applicant will take all necessary precautions in developing and maintaining the Project improvements and will not undertake site activities in the nearby vicinity of nesting colonies which may be present.



6607-13
Letter to Mr. Patrick Leonard
April 10, 2008
Page 3

The Project improvements are anticipated to result in a net benefit by restoring native vegetation within the coastal environment and enhancing the usability of the area for seabird nesting.

We appreciate your time and effort in reviewing the subject EA.

Sincerely,

Frances Yamada
Senior Planner

cc: Mr. Michael Cain, State Department of Land and Natural Resources, Office of Conservation and Coastal Lands
Ms. Katherine Kealoha, State Office of Environmental Quality Control
Mr. Roby Snow, Kukui'ula Development Company (Hawaii), LLC



STATE OF HAWAII
DEPARTMENT OF HEALTH
P.O. Box 3378
HONOLULU, HAWAII 96801-3378

In reply, please refer to:
EPO-08-026

March 18, 2008

Mr. Samuel J. Lemmo, Administrator
State of Hawaii
Department of Land and Natural Resources
Office of Conservation and Coastal Lands
P.O. Box 621
Honolulu, Hawaii 96809

Dear Mr. Lemmo:

SUBJECT: CDUA KA-3454
Draft Environmental Assessment and Conservation District Use Application for
Proposed Kukuilua Conservation District Improvements Project
Koloa, Kauai, Hawaii
TMK: (4) 2-6-002: 012
(4) 2-6-003: 003,020 and portion of Lawai Road

Thank you for allowing us to review and comment on the subject application. The document was routed to the various branches of the Department of Health (DOH) Environmental Health Administration. We have the following Clean Water Branch and General comments.

Clean Water Branch

The Department of Health, Clean Water Branch (CWB), has reviewed the subject document and offers these comments on your project. Please note that our review is based solely on the information provided in the subject document and its compliance with Hawaii Administrative Rules (HAR), Chapters 11-54 and 11-55. You may be responsible for fulfilling additional requirements related to our program. We recommend that you also read our standard comments on our website at <http://www.hawaii.gov/health/environmental/env-planning/landuse/CWB-standardcomment.pdf>.

1. Any project and its potential impacts to State waters must meet the following criteria:
 - a. Antidegradation policy (HAR, Section 11-54-1.1), which requires that the existing uses and the level of water quality necessary to protect the existing uses of the receiving State water be maintained and protected.

- b. Designated uses (HAR, Section 11-54-3), as determined by the classification of the receiving State waters.
 - c. Water quality criteria (HAR, Sections 11-54-4 through 11-54-8).
2. You are required to obtain a National Pollutant Discharge Elimination System (NPDES) permit for discharges of wastewater, including storm water runoff, into State surface waters (HAR, Chapter 11-55). For the following types of discharges into Class A or Class 2 State waters, you may apply for NPDES general permit coverage by submitting a Notice of Intent (NOI) form:
- a. Storm water associated with construction activities, including clearing, grading, and excavation, that result in the disturbance of equal to or greater than one (1) acre of total land area. The total land area includes a contiguous area where multiple separate and distinct construction activities may be taking place at different times on different schedules under a larger common plan of development or sale. An NPDES permit is required before the start of the construction activities.
 - b. Hydrotesting water.
 - c. Construction dewatering effluent.

You must submit a separate NOI form for each type of discharge at least 30 calendar days prior to the start of the discharge activity, except when applying for coverage for discharges of storm water associated with construction activity. For this type of discharge, the NOI must be submitted 30 calendar days before to the start of construction activities. The NOI forms may be picked up at our office or downloaded from our website at:
<http://www.hawaii.gov/health/environmental/water/cleanwater/forms/genl-index.html>.

3. For types of wastewater not listed in Item 2 above or wastewater discharging into Class 1 or Class AA waters, you must obtain an NPDES individual permit. An application for an NPDES individual permit must be submitted at least 180 calendar days before the commencement of the discharge. The NPDES application forms may be picked up at our office or downloaded from our website at
<http://www.hawaii.gov/health/environmental/water/cleanwater/forms/indiv-index.html>.
4. You must also submit a copy of the NOI or NPDES permit application to the State Department of Land and Natural Resources, State Historic Preservation Division (SHPD), or demonstrate to the satisfaction of the CWB that SHPD has or is in the process of evaluating your project. Please submit a copy of your request for review by SHPD or SHPD's determination letter for the project along with your NOI or NPDES permit application, as applicable.

Mr. Lemmo
March 18, 2008
Page 3

5. Please note that all discharges related to the project construction or operation activities, whether or not NPDES permit coverage and/or Section 401 Water Quality Certification are required, must comply with the State's Water Quality Standards. Noncompliance with water quality requirements contained in HAR, Chapter 11-54, and/or permitting requirements, specified in HAR, Chapter 11-55, may be subject to penalties of \$25,000 per day per violation.

If you have any questions, please visit our website at <http://www.hawaii.gov/health/environmental/water/cleanwater/index.html>, or contact the Engineering Section, CWB, at 586-4309

General

We strongly recommend that you review all of the Standard Comments on our website: www.state.hi.us/health/environmental/env-planning/landuse/landuse.html. Any comments specifically applicable to this project should be adhered to.

If there are any questions about these comments please contact Jiakai Liu with the Environmental Planning Office at 586-4346.

Sincerely,



KELVIN H. SUNADA, MANAGER
Environmental Planning Office

c: EPO
CWB
EH-Kauai



6607-13
April 10, 2008

1907 South Beretania Street
Artesian Plaza, Suite 400
Honolulu, Hawaii, 96826 USA
Phone: 808 946 2277
Fax: 808 946 2253
www.wilsonokamoto.com

Mr. Kelvin H. Sunada, Manager
State of Hawaii
Department of Health
Environmental Planning Office
P.O. Box 3378
Honolulu, Hawaii 96801-3378

Subject: Conservation District Use Application CDUA KA-3454
Draft Environmental Assessment ("EA")
Kukui'ula Conservation District Improvements
Tax Map Keys: (4) 2-6-02: 12 and 2-6-03: 3 and 20, and Portion of Lawai
Road
Koloa, Island of Kauai, Hawaii

Dear Mr. Sunada:

Thank you for your letter of March 18, 2008 (Ref: EPO-08-026) regarding the subject CDUA and Draft EA. We provide the following responses in the order of your comments:

Clean Water Branch

1. Development of the proposed Project will meet the criteria with regard to the antidegradation policy (Hawaii Revised Statutes ("HAR"), Section 11-54-1.1), designated uses as determined by the Class A receiving waters (HAR, Section 11-54-3), and water quality criteria (HAR, Sections 11-54-4 through 11-54-8).

Potential water quality impacts to the near shore coastal waters during construction of the Project will be mitigated by adherence to State water quality regulations. A National Pollutant Discharge Elimination System ("NPDES") General Permit for Storm Water Associated with Construction Activity administered by the State Department of Health ("DOH") will be obtained to control storm water discharges. Construction of the Project improvements will also be in compliance with the County's Grubbing Permit. Mitigation measures will be instituted following site-specific assessments, incorporating appropriate structural and/or non-structural Best Management Practices ("BMPs").
2. A NPDES General Permit for Storm Water Associated with Construction Activity administered by the State DOH will be obtained to control storm water discharges from the Project Site. Mitigation measures will be instituted following site-specific assessments, incorporating appropriate structural and/or non-structural BMPs.
3. An NPDES individual permit is not anticipated to be required for the proposed Project. As previously indicated, a NPDES General Permit for Storm Water Associated with Construction Activity will be obtained for the Project.
4. The Applicant acknowledges and will comply with this requirement.
5. The Applicant acknowledges and will comply with this requirement.



6607-13
Letter to Mr. Kelvin H. Sunada
April 10, 2008
Page 2

General

The Applicant will review and adhere to the Standard Comments on your Department's website that are specifically applicable to the proposed Project.

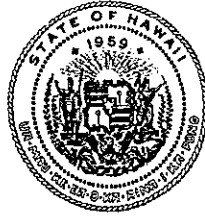
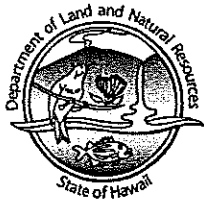
We appreciate your time and effort in reviewing the subject EA.

Sincerely,

Frances Yamada
Senior Planner

cc: Mr. Michael Cain, State Department of Land and Natural Resources, Office of Conservation and Coastal Lands
Ms. Katherine Kealoha, State Office of Environmental Quality Control
Mr. Roby Snow, Kukui'ula Development Company (Hawaii), LLC

LINDA LINGLE
GOVERNOR OF HAWAII



STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES

POST OFFICE BOX 621
HONOLULU, HAWAII 96809

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
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CONSERVATION AND RESOURCES ENFORCEMENT
ENGINEERING
FORESTRY AND WILDLIFE
HISTORIC PRESERVATION
KAHOOLAWE ISLAND RESERVE COMMISSION
LAND
STATE PARKS

REF:OCCL:MC
CDUA: KA-3454

Frances Yamada
Wilson Okamoto Corporation
1907 S. Beretania St., Suite 400
Honolulu, HI 96826

RECEIVED
FEB 14 2008

Acceptance Date: February 11, 2008
180 Day Expiration Date: August 9, 2008

FEB 12 2008

WILSON OKAMOTO CORPORATION

Dear Ms. Yamada,

NOTICE OF ACCEPTANCE AND PRELIMINARY ENVIRONMENTAL ACCEPTANCE
Conservation District Use Application (CDUA) KA-3454
(Board Permit)

This acknowledges the receipt and acceptance for the processing of your client's Conservation District Use Application (CDUA) for the landscaping, trail work, and roadwork on lands between Spouting Horn Park and the National Tropical Botanical Garden (NTBG) in Kōloa, Kaua'i, TMK (4) 2-6-02:12; 2-6-03: 3 and 20; and portions of Lawai Road. The project area is in the Limited Subzone of the State Land Use Conservation District.

The proposal is part of a larger pedestrian and bicycle trail system that the applicant is developing in accordance with Condition No. 15.c) of Zoning Ordinance No. M-2004-370. The proposal involves:

- developing a 1700-foot linear turf-grass or gravel pedestrian trail on the makai side of Lawai Road;
- developing three new gravel parking areas;
- clearing non-native and invasive species makai of Lawai Road;
- planting indigenous and Polynesian-introduced species in the makai areas;
- maintaining the vegetation along the mauka side of Lawai Road; and
- resurfacing a 700-foot asphalt section of the paved NTBG tram road.

The project area covers 6.4 acres of land. The proposal calls for the development of a 16,000 foot (approximately 0.3 acre) test area in the Western portion of the project to test the proposed vegetation removal and replanting schemes. The applicant will be dedicating easements to the County for the trail network, although the applicant will be responsible for future maintenance of the network.

The pedestrian trail would run adjacent to the pavement's edge, and would range from four to eight feet in width. The trail will start at Spouting Horn and run for 1700 feet. The proposal

calls for a turf grass trail, but leaves the option open for a gravel trail if long-term maintenance becomes an issue. A future trail will run mauka of Lawai Road and connect this pedestrian trail to the adjacent Kukui`ula development.

The applicant will build three new gravel parking areas, which will provide for parking for ten vehicles total. The proposed locations are currently being used for parking along the unpaved shoulder along Lawai Road.

The clearing of invasive species will occur within a 2.8 acre section extending along the length of the coastal lands adjacent to and makai of Lawai Road and the Tram Road. The makai limits of the clearing will extend from between fifteen and 100 feet from the right of way.

The applicant proposes to re-vegetate this area with indigenous and Polynesian-introduced shrubs and groundcover. Proposed plants include naio papa, or bastard sandalwood (*Myoporum sandwicense*), `akoko (*Euphorbia spp.*); pa`u o hi`iaka, or morning glory (*Jacquemontia ovalifolia*); `ilima papa (*sida fallax*); and pōhinahina, or beach vitex (*Vitex ovata*).

In addition to this, the applicant proposes to remove select large invasive trees from three acres in areas makai of the main clearing and mauka of the road.

The fence along the mauka edge of Lawai Road will be removed to facilitate maintenance.

Archaeological surveys located three historic sites within the project area: two rock shelter caves that appear to have been looted, and a remnant of a coastal trail. Conservation of all three areas will take the form of avoidance and protection.

The flora in the area is dominated by weedy non-native species. The few natives found are herbaceous species such as `uahloa, (*Waltheria indica var. Americana*); `ihi`ae, or woodsorrel (*Oxalis sp.*); pa`u o hi`iaka, or morning glory (*Jacquemontia ovalifolia*); and `ilima papa (*sida fallax*).

There is a nesting colony of `ua`u kani, or wedge tailed shearwaters (*Puffinus pacificus*) in the project area, and the applicant states that construction will not take place during the nesting season. The applicant states that the clearing of alien species will facilitate shearwater nesting. Although noen were observed during surveys, the area is also a probable flyover area for the `ua`u, Hawaiian petrel (*Pterodroma sandwichensis*); `a`o, or Newell's Shearwater (*Puffinus auricularis newelli*); and `ope`ape`a, or Hawaiian hoary bat (*Lasiurus cinereus semotus*),

After reviewing the application, the Department finds that:

1. The proposed use is an identified land use in the Limited Subzone of the Conservation District, pursuant to Hawai'i Administrative Rules (HAR) §13-5-23, *Identified Land Uses in the Limited Subzone*, L-4 LANDSCAPING AND REMOVAL OF NOXIOUS PLANTS. The final authority to grant or deny the permit rests with the Board of Land and Natural Resources (BLNR).
2. Pursuant to HAR §13-5-40, a Public Hearing will not be required;

3. Pursuant to HAR §13-5-31 *Permit applications*, the permit requires that an environmental assessment be carried out. A Finding of No Significant Impact (FONSI) to the environment is anticipated for the proposed project. The draft environmental assessment (DEA) for the project will be submitted to the Office of Environmental Quality Control (OEQC) to be published in the February 23, 2008 issue of the *Environmental Notice*.

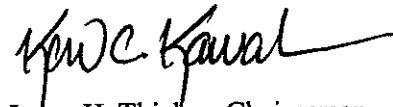
Our office has some questions regarding the proposal that we would like to see addressed in the Final Environmental Assessment.

- OCCL notes that the re-vegetation scheme utilizes groundcovers and herbaceous shrubs, but no native trees. While all the current trees are invasive and nuisance species, they do provide possible ecological functions (e.g. erosion prevention, providing nesting areas for shorebirds, providing a canopy, etc.). OCCL would like to see a discussion on whether there are any indigenous trees that would be appropriate to include in the re-vegetation scheme.
- As discussed in the application, the shoreline area is used by fishermen and gatherers. OCCL would like to know whether these recreational users rely on defined shoreline access points, and if so where those paths are and how they would be affected by the new pedestrian path.
- The application states that work would be scheduled around the nesting season for the 'u'au kani. OCCL would like to see a more detailed work schedule detailing what construction and maintenance activities will and will not occur during specific times.

The filing fee for Board Permits is \$100. OCCL is returning Check No. 8469 for \$1100 to you. You can resubmit a check for the proper amount to our office, made payable to the State of Hawai'i.

This CDUA will be placed on the agenda of the BLNR for their consideration upon completion of the review process. Should you have any questions please contact Michael Cain at 783-2501.

Sincerely,


for Laura H. Thiefen, Chairperson
Board of Land and Natural Resources

cc: *Kaua'i Board Member*
DLNR – DOCARE / DOFAW / KDLO / HPD / DAR / Na Ala Hele
OEQC
DBEDT – Planning
DOH – Environmental Management Division
OHA
County of Kaua'i Department of Planning
Kaua'i Group, Sierra Club Box 3412, Lihue, Hawai'i 96766
Kaua'i Invasive Species Committee, P.O. Box 1998, Lihue, HI 96766
National Tropical Botanical Garden, 3530 Papalina Road, Kalaheo, HI 96741
County of Kaua'i Open Space Commission
Lihue Public Library



6607-13
April 10, 2008

1907 South Beretania Street
Artesian Plaza, Suite 400
Honolulu, Hawaii, 96826 USA
Phone: 808 946 2277
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Mr. Samuel J. Lemmo, Administrator
State of Hawaii
Department of Land and Natural Resources
Office of Conservation and Coastal Lands
P.O. Box 621
Honolulu, Hawaii 96809

Attention: Mr. Michael Cain

Subject: Draft Environmental Assessment ("EA")
Conservation District Use Application (CDUA) KA-3454
Kukui'ula Conservation District Improvements
Tax Map Keys: (4) 2-6-02: 12 and 2-6-03: 3 and 20, and Portion of Lawai
Road
Koloa, Island of Kauai, Hawaii

Dear Mr. Lemmo:

Thank you for your letter of February 12, 2008 (REF: OCCL:MC CDUA:KA-3454) regarding the subject Draft EA and CDUA. We offer the following responses to your comments regarding the Draft EA:

1. In an effort to expand the diversity of the native plant palette within the Project Site, three (3) native coastal tree species, the hala, hau and naio, have been added to the re-vegetation areas as shown on the attached modified Conceptual Site Plans. All of these indigenous trees will continue to provide the same ecological functions as the existing non-native trees within the Project Site, while enhancing the composition and diversity of the native vegetation habitat within the coastal area. The addition of the three (3) native coastal tree species, and the attached modified Conceptual Site Plans, will be incorporated in **Section 2.2 Project Description** of the Final EA.
2. Currently, there are four (4) defined shoreline access points used by the public that originate from the makai edge of the Lawai Road right-of-way within the Project Site as depicted on the attached modified Conceptual Site Plans. All of these shoreline access points are located near areas currently used for parking along the unpaved makai shoulder within the Lawai Road right-of-way, except for one that is located just east of the National Tropical Botanical Garden ("NTBG") gate. As shown on the modified Conceptual Site Plans, one shoreline access point is located off of the proposed turf grass pedestrian trail near the new gravel parking area within the eastern portion of the Project Site. Two (2) other shoreline access points are located off of the proposed turf grass pedestrian trail near the new gravel parking area located within the west-central portion of the Project Site. The fourth shoreline access point is located just east of the NTBG gate. All of these existing shoreline access points will remain unaffected by the proposed Project improvements as direct access will continue to be provided from the adjacent turf grass pedestrian trail, and the proposed vegetation clearing/removal and re-vegetation improvements will be kept clear of and will not impede the current access trails. This information will be included in **Section 3.16 Recreational Facilities and Public Access** in the Final EA.



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Letter to Mr. Samuel J. Lemmo
April 10, 2008
Page 2

3. In consideration of the breeding/nesting season of the Wedge-tailed Shearwaters (*Puffinus pacificus*), the development schedule for the proposed Project will be adjusted. Overall development of the proposed Project is anticipated to commence by January 2009, with completion by March 2011, subject to the receipt of all necessary permits and plan approvals.

Development of the Project improvements will occur in three (3) phases. The first phase will include construction of the approximately 16,000 square-foot test area within the western portion of the Project Site. Construction of this phase is anticipated to commence by January 2009, with completion by March 2009 during the period that the Wedge-tailed Shearwaters are absent. Upon completion of construction of the test area, the Applicant will coordinate with the State Department of Land and Natural Resources Office of Conservation and Coastal Lands, the County of Kauai and other appropriate agencies to review the results. The duration of this review period is anticipated to occur from March 2009 to November 2009 during the breeding/nesting season of the Wedge-tailed Shearwaters.

The second phase will include construction of the improvements west of the National Tropical Botanical Garden ("NTBG") gate. Construction of this phase is anticipated to commence by December 2009, with completion by March 2010 during the period that the Wedge-tailed Shearwaters are absent.

The third phase will include construction of the improvements east of the NTBG gate. Construction of this phase is anticipated to commence by December 2010, with completion by March 2011 during the period that the Wedge-tailed Shearwaters are absent.

Following completion of construction of the Project improvements, the long-term maintenance activities will be undertaken in consideration of the breeding/nesting season of the Wedge-tailed Shearwaters. Maintenance of the turf grass pedestrian trail and re-vegetated areas will be conducted on a weekly basis. During the breeding/nesting season of the Wedge-tailed Shearwaters, a qualified biologist will map the seabird nesting colonies that may be present within the Project Site each year. The boundaries of these seabird nesting colonies will then be delineated with stakes placed in the ground, and all maintenance activities within those boundaries will be restricted until the seabirds have fledged. The application of all natural bio-fertilizer and brush-on herbicide will be undertaken during the period of December to March when the Wedge-tailed Shearwaters are absent.

Maintenance activities within the areas of selective vegetation removal will be conducted during the period of December to March when the Wedge-tailed Shearwaters are absent.

The above information on the adjusted development schedule for the proposed Project will be incorporated in the Final EA.



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Letter to Mr. Samuel J. Lemmo
April 10, 2008
Page 3

We appreciate your time and effort in reviewing the subject EA.

Sincerely,

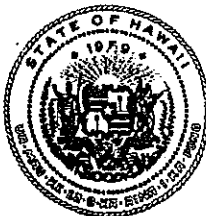
A handwritten signature in black ink, appearing to read "Frances Yamada", is written over a light blue horizontal line.

Frances Yamada
Senior Planner

Enclosures

cc: Ms. Katherine Kealoha, State Office of Environmental Quality Control
Mr. Roby Snow, Kukui'ula Development Company (Hawaii), LLC

LINDA LINGLE
GOVERNOR OF HAWAII



STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
Office of Conservation and Coastal Lands
POST OFFICE BOX 621
HONOLULU, HAWAII 96809

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

REF:OCCL:MC
FILE NO.: KA-3454

180 Day Expiration Date: August 9, 2008
Suspense Date: 27 Days from stamped date

FEB 12 2008

MEMORANDUM:

To: DLNR Historic Preservation Division
 Forestry and Wildlife
 DOCARE
 Aquatic Resources
 Land Division
 Na Ala Hele

FROM: Samuel J. Lemmo, Administrator
Office of Conservation and Coastal Lands

SUBJECT: REQUEST FOR COMMENTS
Conservation District Use Application KA-3454
BOARD PERMIT
Landscaping and Trail Work

APPLICANT: Kukui'ula Development Corporation

TMKs: (4) 2-6-02:12; 2-6-03:3, 20; and portion of Lawai Road

LOCATION: Kōloa, Kaua'i

PUBLIC HEARING: Yes No X

RECEIVED
OFFICE OF CONSERVATION
& COASTAL LANDS
2008 FEB 14 A 11:33
DEPT. OF LAND &
NATURAL RESOURCES
STATE OF HAWAII

Please contact Michael Cain at 587-0048, should you have any questions on this matter.

If no response is received by the suspense date, we will assume there are no comments. The suspense date starts from the date stamp.

Comments Attached
 No Comments

Signature
PAUL J. CONRY, ADMINISTRATOR
DIVISION OF FORESTRY AND WILDLIFE

Attachments: Conservation District Use Application
Draft Environmental Assessment

FEB 13 2008

LINDA LINGLE
GOVERNOR OF HAWAII



STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES

DIVISION OF FORESTRY AND WILDLIFE
KAUAI DISTRICT
3060 EIWA STREET, ROOM 306
LIHUE, KAUAI, HAWAII 96766

March 24, 2008

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
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ENGINEERING
FORESTRY AND WILDLIFE
HISTORIC PRESERVATION
KAHOOLAWE ISLAND RESERVE COMMISSION
LAND
STATE PARKS

RECEIVED
MAR 28 2008

WILSON OKAMOTO CORPORATION

Wilson Okamoto Corporation
1907 South Beretania Street, Suite 400
Honolulu, Hawaii 96826
Attention: Ms. Frances Yamada

Subject: Draft Environmental Assessment for the Kukui'ula Conservation District Improvements:
Tax Map Keys: (4) 2-6-02:12 and 2-6-03:3 and 20, and Portion of Lawai Road

Dear Ms. Frances Yamada,

We submit the following comments related to biological resources and specifically section 3.6 and Appendix C.

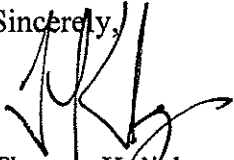
1. We recommend that surveys for wedge-tailed shearwaters be conducted by a qualified biologist during 2008 in order to scientifically delineate where the protected seabirds are nesting both mauka and makai of the existing road, and in consultation with the Kaua'i Division of Forestry and Wildlife office.
2. In 2007, a number of documented wedge-tailed shearwaters were found dead along the proposed project area due to dogs and possibly vehicles. These incidents constitute the existing baseline conditions that should be analyzed in the EA. Our office can provide information on the seabird mortality problems in the area.
3. Because of the seabird light attraction issue on Kauai, we recommend that night time construction activities be avoided during the period of mid-March to mid-December due to the close proximity of the seabird nesting colony.
4. Planned vegetation removal/planting activities should coincide with the non-nesting period of mid-December to mid-March as much as possible to avoid disturbance to nesting seabirds. However, a small-scale habitat restoration project may be tried in a section where there are no known active nests. Maintain a minimal distance of one hundred meters from the nearest known active nest. The trial project area should be monitored for seabird nesting activity.
5. We recommend a ten feet buffer of native vegetation be established on the mauka side of the existing rock wall. This will minimize disturbance to nesting seabirds from landscape maintenance equipment and golf carts.

6. We recommend the proposed project implement avoidance and minimization measures such as seabird awareness training to workers, and establishing a seabird rescue protocol with on-site rescue supplies through the duration of the project.

Thank you for the opportunity to comment of the DEA. We believe the proposed project may provide a benefit toward restoring and protecting a unique coastal habitat. It is our hopes the project developer will collaborate with DLNR toward establishing a long term habitat protection and management plan for the area.

If you have any questions or concerns, please feel free to contact me at 274-3433 or Andrea Erichsen, Kauai Seabird HCP Coordinator at 245-9160. Mahalo nui loa.

Sincerely,

A handwritten signature in black ink, appearing to read 'TK' with a flourish extending to the right.

Thomas Ka'iakapu
Kauai Wildlife Manager

Cc: Andrea Erichsen, DLNR-DOFAW
Ms. Katherine Kealoha, SOH-OEQC
Mr. Michael Cain, DLNR-OCCL



6607-13
April 10, 2008

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Mr. Thomas Ka'iakapu, Kauai Wildlife Manager
State of Hawaii
Department of Land and Natural Resources
Division of Forestry and Wildlife, Kauai District
3060 Eiwa Street, Room 306
Lihue, Hawaii 96766

Subject: Draft Environmental Assessment ("EA")
Kukui'ula Conservation District Improvements
Tax Map Keys: (4) 2-6-02: 12 and 2-6-03: 3 and 20, and Portion of Lawai
Road
Koloa, Island of Kauai, Hawaii

Dear Mr. Ka'iakapu:

Thank you for your letter of March 24, 2008 regarding the subject Draft EA. We offer the following responses:

1. Prior to initiating the removal of existing vegetation and prior to re-vegetation activities, a qualified biologist will be retained by the Applicant to survey the Project Site to ascertain the location and number of Wedge-tailed Shearwater burrows that may be present. These activities will not be initiated until after the Wedge-tailed Shearwaters have fledged in late November. This survey will be undertaken in consultation with the Kauai District office of the State Department of Land and Natural Resources Division of Forestry and Wildlife.

This information will be included in bullet point 2 in **Section 3.6 Vertebrate Fauna – Impacts and Mitigation Measures**, and in Significance Criteria 9) in **Chapter 7 Notice of Determination** in the Final EA.

2. The Applicant is aware of the Wedge-tailed Shearwater (*Puffinus pacificus*) mortality issues that have historically occurred along Lawai Road. The Applicant has met with the State DLNR Division of Forestry and Wildlife and has solicited their assistance in controlling the existing feral cat feeding colony that is present with the parking area of Spouting Horn Park. The Applicant has also undertaken a predator trapping program on their Kukui'ula property in close proximity to the existing Wedge-tailed Shearwater nesting colony located in and around the existing rock wall on the mauka side of Lawai Road.
3. Night time construction activities will not be undertaken in conjunction with the development of the proposed Project improvements.
4. In consideration of the breeding/nesting season of the Wedge-tailed Shearwaters, the development schedule for the proposed Project will be adjusted. Overall development of the proposed Project is anticipated to commence by January 2009, with completion by March 2011, subject to the receipt of all necessary permits and plan approvals.

Development of the Project improvements will occur in three (3) phases. The first phase will include construction of the approximately 16,000 square-foot test area



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Letter to Mr. Thomas Ka'iakapu
April 10, 2008
Page 2

within the western portion of the Project Site. Construction of this phase is anticipated to commence by January 2009, with completion by March 2009 during the period that the Wedge-tailed Shearwaters are absent. Upon completion of construction of the test area, the Applicant will coordinate with the State DLNR Office of Conservation and Coastal Lands, the County of Kauai and other appropriate agencies to review the results. The duration of this review period is anticipated to occur from March 2009 to November 2009 during the breeding/nesting season of the Wedge-tailed Shearwaters.

The second phase will include construction of the improvements west of the National Tropical Botanical Garden ("NTBG") gate. Construction of this phase is anticipated to commence by December 2009, with completion by March 2010 during the period that the Wedge-tailed Shearwaters are absent.

The third phase will include construction of the improvements east of the NTBG gate. Construction of this phase is anticipated to commence by December 2010, with completion by March 2011 during the period that the Wedge-tailed Shearwaters are absent.

Following completion of construction of the Project improvements, the long-term maintenance activities will be undertaken in consideration of the breeding/nesting season of the Wedge-tailed Shearwaters. Maintenance of the turf grass pedestrian trail and re-vegetated areas will be conducted on a weekly basis. During the breeding/nesting season of the Wedge-tailed Shearwaters, a qualified biologist will map the seabird nesting colonies that may be present within the Project Site each year. The boundaries of these seabird nesting colonies will then be delineated with stakes placed in the ground, and all maintenance activities within those boundaries will be restricted until the seabirds have fledged. The application of all natural bio-fertilizer and brush-on herbicide will be undertaken during the period of December to March when the Wedge-tailed Shearwaters are absent.

Maintenance activities within the areas of selective vegetation removal will be conducted during the period of December to March when the Wedge-tailed Shearwaters are absent.

The above information on the development schedule for the proposed Project will be incorporated in the Final EA.

The approximately 16,000 square-foot test area to be developed for the Project will be conducted in an area in which a qualified biologist has determined that there are no Wedge-tailed Shearwaters nesting burrows present. A minimum distance of 100 meters will be maintained from the nearest known active nest. As indicated above, construction of this test area is anticipated to commence in January 2009, with completion by March 2009 during the period that the Wedge-tailed Shearwaters are absent. This test area will be monitored for seabird nesting activities by a qualified biologist.



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Letter to Mr. Thomas Ka'iakapu
April 10, 2008
Page 3

5. An approximately 10-foot wide landscape buffer consisting of the native shrub species naupaka (*Scaevola sericea*), and the polynesian-introduced tree species beach heliotrope (*Tournefortia argentea*) and true kamani (*Calophyllum inophyllum*) will be established along the mauka side of the existing rock wall fronting the planned 15th green of the Kukui'ula Golf Course. This segment of the existing rock wall extends along the majority of the Lawai Road frontage of the Project Site.
6. The Applicant will implement the following avoidance and minimization measures to ensure that the proposed Project improvements do not result in adverse impacts to any existing or potential Wedge-tailed Shearwaters nesting colonies:
 - All personnel associated with the construction and operations/maintenance of the Project improvements will be required to participate in a seabird awareness training program.
 - A seabird rescue protocol with on-site rescue supplies will be established for the construction and operations/maintenance phases of the Project. This will include the use of a pet carrier to be maintained at the Kukui'ula project site to temporarily contain any downed seabird which may be recovered in the general project area. The State DLNR Department of Forestry and Wildlife and/or Save our Shearwaters organization will be contacted immediately upon the recovery of any downed seabird for proper action.
 - Night time construction activities will not be undertaken in conjunction with the development of the proposed Project improvements.

This information will be incorporated in **Section 3.6 Vertebrate Fauna – Impacts and Mitigation Measures**, and in Significance Criteria 9) of **Chapter 7 Notice of Determination** in the Final EA.

The Applicant will closely collaborate with the Kauai District office of the State DLNR Division of Forestry and Wildlife toward establishing a long-term habitat protection and management plan for the Project Site.

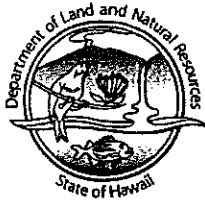
We appreciate your time and effort in reviewing the subject EA.

Sincerely,

Frances Yamada
Senior Planner

cc: Mr. Michael Cain, State Department of Land and Natural Resources, Office of Conservation and Coastal Lands
Ms. Katherine Kealoha, State Office of Environmental Quality Control
Mr. Roby Snow, Kukui'ula Development Company (Hawaii), LLC
Mr. Reginald David, Rana Productions, Ltd.

LINDA LINGLE
GOVERNOR OF HAWAII



Laura H. Thielen
Chairperson
Board of Land and Natural Resources
Commission on Water Resource Management

Russell V. 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
Kahooolawe Island Reserve Commission
Land
State Parks

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AND COASTAL LANDS

2008 FEB 21 A 11:07

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
Office of Conservation and Coastal Lands
POST OFFICE BOX 621
HONOLULU, HAWAII 96809

DEPT. of LAND &
NATURAL RESOURCES
STATE OF HAWAII

REF:OCCL:MC
FILE NO.: KA-3454

180 Day Expiration Date: August 9, 2008
Suspense Date: 27 Days from stamped date

FEB 12 2008

MEMORANDUM:

To: DLNR ___ Historic Preservation Division
___ Forestry and Wildlife
___ DOCARE
___ Aquatic Resources
___ Land Division
___ Na Ala Hele

FROM: Samuel J. Lemmo, Administrator
Office of Conservation and Coastal Lands

SUBJECT: REQUEST FOR COMMENTS
Conservation District Use Application KA-3454
BOARD PERMIT
Landscaping and Trail Work

APPLICANT: Kukui`ula Development Corporation

TMKs: (4) 2-6-02:12; 2-6-03:3, 20; and portion of Lawai Road

LOCATION: Kōloa, Kaua`i

PUBLIC HEARING: Yes No X

Please contact Michael Cain at 587-0048, should you have any questions on this matter.

If no response is received by the suspense date, we will assume there are no comments. The suspense date starts from the date stamp.

Comments Attached
 No Comments

Signature

Attachments: Conservation District Use Application
Draft Environmental Assessment

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

2008 MAR 24 A 8:51
STATE OF HAWAII

March 17, 2008

Mr. Sam Lemmo, Administrator
Department of Land and Natural Resources
Office of Conservation and Coastal Lands
P.O. Box 621
Honolulu, Hawai'i 96809

LOG NO: 2008.0521
DOC NO: 0803NM08
Archaeology

Dear Mr. Lemmo:

**SUBJECT: Chapter 6E-8 Historic Preservation Review [State/Kukuiula Development Corporation] -
CDUA KA-3454 Landscaping and Trail Work
Kukuiula, Koloa, Kauai
TMK: (4) 2-6-002: 12, 2-6-003: 3, 20 and portion of Lawai Road**

The aforementioned project is for beach passive improvement for pedestrian trail on parts of an historic trail along Lawai Beach Road near Sprouting Horn to NTBG.

We believe that "no historic properties will be affected" by this undertaking because:

- Intensive cultivation has altered the land
- Residential development/urbanization has altered the land
- Previous grubbing/grading has altered the land
- An accepted archaeological inventory survey (AIS) found no historic properties
- SHPD previously reviewed this project and mitigation has not been completed
- Other: *Three historic sites (two rock shelters and historic trail) are in the project area. A preservation plan has been reviewed and approved but it has not been implemented. SHPD is awaiting it implementation to verify the plan has been completed.*

In the event that historic resources, including human skeletal remains, are identified during routine construction activities, all work needs to cease in the immediate vicinity of the find, the find needs to be protected from additional disturbance, and the State Historic Preservation Division, Kauai Section, needs to be contacted immediately at (808) 241-3690.

Aloha,

Nancy McMahon, Acting Archaeology Branch Chief
State Historic Preservation Division

NM:



6607-13
April 10, 2008

1907 South Beretania Street
Artesian Plaza, Suite 400
Honolulu, Hawaii, 96826 USA
Phone 808 946 2277
Fax 808 946 2253
www.wilsonokamoto.com

**Ms. Nancy McMahon, Acting Archaeology Branch Chief
State of Hawaii
Department of Land and Natural Resources
State Historic Preservation Division
601 Kamokila Boulevard, Room 555
Kapolei, Hawaii 96707**

**Subject: Conservation District Use Application CDUA KA-3454
Draft Environmental Assessment ("EA")
Kukui'ula Conservation District Improvements
Tax Map Keys: (4) 2-6-02: 12 and 2-6-03: 3 and 20, and Portion of Lawai
Road
Koloa, Island of Kauai, Hawaii**

Dear Ms. McMahon:

This is in response to your letter of March 17, 2008 (LOG NO: 2008.0521, DOC NO: 0803NM08 Archaeology) regarding the subject CDUA KA-3454 in which it is indicated that no historic properties will be affected.

We acknowledge that the State Historic Preservation Division previously reviewed this Project and mitigation has not been completed as your Division is awaiting implementation of the preservation plan that was approved for the historic coastal trail complex and the two (2) shelter cave sites within the Project Site.

In the event that historic resources, including human skeletal remains, are found during the course of construction activities within the Project Site, the Applicant will stop work in the immediate vicinity and the State Historic Preservation Division, Kauai Section will be notified immediately.

We appreciate your time and effort in reviewing the subject CDUA and Draft EA.

Sincerely,

Frances Yamada
Senior Planner

cc: Mr. Michael Cain, State Department of Land and Natural Resources, Office of Conservation and Coastal Lands
Ms. Katherine Kealoha, State Office of Environmental Quality Control
Mr. Roby Snow, Kukui'ula Development Company (Hawaii), LLC



STATE OF HAWAII
OFFICE OF HAWAIIAN AFFAIRS
711 KAPI'OLANI BOULEVARD, SUITE 500
HONOLULU, HAWAII 96813

FAX (808) 594-1865
RECEIVED
OFFICE OF CONSERVATION
& COASTAL LANDS
2008 APR -1 A 10: 01
DEPT. OF LAND &
NATURAL RESOURCES
STATE OF HAWAII

HRD08/1617D

March 27, 2008

Michael Cain
Department of Land and Natural Resources
Office of Conservation and Coastal Lands
P.O. Box 621
Honolulu, HI 96809

RE: Conservation District Use Application (CDUA), Kukui'ula Development Corporation, Lāwa'i Ahupua'a, Kōloa, Kaua'i, TMKs: 2-6-002:012, 2-6-003:003 & 020

Dear Mr. Cain,

The Office of Hawaiian Affairs (OHA) is in receipt of your request for comments concerning a CDUA and associated landscaping and trail work in Kōloa on Kaua'i. OHA offers the following comments:

OHA understands that the proposed improvements are in fulfillment of Condition No. 15.f) of Zoning Ordinance No. PM-2004-370 for the Kukui'ula development which requires that the applicant provide public pedestrian access to the shoreline areas west of Spouting Horn Park owned by the applicant.

It is unclear at this point whether public access to the project area will be restricted or prevented while the proposed improvements are occurring. OHA does appreciate that a cultural impact assessment was undertaken for this proposed project as required by law. However, this assessment did identify a few ongoing cultural practices in the area and OHA seeks assurances that the proposed improvements will have no impact on any constitutionally protected traditional and customary practices which occur within the project area. Further, should this project move forward and any Native Hawaiian cultural, traditional, or burial sites be identified all work should immediately cease and the appropriate agencies notified pursuant to applicable law.

While OHA applauds the efforts to remove existing alien vegetation from certain portions of the project area followed by the planting of endemic, indigenous or Polynesian introduced plant species common to the project area, we remain unconvinced that there will be no side effects from this proposed action. OHA urges caution in the use of paint-on or spray-on herbicide

Michael Cain
March 27, 2008
Page 2

during the alien vegetation removal. We also inquire as to the use of these herbicides during the upkeep of the project area and whether or not the applicant intends to use them. We also note that applicant intends to remove large, non-native trees from a three-acre area. We note that this is treated separately than the 29 iron wood trees to be removed and ask how many trees are proposed to be removed in total and further ask that the applicant provide analysis of the effects of doing so.

We also express concern over the installation of 1,700 linear feet of turf grass, the installation of a permanent irrigation system and the upkeep that it will need. This area will require mechanized installation, watering, and both fertilizer and herbicide application on a daily, weekly or quarterly basis. (CDUA, page 10)

As such, OHA inquires as to the wisdom of using turf grass for this area. We advocate for the presentation of an alternative to using turf grass and suggest that other materials would eliminate the need for irrigation, fertilizer and herbicides.

Currently, the erosion control standards and guidelines recommend measures and implementation of certain Best management Practices (BMPs) for small projects (Section 1-3 Categories 1, 2 and 3), in order to comply with the U.S. Environmental Protection Agency National Pollutant Discharge Elimination System (NPDES) program, issued by the state agency the Department of Health Clean Water Branch. OHA inquires as to what BMPs the applicant intends to use and what monitoring of the BMPS for effectiveness is proposed.

OHA also urges that the applicant be sure that the trail does not fix or harden the shoreline in any way. Further, the trail route should be designed to be a rolling contour trail that avoids the fall line of flowing water. It should follow the natural contours of the land with a maximum trail grade of six percent. The trail should also have an outslope to encourage water to sheet across and off the trail instead of down its center. This sheeting should also be channeled to avoid discharge into State waters, especially in regards to sediments, turbidity and the applied fertilizers and herbicides.

OHA does note that any project and its potential impacts to State waters must meet the anti-degradation policy found in Hawai'i Administrative Rules Section (HAR) 11-54-1.1, which requires that the existing uses and the level of water quality necessary to protect the existing uses of the receiving State water be maintained and protected. (See HAR, Section 11-54-3 and HAR, Sections 11-54-4 through 11-54-8)

Thank you for the opportunity to comment. If you have further questions, please contact Grant Arnold at (808) 594-0263 or granta@oha.org.

Michael Cain
March 27, 2008
Page 3

Sincerely,

A handwritten signature in black ink, appearing to read "Clyde W. Nāmu'o". The signature is fluid and cursive, with a prominent initial "C" and a long, sweeping tail.

Clyde W. Nāmu'o
Administrator

C: OHA Kauai Office
Community Resources Coordinator



6607-13
April 10, 2008

1907 South Beretania Street
Artesian Plaza, Suite 400
Honolulu, Hawaii, 96826 USA
Phone: 808 946 2277
Fax: 808 946 2253
www.wilsonokamoto.com

Mr. Clyde W. Nāmu'o, Administrator
State of Hawaii
Office of Hawaiian Affairs
711 Kapiolani Boulevard, Suite 500
Honolulu, Hawaii 96813

Subject: Conservation District Use Application CDUA KA-3454
Draft Environmental Assessment ("EA")
Kukui'ula Conservation District Improvements
Tax Map Keys: (4) 2-6-02: 12 and 2-6-03: 3 and 20, and Portion of Lawai
Road
Koloa, Island of Kauai, Hawaii

Dear Mr. Nāmu'o:

Thank you for your letter of March 27, 2008 (Ref: HRD08/1617D) regarding the subject CDUA and Draft EA. We provide the following responses in the order of your comments:

As indicated in **Section 3.16 Recreational Facilities and Public Access – Impacts and Mitigation Measures** in the Draft EA, during construction of the Project improvements, recreational use and public access to and along the coastline within the Project Site will remain unaffected, except for specific areas where the construction activities are occurring. Since the Project improvements will be constructed in phases, the construction activities will shift to different locations within the Project Site as the previous phase is completed, thereby allowing continued recreational use and public access to the remaining areas within the site.

As indicated in **Section 4.4 County of Kauai General Plan, 3.6 Native Hawaiian Rights**, in the Draft EA, the proposed Project will enhance the recreational uses and gathering practices which currently occur within the Project Site by providing public pedestrian access to the shoreline areas west of Spouting Horn Park.

As indicated in **Section 3.10 Historic and Archaeological Resources – Impacts and Mitigation Measures** in the Draft EA, should any previously unidentified burial, archaeological or historic sites be found during the course of implementation activities within the Project Site, the Applicant will stop work in the immediate vicinity and the State Department of Land and Natural Resources ("DLNR") Historic Preservation Division ("SHPD") will be notified immediately. The significance of these finds will then be determined and appropriate mitigation measures will be approved by the SHPD and the Kauai/Niihau Islands Burial Council, as appropriate. Subsequent work will proceed after SHPD authorization has been received and mitigative measures have been implemented.

Fertilization of the new vegetation and turf grass trail within the Project Site will be applied by directly injecting all natural bio-fertilizer into the irrigation water and through the irrigation system. This system of fertilization will reduce the amount of fertilizer that would otherwise be required by up to 70 to 90 percent, thereby largely eliminating fertilizer runoff. Appropriate herbicides will be applied to the cut vegetation stumps at the recommended concentration level with a wipe-on or brush-on technique which will minimize the drift overspray that would otherwise occur with a spray-on technique. The use of herbicides within the Project Site is anticipated to be minimal since it is proposed



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Letter to Mr. Clyde W. Nāmu'o
April 10, 2008
Page 2

for use only until the new vegetation is established and as needed during the long-term maintenance operations. The herbicides to be used will be Environmental Protection Agency ("EPA") certified products approved for use in environmentally sensitive areas. The fertilizers and herbicides to be used within the Project Site will be determined in consideration of the sensitive environment and recreational users of the area. The information from this paragraph will be incorporated in **Section 2.2 Project Description**, **Section 3.3 Water Resources – Impacts and Mitigation Measures**, Significance Criteria 5) in **Chapter 7 Notice of Determination**, Significance Criteria 10) in **Chapter 7 Notice of Determination**, and Significance Criteria 11) in **Chapter 7 Notice of Determination** of the Final EA.

The Applicant proposes to remove a total of approximately 55 ironwood trees (*Casuarina equisetifolia*) from the Project Site. This includes the removal of approximately 40 ironwood trees within the area proposed for vegetation clearing/re-vegetation, and approximately 15 ironwood trees from the area proposed for selective vegetation removal, including approximately three (3) ironwood trees located in the area mauka of the National Tropical Botanical Garden ("NTBG") tram road. These trees proposed for removal are those with an approximately 6-inch caliper. The proposed removal of the 29 diseased/declining ironwood trees is included within the proposed total of approximately 55 ironwood trees to be removed within the Project Site. The ironwood trees are proposed for removal due to their impact on the native plant community resulting from their abundant shading and the accumulation of their needle-like leaves and stems which accumulate in a mat-like nature on the ground, thereby inhibiting the growth of other plants in the immediate area. In addition, approximately 40 to 50 of the existing non-native succulent pencil trees (*Euphorbia tirucalli*) will be removed from the area proposed for vegetation clearing/re-vegetation within the Project Site. The proposed removal of the pencil trees is due to the potential hazard owing to the caustic nature of the milky sap exuded from the plant which is irritating to the skin and can cause blindness if allowed to get into the eyes. The proposed removal of both of these non-native plant species will help to foster a plant assemblage that is more conducive to users of the area and help to restore the area towards a more appropriate native coastal ecosystem. This information will be incorporated in the Final EA.

In an effort to expand the diversity of the native plant palette within the Project Site, three (3) native coastal tree species, the hala, hau and naio, have been added to the re-vegetation areas as shown on the attached modified Conceptual Site Plans. All of these indigenous trees will continue to provide the same ecological functions as the existing non-native trees within the Project Site, while enhancing the composition and diversity of the native vegetation habitat within the coastal area. The addition of the three (3) native coastal tree species, and the attached modified Conceptual Site Plans, will be incorporated in **Section 2.2 Project Description** of the Final EA.

The drought-tolerant turf grass, Seashore paspalum (*Paspalum vaginatum*), will be used for the proposed turf grass public pedestrian trail. As indicated in **Section 2.2 Project Description** of the Draft EA, the Applicant will maintain all proposed improvements within the Project Site, including the turf grass trail. A light application of fertilizer will be applied to the turf grass trail once or twice a year. No herbicides will be used on the turf grass trail. As indicated in the Draft EA, the Applicant proposes the potential option of



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Letter to Mr. Clyde W. Nāmu'o
April 10, 2008
Page 3

converting the turf grass trail into a granular trail in the future should long-term maintenance become a concern.

As indicated in **Section 3.3 Water Resources – Impacts and Mitigation Measures** of the Draft EA, a National Pollutant Discharge Elimination System (“NPDES”) General Permit for Storm Water Associated with Construction Activity administered by the State Department of Health (“DOH”) will be obtained to control storm water discharges. Construction of the Project improvements will also be in compliance with the County of Kauai’s (“County”) Grubbing Permit. Mitigation measures will be instituted following site-specific assessments, incorporating appropriate structural and/or non-structural Best Management Practices (“BMPs”).

During construction of the turf grass trail, rolled fiber filtration tubing will be installed adjacent to the makai side of the trail alignment along its entire length to prevent sediment-laden storm water runoff from flowing makai. The rolled fiber filtration tubing will remain in place until the turf grass is established within the trail. The hydro-seeding of the trail to establish the turf grass will also help to control erosion.

During clearing and removal of the existing vegetation and re-vegetation activities within the rocky coastal area makai of Lawai Road and the NTBG tram road, silt fencing will be installed along the makai boundary of the re-vegetated areas to prevent sediment-laden storm water runoff from flowing makai. Rolled fiber filtration tubing will also be installed at regular intervals in the area between the turf grass trail and the makai boundary of the re-vegetated areas to prevent sediment-laden storm water runoff from flowing makai. The silt fence and rolled fiber filtration tubing will remain in place until the new vegetation is established.

The phasing of the implementation of the Project improvements will also minimize the overall amount of exposed surfaces and ground disturbance at a given time, thereby further reducing the amount of storm water runoff that may occur. A gravel pad and wash down area will be placed at the planned construction entrance to the Project Site to prevent tracking of sediment onto Lawai Road and the NTBG tram road.

Since the proposed resurfacing activities of the NTBG tram road will occur over the existing asphalt-paved surface, there is anticipated to be no increase in the impervious surface area or storm water runoff. In resurfacing the tram road, the contractor will be required to brush clean the existing pavement surface and to control dust through water spraying. Following preparation of the existing pavement surface, a tack layer of asphaltic emulsion will be spread over the surface to promote bonding between the existing and new pavement prior to the new pavement being constructed.

During construction of the proposed Project improvements, the contractor(s) will inspect and monitor the BMPs on-site on a weekly basis to ensure the effectiveness of the BMPs.

The proposed turf grass pedestrian trail is not anticipated to harden or fix the shoreline within the Project Site. The turf grass trail, which will range in width from 4 to 8 feet, will be developed along the makai side of the Lawai Road right-of-way, adjacent to the road pavement edge. The trail will follow the natural contours of the land which is relatively flat and level. The drainage in the immediate vicinity of the trail will remain unchanged from



6607-13
Letter to Mr. Clyde W. Nāmu'o
April 10, 2008
Page 4

existing conditions as it will continue to sheetflow makai over the trail. As indicated in **Section 3.3 Water Resources – Impacts and Mitigation Measures** of the Draft EA, the proposed method of fertilization of the new turf grass trail, which will be applied by directly injecting biofertilizer into the irrigation water and through the irrigation system, will substantially reduce the amount of fertilizer that would otherwise be required by up to 70 to 90 percent, thereby largely eliminating fertilizer runoff. As previously indicated, no herbicides will be used on the turf grass trail.

Development of the proposed Project will meet the criteria with regard to the antidegradation policy (Hawaii Revised Statutes ("HAR"), Section 11-54-1.1), designated uses as determined by the Class A receiving waters (HAR, Section 11-54-3), and water quality criteria (HAR, Sections 11-54-4 through 11-54-8).

We appreciate your time and effort in reviewing the subject CDUA and Draft EA.

Sincerely,

Frances Yamada
Senior Planner

Enclosures

cc: Mr. Michael Cain, State Department of Land and Natural Resources, Office of Conservation and Coastal Lands
Ms. Katherine Kealoha, State Office of Environmental Quality Control
Mr. Roby Snow, Kukui'ula Development Company (Hawaii), LLC



SIERRA Kaua'i Group of the Hawai'i Chapter
CLUB Post Office Box 3412, Lihu'e, Kauai, Hawai'i, 96766

March 23, 2008

Richard Holtzman	Michael Cain	Frances Yamada	
Kukui'ula Dev. Co.	OCCL - DLNR	Wilson Okamoto Corp.	OEQC
P. O. Box 280	P. O. Box 621	1907 S. Beretania #400	235 S. Beretania #702
Koloa, HI 96756	Honolulu, HI 96809	Honolulu, HI 96826	Honolulu, HI 96813

RE: Concerns on Draft EA for CDUA – Kukui'ula Development Co. (4)2-6-02:12; 2-6-03:3, 20

Dear Sirs:

We have reviewed the Draft Environmental Assessment and have concerns about the proposal to clear and remove non-native vegetation along the makai portion of Lawai Road from the Spouting Horn Park to the NTBG entrance. While the proposal to replace non-native plants with native vegetation may seem desirable superficially, it will actually result in a substantially denuded landscape bringing no benefit to local residents. Eliminating mature trees and other large plants based solely on whether they are indigenous species is not an "improvement".

The plant removal and re-vegetation plan is not a conservation or restoration project. It is primarily to open up views to the ocean for the proposed golf course across the street. Of the 80+ species identified in the Botanical Species survey there were no endemic species found. There were only 5 indigenous "native" species which consist of low vines, groundcover and one shrub (pa'u o hi'iaka, 'ilima papa, 'ihi'ae yellow wood sorrel, popolo and 'uhaloa. The proposed plant list is extremely limited and lacks diversity -- 'akoko, pohinahina, pa'u o hi'iaka, 'ilima papa, naio papa and naupaka. Only two of the five species were found on site. No trees are proposed.

A thriving ecosystem currently exists and selective clearing would be more desirable than the proposed native species planting plan. The existing ironwood trees, pencil trees, five species of large cactus and sisal plants are almost 80 years old and have "naturalized" and survived the harsh coastal environment. They have merit in terms of their ecological, medicinal, historic, cultural, and aesthetic value.

The CDUA lacks sufficient detail about the plant removal and re-vegetation. The Conceptual Site Plan #1 designates a large area for selective removal of existing large non-native species. But, there are no criteria for that selection process. There is no schematic documentation or information identifying which plants will be retained or removed; no quantity or percentage is provided.

This is a sensitive and cherished coastal resource in the Conservation District, highly valued by residents. The consequences of the proposed improvements have been understated and

minimized. Based on the following, the proposed project will have a significant effect on the environment and the community.

1) Involves an irrevocable commitment to loss or destruction of any natural or cultural resource.

There is an established, self-supporting ecosystem here. Historically, the kama`aina families, the Moirs and the Allertons, experimented with a wide variety of plants to find species that would survive without irrigation and with low rainfall. Robert Allerton used cactus and succulents extensively for privacy and for shade along the trail that he commissioned Mr. Yamamoto, a stone mason, to build in the 1940's. To remove the naturalized cactus (panini, cereus night blooming, creeping, etc.) ironwood trees and pencil trees is an irrevocable loss and destruction of natural, historic and cultural resources. Hawaiians have voiced concern that plant removal may disturb undiscovered archeological artifacts and displace large rocks clustered around the base of large plants and trees. Rocks are culturally significant and the Hawaiian `Aha Kiole Advisory Committee should be invited to provide comments.

2) Curtails the range of beneficial uses of the environment.

Removing shade trees will curtail the range of beneficial uses of the environment and affect activities of the community. Residents who enjoy this coastline for an outdoors experience, to dive, fish, picnic, and find solitude, will be directly impacted by the removal of trees and large plants. Removal will alter the "sense of place" and diminish user's experience of this recreational resource. It will destroy the unique beauty of this coastline (see attached photographs).

3) Conflicts with the State's long term environmental policies or goals and guidelines as expressed in Chapter 344, HRS.

The current planting plan does not foster and maintain the area as a natural preserve or a unique ecological preserve in keeping with the thriving ecosystem currently in place. HRS 344-4(2)(E).

The two indigenous plant species at the site can be enhanced by a new plan that is moderate and reduces the threat of ecological hazard. The naturalized species with historic value should not be removed – they should be cared for in a manner that is compatible to the enhancement of our environment, HRS 344(3)(B).

Plant removal and re-vegetation with low-growing native species does not preserve and maintain scenic, historic, cultural, park and recreation areas of this shoreline, for public recreational, and educational uses, HRS-344 (4)(A).

Plans for irrigation, fertilizing and herbicides should be disallowed to protect the shorelines of the State from encroachment of artificial improvements, structures, and activities; HRS-344 (4)(B). Despite the use of best management practices, the potential for environmental harm is present from these activities.

4) Substantially affects the social welfare of the community.

According to page 7-4 in the DEA, "The Project is being developed in conjunction with the larger adjacent Kukui`ula development which, given its resort and second home nature, is not anticipated to have a considerable cumulative effect upon the environment." In contrast, we maintain that this resort and 2nd home lifestyle will not "Foster lifestyles compatible with the environment; preserve the variety of lifestyles traditional to Hawaii... which reflect the culture and mores of the community." HRS 344(8)(A).

5) Substantially affects public health.

Air quality and noise impacts will be present during the proposed development. Plans for fertilizing and herbicide use will affect recreational users who have chemical sensitivities.

6) Involves substantial secondary impacts, such as population changes or effects on public facilities.

The significant population increase caused by the Kukuiula Development will be a major factor in the environmental degradation of this site. Coastal access is already available – it is simple and discreet. In this manner, it protects the resource in keeping with state policy to conserve the natural resources and enhance the quality of life HRS 344-4.

7) Involves a substantial degradation of environmental quality.

Establishing native species will take years and may not be successful. Water resources are required for irrigation and the long term need to "maintain" the plantings will detract from the user's experience of this coastal resource. Excessive vegetation clearing for viewplanes is not in keeping with HRS policies to preserve and perpetuate the inherent value and significance of the conservation district.

8) Cumulatively has a considerable effect upon the environment.

The 1,500 upscale, transient accommodation units and second homes will have cumulative impact on this coastal site. This influx of population combined with the proposed "improvements" will expose this hidden gem and greatly increase the numbers of people accessing this resource. Exposing views will result in greater numbers of people unintentionally trampling sensitive coastal resources and archeological sites. The recreational resources will be diminished, not improved.

9) Substantially affects a rare, threatened or endangered species or its habitat.

We did not see documentation in the CDUA submitted from the State Fish and Wildlife Service, Save Our Shearwaters, or other appropriate agencies. Therefore, an impact analysis on the threatened Newell's Shearwater and other "listed" species is incomplete.

10) Detrimentially affects water quality or ambient noise levels.

Noise impacts are anticipated from the increased traffic and the removal of tall vegetation which provides a sound barrier and reduces noise from the roadway.

11) Affects or is likely to suffer damage by being located in an environmentally sensitive area such as a beach, an erosion-prone area, geologically hazardous land, or coastal waters.

The area where the selective vegetation removal will occur is located inside the designated flood zone. Plant removal will pose a threat to soil stability. There are better soil stabilizing ground covers than the proposed naupaka; it is an aggressive plant that requires diligent maintenance to prevent blocking pedestrian access. Irrigation water will introduce potential threats along with the use of fertilizer and herbicides despite best management practices.

In Closing.

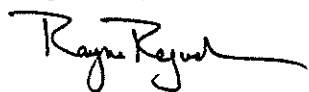
As suggested to Kukui`ula Landscape Project Manager Robby Snow on February 26, 2008, Sierra Club would like to be involved in the evaluation process of selective plant removal identification and, has offered assistance in securing a culturally appropriate site monitor during plant removal.

On 12/8/04, the Kauai Historic Preservation Review Commission, reserved "the right to provide to provide further comments should there be any changes to the plan and at such time that a more detailed site re-vegetation/landscaping plan is developed." A 10/9/07 memo noted that they reviewed a letter regarding the status of the Cultural Impact Assessment. However, they have not been provided the planting plan for review and comment. Recognizing that the KHPRC has recommended preservation of large cacti at other development sites in the area, their input should be sought.

The impacts and consequences of these "passive improvements" have been understated and minimized in the Draft EA. The plan could instead focus on a long-term goal of phasing in of native vegetation as mature vegetation reaches the end of its life, provided that such native vegetation is able to provide the characteristics (shade, windbreaks, secluded areas to sit or picnic...) that will make the path inviting to, and usable by residents. We request that OCCL visit the site to better understand the proposed impacts.

This is a crucial time when the community feels devastated and betrayed by rapid development and the disregard for old growth vegetation. Providing ocean views for Kukui`ula through excessive vegetative clearing will subject residents to negative social and environmental impacts. The shore south is losing too much too fast. The proposed plant removal and re-vegetation plan is not appropriate.

Respectfully submitted,



Rayne Regush on behalf of the Executive Committee
Sierra Club, Kaua`i Group

Enclosures: photos











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April 10, 2008

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Ms. Rayne Regush
Sierra Club, Kauai Group of the Hawaii Chapter
P.O. Box 3412
Lihue, Hawaii 96766

Subject: Draft Environmental Assessment ("EA")
Kukui'ula Conservation District Improvements
Tax Map Keys: (4) 2-6-02: 12 and 2-6-03: 3 and 20, and Portion of Lawai Road
Koloa, Island of Kauai, Hawaii

Dear Ms. Regush:

Thank you for your letter of March 23, 2008 regarding the subject Draft EA. We hereby provide the following responses in the order of your comments.

The proposed removal of the existing alien (non-native) vegetation within an approximately 2.8-acre area of the Project Site extending along the entire length of the site adjacent to and makai of the Lawai Road right-of-way, the existing National Tropical Botanical Garden ("NTBG") tram road and the southwestern portion of Spouting Horn Park, and re-vegetation with native species, is anticipated to have a beneficial impact on encouraging the proliferation of native plants presently limited in distribution within and adjacent to the Project Site. The Project improvements will provide a substantially improved public benefit to local residents by primarily replacing existing mature, non-native species with native coastal trees, shrubs and groundcover species that will enhance the composition and diversity of the native plant community within the Project Site. Within an approximately 3.0-acre area of the Project Site adjacent to and makai of this proposed re-vegetation area, the existing non-native vegetation species will largely remain, except for the selective removal of existing large non-native tree species.

As indicated above, removal of the existing non-native vegetation and re-vegetation with native species is anticipated to have a beneficial impact on encouraging the proliferation of native plants presently limited in distribution within and adjacent to the Project Site. Currently, the nature of the existing non-native plant species within the Project Site essentially limits the number of existing native plant species within the site. In an effort to expand the diversity of the native plant palette within the Project Site, three (3) native coastal tree species, the hala, hau and naio, have been added to the re-vegetation areas as shown on the attached modified Conceptual Site Plans. All of these indigenous trees will continue to provide the same ecological functions as the existing non-native trees within the Project Site, while enhancing the composition and diversity of the native vegetation habitat within the coastal area. With the addition of the three species of trees, a total of nine (9) native plant species will be provided within the Project Site. The addition of the three (3) native coastal tree species, and the attached modified Conceptual Site Plans, will be incorporated in **Section 2.2 Project Description** of the Final EA.

We wish to clarify that according to the botanical survey conducted for the Project Site, there are only four (4) native plant species within the site and are all very common indigenous species. Two (2) of these native species, the *'ilima papa (Sida fallax Walp.)* and the *pa'u o Hi'iaka (Jacquemontia ovalifolia)*, are limited to a relatively narrow band along the top of the coastal embankment, makai of Lawai Road. The other two (2) native



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species, the *'uhaloa* (*Waltheria indica* L.) and the yellow wood sorrel, *'ihi'ae* (*Oxalis corniculata* L.), are weedy roadside species. The other native common indigenous species mentioned in your letter, the *popolo* (*Solanum americanum* Mill.), was found mauka and outside of the Project Site in the area along the eastern rim of Lawai Valley.

The proposed clearing of existing non-native vegetation within the approximately 2.8-acre portion of the Project Site and re-vegetation with native species is intended to foster an ecosystem more appropriate for native plants which is currently hampered by the nature of the existing non-native species within the site. The existing non-native pencil tree (*Euphorbia tirucalli*), of which there are numerous large specimens of this succulent within the western and eastern portions of the Project Site, is a potential hazard owing to the caustic nature of the milky sap exuded from the plant where tissue damage occurs from breaking or cutting of the branches. Due to the caustic nature of the sap which is very irritating to the skin and can cause blindness if allowed to get into the eyes, the logical removal of this plant species will help to foster a plant assemblage that is more conducive to users of the area and help to restore the area towards a more appropriate native coastal ecosystem. Within the areas of the Project Site proposed for selective vegetation removal of existing large non-native tree species, the existing naturalized cactus and sisal species will remain in place and will not be removed. As indicated in the Draft EA, the proposed removal of existing alien vegetation will also include the removal of 29 diseased/declining non-native ironwood trees (*Casuarina equisetifolia*) within the Project Site. These ironwood trees were previously identified as being diseased/declining by an arborist in November 2005. We also note that ironwood trees are included on the State Department of Land and Natural Resources ("DLNR") Hawaii's Most Invasive Horticultural Plants list.

The Applicant proposes to remove a total of approximately 55 ironwood trees from the Project Site. This includes the removal of approximately 40 ironwood trees within the area proposed for vegetation clearing/re-vegetation, and approximately 15 ironwood trees from the area proposed for selective vegetation removal, including approximately three (3) ironwood trees located in the area mauka of the NTBGM tram road. These trees proposed for removal are those with an approximately 6-inch caliper. The proposed removal of the 29 diseased/declining ironwood trees is included within the proposed total of approximately 55 ironwood trees to be removed within the Project Site. The ironwood trees are proposed for removal due to their impact on the native plant community resulting from their abundant shading and the accumulation of their needle-like leaves and stems which accumulate in a mat-like nature on the ground, thereby inhibiting the growth of other plants in the immediate area. In addition, approximately 40 to 50 of the existing non-native succulent pencil trees will be removed from the area proposed for vegetation clearing/re-vegetation within the Project Site. The proposed removal of the pencil trees is due to the potential hazard owing to the caustic nature of the milky sap exuded from the plant as indicated above. The proposed removal of both of these non-native plant species will help to foster a plant assemblage that is more conducive to users of the area and to help restore the area towards a more appropriate native coastal ecosystem. This information will be incorporated in the Final EA.



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We acknowledge that the Project Site is a sensitive and cherished coastal resource in the Conservation District and therefore, through the proposed Project improvements, intend to help restore the area to a more appropriate coastal native ecosystem. We provide the following responses to your numbered comments.

- 1) As previously indicated, the proposed clearing of existing non-native vegetation within the approximately 2.8-acre portion of the Project Site and re-vegetation with native species is intended to foster a plant assemblage that will help to restore the areas towards a more appropriate native coastal ecosystem. The ironwood trees are proposed for removal due to their impact on the native plant community resulting from their abundant shading and the accumulation of their needle-like leaves and stems which accumulate in a mat-like nature on the ground, thereby inhibiting the growth of other plants in the immediate area. The existing non-native succulent pencil tree is a potential hazard owing to the caustic nature of its milky sap which is very irritating to the skin and can cause blindness if allowed to get into the eyes. Due to its caustic nature, the logical removal of the pencil trees will help to foster an ecosystem more conducive to users of the area. Within the areas of the Project Site proposed for selective vegetation removal of existing large non-native tree species, the existing naturalized cactus and sisal species will remain in place and will not be removed.

Removal of the existing non-native vegetation and re-vegetation with native species appropriate to the area is anticipated to have a beneficial impact and will enhance the gathering practices which currently occur within the Project Site by encouraging and enhancing the proliferation of native plants presently limited in distribution within and adjacent to the Project Site. This information will be included in the discussion under Significance Criteria 1) in **Chapter 7 Notice of Determination** in the Final EA.

Minimal ground disturbance will occur during the proposed clearing and removal of the existing non-native vegetation within the Project Site. The removal of the existing non-native vegetation will be undertaken with the use of mechanical (i.e., hydroAx and chainsaws) and hand clearing (i.e., handsaws and manual trimming tools) methods. The hydroAx will be used to remove existing vegetation within accessible areas makai of the Lawai Road right-of-way. For the removal of the larger vegetation species, hand tools or chainsaws will be used to cut the vegetation to the stump and methods such as wipe-on or brush-on herbicide will be used on the vegetation stumps. Therefore, no large rocks will be displaced during the proposed vegetation clearing and removal activities. The minimal ground disturbance to be undertaken during the proposed vegetation clearing and removal activities is also not anticipated to result in disturbance of undiscovered archaeological artifacts. As indicated in **Section 3.10 Historic and Archaeological Resources – Impacts and Mitigation Measures** in the Draft EA, should any previously unidentified burial, archaeological or historic sites be found during the course of implementation activities within the Project Site, the Applicant will stop work in the immediate vicinity and the State DLNR Historic Preservation Division (“SHPD”) will be notified immediately. The significance of these finds will then be determined and appropriate mitigation measures will be approved by the SHPD and the Kauai/Niihau Islands Burial Council, as appropriate. Subsequent



work will proceed after SHPD authorization has been received and mitigative measures have been implemented.

- 2) As previously indicated, three (3) native coastal tree species, the hala, hau and naio, have been added to the plant palette of the re-vegetated areas within the Project Site as shown on the attached modified Conceptual Site Plans. The addition of these native coastal trees will provide shade areas within the Project Site. The proposed native plant palette and planting arrangements within the Project Site will contribute toward restoring a coastal sense of place and will enhance the user's experience by providing native vegetation more appropriate and conducive to the existing environment.
- 3) We hereby provide the following responses in support of how the proposed Project is consistent with the State's long-term environmental policies, goals and guidelines as expressed in Chapter 344, Hawaii Revised Statutes ("HRS") and as mentioned in your letter:

Section 344-4(2)(E), HRS:

- (2) *Land, water, mineral, visual, air, and other natural resources.*
- (E) *Establish and maintain natural area preserves, wildlife preserves, forest reserves, marine preserves, and unique ecological preserves;*

The proposed clearing of existing non-native vegetation within the approximately 2.8-acre portion of the Project Site and re-vegetation with native species is intended to foster an ecosystem more appropriate for native plants currently hampered by the nature of the existing non-native plant species within the site. The proposed clearing/removal and re-vegetation improvements is anticipated to have a beneficial impact by encouraging the proliferation of native plants presently limited in distribution within and adjacent to the Project Site.

Section 344-4(3)(B), HRS:

- (3) *Flora and fauna.*
- (B) *Foster the planting of native as well as other trees, shrubs, and flowering plants compatible to the enhancement of our environment.*

The proposed vegetation clearing/removal and re-vegetation within the Project Site will substantially improve the native coastal ecosystem of the area by replacing existing alien species with native coastal trees, shrubs and groundcover species that will enhance the diversity of the plant community within the site. The proposed native plant palette and planting arrangements within the Project Site will contribute toward restoring and enhancing the coastal ecosystem. Within the areas of the Project Site proposed for selective vegetation removal of existing large non-native tree species, the existing naturalized cactus and sisal species will remain in place and will not be removed.



Section 344-4(4)(A), HRS:

- (4) *Parks, recreation, and open space.*
 - (A) *Establish, preserve and maintain scenic, historic, cultural, park and recreation areas, including the shorelines, for public recreational, educational, and scientific uses;*
 - (B) *Protect the shorelines of the State from encroachment of artificial improvements, structures, and activities;*

Removal of the existing non-native vegetation and re-vegetation with native plant species will contribute toward restoring and enhancing the native coastal ecosystem. The proposed vegetation clearing/removal and re-vegetation improvements will also restore and visually enhance the scenic and coastal views of the area.

The Project improvements will include the preservation of an existing coastal trail complex which consists of a historic trail that traverses along the inland edge of the coastal embankment within the central and eastern portions of the Project Site, paralleling the coastline, and the preservation of two (2) existing rock shelter cave sites located along the coastal cliff within the eastern portion of the site. The two (2) rock shelter sites were listed on the State Register of Historic Places on September 30, 1988 and remain on the State Register. The preservation of these three (3) sites will be in accordance with a Preservation Plan prepared in December 2004 and approved by the SHPD in March 2005 and the Kauai Historic Preservation Review Commission ("KHPRC") in December 2004. Long-term preservation of these three (3) sites will be passive preservation in the form of avoidance and conservation. Further discussion of the coastal trail complex and the two (2) rock shelter cave sites and the preservation of these sites is included in **Section 3.10 Historic and Archaeological Resources** of the Draft EA.

The proposed Project will enhance the recreational uses and gathering practices which currently occur within the Project Site by providing public pedestrian access to the shoreline areas west of Spouting Horn Park, and by encouraging and enhancing the proliferation of native plants presently limited in distribution within and adjacent to the site.

Irrigation for the establishment of the re-vegetated areas within the Project Site will include the installation of a temporary aboveground drip irrigation system consisting of a 1-inch diameter poly-urethane irrigation line that will ultimately connect to a 3-inch main irrigation line along Lawai Road and the NTBG tram road. A network of temporary aboveground ¼-inch diameter poly-urethane drip tubing will connect to the 1-inch diameter line to distribute irrigation water to all of the individual new plants. Following establishment of the new vegetation, the temporary irrigation system will be removed.

Fertilization of the new vegetation and turf grass trail within the Project Site will be applied by directly injecting all natural bio-fertilizer into the irrigation water and through the irrigation system. This system of fertilization will reduce the amount of fertilizer that would otherwise be required by up to 70 to 90 percent, thereby largely eliminating fertilizer runoff. Appropriate herbicides will be applied to the cut



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vegetation stumps at the recommended concentration level with a wipe-on or brush-on technique which will minimize the drift overspray that would otherwise occur with a spray-on technique. The use of herbicides within the Project Site is anticipated to be minimal since it is proposed for use only until the new vegetation is established and as needed during the long-term maintenance operations. The herbicides to be used will be Environmental Protection Agency ("EPA") certified products approved for use in environmentally sensitive areas. The fertilizers and herbicides to be used within the Project Site will be determined in consideration of the sensitive environment and recreational users of the area. The information from this paragraph will be incorporated in **Section 2.2 Project Description**, **Section 3.3 Water Resources – Impacts and Mitigation Measures**, Significance Criteria 5) in **Chapter 7 Notice of Determination**, Significance Criteria 10) in **Chapter 7 Notice of Determination**, and Significance Criteria 11) in **Chapter 7 Notice of Determination** of the Final EA.

- 4) As indicated in Significance Criteria 4) in **Chapter 7 Anticipated Determination** of the Draft EA, the proposed Project improvements will provide public pedestrian access to the shoreline areas west of Spouting Horn Park and restore and visually enhance the coastal views of the area.

In regard to your comment which refers to Significance Criteria 8) on page 7-4 of the Draft EA, please refer to our response to your numbered comment 8) below.

- 5) As indicated in **Section 3.8 Air Quality – Impacts and Mitigation Measures** of the Draft EA, potential air quality impacts resulting from construction of the Project improvements will be mitigated by complying with the State Department of Health ("DOH") Administrative Rules, Title 11, Chapter 60, Air Pollution Control. The construction contractor(s) will be responsible for complying with the State DOH regulations that prohibit visible dust emissions at the property boundaries. Compliance with State regulations will require adequate measures to control airborne dust by methods such as water spraying and sprinkling of loose or exposed soil or ground surface areas and dust-generating equipment during construction. Regular wetting of surface areas will be implemented during the vegetation clearing activities and these areas will be re-vegetated soon thereafter to control dust. The proposed temporary aboveground irrigation system will also serve to wet surface areas within the re-vegetated areas which will help to control dust. The hydro-seeding of the pedestrian trail to establish the turf grass will also help to control dust.

As indicated in **Section 3.9 Noise – Impacts and Mitigation Measures** of the Draft EA, construction noise will be unavoidable during the duration of the construction period of the proposed Project. Operation of construction equipment such as trucks, trencher, hydroAx, jackhammers, chainsaws, and pavers will raise ambient noise levels in the Project vicinity. Unavoidable construction noise impacts will be mitigated by complying with the provisions of the State DOH Administrative Rules, Title 11, Chapter 46, "Community Noise Control" regulations which require a noise permit if the noise levels from construction activities are expected to exceed the allowable noise levels stated in the Rules. The hours of permitted construction noise operations specified in the Rules will be adhered to and enforced. It shall be



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the contractor's responsibility to minimize noise by properly maintaining noise mufflers and other noise-attenuating equipment, and to maintain noise levels within regulatory limits. Construction activities that generate noise which may disturb potential nesting colonies of the Wedge-tailed Shearwaters (*Puffinus pacificus*) within the Project Site will not be undertaken during the Wedge-tailed Shearwaters breeding season.

Based on the above, the following information will be added to the discussion under Significance Criteria 5) in **Chapter 7 Notice of Determination** in the Final EA:

"Construction activities associated with the Project are anticipated to result in short-term impacts to noise and air quality in the immediate vicinity of which measures in accordance with the State DOH Administrative Rules, Title 11, Chapter 46, "Community Noise Control", and Title 11, Chapter 60, "Air Pollution Control" will be implemented to mitigate these impacts, respectively."

Fertilization of the new vegetation and turf grass trail within the Project Site will be applied by directly injecting all natural bio-fertilizer into the irrigation water and through the irrigation system. This system of fertilization will reduce the amount of fertilizer that would otherwise be required by up to 70 to 90 percent. Appropriate herbicides will be applied to the cut vegetation stumps at the recommended concentration level with a wipe-on or brush-on technique during the initial vegetation clearing activities. The use of herbicides within the Project Site is anticipated to be minimal since it is proposed for use only until the new vegetation is established and as needed during the long-term maintenance operations. The wipe-on or brush-on method of herbicide application will minimize the drift overspray that would otherwise occur with a spray-on technique. The herbicides to be used will be EPA-certified products approved for use in environmentally sensitive areas. The fertilizers and herbicides to be used within the Project Site will be determined in consideration of the sensitive environment and recreational users of the area. The information from this paragraph will be incorporated in **Section 2.2 Project Description, Section 3.3 Water Resources – Impacts and Mitigation Measures**, Significance Criteria 5) in **Chapter 7 Notice of Determination**, Significance Criteria 10) in **Chapter 7 Notice of Determination**, and Significance Criteria 11) in **Chapter 7 Notice of Determination** of the Final EA.

- 6) As indicated in Significance Criteria 6) in **Chapter 7 Anticipated Determination** of the Draft EA, the proposed Project is not anticipated to induce increased population growth or result in adverse effects on public facilities due to the passive nature of the improvements. The need for the proposed improvements is intended to fulfill Condition No. 15.f) of Zoning Ordinance No. PM-2004-370 for the planned adjacent Kukui'ula development which requires that the Applicant provide public pedestrian access to the shoreline areas west of Spouting Horn Park owned by the Applicant. This information will be incorporated in the discussion under Significance Criteria 6) in **Chapter 7 Notice of Determination** in the Final EA.



- 7) The establishment of the native plant species within the Project Site is anticipated to take about one (1) year as the native species would typically get acclimated in that natural coastal environment. The source of non-potable irrigation water for the re-vegetated areas and the turf grass pedestrian trail will be the surface water from the existing private irrigation system owned by the McBryde Sugar Company, Limited located mauka of the Project Site. Irrigation for the re-vegetated areas will be on a temporary basis until the new vegetation is established. All proposed Project improvements will be maintained by the Applicant. As part of the long-term maintenance of the Project improvements, the maintenance of the turf grass trail and re-vegetated areas will be undertaken on a weekly basis, while maintenance of the selective vegetation removal areas will occur on a quarterly basis. Maintenance activities within the Project Site will be undertaken incrementally in consideration of the users of the area, as well as in consideration of the breeding/nesting season of the Wedge-tailed Shearwaters.

Removal of the existing non-native vegetation and re-vegetation with native species is anticipated to have a beneficial impact on encouraging the proliferation of native plants presently limited in distribution within and adjacent to the Project Site. With the proposed Project improvements, the intent is to help restore the area to a more appropriate coastal native ecosystem. The proposed vegetation clearing/removal and re-vegetation improvements will also restore and visually enhance the coastal views of the area.

- 8) As indicated in Significance Criteria 8) in **Chapter 7 Anticipated Determination** of the Draft EA, the Project itself is not anticipated to have a significant adverse cumulative effect on the environment, nor will it involve a commitment for larger actions. The proposed Project improvements are intended to fulfill Condition No. 15. f) of Zoning Ordinance No. PM-2004-370 for the adjacent Kukui'ula development which requires that the Applicant provide public pedestrian access to the shoreline areas west of Spouting Horn Park owned by the Applicant. It is noted that the majority of the Project Site located makai of the approximately 2.8-acre area proposed for vegetation clearing/removal and re-vegetation will remain in its current natural state, except for the selective removal of existing large non-native tree species.
- 9) The U.S. Fish and Wildlife Service ("USFWS") was consulted during the pre-assessment consultation phase of the EA process, although comments were not received. The USFWS provided comments to the Draft EA by letter dated March 20, 2008, a copy of which is included in the Final EA, along with our response letter.

The Applicant has been working closely with Reginald David, the primary representative of Save Our Shearwaters, in regard to the proposed Project improvements and its potential affect on the Wedge-tailed Shearwaters and their potential nesting colonies. We note that Reginald David also conducted the faunal survey of the Project Site, the report of which is included in Appendix C of the Draft and Final EAs. During development of the proposed Project improvements, the Applicant will closely coordinate with the USFWS and the State DLNR Division of



Forestry and Wildlife in ensuring that the Project improvements will not adversely impact any seabird species.

- 10) As indicated in **Section 3.13 Traffic – Impacts and Mitigation Measures** of the Draft EA, no significant long-term impacts on vehicular traffic associated with the operation of the proposed Project improvements are anticipated due to the passive nature of the improvements. The proposed removal of tall vegetation within the Project Site is not anticipated to increase traffic-related noise from Lawai Road since vegetation is not typically considered to be an effective noise abating barrier.
- 11) The proposed selective removal of existing large non-native tree species within the designated Flood Zone "X", which encompasses a small portion of the selective vegetative removal area, will not pose a threat to soil stability. For the removal of these larger vegetation species, hand tools or chainsaws will be used to cut the vegetation to the stump and methods such as wipe-on or brush-on herbicide will be used on the vegetation stumps. This information will be incorporated in the discussion in **Section 3.4 Flood Hazard – Impacts and Mitigation Measures** and under Significance Criteria 11) of **Section 7 Notice of Determination** in the Final EA.

The use of naupaka, which is one of the most common and prolific coastal plants in the Islands, is anticipated to help soil stabilization as its leaves effectively serve as buffer from the rain. As part of the long-term maintenance of the Project improvements, the maintenance of the re-vegetated areas, including the naupaka, will be undertaken on a weekly basis.

As previously indicated, irrigation for the establishment of the re-vegetated areas within the Project Site will include the installation of a temporary aboveground drip irrigation system consisting of a 1-inch diameter poly-urethane irrigation line that will ultimately connect to a 3-inch main irrigation line along Lawai Road and the NTBG tram road. A network of temporary aboveground ¼-inch diameter poly-urethane drip tubing will connect to the 1-inch diameter line to distribute irrigation water to all of the individual new plants. Following establishment of the new vegetation, the temporary irrigation system will be removed.

Fertilization of the new vegetation and turf grass trail within the Project Site will be applied by directly injecting all natural bio-fertilizer into the irrigation water and through the irrigation system. This system of fertilization will reduce the amount of fertilizer that would otherwise be required by up to 70 to 90 percent, thereby largely eliminating fertilizer runoff. Appropriate herbicides will be applied to the cut vegetation stumps at the recommended concentration level with a wipe-on or brush-on technique which will minimize the drift overspray that would otherwise occur with a spray-on technique. The use of herbicides within the Project Site is anticipated to be minimal since it is proposed for use only until the new vegetation is established and as needed during the long-term maintenance operations. The herbicides to be used will be EPA-certified products approved for use in environmentally sensitive areas. The fertilizers and herbicides to be used within the Project Site will be determined in consideration of the sensitive environment and recreational users of the area. The information from this paragraph will be



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incorporated in **Section 2.2 Project Description, Section 3.3 Water Resources – Impacts and Mitigation Measures, Significance Criteria 5) in Chapter 7 Notice of Determination, Significance Criteria 10) in Chapter 7 Notice of Determination, and Significance Criteria 11) in Chapter 7 Notice of Determination** of the Final EA.

We appreciate the Sierra Club's offer to provide assistance in the evaluation process of selective plant removal identification and in securing a culturally appropriate site monitor during plant removal. The Applicant has assembled a team of botanical and landscape experts in developing the proposed Project plan and evaluating the existing non-native plants deemed appropriate for removal and determining the species of native plants for the re-vegetated areas which are appropriate for the coastal environment and suitable for long-term maintenance.

During the development of the proposed Project improvements, close coordination and consultation was undertaken with the KHPRC. This included a presentation to the KHPRC on November 4, 2004 and a field trip to the Project Site on December 2, 2004. The KHPRC was also consulted on the proposed Project through the cultural impact assessment process

The proposed clearing/removal of the existing non-native vegetation and re-vegetation with native vegetation is deemed to be more feasible than a long-term phasing in of native vegetation. By phasing in the native vegetation over the longer term, the nature of the existing mature non-native trees and vegetation within the remainder of the Project Site would provide conditions that are not conducive for the successful establishment of the newly planted native vegetation. This is evident in the current conditions within the Project Site whereby the existing non-native vegetation hamper the native vegetation from flourishing in the area. As previously indicated, three (3) native coastal tree species, the hala, hau and naio, have been added to the re-vegetation areas, and which will provide shade areas within the Project Site. We note that the DLNR Office of Conservation and Coastal Lands conducted a site visit of the Project Site on March 7, 2007 with the Applicant, at which time the proposed Project improvements were discussed.

In closing, we reiterate that the need for the proposed Project improvements is intended to fulfill Condition No. 15.f) of Zoning Ordinance No. PM-2004-370 for the planned adjacent Kukui'ula development which requires that the Applicant provide public pedestrian access to the shoreline areas west of Spouting Horn Park owned by the Applicant. Removal of the existing non-native vegetation and re-vegetation with native species is anticipated to have a beneficial impact on encouraging the proliferation of native plants presently limited in distribution within and adjacent to the Project Site. With the proposed Project improvements, the intent is to help restore the area to a more appropriate coastal native ecosystem.



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We appreciate your time and effort in reviewing the subject EA.

Sincerely,

Frances Yamada
Senior Planner

Enclosures

cc: Mr. Michael Cain, State Department of Land and Natural Resources, Office of
Conservation and Coastal Lands
Ms. Katherine Kealoha, State Office of Environmental Quality Control
Mr. Roby Snow, Kukui'ula Development Company (Hawaii), LLC

APPENDIX A

Project Site Photos



Source: DigitalGlobe Data, May 2007

**CONSERVATION DISTRICT
IMPROVEMENTS
KUKUI'ULA**

Kolon, Kaaui, Hawaii

**Key Map
Project Site Photos**

Prepared for:
Kukui'ula Development Company (Hawaii), LLC

Prepared by:
Wilson Okamoto Corporation



2. Makai view of the coastline within the eastern portion of the Project Site looking southeast.



3. View of Lawai Road looking west.



1. View looking makai at the northeastern boundary of the Project Site (defined by the tall hedge planting to the right) from Spouting Horn Park (Spouting Horn Park vendors to the left).



4. Makai view of the coastline within the eastern portion of the Project Site looking southeast.



5. View of Lawai Road looking west.



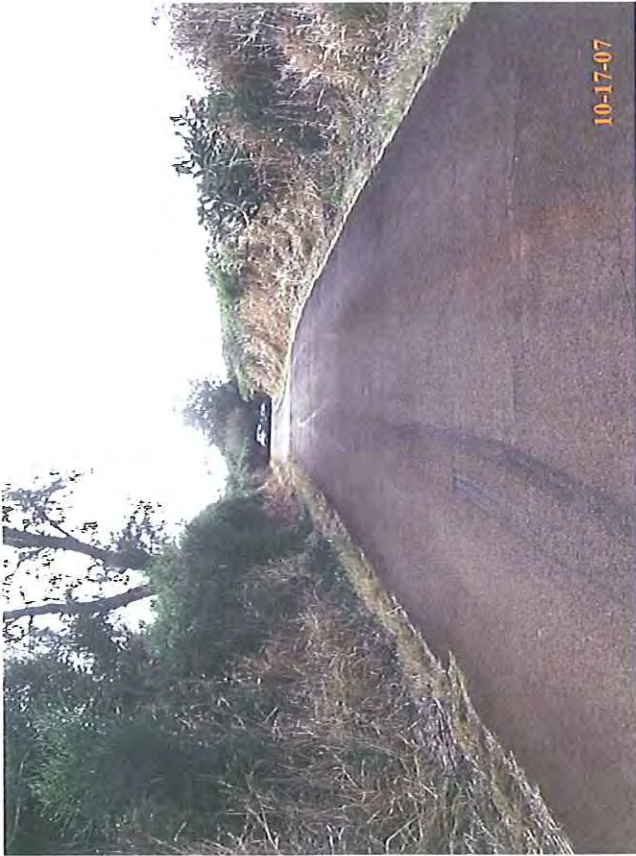
6. View of the coastline within the central portion of the Project Site looking west.



7. View of the coastline within the central portion of the Project Site looking east.



8. View of the western end of Lawai Road and the NTBG gate looking west. The NTBG tram road is located just beyond the NTBG gate.



9. View of NTBG gate from end of Lawai Road looking west.



10. View of the historic coastal trail within the central portion of the Project Site (looking east).



11. View of the NTBG gate from the NTBG tram road looking west.



12. View of the NTBG tram road within the western portion of the Project Site looking makai.



13. View of the northern end of the NTBG tram road within the northwestern-most portion of the Project Site looking mauka.

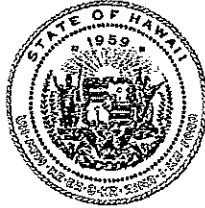
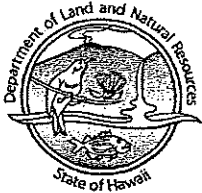


14. View of Lawai Bay and Lawai Valley from the northwestern portion of the Project Site looking northwest.

APPENDIX B

**Letter from the
State Department of Land and Natural Resources
Office of Conservation and Coastal Lands
Dated December 20, 2005**

LINDA LINGLE
GOVERNOR OF HAWAII



STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
OFFICE OF CONSERVATION AND COASTAL LANDS
POST OFFICE BOX 621
HONOLULU, HAWAII 96809

PETER T. YOUNG
CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES
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REF:OCCL:SL

Correspondence: KA-06-130

Mark Mahaney
Project Manager, RLA
Kukui`ula Development Co., Inc
822 Bishop St.
Honolulu HI 96813

DEC 20 2005

Dear Mr. Mahaney,

SUBJECT: Removal of *Casuarina equisetifolia* along Lawai Road, Koloa, Kaua`i

Thank you for meeting with the OCCL regarding the removal of 49 dead and diseased / declining ironwood trees (*Casuarina equisetifolia*) on the Kukui`ula Development Company (Hawai`i) LLC (KDCH) parcels on Conservation District land in Koloa.

The parcels have been identified as being part of the Limited Subzone of the Conservation District. Removal of dead non-native trees does not require a permit from our office. In her letter of November 17, 2005 the arborist Maureen Murphy identified twenty *Casuarina* as being dead; the KDCH can begin removing these twenty trees at any time. Please ensure that the trees are removed with as little disturbance to the surrounding area as possible.

KDCH will need to submit a Conservation District Use Application for the next phase of the project – the view-shed improvements, trail improvements, and landscape restoration. OCCL recommends that KDCH include the removal of the declining *Casuarina* as part of this CDUA.

If you have any questions, you can contact me at the Office of Conservation and Coastal Lands at 587-0081.

Sincerely,

A handwritten signature in black ink, appearing to read "Samuel J. Lenimo".

Samuel J. Lenimo, Administrator
Office of Conservation and Coastal Lands

APPENDIX C

***A Survey of Botanical, Avian and
Terrestrial Mammalian Species
Conducted Within the Conservation District,
Kukui'ula, Koloa District, Island of Kauai,
Prepared by Rana Productions, Ltd.
and
AECOS Consultants
February 2005 – Revised September 2007***

**A Survey of Botanical, Avian and Terrestrial
Mammalian Species Conducted Within the
Conservation District, Kukui‘ula, Kōloa District,
Island of Kaua‘i.**

Prepared for:

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February 2005 – Revised September 2007

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Introduction

This report summarizes the findings of botanical, ornithological and mammalian surveys conducted within and adjacent to lands currently zoned within the Conservation District at Kukui'ula, Kaua'i. The Kukui'ula Development Company (Hawaii), LLC is proposing to remove alien vegetation, and to replant the area with native and indigenous coastal plants species where practical (Figure 1 & 2). Fieldwork was conducted on February 21st, 2005.

The primary purpose of the survey was to determine if there were any botanical, avian or mammalian species currently listed, or proposed for listing under either federal or State of Hawai'i endangered species statutes within or adjacent to the study area. Federal and State of Hawai'i listed species status follows species detailed in the following referenced documents (DLNR, 1998; Federal Register, 1999a, 1999b, 2001, 2002, 2004).

Avian phylogenetic order and nomenclature follows *The American Ornithologist's Union Check-list of North American Birds 7th Edition* (American Ornithologist's Union, 1998), and the 42nd through the 45th supplements to *Check-list of North American Birds* (American Ornithologist's Union, 2000; Banks et al., 2002, 2003, 2004). Mammal scientific names follow *Mammals in Hawaii* (Tomich, 1986). Plant names follow *Manual of the Flowering Plants of Hawai'i*, and the Revised 2nd Edition (Wagner et al., 1990, 1999). Place names follow *Place names of Hawaii* (Pukui et al., 1974).

Hawaiian and scientific names are italicized in the text. A glossary of technical terms and acronyms used in the document which may be unfamiliar to the reader are included at the end of the narrative text on Page 16.

General Site Description

The area surveyed extends west along Lāwa'i Road from Spouting Horn Park to the entrance to the National Tropical Botanical Gardens, and then veers inland (north) along an old cane-haul road which skirts the eastern rim of Lāwa'i Bay (Figures 1, 2 & 3). There is a dry-stack stone wall on the *mauka* side of Lāwa'i Road which also extends north around the point at Lāwa'i Bay. The stone wall separates the now fallow former sugar cane fields from Lāwa'i Road. The verges of the road are periodically mowed to prevent vegetation from intruding into the travel way. Vegetation along the *mauka* side of the road is made up of alien plant species typical of roadside ruderal communities found on the south coast of the Island of Kaua'i. In parts not disturbed with regularity, this assemblage is dominated by Guinea grass (*Panicum maximum*) and *koa-haole* (*Leucaena leucocephala*), with some ornamental hibiscus (*Hibiscus rosa-sinensis*) present. Regularly disturbed or mowed areas harbor a diversity of alien herbaceous weeds, including several grasses (especially *Chloris radiata*, *Cynodon dactylon*, and *Eleusine indica*).

The vegetation along the *makai* side of Lāwa'i Road is also made up of predominantly alien species including *koa-haole*, common ironwood (*Casuarina equisetifolia*), and various weedy forbs and grasses. However, close to top of the sea cliff on the *makai* side of Lāwa'i Road in this area, remnants of the native plant community can be seen, with *'ilima papa* (*Sida falax*) and

pa`u o Hi`iaka (*Jacquemontia ovalifolia*) locally abundant but limited in distribution due to shading caused by the numerous alien trees and shrubs present within this area.

The vegetation along the former cane-haul road and the western end of Lāwa`i Road is marked by an assortment of cacti and succulents, many presumably spreading vegetatively from initial plantings (that is, not necessarily naturalized). Especially prominent are caustic pencil tree (*Euphorbia tirucalli*), century plants (*Furcraea selloa* var. *marginata* and *F. foetida*), hedge cactus (*Cereus uruguayensis*), air-plant (*Kalanchoe pinnata*), and night-blooming cereus (*Hylocereus undatus*), in addition to many of the previously mentioned alien trees, shrubs, and herbs.

There is an active Wedge-tailed Shearwater (*Puffinus pacificus*) nesting colony located in and around the stone wall on the *mauka* side of the road. It is probable that birds also nest *makai* of the road in the sea cliffs along this portion of the coastline.

Mammalian Survey Methods

With the exception of the endangered Hawaiian hoary bat (*Lasiurus cinereus semotus*), or 'ōpe`ape`a as it is known locally, all terrestrial mammals currently found on the Island of Kaua`i are alien species. Most are ubiquitous. No trapping program was proposed or undertaken to quantify the use of the study area by alien mammalian species. The survey of mammals was limited to visual and auditory detection, coupled with visual observation of scat, tracks, and other animal sign. A running tally was kept of all vertebrate species observed and heard within the project area.

Mammalian Survey Results

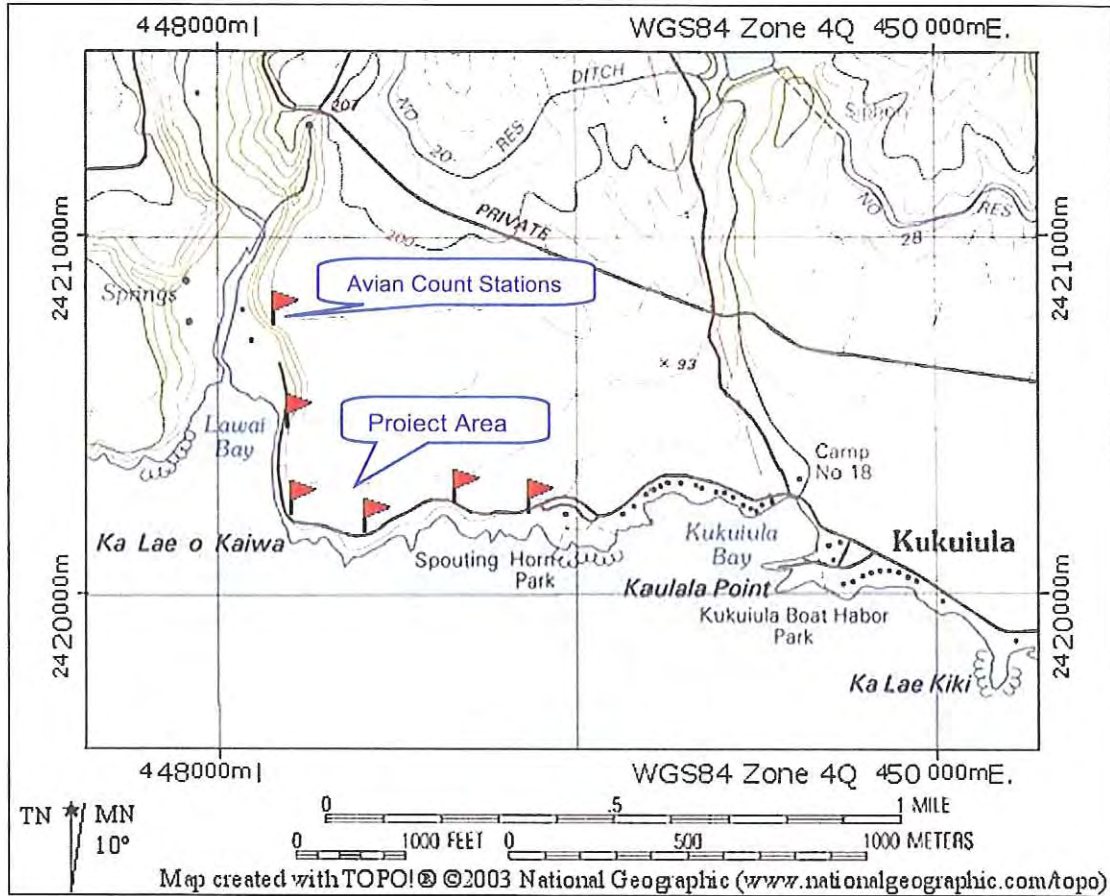
We did not see any mammals during the course of this survey, though we did encounter scat and sign of dog (*Canis f. familiaris*), cat (*Felis catus*) and horse (*Equus c. caballus*) within the general study area. No mammalian species currently listed, or proposed for listing under either federal or State of Hawai`i endangered species statutes were recorded during the survey.

Avian Survey Methods

Six avian count stations were established approximately 300-meters apart along the cane-haul road and Lāwa`i Road between Spouting Horn Park and the northern terminus of the study area (Figures 2 & 3). Eight-minute circular plot counts were made at each station. Stations were each counted once. Additionally, the entire length of the study corridor was walked, and a tally of avian species detected along the route was recorded. Field observations were made with the aid of Leitz 10 X 42 binoculars and by listening for vocalizations. Counts were concentrated during the early morning hours, the peak of daily bird activity. Time not spent counting was used to search the area for species and habitats not detected during count sessions.

Figure 3

Study Area and Avian Count Stations



Avian Survey Results

A total of 231 individual birds of 15 species, representing 12 separate families, were recorded during station counts (Table 1). All 15 species detected during the station counts are regularly encountered alien species, common in the low to mid-elevation areas on the south-side of the Island of Kauai. An additional three species were detected as incidental observations while walking between count stations within the study corridor. One species, the Short-eared Owl (*Asio flammeus sandwichensis*) is an endemic sub-species, though not listed under either the federal or State of Hawaii's endangered species programs. The other two species recorded as incidental observations were; Ring-necked Pheasant (*Phasianus colchicus*) and Chestnut Munia (*Lonchura atricapilla*) both of which are common widely distributed alien passerines.

Avian diversity and densities were relatively low. Three species, Japanese White-eye (*Zosterops japonicus*), House Finch (*Carpodacus mexicanus frontalis*), and Nutmeg Mannikin (*Lonchura punctulata topela*) accounted for 48% of the total number of all birds recorded during station counts. The two most common avian species recorded were Japanese White-eye and House Finch which each accounted for 17% of the total number of individual birds recorded. An average of 38.5 birds were detected per station count.

No avian species currently protected, or proposed for protection under either the Federal Endangered Species Act of 1973, as amended, or under the State of Hawai'i endangered species program were detected during the course of this survey (DLNR, 1998; Federal Register, 1999a, 1999b, 2001, 2002, 2004).

Table 1.

Avian Species Detected Kukui'ula, Conservation Zone Surveys

<i>Common Name</i>	<i>Scientific Name</i>	<i>ST</i>	<i>RA</i>
PHEASANTS & ALLIES – Phasianidae			
Red Junglefowl	<i>Gallus gallus.</i>	A	1.17
Ring-necked Pheasant	<i>Phasianus colchicus</i>	A	I-1
HERONS – Ardeidae			
Cattle Egret	<i>Bubulcus ibis.</i>	A	0.33
PIGEONS & DOVES – Columbidae			
Spotted Dove	<i>Streptopelia chinensis</i>	A	1.33
Zebra Dove	<i>Geopelia striata</i>	A	3.00
TYPICAL OWLS – Strigidae			
Short-eared Owl (Pueo)	<i>Asio flammeus sandwichensis</i>	NR	I-1
THRUSHES – Turdidae			
White-rumped Shama.	<i>Copsychus malabaricus indicus</i>	A	1.50
BABLERS – Timaliidae			
Hwamei	<i>Garrulax canorus</i>	A	0.33
WHITE-EYES – Zosteropidae			
Japanese White-Eye	<i>Zosterops japonicus</i>	A	6.50
STARLINGS – Sturnidae			
Common Myna	<i>Acridotheres tristis</i>	A	3.83
EMBERIZIDS – Emberizidae			
Red-crested Cardinal	<i>Paroaria coronata</i>	A	0.33
SALTATORS, CARDINALS & ALLIES – Cardinalidae			
Northern Cardinal	<i>Cardinalis cardinalis</i>	A	1.17
TROUPIALS & ALLIES – Icteridae			
Western Meadowlark	<i>Sturnella neglecta</i>	A	3.17
CARDULINE FINCHES & ALLIES – Fringillidae			
House Finch	<i>Carpodacus mexicanus frontalis</i>	A	6.50
WAXBILLS & ALLIES – Estrildidae			
Common Waxbill	<i>Estrilda astrild</i>	A	3.67
Nutmeg Mannikin	<i>Lonchura punctulata topela</i>	A	5.33
Chestnut Munia	<i>Lonchura atricapilla</i>	A	I-21
Java Sparrow	<i>Padda oryzivora</i>	A	0.33

Key to Table 1.

- ST Status
- A Alien species
- NR Native resident breeding species
- RA Relative Abundance: Number of birds detected divided by the number of count stations (6)
- I Incidental observations, followed by the number of individuals recorded.

Botanical Survey Methods

The plant survey was undertaken by walking along the several roadways present within the study area, we noted both the species of plants present and also made a semi-quantitative assessment of abundance (e.g., rare, common, etc.). As needed, short forays were made off the road to expand coverage of the survey to a wider corridor. Although both lichens and fungi, were observed, they were not identified to species or documented.

The survey area did not include the steep cliff face above the eastern rim of Lāwa'i Bay and Lāwa'i Gulch. Rock cliff faces can harbor remnants of native vegetation, including rare and listed species. However, the activities proposed for the project area will not extend down onto these steep slopes.

Botanical Survey Results

A total of 75 species of plants were recorded during the course of this study (Table 2). No ferns were observed, and lichens and fungi, although observed, were not recorded. In general, conditions with respect to vegetative growth, flowering and/or fruiting were excellent for identification of most species encountered.

Results of the botanical survey are summarized in Table 2. Plants are identified as to which area that they were recorded in – the two separate areas we delineated are: Area 1 being the vegetated slopes between the cliff face and fallow former cane lands along the rim of Lāwa'i Gulch; Area 2 being the vegetated margins of the Lāwa'i Road between the top of the sea cliff and the former cane lands. The notes section of Table 2 (see table legend) provide additional details on the observations recorded.

Of the 75 species listed, roughly nine are considered ornamental plantings. This judgment call is difficult to make in this area because a number of the cacti and succulents were planted, but have spread substantially and presumably vegetatively, and thus are questionably naturalized. In general, species not listed in Wagner et. al. (1990) are marked herein as ornamental, despite the possibility that some may have naturalized in this area.

Considering the total list of species recorded, only five species (or 6.7%) are native species (Table 2). All five of these are very common indigenous species. Two of these, (*'ilima papa* and *pa'u o Hi'iaka*) were limited to a relatively narrow band along the top of the sea cliff, *makai* of Lāwa'i Road where these species find a harsh but relatively open (unshaded) habitat, where they are generally competing favorably with the alien grass, *Chloris radiata*.

Table 2.
Botanical Species List: Kukui'ula Conservation Zone Survey.

Species	Common name	Status	Abundance		Notes
			AREA	CODE	
<i>FLOWERING PLANTS</i>					
<i>DICOTYLEDONE</i>					
<i>AMARANTHACEAE</i>					
<i>Alternanthera pungens</i> Kunth	khaki weed	Nat.	2	U	
<i>Amaranthus spinosus</i> L.	spiny amaranth	Nat.	2	R	(4)
<i>Amaranthus viridis</i> L.	slender amaranth	Nat.	1,2	U	(4)
<i>APOCYNACEAE</i>					
<i>Plumeria obtusa</i> L.	Singapore plumeria	Orn.	2	R	
<i>ASTERACEAE (COMPOSITAE)</i>					
<i>Bidens pilosa</i> L.	<i>ki</i>	Nat.	1	U	(4)
<i>Calyptocarpus vialis</i> Less.	---	Nat.	2	O	(4)
<i>Conyza bonariensis</i> (L.) Cronq.	hairy horseweed	Nat.	1	U	(4,5)
<i>Crassocephalum crepidioides</i> (Benth.) S. Moore	---	Nat.	2	R	(4,5)
<i>Emilia fosbergii</i> Nicolson	<i>pualele</i>	Nat.	1,2	O	(2, 4)
<i>Parthenium hysterophorus</i> L.	false ragweed	Nat.	2	U	
<i>Pluchea carolinensis</i>	sourbush	Nat.	2	R	
<i>Sonchus oleraceus</i> L.	sow thistle	Nat.	2	R	(4)
<i>Synedrella nodiflora</i> (L.) Gaertn.	nodeweed	Nat.	2	U	
<i>Tridax procumbens</i> L.	coat buttons	Nat.	1	U	
<i>Verbesina encelioides</i> (Cav.) Benth. & Hook.	golden crownbeard	Nat.	1,2	O	(2)
<i>BRASSICACEAE</i>					
<i>Lepidium virginicum</i> L.	---	Nat.	2	R	
<i>CACTACEAE</i>					
<i>Cereus uruguayanus</i> Ritter ex R. Kiesling	hedge cactus	Nat.	1	C	
<i>Hylocereus undatus</i> (Haw.) Britton & Rose	night-blooming cereus	Nat.	1,2	A	
<i>Opuntia ficus-indica</i> (L.) Mill.	<i>panini</i>	Nat.	1,2	R	
indet. <i>Cereus</i>	? hedge-type cactus	Orn.	1	U	(5)
indet.	? creeping cactus	Orn.	1	C	(5)
<i>CASUARINACEAE</i>					
<i>Casuarina equisetifolia</i> L.	ironwood	Nat.	1,2	C	
<i>COMMELINACEAE</i>					
<i>Tradescantia zebrina</i> Hort. ex Bosse	wandering Jew	Orn.	1	R	
<i>CONVOLVULACEAE</i>					
<i>Ipomoea obscura</i> (L.) Ker-Gawl.	---	Nat.	2	R	
<i>Jacquemontia ovalifolia</i> (Choisy) H. Hallier	<i>pa`u o hi`iaka</i>	Ind.	2	O	(6)

Species	Common name	Status	Abundance		Notes
			AREA	CODE	
CRASSULACEAE					
<i>Kalanchoë pinnata</i> (Lam.) Pers.	air plant	Nat.	1	C	
<i>Kalanchoë tubiflora</i> (Harv.) Raym.-Hamet	chandelier plant	Nat.	1	O	
CUCURBITACEAE					
<i>Momordica charantia</i> L.	wild bittermelon	Nat.	1,2	R	
EUPHORBIACEAE					
<i>Chamaesyce hirta</i> (L.) Millsp.	garden spurge	Nat.	1,2	C	(4)
<i>Chamaesyce hypericifolia</i> (L.) Millsp.	graceful spurge	Nat.	1,2	O	(4)
<i>Chamaesyce prostrata</i> (Aiton) Small	prostrate spurge	Nat.	1	O	(4)
<i>Euphorbia lactea</i> Haw.	candelabra tree	Orn.	1	R	
<i>Euphorbia tirucalli</i> L.	pencil tree	Orn.	1,2	C	
<i>Ricinus communis</i> L.	castor bean	Nat.	2	R	(2)
FABACEAE					
<i>Chamaecrista nictitans</i> (L.) Moench	partridge pea	Nat.	1	--	(1)
<i>Crotalaria</i> sp.	rattlepod	Nat.	1	--	(1, 5)
<i>Desmodium triflorum</i> (L.) DC	beggarweed	Nat.	2	R	
<i>Indigofera suffruticosa</i> Mill.	indigo	Nat.	1	--	(1)
<i>Leucaena leucocephala</i> (Lam.) deWit	koa haole	Nat.	1,2	AA	
<i>Melilotus indica</i> (L.) All.	sweet clover	Nat.	2	U	
<i>Pithecellobium dulce</i> (Roxb.) Benth.	'opiuma	Nat.	2	R	(5)
<i>Prosopis pallida</i> (Humb. & Bonpl. Ex Willd.) Kunth	kiawe	Nat.	1,2	O	
<i>Senna surattensis</i> (N.L. Burm.) H. Irwin & Bameby	kolomana	Nat.	1	U	
LAMIACEAE					
<i>Leonotis nepetifolia</i> (L.) R.Br.	lion's ear	Nat.	1,2	O	
<i>Mentha</i> sp.	mint		2	R	(5)
MALVACEAE					
<i>Abutilon grandifolium</i> (Willd.) Sweet	hairy abutilon	Nat.	2	R	
<i>Hibiscus rosa-sinensis</i> L.	Chinese hibiscus	Orn.	2	U	
<i>Malva parviflora</i> L.	cheese weed	Nat.	2	R	(4)
<i>Malvastrum coromandelianum</i> (L.) Garck	false mallow	Nat.	1,2	A	
<i>Sida fallax</i> Walp.	'ilima papa	Ind.	2	U	(6)
<i>Sida rhombifolia</i> L.	Cuba jute	Nat.	2	R	
<i>Sida</i> sp.	---	Nat.	2	R	(5)
MORACEAE					
<i>Ficus microcarpa</i> L. fil.	Chinese banyan	Nat.	1	U	
NYCTAGINACEAE					
<i>Boerhavia coccinea</i> Mill.	false alena	Nat.	1	O	(2)
<i>Bougainvillea spectabilis</i> Willd.	bougainvillea	Orn.	1	U	

Species	Common name	Status	Abundance		Notes
			AREA	CODE	
OXALIDACEAE					
<i>Oxalis corniculata</i> L.	yellow wood sorrel, 'ihi`ae	Ind.	2	C	
PHYTOLACCACEAE					
<i>Rivina humilis</i> L.	coral berry	Nat.	2	R	
PORTULACACEAE					
<i>Portulaca oleracea</i> L.	pigweed	Nat.	1	U	
SOLANACEAE					
<i>Solanum lycopersicum</i> var. <i>cerasiforme</i> (Dunal) Spooner, Anderson, & Jansen	cherry tomato	Nat.	1	U	
<i>Solanum americanum</i> Mill.	popolo	Ind.	1	U	(4)
STERCULIACEAE					
<i>Waltheria indica</i> L.	'uhaloa	Ind.	1,2	R	
MONOCOTYLEDONES					
AGAVACEAE					
<i>Furcraea foetida</i> (L.) Haw.	century plant	Nat.	1	O	
<i>Furcraea selloa</i> var. <i>marginata</i>	century plant	Nat.	1	A	
DRACAENACEAE					
<i>Sansevieria trifasciata</i> Prain	bowstring hemp, snake plant	Orn.	1	U	
LILIACEAE					
<i>Hippeastrum puniceum</i> (Lam.) Voss	Barbados lily	Nat.	1	R	
POACEAE (GRAMINEAE)					
<i>Chloris radiata</i> (L.) Sw.	radiate fingergrass	Nat.	1,2	A	(2)
<i>Cynodon dactylon</i> (L.) Pers.	Bermuda grass	Nat.	1,2	O	
<i>Digitaria insularis</i> (L.) Mez ex Ekman	sourgrass	Nat.	1,2	C	(2)
<i>Eleusine indica</i> (L.) Gaertn.	beach wiregrass	Nat.	1,2	A	(2)
<i>Eragrostis</i> sp.	---	---	2	U	
<i>Melinis repens</i> (Willd.) Zizka	Natal redtop	Nat.	1	O	(2)
<i>Panicum maximum</i> Jacq.	Guinea grass	Nat.	1,2	A	(2)
<i>Paspalum</i> sp.	---	Nat.	2	R	
<i>Setaria verticillata</i> (L.) P. Beauv.	bristly foxtail	Nat.	2	R	

Legend to Table 2

Status = distributional status	
End. =	endemic; native to Hawaii and found naturally nowhere else.
Ind. =	indigenous; native to Hawaii, but not unique to the Hawaiian Islands.
Nat. =	naturalized, exotic, plant introduced to the Hawaiian Islands since the arrival of Cook Expedition in 1778, and well-established outside of cultivation.
Orn. =	exotic, ornamental or cultivated; plant not naturalized (not well-established outside of cultivation).
Pol. =	Polynesian introduction before 1778.
Abundance = occurrence ratings for plants by area on February 21, 2005 (SITE 1 = along roadway(s) above Lawai Valley; SITE 2 = along paved roadway east of NTBG gate at end of County Road.	
R - Rare -	only one or two plants seen.

	U - Uncommon -	several to a dozen plants observed.
	O - Occasional -	found regularly, but not abundant anywhere.
	C - Common -	considered an important part of the vegetation and observed numerous times.
	A - Abundant -	found in large numbers; may be locally dominant.
	AA - Abundant -	abundant and dominant; defining vegetation type.
	P - Present -	noted just outside of study area; abundance not recorded.
Notes:		
	(1)	Observed only in adjacent field areas; mostly ruderal weeds.
	(2)	Observed mostly in field areas, but also in survey area.
	(4)	Ruderal in nature; abundant only in recently disturbed sites.
	(5)	Observed plant(s) lacked flowers or fruit; identification uncertain.
	(6)	Observed only immediately above the bare cliffs of the shore.

Discussion

Botany

The botanical resources recorded within the survey area and in the areas immediately adjacent to these areas are overwhelmingly dominated by alien species. The floristic makeup of this survey area is typical of lands which have been extensively disturbed, adjacent to intensively cultivated sugar cane fields, now fallow. The area is somewhat unique in the number and variety of cacti and succulents planted and spreading along the Lāwa‘i Gulch cliff located to the west of Lāwa‘i Road. Several of these species have become clearly naturalized (such as the hedge cactus, *Cereus uruguayensis*) and spread widely into less disturbed areas distributed around and between the former cane fields. Included in the list of succulents are numerous large specimens of the pencil tree (*Euphorbia tirucalli*). This tree, perhaps naturalized, is a potential hazard owing to the caustic nature of the milky sap exuded from the plant where tissue damage occurs from breaking or cutting of the branches. The sap is very irritating to the skin and can cause blindness (usually temporary) if allowed to get into the eyes. Extreme care must be taken in removing this plant, a task made difficult by the size of the specimens present in this area.

Vertebrate Species

A one-time survey cannot provide a total picture of the wildlife using any given area. Certain species will not be detected for one reason or another. Seasonal variations in populations, coupled with seasonal availability and use of resources, will cause different use patterns throughout a year and, in fact, over a number of years. Coupling the results of a one-time survey with the results of previous surveys conducted in similar habitats and locations, greatly expands the value of the information gathered.

The findings of the mammalian survey are consistent with the results of other recent surveys conducted within very close proximity of this site (David, 2002a, 2003a, 2004a, 2004b, 2005a, 2005b, 2005c), and with other similar surveys conducted in other lowland areas on Kaua‘i in the past five years (David, 2000, 2001, 2002b, 2003b, 2004c). Although no Hawaiian hoary bats were detected foraging above any of the sites it is likely that this endangered species forages for insects over the project area. Hawaiian hoary bats are regularly seen in and around Kōloa and the Po‘ipū

area, as well as within most of the lowland areas on the Island of Kaua'i (Tomich, 1986; David, 1995, 1999b, 2001, 2002b, 2003b, 2004c).

Unlike nocturnally flying seabirds, which often collide with man-made structures, bats are uniquely adapted to avoid collision with obstacles, man-made or natural. They navigate and locate their prey primarily by using ultrasonic echolocation, which is sensitive enough to allow them to locate and capture small volant insects during crepuscular and nocturnal hours.

Although no rodents were detected during the course of this survey, it is likely that roof rats (*Rattus r. rattus*), Norway rats (*Rattus norvegicus*), European house mice (*Mus domesticus*) and possibly Polynesian rats (*Rattus exulans hawaiiensis*) use various resources found within the project area. Without conducting a trapping program, it is difficult to assess the population densities of these often hard-to-see mammals. All of these introduced rodents are deleterious to native ecosystems and the native faunal species dependant on them.

The findings of the avian survey are consistent with the findings of other recent surveys conducted within close proximity of the project area (David, 2002a, 2003a, 2004a, 2004b, 2005a, 2005b, 2005c), and within other alien species dominated habitats in other lowland areas on Kaua'i in the past five years (David, 2000, 2001, 2002b, 2003b, 2004c). All avian species detected during station counts were alien species. One native species, the Short-eared owl, or *Pue'ō* as it is know locally, was detected as an incidental observation while walking between census stations. The Hawaiian form of this owl, *Asio flammeus sandwichensis*, is the resident endemic sub-species of this near cosmopolitan species.

As previously mentioned there is an active Wedge-tailed Shearwater nesting colony located in and around the dry-stack stone wall located on the *mauka* side of Lāwa'i Road. It is probable that birds also nest *makai* of the road in the sea cliffs along this portion of the coastline. Wedge-tailed Shearwaters are a year-round resident pelagic seabird species commonly encountered throughout the Hawaiian Islands. They return to land to their nesting colonies in mid-March or so, and spend the next month and a half excavating or refurbishing their burrows and courting. Copulation and a pre-laying exodus occurs sometime in early May, birds return to their colonies to lay their single egg in June, the peak of egg laying occurs in mid-June. They incubate their eggs for 53 days and fledging occurs in November with the peak period occurring in the last two weeks of November. The colony is currently so overgrown with Guinea grass and other vegetation that it was impossible to quantify the number of burrows, or to delineate the boundaries of the colony. In previous visits to this colony adults, eggs and young have been observed, as has predation of chicks and eggs by rats and cats (R. David, 2005d).

Although not detected during this survey it is likely that the endangered Hawaiian Petrel (*Pterodroma sandwichensis*) and the threatened endemic sub-species of the Newell's Shearwater (*Puffinus auricularis newelli*) over-fly the project site between April and the end of November each year. Both species have been well documented crossing the northern, eastern and southern coastline of Kaua'i across a broad front and in relatively large numbers during the breeding season (Cooper and Day, 1995, 1998; Day and Cooper, 1997, 1999, 2001; Day et al., 2000, 2001a, 2001b, 2003; David et al., 2002; Morgan et al., 2003, 2004).

Both species of seabirds, especially fledging birds, can become disoriented by exterior lighting on their way to sea in the Fall. When disoriented, these seabirds often collide with manmade and naturally occurring physical features. If the downed birds are not killed outright, the dazed and/or injured birds become easy targets of opportunity for feral mammals (Reed et al., 1985; Telfer et al., 1987). However, the primary cause of mortality in both these species is thought to be predation by alien mammalian species at the nesting colonies (Ainley et al., 2001; Cooper and Day, 1995, 1998; Day and Cooper, 1997; Hue et al., 2001). There are no nesting colonies nor appropriate nesting habitat for either seabird species within or close to the study site. The closest Newell's Shearwater colony is located at Kāluahonu some eight kilometers east-south-east of the study area. This colony may no longer be active, due to major habitat changes caused by invasive alien plant species (David et al., 2002; David, 2003c).

No avian species currently protected, or proposed for protection under either the Federal Endangered Species Act of 1973, as amended, or under the State of Hawai'i endangered species program were detected during the course of this survey (DLNR, 1998; Federal Register, 1999a, 1999b, 2001, 2002, 2004).

Conclusions

Botany

Removal of any of the plants from the project area will not have a negative impact on native and indigenous botanical resources present within the individual sites or within the general project area. No species of special interest, or species listed as threatened or endangered (Federal Register, 1999a, 1999b, 2001, 2002, 2004) were recorded by the plant survey.

Removal of alien trees and shrubs from the top of the cliff could have a beneficial impact of encouraging the spread of native plants presently limited in distribution adjacent to the project area.

Vertebrate Species

The clearing of alien vegetation both *makai* of Lāwa'i Road and *mauka* of the dry-stack stone wall is not expected to have a negative impact on any avian or mammalian species currently protected, or proposed for protection under either the Federal Endangered Species Act of 1973, as amended, or under the State of Hawai'i endangered species program.

These same actions have the potential to negatively impact the Wedge-tailed Shearwater colony located within the project area if care is not taken to limit on-ground disturbance to the months when the birds are not present in their colony. Conversely - the removal and control of the invasive alien plant species currently covering the bulk of the Wedge-tailed Shearwater colony will greatly enhance the usability of the area for seabird nesting. Removing the cactus and large ironwood trees and very dense Guinea grass will also make it easier for Wedge-tailed Shearwaters to come and go from their nesting colonies with greater ease and safety than is currently the case.

Recommendations

To ensure that the proposed vegetation clearing does not result in deleterious impacts to the resident Wedge-tailed Shearwaters and their nesting colony, it is recommended that:

- Vegetation on both sides of the road be mowed and/or removed in such a way as to not disturb sub-surface features such as burrows.
- Following the vegetation mowing/removal, that a qualified biologist survey the entire project area to ascertain how many Wedge-tailed Shearwater burrows are present and exactly where they are.
- Following the on-ground survey, a Wedge-tailed Shearwater colony management plan should be prepared in which methods for maintaining and improving the Wedge-tailed Shearwater nesting habitat present within the project area should be presented.

Replanting cleared areas with native or indigenous coastal plant species where practical will greatly enhance the aesthetic quality of the area, while at the same time providing more appropriate and better quality habitat for the resident nesting seabirds.

Glossary:

Alien - Introduced to Hawai'i by humans.

Crepuscular – Twilight hours either in the evening or the morning.

Endemic – Native and unique to the Hawaiian Islands.

Endangered – Listed and protected under the ESA as an endangered species.

Forb – An herb other than a grass.

Indigenous - Native to Hawai'i, but also found elsewhere naturally.

Makai – Down-slope, towards the ocean.

Mauka – Upslope, towards the mountains.

Naturalized – An alien organism that has become established in an area that it is not native to over time, without further human assisted releases or plantings.

Nocturnal – Night-time, after dark.

Pelagic – An animal that spends it's life at sea – in the case of seabirds only returning to land to nest.

Ruderal – Disturbed, rocky, rubbishy areas, such as old agricultural fields and rock piles

Volant – Flying, capable of flight - as in flying insect.

Threatened - Listed and protected under the ESA as a threatened species.

DLNR – Hawaii State Department of Land & Natural resources.

ESA - Federal Endangered Species Act of 1973, as amended.

VCP – Variable Circular Plot, method of censusing birds.

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APPENDIX D

***Archaeological Inventory Survey of 11.5 Acre-Makai
Lands at Lawai Ahupuaa, Kona District, Island of Kauai
(TMK 2-6-03: 3, 20 and 2-6-02: Por. 1),
Prepared by Cultural Surveys Hawaii, Inc.
June 2002***

and

**Letter from the
State Department of Land and Natural Resources
Historic Preservation Division
Dated September 17, 2002**

**ARCHAEOLOGICAL INVENTORY SURVEY
OF 11.5 ACRE-MAKAI LANDS AT
LĀWA'I AHUPUA`A, KONA DISTRICT,
ISLAND OF KAUA'I
(TMK 2-6-03:3, 20 and 2-6-02: POR. 1)**

by
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Douglas F. Borthwick, B.A.
and
Hallett H. Hammatt, Ph.D

Prepared for
A and B Properties

by
Cultural Surveys Hawai'i, Inc.

June 2002

ABSTRACT

The subject area is a cliff side shoreline property situated *makai* of the Kukui`ula Planned Community project area in the eastern half of the *ahupua`a* of Lāwa`i, District of Kona, Island of Kaua`i. It is directly *makai* of Lāwa`i Beach Road. This 11.5-acre parcel is comprised of 3 separate parcels: Parcel 1 (por) of 2.5 acres, Parcel 20 of 3.76 acres and Parcel 3 of 5.3 acres.

Cultural Surveys Hawai`i, Inc. completed in December of 1998, an inventory survey of the 11.5-acre area at the request of A & B Properties. In addition to the complete site inventory, Cultural Surveys Hawai`i researched the background historical records, maps and land use to emphasize settlement patterns.

Three archaeological sites were located: a coastal trail complex (50-30-11-990) and two shelter cave sites (50-30-11-3071 and 3072). The trail and associated features were plotted previously by surveyors and appear on the map provided to us. The two shelter sites are situated at the east end of the project area. Previously located and described by Kikuchi (1963) and placed on the State Register of Historic Sites (1988), the present survey found these two caves to have suffered both high surf damage and looting. A roughly constructed basalt cobble and boulder wall approximately 3 to 5 courses high (.7 m. - 1. m high) was observed bordering the *mauka* (North) edge of the road, immediately outside the project area. The wall appears to be specifically associated with Lāwa`i Road, acting as a retaining embankment on the upslope side of the roadway. Based on the survey results, three archaeological sites are present in the project. Site 50-30-11-990, the shoreline trail is a mix of modern and historic sections. The two cave shelters, Sites 50-30-11-3071 and 3072 have both been looted and damaged (by natural forces) but remain on the State Register of Historic Sites. Preservation is recommended for these three sites.

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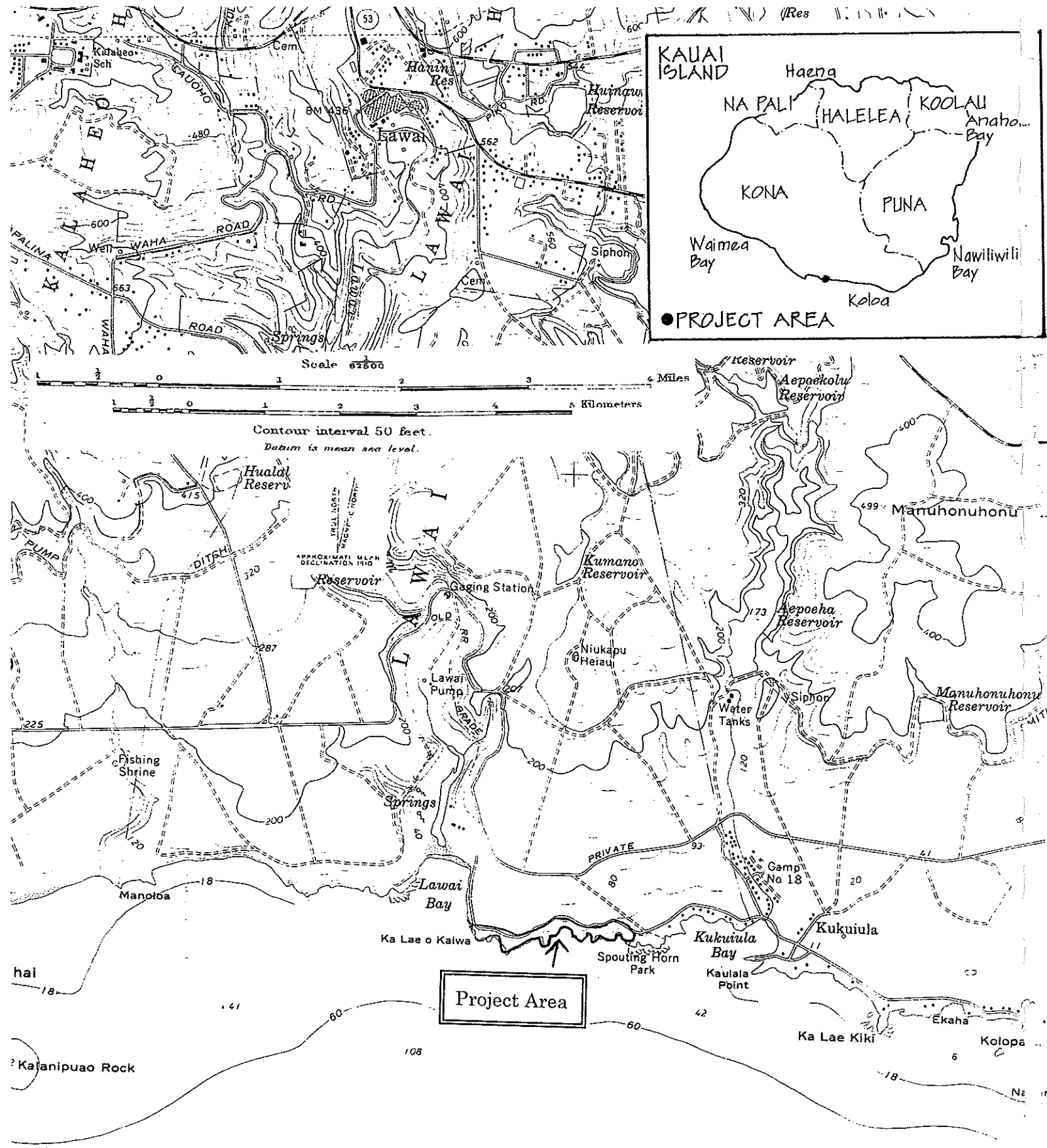


Figure 1 Portion of USGS 7.5 Series Map, Koloa Quad, Showing Project Location (Outlined)

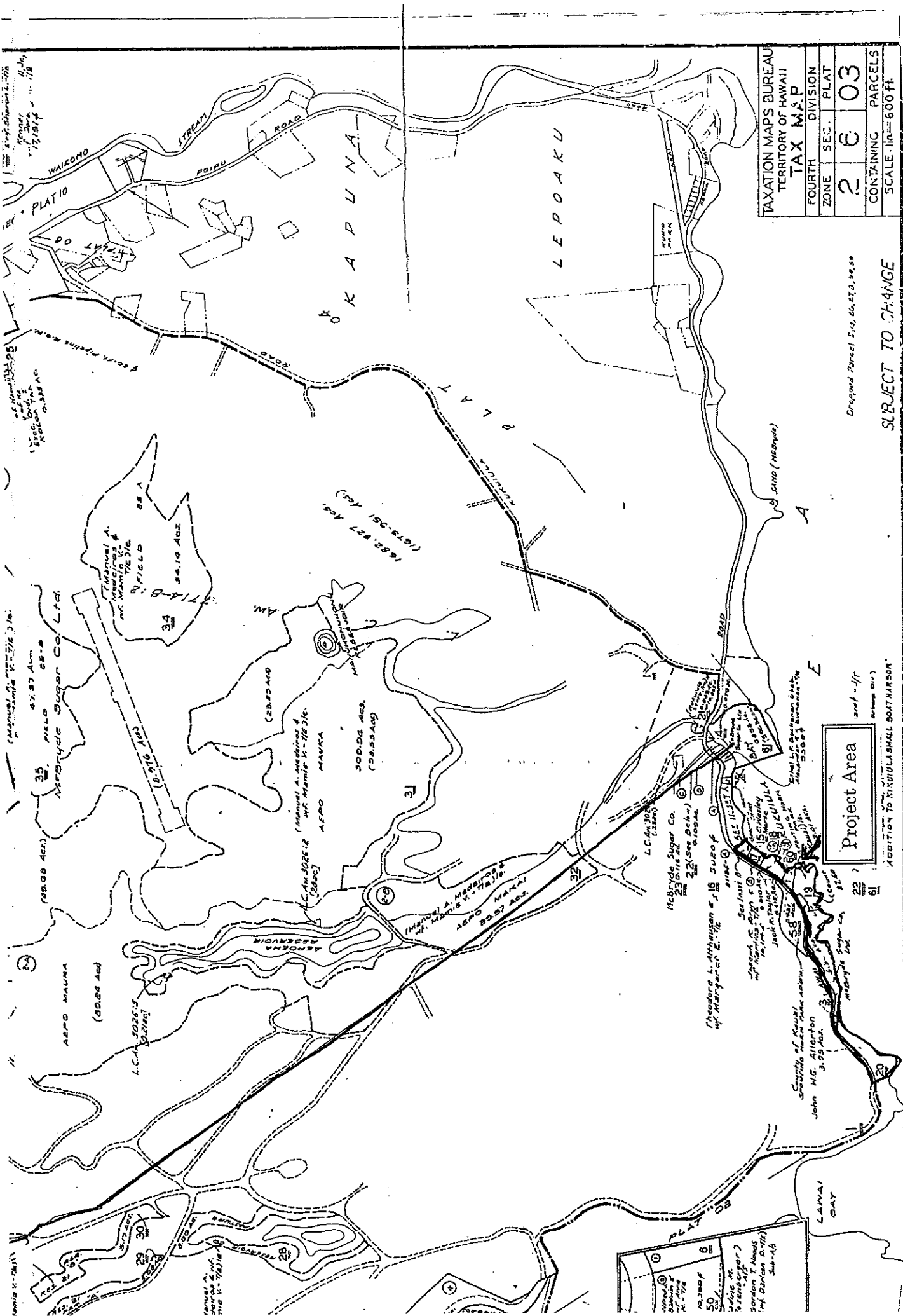


Figure 2 Portion of TMK Map 2-6-02 and 2-6-03 Showing Location of Project Area (Outlined)

B. Project Background

Alexander and Baldwin's Kukui`ula Planned Community is proposed in the area that abuts the present project area to the north, across Lāwa`i Road. Archaeological studies within the proposed planned community span more than 10 years. In 1988, Cultural Surveys Hawai`i first conducted an archaeological inventory survey for 1,000 acres of the proposed Kukui`ula Planned Community in which 58 historic and pre-historic archaeological sites with a total of 150 individual features were identified (Hammatt *et al.*, 1988).

The present project area was not part of the original inventory survey.

C. Scope of Work

1. A complete ground survey of the entire project area for the purpose of site inventory. All sites would be located, described, and mapped with evaluation of function, interrelationships, and significance. Documentation will include photographs and scale drawings of selected sites and complexes. All sites will be assigned State site numbers.
2. If warranted, limited subsurface testing to determine depth and quantity of cultural materials within archaeological sites and to obtain datable samples for chronological information if none is available for sites in the immediate area from previous studies.
3. Research on historic and archaeological background, including search of historic maps, written records, and Land Commission Awards, and Native Testimony. This research will focus on the specific area with general background on the *ahupua`a* and district and will emphasize settlement patterns.
4. Preparation of a survey report which will include the following:
 - a. If available, a topographic map of the survey area showing all archaeological sites and site areas;
 - b. Description of all archaeological sites with selected photographs, scale drawings, and discussions of function;
 - c. Historical and archaeological background sections summarizing prehistoric and historic land use as they relate to the archaeological features;
 - d. A summary of site categories and their significance in an archaeological and historic context;

- e. Recommendations based on all information generated which will specify what steps should be taken to mitigate impact of development on archaeological resources - such as data recovery (excavation) and preservation of specific areas. These recommendations will be developed in consultation with the landowner and the State and County agencies.

D. Field Methods

The in-field survey, on December 3, 1998, involved a thorough ground survey of the entire project area, except for areas that were completely obstructed by prickly pear cactus, night blooming cereus and pencil tree patches. The areas obstructed by the vegetation ranged in size from 5 X 5 meters to 10 X 10 meters but close observation from surrounding areas provided sufficient survey coverage. Additionally, research on the historic and archaeological background of the area was also conducted. No sub-surface testing was conducted.

A team of two archaeologists from Cultural Surveys Hawaii, Brian Colin and Tony Bush, completed the surface survey on December 3, 1998. The historical research included historical records of the area and the historic land usage, as well as a review of previous archaeological research in the vicinity (*e.g.* Kikuchi 1963, Hammatt et al. 1988).

II. HISTORY OF LĀWA`I, DISTRICT OF KONA

A. Introduction

The *ahupua`a* of Lāwai is bounded by the *ahupua`a* of Kōloa on the east, Kalaheo on the west, the sea on the south and the Lihue-Koloa Forest Reserve on the north. The west side of the valley is framed in by high cliffs, as is the river flood plain, but the eastern boundary between Lāwa`i and Kōloa *ahupua`a* is across gently sloping terrain with no natural landscape boundary. Most of Lāwa`i's shoreline is high cliff, except for Lāwa`i Kai beach.

B. Legendary Lāwa`i

Eric Knudsen tells the following tale told him by a Hawaiian fisherman near Spouting Horn. A giant *mo`o* or lizard named Lehu, accompanied by two sisters swam from Tahiti. The two sister *mo`o* were tired out by the time they reached Ni`ihau and went to sleep on the beach there and became stones. The brother, Lehu continued on to Kaua`i and landed at Lāwa`i Beach. After recovering his strength he went over to Kōloa, and his favorite spot was the junction of the Poeleele and `Ōma`o rivers. Years later he swam over to Ni`ihau to visit his two sisters but found they were dead, so he swam back to Kaua`i. As he swam along the shore he became fascinated by the fountains of the Spouting Horn. As he explored the lava tube he got caught and couldn't back out. Supposedly now every time a wave rushes in and wets him all over, he growls and hisses. The Hawaiian fisherman said the lava was too hard for the Hawaiians of long ago to allow them to free him and now, using dynamite would only kill him, so he's doomed to stay there forever (Knudsen 1946:210-211).

Another tale appeared in the 1997 *Honolulu Advertiser*. Betty Snowden, whose family had lived in Lāwa`i Kai for over 200 years recounts the story of the *menehune*

One night, as he sat on the hill watching the people in the valley, the chief of the Menehune overheard Manu and his father discussing the need to build a wall in the stream. Manu's father wanted him to spend the next few days helping with the project.

But Manu and his friends had planned a fishing trip to Ni`ihau and he wasn't happy about the thought of being left behind. Yet, he certainly couldn't ignore his father's request to help. Maybe if he began right away, starting a rock pile ...

Manu threw himself into the task. He was so busy that he didn't see the Chief of the Menehune until the Chief came up right behind him and tugged at his clothing. The Chief made an offer that would benefit them both.

For two *pu`olo*, or bundles of shrimp the size of two large coconuts, the Menehune would build a wall for Manu and his family.

Manu agreed. For the next two days he surfed, fished and swam with his friends. On the second day he watched the sun setting in the west before he realized that he need to catch *opae*. He rushed over to the stream and tried to catch as many shrimp as he could before it got too dark to see but he only collected one bundle full.

That's OK, he thought. Its a large bundle so that should be enough. He placed the shrimp at the promised location.

That night, the moon rose full and the Menehune crept down the valley. They worked most of the night to build the stone wall in the stream.

When Manu and his family awake the next morning they found half a wall standing. The Menehune had built only half a stone wall because they had received only half the promised *opae*. (Snowden 1997:B1

Betty Snowden remarks that one can still see the neat, perfectly made half-wall built by the Menehune of Lāwa`i Kai at the edge of the stream in Lāwa`i Valley.

C. Traditional Lāwa`i

In the period A.D. 1400-1650 in nearby Kōloa, 40% of the known carbon dates obtained straddle the end of the fifteenth century. This seeming burst of activity may have been associated with the ruling chief Manokalanipo-a-Kaua`i, who ruled Kaua`i circa 1490 to 1510 (Hommon 1976:133, 304). Manokalanipo "was noted for the energy and wisdom with which he encouraged agriculture and industry, executed long and difficult works of irrigation, and thus brought fields of wilderness under cultivation... and it is remembered in the legends as the golden age of that island" (Fornander vol. 2, 1969:93). It is likely that Lāwa`i was inhabited and tilled before the neighboring Kōloa field system was developed, as it is a typical traditional valley setting with habitation sites on or near the narrow beach and the taro *lo`i* along the flood plain.

Of the pre-contact era, three religious temples (*heiau*) are known to have existed, as well as special stones, taro fields, a fishpond, petroglyphs and caves are remnants of that time. C.S. Handy was told that on Kaua`i the favored places for coconuts were Kōloa and Lāwa`i (Handy 1940:193).

According to Kikuchi (1963:39) the name "*lāwa`i*" means "the day to end the fishing tapu." Others believe the name Lāwa`i, comes from "*lawa a`i*" which means "plenty to eat" or "valley of plenty" (Matsunaga, Toshiichi and Francis Takahashi 1986:9). Pukui and Elbert do not give a meaning for the name, nor does Francis Gay in his list of Kona Kaua`i place names. Most of Lāwa`i is a typical but narrow stream valley with an associated flood plain but there is also a large table land on the east side of the *ahupua`a*, which is where the project area lies at the shoreline end of the table lands. We can assume that in pre-Contact era, Lāwa`i was a highly productive *ahupua`a* with special resources. This is further reinforced as at the time of the *Māhele* and *kuleana* awards (1847-1853) the land

was given to *ali'i*, James Young Kanehoa, son of John Young. Within the *Māhele* award (M.A. 43) 13 *kuleana* claims were made and 10 were awarded.

D. 1800-1875 (*Māhele*, *kuleana* and Boundary Commission documents)

In the period of the *Māhele* and *Kuleana* Claims (1848-1853) the ahupua`a of Lāwa`i was granted to James Young Kanehoa as *Māhele* Award (M.A. 43). James Young Kanehoa was the son of John Young (King Kamehameha I's first foreign advisor) and his first wife, Nāmokuelua. He was born August 7, 1797 and died Oct. 1, 1851. He studied in Boston, and went with Liholiho to England and acted as interpreter (Kelly 1983:25). When he died he bequeathed his land of Lāwa`i, Kaua`i to "my married wife Hikoni," and in a 2nd will written a week later he bequeaths it to his niece, Emma, (daughter of his half sister Fanny Kekelaokalani Young) 1/3 of Lāwa`i and 2/3 of Lāwa`i to G. Davis [Junior, son of George Hueu Davis]. The Court refused both wills and John Young is appointed administrator of the estate (Barrère 1994:245-247). John Young's widow Hikoni received the land. She died about 1885 and she is probably buried at Lāwa`i Kai according to information from Probate No. 1760 and Bureau of Conveyances, Liber 32, page 5. (Forbes 1997:3), and Queen Emma inherits the land (Figure 3).

It is in the *kuleana* claims and awards that we find the documentary descriptions of the traditional land use for Lāwa`i. In these claims, the people living on the land, described where they cultivated, what they did and where. There are 13 claims and 10 awards (Figures 4 & 5). The pattern of these claims is for a flood plain landscape with most claimants indicating they have taro *lo`i* and a few also have *kula*. One claimant notes he had coconut, kou, breadfruit and banana trees.

Seven of the awarded *kuleana* claims are shown on tax maps and are along Lāwa`i Stream. In the lower valley there are four, and two of the four (3414 and 3417) have house lots at the shore (see Figure 4). The 9188 claim states that there were 9 *lo`i* on the west side that now have no taro in them because it was all taken away by the flood (probably the great flash flood of 1846). This claim is also the largest one shown on the tax maps and he had a pig enclosure. Old maps also show a fish pond on the flood plain near the shore. The upper valley also contains three claims along the stream: 3612, 6570 and 8054 (see Figure 5). Saletielā and Pueaina are brothers (10675 and 10675B) and their claims are not shown on maps, but Saletielā claims their land, which was first claimed together and then separated, is near the falls (Waihona Corp. 2000).

The Boundary Commission record of 1873 shows there was a dispute about the boundaries near the sea beach. But "the small piece of rocky land claimed by Lāwa`i near the beach point more than compensates for the latter land gained *mauka* and the commissioners advised the Crown commissioners to accept the boundary as pointed out. The *kama`āina* used by James Gay to point out the boundaries was Mokuiki (LCA 3315). The boundary commission record notes the existence of many named rocks, a second stream, called Haluopae. 20 lines (chains) to the west of the Government road on the southwest boundary there is a large hole in the ground called "Koakaiināhoa. Likewise, on

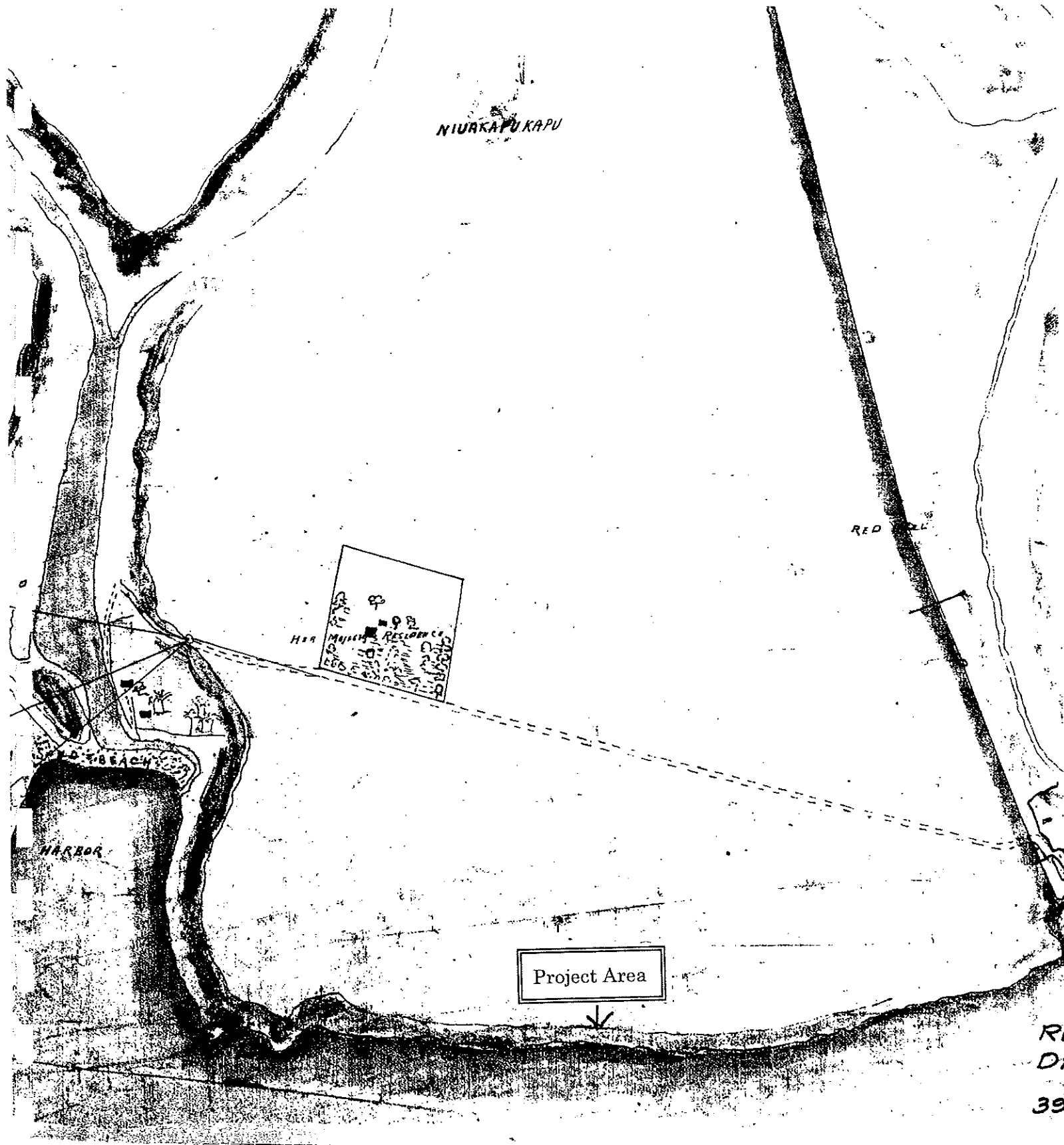
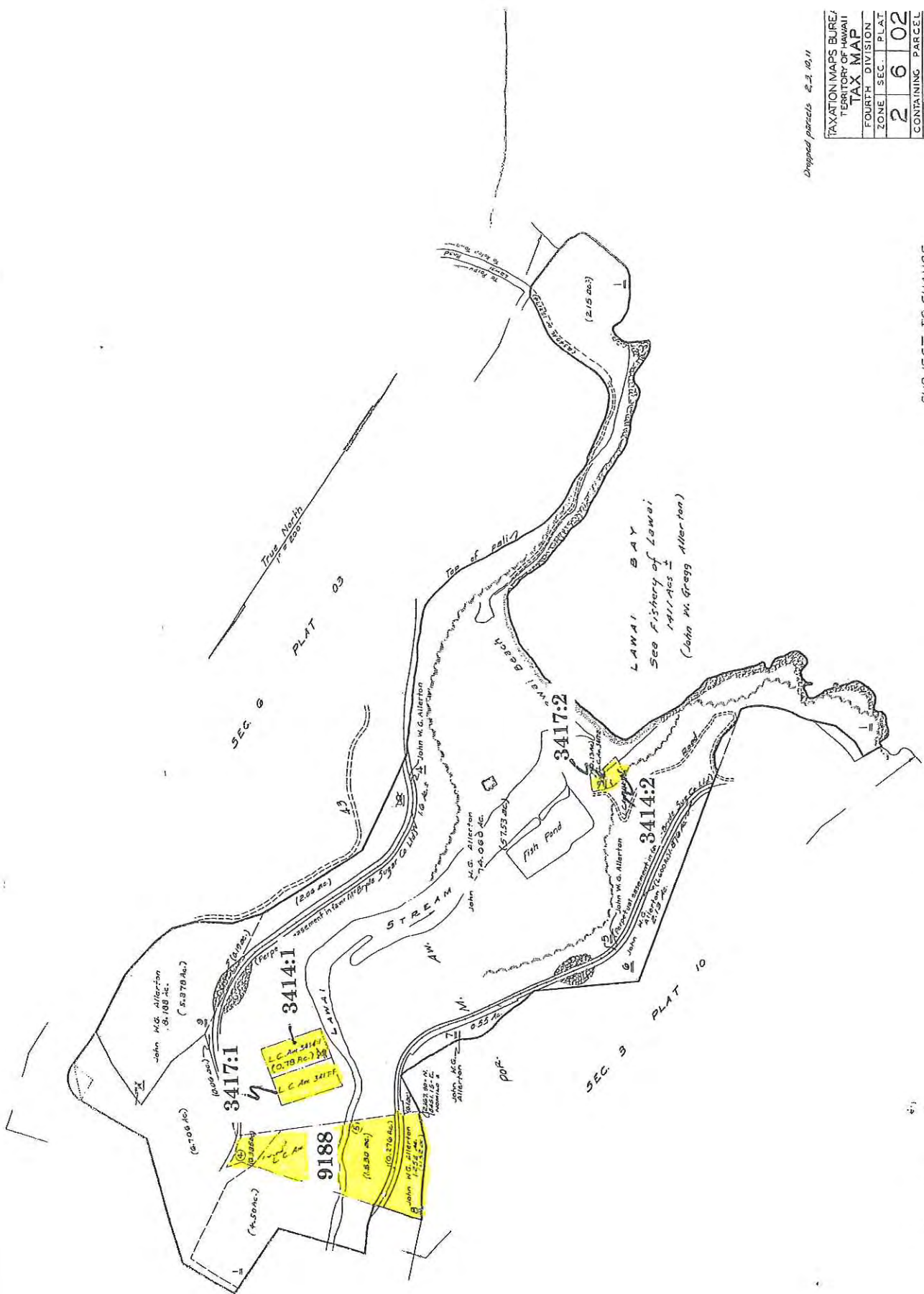


Figure 3 Portion of Plan of Lawai & Kekee, Kauai, by James W. Gay, 1872, Traced by C.S. Kittridge, Scale 1" = 10 chains, R.M. 1373 showing project area and "Her Majesty's Residence" (located approximately one kilometer north of the project area).



Dropped parcels 2-3-10-11

TAXATION MAPS BUREAU			
TERRITORY OF HAWAII			
TAX MAP			
FOURTH DIVISION			
ZONE	SEC.	PLAT	
2	6	02	
CONTAINING PARCEL			SCALE: 1" = 200 FT

SUBJECT TO CHANGE

Figure 5 Portion of TMK 2-6-02 Showing Lower Valley Land Commission Awards

Table 1: Land Commission Claims (Figures 4 & 5)

Land Commission Award #	Claimant	Land Use and `ili	Landscape feature(s)	Amount
M.Aw. 43 & 8518B not awarded	James Young Kanehoa	<i>Ahupua`a</i>		<i>Ahupua`a</i>
3266	Luka	Keana, Kapapao; <i>`āina weuweu</i> (grasslands), <i>kula</i> house lot, planted coconut, kou, breadfruit and banana trees, stone walled enclosure		not awarded, Luka konohiki, land belonged to Kanehoa
3315	Mokuiki	Kahee; 3 <i>lo`i</i> , <i>kula</i> & house lot		not awarded, moved to O`ahu
3414	Peui, Keui, Levi, or Revi	Papakea; 2 <i>lo`i</i> , <i>kula</i> and house lot near shore	Papakea <i>pali</i> , <i>muliwai</i> of Lāwa`i sand beach and <i>pali</i> , and <i>pāhale</i> of Kuahewa or Niuuhiwa	2 ap.; .75 Ac. 24 rods
3417	Pehuiki, Pahuiki	Papakea; 3 <i>lo`i</i> house lot on shore	Papakea <i>pali</i> , <i>muliwai</i> of Lāwa`i sand beach & <i>pali</i>	2 ap.; .9 Ac.
3612	Kahookahi	Kaohē; 12 <i>lo`i</i> and <i>kula</i>	Lāwa`i stream, Kumuokalani <i>pali</i> , <i>kuamano</i>	1 ap.; 4 Acs 1 rood
3616	Kapulu	Kukuimokoi; 8 <i>lo`i</i> and small <i>kula</i> & house lot	<i>pali</i> , <i>`auwai</i> and <i>lo`i po`alima</i>	1 ap.; 2 roods 30 rods
6570	Awahua	Peapeakuakua; 20 <i>lo`i</i> <i>kula</i> and house lot	road, Lāwa`i Stream	1 ap.; 4 Acs 1 rood 20 rods

Land Commission Award #	Claimant	Land Use and `ili	Landscape feature(s)	Amount
8054	Ehu	Haia; 12 <i>lo`i</i> and <i>kula</i> (lived there)	Makakii <i>pali</i> and Lāwa`i Stream	1 ap.;p 1 Ac. 3 rods
8518B	Kanehoa, J.Y.	<i>Ahupua`a</i>		See Mahele Award 43
9188	Kamakahookahi	Papakea; 6 <i>lo`i</i> , house lot & <i>kula</i> , pig enclosure,	Papakea <i>pali</i> , brook, Kaniohia <i>pali</i>	1 ap.; 1.5 Ac. 17 rods
10675	Pueaina	Hapaiehu, 23 <i>lo`i</i> ; a <i>lihi</i> with <i>kula</i> house lot	stream, <i>pali</i>	1 ap.; 1 Ac. 36 rods
10675B	Saletiela	Hapaiehu; 5 large <i>lo`i</i> & house lot	Lāwa`i Stream, on north near the falls	1 ap. 2.5 Acs

the eastern boundary *mauka* of Aepeo stream there is a large hole called Kapeleulo and close to the road farther up are two more holes, one called Puuakamailii, and one called Namahana. There is no mention of caves in this record, but it is possible some of these holes are entrances to caves.

E. 1876-1900

In 1876, Queen Emma leased the land of Lāwa`i to Duncan McBryde for fifteen years, though she reserved a house lot and several acres of taro patch land. In 1886, after the Queen's death, Mrs. Elizabeth McBryde bought the entire Ahupua`a for \$50,000. The upper lands were planted to sugar cane, and the valley leased to Chinese rice growers and taro planters

But of all the McBrydes, it was Alexander who had the most affection for Lāwa`i. In 1899, when a family corporation was formed, he was granted the land of Lāwa`i in the lower valley, together with all the fishing rights in the bay. Several years later, when it was decided to plant cane in the area where Mauna Kilohana stood, it was he who rescued a part of this interesting house, and had it painstakingly lowered over the cliffs of Lāwa`i to the valley floor. It was here that he lived, first in the small cottage, and later in a bungalow which has since been torn down (Forbes 1997:14)

Joesting tells of Queen Emma's visit to Kaua`i in late 1870: She had been disconsolate after the deaths of her only son in 1862 and her husband the following year. Emma's friends were concerned.

By 1870 Emma had regained some of her former spirit of adventure and was at Lāwa`i, not far from Kōloa, on the south shore of Kaua`i. Lāwa`i at that time was a barren place, with only a few trees around the frame houses. The queen certainly was familiar with the stories and legends of Wai`ale`ale and the Alaka`i Swamp, and she now decided to see the area for herself. The difficulty was to locate someone who could still find the old trail through the Alaka`i. Valdemar Knudsen suggested Kaluahi, an elderly Hawaiian, as the man to lead the way.

Queen Emma made the trip in January accompanied by some hundred people along the path not traveled in many years. . They sang and danced along the way. They passed a night in the rain but the next morning they saw the magnificent view from Wainiha lookout of Hanalei, Lumaha`i and Wainiha and Emma then returned to Lāwa`i. The Lāwai home was renamed Mauna Kilohana, ("Mountain Lookout"), in honor of Queen Emma's visit (Joesting 1984: 203-205).

This same story can be read in *The Kauai Papers*, in a story by Eric A. Knudsen.

Old Kaluahi came to Papa and told him the story of the trip. "Kanuka," he said, "I love Queen Emma but never again ask me to guide another queen to the Alaka`i Swamp" (*The Kauai Papers* 1991:107).

In the 14 years before her death, in 1885, Emma often visited the Lāwa`i lands, enjoying the raising of mullet and the "black taro" abundant there (The story of Lāwa`i Kai" NTBG newsletter, vol. 2:9)

Mrs. Elizabeth McBryde bought 12,000 acres in the Kona section of Kaua`i in 1886 and in 1899 her lands along with the McBryde estate joined all of their lands to from the McBryde Sugar Company, save the 83 acres at the mouth of the Lāwa`i stream. Alexander McBryde, who lived in Lāwa`i valley, where the only access in Queen Emma's day had been by trail down the cliffs, created a road along the shore from "Spouting Horn" by blasting away the *pali* to make the narrow horse and buggy trail ("The story of Lāwa`i Kai" NTBG newsletter, vol. 2:9).

Because there was no water source at Mauna Kilohana, on the table lands east of the valley, arrangements were made to build a ditch to bring water to the house. The ditch was to be 2 miles long, one foot deep and one foot wide. The work started in February and it was finished in April and the Queen had ordered many plants for the property. But at the end of April the Queen was recalled to her duties in Honolulu and we have no further record of any stays in Lāwa`i (Forbes 1997:9-14).

Both McBryde bachelors, Walter and Alexander, were highly regarded by the Hawaiians in the area. Lāwa`i was open to fishermen, and both brothers were always interested in going on fishing and hunting expeditions in the area (Forbes 1997:14)

The fish pond at Lāwai`i Kai was called a *muliwai* in the *Kuleana* documents and later became after Allerton acquired the property became known as Allerton's fish pond and the Allertons also had later ownership of the sea fishery of 1411 Acres.

In 1982, Hurricane Iwa moved the Queen Emma cottage off its foundation (formerly part of Mauna Kilohana) . The cottage was restored through the generosity of Mr. John Gregg Allerton. In 1986, after Allerton's death, The National Tropical Botanical Garden assumed management of the garden for the Allerton Gardens Trust. In 1992, Hurricane Iniki moved the cottage 20 feet off its foundation. The cottage was once again restored, this time to its 1912 configuration (Forbes 1997:17).

F. 1900-Present

The 1912 U.S.G.S. topographic map of Kaua`i depicts a secondary road in existence where Lawai Road is today as well as the railroad a short distance inland from the road (Figures 6 & 7) The area above (*mauka*) the present Kaumuali`i Highway was turned into homestead lands and all of these grants date 1914 and shortly thereafter. They surround some of the inland land commission claims. The McBryde Sugar Co. started its railroad operations in 1899. By 1934 company reports talk about the Lāwa`i Bridge rockfill being completed, so the bridge can be built. As the McBryde Sugar Co. map shows, the Lāwa`i Stream Valley was surrounded east and west by sugar cane lands, and Fields 216 lay just *mauka* of the Lāwa`i Road near the project area.

The Lāwa`i Kai portion of the *ahupua`a* was sold in 1938, to the Allertons, and in 1986 this portion became the National Tropical Botanical Gardens. However, the plateau lands *mauka* of Lāwa`i Road remained part of the McBryde holdings and were planted in sugar cane before 1900. That land is now proposed for a golf course. The shoreline project area has never been developed, except for the building of Lāwa`i Road along its northern side, but this area has seen the introduction of many introduced species of plants, probably naturally. It has been used by fishermen, from pre-Contact times through the present, although it is not easily accessible.

Alexander McBryde died in 1935. In 1938 Lawai-kai was sold to Mr. Robert Allerton and his son John. Under their direction, the old McBryde bungalow was torn down, and was replaced by the present dwelling designed by John Gregg Allerton. It was they who enlarged the gardens to their present size. ... The Queen Emma Cottage was carefully preserved and is in use today as a guest house (Forbes 1997: 14).

Ethel Damon describes the beach home of Alexander McBryde (Damon 1931: 217):

At the mouth of the Lāwa`i Stream, under the lee of a protecting bluff and looking southward across a broad, white beach to the sea, Judge McBryde's oldest son, Alexander Moxley, true Hawaiian in thought and feeling, has made of an ancient royal seat a rarely tropical garden, where the world may wander under towering palms, where one may lose oneself in dreams of light and shadow, of fragrant fern, or brilliant hillside of blossoming vine (Damon, 1931:220).

PREVIOUS ARCHAEOLOGY

This table presents previous archaeological work conducted in the *ahupua`a* of Lāwa`i

Table 2: Previous Archaeology of Lāwa`i (Figure 7)

Authors	YEAR	Title & Location	TYPE/STUDY
Bennett, Wendell	1931	(Lāwa`i Valley) among other sites on Island of Kaua`i	General Archaeological Survey
Handy, E.S. Craighill	1940	<i>The Hawaiian Planter</i> , Kaua`i	General ethnographic study
Kikuchi, William K.	1963	<i>Archaeological Survey and Excavations on the Island of Kaua`i, Kona District, Lāwa`i, Kauai, HI.</i>	Survey and Excavations
McMahon, Nancy & Debra Fujimoto	1991	Memo/Inventory From Inactive Cemeteries, Yamamoto Family grave Site, Lāwa`i Odaisan, Lāwa`i, Kōloa, Kaua`i	Inventory Survey
Hammatt, Hallett H.	1996	Letter Report on Subsurface Testing for the Proposed Location of Queen Emma's Cottage, Lāwa`i Valley	Subsurface testing

Wendell Bennet's survey of Kaua`i located 5 sites within Lāwa`i, three *heiau*, petroglyphs, and stone work.

Site 69. Kalohiokapua *heiau*, in Lāwa`i valley, inland on the west side on a hill. Described by Thrum as, " a stone platform *heiau* about 20 by 20 feet, walled some 4 feet high; a place of circumcision."

Site 70. Mamalu *heiau*, against a cliff about the center of the mouth of Lāwa`i valley.

Although this site is now completely destroyed it was described by Thrum as "A small paved platform *heiau* about 20 feet in size, located on the beach; portion still to seen

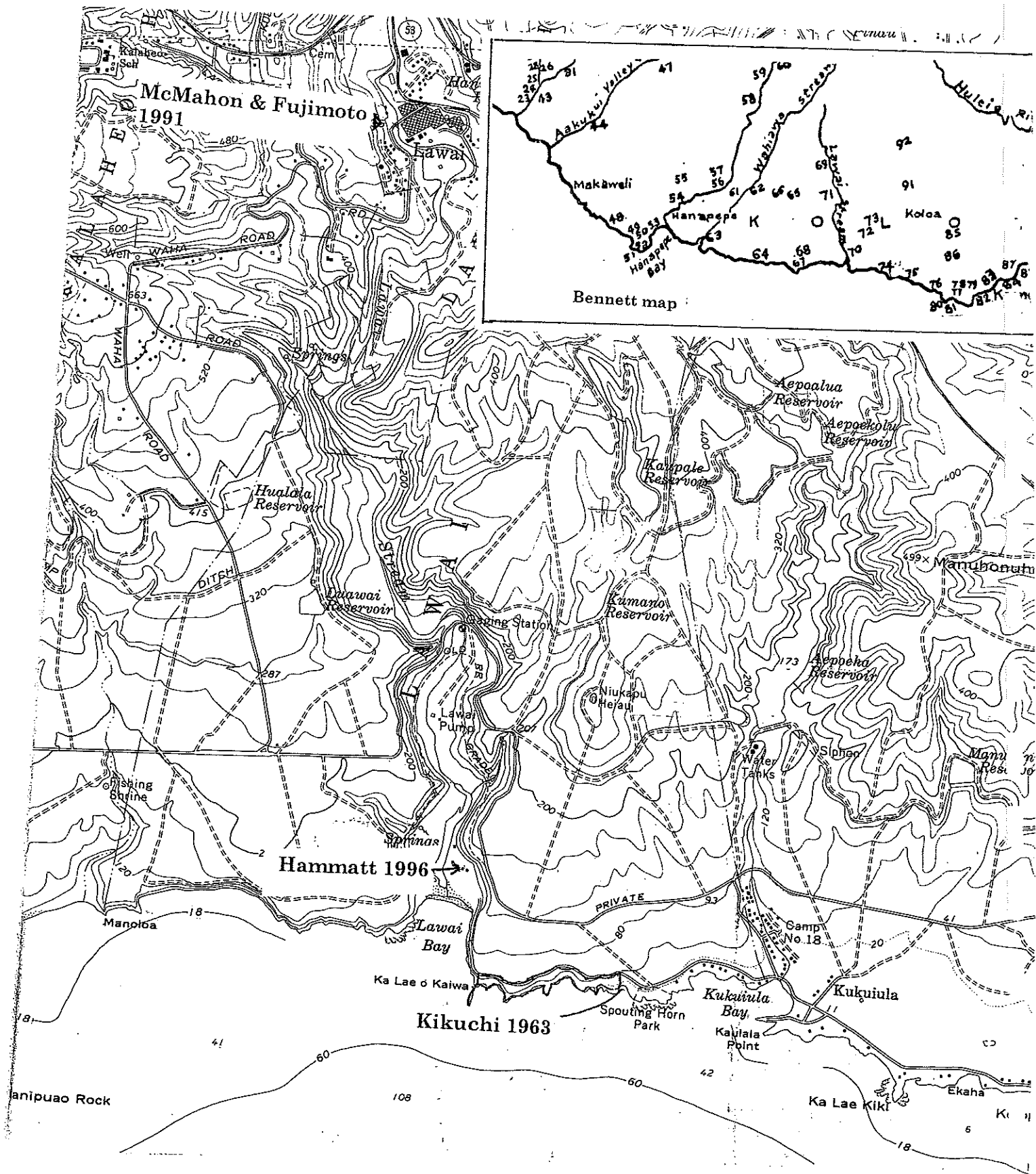


Figure 7 Portion of USGS 7.5 Series Map, Showing Previous Archeology - Inset of Bennett's Sites

Site 71. Petroglyphs in Lāwa`i Valley on the east side of a large rock a short distance toward the sea from the cannery.

They are the regular type of scratched or pecked petroglyphs. All are of the stick figure type made with single lines for body and limbs. None of the triangular bodies and limbs are found. In one figure three toes and three fingers are shown.

Site 72. Niukapukapu *heiau*, on the top of Niukapukapu hill, on the east bluff of Lawai valley. The outside measurements of this *heiau* (fig. 32) are 46 by 95 feet. At the front, and for 60 feet on the east side, a section of the wall remains which is 3 to 4 feet wide, 3 feet high on the outside, and 1 to 3 feet high on the inside. Both east and west the steep sides of the hill are faced with stone. On the east side the cross section show the wall 2 feet high on the inside, 3 feet high on the outside and 4 feet wide. At the base of the wall is a flat space 5 feet wide, then a 1 foot drop and another space 2.5 feet wide, and then a 2-foot drop from whence the facing continues at an angle for 15 feet or more down the side of the hill. This double step feature is on both sides. In front of the seaward side of the wall the paving continues out for 15 feet.

Site 73. Stone work, on the hill just inland from Site 72.

On this hill is considerable mass stonework. The top of the hill has an irregular, rectangular structure of stone walls on the four sides, but not on the center of the top. These walls are 15 to 20 feet thick, or wide, built up 3 to 5 feet on the outside and flush with the ground on the inside. They are not everywhere continuous, but the impression given is that they were continuous at one time. Portions of the walls are so roughly laid that it appears to be cleared stone from the plantation, but other portions seem well made (Bennett 1940: 116-117). Note: Bennett's Site 74 is in Kukui`ula Bay.

E.S. Handy described "few terraces still cultivated in taro" among sugar cane. The old terraces, he said are abandoned or used as pasture. He thinks that there may never have been terraces in the upper valley for there is no evidence left (Handy 1940:65)

Kikuchi describes seven sites in Lāwa`i in his study of the entire Kona District of Kaua`i, of which two are in the project area. The descriptions of the two sites (His Sites 56 and 57) within the project area are provided first and then the others will be described.

Site 56. Shelter Caves, Kukui`-ula.

Three caves were found all within 10 feet of each other, the main cave lies on sea level while the other two are above the central cave. This site was completely looted by vandals.

Fishhooks of bone and pearl shell were found. Coral and *wana* spine files were also found. Many *pipi* oyster shells were found strewn over the three caves.

Site 57. Shelter Cave, Kukui-`ula

This shallow cave was used as a shelter cave by the hawaiians and later by fishermen as shelter against the wind and rain. It measures 3.3 feet high, 8.3 feet wide and 16.6 feet deep. The entire cave was completely looted as evidenced by the turned dirt floor.

The small cove fronting the cave is called Āholehole point because of the fish caught there. Recently a Japanese woman committed suicide there and as a result the area is said to be haunted. The local people claim that the sea shore is avoided by dogs at night but not during the day (Kikuchi 1963:45-46)

The other sites are numbered 50-55.

Site 50. Lāwa`i-kai

the valley was once owned by Queen Emma, wife to King Kamehameha III. It is said that she had all the caves on her property mapped. These maps or locations were given to an institution ... archives?

The strip of land on the cliffs between Lāwa`i-kai and Nōmilu fishpond was said to be part of the original property of the Queen. This strip of land was the path on which the queen sent her retainers with the containers of young mullet fish from her own fishpond to Nōmilu pond to be deposited there.

Parts of the original homestead of the Queen are still standing, her home was called Mauna-Kilohana.

50a. `Opihi Rock

A large boulder which has a sharp right angle corner at one end. Numerous `opihi shells found strewn about it gave the rock its name.

50b. Springs

A large number of springs flow from crevices in the rock strata. The entire eastern valley side has springs which in the days of the Queen were diverted effectively to feed the taro patches.

50c. Taro Fields

The entire valley was once said to be cultivated into numerous taro plots. After the Queen sold the land the other owner, McBryde, maintained some of the plots while most were left to lie fallow.

These fields were fed by the numerous springs and from irrigation ditches, *`auwai*, fed by the stream of Lāwa`i.

50d. Hina Rock

A large boulder in the middle of Lāwa`i Stream is said to be the body of Hina. The stone is completely covered by water but its mass can be distinguished.

Hina is said to be a female who after being ardently pursued jumped into the stream upon which she immediately turned to stone. The women of the region would stand on the stone and their romantic desires would be granted. Possibly a female phallic stone.

50e. Path

An old path once used by travelers and later by the Queen connected Lāwa`i-kai to KukuioLono. The path was closed by a stone wall but the lane is still marked.

50f. Fishpond

A fishpond located back of the large rock hill at the mouth of Lāwa`i-kai was once very productive. The stone walls are still in very good condition. The limits of the pond however are very vague because of the overgrowth of weeds and shrubs. The tidal wave of 1946 swept through the pond and filled it with mud and debris.

The mullet raised in this pond was said to be very popular and considered a delicacy.

Site 51. Cave

A large cave was shown to the crew by Mr. John Gregg Allerton. The cave is located on the western side of the valley at about three-fourth to one mile from the mouth of the valley.

The cave was used by the Hawaiians but no evidence of any burial was found. Very dry grass was found all very brittle. The grass was evidently used as bedding. Later the cave was used by the Japanese laborers as a place where they could gamble privately.

The cave was found on the face of a steep cliff.

The point on the trail to the cave mouth was about 40 feet downward. The cave entrance is a long and narrow slit about 40 feet long and 5 feet high. The entrance was walled and once faced with dirt as a means of concealment. Portions of it still remain.

The cave has six caverns. A seventh and eighth may possibly exist. Each cavern drops about 10 feet from each other and becomes very chilly. The third cavern condenses one's breath.

Two pits were dug in the front cavern. The pits were 5 feet square and dug to a depth of 4 inches. Nothing was found in either pit. A search of all the other caverns was undertaken but only dry grass and some kukui nut shells were found. Much of the floor of all the caverns was filled with rock from the roof. The debris was quite thick and extremely difficult to gauge if it is concealing any artifacts or midden.

Site 52. Mamalu *Heiau*

The heiau of which nothing now remains was said to exist at the mouth of Lāwa`i kai Valley. Thrum describes the heiau in this way:

This site is now completely destroyed... a small paved platform heiau about 20 feet in size, located on the beach; portions still to be seen (Thrum 1907:69)

Site 53. Walled Area

On the western corner of the mouth of Lāwa`i-kai a stone wall can still be seen. The wall retains a backed-up area of red dirt sand and loam. Midden was seen at its lowest level on the wall face.

Site 54. Shelter Cave

At the mouth of Lāwa`i-kai Valley there is a rock hill on which a cave was found. The cave passes through the entire hill. Midden of various types such as kukui nut shells, bottles, pieces of wood and perhaps some bone was seen within it. The cave, if it was used by the people as a burial cave had no skeletal material in it. The dense growth of night-blooming cereus covered both entrances.

Site 55. Niukapukapu *Heiau*

Niukapukapu *heiau* was an exceptional temple in that the local people didn't want to reduce the grounds to sugar plantings because of their belief that these places carry harm to the destroyer.

The Japanese called this hill (Maru mariyama) (Round Mountain). This temple lies on the top of the hill which is just a simple pile of small rocks.

Much of the heiau is in good condition, however, someone has added a depression at its eastern edge. Erosion has destroyed a small length of the western wall. The remaining structure remains the same as noted by Bennett (see above) (Kikuchi 1963:39-44).

In 1995 an archaeological investigation was carried out by Cultural Surveys Hawaii. It consisted of subsurface testing of the proposed location of Queen Emma's Cottage at Lāwa`i valley, Kaua`i. The excavations revealed an absence of evidence of prehistoric Hawaiian cultural activity within the study area. The objects encountered were all of recent age, a Lihue Soda Works bottle, cement slabs, and a stone and mortar path (Hammatt 1996).

McMahon and Fujimoto, provide the following information about the Lāwa`i Odaisan. At one time there were 88 Buddhist temples on the hillside where people would go to heal themselves. This hillside includes the graves of Mr. and Mrs. Yamamoto family, the founders of the Lāwa`i Odaisan. These grave sites lie below what used to be the Lāwa`i Odaisan (Church) and were allotted the State Site No. 50-30-10-1865 (McMahon and Fujimoto, 1991). According to a news story included in the memo with no date and no source by Wayne Muromoto, the "issei" first generation Japanese immigrants built the

Lāwa`i Singon Temple with their own hands in 1904. Kodo Yamamoto was sent to Japan in 1949 to become an ordained minister. The site is being restored by the Lāwa`i International Center Committee.

Predictive Model

The settlement pattern model for Lāwa`i *Ahupua`a* includes: permanent habitation and intensive agriculture (irrigated and non-irrigated) focused on the valley floor flood plain and presumed intensive agricultural pursuits on the table lands between Lāwa`i Kai and Kukui`ula Bay. The historical documentation, especially *Māhele* and *Kuleana* data, indicates house sites, taro *lo`i* and some *kula* were situated on the alluvial flood plain within Lāwa`i Valley. No *kuleana* were awarded on the table lands or within the present project area. Archaeological evidence suggests permanent occupation in the Kōloa area ca. A.D. 1200-1400 though earlier dates (ca A.D. 600-1200) for temporary shoreline sites have been recorded (Rosendahl 1990, Hammatt and Toenjes 1991, Hammatt *et al.* 1998).

Based on the previously existing data, the project area was not a locus of habitation or agriculture during the pre-contact era. The only archaeological survey that focused specifically on the project (*i.e.* Kikuchi 1963) located and described two "looted" shoreline shelter caves. Thus, few sites other than the caves were anticipated within the present project area.

SITE DESCRIPTIONS

Three archaeological sites, an historic trail, and two shelter caves were located during the inventory survey and are described below (Figures 8 & 9).

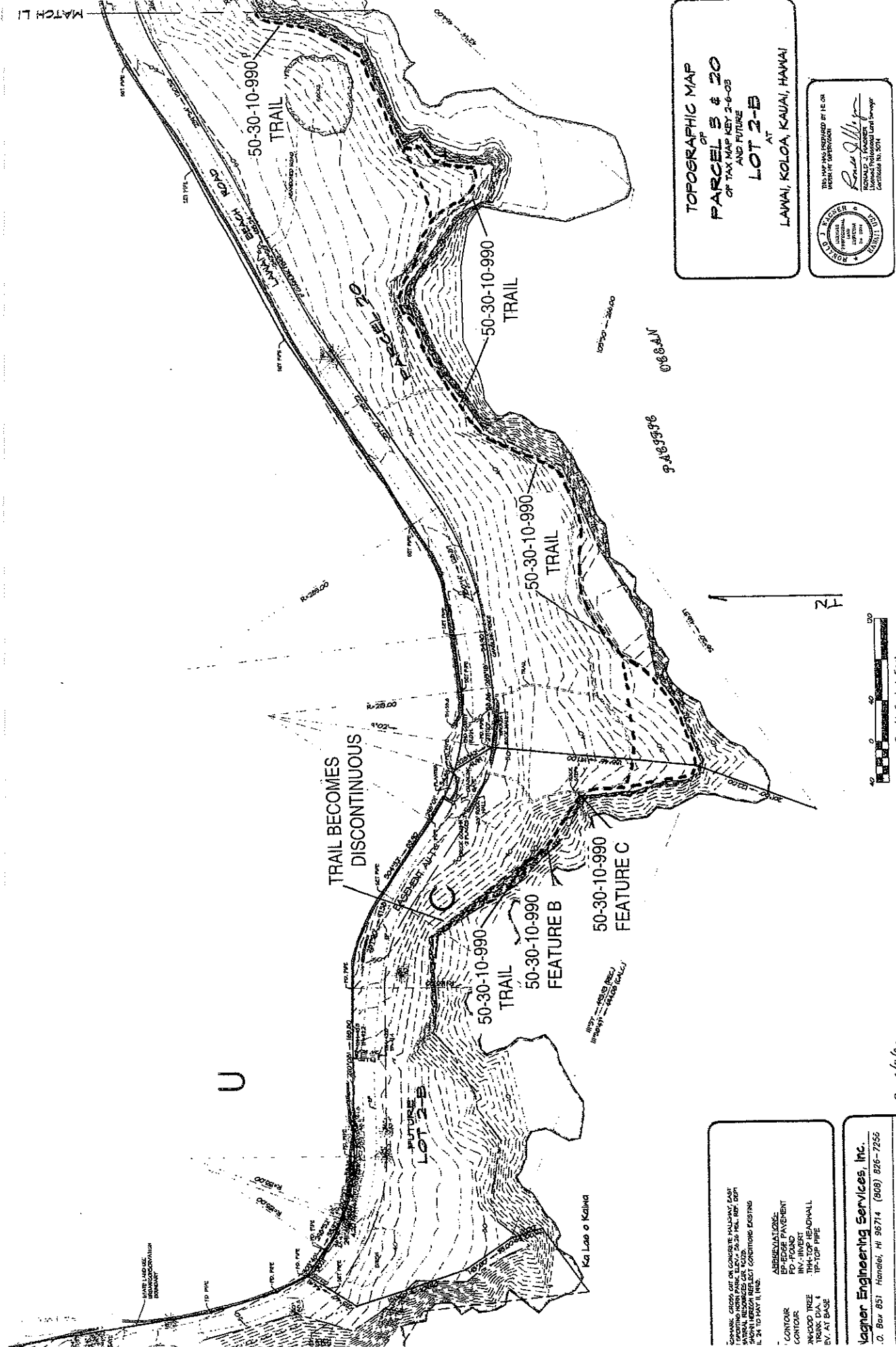
Site #50-30-10-990

State Site #: 50-30-10-990
Site Type: Trail
Function: Transit/Transportation
Features (#): 4
Dimensions: (See maps)
Elevation: 20-50 ft. a.m.s.l.

Description: State Site 50-30-10-990 is a discontinuous shoreline trail which traverses the coastal cliffs through the project area. The trail is not discernable in places where it crosses exposed outcrop and where the vegetation is extremely dense. The trail averages 0.7 m (2.3 ft) in width but ranges from 0.5 m (1.6 ft) to a maximum of 1.5 m (4.9 ft) in width. The trail follows a logical route along the inland edge of the cliffs above the tidal flats (see Figures 8 & 9). Large sections of the trail are currently in use by the public for coastal access. For most of its length, the trail is simply a dirt path. This trail site includes four separate features; Feature A is the paved curb stone section of the trail; Feature B is a short retaining wall section of the trail; Feature C is a short section of cut basalt block stairs with an associated wall section; and Feature D is another short section of cut basalt block stairs.

Feature A (Figures 9 & 10) is a constructed curbstone trail section, located in the central portion of the project area along a cliff overlooking one of the boulder bays. The central portion of Feature A is constructed of large flat pahoehoe slabs that have been fitted together, creating a level surface. Curbing, consisting of flat pahoehoe stones set on edge, line both sides of the central portion of the trail. This central portion of the trail measures 36.0 m N/S and averages 0.7 m (2.3 ft) in width. The areas on either side (east and west) of the central portion of the trail have been roughly paved with boulders. A portion of the rough paved area along the southern end of Feature A is vertically faced along the sea cliff. The facing has a maximum height of 1.0 m (3.3 ft) and averages 3 courses high. At the south end of Feature A are seven large basalt stones set in as steps. The feature is in excellent to good condition. A portion of the northern end, just before the steps has collapsed.

Feature B (Figures 8 & 11) is a short retaining wall which supports a section of the trail. The retaining wall is located in the western end of the project area. The wall measures 4.0 m (13.1 ft) E/W and has a maximum height of 1.2 m (3.9 ft) in the center. The wall is constructed of well stacked and faced small boulders. The wall is three courses high. The wall retains a level portion of the dirt path. The feature is in good condition.

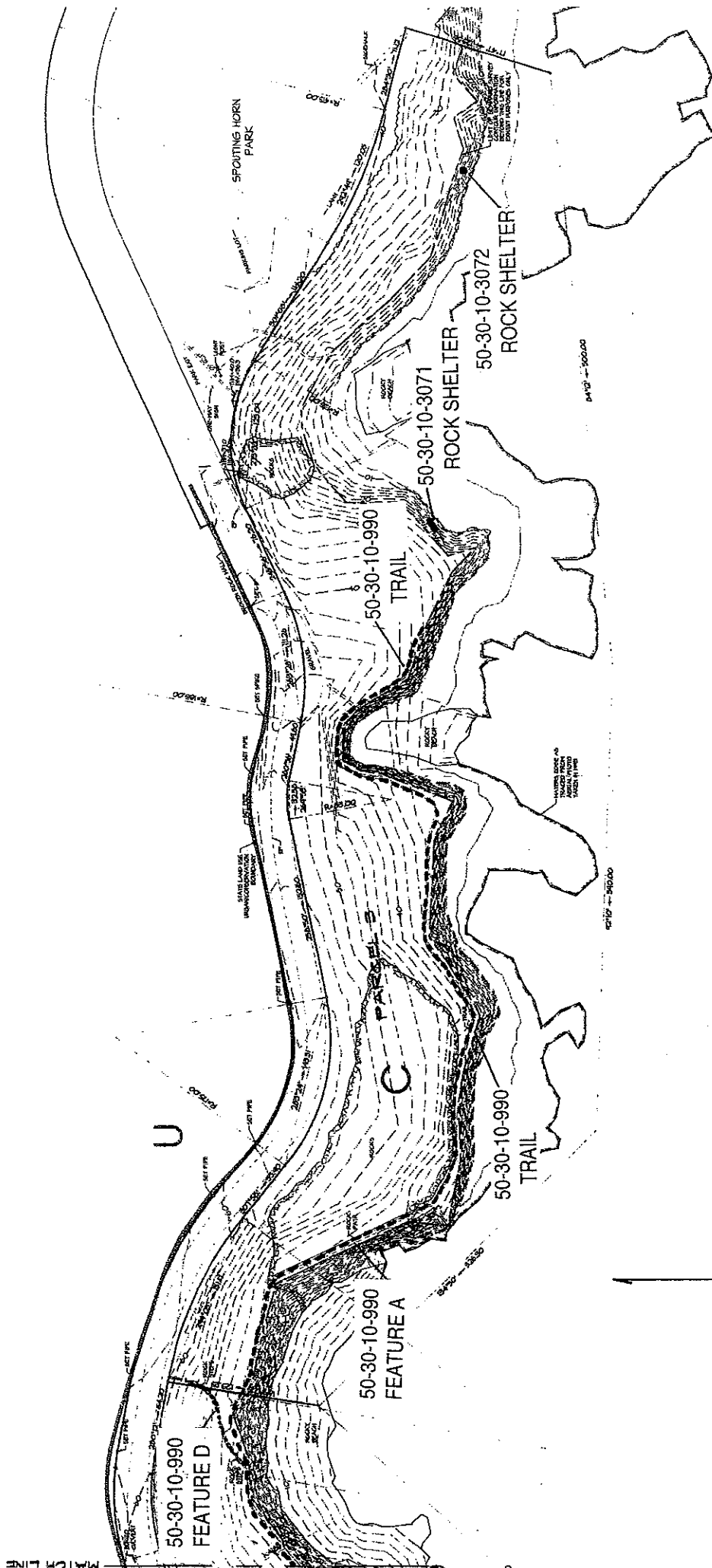


CONCRETE GRADE SET ON CONCRETE RAILWAY EAST
 (TYPING FROM PAPER, ELEV. 25.25 PER REF. DPT.
 NATURAL RESOURCES DEPT. CONDITIONS EXISTING
 AS OF MAY 11, 1992.

OBSERVATIONS:
 CONTOUR - CONTOUR
 CONTOUR - CONTOUR
 INVERTED TREE - INVERTED TREE
 TRUNK DIA. 4 - TRUNK DIA. 4
 EV. AT BASE - EV. AT BASE

Wagner Engineering Services, Inc.
 10, Box 651, Hanalei, HI 96714 (808) 826-7255
 PROJECT NO. 1052 MAY 19, 1992
 Rev 6/1/92

Figure 8 Western Portion of Project Area (Part 1 of map) Showing Locations of Archaeological Sites



Magner Engineering Services, Inc.
P.O. Box 657 Honolulu, HI 96714 (808) 826-7256
PROJECT NO. 1692
MAY 16, 1985

Rev. 6/1/71

Figure 9 Eastern Portion of Project Area (Part 2 of map) Showing Location of Archaeological Sites

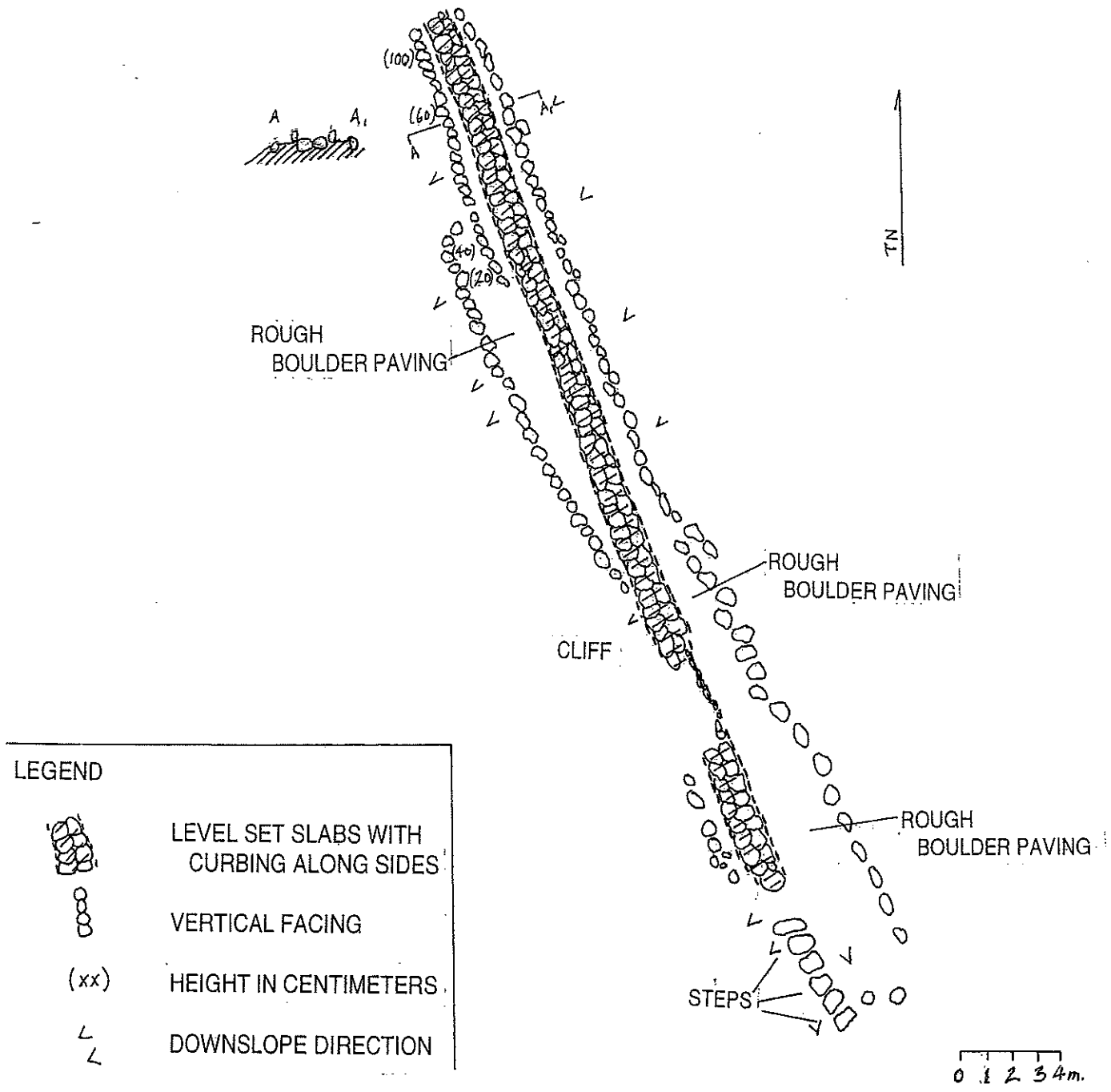


Figure 10 Site 50-30-11-990, Feature A, Plan View

Feature C (Figure 8) consists of 8 cut basalt stone blocks that have been set into the soil as steps. No mortar was utilized. The blocks average 0.8 m (2.6 ft) long and average 0.2 m (0.6 ft) in width and height.

Feature D consists of 22 cut basalt stone blocks that have been set into the soil as steps, connecting the trail with Lāwa`i Road. No mortar was utilized. The blocks average 0.8 m (2.6 ft) long and average 0.2 m (0.6 ft) in width and height. In addition a small wall follows the stairs in a general north/south direction. The wall extends from Lāwa`i Road seaward to the cliff edge for a total length of 21.3 m (70.0 ft.). The wall is constructed of stacked to piled cobbles and boulders with a maximum height of 0.8 m (2.6 ft). The wall is in fair condition.

Site #50-30-10-3071

State Site #: 50-30-10-3071
Site Type: Rock Shelter
Function: Remnant
Features (#): 1
Dimension: 54.0 m.2
Elevation: 10 ft. a.m.s.l.

Description: State Site 50-30-10-3071 (Figure 12) is a rock shelter located along the coastal cliff near Spouting Horn. The site consists of a natural rock overhang that measures 10.0 m (32.8 ft) N/S at the entrance by 5.7 m (18.7 ft) E/W. The interior heights of the ceiling have a maximum of 2.6 m (8.5 ft). The interior is undulating and filled with boulders and cobbles. No midden or artifacts were observed. The site correlates with Kikuchi Site 56. It appears that the site has been looted, used in modern times and affected by wave action.

Site #50-30-10-3072

State Site #: 50-30-10-3072
Site Type: Rock Shelter
Function: Remnant
Features (#): 1
Dimension: 14.6 m.2
Elevation: 10 ft. a.m.s.l.

Description: State Site 50-30-10-3072 (Figure 13) is a rock shelter located along the coastal cliff near Spouting Horn. The site consists of a natural rock overhang that measures 6.1 m (20.0 ft) NW/SE at the entrance by 2.1 m (6.9 ft) NE/SW. The interior heights of the ceiling have a maximum of 1.4 m (4.5 ft). The interior is filled with boulders and cobbles. Two dirt

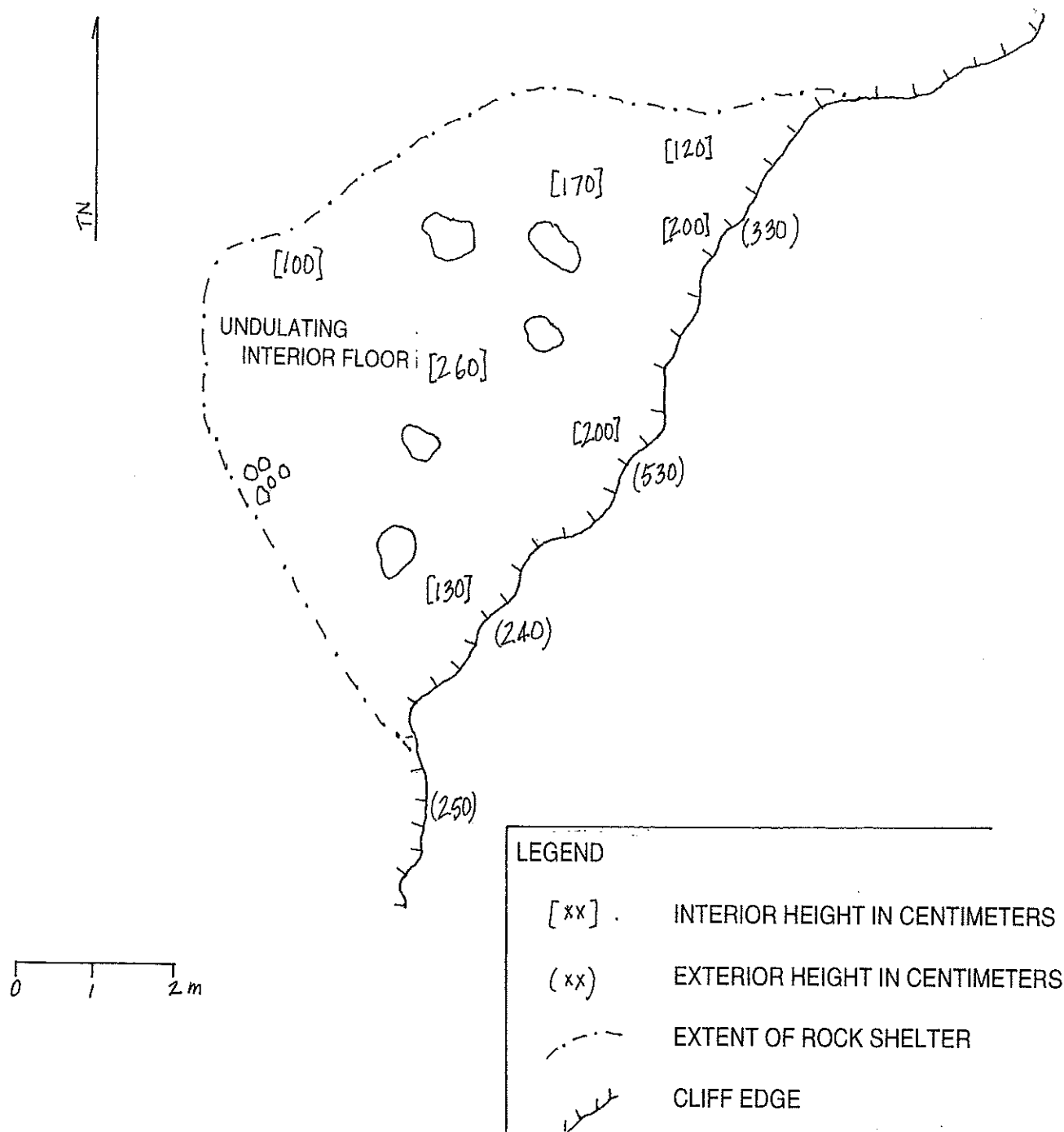
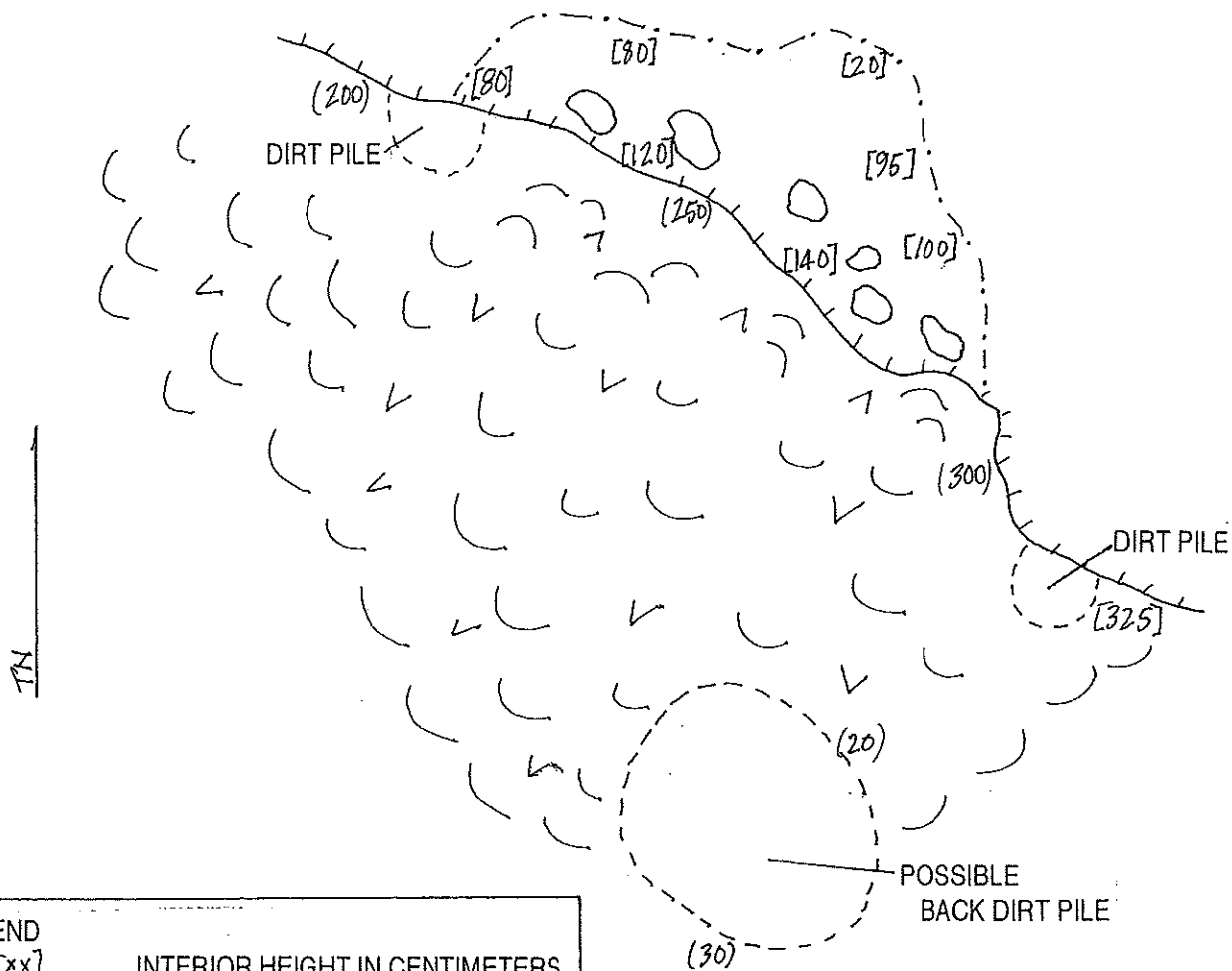


Figure 12 Site 50-30-10-3071, Shelter Cave, Plan View



LEGEND	
[xx]	INTERIOR HEIGHT IN CENTIMETERS
[xx]	EXTERIOR HEIGHT IN CENTIMETERS
- - - - -	EXTENT OF ROCK SHELTER
~~~~~	CLIFF EDGE
o o o	BOULDER RUBBLE
v v v	DOWNSLOPE DIRECTION

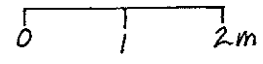


Figure 13 Site 50-30-10-3072, Shelter Cave, Plan View



piles located outside the entrance may correlate with looting activities. No midden or artifacts were observed. The site correlates with Kikuchi site 57. It appears that the site has been looted, used in modern times and affected by wave action.

## VII. SUMMARY AND CONCLUSIONS

The subject area of 11.5-acres, is a rocky cliff side shoreline property just *makai* of Lāwa`i Road. Three sites were located, a trail complex and two shelter sites (Sites 50-30-10-990, -3071 and -3072). The trail complex is historic in age, but probably follows a pre-historic trail corridor. The trail probably also relates to historic access from Lāwa`i Kai to the Kōloa Landing area, east of the project area. The trail, though just a modern trodden dirt path in places, still represents a time when foot transit was the main means of transportation. The remaining stone constructed sections are in good condition and exhibit quality masonry work.

The two shelter sites, located previously by Dr. William Kikuchi (1963) are completely empty and have been further looted since the time Dr. Kikuchi visited them.

The site types present are indicative of the type of former land use within this narrow shoreline cliff project area. The shelter caves were for temporary use by fishermen, presumably from pre-contact into modern times. The trail allowed for coastal access with a similar time range, though the cut stone steps and curbing are indicative of historic construction techniques.

## VIII. SIGNIFICANCE AND RECOMMENDATIONS

### A. Significance

The significance assessments for the three sites are based on the broad criteria established for the State and National Registers of Historic Places

- A. Site reflects major trends or events in the history of the state or nation.
- B. Site is associated with the lives of persons significant in our past.
- C. Site is an excellent example of a site type.
- D. Site may be likely to yield information important in prehistory or history.

The trail (Site 50-30-10-990) is assessed solely under Criterion D. Though certain sections of the trail exhibit quality workmanship (*i. e.* Criterion C) the discontinuous nature of the trail argues against site integrity.

The two shelter caves are also assessed as significant under Criterion D. These two sites were listed on the State Register of Historic Places on September 30 1988 and remain on the State Register.

### B. Recommendations

Following consultation with the State Historic Preservation Division, and in consideration of the fact that the two shelter cave sites (50-30-11-3071 and -3072) remain on the State Register of Historic Places, it has been agreed that these two sites will be preserved. Preservation will be avoidance and protection (conservation). These sites will be covered in a preservation plan for the parcel but it is anticipated that preservation will be passive.

The trail is recommended for preservation, possibly with signage. The signage may help in preserving the remaining intact stone constructed sections.

Though it is unlikely burials or other sub-surface deposits exist in this steep rocky project area, it is recommended that if such finds are unearthed during any construction activities all work stop and the appropriate governmental agency (*i. e.* SHPD/DLNR) be promptly notified.

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**PHOTO APPENDIX**



Figure 14 Site 50-30-10-3071, View to NW



Figure 15 Site 50-30-10-3072, View to N





Figure 16 Site 50-30-10-990, Feature A, View to S



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BENJAMIN J. CAYETANO  
GOVERNOR OF HAWAII



STATE OF HAWAII

DEPARTMENT OF LAND AND NATURAL RESOURCES

HISTORIC PRESERVATION DIVISION  
KAKUHIHEWA BUILDING, ROOM 555  
801 KAMOKILA BOULEVARD  
KAPOLEI, HAWAII 96707

**TR**  
GILBERT S. COLOMA-AGARAN, CHAIRPERSON  
BOARD OF LAND AND NATURAL RESOURCES  
COMMISSION ON WATER RESOURCES MANAGEMENT

DEPUTIES  
ERIC T. HIRANO  
LINNELL NISHIOKA

AQUATIC RESOURCES  
BOATING AND OCEAN RECREATION  
COMMISSION ON WATER RESOURCE  
MANAGEMENT  
CONSERVATION AND RESOURCES  
ENFORCEMENT  
CONVEYANCES  
FORESTRY AND WILDLIFE  
HISTORIC PRESERVATION  
LAND  
STATE PARKS

September 17, 2002

Mr. David Shideler  
Cultural Surveys Hawaii  
733 N. Kalaheo Avenue  
Kailua, Hawaii 96734

LOG NO: 30888 ✓  
DOC NO: 0209NM12

Dear Dr. Shideler:

**SUBJECT: Historic Preservation Review – Revised Archaeological  
Inventory Survey, Lawa'i Ahupua'a, Kona District, Island  
of Kaua'i, TMK 2-6-03: 3, 20 and 2-6-02: por. 1**

Thank you for submitting on September 12, 2002, the two revised pages for this report (Creed et al. 2002. Archaeological Inventory Survey of 11.5 Acres-Makai Lands at Lawai Ahupua'a ... Cultural Surveys Hawaii ms). Revisions were made in response to our review letter of July 9, 2002.

Three historic sites were found. All are significant under criterion D of the Hawaii Register of Historic Places. The proposal is to preserve these sites as is.

This inventory survey report is now acceptable. We agree with the commitment to preserve the sites as is. (If the owners decide that this site is to be interpreted please have them submit the text of the signage for our review and approval.)

If you have any questions, please call Nancy McMahan 742-7033.

Aloha,

DON HIBBARD, Administrator  
State Historic Preservation Division

c. Dee Crowell, Planning Department

NM:amk



## **APPENDIX E**

***Preservation Plan for  
Sites 50-30-10-990, -3071, and -3072,  
Lawai Ahupuaa, Kona District, Island of Kauai,  
TMK: 2-6-03: 3, 20 and 2-6-02: por. 1,  
Prepared by Cultural Surveys Hawaii, Inc.,  
December 2004***

**and**

**Letter from the  
State Department of Land and Natural Resources  
Historic Preservation Division  
Dated March 1, 2005**

**and**

**Memorandum from the  
County of Kauai  
Historic Preservation Review Commission  
Dated December 8, 2004**

---





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**Preservation Plan for Sites 50-30-10-990, -3071, and -3072**

**Lāwa‘i Ahupua‘a, Kona District, Kaua‘i Island**

TMK: 2-6-03:3, 20 and 2-6-02: por.1

by

Kelley S. Esh, B.A.

and

Hallett H. Hammatt, Ph.D.

Prepared for

Kukui‘ula Development Company LLC

P.O. Box 280

Kōloa, HI 96756

by

Cultural Surveys Hawai‘i, Inc.

December 2004

---



---

## ABSTRACT / MANAGEMENT SUMMARY

<b>Title</b>	Preservation Plan for Sites 50-30-10-990, -3071 and -3072, Lāwa‘i Ahupua‘a, Kona District, Kaua‘i Island, TMK: 2-6-03:3, 20 and 2-6-02: por. 1
<b>Date</b>	December 2004
<b>Project Numbers</b>	Cultural Surveys Hawai‘i Inc. LAWA 3
<b>Agencies and Funding</b>	Kukui‘ula Development Company LLC
<b>Project Location</b>	The project area comprises a 12.5-acre parcel (TMK 2-6-03:3, 20 and 2-6-02: por 1) <i>makai</i> (seaward) of Lāwa‘i Beach Road, on a cliff side shoreline property immediately east of Lāwa‘i Bay, <i>ahupua‘a</i> of Lāwa‘i, District of Kona, Island of Kaua‘i. This area is depicted on the Kaua‘i, Hawai‘i USGS map (Figure 1).
<b>Document Purpose</b>	This preservation plan describes the historic preservation mitigation measures that will protect the known cultural resources within the project area during any construction activity, and describes long-term preservation measures for the sites within the project area. This plan was written to fulfill the requirements of Draft Hawai‘i Administrative Rules, Title 13, Sub-Title 13, Chapter 277, “Rules Governing Requirements for Archaeological Site Preservation and Development”, and is intended for review and approval by SHPD/DLNR.
<b>Cultural Resources Potentially Affected</b>	Three sites are located within the project area, consisting of two shelter caves and one trail. The caves (sites 50-30-10-3071 and -3072) were used as temporary shelter by fishermen, presumably from pre-contact into modern times. They were listed on the State Register of Historic Places on September 30, 1988 and remain on the State Register. Both shelters have suffered high surf damage and looting, so that nothing remains of the former contents. The trail (site 50-30-10-990) may have allowed for coastal access with a similar time range as the shelter sites, though the cut stone steps and curbing are indicative of historic construction techniques. The trail and its associated features are in good to fair condition.
<b>Description of Project Related Disturbance</b>	The Kukui‘ula Development Company plans vegetation clearance and landscaping for the project area. No other construction or ground disturbance is planned for the project area.

---





---

## ABSTRACT

This document is the preservation plan for a coastal trail complex (State site 50-30-10-990) and two shelter sites (State sites 50-30-10-3071 and -3072), located on a cliff side shoreline property immediately east of Lāwa'i Bay, *ahupua'a* of Lāwa'i, District of Kona, Island of Kaua'i. The project area in which these three sites are located is a 12.5-acre parcel (TMK 2-6-03:3, 20 and 2-6-02: por 1), *makai* (seaward) of Lāwa'i Beach Road. Cultural Surveys Hawai'i completed an archaeological inventory survey of the project area in 1998, and the report was accepted by the SHPD/DLNR in 2002. The report recommended preservation for all three sites.

The sites are considered significant under Criterion D (may yield information important for research on prehistory or history) and E (cultural significance) of the Draft Hawai'i Administrative Rules, Title 13, Sub-Title 13, Chapter 275. The shelter caves (sites 3071 and 3072) were used as temporary shelter by fishermen, presumably from pre-contact into modern times. These two sites were listed on the State Register of Historic Places on September 30, 1988 and remain on the State Register. Both shelters have suffered high surf damage and looting, so that nothing remains of the former contents. The trail (site 990) allowed for coastal access with a similar time range as the shelter sites, though the cut stone steps and curbing are indicative of historic construction techniques. The trail and its associated features are in good to fair condition.

The preservation plan outlines measures that will protect these sites from harm during vegetation clearance and landscaping in the project area, in accordance with SHPD/DLNR regulations. Preservation will primarily take the form avoidance and protection (conservation). A 20 ft (6 m) buffer zone will be designated around all sites and associated features during construction activities (vegetation removal and landscaping), and an archaeologist will monitor any vegetation clearance or landscaping conducted within the buffer zone. Long-term preservation will take the form of avoidance and protection, a practical policy given the location of these sites along the steep sea cliff. Because of the cultural significance of these sites, ethnic organizations and individuals for whom the historic properties are of importance were consulted; details of this consultation are reported herein.

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## I. INTRODUCTION

### A. Background to the Preservation Plan

This document comprises the preservation plan for three archaeological sites on a cliff side shoreline property situated directly *makai* (seaward) of Lāwa'i Beach Road, in the eastern half of the *ahupua'a* of Lāwa'i, District of Kona, Island of Kaua'i (Figure 1). The 11.5-acre project area is comprised of 3 separate parcels: TMK 2-6-03:3 (5.3 acres), 2-6-03:20 (3.76 acres), and 2-6-02:por 1 (2.5 acres) (Figure 2).

In December of 1998, Cultural Surveys Hawai'i completed an inventory survey of the 11.5-acre area at the request of A & B Properties. The inventory survey report (Creed et al. 2002) was approved by the State Historic Preservation Division/Department of Land and Natural Resources (SHPD/DLNR) in September 2002 (Appendix A). Three archaeological sites were located, consisting of a coastal trail complex (site 50-30-10-990) and two shelter sites (50-30-10-3071 and -3072). The shoreline trail is a mix of modern and historic sections, currently in use by the public for coastal access. The two shelter sites were previously located and described by Kikuchi (1963), and were placed on the State Register of Historic Sites in 1988. Both shelter sites have suffered high surf damage and looting, so that nothing remains of the former contents. Creed et al. (2002) recommends preservation of the historic trail as well as the two shelter sites, because the caves are on the State Register of Historic Places.

Construction in the form of vegetation modification and landscaping is planned for the project area (pers. comm. with Mike Roberts, October 2004). The purpose of this document is to present a preservation plan that will protect the sites during vegetation clearance and landscaping, and which satisfies the State Historic Preservation Division's (SHPD's) regulations regarding short and long-term preservation of archaeological sites. The plan was written to fulfill the requirements of Draft Hawai'i Administrative Rules, Title 13, Sub-Title 13, Chapter 277, "Rules Governing Requirements for Archaeological Site Preservation and Development", and is intended for review and approval by SHPD/DLNR.

### B. Scope of Work

In accordance with SHPD/DLNR regulations, the preservation plan will:

- 1) Identify each significant historic property
- 2) Detail the form of preservation that will be taken
- 3) Specify buffer zones and short-term protection measures
- 4) Discuss the consultation process undertaken
- 5) Specify long-term preservation measures

Cultural Surveys Hawai'i also conducted a field assessment of the relevant sites (-990, -3071, and -3072) in October 2004 to verify that their condition has not significantly altered since the inventory survey was completed in 1998. Details of the field check are reported in this document.



### C. Methods

Background research included a review of previous archaeological studies on file at the SHPD/DLNR and a review of documents and maps at the Cultural Surveys Hawai'i library. As part of the preservation plan, Cultural Surveys Hawai'i consulted ethnic organizations and individuals for whom the historic properties are of cultural significance. Consultation was initiated by Auli'i Mitchell, and the information gathered in a meeting between Gerald Ida and the Royal Order of Kamehameha Kaumuali'i Chapter was utilized in the production of the preservation plan.

### D. Natural Setting

The project area is located on the south facing shore in Lāwa'i Ahupua'a, District of Kona, Island of Kaua'i, just east of Lāwa'i Bay (Figure 1), and is comprised of 3 parcels (TMK: 2-6-03:3, 20 and 2-6-02: por.1) that total 11.5 acres (Figure 2). Spouting Horn Park is located just east of the project area.

The study area includes a variety of vegetation, almost entirely comprised of alien species. Thickets of *pānini* or prickly pear cactus (*Opuntia ficus-indica*), wind-stunted *koa haole* (*Leucaena leucocephala*) and the Pencil Tree (*Euphorbia tirucalli* L.) are predominant. Other common species include grasses, a few Ironwood (*Casuarina equisetifolia*) trees along the road and thick clumps of low or stunted sisal plants (*Agave sisalana*) grow throughout the area.

Elevations in the project area range from sea level to between 40 and 60 feet a.m.s.l. (12 to 18 m). The soils in the project area are part of the Waikomo series, and are all rocky outcropping (rRO) (Foote *et al.* 1972; Kaua'i Island, Sheet 24). Rainfall averages 30 to 40 inches per year (Armstrong 1973:56). The bedrock is composed of massive flows of *pāhoehoe*, of the post-erosional Kōloa Volcanic Series, which date to the Pleistocene (McDonald and Abbott, 1970:387-388). Average temperatures range from 60 to 84 degrees Fahrenheit (Foote *et al.* 1972: 58).

Portions of the project area contain seabird (shearwater) nesting sites. In some areas there are nests burrowed into the soft dirt and in others they are among the rock outcroppings of the cliff and banks. Some birds were resident at the time of the 1998 CSH inventory survey even though it was not nesting season. The Kukui'ula Development Company has consulted a biologist regarding the seabirds (pers. comm. with Mike Roberts, October 2004).

Modern pedestrian use along the shore is not frequent because the area is steep and rocky, although fishermen have long used the area. No development has taken place on this rocky cliff side other than that associated with the creation and maintenance of the public Lāwa'i Beach Road along the *mauka* edge of the project area.

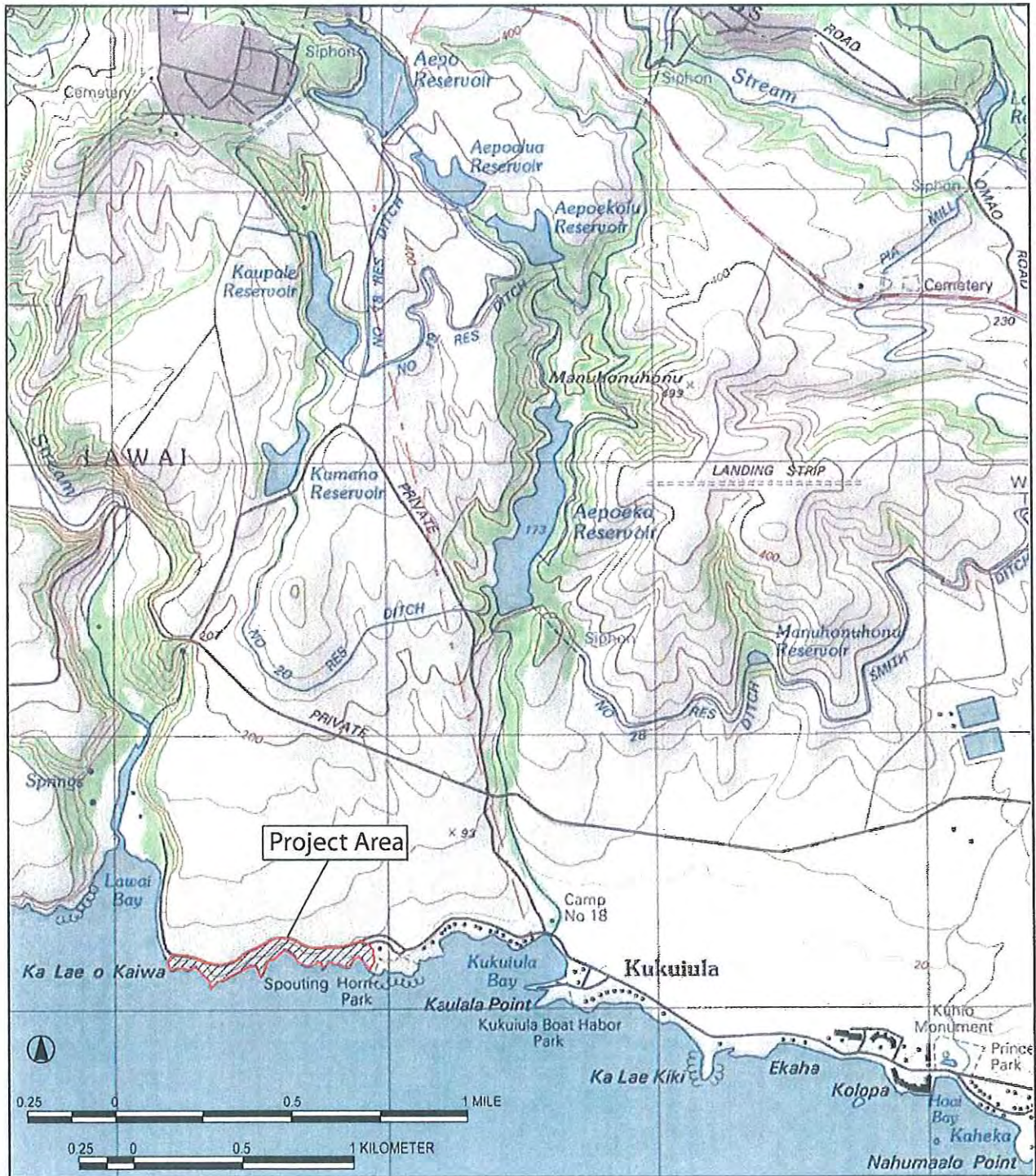


Figure 1. Portion of U.S. Geological Survey Koloa Kaua'i map showing location of project area



Introduction

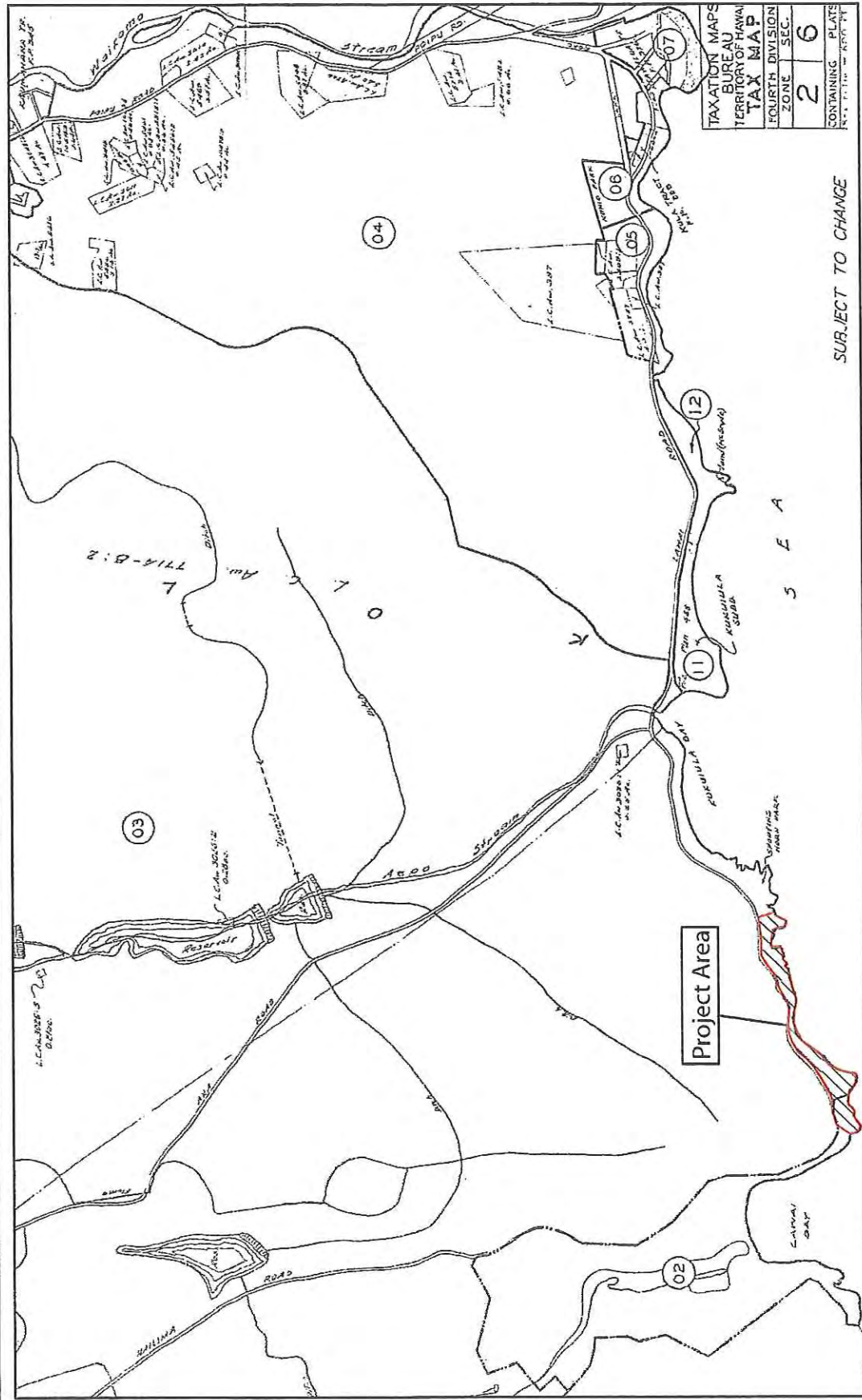


Figure 2. TMK 2-6 showing location of project area

## II. HISTORICAL BACKGROUND

### A. Introduction

The *ahupua'a* of Lāwa'i is surrounded by the *ahupua'a* of Kōloa on the east, Kalāheo on the west, the sea on the south, and the Līhue-Kōloa Forest Reserve on the north. The west side of the valley is framed in by high cliffs, as is the river flood plain, but the eastern boundary between Lāwa'i and Kōloa is across gently sloping terrain with no natural landscape boundary. Most of the Lāwa'i shoreline is high cliff, including the majority of the project area, except for Lāwa'i Kai beach.

### B. Legendary Lāwa'i

Eric Knudsen tells the following tale told to him by a Hawaiian fisherman near Spouting Horn (located just east of the project area). A giant *mo'o* (lizard) named Lehu, accompanied by two sisters, swam from Tahiti. The two sister *mo'o* were tired out by the time they reached Ni'ihau and went to sleep on the beach there and became stones. Lehu continued on to Kaua'i and landed at Lāwa'i Beach. After recovering his strength he went over to Kōloa, and his favorite spot was the junction of the Pō'ele'ele and 'Ōma'o rivers. Years later he swam over to Ni'ihau to visit his two sisters but found they were dead, so he swam back to Kaua'i. As he swam along the shore he became fascinated by the fountains of the Spouting Horn. As he explored the lava tube he got caught and couldn't back out. Supposedly now every time a wave rushes in and wets him all over, he growls and hisses. The Hawaiian fisherman said the lava was too hard for the Hawaiians of long ago to allow them to free him and now, using dynamite would only kill him, so he's doomed to stay there forever (Knudsen 1946:210-211).

Another tale appeared in the 1997 *Honolulu Advertiser*. Betty Snowden, whose family had lived in Lāwa'i Kai for over 200 years, recounts the story of the *menehune*:

One night, as he sat on the hill watching the people in the valley, the chief of the Menehune overheard Manu and his father discussing the need to build a wall in the stream. Manu's father wanted him to spend the next few days helping with the project.

But Manu and his friends had planned a fishing trip to Ni'ihau and he wasn't happy about the thought of being left behind. Yet, he certainly couldn't ignore his father's request to help. Maybe if he began right away, starting a rock pile...

Manu threw himself into the task. He was so busy that he didn't see the Chief of the Menehune until the Chief came right behind him and tugged at his clothing. The Chief made an offer that would benefit them both.

For two *pu'olo*, or bundles of shrimp the size of two large coconuts, the Menehune would build a wall for Manu and his family.

Manu agreed. For the next two days he surfed, fished and swam with his friends. On the second day he watched the sun setting in the west before he realized that he needed to catch *opae*. He rushed over to the stream and tried to catch as many shrimp as he could before it got too dark to see but he only collected one bundle full.

That's OK, he thought. It's a large bundle and so that should be enough. He placed the shrimp at the promised location.

That night, the moon rose full and the Menehune crept down the valley. They worked most of the night to build the stone wall in the stream.

When Manu and his family awoke the next morning they found half a wall standing. The Menehune had built only half a stone wall because they had received only half the promised *opae* (Snowden 1997: B1)

Betty Snowden remarks that one can still see the neat, perfectly made half-wall built by the Menehune of Lāwa'i Kai at the edge of the stream in Lāwa'i Valley.

### C. Traditional Lāwa'i

In the period A.D. 1400-1650, in nearby Kōloa, 40% of the known carbon dates obtained straddle the end of the fifteenth century. This seeming burst of activity may have been associated with the ruling chief Manokalanipo-a-Kaua'i, who ruled Kaua'i circa 1490 to 1510 (Hommon 1976:133, 304). Manokalanipo "was noted for the energy and wisdom with which he encouraged agriculture and industry, executed long and difficult works of irrigation, and thus brought fields of wilderness under cultivation... and it is remembered in the legends as the golden age of that island" (Fornander 1969:93). It is likely that Lāwa'i was inhabited and tilled before the neighboring Kōloa field system was developed, as it is a typical traditional valley setting with habitation sites on or near the narrow beach and the taro *lo'i* along the flood plain.

Of the pre-contact era, three religious temples (*heiau*) are known to have existed, as well as special stones, taro fields, a fishpond, petroglyphs and caves that are remnants of that time. C.S. Handy was told that on Kaua'i the favored places for coconuts were Kōloa and Lāwa'i (Handy 1940:193).

According to Kikuchi (1963:39) the name "*lāwa'i*" means "the day to end the fishing tapu." Others believe the name Lāwa'i comes from "*lawa a'i*" which means "plenty to eat" or "valley of plenty" (Matsunaga, Toshiichi and Francis Takahashi 1986:9). Pukui and Elbert do not give a meaning for the name, nor does Francis Gay in his list of Kona Kaua'i place names. Most of Lāwa'i is a typical but narrow stream valley with an associated flood plain but there is also a large table land on the east side of the *ahupua'a*, which is where the project area lies at the shoreline end of the table lands. In the pre-Contact era Lāwa'i was likely a highly productive *ahupua'a* with special resources. This is further reinforced as at the time of the *Mahele* and *kuleana* awards (1847-1853), the land was given to *ali'i*, James Young Kanehoa, son of John Young. Within the *Mahele* award (M.A. 43) 13 *kuleana* claims were made and 10 were awarded.



**D. 1800-1875 (*Mahele*, *kuleana* and Boundary Commission documents)**

It is in the *kuleana* claims and awards that we find the documentary descriptions of the traditional land use for Lāwa‘i. In these claims, the people living on the land described their activities and where they cultivated. There are 13 claims and 10 awards. The pattern of these claims is for a flood plain landscape with most claimants indicating they have taro *lo‘i* and a few also have *kula*. One claimant notes he had coconut, kou, breadfruit, and banana trees (Table 1).

In the period of the *Mahele* and *Kuleana* Claims (1848-1853), the *ahupua‘a* of Lāwa‘i was granted to James Young Kanehoa in a *Mahele* Award (M.A. 43). James Young Kanehoa was the son of John Young (the first foreign advisor to King Kamehameha I) and his first wife, Nāmokuelua. When Kanehoa died in 1851 he bequeathed his land of Lāwa‘i, Kauai to “my married wife Hikoni,” and in a second will written a week later he bequeaths to his niece, Emma (daughter of his half sister Fanny Kekelaokalani Young), one-third of Lāwa‘i and two-thirds of Lāwa‘i to George Davis (Junior, son of George Hueu Davis). The Court refused both wills and John Young was appointed administrator of the estate (Barrère 1994:245-247). John Young’s widow Hikoni received the land.

Kanehoa was the uncle of Queen Emma, wife of Alexander Liholiho, King Kamehameha IV. In 1856 the king and queen arrived in Kōloa and stayed for three days during a royal tour of the Hawaiian Kingdom. The royal party visited Spouting Horn (located just east of the project area). Emma loved the valley, and Hikoni deeded the entire *ahupua‘a* to her. Hikoni also built a cottage next to her home for Emma’s use. In 1871, after her husband’s death, Emma came to live in the cottage, which is located approximately one kilometer north of the project area (Figure 3). In 1872 Emma returned to Honolulu at the request of King Kamehameha V (Donohugh 2001: 270).

Seven of the awarded *kuleana* claims are shown on tax maps and are along Lāwa‘i Stream. In the lower valley there are four, and two of the four (3414 and 3417) have house lots at the shore. The 9188 claim states that there were 9 *lo‘i* on the west side that now have no taro in them because it was all taken away by the flood (probably the great flash flood of 1846). Old maps also show a fish pond on the flood plain near the shore.

The Boundary Commission record of 1873 shows there was a dispute about the boundaries near the sea beach. But “the small piece of rocky land claimed by Lāwa‘i near the beach point more than compensates for the latter land gained *mauka*” and the commissioners advised the Crown commissioners to accept the boundary as pointed out. The *kama‘āina* used by James Gay to point out the boundaries was Mokuiki (LCA 3315). The boundary commission record notes the existence of many named rocks, and a second stream, called Haluopae. Twenty lines (chains) to the west of the Government road on the southwest boundary there is a large hole in the ground called Koakaiinaho. Likewise, on the eastern boundary *mauka* of Aepo stream there is a large hole called Kapeleulo and close to the road farther up are two more holes, one called Pu‘uakamailii, and one called Namahana. There is no mention of caves in this record, but it is possible some of these holes are entrances to caves.

Table 1. Land Commission Claims in Lāwa‘i

Land Commission Award #	Claimant	Land Use and ‘ <i>ili</i>	Landscape Features	Amount
M.Aw. 43 & 8518B not awarded	James Young Kanehoa	<i>ahupua‘a</i>		<i>ahupua‘a</i>
3266	Luka	Keana, Kapapao; ‘ <i>āina weuweu</i> (grasslands), <i>kula</i> , house lot planted coconut, <i>kou</i> , breadfruit and banana trees, stone walled enclosure		Not awarded, Luka Konohiki, land belonged to Kanehoa
3315	Mokuiki	Kahee; 3 <i>lo‘i</i> , <i>kula</i> , and house lot		Not awarded, moved to O‘ahu
3414	Peui, Keui, Levi, Revi	Papakea; 2 <i>lo‘i</i> , <i>kula</i> and house lot	Papakea <i>pali</i> , <i>muliwai</i> of Lāwa‘i sand beach and <i>pali</i> , and <i>pāhale</i> of Kuahewa or Niuuhiwa	2 ‘ <i>āp.</i> ; 0.75 Ac. 24 rods
3417	Pehuiki, Pahuiki	Papakea; 3 <i>lo‘i</i> house lot on shore	Papakea <i>pali</i> , <i>muliwai</i> of Lāwa‘i sand beach and <i>pali</i>	2 ‘ <i>āp.</i> ; 0.9 Ac.
3612	Kahookahi	Kaohe; 12 <i>lo‘i</i> and <i>kula</i>	Lāwa‘i stream, Kumuokalani <i>pali</i> , <i>kuamano</i>	1 ‘ <i>āp.</i> ; 4 Acs 1 rood
3616	Kapulu	Kukuimokoi; 8 <i>lo‘i</i> and small <i>kula</i> & house lot	<i>pali</i> , ‘ <i>auwai</i> and <i>lo‘i pō‘alima</i>	1 ‘ <i>āp.</i> ; 2 roods 30 rods
6570	Awahua	Peapeakuakua; 20 <i>lo‘i kula</i> and house lot	road, Lāwa‘i Stream	1 ‘ <i>āp.</i> ; 4 Acs 1 rood 20 rods
8054	Ehu	Haia; 12 <i>lo‘i</i> and <i>kula</i> (lived there)	Makakii <i>pali</i> and Lāwa‘i Stream	1 ‘ <i>āp.</i> ; 1 Ac. 3 rods
8518B	Kanehoa, J. Y.	<i>Ahupua‘a</i>		See Mahele Award 43
9188	Kamakahookahi	Papakea; 6 <i>lo‘i</i> , house lot and <i>kula</i> , pig enclosure	Papakea <i>pali</i> , brook, Kaniohia <i>pali</i>	1 ‘ <i>āp.</i> ; 1.5 Ac. 17 rods
10675	Pueania	Hapaiehu, 23 <i>lo‘i</i> ; a <i>lihi</i> with <i>kula</i> house lot	stream, <i>pali</i>	1 ‘ <i>āp.</i> ; 1 Ac. 36 rods
10675B	Saletiela	Hapaiehu; 5 large <i>lo‘i</i> & house lot	Lāwa‘i Stream, on north near the falls	1 ‘ <i>āp.</i> 2.5 Acs

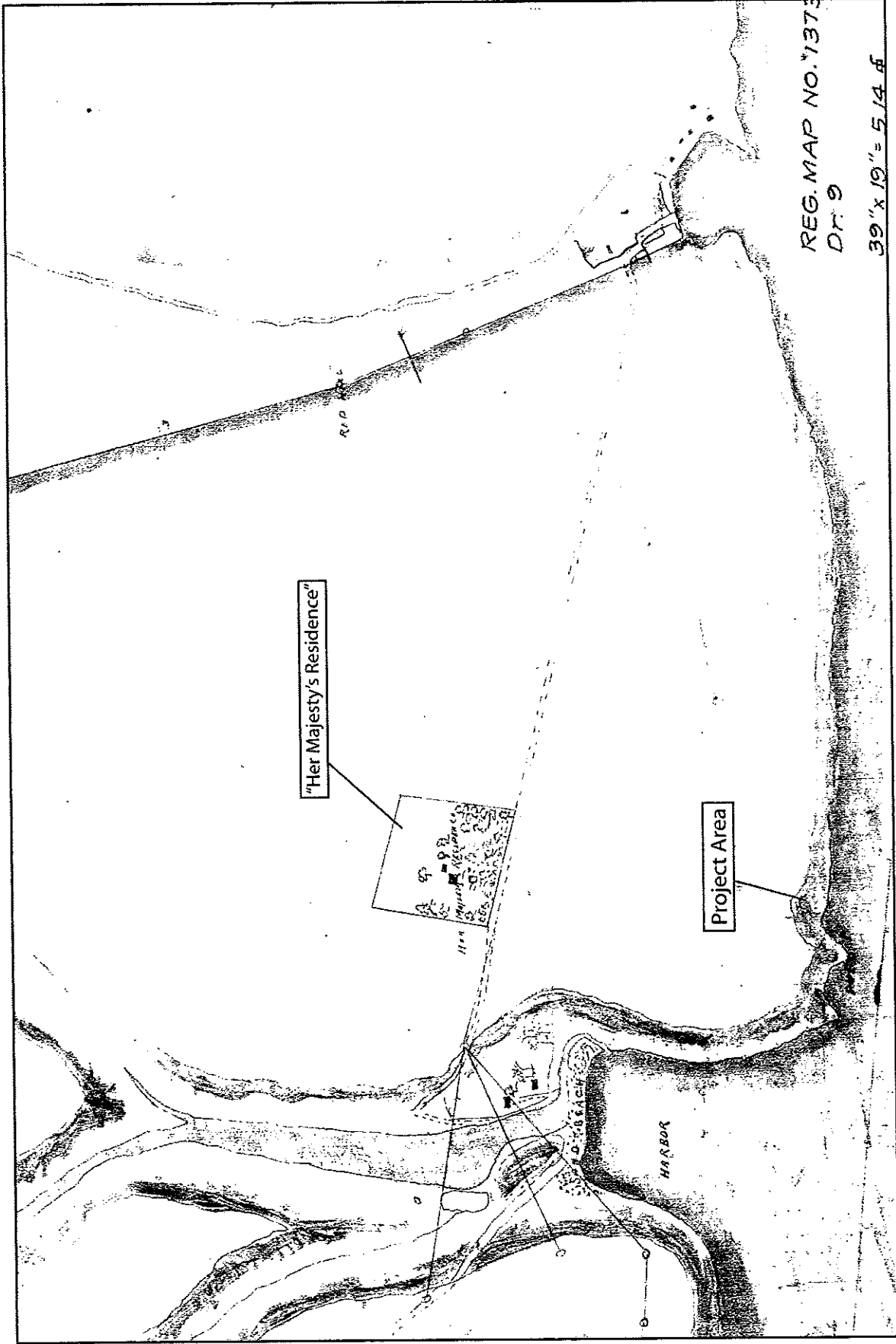


Figure 3. Portion of plan of Lāwa'i, Kaua'i by James Gay 1872, showing project area and "Her Majesty's Residence"

### E. 1876-1900

In 1876, Queen Emma leased the land of Lāwa‘i to Duncan McBryde for fifteen years, though she reserved a house lot and several acres of taro patch land. In 1886, after the Queen’s death, Mrs. Elizabeth McBryde bought the entire *ahupua‘a* for \$50,000. The upper lands were planted to sugar cane, and the valley leased to Chinese rice growers and taro planters. Forbes (1997:14) discusses Alexander McBryde’s role in Lāwa‘i:

But of all the McBrydes, it was Alexander who had the most affection for Lāwa‘i. In 1899, when a family corporation was formed, he was granted the land of Lāwa‘i in the lower valley, together with all the fishing rights in the bay. Several years later, when it was decided to plant cane in the area where Mauna Kilohana stood, it was he who rescued a part of this interesting house, and had it painstakingly lowered over the cliffs of Lāwa‘i to the valley floor. It was here that he lived, first in the small cottage, and later in a bungalow which has since been torn down.

Mrs. Elizabeth McBryde bought the 12,000 acres in the Kona section of Kaua‘i in 1886 and in 1899 her lands along with the McBryde estate joined to form the McBryde Sugar Company, save the 83 acres at the mouth of the Lāwa‘i stream. Alexander McBryde, who lived in Lāwa‘i valley, where the only access in Queen Emma’s day had been by trail down the cliffs, created a road along the shore from “Spouting Horn” by blasting away the *pali* to make the narrow horse and buggy trail (“The story of Lāwa‘i Kai” NTBG newsletter, vol. 2:9). Forbes (1997:14) discusses the McBryde family:

Both McBryde bachelors, Walter and Alexander, were highly regarded by the Hawaiians in the area. Lāwa‘i was open to fishermen, and both brothers were always interested in going on fishing and hunting expeditions in the area.

### F. 1900-Present

The McBryde Sugar Company started its railroad operations in 1899. Expansion of cane fields and plantation rail lines was rapid; by 1903, McBryde had completed rail lines to its Kōloa fields and Kōloa Landing. By 1934 company reports talk about the Lāwa‘i Bridge rockfill being completed, so the bridge can be built. As the McBryde Sugar Co. map shows (Figure 4) the Lāwa‘i Stream Valley was surrounded east and west by sugar cane lands, and Fields 216 lay just *mauka* of the Lāwa‘i Road near the project area (Conde and Best 1973). By 1947 all cane-hauling activities were taken over by trucking.

The Lāwa‘i Kai portion of the *ahupua‘a* was sold in 1938, to the Allertons, and in 1964 Robert Allerton established the Pacific Tropical Botanical Garden. In 1986 this portion became the National Tropical Botanical Gardens (Figure 5). The shoreline project area has never been developed, except for the building of Lāwa‘i Road along its northern side, but this area has seen the introduction of many non-native species of plants, probably naturally. It has been used by fishermen, from pre-Contact times through the present, although the steep cliffs do not make it an easily accessible area. The trail complex within the project area (site 990) probably relates to historic access from Lāwa‘i Kai to the Kōloa Landing area, east of the project area, as well as following a pre-historic trail corridor (Figure 5).





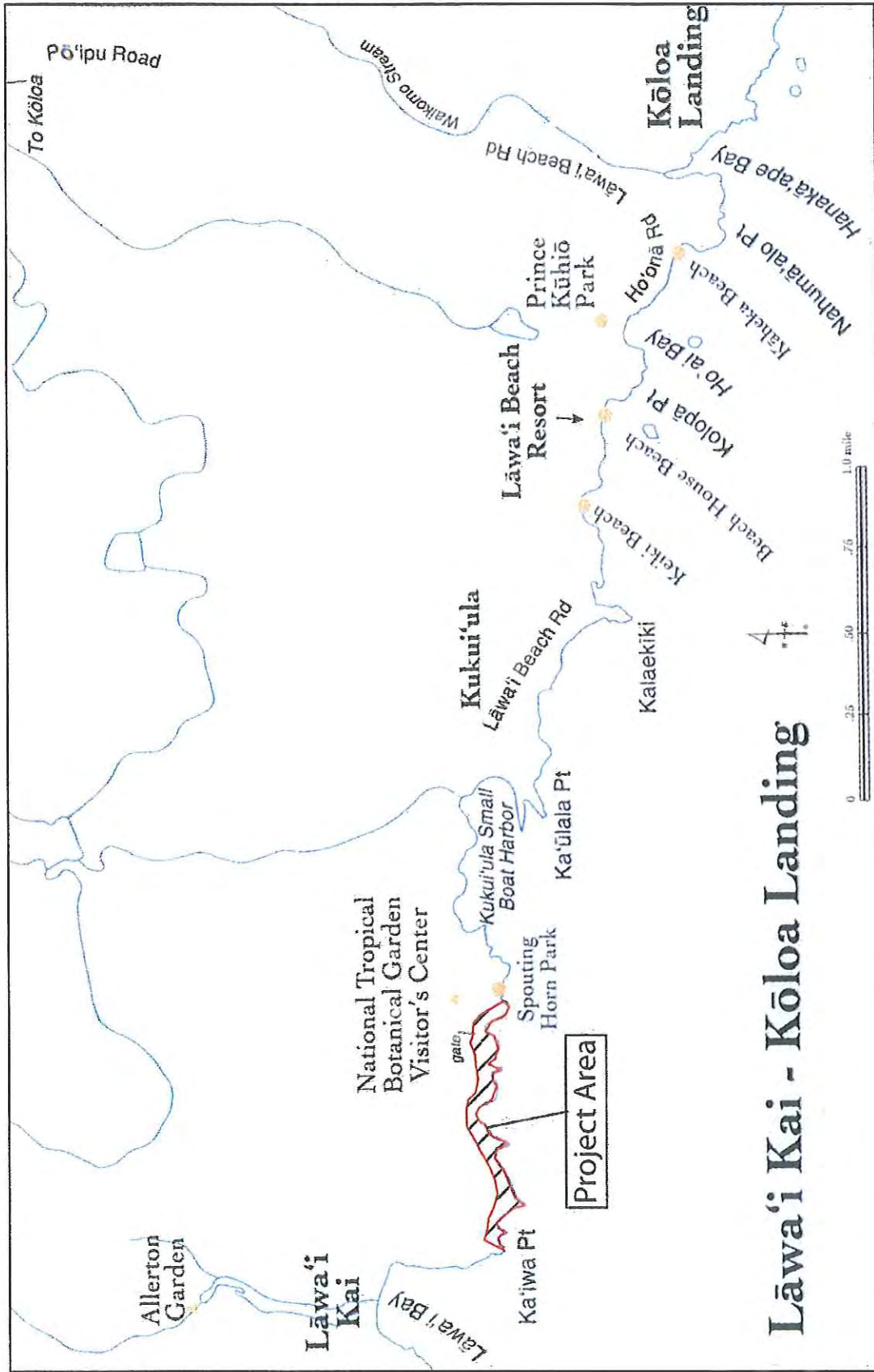


Figure 5. Map showing location of project area and surrounding places of interest (from Donohugh 2001: 259)

### III. PREVIOUS ARCHAEOLOGICAL RESEARCH

#### A. Archaeological Studies within Lāwa‘i Ahupua‘a

Table 2 describes previous archaeological work conducted in the *ahupua‘a* of Lāwa‘i. Only the Creed et al. (2002) inventory survey was conducted specifically within the project area, and Kikuchi surveyed a portion of the project area in 1963.

Table 2. Previous Archaeological Studies in Lāwa‘i Ahupua‘a

Author(s)	Year	Title and Location	Type of Study and Findings
Bennett, Wendell	1931	Lāwa‘i Valley, Kukui‘ula Valley, Prince Kuhio Park	General Survey; located three <i>heiau</i> , petroglyphs, and stone work.
Handy, E.S. Craighill	1940	<i>The Hawaiian Planter</i> , Kauai	General ethnographic study; describes “few terraces still cultivated in taro” among sugar cane.
Kikuchi, William K.	1963	Archaeological Survey and Excavations on the Island of Kaua‘i, Kona District, Lāwa‘i, Kaua‘i, HI	Survey and Excavations; describes seven sites, including caves, two <i>heiau</i> , and a walled area
McMahon and Fujimoto	1991	Memo/Inventory from Inactive Cemeteries, Yamamaoto Family Grave Site, Lawai Odaisan, Lāwa‘i, Koloa, Kaua‘i	Inventory Survey; describes grave sites below the former Lāwa‘i Odaisan (Church), State Site No. 50-30-10-1865
Hammatt, Hallett H.	1996	Letter Report on Subsurface Testing for the Proposed Location of Queen Emma's Cottage, Lāwa‘i Valley	Subsurface Testing; revealed absence of evidence of prehistoric Hawaiian cultural activity at the proposed location of Queen Emma's Cottage (objects encountered were all of recent age)
Creed et al.	2002	Archaeological Inventory Survey of 11.26 Acre-Makai Lands at Lāwa‘i Ahupua‘a, Kona District, Island of Kaua‘i (TMK 2-6-03:1 and 2-6-02: POR. 1)	Inventory Survey within present project area

#### B. Archaeological Studies within the Project Area

Kikuchi (1963) describes seven sites in Lāwa‘i in his study of the entire Kona District of Kaua‘i, of which two are in the project area. Kikuchi site 56 corresponds to State Site 50-30-10-3071, and Kikuchi site 57 corresponds to State Site 50-30-10-3072 (Figure 6):

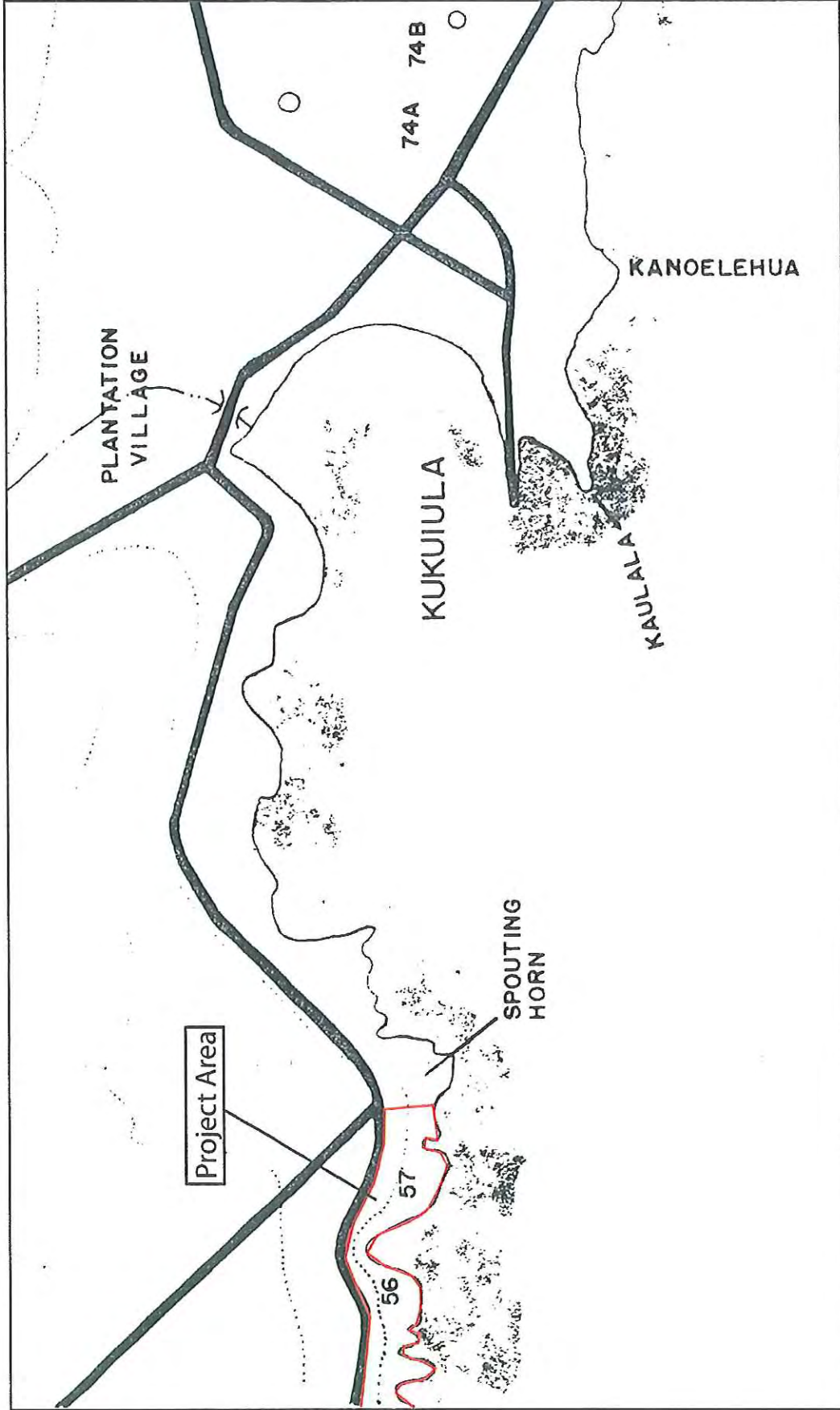


Figure 6. Map of Kukui'ula showing Kikuchi's sites 56 and 57 (State sites 3071 and 3072) and trail within the project area (from Kikuchi 1963: 48)

Site 56. Shelter Caves, Kukui'ula. Three caves were found all within 10 feet of each other, the main cave lies on sea level while the other two are above the central cave. This site was completely looted by vandals. Fishhooks of bone and pearl shell were found. Coral and *wana* spine files were also found. Many *pipi* oyster shells were found strewn over the three caves.

Site 57. Shelter Cave, Kukui'ula. This shallow cave was used as a shelter cave by the Hawaiians and later by fishermen as shelter against the wind and rain. It measures 3.3 feet high, 8.3 feet wide and 16.6 feet deep. The entire cave was completely looted as evidenced by the turned dirt floor.

The small cove fronting the cave is called Āholehole point because of the fish caught there. Kikuchi (1963:45-46) states that a Japanese woman committed suicide there and as a result the area is said to be haunted. The local people claimed that dogs avoided the seashore at night but not during the day.

In December of 1998, Cultural Surveys Hawai'i, Inc. completed an inventory survey of the current project area at the request of A & B Properties. The inventory survey report (Creed et al. 2002) was approved by the SHPD/DLNR in September 2002 (Appendix A). Three archaeological sites were located, consisting of a coastal trail complex (50-30-10-990) and two shelter sites (50-30-10-3071 and -3072). The shoreline trail is a mix of modern and historic sections, currently in use by the public for coastal access. The two shelter sites were previously located and described by Kikuchi (see above, sites 56 and 57) and placed on the State Register of Historic Sites (1988). The 1998 CSH inventory survey found them to have suffered both high surf damage and looting, so that nothing remains of the former contents. Creed et al. (2002) recommends for these three sites preservation of the historic trail and the two shelter sites because the caves are on the State Register of Historic Places.

### **C. Summary of Previous Research in Lāwa'i Ahupua'a**

The settlement pattern model for Lāwa'i *Ahupua'a* includes permanent habitation and intensive agriculture (irrigated and non-irrigated) focused on the valley floor flood plain and presumed intensive agricultural pursuits on the table lands between Lāwa'i Kai and Kukui'ula Bay. The historical documentation, especially *Mahele* and *Kuleana* data, indicates house sites, taro *lo'i* and some *kula* were situated on the alluvial flood plain within Lāwa'i Valley. No *kuleana* were awarded on the table lands or within the present project area. Archaeological evidence suggests permanent occupation in the Kōloa area ca. A.D. 1200-1400, though earlier dates (ca A.D. 600-1200) for temporary shoreline sites have been recorded (Rosendahl 1990, Toenjes et. al. 1991, Hammatt et al. 1998).

Archaeological studies suggest that the project area was not a locus of habitation or agriculture during the pre-contact era. An early archaeological survey by Kikuchi (1963) located and described two "looted" shoreline shelter caves. The inventory survey conducted by CSH in 1998 located the two caves described by Kikuchi (sites 3071 and 3072), as well as a discontinuous shoreline trail (site 990). Creed et al. (2002) recommends preservation in the form of avoidance and protection (conservation) for these three sites within the project area.

#### IV. SITE DESCRIPTIONS

##### A. Site #: 50-30-10-990

Site Type: Trail  
Function: Transit/Transportation  
Features (#): 4 (A-D)  
Dimensions: See Figures 7 to 16  
Elevation: 20-50 ft. a.m.s.l.

State Site 50-30-10-990 is a discontinuous shoreline trail that traverses the coastal cliffs through the project area (Figures 7 and 8). The trail is not discernable in places where it crosses exposed outcrop and where the vegetation is extremely dense. The trail averages 0.7 m (2.3 ft) in width but ranges from 0.5 m (1.6 ft) to a maximum of 1.5 m (4.9 ft) in width. The trail follows a logical route along the inland edge of the cliffs above the tidal flats. Large sections of the trail are currently in use by the public for coastal access. For most of its length, the trail is simply a dirt path. This trail site includes four separate features: Feature A is the paved curb stone section of the trail, Feature B is a short retaining wall section of the trail, Feature C is a short section of cut basalt block stairs with an associated wall section, and Feature D is another short section of cut basalt block stairs. All photographs were taken on 10/26/04 during the CSH field site assessment for this report (see below) unless otherwise indicated.

**Feature A** (Figures 8 through 12) is a constructed curbstone trail section, located in the central portion of the project area along a cliff overlooking one of the boulder bays. The central portion of Feature A is constructed of large flat *pāhoehoe* slabs that have been fitted together, creating a level surface. Curbing, consisting of flat *pāhoehoe* stones set on edge, line both sides of the central portion of the trail. This central portion of the trail measures 36.0 m N/S and averages 0.7 m (2.3 ft) in width. The areas on either side (east and west) of the central portion of the trail have been roughly paved with boulders. A portion of the rough paved area along the southern end of Feature A is vertically faced along the sea cliff. The facing has a maximum height of 1.0 m (3.3 ft) and averages 3 courses high. At the south end of Feature A are seven large basalt stones set in as steps. The feature is in excellent to good condition. A portion of the northern end, just before the steps, has collapsed.

**Feature B** (Figures 7, 13 and 14) is a short retaining wall that supports a section of the trail. The retaining wall is located in the western end of the project area. The wall measures 4.0 m (13.1 ft) E/W and has a maximum height of 1.2 m (3.9 ft) in the center. The wall is constructed of well-stacked and faced small boulders. The wall is three courses high. The wall retains a level portion of the dirt path. The feature is in good condition. The CSH field-check on 10/26/04 found the site to be covered by heavy vegetation (Figure 14).

**Feature C** (Figures 7, 15 and 16) consists of 8 basalt stone blocks that have been set into the soil as steps. No mortar was utilized. The blocks average 0.8 m (2.6 feet) long and average 0.2 m (0.6 feet) in width and height. The CSH field-check on 10/26/04 found the site to be covered by heavy vegetation (Figure 16).





Site Descriptions

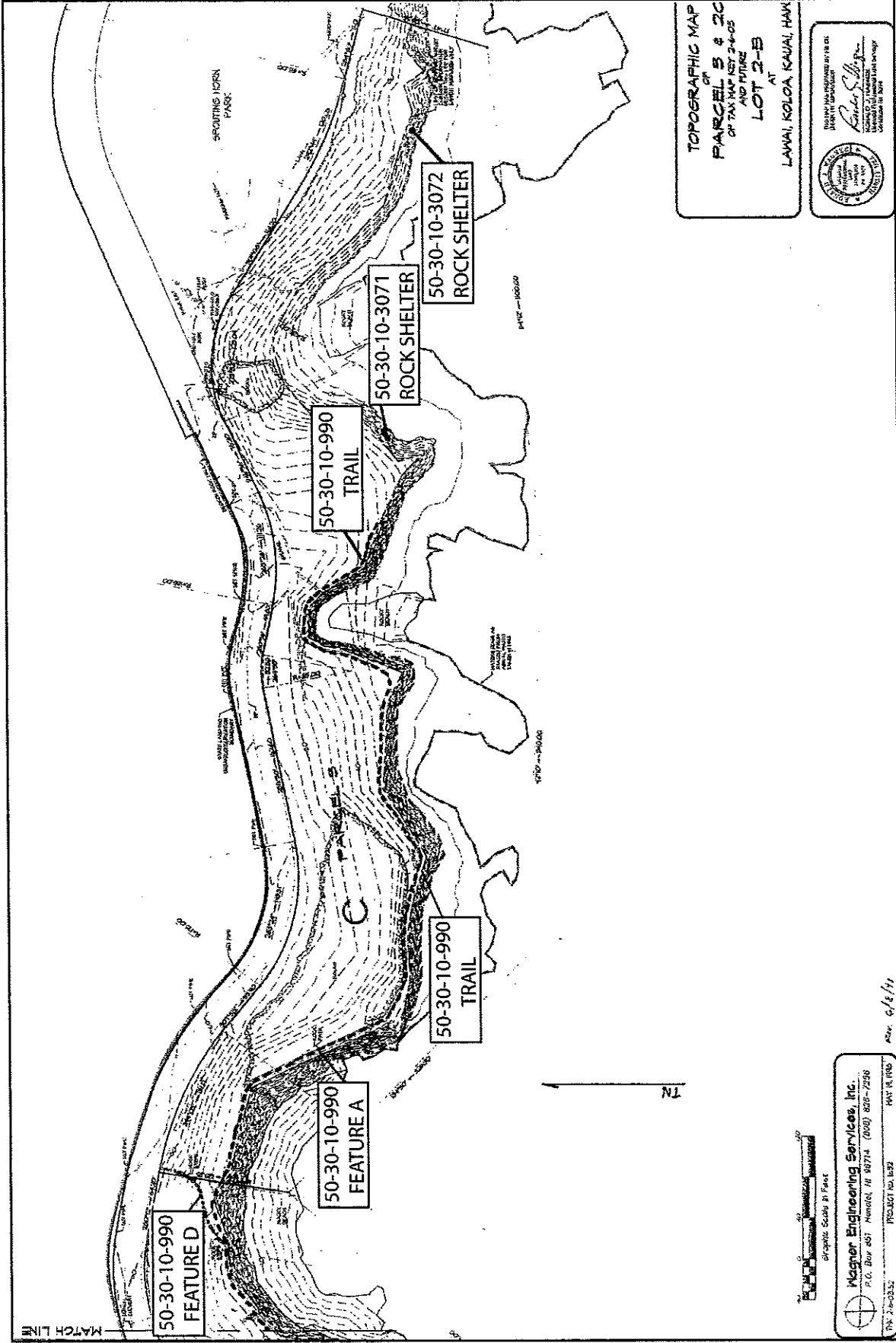


Figure 8. Eastern portion of project area (part 2) showing location of archaeological sites

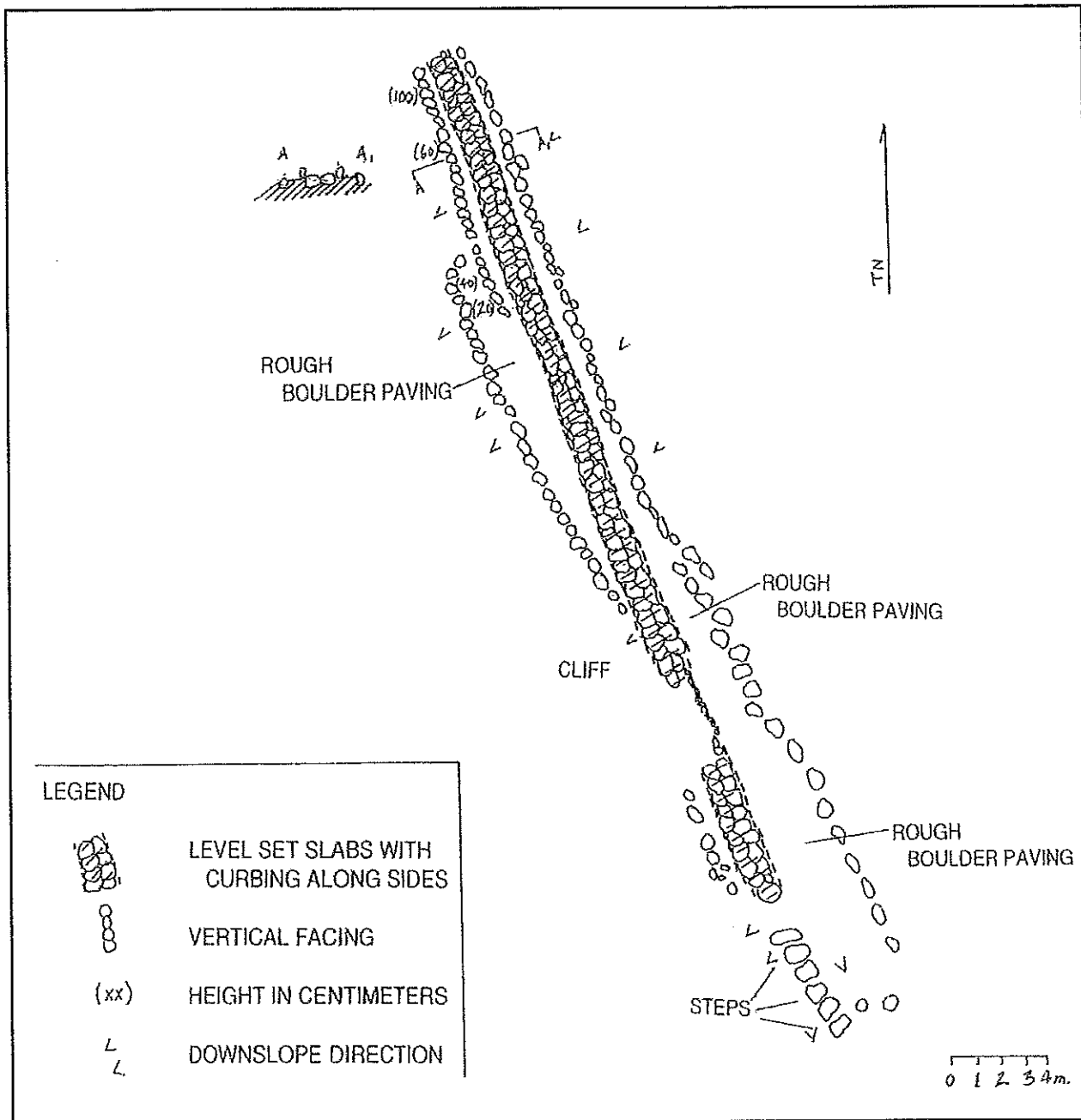


Figure 9. Plan view of Site 50-30-10-990, Feature A (from Creed et al. 2002:27)





Figure 10. Photo of Site 50-30-10-990 Feature A, view to the South



Figure 11. Photo of Site 50-30-10-990 Feature A, view to the North





Figure 12. Photo of Site 50-30-10-990, *makai* starting point of Feature A, view to NW



Figure 13. Photo of Site 50-30-10-990 Feature B, view to North (from Creed et al. 2002:40)



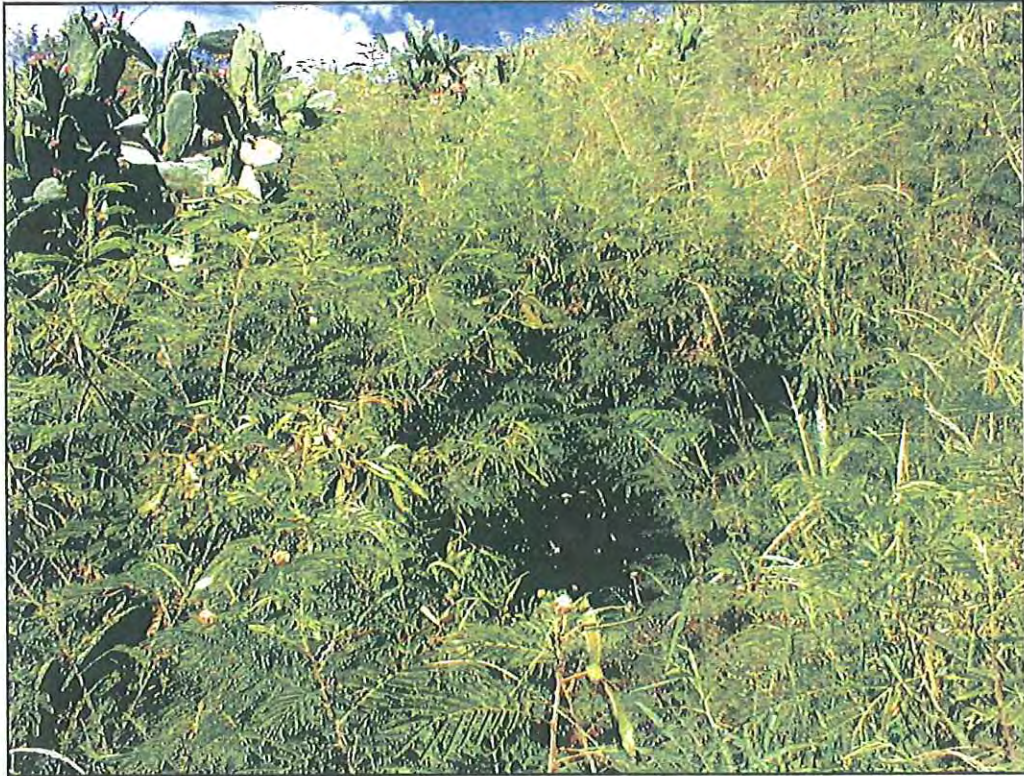


Figure 14. Photo of Site 50-30-10-990 Feature B, view to NW, showing heavy vegetation



Figure 15. Photo of Site 50-30-10-990 Feature C, view to East, showing heavy vegetation

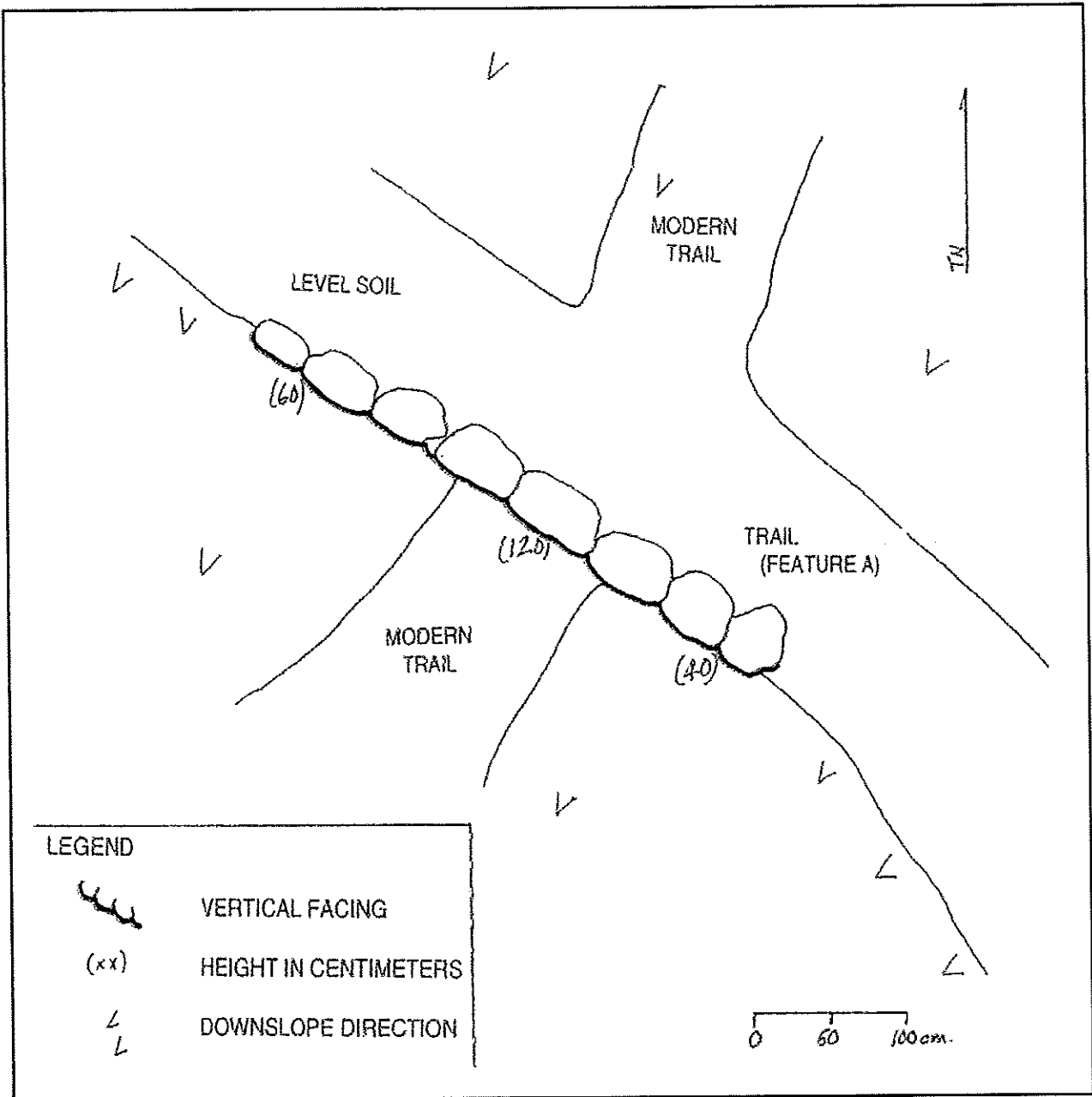


Figure 16. Plan view of Site 50-30-10-990, Feature C (from Creed et al. 2002:28)



**Feature D** (Figure 8) consists of 22 cut basalt blocks that have been set into the soil as steps, connecting the trail with Lāwa'i Road. No mortar was utilized. The blocks average 0.8 m (2.6 feet) long and average 0.2 m (0.6 feet) in width and height. In addition a small wall follows the stairs in a general north/south direction. The wall extends from Lāwa'i Road seaward to the cliff edge for a total length of 21.3 m (70.0 feet). The wall is constructed of stacked to piled cobbles and boulders with a maximum height of 0.8 m (2.6 feet). The wall is in fair condition.

**B. Site #: 50-30-10-3071**

Site Type: Rock Shelter

Function: Remnant

Features (#): 1

Dimensions: 54.0 m²

Elevation: 10 ft. a.m.s.l.

State Site 50-30-10-3071 (Figures 8, 17, 18, and 19) is a rock shelter located along the steep coastal cliff near Spouting Horn. The site consists of a natural rock overhang that measures 10 m (32.8 ft) N/S at the entrance by 5.7 m (18.7 ft) E/W. The interior heights of the ceiling have a maximum of 2.6 m (8.5 ft). The interior is undulating and filled with boulders and cobbles. No midden or artifacts were observed.

The site was added to the State Register of Historic Places on September 30, 1988. The site correlates with Kikuchi site 56. Kikuchi (1963) notes that the site was completely looted by vandals, although fishhooks of bone and pearl shell, coral and *wana* spine files, and many *pipi* oyster shells were found. The 1998 CSH inventory survey found that the cave appears to have been looted, used in modern times and affected by wave action.

**C. Site #: 50-30-10-3072**

Site Type: Rock Shelter

Function: Remnant

Features (#): 1

Dimensions: 14.6 m²

Elevation: 10 ft. a.m.s.l.

State Site 50-30-10-3072 (Figures 8, 20, 21, and 22) is a rock shelter located along the coastal cliff near Spouting Horn. The site consists of a natural rock overhang that measures 6.1 m (20.0 ft) NW/SE at the entrance by 2.1 m (6.9 ft) NE/SW. The interior heights of the ceiling have a maximum of 1.4 m (4.5 ft). The interior is filled with boulders and cobbles. Two dirt piles located outside the entrance may correlate with looting activities. No midden or artifacts were observed.

The site was added to the State Register of Historic Places on September 30, 1988. The site correlates with Kikuchi site 57. Kikuchi (1963) notes that this shallow cave was used as a shelter cave by the Hawaiians and later by fishermen as shelter against the wind and rain, and that the

entire cave was looted. The 1998 CSH inventory survey found that the cave appears to have been looted, used in modern times and affected by wave action.

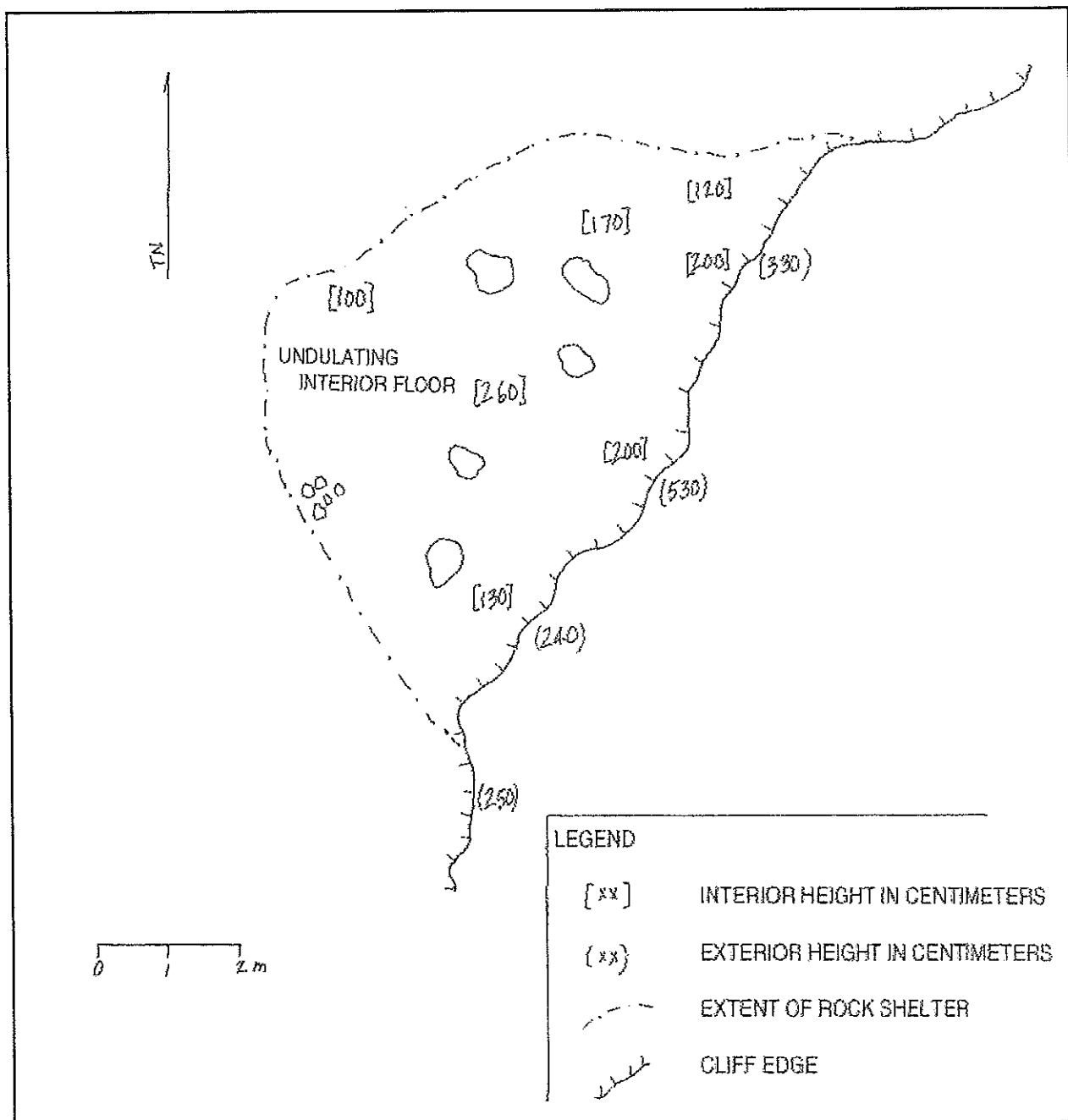


Figure 17. Plan view of Site 50-30-10-3071, shelter cave (from Creed et al. 2002:30)



Figure 18. Photo of Site 50-30-10-3071, view to West

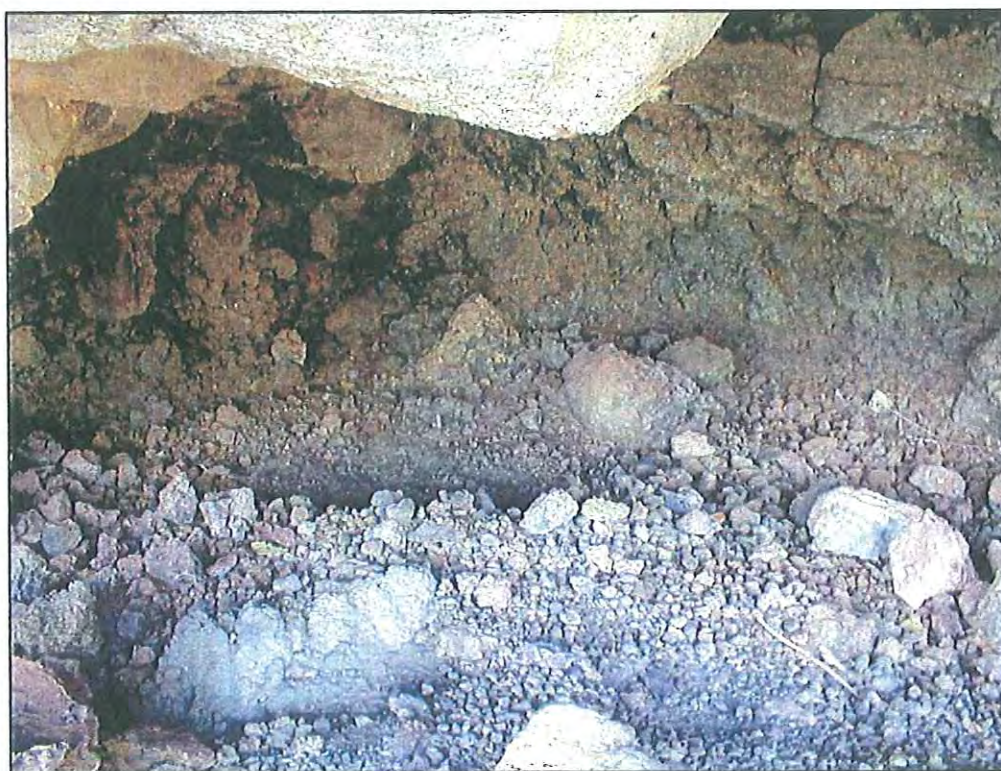


Figure 19. Photo of Site 50-30-10-3071, view to NW, interior



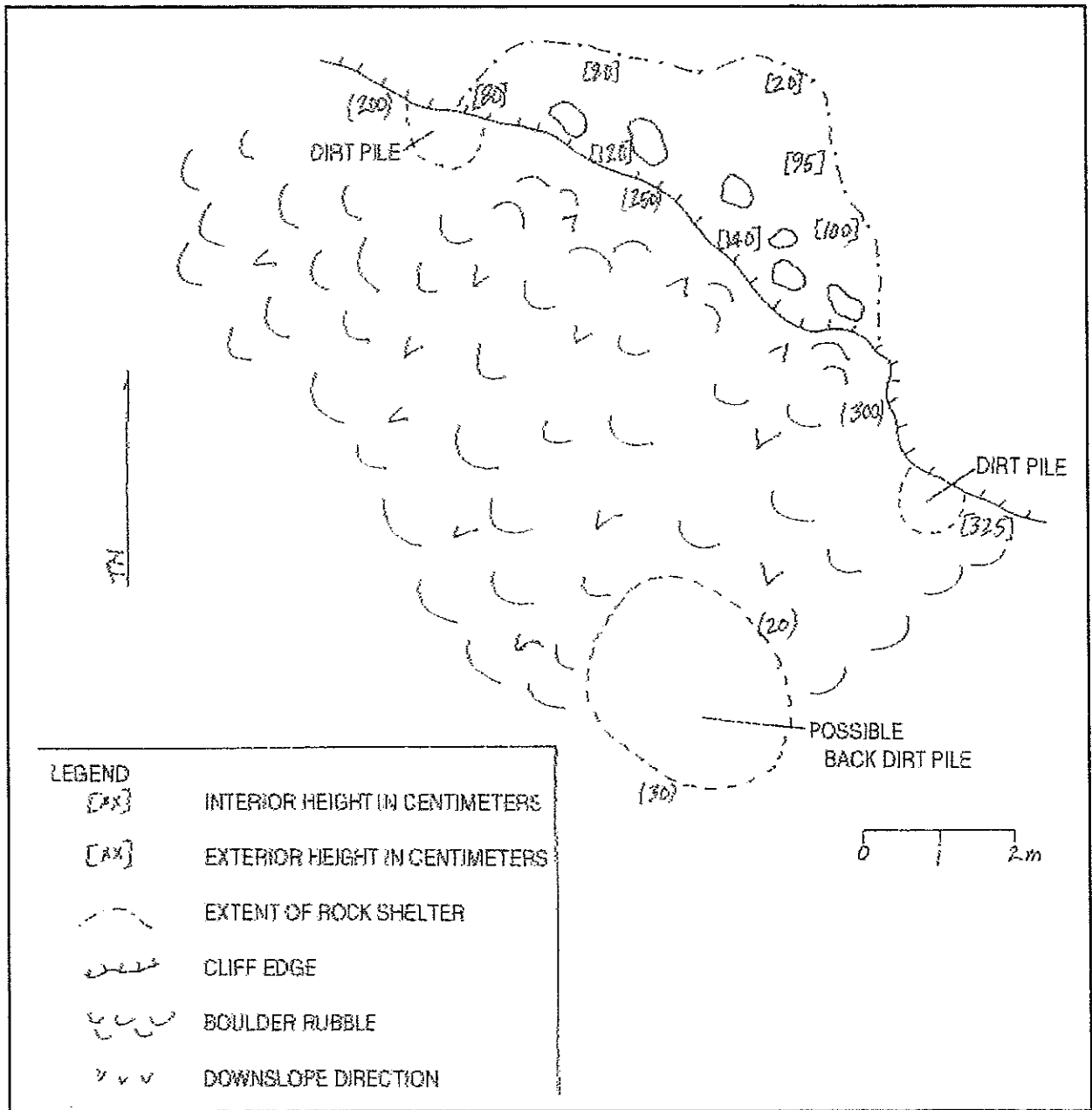


Figure 20. Plan view of Site 50-30-10-3072, shelter cave (from Creed et al. 2002:31)

## V. PRESERVATION PLAN

The following preservation measures were developed following the Draft Hawaii Administrative Rules, Title 13, Sub-Title 13, Chapter 277 “Rules Governing Requirements for Archaeological Site Preservation and Development”, and in consultation with the Kaua‘i County Historic Preservation Review Commission and the Royal Order of Kamehameha Kaumuali‘i Chapter. The preservation plan will:

1. Identify for each significant historic property which forms of preservation will be implemented: avoidance and protection (conservation), stabilization, rehabilitation, restoration, reconstruction, interpretation, or appropriate cultural use;
2. Specify the buffer zones around each significant historic property;
3. Specify short-term protection measures for each significant historic property that will be within or near a construction area;
4. Discuss the agency or person’s consultation process, for properties with traditional cultural significance. The agency or person shall consult with ethnic organizations and individuals for whom the historic properties are of significance. The comments on preservation treatment expressed by these individuals or organizations shall be considered when preparing the preservation plan. The plan shall include a list of individuals and organizations consulted, and shall summarize their input;
5. Specify the long term preservation measures to be undertaken at each significant historic property (Draft Hawaii Administrative Rules, Title 13, Sub-Title 13, Chapter 277).

### A. Preservation Plan for Site 50-30-10-990

#### Item 1: Form of Preservation

For the coastal trail (site 990), preservation will take the form of avoidance and protection (conservation). The trail complex is historic in age, but probably follows a pre-historic trail corridor. The trail probably also relates to historic access from Lāwa‘i Kai to the Kōloa Landing area, east of the project area. Though just a modern trodden dirt path in places, the trail still represents a time when foot transit was the main means of transportation. The remaining stone constructed sections are in good condition and exhibit quality masonry work. At this time, no stabilization or restoration of the site is necessary. Interpretation in the form of signage may be appropriate. If vegetation clearance increases visitation to the area, signage may decrease harm to the site. In the present state, however, avoidance and conservation is the most appropriate policy. Any possible future signage will need to be approved by the State Historic Preservation Division prior to installation.

#### Item 2 and 3: Buffer Zones and Interim Preservation Measures

Development in the area will consist of vegetation modification, with removal of the existing vegetation and re-landscaping (re-vegetation). Site 990 spans a large portion of the coastal project area, and includes four distinct features (Figures 7 and 8). To ensure that the site is not impacted, a 20 ft (6 m) buffer zone will be designated on each side of the trail, prior to

construction activities (vegetation removal and replacement). On the landward side of the trail, the buffer zone will be flagged. On the seaward side of the trail, the buffer zone will only be flagged when appropriate. Since the trail follows the steep sea cliff, the seaward buffer zone may often be impossible to demarcate (i.e. Figure 10).

A 20 ft (6 m) buffer zone will also be flagged on both sides of features associated with the trail (Features A-D) (again, areas near the steep sea cliff will not be flagged unless appropriate). If vegetation modification is necessary within the buffer zones, only hand removal of vegetation will be allowed, and an archaeologist will monitor all activity within the buffer zone. The monitor will also hold a pre-construction briefing with the work crew to explain the significance of the coastal trail site. Where the trail is discontinuous (specifically the western end), the buffer zone will cover areas where the trail most likely occurred. Vegetation clearance may expose portions of the trail that are currently unknown, and it is necessary to have an archaeologist present when potential trail areas are modified.

#### Item 4: Consultation Process

Because sites 990, 3071, and 3072 may be understood to have cultural significance to native Hawaiians consultation seemed appropriate and is described in the following Chapter VI.

#### Item 5: Long Term Preservation Measures

There are no current plans to make modifications or improvements to the project area, beyond the removal of existing vegetation and re-landscaping. Fishermen still use this area, and the foot trails are presumably used by the public. As long as no further development is planned in the area, passive preservation, in the form of avoidance and conservation, is appropriate. Signage may help in preserving the remaining intact stone constructed sections, and may be appropriate if vegetation clearance increases use of the area. Any possible future signage will need to be approved by the State Historic Preservation Division prior to installation

### **B. Preservation Plan for Sites 50-30-10-3071 and -3072**

#### Item 1: Form of Preservation

For the two shelter cave sites (site 3071 and 3072) preservation will take the form of avoidance and protection (conservation). While these sites are on the National Register of Historic Places, they have suffered high surf damage and looting for at least the past four decades, and nothing remains of their former contents. No reconstruction or stabilization is recommended.

#### Item 2 and 3: Buffer Zones and Interim Preservation Measures

Development in the area will consist of vegetation modification, with removal of the existing vegetation and re-landscaping (re-vegetation). Since the shelter cave sites are located along the steep cliff where there is minimal vegetation, there will likely be little impact to the sites. To ensure that the sites are not impacted, a 20 ft (6 m) buffer zone will be designated prior to construction activities (vegetation removal and replacement). Because of the location of the sites on the sea cliff, no fencing of the buffer zone is appropriate. If vegetation modification is necessary within the buffer zone, only hand removal of vegetation will be allowed, and an

archaeologist will monitor all activity within the buffer zone. The monitor will also hold a pre-construction briefing with the work crew to explain the significance of the shelter cave sites. No trees should be planted within the buffer zone during re-vegetation, because of potential root damage to the structures.

#### Item 4: Consultation Process

Sites 3071 and 3072 have cultural significance and thus consultation seemed appropriate. This is described in the following Chapter VI.

#### Item 5: Long Term Preservation Measures

There are no plans to make modifications or improvements to the project area, beyond the removal of existing vegetation and re-landscaping. Fishermen still use this area, and there are foot trails in the area presumably used by the public. As long as no further development is planned in the area, passive preservation, in the form of avoidance and conservation, is appropriate.

## VI. COMMUNITY CONSULTATION

Throughout the course of this preservation plan, 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 traditional cultural practices specifically related to the project area. This effort was made by letter, e-mail, telephone and in person contact. In the majority of cases, letters along with a map of the project area were mailed with the following text:

At the request of Kukui'ula Development Company LLC, Cultural Surveys Hawai'i Inc., is developing a preservation plan for a coastal trail complex (State site 50-30-10-990) and two shelter sites (State sites 50-30-10-3071 and -3072), located on a cliff side shoreline property immediately east of Lāwa'i Bay, *ahupua'a* of Lāwa'i, District of Kona, Island of Kaua'i (TMK: 2-6-03:3 and 20 and 2-6-02: por.1).

The sites are considered significant under Criterion D (may yield information important for research on prehistory or history) and E (cultural significance) of the Draft Hawaii Administrative Rules, Title 13, Sub-Title 13, Chapter 275. The shelter caves were for temporary use by fishermen, presumably from pre-contact into modern times. These two sites were listed on the State Register of Historic Places on September 30 1988 and remain on the State Register, although both have suffered high surf damage and looting, so that nothing remains of the former contents. The trail allowed for coastal access with a similar time range as the shelter sites, though cut stone steps and curbing are indicative of historic construction techniques.

Construction in the form of vegetation modification and landscaping is planned for the project area (pers. comm. with Mike Roberts, October 2004). A 20 ft (6m) buffer zone will be designated around all sites and associated features during construction activities (vegetation removal and landscaping), and an archaeologist will monitor any vegetation clearance or landscaping conducted within the buffer zone. Long-term preservation will take the form of avoidance and protection, a reasonable policy given the location of these sites along the steep sea cliff.

As part of the consultation process for this preservation plan, Cultural Surveys Hawai'i would like to consult with ethnic organizations and individuals for whom the historic properties are of cultural significance. Because of the cultural significance of these sites, your thoughts on preservation treatments may yield information important to the preservation plan.

The individuals, organizations, and agencies we attempted to contact and the results of any consultations are presented in Table 3. Cultural Surveys Hawai'i starts out with a list of community contacts and then follows up on their referrals.



Table 3 Community Contacts

Name	Organization, Affiliation	Comments
Akana, Kaipo	Former member of Kaua'i/Ni'ihau Island Burial Council (CSH Staff)	No response.
Arboleda-Kapaka, La France	Office of Hawaiian Affairs Community Resource Coordinator/Kaua'i/Ni'ihau Island Burial Council Chair	No response.
Ayau, Edward Halealoha	Hui Mālama O Nā O'iwi O Hawai'i Nei	No response.
Burgess, Stella	Hyatt Hotels & Resorts Cultural Manager	No response.
Carbonel, Albert	<i>Koloa Kama'āina</i>	No response.
Carney, Mary	State Historic Preservation Division Burials Facilitator	No response.
Guth, Heidi	Office of Hawaiian Affairs	No response.
Higa, Nani	Hula Hālau O Nani Kumu Hula	Friends and I used to go at night and use the trail. There is another trail that goes down to the spouting horn area. It is a fisherman's place. It is my hope that they preserve the trail and the shelters.
Kaohi, Lionel	Association of Hawaiian Civic Club Kaua'i Council President	No comment.
Lauretta, Mike	Department of Land and Natural Resources Land Division	No concerns.
McMahon, Nancy	State Historic Preservation Division Kaua'i Archaeologist	No response.
Napōka, Nathan	State Historic Preservation Division Culture and History Branch	Referred to Kaipo Akana.
Royal Order of Kamehameha members	Royal Order of Kamehameha	See following discussion of meeting
Tsuchiya, Rick	Kaua'i Historic Preservation Review Commission	See following discussion of meeting with the KHPRC
Yagodich, Darrll	Department of Hawaiian Homelands Planning Office	No comment.

### Meeting with the Kaua'i County Historic Preservation Review Commission

Cultural Surveys Hawai'i sent a letter to the Kaua'i County Historic Preservation Review Commission (KHPRC) requesting any comment or input on the Preservation Plan for the three sites in coastal Lāwa'i. At their November 4, 2004 meeting the KHPRC decided they wanted to take a field trip to visit the sites in question. This fieldtrip did indeed occur on December 2, 2004 with Mr. Tom Shigemoto and Mr. David Shideler representing the interests of the landowner and with Ms. Nancy McMahan of the State Historic Preservation Division in attendance. The members who attended the fieldtrip were enthusiastic and appreciative of the opportunity afforded by the landowner.

This fieldtrip resulted in a memo from the KHPRC dated December 8, 2004 that concludes:

Based on the information provided, the KHPRC approved the preservation plan for the above referenced historic resources. However, the KHPRC would like to reserve the right to provide further comments should there be any changes to the plan and at such time that a more detailed site re-vegetation/landscaping plan is developed.

### Meeting with the Royal Order of Kamehameha, Kaumuali'i Chapter

Mr. Gerald Ida of Cultural Surveys Hawai'i made a presentation on the preservation plan to the Royal Order of Kamehameha, Kaumuali'i Chapter at Prince Kuhio Park, coastal Kōloa on Saturday December 18, 2004. The meeting was very informal with seven members of the Order present, including our contact, Warren Perry, Scott Sagum and others. There was quite an interest among the members present, especially after having been shown photos in the draft preservation plan. Some of them knew about the trail and one of the members of the Royal Order said that he knew the former long-time caretaker of Lawai-Kai who used to call it "Queen Emma's Trail." What follows summarizes their collective input on the matter.

#### Preservation, Brush Clearing, Restoration

In general, all present agreed that the two shelter caves, and especially the trail, should be preserved. They would like to see the upper portion of the project area along the roadside cleared to open up the view plane, and possibly replanted with low-to-the-ground native vegetation like *naupaka*. They would like to see the trail cleared and the collapsed structural portions of it restored so it can continue to be used by native Hawaiians and other local fishermen.

#### Construction of New Footpath

They had no problem with the construction of a new footpath that would parallel the existing road. If anything, they felt it would relieve foot traffic on the traditional trail site. They suggested that there should be some way of discouraging tourists and visitors from leaving the new footpath and heading down-slope towards the ocean as a check on the liability factor, and to prevent further degradation of the traditional trail. A low fence, wall, railing, or vegetation were suggestions mentioned, along with appropriate signage to keep people on any newly created upper path.

#### Signage

They did not want signs at any of the sites - believing it would attract more vandals than accomplish anything worthwhile. However, they suggested that when the area is cleared of

present vegetation, and if the traditional trail is visible, and/or visually impressive from portions of the newly constructed upper footpath, then signage at one or more points along the new footpath would be appropriate to point out and provide cultural and historical information on the lower traditional trail.

## VII. SUMMARY

This preservation plan is intended to protect the sites within the project area during vegetation modification and landscaping, and satisfy the SHPD/DLNR requirements for a preservation plan. The 11.5-acre project area is a rocky cliff side shoreline property just *makai* of Lāwa`i Road, in Lāwa`i Ahupua`a, Kona District, Kaua`i Island. A trail complex (site 50-30-10-990) and two shelter sites (sites 50-30-10-3071 and -3072) were located during the 1998 CSH inventory survey, and preservation was recommended for all three sites (Creed et al. 2002).

The site types present are indicative of the type of former land use within this narrow shoreline cliff project area. The shelter caves were for temporary use by fishermen, presumably from pre-contact into modern times. The trail allowed for coastal access with a similar time range, though the cut stone steps and curbing are indicative of historic construction techniques.

A field assessment of the three sites conducted in October 2004 by CSH indicates that the sites have undergone no significant changes since the 1998 inventory survey. However, vegetation overgrowth on the trail (site 990) has increased in some areas.

Consultation with the Kaua`i County Historic Preservation Review Commission, the Royal Order of Kamehameha, Kaumuali`i Chapter and other ethnic Hawaiian organizations was carried out.

Preservation for all three sites will be in the form of avoidance and protection (conservation). Short-term preservation measures include 20 ft (6 m) buffer zones around each site during all construction activity, and the buffer zone will be flagged when appropriate. If vegetation modification is necessary within the buffer zones, only hand removal of vegetation will be allowed, and an archaeologist will monitor all activity within the buffer zone. The monitor will also hold a pre-construction briefing with the work crew to explain the significance of the sites. Long-term preservation will be passive avoidance and conservation. The location of these sites along the steep cliff makes passive avoidance a reasonable policy.

While there are no indications whatsoever of burials present within the steep rocky project, as always, if burials are encountered, all work in the immediate vicinity should cease and the State Historic Preservation Division should be notified promptly.

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LINDA LINGLE  
GOVERNOR OF HAWAII



PETER T. YOUNG  
CHAIRPERSON  
BOARD OF LAND AND NATURAL RESOURCES  
COMMISSION ON WATER RESOURCE MANAGEMENT

DAN DAVIDSON  
DEPUTY DIRECTOR - LAND

YVONNE Y. IZU  
DEPUTY DIRECTOR - WATER



**STATE OF HAWAII**  
**DEPARTMENT OF LAND AND NATURAL RESOURCES**

HISTORIC PRESERVATION DIVISION  
KAKUHIHEWA BUILDING, ROOM 555  
601 KAMOKILA BOULEVARD  
KAPOLEI, HAWAII 96707

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

March 1, 2005

David Shideler  
Cultural Surveys Hawaii  
P.O. Box 1114  
Kailua, HI 96734

LOG NO: 2005.0367  
DOC NO: 0502NM02

Dear Mr. Shideler:

**SUBJECT: Historic Preservation Review – Preservation Plan for Site 50-30-10-990, 3071 and 3072  
Lawai Ahupua'a, Kona District, Kauai Island  
TMK: 2-6-03: 3, 20 and 2-6-02: por. 1**

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Thank you for submitting the above preservation plan (Esh and Hammatt, 2004, *Preservation Plan for Sites 50-30-10-990, 3071 and 3072, Lawai Ahupua'a, Kona District, Kauai Island*, CSH ms.) which we received on January 31, 2005. Site 990 is a coastal trail (possible Queen Emma Trail), site 3071 and 3072 are shelter caves which are on the Hawaii and National Register of Historic Places. Preservation for these sites will be as is. We concur with this form of preservation. A twenty foot buffer zone has been established around these sites for possible landscaping and vegetation during the development of a community bike/pedestrian path. Buffer zones will be flagged, archaeological briefing will take place prior to work in the area and an archaeological monitor will be present. At present, no signage is recommended by either community groups or our office. If signage is desired in the future, our office would need to approve of this work.

We approve of this preservation plan. Although you have already meet with Kauai Historic Preservation Review Commission and conducted site visits of the area, we recommend you get their approval of this document. If you have any questions, please call Nancy McMahon 742-7033.

Aloha,

*Nathan Nopaka*

for Melanie Chinen, Administrator  
State Historic Preservation Division

NM:jen

c: Ian Costa, County Planning Department  
KHPRC



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

MEMORANDUM

**DATE:** December 8, 2004  
**TO:** Cultural Survey's Hawaii, Inc. Attn. Aulii Mitchell  
**FROM:** Kauai Historic Preservation Review Commission  
**SUBJECT:** Preservation Plan for Coastal Trail Complex & Shelter Sites, TMK 2-6-3:3  
& 20, 2-6-2; por. 1 Kukuiula Dev. Company, LLC.

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This is to inform you that the Kauai Historic Preservation Review Commission (KHPRC) conducted a site visit on December 2, 2004 and met with Mr. David Shideler and Mr. Tom Shigemoto to discuss your request for input for a preservation plan for the above referenced historic resources. Based on the information provided, the KHPRC approved the preservation plan as submitted. However, the KHPRC would like to reserve the right to provide further comments should there be any changes to the plan and at such time that a more detailed site re-vegetation/landscaping plan is developed.

Thank you for coordinating the site visit and for the opportunity to comment on this matter. Please feel free to contact us should you have any questions regarding this matter.

Mahalo.

cc: State Historic Preservation Division





## **APPENDIX F**

***Cultural Impact Assessment  
for a Conservation District Improvements Project  
West of Spouting Horn Park  
in Lawai Ahupuaa, Koloa District, Kauai Island,  
TMK [4] 2-6-02: 12, 2-6-03: 3 and 20,  
and Portion of Lawai Road,  
Prepared by Cultural Surveys Hawaii, Inc.  
October 2007***

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**Cultural Impact Assessment for a Conservation District  
Improvements Project West of Spouting Horn Park in  
Lāwa‘i Ahupua‘a, Kōloa District, Kaua‘i Island  
TMK [4] 2-6-02: 12; 2-6-03: 3 and 20, and Portion of  
Lāwa‘i Road**

**Prepared for  
Kukui‘ula Development Company (Hawai‘i), LLC**

**Prepared by  
Lisa Gollin, Ph.D.  
Aulii Mitchell, B.A.  
David W. Shideler, M.A.  
and  
Hallett H. Hammatt, Ph.D.**

**Cultural Surveys Hawai‘i, Inc.  
Kailua, Hawai‘i  
(Job Code: LAWAI 2)  
October 2007**

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## Management Summary

Title	Cultural Impact Assessment for a Conservation District Improvements Project West of Spouting Horn Park in Lāwa'i Ahupua'a, Kōloa District, Kaua'i Island
Date	October 2007
Project Number (s)	Cultural Surveys Hawai'i Inc. (CSH) Job Code: LAWAI 2
Project Location	The proposed project is located adjacent to and west of Spouting Horn Park within the Conservation District, including the portion of Lāwa'i Road fronting the project site and identified as Tax Map Keys ([4] 2-6-02: 12; 2-6-03: 3 and 20, and portion of Lāwa'i Road) in Lāwa'i Ahupua'a, Kōloa District, on Kaua'i. This area is depicted on the 1998 USGS 7.5-minute topographic map, Kōloa quadrangle (Figure 1).
Land Jurisdiction	The landholder of the subject Conservation District lands is Kukui'ula Development Company (Hawai'i), LLC, except for the portion of Lāwa'i Road within the project which is owned by the County of Kaua'i.
Project Acreage	Approximately 9.6 acres
Agencies	State of Hawai'i Department of Health / Office of Environmental Quality Control (DOH / OEQC)
Project Description	Kukui'ula Development Company (Hawai'i), LLC is proposing the following improvements: 1) removal of the vegetation located in the area <i>makai</i> of Lāwa'i Road to the inland edge of the coastal embankment and the <i>mauka</i> side of Lāwa'i Road along the existing rock wall fronting the Conservation District improvement area and revegetation with native, endemic and indigenous species; 2) construction of a 3- to 4-foot wide trail to be located within the <i>makai</i> portion of the project site, paralleling the coastline. The trail will extend approximately 2,300 feet from the northeastern end of the project site at Lāwa'i Road near Spouting Horn Park to the northwestern end of the site at Lāwa'i Road. Three overlook areas will be provided along the trail; 3) enhancement of the parking areas along the <i>makai</i> side of Lāwa'i Road by creating gravel parking stalls; 4) removal of the chain link fence along the <i>makai</i> side of Lāwa'i Road; and, 5) preservation of the existing historic trail complex, including a discontinuous trail that traverses the inland edge of the embankment paralleling the coastline, and two rock shelter cave sites located along the coastal cliff within the eastern portion of the project site.

Historic Preservation Regulatory Context	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 traditional cultural practices. At the request of Kukui'ula Development Company (Hawai'i), LLC, CSH undertook this cultural impact assessment. It provides information pertinent to the assessment of the proposed project's cultural impacts [per HRS Chapter 343 and the Office of Environmental Quality's (OEQC) <i>Guidelines for Assessing Cultural Impacts</i> ]. 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.
Area of Potential Effect (APE)	For the purposes of this cultural impact assessment, the APE is defined by the approximately 9.6 acre project area. While this investigation focused on the project APE, the study area included the entire <i>ahupua'a</i> of Lāwa'i.
Consultation Effort	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 and the vicinity. The organizations consulted included the State Historic Preservation Division (SHPD), the Office of Hawaiian Affairs (OHA) the Kaua'i Historic Preservation Review Commission (KHPRC), and the Kaua'i/Ni'ihau Islands Burial Council.

Cultural Impact Summary and Recommendations	<p>As a result of this assessment, a few ongoing cultural practices were identified for the study area (fishing, 'opihi picking, and plant gathering). Additionally, the project area and proximity is a regular destination for school groups who visit the area for environmental and cultural education outings, as well as a social gathering spot for community members. As such, it is considered an important cultural resource for the community.</p> <p>None of the community contacts queried for this assessment identified any strong cultural concerns about the proposed project. However, study participants expressed a few concerns and, in some cases, made suggestions regarding the planting plan for the proposed project. Community contacts:</p> <ul style="list-style-type: none"> <li>• Cautioned against taking out the ironwood trees (<i>Casuarina</i> spp.) in the project area before native replacement trees are well-established, as the trees provide a windbreak and shade for the Wedge-tailed Shearwaters that nest in the rock wall along Lāwa'i Road.</li> <li>• Cautioned against grading or landscaping the project area in a way that could lead to runoff and (further) compromise the health of the watershed.</li> <li>• Expressed concern about the decline of certain native species with ethnobotanical value such as 'ilima (<i>Sida</i> spp.).</li> </ul> <p>Based on the above study results, Cultural Surveys Hawai'i Inc. finds that the proposed project will have minimal impact upon native Hawaiian cultural resources, beliefs and practices, and recommends that the above suggestions be taken into account in the design of the proposed Conservation District project.</p>
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## Section 1 Introduction

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### 1.1 Project Background

Kukui'ula Development Company (Hawaii), LLC has requested that Cultural Surveys Hawai'i Inc. (CSH) conduct a Cultural Impact Assessment (CIA) for an approximately 9.6 acre area located adjacent to and west of Spouting Horn Park within the Conservation District, including the portion of Lāwa'i Road fronting the project area. The project area is identified as Tax Map Keys: (4) 2-6-02: 12; 2-6-03: 3 and 20, and portion of Lāwa'i Road in Lāwa'i Ahupua'a, Kōloa District, on Kaua'i. The project area is depicted in the 1998 USGS series Kōloa Quadrangle (Figure 1), the TMK plat maps (Figures 2 and 3), and an aerial photograph (Figure 4).

The CIA is based on the following improvements which were originally proposed to be undertaken by Kukui'ula Development Company (Hawaii), LLC: 1) removal of the vegetation located in the area *makai* of Lāwa'i Road to the inland edge of the coastal embankment and the *mauka* side of Lāwa'i Road along the existing rock wall fronting the Conservation District improvement area and revegetation with native, endemic and indigenous species; 2) construction of a 3- to 4-foot wide trail to be located within the *makai* portion of the project site, paralleling the coastline. The trail will extend approximately 2,300 feet from the northeastern end of the project site at Lāwa'i Road near Spouting Horn Park to the northwestern end of the site at Lāwa'i Road. Three overlook areas will be provided along the trail; 3) enhancement of the parking areas along the *makai* side of Lāwa'i Road by creating gravel parking stalls; 4) removal of the chain link fence along the *makai* side of Lāwa'i Road; and, 5) preservation of the existing historic trail complex, including a discontinuous trail that traverses the inland edge of the embankment paralleling the coastline, and two rock shelter cave sites located along the coastal cliff within the eastern portion of the project site.

Subsequent to the community consultation and preparation of the CIA, modifications were made to the project which included a reduction in the level of improvements initially proposed (as described in the above paragraph). The modified project improvements include: 1) clearing and removal of the existing alien vegetation within an approximately 2.8-acre area extending along the entire length of the rocky coastal land adjacent to and *makai* of the Lāwa'i Road right-of-way and the existing National Tropical Botanical Garden (NTBG) tram road, and re-vegetation with native, endemic and indigenous species common to the area or Polynesian-introduced. Adjacent to and *makai* of this area, selective vegetation removal of large invasive species is proposed within an approximately 3.0-acre area of the rocky coastal land and the area *mauka* of the NTBG tram road; 2) development of a 4 to 8-foot wide turfgrass pedestrian trail along the *makai* side of the Lāwa'i Road right-of-way, extending a distance of approximately 1,700 linear feet west of Spouting Horn Park, with the potential option of converting the trail into a granular trail in the future; 3) enhancement of the parking areas along the *makai* side of Lāwa'i Road by creating gravel parking stalls; 4) removal of the chain link fence along the *makai* side of Lāwa'i Road; 5) the mowing and maintaining of existing vegetation within the *mauka* side of the Lāwa'i Road right-of-way; 6) the resurfacing of approximately 700 linear feet of the existing NTBG tram road and installation of boulder barriers along an approximately 200 linear-foot

segment on the *makai* side of the tram road for safety purposes; and 7) preservation of the existing coastal trail complex, including a discontinuous trail that traverses along the inland edge of the embankment paralleling the coastline, and two rock shelter cave sites located along the coastal cliff within the eastern portion of the project site.

Generally, if substantive changes are made to a development plan, CSH re-contacts cultural consultation participants to inform them about the project changes and to invite further comment for a revised CIA. In the case of the proposed project, CSH has determined that it is not necessary to re-open the community consultation component of the CIA for the following reasons: 1) the scope and modified improvements of the project have not substantially changed and have, in fact, been reduced; 2) the project area boundaries remain unchanged; and 3) the project was well-received by the CIA study participants and did not raise any substantial cultural concerns (although a few participants made minor suggestions regarding the removal of alien plant species and re-vegetation with native species aspect of the proposed plan) (see Appendix B: letter to Kukui'ula Development Company (Hawaii), LLC).

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 traditional cultural practices. At the request of Kukui'ula Development Company (Hawai'i), LLC, CSH undertook this cultural impact assessment. It provides information pertinent to the assessment of the proposed project's cultural impacts [per HRS Chapter 343 and the Office of Environmental Quality's (OEQC) *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.

## 1.2 Scope of Work

The scope for the cultural impact assessment includes:

1. Examination of historical documents, Land Commission Awards, and historic maps 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 the existing archaeological information pertaining to the sites on the property as they may allow us to reconstruct traditional land use activities and identify and describe the cultural resources, practices and beliefs associated with the parcel and identify present uses, if appropriate.
3. Interviews with persons knowledgeable about the historic and traditional practices in the project area and region.
4. Preparation of a report on items 1-3 summarizing the information gathered related to traditional practices and land use. The report will assess the impact of the proposed action on the cultural practices and features identified.



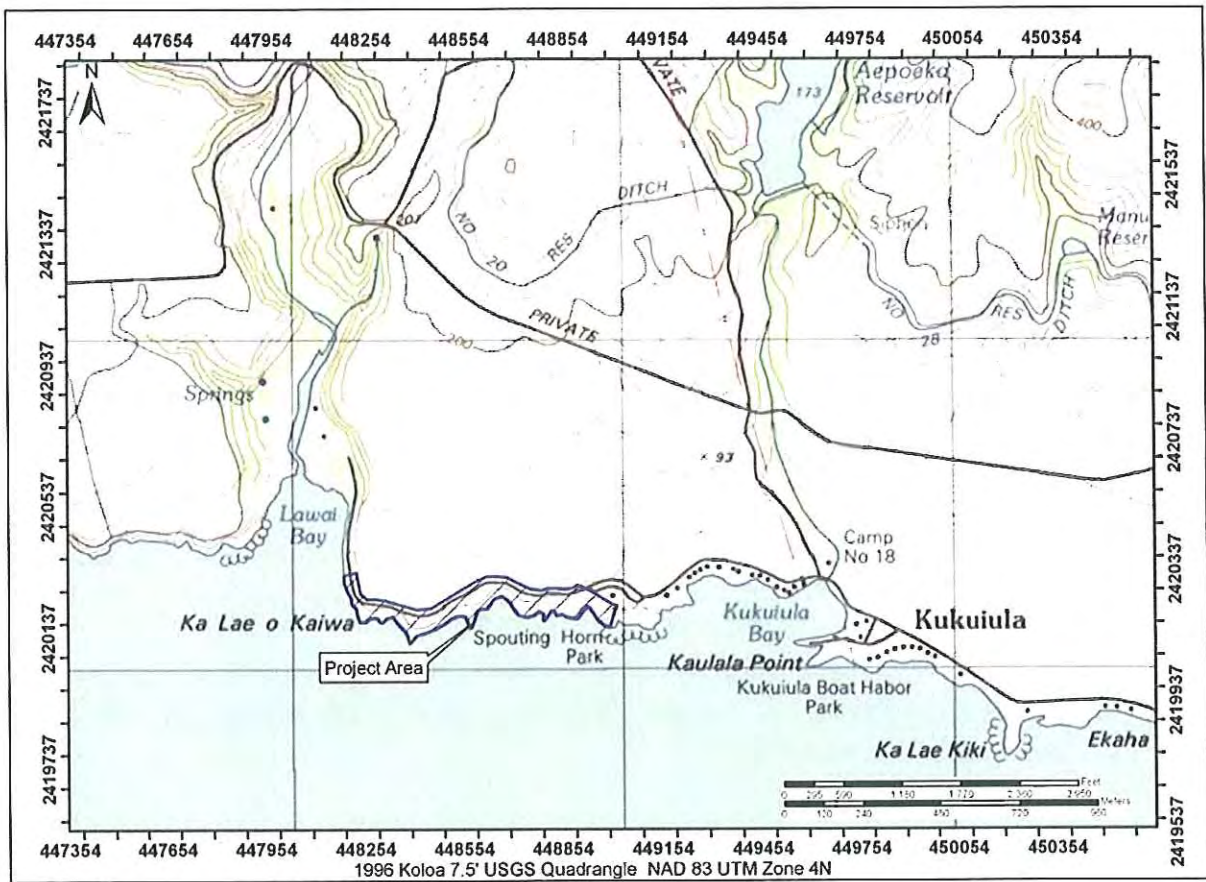


Figure 1. 1998 USGS series Kōloa Quadrangle map showing the location of the project area.

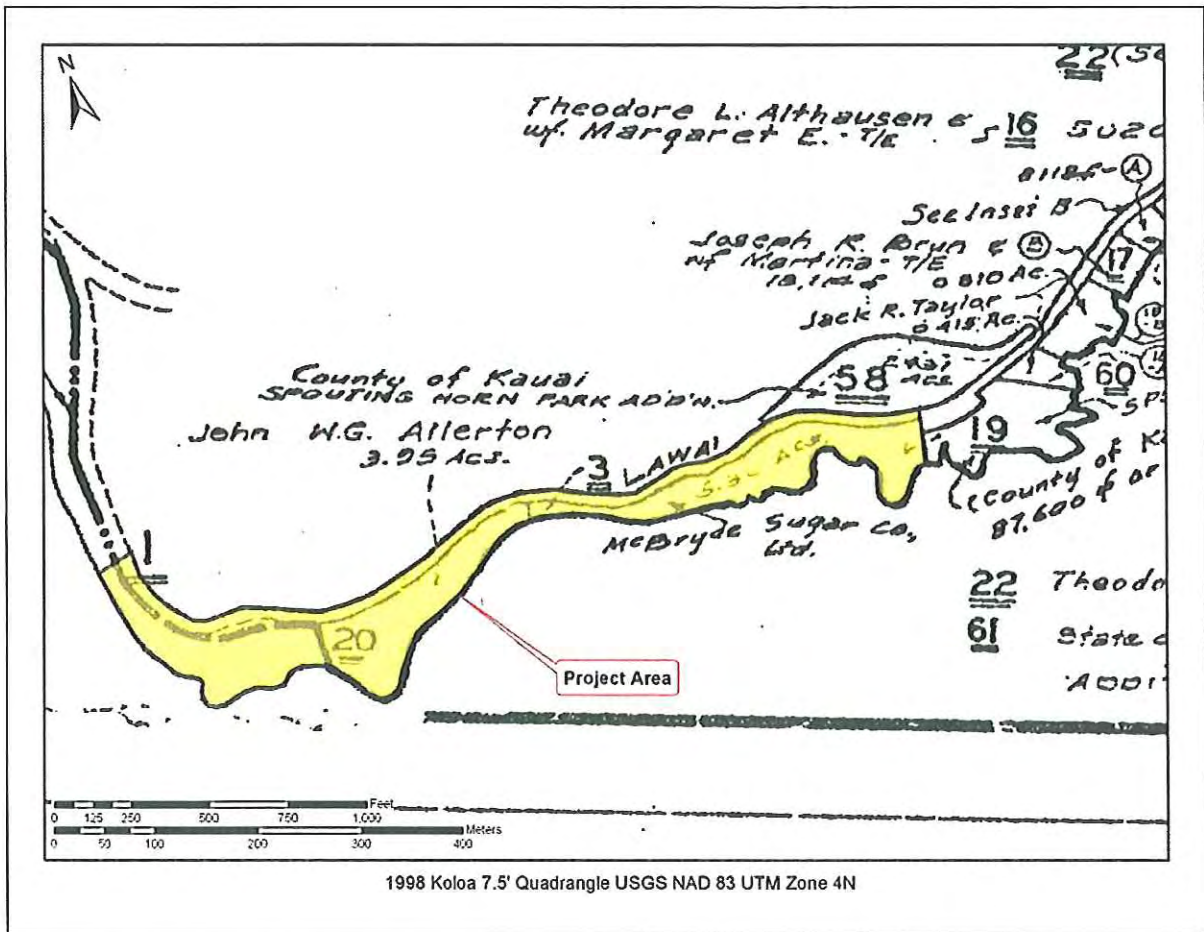


Figure 2. Tax Map Key plat map (4) 2-6-003: 003, 020 and portion of Lāwa'i Road showing the location of the project area.

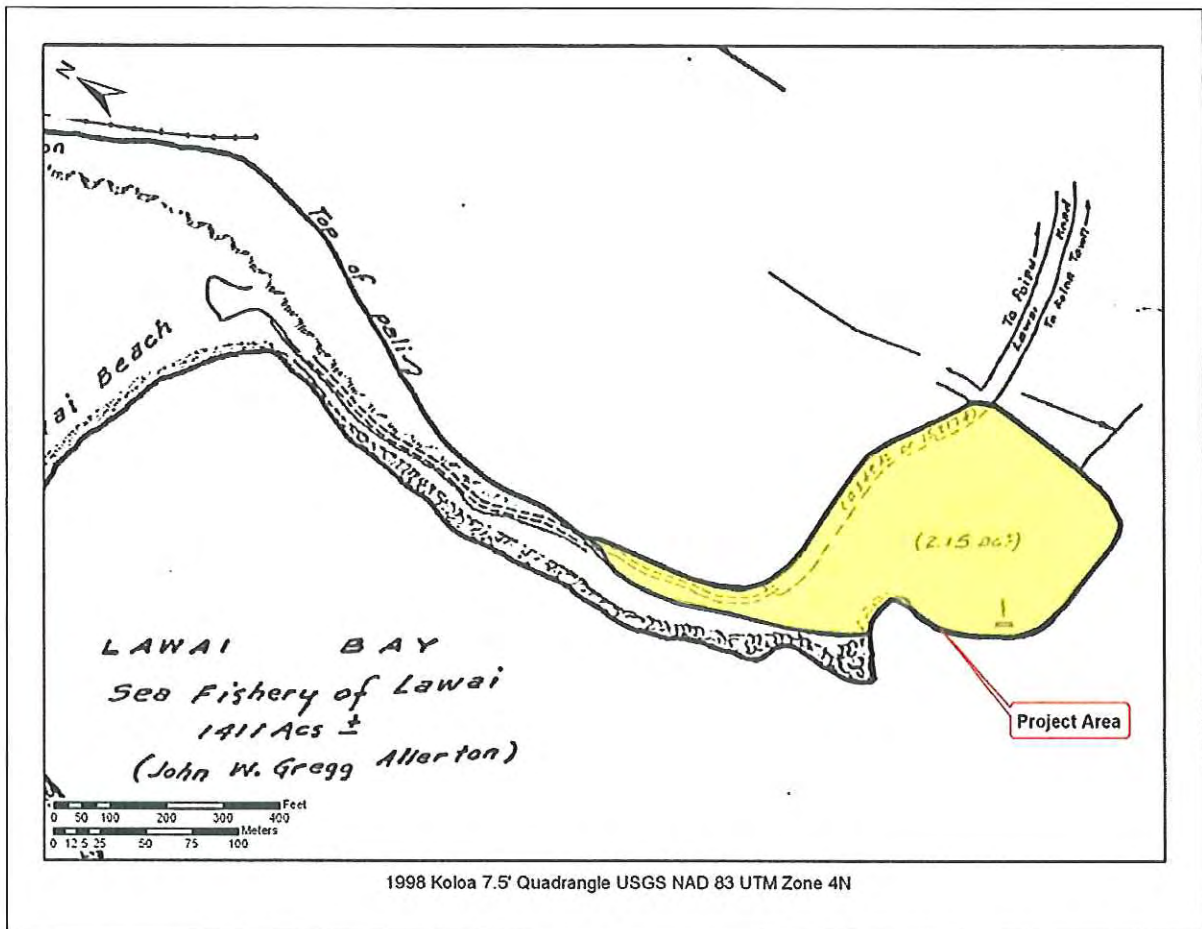


Figure 3. Tax Map Key plat map (4) 2-6-002: 012 showing the location of the project area.



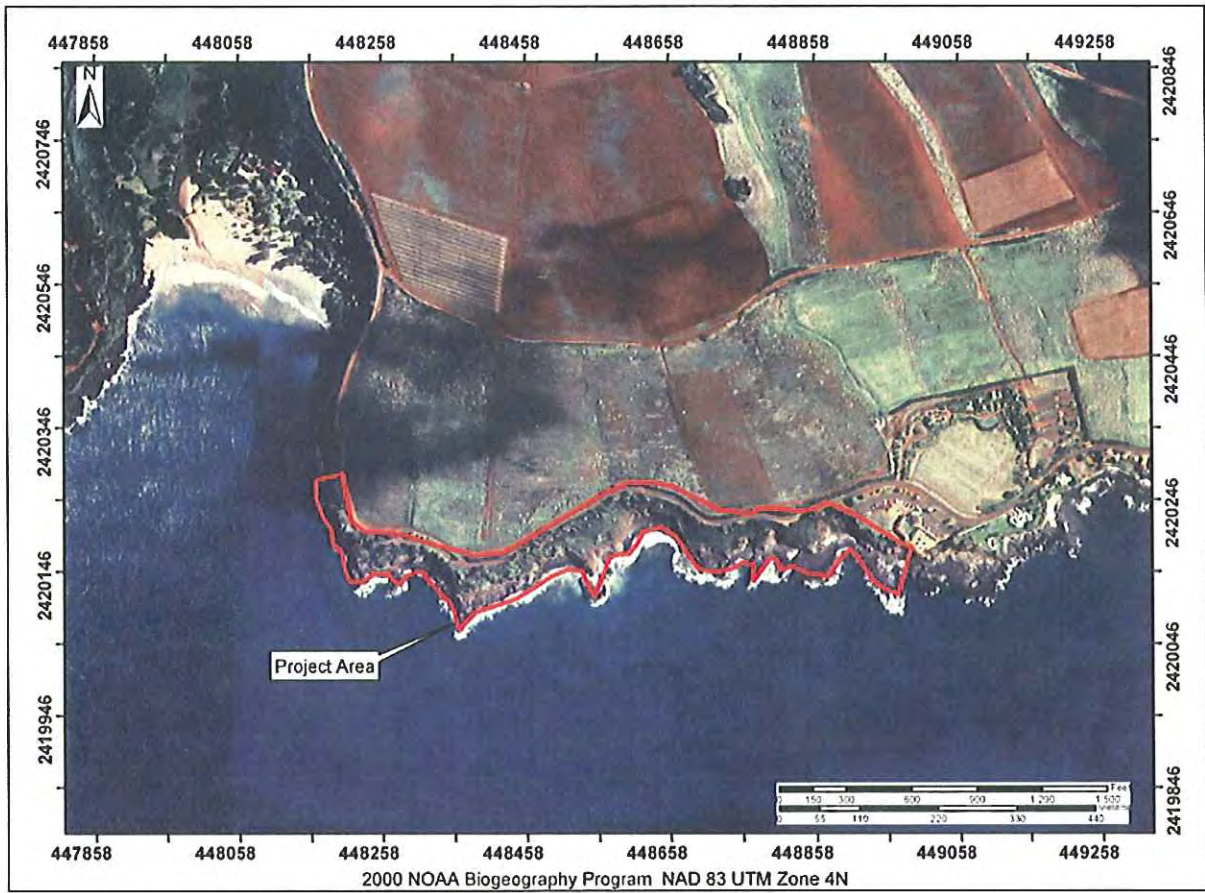


Figure 4. Aerial photograph showing Lāwa'i Bay, the project area and surrounding fields.

### 1.3 Environmental Setting

The project area includes a variety of vegetation almost entirely comprised of alien species. Thickets of *pānini* or prickly pear cactus (*Opuntia ficus-indica*), *koa haole* (*Leucaena leucocephala*) and the pencil tree (*Euphorbia tirucalli* L.) are predominant. Other common species include grasses, thick clumps of low or stunted sisal plants (*Agave sisalana*), and *Rhipsalis cereoides*, a type of angular cactus. Along the coastline there are ironwood trees (*Casuarina* spp.). The proposed project area as well as the site covered in the prior cultural impact assessment (Mitchell and Hammatt 2006) is one of the few remaining coastal nesting areas for indigenous Wedge-tailed Shearwaters (*Puffinus pacificus chlororhynchus*). In the spring months the birds nest in the rock wall along Lāwa'i Road. The ironwood trees provide shearwater nests protection from the wind.

Elevations in the project area range from sea level to 64 feet a.m.s.l.. The soils in the project area are part of the Waikomo series, and are all rocky outcropping (rRO) (Foote *et al.* 1972; Kaua'i Island, Sheet 24). Rainfall averages 30 to 40 inches per year (Armstrong 1973:56). The bedrock is composed of massive flows of *pāhoehoe*, of the post-erosional Kōloa Volcanic Series, which date to the Pleistocene (McDonald and Abbott, 1970:387-388). Average temperatures range from 60 to 84 degrees Fahrenheit (Foote *et al.* 1972: 58).

Modern pedestrian use along the shore is not frequent because the area is steep and rocky, although fishermen have long used the area. No development has taken place on this rocky cliff side other than that associated with the creation and maintenance of the National Tropical Botanical Garden (NTBG) tram road along the *mauka* edge of the project area. This road is used by the NTBG to access the Lāwa'i Valley.



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## Section 2 Methods

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Numerous published and unpublished accounts, surveys, reports, maps and photographs found in public and private collections pertaining to Lāwa'i Ahupua'a and the project area were investigated by Cultural Surveys Hawai'i Inc. 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 library, Cultural Surveys Hawai'i Library, The National Tropical Botanical Gardens Library and the University of Hawai'i's Hamilton Library. The Office of Hawaiian Affairs, Kaua'i/Ni'ihau Islands Burial Council, and members of other community organizations were contacted in order to identify potentially knowledgeable individuals with cultural expertise and/or knowledge of the study area and the surrounding vicinity. The names of potential community contacts were also provided by colleagues at CSH and from the researcher's familiarity of the families who frequent the area. 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 the following section on "Community Consultations". Please refer to (Table 3) for a complete list of individuals and organizations contacted.

## Section 3 Traditional Legends of Lāwa'i Ahupua'a

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The *ahupua'a* of Lāwa'i is bounded by the *ahupua'a* of Kōloa on the east, Kalāheo on the west, the ocean on the south, and the Līhue-Kōloa Forest Reserve on the north. The west side of the valley is framed by high cliffs, as is the river flood plain. The eastern boundary between Lāwa'i and Kōloa is across gently sloping terrain with no natural landscape boundary. Most of the Lāwa'i shoreline is high cliff, including the majority of the project area, except for Lāwa'i Kai beach.

### 3.1 Legendary Lāwa'i

Eric Knudsen tells the following tale told to him by a Hawaiian fisherman near Spouting Horn (located immediately east of, and adjacent to, the project area). A giant *mo'o* (lizard) named Lehu, accompanied by two sisters, swam from Tahiti. The two sister *mo'o* were tired out by the time they reached Ni'ihau and went to sleep on the beach there and became stones. Lehu continued on to Kaua'i and landed at Lāwa'i Beach. After recovering his strength he went over to Kōloa, and his favorite spot was the junction of the Pō'ele'ele and 'Ōma'o Rivers. Years later he swam over to Ni'ihau to visit his two sisters but found they were dead, so he swam back to Kaua'i. As he swam along the shore he became fascinated by the fountains of the Spouting Horn. As he explored the lava tube he got caught and couldn't back out. Supposedly now every time a wave rushes in and wets him all over, he growls and hisses. The Hawaiian fisherman said the lava was too hard for the Hawaiians of long ago to allow them to free him and now, using dynamite would only kill him, so he's doomed to stay there forever (Knudsen and Noble 1945:210-211).

A legend is told about a large boulder the outline of which can be seen in the center of a stream, in Lāwa'i (possibly, Lāwa'i Stream). One account tells of the body of Hina who, after being "ardently pursued," jumped into the water and was immediately turned into stone. According to this legend, the rock was *kapu* (sacred) to women only, and the women of the district would stand on the stone to have their "romantic desires" granted (Forbes 1970:2).

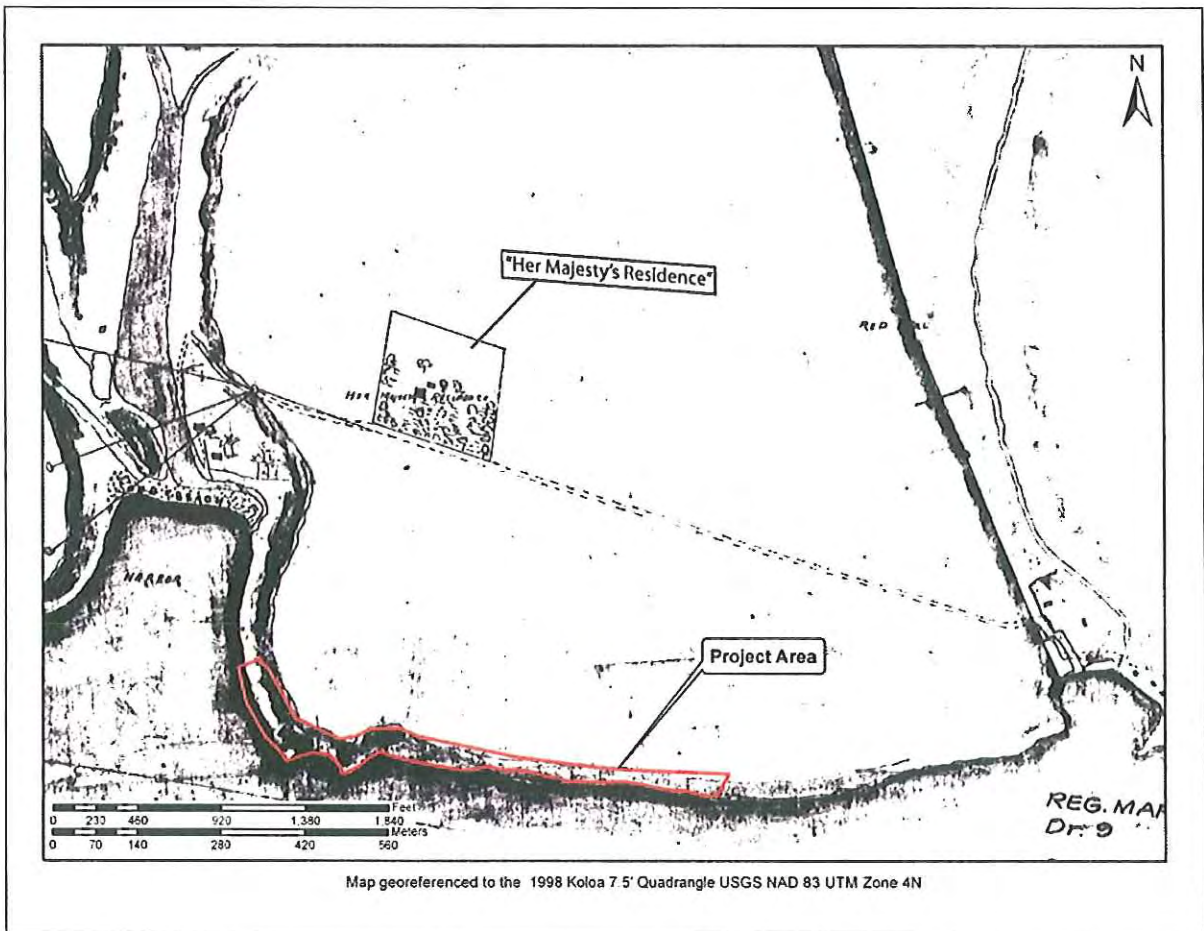


Figure 5. James W. Gay map dated 1873 of Lāwa'i as it appeared during Queen Emma's ownership showing the location of the project area.

Another tale appeared in the 1997 *Honolulu Advertiser*. Mrs. Betty Snowden, whose family had lived in Lāwa'i Kai for over 200 years, recounts the story of the Menehune:

One night, as he sat on the hill watching the people in the valley, the chief of the Menehune overheard Manu and his father discussing the need to build a wall in the stream. Manu's father wanted him to spend the next few days helping with the project.

But Manu and his friends had planned a fishing trip to Ni'ihau and he wasn't happy about the thought of being left behind. Yet, he certainly couldn't ignore his father's request to help. Maybe if he began right away, starting a rock pile...

Manu threw himself into the task. He was so busy that he didn't see the Chief of the Menehune until the Chief came right behind him and tugged at his clothing. The Chief made an offer that would benefit them both.

For two *pu'olo*, or bundles of shrimp the size of two large coconuts, the Menehune would build a wall for Manu and his family.

Manu agreed. For the next two days he surfed, fished and swam with his friends. On the second day he watched the sun setting in the west before he realized that he needed to catch *opae*. He rushed over to the stream and tried to catch as many shrimp as he could before it got too dark to see but he only collected one bundle full.

That's OK, he thought. It's a large bundle and so that should be enough. He placed the shrimp at the promised location.

That night, the moon rose full and the Menehune crept down the valley. They worked most of the night to build the stone wall in the stream.

When Manu and his family awoke the next morning they found half a wall standing. The Menehune had built only half a stone wall because they had received only half the promised *opae* (Snowden 1997: B1)

Betty Snowden concludes her article with the comment that one can still see the neat, perfectly made half-wall built by the Menehune of Lāwa'i Kai at the edge of the stream in Lāwa'i Valley.

## Section 4 Traditional and Historic Background

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### 4.1 Pre-contact to Early 1800s

In the period A.D. 1400-1650, in nearby Kōloa, 40% of the known carbon dates obtained straddle the end of the fifteenth century. This seeming burst of activity may have been associated with the ruling chief Manokalanipō-a-Kaua'i, who ruled Kaua'i circa 1490 to 1510 (Hommon 1976:133, 304). Manokalanipō "was noted for the energy and wisdom with which he encouraged agriculture and industry, executed long and difficult works of irrigation, and thus brought fields of wilderness under cultivation... and it is remembered in the legends as the golden age of that island" (Fornander 1969:93). It is likely that Lāwa'i was inhabited and tilled before the neighboring Kōloa field system was developed, as it is a typical traditional valley setting with habitation sites on or near the narrow beach and the taro *lo'i* along the flood plain.

During the pre-contact era, *heiau* or religious temples are known to have existed, as well as special stones, taro fields, a fishpond, petroglyphs and caves that are remnants of that time. C.S. Handy was told that on Kaua'i the favored places for coconuts were Kōloa and Lāwa'i (Handy 1940:193).

According to Kikuchi (1963:39) the name "*lāwa'i*" means "the day to end the fishing tapu." Others believe the name Lāwa'i comes from "*lawa a'i*" which means "plenty to eat" or "valley of plenty" (Allerton 1972:9). Most of Lāwa'i is a typical but narrow stream valley with an associated flood plain but there is also a large table land on the east side of the *ahupua'a*, which is where the project area lies at the shoreline end of the table lands. Pre-contact era Lāwa'i was likely a highly productive *ahupua'a* with special resources. The value of the area is also indicated by the *Māhele* and *kuleana* awards (1847-1853) in that the land was awarded to *ali'i* or chief, James Young Kanehoa, son of John Young (Kame'eleihiwa 1992).

### 4.2 1800 to 1875 (*Māhele*, *kuleana*, and Boundary Commission documents)

The Organic Acts of 1845 and 1846 initiated the process of the *Māhele* - the division of Hawaiian lands - that introduced private property into Hawaiian society. In 1848, the crown and the *ali'i* (royalty) received their land titles. *Kuleana* awards to commoners for individual parcels within the *ahupua'a* were subsequently granted in 1850. It is in the *kuleana* claims and awards that we find the documentary descriptions of the traditional land use for Lāwa'i. In these claims, the people living on the land described their activities and where they cultivated. There were 13 claims and 10 awards. The pattern of these claims is for a flood plain landscape with most claimants indicating they have taro *lo'i* (pond field) and a few also have *kula* (dry land field). One claimant notes he had coconut, *kou* (*Cordia subcordata*, used for making cups, dishes, and calabashes), breadfruit, and banana trees (Table 1).

In the period of the *Māhele* and *kuleana* Claims (1848-1853), the *ahupua'a* of Lāwa'i was granted to James Young Kanehoa in a *Māhele* Award (M.A. 43). James Young Kanehoa was the



son of John Young (the first foreign advisor to King Kamehameha I) and his first wife, Nāmokuelua. When Kanehoa died in 1851 he bequeathed his land of Lāwa'i, Kaua'i to "my married wife Hikoni," and in a second will written a week later he bequeaths to his niece, Emma (daughter of his half sister Fanny Kekelaokalani Young), one-third of Lāwa'i and two-thirds of Lāwa'i to George Davis (Junior, son of George Hueu Davis). The Court refused both wills and John Young Jr. was appointed administrator of the estate (Barrère 1994:245-247). John Young's widow Hikoni received the land.

Kanehoa was the uncle of Queen Emma, wife of Alexander Liholiho, King Kamehameha IV. In 1856 the king and queen arrived in Kōloa and stayed for three days during a royal tour of the Hawaiian Kingdom. The royal party visited Spouting Horn (located east of the project area). Emma loved the valley, and Hikoni deeded the entire *ahupua'a* to her. Hikoni also built a cottage next to her home for Emma's use. In 1871, after her husband's death, Emma came to live in the cottage, which was located approximately one kilometer north of the project area (Figures 5, 6 and 7). In 1872 Emma returned to Honolulu at the request of King Kamehameha V (Donohugh 2001: 270).

Most of the awarded *kuleana* claims are along Lāwa'i Stream. In the lower valley there are at least five, and two of the five (3414 and 3417) have house lots at the shore. The 9188 claim states that there were 9 *lo'i* on the west side that now have no taro in them because it was all taken away by the flood (probably the great flash flood of 1846). Old maps also show a fish pond on the flood plain near the shore.

The Boundary Commission record of 1873 indicates there was a dispute about the boundaries near the sea beach. But "the small piece of rocky land claimed by Lāwa'i near the beach point more than compensates for the latter land gained *mauka* or the uplands" and the commissioners advised the Crown commissioners to accept the boundary as pointed out. The *kama'āina* or native-born used by James Gay to point out the boundaries was Mokuiki (LCA 3315). The boundary commission record notes the existence of many named rocks; and a second stream, called Halu'ōpae; a large hole in the ground (or lava tube) called Koakaiinahoā; and on the eastern boundary *mauka* of Aepo stream another large hole, called Kapeleulo; and farther up are two more holes, one called Pu'uakamailii, and one called Namahana ([www.waihona.com](http://www.waihona.com)). There is no mention of caves or lava tubes in this record, but it is possible some of these "holes" were entrances to caves.

Table 1. Land Commission Award (LCA) Claims in Lāwa'i

Land Commission Award #	Claimant	Land Use and 'ili	Landscape Features	Area
M.Aw. 43 & 8518B not awarded	James Young Kanehoa			ahupua'a
3266	Luka	Keana, Kapapao; 'āina <i>wewewu</i> (grasslands), <i>kula</i> , house lot planted coconut, <i>kou</i> , breadfruit and banana trees, stone walled enclosure		Not awarded, Luka <i>Konohiki</i> , land belonged to Kanehoa
3315	Mokuiki	Kahee; 3 <i>lo'i</i> , <i>kula</i> , and house lot		Not awarded, moved to O'ahu
3414	Peui, Keui, Levi, Revi	Papakea; 2 <i>lo'i</i> , <i>kula</i> and house lot	Papakea <i>pali</i> , <i>muliwai</i> of Lāwa'i sand beach and <i>pali</i> , and <i>pāhale</i> of Kuahewa or Niuhiwa	2 'āp.; 0.75 Ac. 24 rods
3417	Pehuiki, Pahuiki	Papakea; 3 <i>lo'i</i> house lot on shore	Papakea <i>pali</i> , <i>muliwai</i> of Lāwa'i sand beach and <i>pali</i>	2 'āp.; 0.9 Ac.
3612	Kahookahi	Kaohe; 12 <i>lo'i</i> and <i>kula</i>	Lāwa'i stream, Kumuokalani <i>pali</i> , <i>kuamano</i>	1 'āp.; 4 Acs 1 rod
3616	Kapulu	Kukuimokoi; 8 <i>lo'i</i> and small <i>kula</i> & house lot	<i>pali</i> , 'auwai and <i>lo'i</i> <i>pō'alima</i>	1 'āp.; 2 rods 30 rods
6570	Awahua	Peapeakuakua; 20 <i>lo'i</i> <i>kula</i> and house lot	road, Lāwa'i Stream	1 'āp.; 4 Acs 1 rod 20 rods
8054	Ehu	Haia; 12 <i>lo'i</i> and <i>kula</i> (lived there)	Makakii <i>pali</i> and Lāwa'i Stream	1 'āp.; p 1 Ac. 3 rods
8518B	Kanehoa, J. Y.	Ahupua'a		See Mahele Award 43
9188	Kamakahookahi	Papakea; 6 <i>lo'i</i> , house lot and <i>kula</i> , pig enclosure	Papakea <i>pali</i> , brook, Kaniohia <i>pali</i>	1 'āp.; 1.5 Ac. 17 rods
10675	Pueania	Hapaiehu, 23 <i>lo'i</i> ; a <i>lihi</i> with <i>kula</i> house lot	stream, <i>pali</i>	1 'āp.; 1 Ac. 36 rods

<b>Land Commission Award #</b>	<b>Claimant</b>	<b>Land Use and 'ili</b>	<b>Landscape Features</b>	<b>Area</b>
10675B	Saletiela	Hapaiehu; 5 large <i>lo'i</i> & house lot	Lāwa'i Stream, on north near the falls	1 <i>'āp.</i> 2.5 Acs

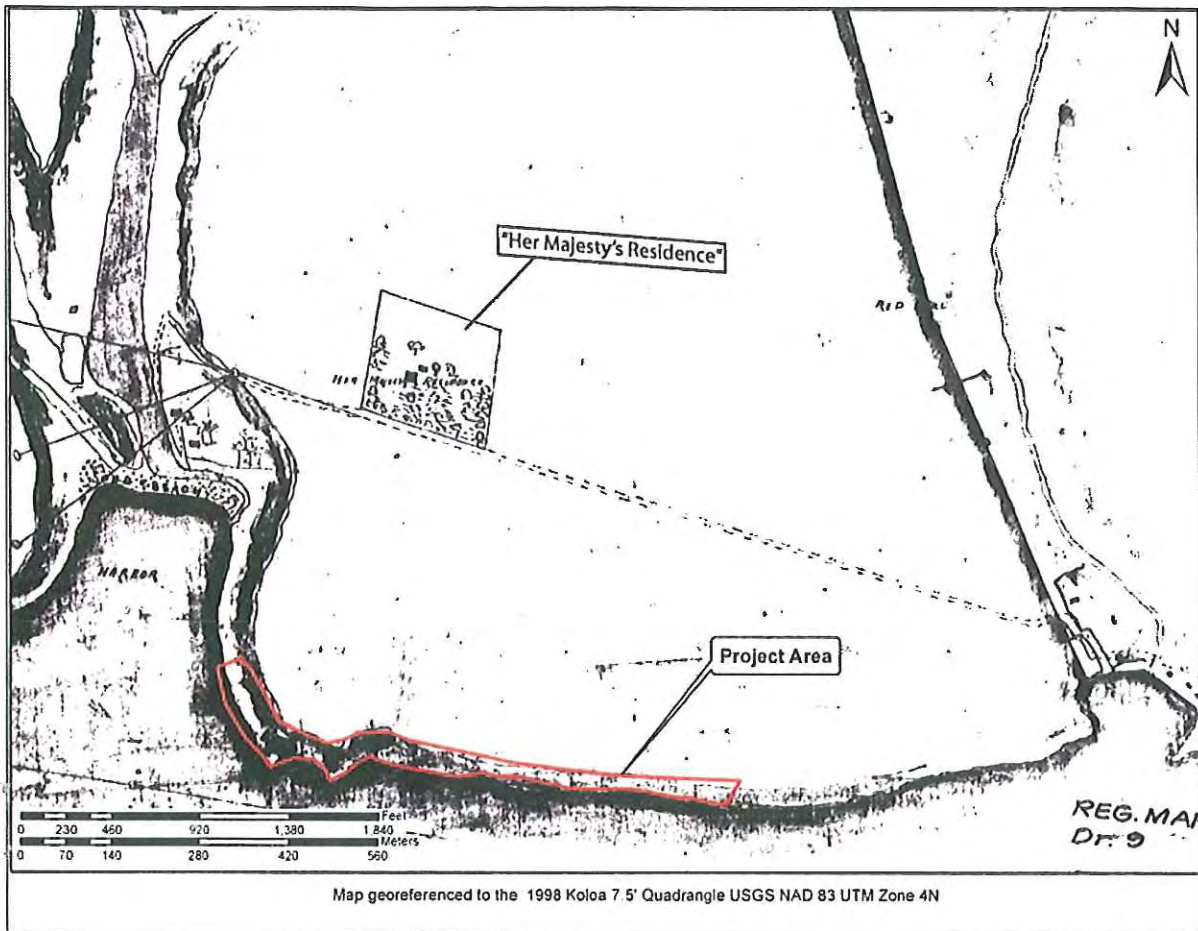


Figure 6. Portion of plan of Lāwa'i, Kaua'i by James Gay 1872, showing project area and "Her Majesty's Residence"

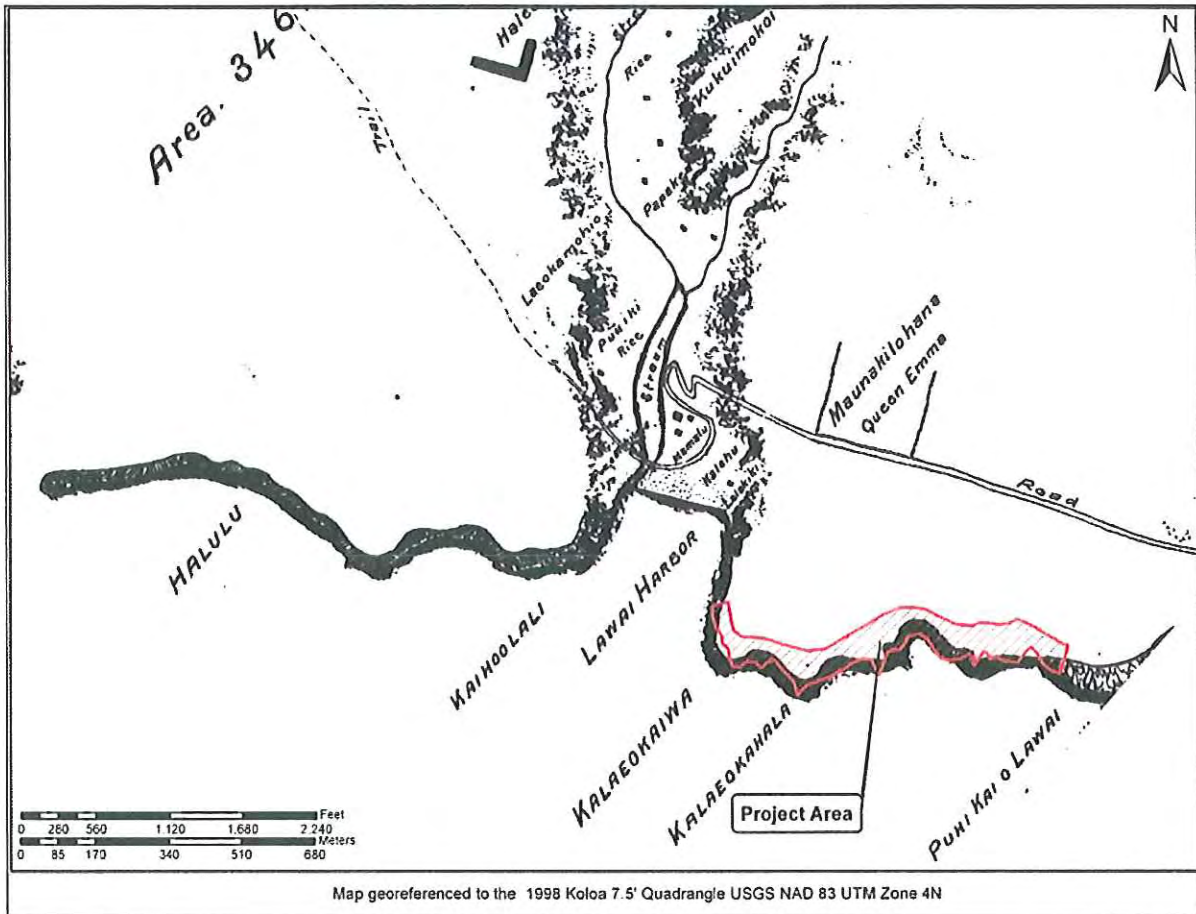


Figure 7. 1896 map by Monsaratt showing the location of the project area and Queen Emma's house.



### 4.3 Queen Emma in Lāwa'i

As noted above, the *ahupua'a* of Lāwa'i was granted to James Young Kanehoa at the mid-19th century *Māhele*. Following Kanehoa's death in 1851, the *ahupua'a* was inherited by his widow, Hikoni. Kanehoa was the uncle of Queen Emma, wife of Alexander Liholiho, King Kamehameha IV (Figure 8 and 9). According to the author, David Forbes (1970) it was in the summer of 1856 that Queen Emma first saw Lāwa'i. The royal party stayed in Kōloa for three days, taking in the sights which included the Kōloa Sugar Mill, the Spouting Horn, and possibly Lāwa'i, for one of the queens letters mentioned visiting her aunt Hikoni (Forbes 1970:3).

In 1870s, following Liholiho's death in 1863, the Dowager Queen Emma had a residence built for herself in Lāwa'i Ahupua'a, on a bluff east of Lāwa'i-Kai. Queen Emma's stay at Lāwa'i in the winter and spring of 1871, was a happy interlude in her life, and fortunately one about which a good deal is known, for many of the queen's letters of the period survive.

A map of 1872 indicated that the residence was located *makua* of the project area (Figure 6). The queen and her party arrived at Kōloa Landing on December 21, 1870, intending to reside at her Lāwa'i house until the spring of 1871. The queen described her arrival at Kōloa and the journey to her residence in a letter of December 31 to King Kamehameha V:

We arrived late in the afternoon last Thursday & had to ride over two miles before we reached this place. The schooner left that same evening & even if I had the time, there is nothing to tell you about but your Majesty will I am sure understand how much I am gratefull [*sic*] for your kindness in sending me free of expense down here.

The house we are in is one by itself for a couple of miles around, rather lonesome I fear for some. (In Forbes 1970:4)

David Forbes describes the Lāwa'i lands surrounding the queen's residence:

...lonesome indeed it must have appeared to many of her party. The house that they were getting settled in stood on the bluff above Lāwa'i-Kai. A large square frame house with a thatch roof, and with several outbuildings enclosed by a stone wall, with only a few struggling trees for shade, the house must have indeed seemed desolate to those accustomed to Honolulu. The surrounding area was an arid, stony pasture, suitable only for grazing. (Forbes 1970:4)

An historic photograph of Queen Emma's house at Lāwa'i confirms that, in the late 19th century and before the introduction of sugar cane, the area was indeed an arid, stony pasture (Figure 10).

The stay at Lāwa'i came to an end in April 19, 1871. Word had come from Honolulu that the British ship H.M.S. Zealous would be arriving towards the end of April, and Kamehameha V evidently wished for the Queen to return for official duties (Forbes 1970:12).



Figure 8. Her Majesty Queen Emma, photograph courtesy of the Bishop Museum



Figure 9. His Majesty Alexander Liholiho, King Kamehameha IV, photograph courtesy of the Bishop Museum



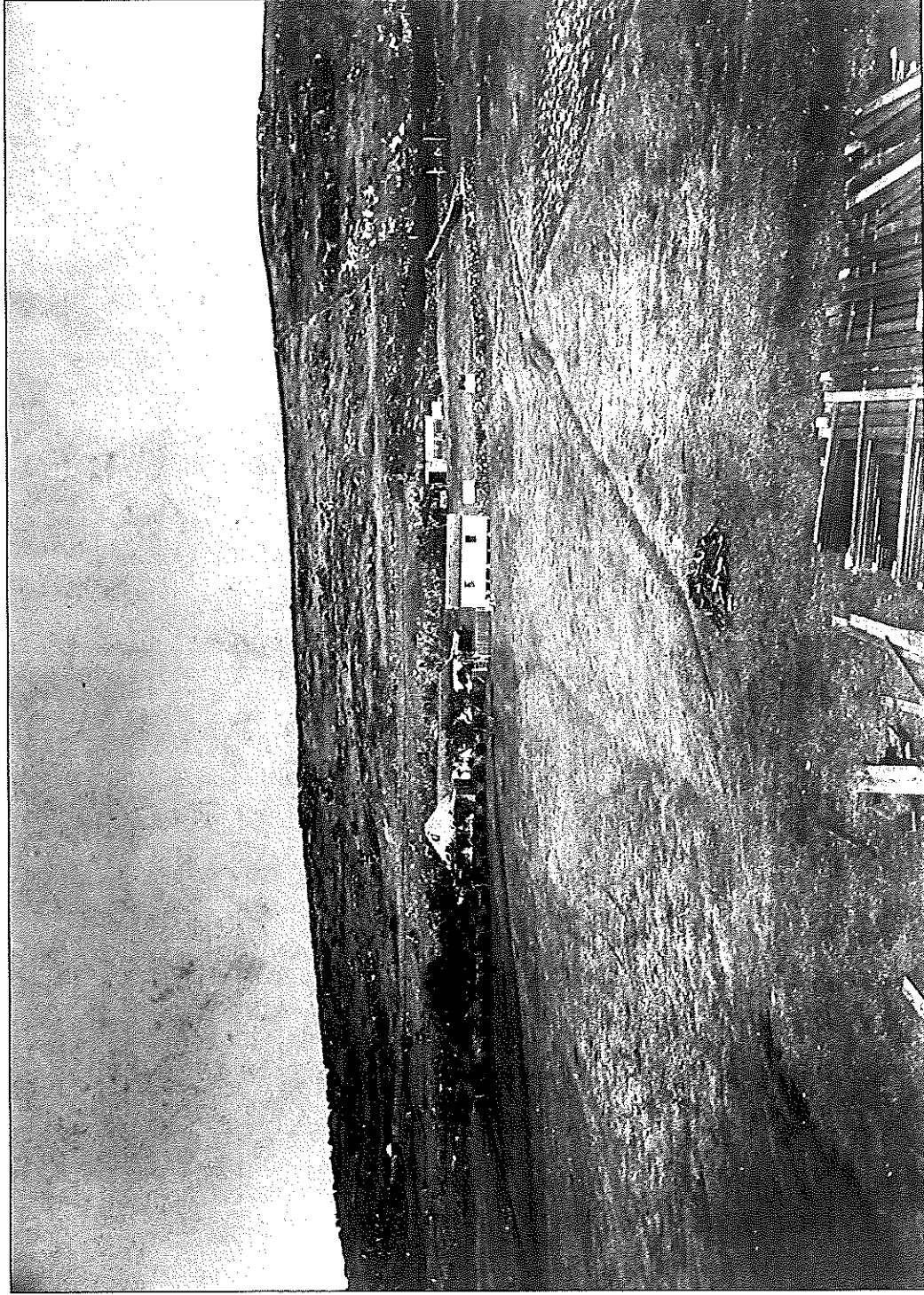


Figure 10. Photograph showing Queen Emma's house, "Mauna Kilohana" with its thatched roof in 1873, photograph courtesy of Bishop Museum

Cultural Impact Assessment for a Conservation District Project west of Spouting Horn Park in Lāwa'i Ahupua'a, Kōloa District, Kaua'i Island

TMK [4] 2-6-02: 12; 2-6-03: 3 and 20. and portion of Lāwa'i Road

## 4.4 1876 to 1900s

In 1876, Queen Emma leased the land of Lāwa'i to Duncan McBryde for fifteen years, though she reserved a house lot and several acres of taro patch land. In 1886, after the Queen's death, Mrs. Elizabeth McBryde bought the entire *ahupua'a* for \$50,000 (Figure 11). The upper lands were planted to sugar cane, and the valley leased to Chinese rice growers and taro planters. Forbes (1970:14) discusses Alexander McBryde's role in Lāwa'i:

But of all the McBrydes, it was Alexander who had the most affection for Lāwa'i. In 1899, when a family corporation was formed, he was granted the land of Lāwa'i in the lower valley, together with all the fishing rights in the bay. Several years later, when it was decided to plant cane in the area where Mauna Kilohana stood, it was he who rescued a part of this interesting house, and had it painstakingly lowered over the cliffs of Lāwa'i to the valley floor. It was here that he lived, first in the small cottage, and later in a bungalow which has since been torn down.

One of Hawai'i's renowned musicians and composers, Mr. Bill Ali'iloa Lincoln composed "Nani Lāwa'i" describing the beauty surrounding the residence of Alexander McBryde:

<i>Kaua i ka nani a'o Lawa'i</i>	You and I shall see the beauty of Lawa'i
<i>I ka hone a ke kai i ka pu'e'one</i>	Where the sea whispers to the sand dunes
<i>O ka noe mai a ka ua li'ili'i</i>	The light showers come with the mist
<i>Ka pipi'o mai a ke anuenue</i>	And the rainbow arches on high
<i>O ke kani hone a ka leo a ka manu</i>	The voices of the birds are ever sweet
<i>Honehone lua i ka pili o ke ao</i>	Sweetest of all at the break of day
<i>Noho mai Alekana me ka 'olu'olu</i>	A kindly, gracious person is he
<i>Pu'uwai Hamama me ke aloha</i>	This is the end of my song
<i>Ha'ina 'ia mai ana ka Puana</i>	Of Lawa'i, beautiful to see
<i>A he nani Lawa'i i ka'u ike</i>	

(Translated by Mary Pukui in Almeida c.1946)

Mrs. Elizabeth McBryde bought the 12,000 acres in the Kona section of Kaua'i in 1886 and in 1899 her lands along with the McBryde estate joined to form the McBryde Sugar Company, save the 83 acres at the mouth of the Lāwa'i stream. Alexander McBryde, who lived in Lāwa'i valley, where the only access in Queen Emma's day had been by trail down the cliffs, created a road along the shore from "Spouting Horn" by blasting away the *pali* or cliff to make the narrow horse and buggy trail (Allerton 1972). Forbes discusses the McBryde family:

Both McBryde bachelors, Walter and Alexander, were highly regarded by the Hawaiians in the area. Lāwa'i was open to fishermen, and both brothers were



always interested in going on fishing and hunting expeditions in the area. (Forbes 1970:14)

Additionally, the rice being grown in Lāwa'i Valley, along with the establishment of rice plantations along the southern coastal plains of Kaua'i and other parts of the Hawaiian Islands, impelled the large influx of immigrant labor beginning in the later 19th century.



Figure 11. Elizabeth and Alexander McBryde, photograph courtesy of NTBG Library



Figure 12. Alexander McBryde in Queen Emma's Cottage, photograph courtesy of NTBGLibrary



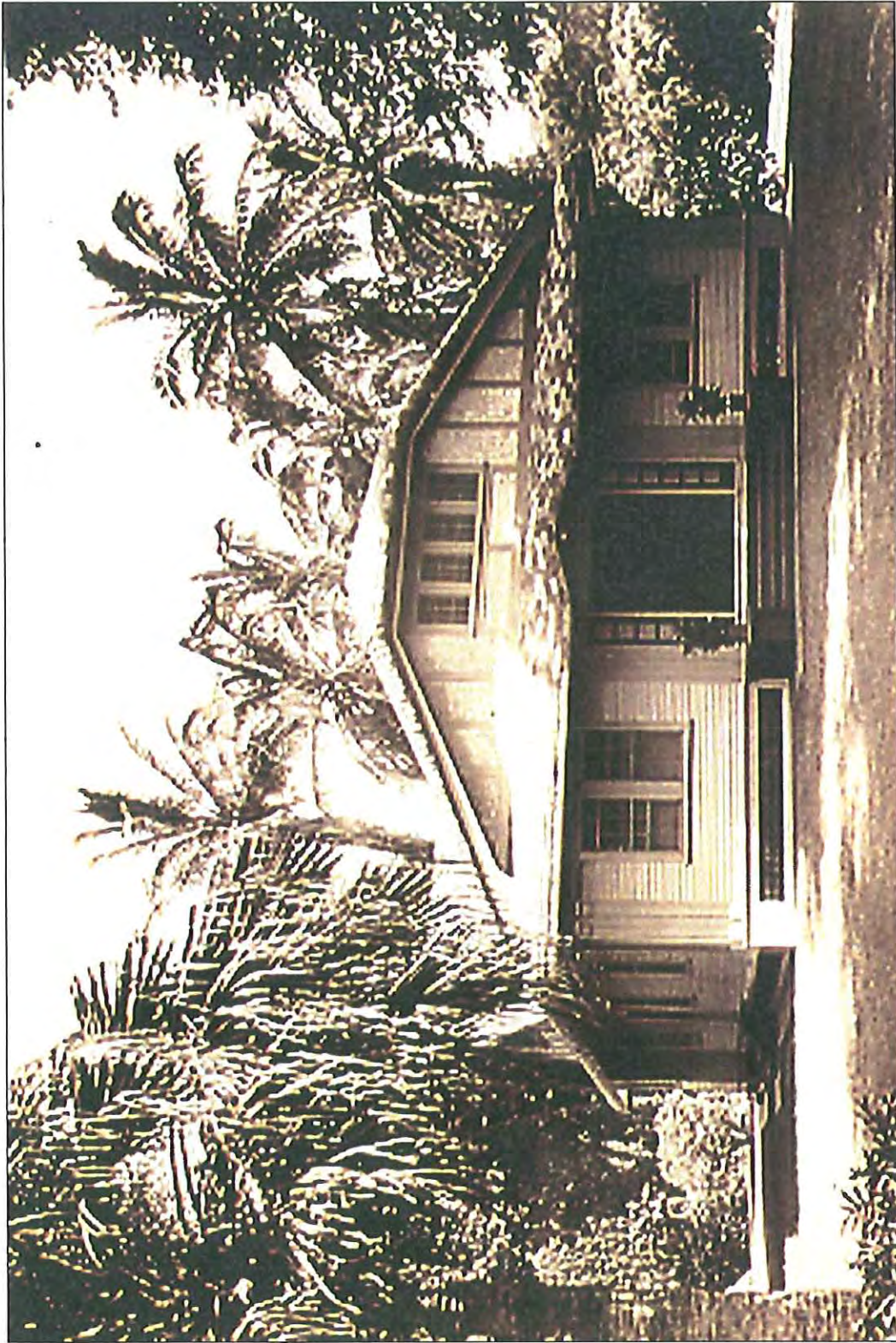


Figure 13. McBryde's House at Lāwa'i Kai, photograph courtesy of NTBG Library

Cultural Impact Assessment for a Conservation District Project west of Spouting Horn Park in Lāwa'i Ahupua'a, Kōloa District, Kaua'i Island

TMK [4] 2-6-02: 12; 2-6-03: 3 and 20, and portion of Lāwa'i Road

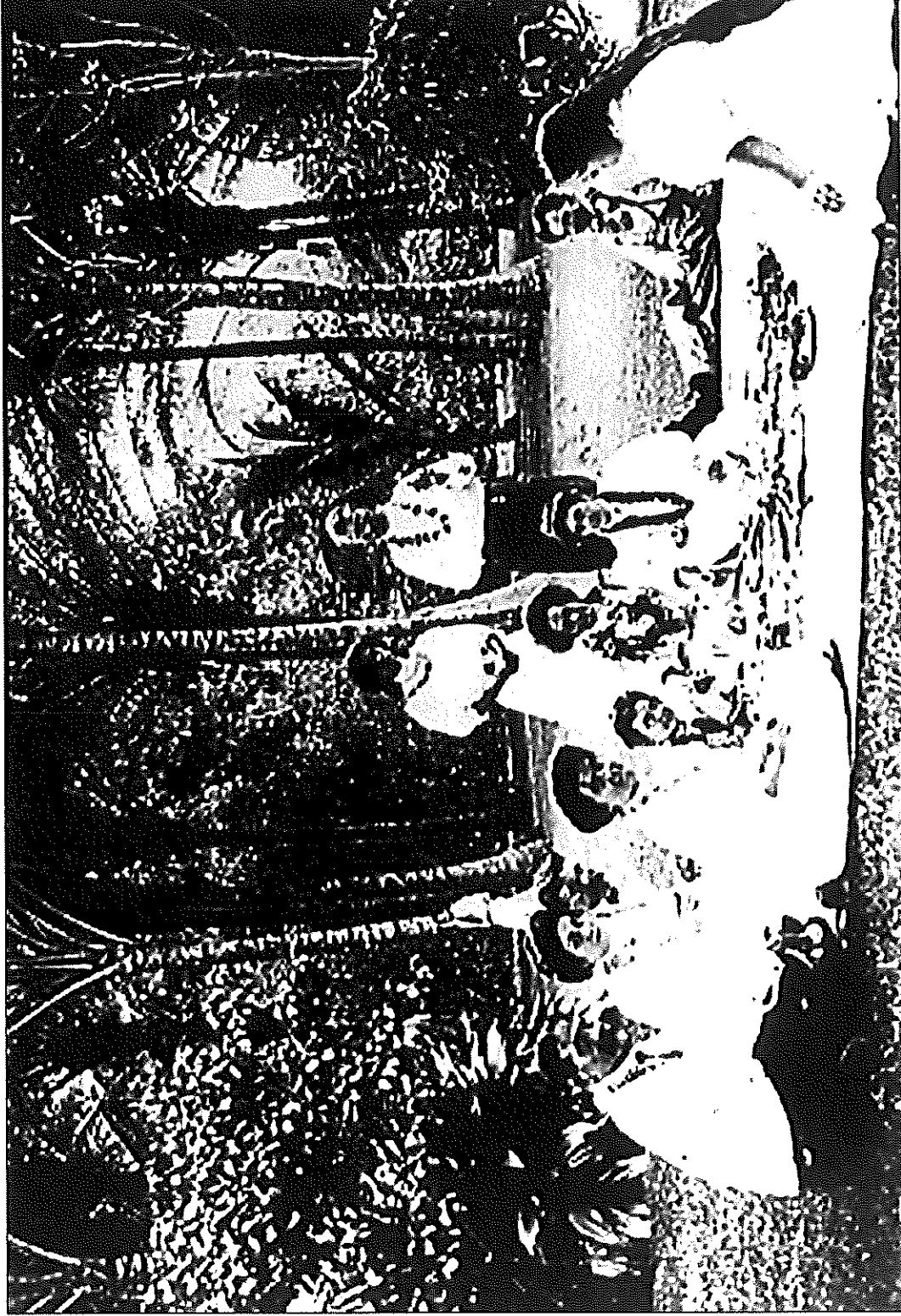


Figure 14. McBryde party at Lāwa'i Kai, photograph courtesy of NTBG Library

Cultural Impact Assessment for a Conservation District Project west of Spouting Horn Park in Lāwa'i Ahupua'a, Kōloa District, Kaua'i Island

TMK [4] 2-6-02; 12; 2-6-03: 3 and 20, and portion of Lāwa'i Road



## 4.5 1900 to Present

The McBryde Sugar Company started its railroad operations in 1899. Expansion of cane fields and plantation rail lines was rapid; by 1903, McBryde had completed rail lines to its Kōloa fields and Kōloa Landing. By 1934 company reports talk about the Lāwa'i Bridge rock fill being completed, so the bridge can be built. As the McBryde Sugar Co. map (Figure 15) shows the Lāwa'i Stream Valley was surrounded east and west by sugar cane lands, and Field 216 lay just *mauka* of the Lāwa'i Road near the project area (Conde and Best 1973). By 1947 all cane-hauling activities were taken over by trucking.

In 1964 Robert Allerton established the Pacific Tropical Botanical Garden. In 1986 this portion became the National Tropical Botanical Gardens. The shoreline project area has never been developed, except for the building of Lāwa'i Road along its northern side, but this area has seen the introduction of many non-native species of plants. It has been used by fishermen, from pre-contact times through the present, although the steep cliffs do not make it an easily accessible area. The trail complex within the project area (site 990) probably relates to historic access from Lāwa'i Kai to the Kōloa Landing area, east of the project area, as well as following a pre-historic trail corridor.



## Section 5 Review of Archaeological Research

### 5.1 Archeological Studies within Lāwa'i Ahupua'a

Table 2 summarizes archaeological work conducted in the *ahupua'a* of Lāwa'i. Archaeological investigations that have been undertaken within the current project area and its surrounding areas are shown in Figure 16. Key studies and finds are discussed further below.

Table 2. Previous Archaeological Studies in Lāwa'i Ahupua'a

Author(s)	Year	Title and Location	Type of Study and Findings
Bennett, Wendell	1931	Lāwa'i Valley, Kukui'ula Valley, Prince Kuhio Park	General Survey; located three <i>heiau</i> , petroglyphs, and stone work.
Handy, E.S. Craighill	1940	The Hawaiian Planter, Kauai	General ethnographic study; describes "few terraces still cultivated in taro" among sugar cane.
Kikuchi, William K.	1963	Archaeological Survey and Excavations on the Island of Kaua'i, Kōloa District, Lāwa'i, Kaua'i, HI	Survey and Excavations; describes seven sites, including caves, two <i>heiau</i> , and a walled area
Spriggs 1984	1984	Field Inspection Report on Previously Unrecorded Site at Mouth of Lāwa'i Valley Kaua'i.	Accidental field check of a beach midden deposit.
Hammatt et al.	1988	Kukui'ula Bay Planned Community	Inventory Survey
McMahon and Fujimoto	1991	Memo/Inventory from Inactive Cemeteries, Yamamoto Family Grave Site, Lāwa'i Odaisan, Lāwa'i, Kōloa, Kaua'i	Inventory Survey; describes grave sites below the former Lāwa'i Odaisan (Church), State Site No. 50-30-10-1865
McMahon, Nancy	1996	Results of Archeological Monitoring and Mappin of Rock Wall [Site 50-30-10-3015] along Lāwa'i Road	Monitoring and Mapping Surface Survey
Hammatt, Hallett H.	1996	Letter Report on Subsurface Testing for the Proposed Location of Queen Emma's Cottage, Lāwa'i Valley	Subsurface Testing; revealed absence of evidence of prehistoric Hawaiian cultural activity at the proposed location of Queen Emma's Cottage (objects encountered were all of recent age)

Author(s)	Year	Title and Location	Type of Study and Findings
Hammatt et al.	1998	Kukui'ula Planned Community Phase I	Data Recovery
Hammatt et al.	1999	Kukui'ula Planned Community Phase II	Data Recovery
Creed et al.	2002	Archaeological Inventory Survey of 11.26 Acre- <i>Makai</i> Lands at Lāwa'i Ahupua'a, Kōloa District, Island of Kaua'i (TMK 2-6-03:1 and 2-6-02: POR. 1)	Inventory Survey within present project area
Esh and Hammatt	2004	Preservation Plan for Sites 50-30-10-990, -3071, and -3072 (TMK: 2-6-03:3, 20 and 2-6-02: por.1)	Preservation Plan
O'Leary and Hammatt	2005	Archaeological Inventory Survey of a 40-foot Wide Corridor Along the Eastern Edge of Lāwa'i Bay, Lāwa'i Ahupua'a, Kōloa District, Kaua'i Island	Inventory Survey adjacent to the present project area

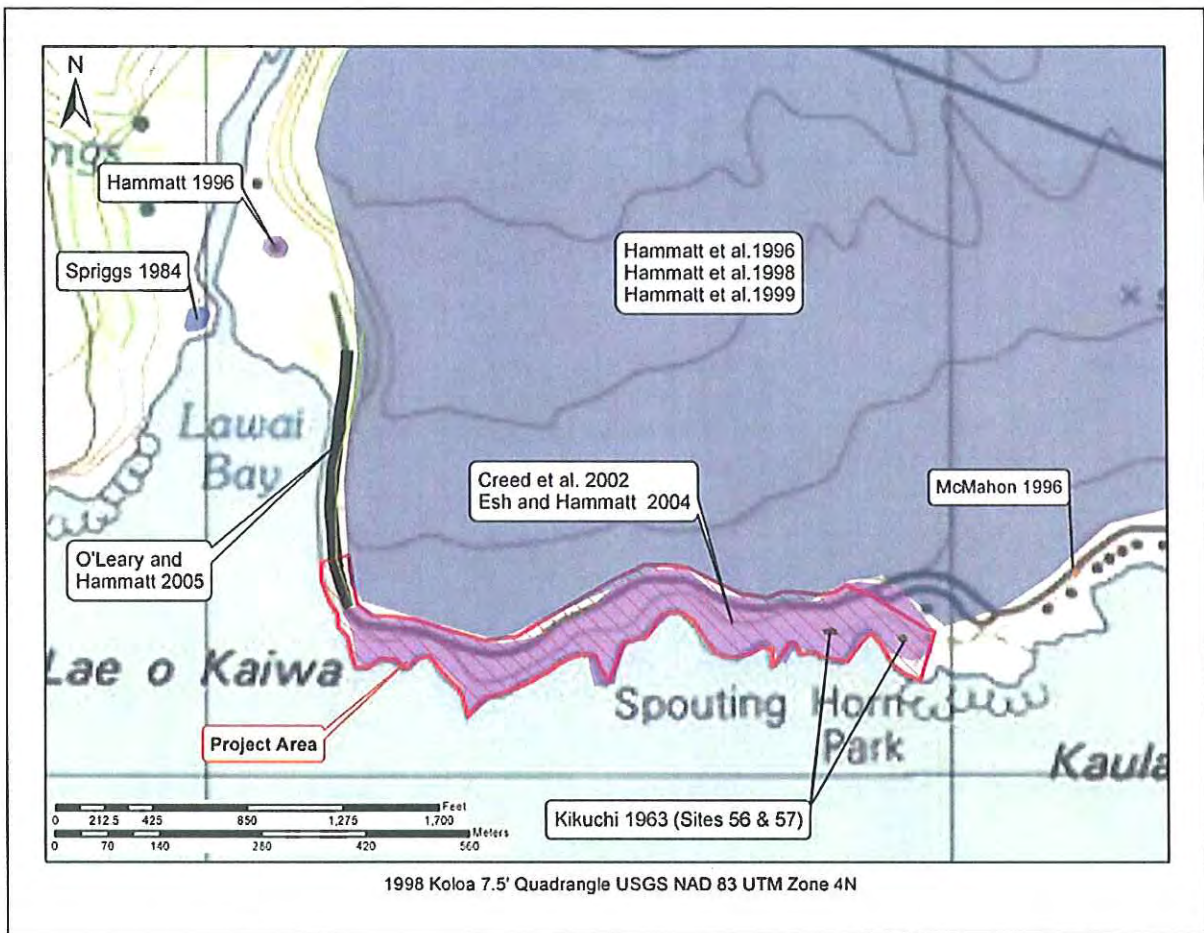


Figure 16. Portion of U. S. Geological Survey 1:24,000 series Koloa Quadrangle map showing the location of previous archaeological studies in the vicinity of the study area



## 5.2 Archaeological Studies in the Vicinity of the Project Area

Wendell Bennett's (1931) island-wide survey of Kaua'i identified five sites within Lāwa'i, three *heiau*, petroglyphs, and stonework (Figure 17). These included the following designations:

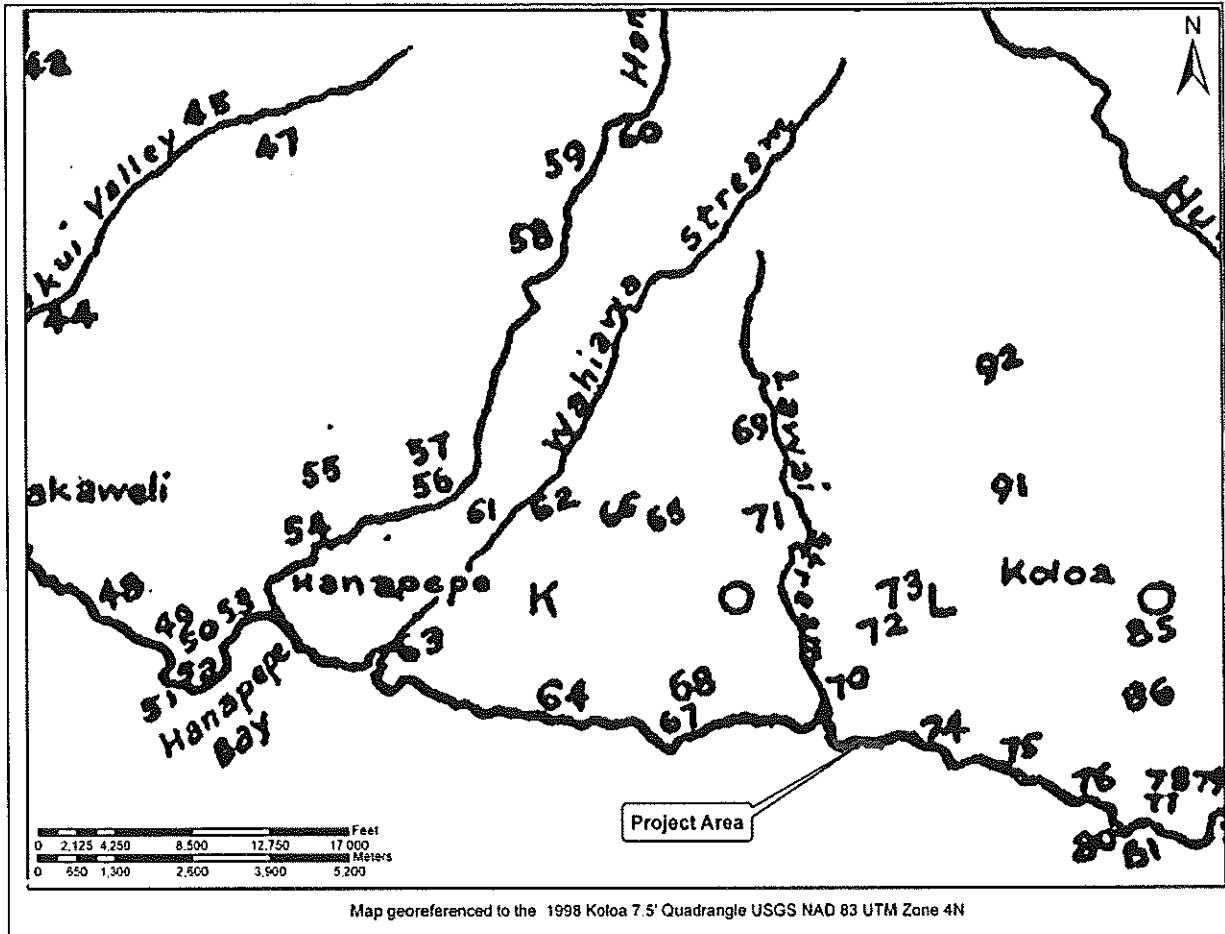


Figure 17. Map showing the location of archaeological sites identified by Bennett (1931).

Site 69. Kalohiokapua *heiau*, in Lāwa'i valley, inland on the west side on a hill. Described by Thrum as, "... a stone platform *heiau* about 20 by 20 feet, walled some 4 feet high; a place of circumcision."

Site 70. Mamalu Heiau, against a cliff about the center of the mouth of Lāwa'i valley. Although this site is now completely destroyed it was described by Thrum as "A small paved platform *heiau* about 20 feet in size, located on the beach; portion still to seen.

Site 71. Petroglyphs in Lāwa'i Valley on the east side of a large rock a short distance toward the sea from the cannery. They are the regular type of scratched or pecked petroglyphs. All are of the stick figure type made with single lines for

body and limbs. None of the triangular bodies and limbs are found. In one figure three toes and three fingers are shown.

Site 72. Niukapukapu *heiau*, on the top of Niukapukapu hill, on the east bluff of Lāwa'i Valley. The outside measurements of this *heiau* are 46 by 95 feet. At the front, and for 60 feet on the east side, a section of the wall remains which is 3 to 4 feet wide, 3 feet high on the outside, and 1 to 3 feet high on the inside. Both east and west the steep sides of the hill are faced with stone. On the east side the cross section show the wall 2 feet high on the inside, 3 feet high on the outside and 4 feet wide. At the base of the wall is a flat space 5 feet wide, then a 1 foot drop and another space 2.5 feet wide, and then a 2-foot drop from whence the facing continues at an angle for 15 feet or more down the side of the hill. This double step feature is on both sides. In front of the seaward side of the wall the paving continues out for 15 feet.

Site 73. Stone work, on the hill just inland from Site 72. On this hill is considerable mass stonework. The top of the hill has an irregular, rectangular structure of stone walls on the four sides, but not on the center of the top. These walls are 15 to 20 feet thick, or wide, built up 3 to 5 feet on the outside and flush with the ground on the inside. They are not everywhere continuous, but the impression given is that they were continuous at one time. Portions of the walls are so roughly laid that it appears to be cleared stone from the plantation, but other portions seem well made (Bennett 1940: 116-117). Note: Bennett's Site 74 is in Kukui'ula Bay.

None of these sites lies within or close to the present project area.

E.S. Handy (1940) documented traditional Hawaiian agriculture throughout the Hawaiian Islands making the following comments regarding Lāwa'i Valley based on an informant:

Few terraces still cultivated in taro" among sugar cane. The old terraces, he said are abandoned or used as pasture. He thinks that there may never have been terraces in the upper valley for there is no evidence left (Handy 1940:65).

Kikuchi (1963) describes seven sites in Lāwa'i in his study of the entire Kona District of Kaua'i of which two lie within the current project area. Kikuchi site 56 corresponds to State Site 50-30-10-3071, and Kikuchi site 57 corresponds to State Site 50-30-10-3072 (Figure 18):

Site 56. Shelter Caves, Kukui'ula. Three caves were found all within 10 feet of each other, the main cave lies on sea level while the other two are above the central cave. This site was completely looted by vandals. Fishhooks of bone and pearl shell were found. Coral and *wana* spine files were also found. Many *pipi* oyster shells were found strewn over the three caves.

Site 57. Shelter Cave, Kukui'ula. This shallow cave was used as a shelter cave by the Hawaiians and later by fishermen as shelter against the wind and rain. It measures 3.3 feet high, 8.3 feet wide and 16.6 feet deep. The entire cave was completely looted as evidenced by the turned dirt floor.

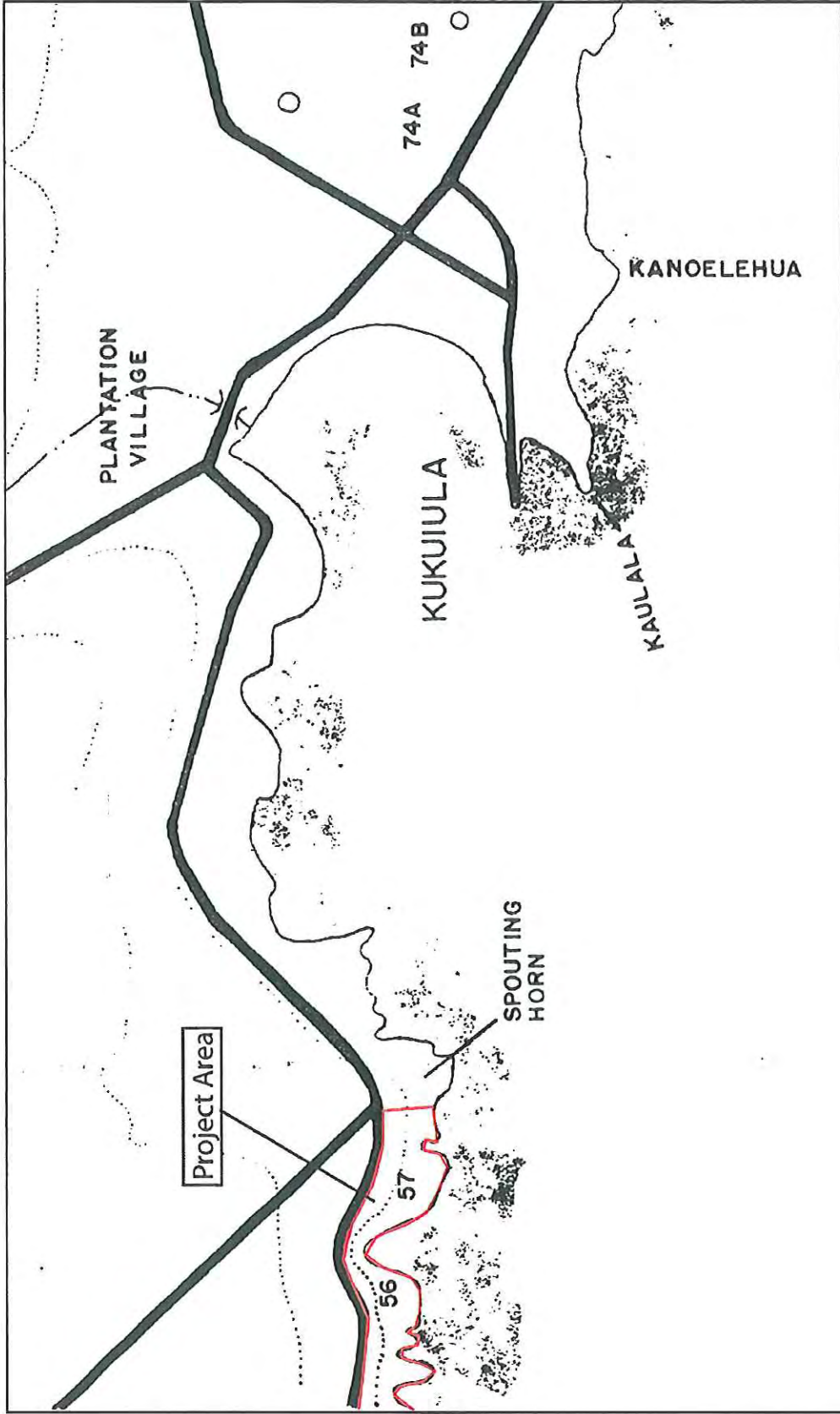


Figure 18. Map (from Kikuchi 1963:48) showing the location of his sites 56 and 57 (SIHP Site #s 50-30-10-3071 and -3072) and coastal trail within the project area

Kikuchi (1963:45-46) discusses the small cove fronting the cave at Āholehole point (named after the fish *āholehole*; *Kuhlia sandvicensis*) caught there. Kikuchi notes that a Japanese woman committed suicide there and as a result the area is said to be haunted. The local people claimed that dogs avoided the seashore at night but not during the day.

Mathew Spriggs, (1984) inadvertently discovered a thick cultural deposit containing shell and midden along the western end of the beach at the mouth of Lāwa'i Bay as well as a shallow rock shelter with possibly a thin deposit of cultural material in it. Both of these finds are located to the west of the current project area.

Hammatt et al. (1988) conducted an archaeological inventory survey in the 1,000-acre proposed Kukui'ula Bay Planned Community. Fifty-eight archaeological sites were recorded, many associated with the Kōloa Field System. Two to three *heiau* were found, possibly including the remains of Kamaloula Heiau.

Hammatt (1996) conducted subsurface testing at the proposed location of Queen Emma's Cottage at Lāwa'i Valley. Both hand excavations and backhoe trenches were undertaken. No findings of archaeological significance were discovered.

An archaeological inventory survey report (Creed et al. 2002) for the present project area was carried out and approved by the SHPD/DLNR (September 17, 2002, Log No: 30888, Doc No: 0209NM12; see Appendix A). Three archaeological sites were located, consisting of a coastal trail complex (50-30-10-990) and two shelter sites (50-30-10-3071 and -3072). The shoreline trail is a mix of modern and historic sections, currently in use by the public for coastal access. The two shelter sites were previously located and described by Kikuchi (see above, sites 56 and 57) and were both placed on the State Register of Historic Sites (1988). The 1998 CSH inventory survey found that the sites have suffered both high surf damage and looting, so that nothing remains of the former contents. The archaeological inventory survey report (Creed et al. 2002) recommended preservation of the historic trail and the two shelter sites because the caves are on the State Register of Historic Places. A preservation plan (Esh and Hammatt 2004) has since been completed for these three sites (reviewed and accepted by the State Historic Preservation Division March 1 2005, Log No 2005.0367, Doc No 0502NM02; see Appendix A).

Hammatt et al. (1998) reported on data recovery of the Kukui'ula Planned Community Project Phase 1 area, encompassing approximately 219 acres. The project is located to the east of the current project area. The project included excavations at 20 different sites, totaling 64 individual features. There was a total of 212 1m-square excavation units and 19 backhoe trenches (only 14 backhoe trenches were chosen for study). Large quantities of midden (approx. 23.7 kilograms) and artifacts (10,635 items) were recovered and reported on. The artifacts include a wide range of types, with both indigenous (2,592 items) and historic (8,043 items) represented. Radiocarbon dates ranged from ca. A.D. 1050 on. The earliest date came from the habitation/burial cave Site 50-30-10-1927A. In addition to the habitation sites, seven dating samples from agricultural features were also analyzed. Sites 50-30-10-1949, -1950, and -1951 are the closest sites to the current project area. The sites primarily consisted of habitation structures and agricultural features.

O'Leary and Hammatt (2005) conducted an archaeological inventory survey of a coastal strip adjacent to the northwest of the present project area. No cultural remains or historic properties

were discovered within that project area. There was no evidence of the trail that had been documented by Creed et al. (2002) to the southeast and no rock shelters were encountered within that project area. It was noted that a large earthen and rock berm has likely destroyed any archaeological remains that may have once been present along the cliff edge. The disturbed sediment has also served as an excellent host for many invasive plants such as *pānini* or prickly pear cactus (*Opuntia ficus-indica*), wind-stunted *koa haole* (*Leucaena leucocephala*), pencil tree (*Euphorbia tirucalli*), stunted sisal plants (*Agave sisalana*), and *Rhipsalis cereoides*, a type of angular cactus.

### 5.3 Site Descriptions

Three archaeological sites have been identified within the project area. These are described below (following Esh and Hammatt 2004).

#### 5.3.1 Site #: 50-30-10-990

Site Type:	Trail
Function:	Transit/Transportation
Features (#):	4 (A-D)
Dimensions:	See Figures 19 to 28
Elevation:	20-50 ft. a.m.s.l.

State Site 50-30-10-990 is a discontinuous shoreline trail that traverses the coastal cliffs through the project area (Figures 19 and 20). The trail is not discernable in places where it crosses exposed outcrop and where the vegetation is extremely dense. The trail averages 0.7 m (2.3 ft) in width but ranges from 0.5 m (1.6 ft) to a maximum of 1.5 m (4.9 ft) in width. The trail follows a logical route along the inland edge of the cliffs above the tidal flats. Large sections of the trail are currently in use by the public for coastal access. For most of its length, the trail is simply a dirt path. This trail site includes four separate features: Feature A is the paved curb stone section of the trail, Feature B is a short retaining wall section of the trail, Feature C is a short section of cut basalt block stairs with an associated wall section, and Feature D is another short section of cut basalt block stairs. The photographs to follow were taken on 10/26/04 during the CSH field site assessment for the prior CIA report (Mitchell and Hammatt 2006).

**Feature A** (Figures 21 through 24) is a constructed curbstone trail section, located in the central portion of the project area along a cliff overlooking one of the boulder bays. The central portion of Feature A is constructed of large flat *pāhoehoe* slabs that have been fitted together, creating a level surface. Curbing, consisting of flat *pāhoehoe* stones set on edge, line both sides of the central portion of the trail. This central portion of the trail measures 36.0 m N/S and averages 0.7 m (2.3 ft) in width. The areas on either side (east and west) of the central portion of the trail have been roughly paved with boulders. A portion of the rough paved area along the southern end of Feature A is vertically faced along the sea cliff. The facing has a maximum height of 1.0 m (3.3 ft) and averages 3 courses high. At the south end of Feature A are seven large basalt stones set in as steps. The feature is in excellent to good condition. A portion of the northern end, just before the steps, has collapsed.



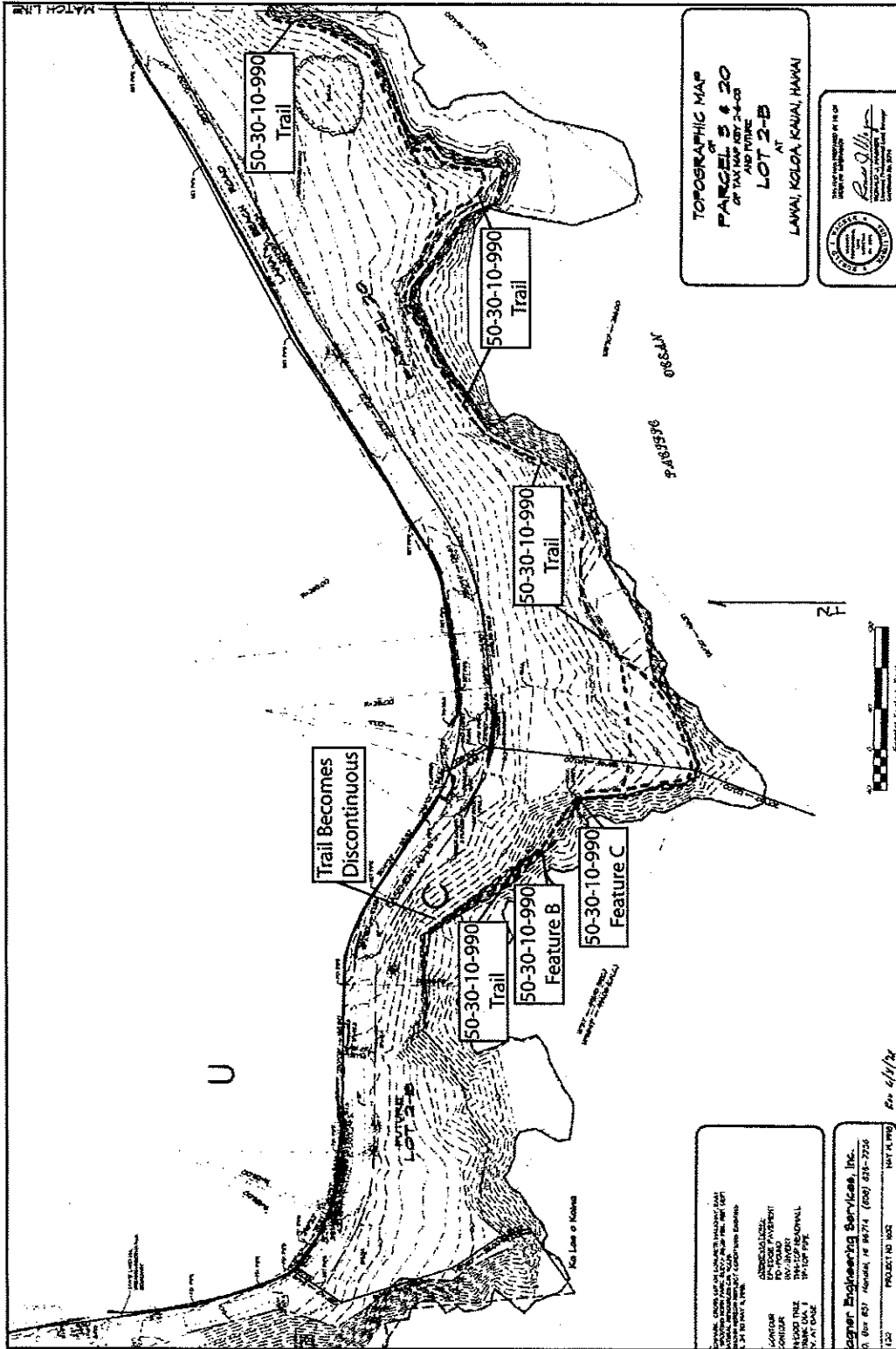


Figure 19. Western portion of project area (Part 1) showing location of archaeological sites

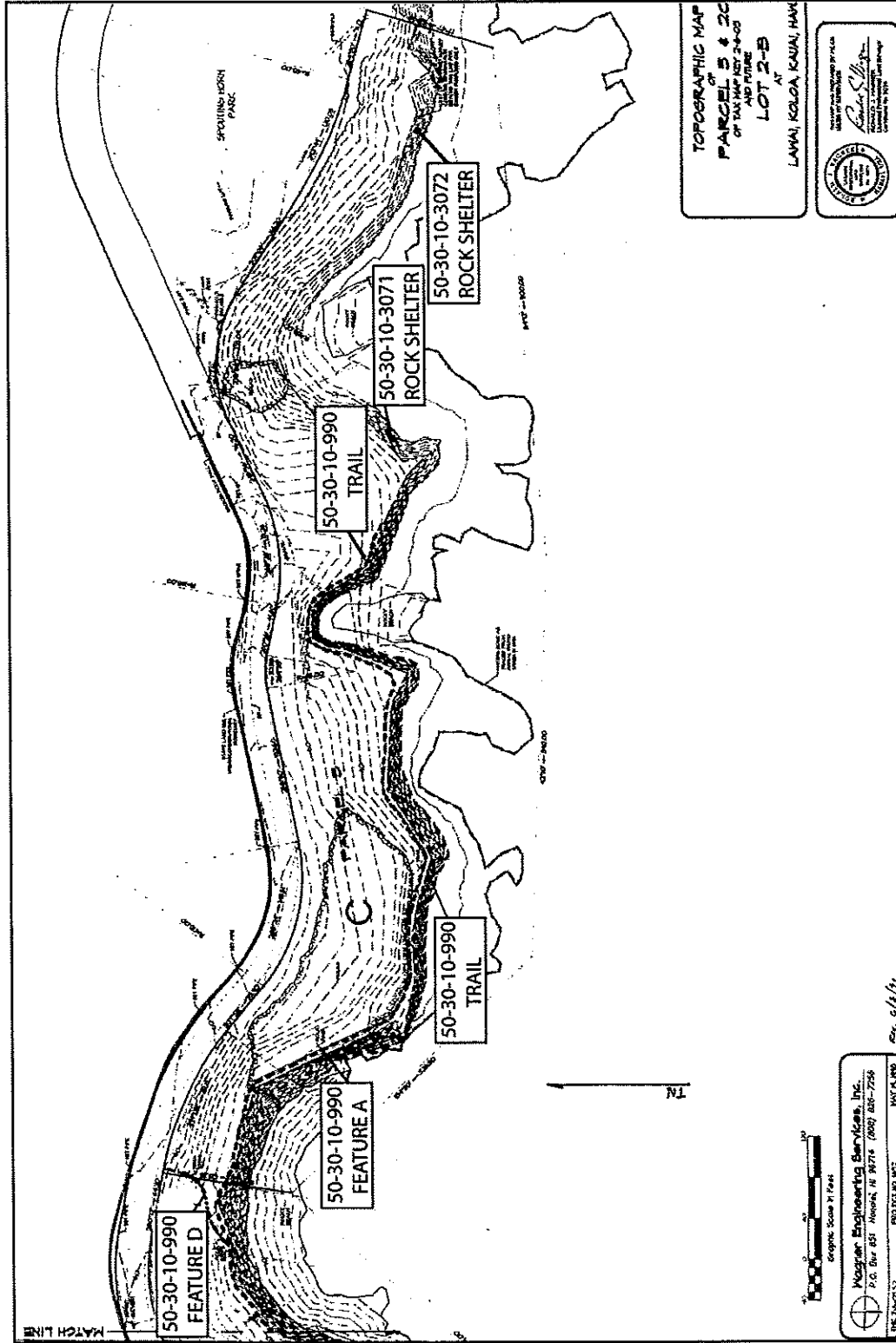


Figure 20. Eastern portion of project area (part 2) showing location of archaeological sites

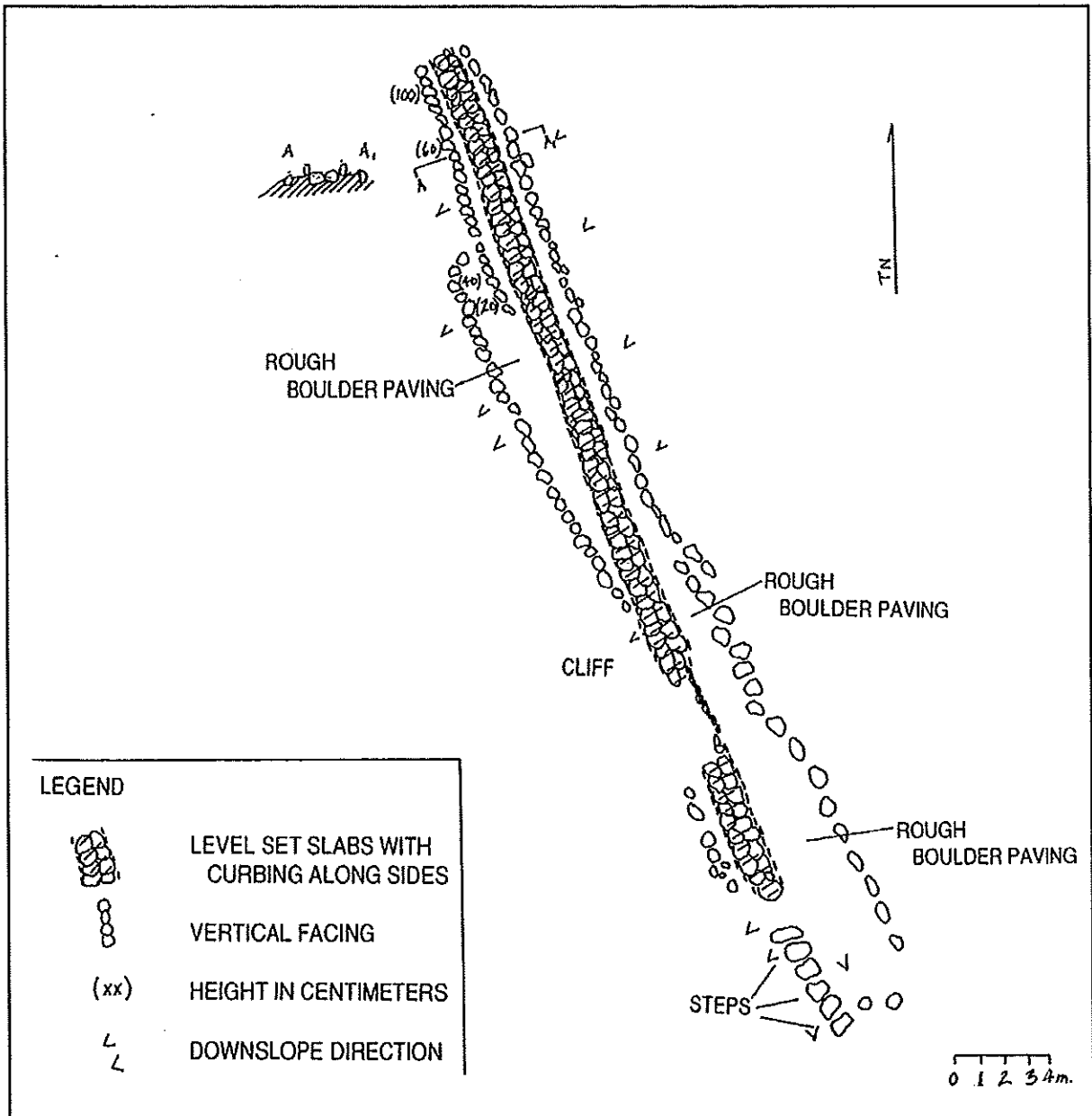






Figure 22. Photo of Site 50-30-10-990 Feature A, view to the South



Figure 23. Photo of Site 50-30-10-990 Feature A, view to the North





Figure 24. Photo of Site 50-30-10-990, *makai* starting point of Feature A, view to NW



Figure 25. Photo of Site 50-30-10-990 Feature B, view to North (from Creed et al. 2002:40)





Figure 26. Photo of Site 50-30-10-990 Feature B, view to NW, showing heavy vegetation



Figure 27. Photo of Site 50-30-10-990 Feature C, view to East, showing heavy vegetation

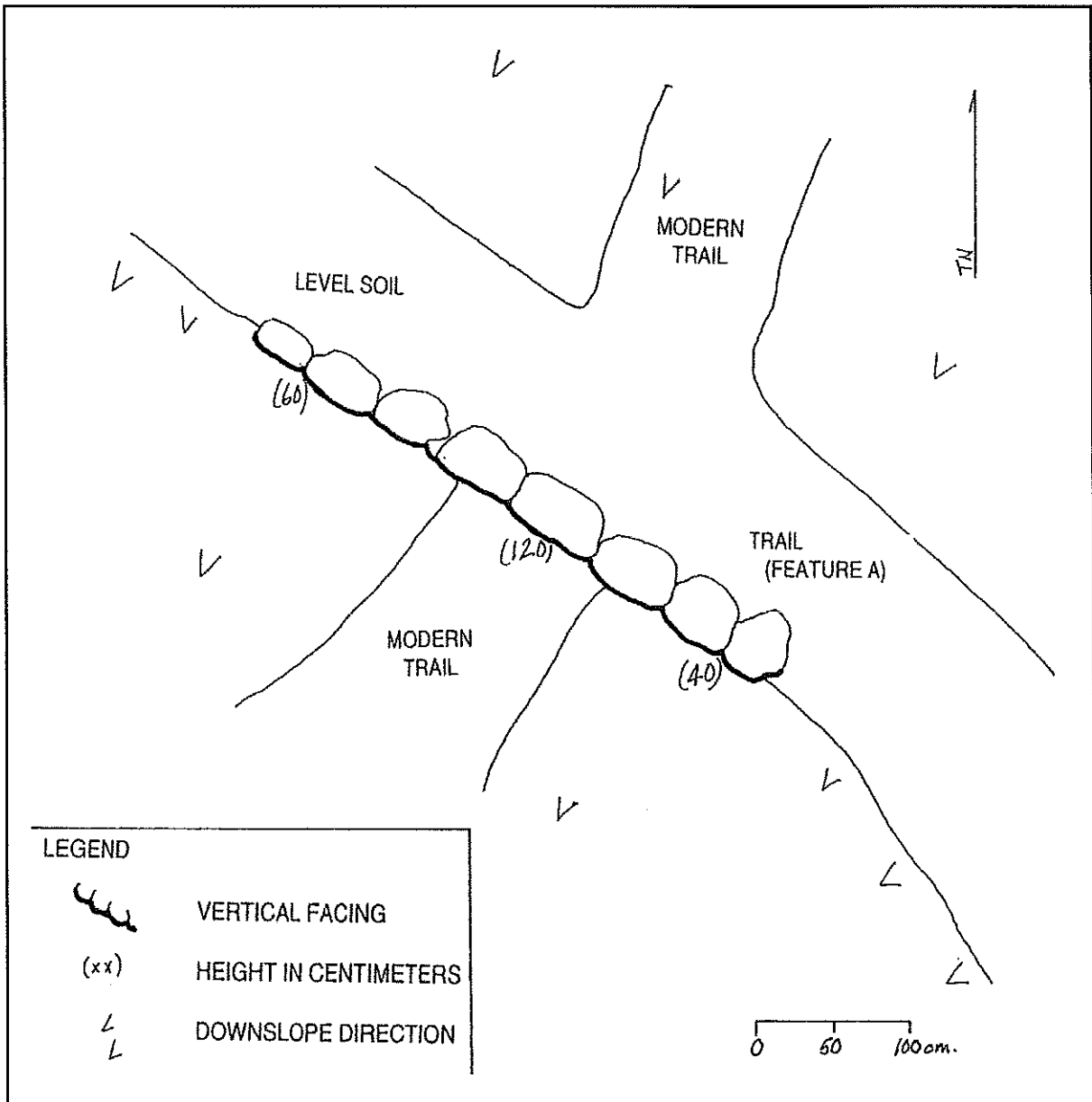


Figure 28. Plan view of Site 50-30-10-990, Feature C (from Creed et al. 2002:28)

**Feature B** (Figures 27 and 28) is a short retaining wall that supports a section of the trail. The retaining wall is located in the western end of the project area. The wall measures 4.0 m (13.1 ft) E/W and has a maximum height of 1.2 m (3.9 ft) in the center. The wall is constructed of well-stacked and faced small boulders. The wall is three courses high. The wall retains a level portion of the dirt path. The feature is in good condition. The CSH field-check on 10/26/04 found the site to be covered by heavy vegetation (Figure 28).

**Feature C** (Figures 29 and 30) consists of 8 basalt stone blocks that have been set into the soil as steps. No mortar was utilized. The blocks average 0.8 m (2.6 feet) long and average 0.2 m (0.6 feet) in width and height. The CSH field-check on 10/26/04 found the site to be covered by heavy vegetation (Figure 29).

**Feature D** (Figure 22) consists of 22 cut basalt blocks that have been set into the soil as steps, connecting the trail with Lāwa'i Road. No mortar was utilized. The blocks average 0.8 m (2.6 feet) long and average 0.2 m (0.6 feet) in width and height. In addition a small wall follows the stairs in a general north/south direction. The wall extends from Lāwa'i Road seaward to the cliff edge for a total length of 21.3 m (70.0 feet). The wall is constructed of stacked to piled cobbles and boulders with a maximum height of 0.8 m (2.6 feet). The wall is in fair condition.

### 5.3.2 Site #: 50-30-10-3071

Site Type: Rock Shelter  
Function: Remnant  
Features (#): 1  
Dimensions: 54.0 m²  
Elevation: 10 ft. a.m.s.l.

State Site 50-30-10-3071 (Figures 31, 32 and 33) is a rock shelter located along the steep coastal cliff near Spouting Horn. The site consists of a natural rock overhang that measures 10 m (32.8 ft) N/S at the entrance by 5.7 m (18.7 ft) E/W. The interior heights of the ceiling have a maximum height of 2.6 m (8.5 ft). The interior is undulating and filled with boulders and cobbles. No midden or artifacts were observed.

The site was added to the State Register of Historic Places on September 30, 1988. The site correlates with Kikuchi (site 56). Kikuchi (1963) notes that the site was completely looted by vandals, although fishhooks of bone and pearl shell, coral and *wana* (sea urchin) spine files, and many *pipi* (pearl oyster) shells were found. The 1998 CSH inventory survey found that the cave appears to have been looted, used in modern times and affected by wave action.

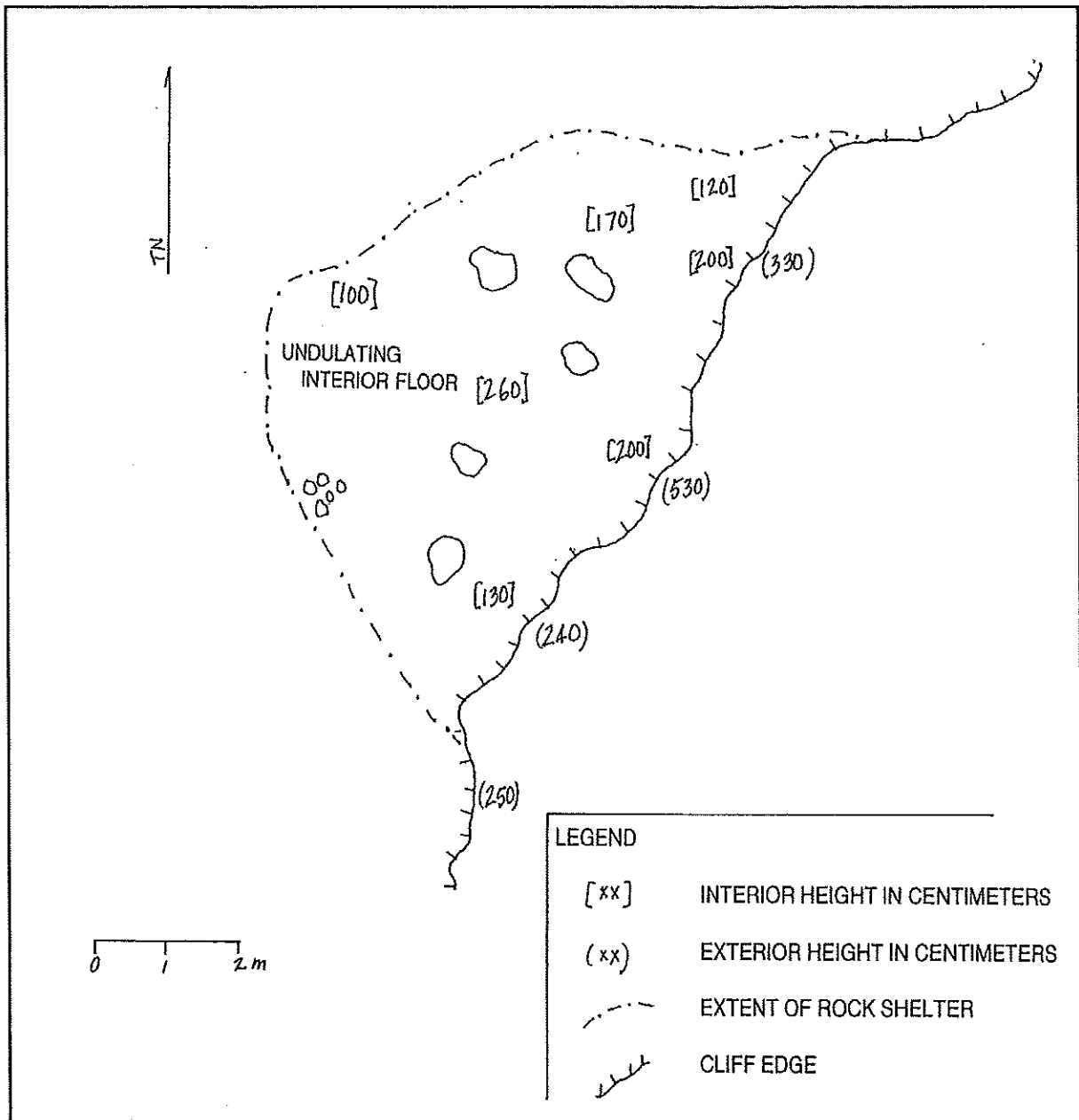


Figure 29. Plan view of Site 50-30-10-3071, shelter cave (from Creed et al. 2002:30)





Figure 30. Photo of Site 50-30-10-3071, view to West



Figure 31. Photo of Site 50-30-10-3071, view to NW, interior



**5.3.3 Site #: 50-30-10-3072**

Site Type: Rock Shelter  
 Function: Remnant  
 Features (#): 1  
 Dimensions: 14.6 m²  
 Elevation: 10 ft. a.m.s.l.

State Site 50-30-10-3072 (Figures 32, 33 and 34) is a rock shelter located along the coastal cliff near Spouting Horn. The site consists of a natural rock overhang that measures 6.1 m (20.0 ft) NW/SE at the entrance by 2.1 m (6.9 ft) NE/SW. The interior heights of the ceiling have a maximum height of 1.4 m (4.5 ft). The interior is filled with boulders and cobbles. Two dirt piles located outside the entrance may correlate with looting activities. No midden or artifacts were observed.

The site was added to the State Register of Historic Places on September 30, 1988. The site correlates with Kikuchi site 57. Kikuchi (1963) notes that this shallow cave was used as a shelter cave by the Hawaiians and later by fishermen as shelter against the wind and rain, and that the entire cave was looted. The 1998 CSH inventory survey found that the cave appears to have been looted, used in modern times and affected by wave action.

**5.4 Preservation Measures for Sites 50-30-10-990 (trail) 50-30-10-3071 (cave) and 50-30-10-3072 (cave)**

Preservation for all three sites is discussed in detail in the Esh and Hammatt (2004) preservation plan. Preservation is to be in the form of avoidance and protection (conservation). Short-term preservation measures include 20 ft (6 m) buffer zones around each site during all construction activity, and the buffer zone will be flagged when appropriate. If vegetation modification is necessary within the buffer zones, only hand removal of vegetation will be allowed, and an archaeologist will monitor all activity within the buffer zone. The monitor will also hold a pre-construction briefing with the work crew to explain the significance of the sites. Long-term preservation will be passive avoidance and conservation. The location of these sites along the steep cliff makes passive avoidance a reasonable policy.

While there are no indications whatsoever of burials present within the steep rocky project, the Preservation Plan specifies: "as always, if burials are encountered, all work in the immediate vicinity should cease and the State Historic Preservation Division should be notified promptly."

**5.5 Summary of Previous Research in Lāwa'i Ahupua'a**

The settlement pattern model for Lāwa'i Ahupua'a includes permanent habitation and intensive agriculture (irrigated and non-irrigated) focused on the valley floor flood plain and presumed intensive agricultural pursuits on the tablelands between Lāwa'i Kai and Kukui'ula Bay. The historical documentation, especially Māhele and *kuleana* data, indicates house sites, taro *lo'i* and some *kula* were situated on the alluvial flood plain within Lāwa'i Valley. No

*kuleana* (commoner) land claims were awarded on the tablelands or within the present project area. Archaeological evidence suggests permanent occupation in the Kōloa area ca. A.D. 1200-1400, though earlier dates (ca A.D. 600-1200) for temporary shoreline sites have been recorded (Rosendahl 1990, Toenjes et. al. 1991, Hammatt et al. 1998). Archaeological studies suggest that the immediate vicinity of the project area was not a focus of permanent habitation or agriculture during the pre-contact era. The project area undoubtedly has a long-history of use for the acquisition of marine resources including use of the two cave sites (SIHP Site #s 50-30-10-3071 and -3072) as temporary shelter during fishing trips.

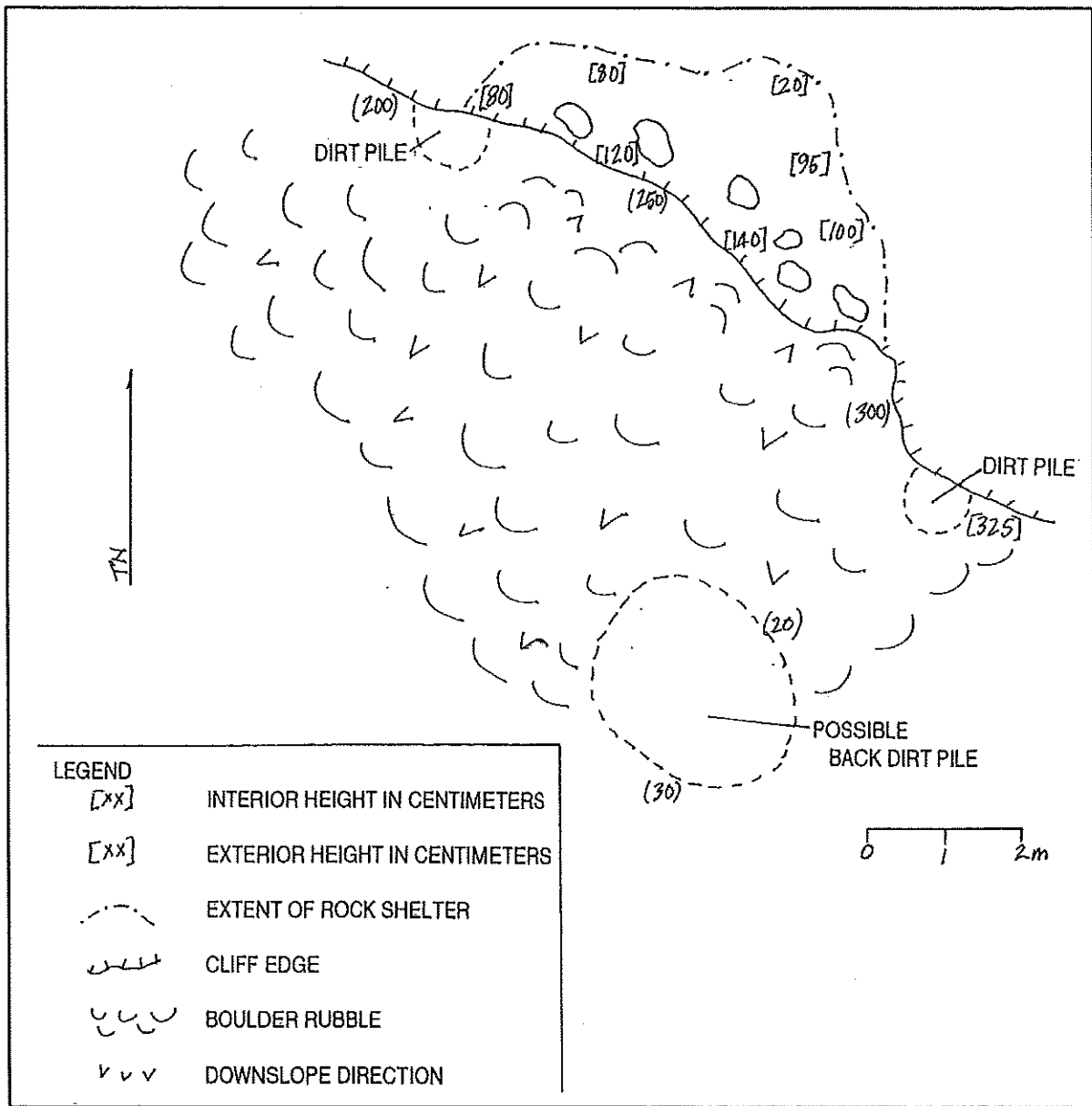


Figure 32. Plan view of Site 50-30-10-3072, shelter cave (from Creed et al. 2002:31)



Figure 33. Photo of Site 50-30-10-3072, view to North



Figure 34. Photo of Site 50-30-10-3072, view to NE, interior



## Section 6 Community Consultation Process

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Throughout the course of this assessment, 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 traditional cultural practices specifically related to the project area. This effort was made by letter, e-mail, telephone and in person contact. In the majority of cases, letters along with a map and aerial photograph of the project area were mailed with the following text:

At the request of Kukui'ula Development Company (Hawaii), LLC, Cultural Surveys Hawai'i Inc. (CSH) is conducting a Cultural Impact Assessment for an approximately 9.6 acre area located adjacent to and west of Spouting Horn Park within the Conservation District and the portion of Lāwa'i Road fronting the project site Tax Map Keys ([4] 2-6-002: 012; 2-6-003: 003, 020) in Lāwa'i Ahupua'a, Kōloa District, on Kaua'i. Kukui'ula Development Company is proposing the following improvements: 1) Removal of the vegetation located in the area *makai* of Lāwa'i Road to the inland edge of the coastal embankment and the *mauka* side of Lāwa'i Road along the existing rock wall fronting the Conservation District improvement area and revegetation with native, endemic and indigenous species. 2) Construction of a 3 to 4 foot trail to be located within the *mauka* portion of the project site, paralleling the coastline. The trail will extend approximately 2,300 feet from the northeastern end of the project site at Lāwa'i Road near Spouting Horn Park to the northwestern end of the site at Lāwa'i Road. Three overlook areas will be provided along the trail. 3) Enhancement of the parking areas along the *makai* side of Lāwa'i Road by creating gravel parking stalls. 4) Removal of the chain link fence along the *makai* side of Lāwa'i Road. 5) Preservation of the existing trail complex including a discontinuous trail that traverses the inland edge of the embankment paralleling the coastline, and 2 rock shelter cave sites located along the coastal cliff within the eastern portion of the project site. See enclosed maps of the project.

The purpose of this cultural study is to assess potential impacts to cultural practices as a result of future development in Lāwa'i. We are seeking your *kōkua* and guidance regarding the following aspects of our study:

- General history and 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 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 in the vicinity of the project area.

Several (3-5) attempts were made by mail, email and telephone to contact individuals, organizations, and agencies apposite to the cultural impact assessment for Lāwa'i Ahupua'a. The results of all consultations are presented in Table 2. Excerpts from more extensive interviews specifically related to Lāwa'i and its environs are presented in Section 7 below.

Table 3. Community Contacts

Name	Background, Affiliation	Comments
Ayau, Halealoha	Hui Mālama O Nā Kūpuna O Hawai'i Nei	CSH sent an email on January 18, 2007.
Burgess, Stella	Cultural Manager, Hyatt Hotels & Resorts	CSH sent a letter on January 16, 2007 and followed up with email and phone messages.
Burney, David	Director of Conservation, and of Living Collections and Horticulture, National Tropical Botanical Garden	Dr. Burney is one of the NTBG advisors on the current Kukui'ula revegetation with native plants project. Dr. Burney shared in an interview conducted at the NTBG on January 30 th that he is aware of burials near, but not in, the current project area. He emphasized that the rock wall along Lāwa'i Road, and surrounding area, is an important cultural and natural resource. In the spring and summer months indigenous Wedge-tailed Shearwaters ( <i>Puffinus pacificus chlororhynchus</i> ) nest in the rock wall along Lāwa'i Road. Dr. Burney cautioned against taking out the ironwood trees ( <i>Casuarina</i> spp.) in the project area before native replacement trees are well-established, as the trees provide a windbreak and shade for the shearwaters. The area is frequented by school groups on environmental and cultural field trips, and is still a social gathering place for local community members. Cast-net fishermen and 'opihi pickers use the coastal area. He is aware of a few native strand plants such as <i>naupaka</i> ( <i>Scaevola taccada</i> ), and <i>pohinahina</i> ( <i>Vitex rotundifolia</i> ), but said these species are readily available and — to his knowledge —

Name	Background, Affiliation	Comments
		not collected at that location for medicines, or other purposes. However, he recommended that CSH contact plant practitioner Sabra Kauka. He also referred CSH to Janet Mayfield.
Chinen, Melanie	Administrator, State Historic Preservation Division	CSH sent a letter on January 16, 2007 and followed up with email, phone messages, and a visit to the SHPD (on 2/7/07). Richelle Paresa (SHPD office clerk) stated that Ms. Chinen had no specific comments about the project beyond what had already been provided by Nancy McMahon.
Hanna, Rick	Librarian of the National Tropical Botanical Gardens	Mr. Hanna made referrals to David Burney and Janet Mayfield. See Section 7 below.
Higa, Nani	Kumu Hula, Halau Hula O Nani	CSH sent a letter on January 16, 2007 and followed up with phone messages.
Holi, Wilma	<i>Kama 'āina</i> of Hanapēpē	CSH sent an email on January 18, 2007.
Kauka, Sabra	Hawaiian Studies <i>Kumu</i> (teacher) and cultural practitioner	Ms. Kauka takes school groups to the project area and proximity for cultural and education programs (e.g., to observe the Shearwater populations). She also uses the area herself for plant gathering. In an email sent on February 5, 2007 Ms. Kauka shared that, "There are fishermen and <i>'opihi</i> pickers who frequent that coastline. There are some cultural practitioners who go there as well to pick <i>'ilima kahakai</i> ( <i>Sida</i> spp.). I'm one of them. Unfortunately, the invasive plants like <i>koa haole</i> ( <i>Leucaena leucocephala</i> ) are really squeezing out the native species." In an email sent on 2/12 she explained that she employs <i>'ilima kahakai</i> for lei-making, and — on rare occasions — for making tea.
Kekua, Kehaulani	Cultural Practitioner/Kumu Hula/Director, Kaua'i Heritage Center	See Section 7 below.
Kruse, John	Kaua'i/Ni'ihau Islands Burial Council, Acting	Mr. John Kruse shared the following information about the project site with CSH in

Name	Background, Affiliation	Comments
	Chair	a phone interview on January 29, 2007: "My history is only 60 years old, but I have talked to old people in Kōloa and they talked about fishing and the cane fields. I know that there were old fishing shrines, possibly some petroglyphs, and fishing places. In the old days people used to go down on the edge of that spur [in the project area] to fish. The spur was wiped out by the [1992] hurricane. They also used to dump cane trash off of there in the 1940s and 50s." Mr. Kruse stated that he has no specific cultural concerns and/or knowledge of specific burial sites. However he also emphasized that any work in the area should be handled with "kid gloves" and to proceed "carefully" given the rich cultural history of the area.
Mayfield, Janet	Chief Operator Officer and Volunteer Services, National Tropical Botanical Garden	CSH attempted to meet with Ms. Mayfield during visit to Kaua'i on January 30, 2007 and emailed her on February 2, 2007.
McMahon, Nancy	Kaua'i Archaeologist, State Historic Preservation Division	Ms. McMahon shared in a phone interview conducted on January 24, 2007 that she has no cultural concerns and mentioned that fishermen continue to use the project area.
Nāmu'o, Clyde	Administrator of Office of Hawaiian Affairs	CSH sent letter to OHA on January 16, 2007. CSH received a response from OHA on February 28, 2007 after the community consultation component and preparation of this CIA. See OHA letter (dated February 21, 2007 and postmarked February 23, 2007) below this table and Appendix B.
Oi, Tommy	Department of Land and Natural Resources-Kaua'i Land Division	Recommended contacting Nancy McMahon
Perry, Warren	Royal Order of Kamehameha, Kaumuali'i Chapter 3	In a telephone conversation with Mr. Perry in early January Mr. Perry recommended contacting Betty Snowden
Rogers, Nani	Hui Ho'okipa O Kaua'i	CSH sent a letter on January 16, 2007 and followed up with phone messages.

Name	Background, Affiliation	Comments
Snowden, Betty	Descendant of <i>'Ohana</i> from the Lāwa'i Valley	See Section 7 below.
Tsuchiya, Rick	Kaua'i Historic Preservation Review Commission	CSH sent letter to KHPRC on January 16, 2007. CSH received a response from KHPRC (dated March 5, 2007) on March 8, 2007 after the community consultation component and preparation of this CIA was complete. See initial KHPRC letter below table. See Appendix B for complete follow up correspondence between CSH and KHPRC (Figures 49 and 51).

PHONE (808) 594-1888

FAX (808) 594-1885



**STATE OF HAWAII**  
**OFFICE OF HAWAIIAN AFFAIRS**  
 711 KAPI'OLANI BOULEVARD, SUITE 500  
 HONOLULU, HAWAII 96813

HRD07/1617B

February 21, 2007

Lisa Gollin  
 Cultural Surveys of Hawai'i, Inc.  
 P.O. Box 1114  
 Kailua, HI 96734

**RE: Cultural Impact Assessment for Proposed Spouting Horn Park Improvements,  
 Lāwa'i Ahupua'a, Kōloa, Kaua'i, TMKs: 2-6-002:012, 2-6-003:003 & 020**

Dear Lisa Gollin,

The Office of Hawaiian Affairs (OHA) is in receipt of your January 16, 2007, request for comments on the above-referenced project, which would include vegetation clearing of exotic (invasive) species; replanting of native, endemic, and indigenous species; construction of a new (inland) trail; enhancement of parking lot areas; removal of an existing chain-link fence; and, preservation of an existing trail complex and two coastal cave sites. OHA offers the following comments.

The scope of work for a Cultural Impact Assessment (CIA) is more expansive than your letter suggests, and includes the assessment of "traditional cultural properties." The State Office of Environmental Quality Control (OEQC) adopted guidelines for preparing and assessing cultural impact assessments, in support of §11-200, HAR, and §343, HRS. These guidelines (<http://www.hawaii.gov/health/oeqc/rules/index.html>) include the term "traditional cultural properties," and state: "The types of cultural resources subject to assessment may include traditional cultural properties or other types of historic sites, both man made and natural... which support such cultural practices and beliefs." Please give due consideration to this important type of historic property in your CIA study. OHA recommends the subject project area be considered as part of a wider traditional cultural landscape, including its relationship to the Po'ipū area, in which many traditional cultural sites have been documented.

We also suggest contacting Llewelyn Kaohelaui'i, Alan Souza, Cheryl Lovell-Obatake, and Kanani Kagawa (OHA's Kaua'i Community Resources Coordinator; contact information below) regarding this CIA.

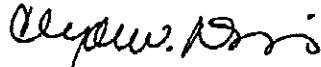


Lisa Gollin  
Cultural Surveys of Hawai'i, Inc.  
February 21, 2007  
Page 2

OHA further requests assurances that if this project goes forward, should iwi kūpuna or Native Hawaiian cultural or traditional deposits be found during ground disturbance, work will cease, and the appropriate agencies will be contacted pursuant to applicable law.

Thank you for the opportunity to comment. If you have further questions, please contact Jesse Yorck, Policy Advocate – Native Rights, at (808) 594-0239 or [jessey@oha.org](mailto:jessey@oha.org).

Sincerely,



Clyde W. Nāmu'o  
Administrator

C: Kanani Kagawa  
Community Resources Coordinator  
OHA – Kaua'i Office  
3-3100 Kuhio Highway, Suite C4  
Lihue, HI 96766-1153

Llewelyn Kaohelaui'i  
2249 Kuai Road  
Po'ipū, HI 96756

Alan Souza  
5119 Hoona Road  
Kōloa, HI 96756

Figure 35. Office of Hawaiian Affairs letter

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

*Lawai 2  
 copy in file  
 DWS  
 3/8/07*

MEMORANDUM

**DATE:** March 5, 2007  
**TO:** Cultural Survey's Hawaii, Inc. Attn. Lisa Gollin  
**FROM:** Kauai Historic Preservation Review Commission  
**SUBJECT:** Cultural Impact Assessment TMK: 2-6-02: 12, 2-6-3: 3, Lawai Ahupuaa, Koloa District, Kauai

This is to inform you that the Kauai Historic Preservation Review Commission (KHPRC) met on March 1, 2007 to discuss your request for information to assess potential impacts to traditional cultural practices as a result of the above-mentioned project.

Based on the information provided by Cultural Surveys Hawaii, the KHPRC recommended the following:

- 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, 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; and
- That Richard Hanna, NTBG Librarian, the Kaneko Family, Hartwell "Hanalei" Blake, and Warren Pery of the Royal Order of Kamehameha as well as the original owners of the area be contacted as potential additional sources of information.

The KHPRC also requested the opportunity to review and comment as more detailed preservation plans become available to implement this project.

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

Mahalo.

cc: State Historic Preservation Division

Figure 36. Kauai Historic Preservation Review Committee letter

## Section 7 Summaries of *Kama'āina* Interviews

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Three individuals with knowledge of and/or ties to Lāwa'i and the project area provided more in-depth interviews to Cultural Surveys Hawai'i for the prior cultural impact assessment (Mitchell and Hammatt 2006). CSH received permission from these community contacts to re-publish their interviews. Their responses, with a few additional comments regarding the current project, are presented in full below.

### 7.1 Kehaulani Kekua

Ms. Kehaulani Kekua is the *hiapo* (first-born child) of four girls born and raised on Kaua'i. She was born in 1962 and is from the *ahupua'a* of Anahola. Kehaulani is a *kumu hula*, cultural practitioner and the Executive Director of the Kaua'i Heritage Center of Hawaiian Culture & Arts in Waipouli, Kaua'i. It is the Ka'ie'ie foundation that oversees the Kaua'i Heritage Center of Hawaiian Culture & Arts.

Ms. Kekua is also an active member of the Lalakea Foundation, a group made up of other *kumu hula* from across the Hawaiian archipelago. The Foundation perpetuates cultural practices with their main foci being on *hula* and oral traditions. Kehau also gives her time to Nā Lehua Ku Makua, a study group on spiritual protocols and ceremonies under the direction of *kumu hula* Hōkūlani Holt-Padilla. Kehaulani Kekua is also a noted *kumu hula* practicing in Waipouli. Her knowledge of the *hula* stems from her grandmother. Her family is rooted in Wahiawa on the south side which is just outside of Kalāheo. Her *hula* is connected to Kulualongo, the *hula heiau*.

In an e-mail dated March 10, 2006, Ms. Kehaulani Kekua commented:

Try and find the book, Queen Emma and Lāwa'i. It was published by the Kaua'i Historical Society in 1970 and contains a wealth of information regarding Lāwa'i. It even has old pictures, maps, etc.

I had visited Lāwa'i Kai some years ago and saved notes that I took from that visit.

Ancient Hawaiians had lived in Lāwa'i Kai for many generations. Their main sustenance in the valley was primarily from the growing of *kalo* and from fishing in the rich resources of the ocean there beyond. They also built a small *heiau* named Mamalu near the area on which the Allerton Home was built. I believe it would've functioned as an agricultural *heiau*. They used the large cave near the beach on the west as a shelter. However, further inland, the *kūpuna* know of several caves that served as burial sites for the ancestors. The large *pu'u* which is quite grand to look at, served as a *kilo* point for *lawai'a*. The *kūpuna* simply referred to it as, "Pu'u O Kilo I'a".

Māhele records of 1848 show that James Young Kanehoa acquired the *ahupua'a* of Lāwa'i and passed the title to his widow Hikoni upon his passing. She deeded the *ahupua'a* of Lāwa'i to Emma Rooke, who was the niece of Kanehoa. As such, this is how Queen Emma became a vibrant part of the history of this beautiful valley.

She was 20 and married to Alexander Liholiho when she first went to Lāwa'i Kai in the year of 1856. Years later, after losing her husband and her little son, Queen Emma returned to live in Lāwa'i Kai in 1870. Her cottage was located on the east bluff. It is said that she spent a lot of time there and took interest in introducing many of the plants into the valley. She named her cottage Mauna Kilohana in commemoration of her famous journey into the Alaka'i Swamp. Mauna Kilohana is the name of the lookout point at the end of the Alaka'i Swamp trek. *Ua 'ike a...*I have seen for myself the magnificent view from the ridge there that overlooks Wainiha Valley below. From there, when the moist and clouds lift...I have seen the *lae* or point of Naue, the sands of Mahamoku of Hanalei Bay and all of the magnificence of Kaua'i's beautiful north shore. No wonder Emma named her cottage in honor of Mauna Kilohana!

Years later, she leased the lands of the ahupua'a to Duncan McBryde. His widow, Elizabeth McBryde purchased the entire ahupua'a from Emma in 1886 and in 1899, the McBryde Sugar Plantation was formed. There were two brothers, Alexander and Walter. Elizabeth McBryde gave Lāwa'i Kai to Alexander. Around 1906 when the area on the bluff was wanted for the growing of sugar, Alexander moved Queen Emma's cottage down into the valley. He used it and later built a home of his own where he lived up until he died in 1935.

Robert Helen Allerton and his partner John Gregg visited Lāwa'i Kai in 1937. A year later in 1938, he purchased 125 acres of Lāwa'i Kai. Mr. Allerton was the only heir of a very wealthy cattleman in Chicago. We were told that he studied art up until he was about 24 years of age. He was very wealthy from his inheritance and traveled extensively. On his travels, he collected art pieces – many of which filled his mansions and gardens that he had a passion for. He did the same at Lāwa'i Kai.

Allerton was 49 when he met John Gregg in 1922. John was 27. Together they traveled all over the world. John was an architecture student when they met. He later designed their Lāwa'i Kai home to replicate the architecture of Queen Emma's cottage. The home was completed in 1938. Lāwa'i Kai was their refuge and sanctuary. Over the 20 years that followed, the two created what later became known as Allerton Gardens. Beautiful garden landscapes that were enhanced with lovely water features, ponds and more. It is magnificent and indeed a magical place to see! Throughout the grounds and around the house, exquisite statues and other striking pieces of art are placed. It's like being in an outdoor museum!

Robert Allerton endowed a gift of \$1,000,000 in 1964 to start the Pacific Tropical Botanical Garden. In December of that same year, he died, leaving John Gregg a life estate in the home and gardens. John Gregg lived there until he died in 1986. Today, Pacific Tropical Botanical Garden is known as the National Tropical Botanical Gardens with gardens at Limahuli at Hā'ena, Kaua'i...Hana, Maui, Lāwa'i, Kaua'i and in Florida.

Alexander McBryde is also connected to the Kaua'i iki stone *mo'olelo*. Remember that one from our talks about Wahiawā? He was very loved by the Hawaiian people and several *mele inoa* have been composed in his honor.

## 7.2 *Kupuna* Betty Kaleialoha Duarte Snowden

*Kupuna* Betty Kaleialoha Duarte Snowden is a descendant of 'ohana or families from the Lāwa'i Valley. *Kupuna* was born to Mabel Kalaninuiamaumaukoioio Puaoi and Manuel Lawrence Duarte of Lāwa'i Kai in 1930. Her mother was born on September 10, 1910 in Lāwa'i Kai Valley. *Kupuna* Snowden's 'ohana lived there until she was 13 years old. Her family has been there since the time of Mō'ikeha. Mrs. Snowden graciously shared her *mana'o* and concerns in a letter dated May 26, 2006:

The heiau "Niukapukapu" most definitely qualifies as a significant and historical role in the Hawaiian culture in the area of Lāwa'i Kai. A very important heiau – in Hawaiian history and especially Kaua'i History.

All three heiau have significant, historical and cultural value in Hawai'i. Niukapukapu, Mamalu and Kalohiokapua Heiaus should be preserved at all cost for their contribution to Hawaiian history. In addition to these, a most famous of heiaus is nearby – the Temple of the Supreme Being of Io. It dominated the lives and politics of the island – and indeed, the South Pacific.

Actually, only part of the Lawai Kai portion was sold in 1938, you (CSH) have listed the native claimants in Lawai Valley. Native tenant rights are protected by the King's declaration. If those parcels by claimants were registered (and these were) they qualified under the declaration on the front of the Māhele Award 43 (copy enclosed). Therefore, these properties belonging to native tenants were not sold.

You mentioned that "The Lawai Kai" portion of the ahupua'a was sold in 1938" – not so. My grandfather had exclusions prominently noted in paper to Allerton. Not included were burial areas and caves or cemeteries where ohana iwi repose. Our ohana still care for and ritually honor our ancestors in numerous burial caves and cemeteries in the Valley.

But, none of the property with the native tenants were included in the sale that you mentioned. They were protected by the King. Also, James Y. Kanehoa was ohana and part of the plan to secure the Valley for the Ohana.

The copy of the Māhele 43 Award reserving the Right of Native Tenants. None of the property with Native Tenants were included in the above sale which was protected by the King and awarded to J. Y. Kanehoa.

Pu'u Kiloia – this is of the utmost cultural and historical significance. The High Chief Loia, five generations ago, used to stand on the top of this rock and coordinate hukilau activities using two branches of ti [*Cordyline fruticosa*] leaves as directional flags. The High Chief Loia was famous as a fisherman for his ability to always be able to harvest fish from the Bay. But more importantly, Pu'u



Kiloia is the repository of the Ohana Iwi. It was suggested, at one time, that it was the favored place to repose some of those sacrificed at Niukapukapu.

In a face-to-face interview conducted in Honolulu on February 16, 2007, Mrs. Snowden provided additional comments regarding Lāwa'i Valley and the current project area:

Pointing to two spots on the aerial map of the proposed project (Figure 3), Mrs. Snowden noted that on the far west side of the project area, along the eastern rim of Lāwa'i Bay, Hawaiian voyagers would get their star-sightings when planning voyages to Tahiti. There was a canoe launch in Lāwa'i Bay. Further inland there was a string of *heiau* such as Niukapukapu and others (mentioned above). From the 1500s to the 1800s *heiau* dotted the land *mauka* of the project area all the way up to the Knudsen Gap. "It was like a university" Mrs. Snowden explained, "There was a *heiau* of healing, astronomy, chants and legends....There was a circumcision *heiau* above the hula *heiau*" (also west of the project area). Her family came from a line of *lapa'au* (healers/medical practitioners).

Mrs. Snowden's mother was the last of her family to be born in Lāwa'i Valley. Her mother was born in Queen Emma's house. Queen Emma's house was lowered from the bluff site to the beach (Figure 8). Alexander McBryde lived with Mrs. Snowden's grandparents, though she remarked that he was "uncomfortable in the thatched house". Her grandparents taught the McBrydes how to speak Hawaiian. Mrs. Snowden also described how her grandfather (who was 7 feet tall) would carry Alexander across the river when it flooded.

Mrs. Snowden, elaborating on her discussion of *kuleana* awards in her 2006 interview, related that in the past a myth was perpetuated that Queen Emma sold Lāwa'i Valley to the McBrydes and that there were no *kuleana* awards. Her *'ohana* has 3 *kuleana* awards in the Valley, and James Young Kanehoa was a cousin. The family's *kuleana* were not within the project area. She believes that there was a family that had a *kuleana* award near the coast, but does not recall their name.

When the National Tropical Botanical Garden cleared the land for re-planting some of the trees that were taken out had been utilized by people in Lāwa'i Valley such as the alien glue and African tulip trees (possibly, *Macaranga tanarius*; *Spathodea campanulata*), and the Hawaiian canoe plant introduction, *noni* (*Morinda citrifolia*). Also, there were many (possibly native) plants used for fishing, the leaves and berries of which were used as fish-stunners, that are now gone.

The most precious resource of Lāwa'i Valley is its water. Mrs. Snowden believes that the name "Lāwa'i" refers to the *wa'i* or freshwater stream and springs of the Valley, once a rich source of *'ōpae* (shrimp) and *'o'opu* (various species of indigenous and endemic Gobies). The Lāwa'i Stream used to be much wider, like a river. But hurricanes, floods and human influence have altered the landscape and vegetation considerably. She lamented that in contemporary times the large number of people swimming and scuba diving in the Bay has destroyed the food chain. There is no longer *limu* like there used to be when she was a child. Growing up, they used to free dive and explore the reefs in

Lāwa'i Bay, *limu* and turtles were abundant. A few years ago there were times when the turtles stopped coming.

Mrs. Snowden's key concern about the proposed re-vegetation with native plants project is that work be done in a way that does not involve too much heavy equipment or project personnel at one time in order to avoid runoff and further degradation of the watershed.

### 7.3 Mr. Rick Hanna

Cultural Surveys Hawai'i contacted Mr. Rick Hanna, the librarian for the National Tropical Botanical Garden (NTBG), Lāwa'i, Kaua'i. Mr. Hanna graciously contributed pictures of the McBrydes (Section 4, Figures 11-14) and of Lāwa'i Ahupua'a (Figures 37-45 below). For the prior cultural impact assessment he shared his knowledge of the history of the NTBG:

It was in 1938 that the Lāwa'i Kai of Lāwa'i Ahupua'a was purchased by Mr. Robert Allerton. In the 1960s Mr. Allerton established the Pacific Tropical Botanical Gardens. It became known as the National Tropical Botanical Gardens in 1986. The area is used by fishermen as it was in pre-contact times. The trail complex may have been early access from Lāwa'i to the Kōloa Landing area.

In a phone interview conducted in Kaua'i on January 25, 2007 and a follow-up face-to-face interview on January 30th, Mr. Hanna added the following information specific to the current project area:

The Allertons leased land within and in proximity to the project site from the McBrydes for \$1 an acre. The Allertons didn't do much with the land however they did have trails built in the 1950s and 60s, but these were destroyed in the 1982 hurricane. The McBrydes took back the lease when Mr. Allerton died in 1964. There has been no archaeological work done in the project area. Although Nancy McMahan has looked at the rock wall that runs along Lāwa'i Road and Handy reported a fishpond in the area that is no longer there. Much has been destroyed in the proposed project area.

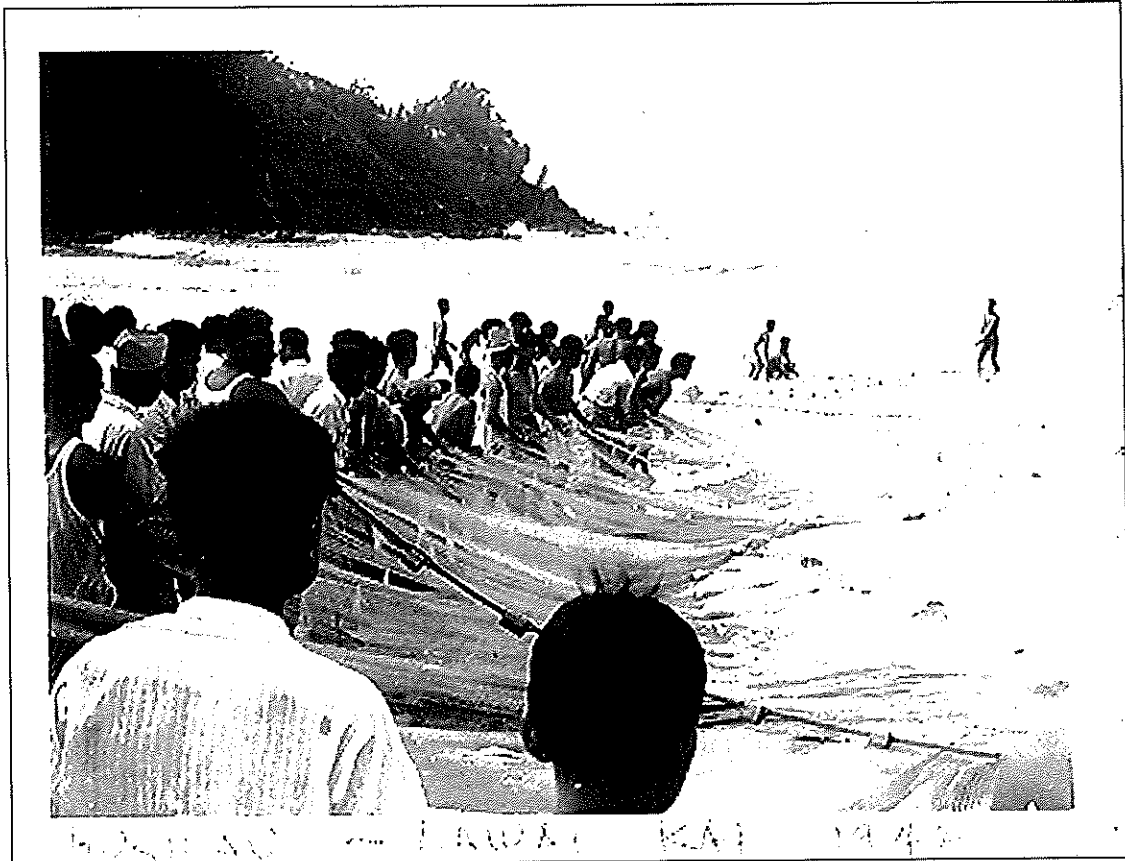


Figure 37. Hukilau Lāwa'i Kai in 1942, photograph courtesy of the NTBG Library



Figure 38. Lāwa'i Valley, photograph courtesy of NTBG Library

Cultural Impact Assessment for a Conservation District Project west of Spouting Horn Park in Lāwa'i Ahupua'a, Kōloa District, Kaua'i Island

TMK [4] 2-6-02: 12; 2-6-03: 3 and 20, and portion of Lāwa'i Road



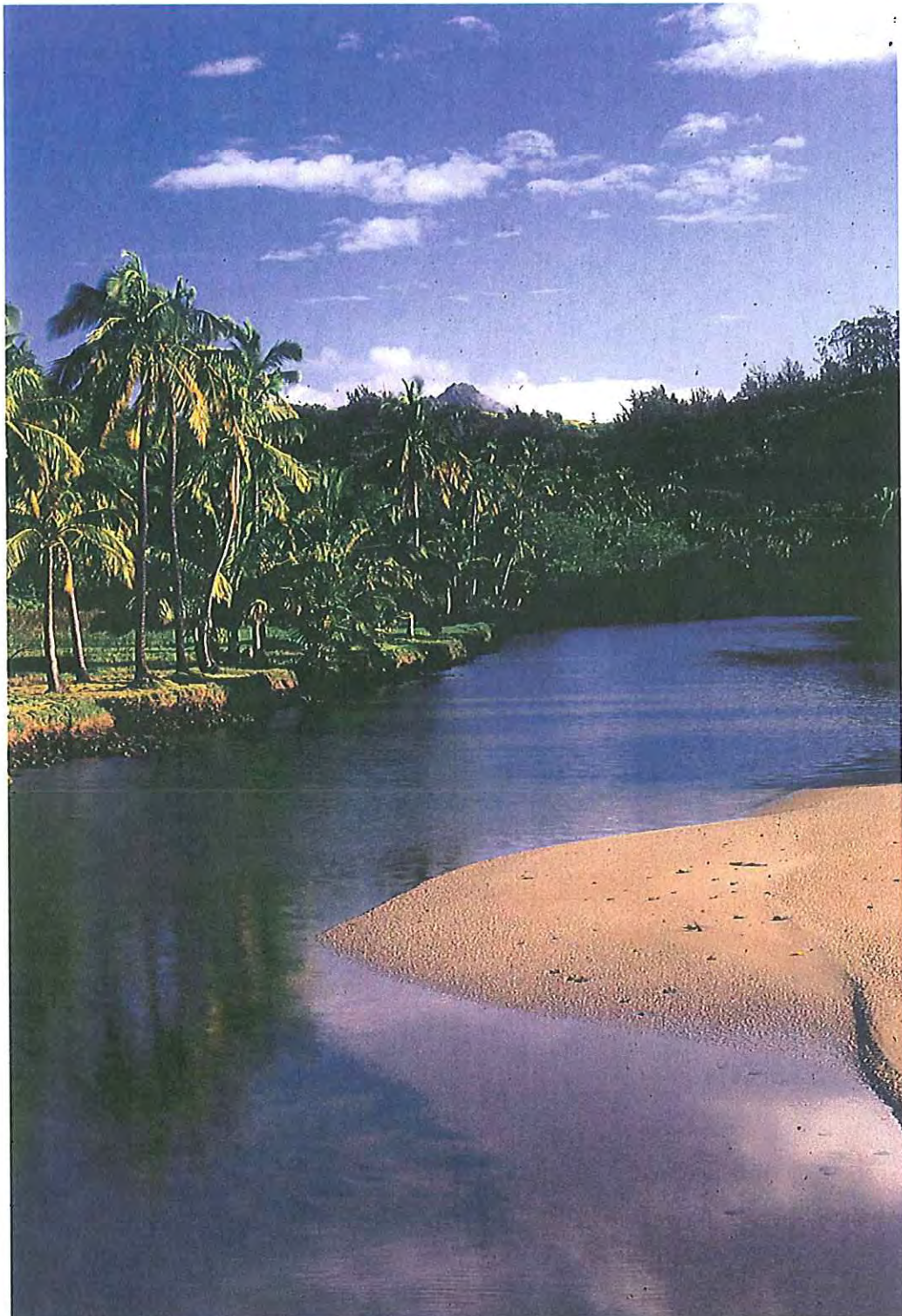


Figure 39. Lāwa'i Stream, photograph courtesy of NTBG Library





Figure 40. Lāwa'i Valley from the air, photograph courtesy of NTBG Library



Figure 41. Lāwa'i Bay in 1900, photograph courtesy of NTBG Library

Cultural Impact Assessment for a Conservation District Project West of Spouting Horn Park in Lāwa'i Ahupua'a, Kōloa District, Kaua'i Island  
TMK [4] 2-6-02: 12; 2-6-03: 3 and 20, and portion of Lāwa'i Road



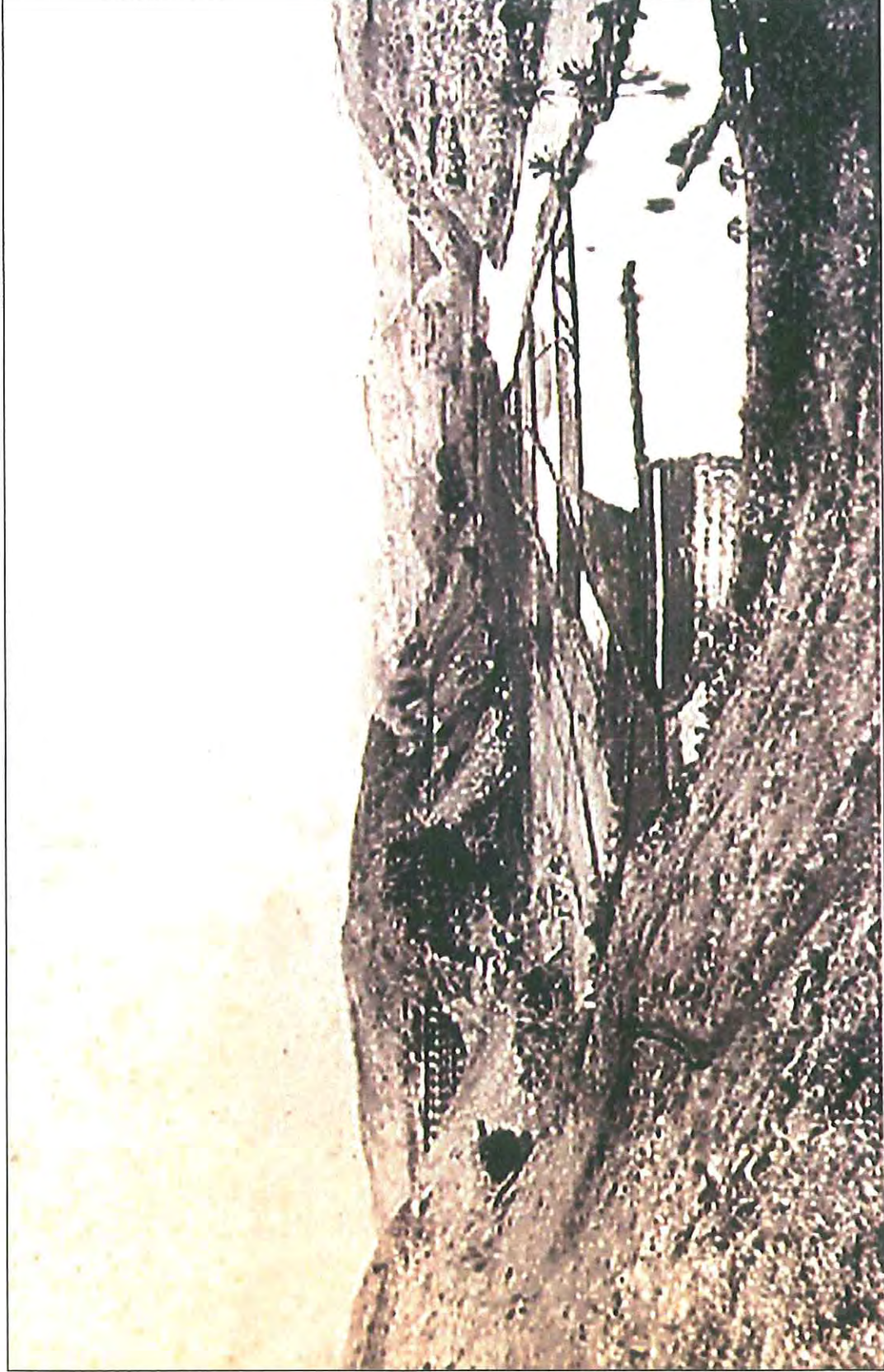


Figure 42. Lāwa'i Valley in 1905, photograph courtesy of NTBG Library

Cultural Impact Assessment for a Conservation District Project West of Spouting Horn Park in Lāwa'i Ahupua'a, Kōloa District, Kaua'i Island

TMK [4] 2-6-02: 12; 2-6-03: 3 and 20, and portion of Lāwa'i Road

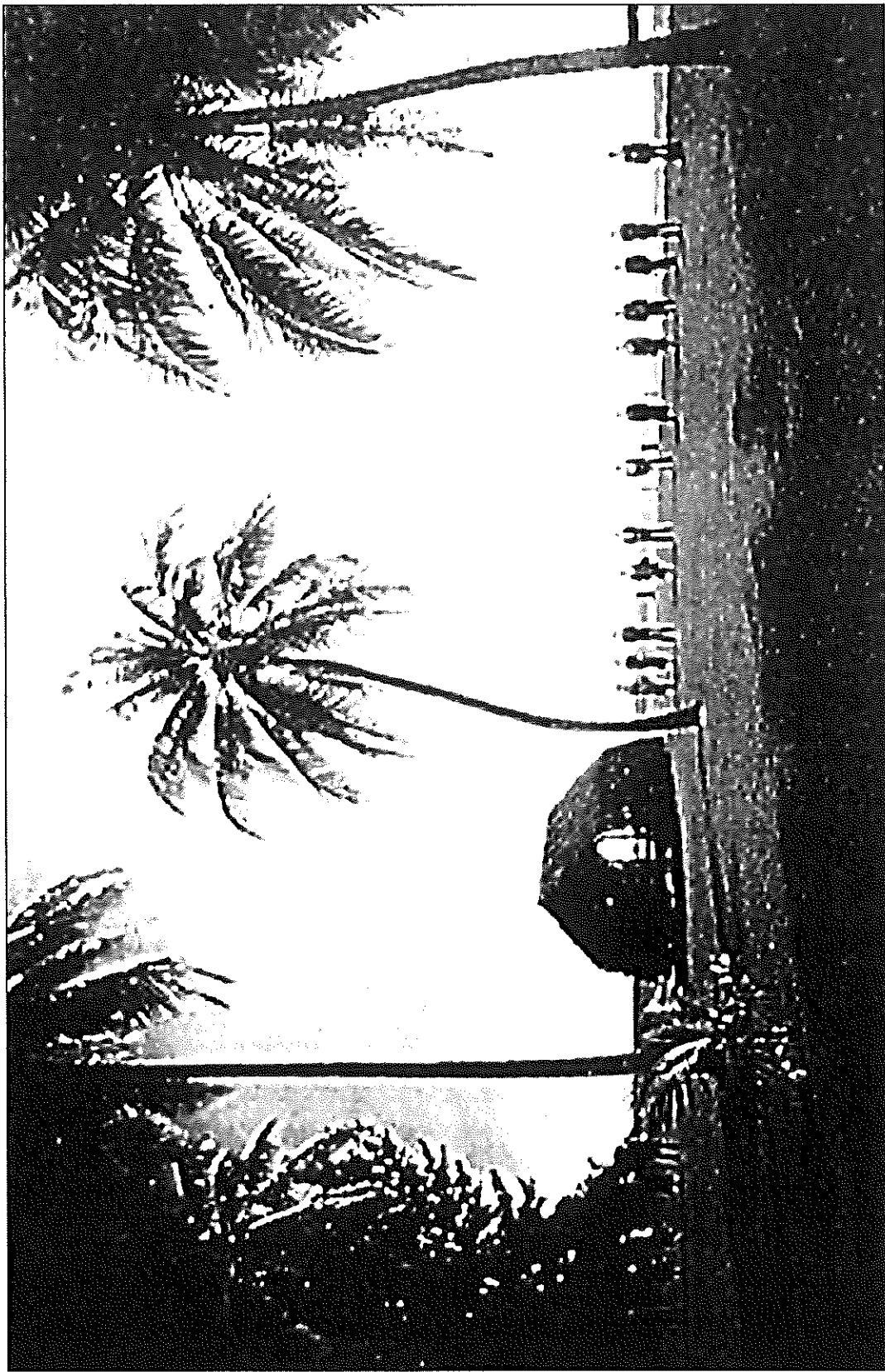


Figure 43. Lāwa'i Kai in 1930, photograph courtesy of NTBG Library

Cultural Impact Assessment for a Conservation District Project West of Spouting Horn Park in Lāwa'i Ahupua'a, Kōloa District, Kaua'i Island

TMK [4] 2-6-02: 12; 2-6-03: 3 and 20, and portion of Lāwa'i Road





Figure 44. Lāwa'i Valley in 1935, photograph courtesy of the NTBG Library



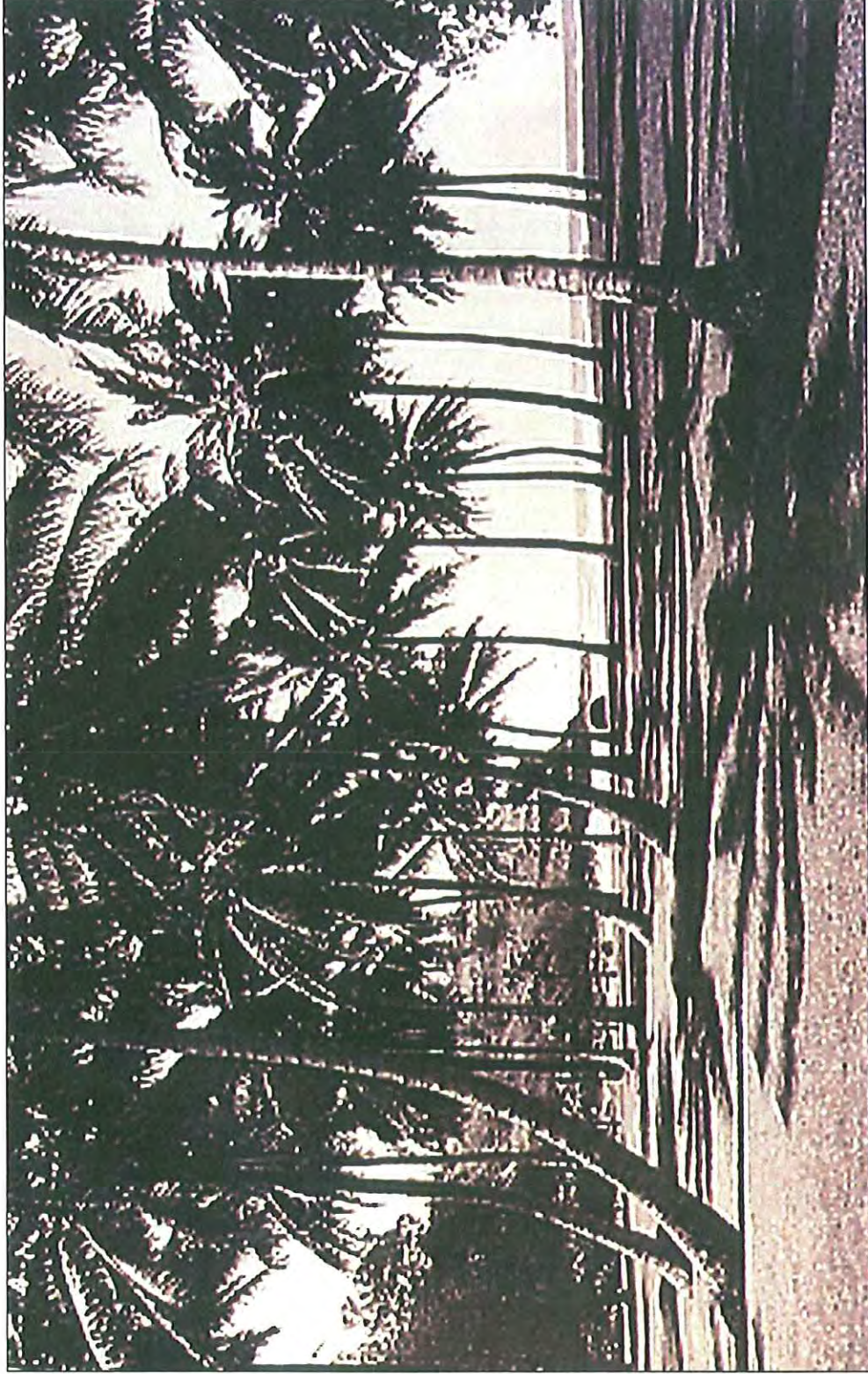


Figure 45. Lāwaʻi Kai in 1935, photograph courtesy of NTBG Library

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## Section 8 Cultural Landscape of the Project Area

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The concluding discussion examines resources and practices identified within the project area in the broader context of the encompassing Lāwa'i Ahupua'a landscape. Excerpts from talk story sessions are incorporated throughout this section where applicable.

### 8.1 Marine Resources

Fishing and marine resource gathering practices continue to occur along the coastal areas of Lāwa'i Kai. In traditional Hawaiian times the inhabitants of Lāwa'i Ahupua'a would have utilized the abundant marine resources.

Historical data states that in 1899 when Mr. Alexander McBryde formed his family corporation he was granted the land of Lāwa'i in the lower valley, together with all the fishing rights in the bay. Both Alexander and Walter McBryde, bachelors were highly regarded by the Hawaiians in the area. Lāwa'i was open to fishermen, and both brothers were always interested in going on fishing and hunting expeditions in the area (Forbes 1970:14). The shoreline of Lāwa'i Kai has been used by fishermen, from pre-contact times through the present, although the steep cliffs do not make it an easily accessible area.

Community members spoke about the significance of fishing in pre-contact times. *Kupuna* Betty Snowden mentioned that Pu'u Kiloia is of the utmost cultural and historical significance. Pu'u Kiloia is a large basalt hill near the beach in proximity to Queen Emma's cottage that has been used since pre-contact times by Hawaiians as a platform to spot fish. The High Chief Loia, five generations ago, used to stand on the top of this rock and coordinate *hukilau* (net fishing) activities using two branches of *ti* leaves as directional flags (Figure 35). Cultural Practitioner and *kumu hula* Kehaulani Kekua notes that the large *pu'u* (hill/peak) which is quite grand to look at, served as a *kilo* (observation) point for *lawai'a* (to take or catch fish) or fishermen.

According to a few of the participants in this study, the coastal area is still used for fishing and gathering of marine resources (namely, 'opihī) today.

### 8.2 Stream Resources

Native stream animals supplied the Hawaiian diet with a rich source of protein. In a tale that appeared in the 1997 *Honolulu Advertiser*. *Kupuna* Betty Snowden, whose family had lived in Lāwa'i Kai for over 200 years, recounts that the Chief of the *Menehune* agreed with Manu to help him build a stone wall. This tale tells of Manu's attempt to gather two *pū'olo* or bundles of shrimp in return for the work of the *Menehune*. Manu realized that he had to rush to the stream to catch as many 'ōpae or shrimp as he could before it got too dark to see, but he only collected one bundle full.

None of the community contacts queried identified any ongoing fishing activities associated with Lāwa'i Stream.

### 8.3 Gathering of Plant Resources

Hawaiians utilized upland resources for a multitude of purposes. Forest resources were gathered, not only for the basic needs of food and clothing, but for tools, weapons, canoe building, house construction, dyes, adornments, hula, medicinal and religious purposes. Forest areas miles inland, would have been utilized for a variety of purposes, such as gathering of timber, medicinal and ceremonial plants, and famine food resources, to name a few. For example, *hala* (*Pandanus odoratissimus*), and *kukui* (*Aleurites moluccana*), were probably gathered from *mauka* regions.

One of the community contacts, Kumu Sabra Kauka, commented that she gathers plants such *'ilima kahakai* (*Sida* spp.) along the coast in and around the project area, but noted that the native plants are being increasingly squeezed out by invasive species. *'Ilima-ku-kahakai*, a coastal *'ilima*, was one of four different types of *'ilima* recognized in Hawaiian folk taxonomy. *Sida* species are used for lei-making, medicinally (e.g., laxative, asthma treatment), basket-making (stems), as thirst-quenchers (buds), and more. Ms. Kauka noted that she primarily collects *'ilima* for lei-making and upon occasion for making tea.

### 8.4 Traditional Hawaiian Sites

Three archaeological sites were located within the project area, consisting of a coastal trail complex (50-30-10-990) and two shelter sites (50-30-10-3071 and -3072). The shoreline trail is a mix of modern and historic sections, currently in use by the public for coastal access. The two shelter sites were previously located and described by Kikuchi (Section 5, Figure 18) and were both placed on the State Register of Historic Places (1988). The 1998 CSH inventory survey found that the sites suffered both high surf damage and looting, so that nothing remains of the former contents. The archaeological inventory survey report (Creed et al. 2002) recommended preservation of the historic trail and the two shelter sites because the caves are on the State Register of Historic Places. A preservation plan (Esh and Hammatt 2004) has since been completed for these three sites (reviewed and accepted by the State Historic Preservation Division March 1 2005, Log No 2005.0367, Doc No 0502NM02; see Appendix A).

Historical documentation especially *Māhele* and *kuleana* data, indicates house sites, taro *lo'i* and some *kula* were situated on the alluvial flood plain in Lāwa'i Valley. No *kuleana* were awarded within the present project area. Queen Emma's residence was located on the tablelands to the northwest of the current project area and her house was later moved to the Valley Floor.

During this assessment community members spoke about traditional Hawaiian sites in Lāwa'i Ahupua'a outside of the present project area. Ms. Kehualani Kekua mentioned that the Hawaiians built a small *heiau* named Mamalu near the area on which the Allerton Home was built believing it would have functioned as an agricultural *heiau*. *Kupuna* Betty Snowden stated that the *heiau* "Niukapukapu" played a significant and historical role in the Hawaiian culture in the area of Lāwa'i Kai.

### 8.5 Burials

No human burials have been documented within the present project area.

Community members contacted for this cultural impact assessment discussed native Hawaiian burials located in caves within Lāwa'i Ahupua'a outside the present project area. Ms. Kehaulani Kekua mentioned that further inland, the *kūpuna* know of several caves that served as burial sites for the ancestors. *Kupuna* Betty Snowden stated that Pu'u Kiloia is the repository of the 'Ohana *No Iwi* or family bones and suggested that at one time it was the favored place of repose for those sacrificed at Niukapukapu.

## 8.6 Hawaiian Trails

Trails served to connect the various settlements throughout the *ahupua'a* and districts of the Hawaiian Islands in traditional times. As stated above, a coastal trail complex (50-30-10-990) has been identified within the project area. The trail is currently in use by the public for coastal access.

Historic research for this assessment noted that Mr. Alexander McBryde, who lived in Lāwa'i Valley, where the only access in Queen Emma's day had been by trail down the cliffs, created a road along the shore from "Spouting Horn" by blasting away the *pali* to make the narrow horse and buggy trail (Allerton 1972:9). NTBG Librarian Richard Hanna also noted that the Allertons built trails in the 1950s and 60s, and that the trails were destroyed in the 1982 hurricane

## 8.7 The Project area within the Lāwa'i Ahupua'a Context

From research of historic documents, cultural documentation, and archaeological studies, it is apparent that traditional Hawaiian habitation and activity within Lāwa'i Ahupua'a and the current project area extended well back in pre-contact times. It is likely that Lāwa'i was inhabited and tilled before the neighboring Kōloa field system was developed, as it is a typical traditional valley setting with habitation sites on or near the narrow beach and the taro *lo'i* along the flood plain.

During the pre-contact era, *heiau* are known to have existed, as well as special stones, taro fields, a fishpond, petroglyphs and caves that are remnants of that time. C.S. Handy was told that on Kaua'i the favored places for coconuts were Kōloa and Lāwa'i (Handy 1940:193).

Most of the awarded *kuleana* claims are along Lāwa'i Stream. In the lower valley there are at least five, and two of the five (3414 and 3417) have house lots at the shore.

The presence of multiple *heiau* within the *ahupua'a* suggests the relative importance of Lāwa'i in traditional times. *Heiau* were located in both the uplands and near the shore. Cultural accounts, as well as LCA documentation indicated settlement within the *ahupua'a* was focused along Lāwa'i Stream, the lower valley and along the shore. The sheltered waters and sandy shoreline of Lāwa'i Bay would have allowed for harvesting of marine resources and provided an ideal landing site for canoes. Traditional burial interment practices included cave burials within the slopes of Lāwa'i Valley and in caves along the coastal regions of Lāwa'i Kai.

Forest areas miles inland would have been utilized for a variety of purposes, such as gathering of timber, avian resources, medicinal and ceremonial plants, and famine food resources. For example, *hala* and *kukui* were probably gathered from *mauka* regions.

The resources of the *mauka* lands of Lāwa'i Ahupua'a complemented those available in the valleys, coastal plains, and offshore, creating a continuum that sustained life for the Hawaiians of Lāwa'i.



## Section 9 Summary and Recommendations

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Reviewing the information provided by the elements of this cultural impact assessment – historical documentation, archaeological research, and community contacts – there emerges a more detailed picture of the traditional landscape of Lāwa'i Ahupua'a and the present project area.

Nineteenth-century documents (namely, Land Commission Award records and historic maps) provide a picture of the settlement pattern for Lāwa'i Ahupua'a; permanent habitation and intensive agriculture (irrigated and non-irrigated) focused on the valley floor flood plain and presumed intensive agricultural pursuits on the table lands between Lāwa'i Kai and Kukui'ula Bay. The historical documentation, especially *Māhele* and *kuleana* data, indicates house sites, taro *lo'i* and some *kula* were situated on the alluvial flood plain within Lāwa'i Valley. No *kuleana* were awarded within the present project area. Queen Emma's residence was located on the tablelands *mauka* of the current project area and her house was later moved to the Valley Floor. Archaeological evidence suggests permanent occupation in the Kōloa area ca. A.D. 1200-1400, though earlier dates (ca A.D. 600-1200) for temporary shoreline sites have been recorded (Rosendahl 1990, Toenjes et. al. 1991, Hammatt et al. 1998).

By the late 1870s Queen Emma leased the land of Lāwa'i to Duncan McBryde for fifteen years, though she reserved a house lot and several acres of taro patch land. In 1886, after the Queen's death, Mrs. Elizabeth McBryde purchased the entire *ahupua'a*. The upper lands were planted in sugar cane, and the valley leased to Chinese rice growers and taro planters.

By the early decades of the 20th century, western commercial entrepreneurial interests had transformed the Lāwa'i landscape into sugar cane fields and pasture lands, and had dispersed remaining native residents. Mrs. Elizabeth McBryde bought the 12,000 acres in the Kona section of Kaua'i in 1886 and in 1899 her lands along with the McBryde estate joined to form the McBryde Sugar Company. The McBryde Sugar Company started its railroad operations in 1899. Expansion of cane fields and plantation rail lines was rapid. The extent of sugar cane development near the project area can be seen in Figure 4. As the McBryde Sugar Co. map (Figure 15) shows the Lāwa'i Stream Valley was surrounded east and west by sugar cane lands, and Field 216 lay just *mauka* of the Lāwa'i Road near the project area (Conde and Best 1973). By 1947 all cane-hauling activities were taken over by trucking.

In 1964 Robert Allerton established the Pacific Tropical Botanical Garden. In 1986 this became the National Tropical Botanical Gardens.

Three archaeological sites were located within the project area, consisting of a coastal trail complex (50-30-10-990) and two shelter sites (50-30-10-3071 and -3072).

For the purpose of this cultural impact assessment, 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 the project area. As a result of this assessment, a few ongoing cultural practices were identified for the project area. *Kupuna* Betty Snowden, a descendant from the families of Lāwa'i Kai, mentioned that Pu'u Kiloia is the repository of the '*Ohana Iwi* or family bones and suggested that at one time it was the favored place of repose for

those sacrificed at Niukapukapu. Ms. Kehaulani Kekua, cultural practitioner and *kumu hula* stated that further inland, the *kūpuna* know of several caves that served as burial sites for the ancestors. Ms. Sabra Kauka, cultural practitioner and *kumu*, spoke of gathering native plants in and around the project area as well as using the area as a teaching site for her school groups. Dr. David Burney of the NTBG mentioned the cultural and environmental significance of the rock wall along Lāwa'i Road and surrounding area, emphasizing that the project area and proximity is a nesting ground for indigenous Wedge-tailed Shearwaters (*Puffinus pacificus chlororhynchus*) and an important destination for school groups on educational tours as well as a social gathering place for community members. A number community contacts mentioned the continued significance of the area for fishing and 'opihi collection.

None of the community contacts queried for this assessment identified any strong cultural concerns about the proposed project. However, a few of the participants interviewed for this assessment expressed concerns and, in some cases, made suggestions regarding the planting plan for the proposed project. Community contacts:

1. Cautioned against taking out the ironwood trees (*Casuarina* spp.) in the project area before native replacement trees are well-established, as the trees provide a windbreak and shade for the Wedge-tailed Shearwaters that nest in the rock wall along Lāwa'i Road.
2. Cautioned against grading or landscaping the project area in a way that could lead to runoff and (further) degradation of the watershed.
3. Expressed concern about the decline of certain native species with ethnobotanical value such as 'ilima (*Sida* spp.).

Based on the above study results, Cultural Surveys Hawai'i Inc. finds that the proposed project will have minimal impact upon native Hawaiian cultural resources, beliefs and practices, and recommends that the above community members' suggestions be taken into account in the design of the proposed Conservation District re-vegetation with native plants project.



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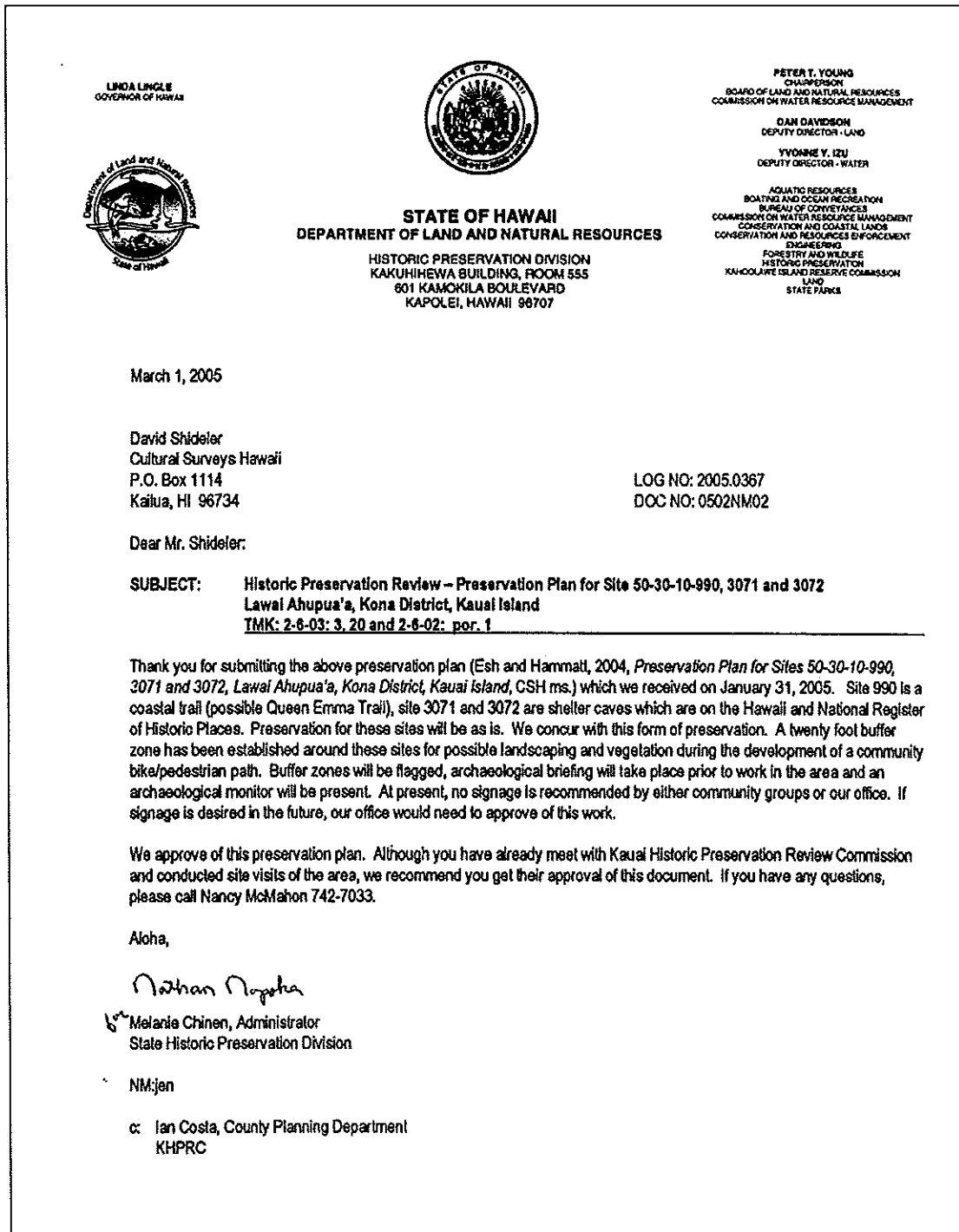


Figure 47. Letter of acceptance from SHPD/DLNR for preservation plan for 3 sites in the project area

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# **APPENDIX B: Post-Community Consultation Follow-up Correspondence**

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**Cultural Surveys Hawai'i, Inc.**

Archaeological and Cultural Impact Studies  
Hallett H. Hammatt, Ph.D., President



P.O. Box 1114

Kailua, Hawai'i 96734

Ph: (808) 262-9972

Fax: (808) 262-4950

Job code: LAWAI 2

[lgollin@culturalsurveys.com](mailto:lgollin@culturalsurveys.com)[www.culturalsurveys.com](http://www.culturalsurveys.com)

September 4, 2007

Mr. Clyde Nāmu'o  
Office of Hawaiian Affairs  
711 Kapiolani Blvd., Suite 500  
Honolulu, Hawai'i 96813

Dear Mr. Nāmu'o,

Cultural Surveys Hawai'i Inc. (CSH) is in receipt of the review letter from the Office of Hawaiian Affairs dated February 21, 2007 regarding the Cultural Impact Assessment conducted on behalf of Kuku'i'ula Development Company (Hawaii), LLC for an approximately 9.6-acre area located adjacent to and west of Spouting Horn Park within the Conservation District as identified by Tax Map Keys (4) 2-6-02: 12; 2-6-03: 3 and 20, and portion of Lāwa'i Road in Lāwa'i Ahupua'a, Kōloa District, on Kaua'i.

CSH deeply appreciates the mana'o and recommendations provided by OHA on the re-vegetation with native plants project proposed for Lāwa'i. Unfortunately, CSH did not receive the letter from OHA until February 28, 2007, after the community consultation process had been finished and CIA report submitted to Kuku'i'ula Development Company (Hawaii), LLC. As such, CSH did not have the opportunity to contact the cultural consultants recommended by OHA. However, we did contact and/or consult with several (18) key community representatives and cultural practitioners in the Lāwa'i Ahupua'a. The proposed action (to improve pathways and re-plant the area with Hawaiian native species) was well-received by cultural impact study participants, some of whom had a few suggestions regarding the design of the project that were included in the report recommendations.

CSH respects the kōkua provided by OHA. We will keep the list of community contacts on file for future reference, and hope that the timing will work out better in future cultural studies.

Mahalo nui,

Lisa Gollin, Ph.D.

Projects Manager  
Cultural Impact Assessments  
Email: [lgollin@culturalsurveys.com](mailto:lgollin@culturalsurveys.com)

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Letter to Office of Hawaiian Affairs

Figure 48. Letter from CSH to OHA regarding community consultation



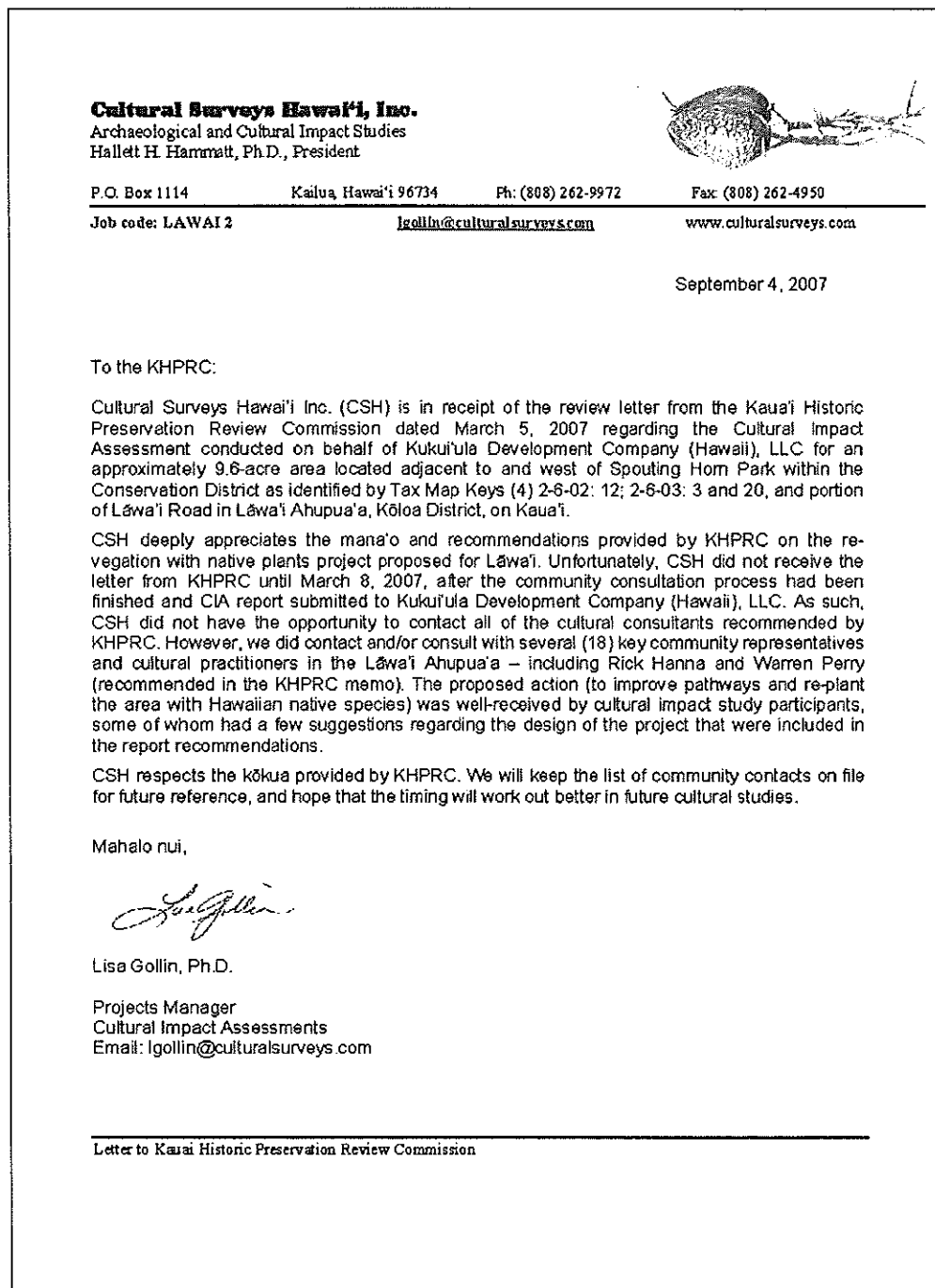


Figure 49. Letter from CSH to KHPRC regarding community consultation

**Cultural Surveys Hawai'i Inc.**

Archaeological and Cultural Impact Studies  
Hallett H. Hammatt, Ph.D., President



Providing Excellence in Cultural Resource Management

September 6, 2007

Mr. Mark Mahaney  
Kukui'ula Development Company (Hawai'i), LLC  
P.O. Box 280  
Kōloa, Hawai'i 96756

<b>O'ahu</b>	P.O. Box 1114 Kailua, HI 96734 Ph.: (808) 262-9972 Fax.: (808) 262-4950
<b>Maui</b>	16 S. Market St., #2N Wailuku, HI 96793 Ph.: (808) 242-9882 Fax.: (808) 244-1994
<b>Hawai'i</b>	15-3011 Mako Way Pahoa, HI. 96778 Ph.: (866) 965-6478 Fax.: (808) 965-6582
<b>Kaua'i</b>	P.O. Box 498 Lawai, HI 96765 Ph.: (808) 245-4883

**Subject: Cultural Impact Assessment for a Conservation District Improvements Project West of Spouting Horn Park in Lāwa'i Ahupua'a, Kōloa District, Kaua'i Island, TMKs: [4] 2-6-02: 12; 2-6-03: 3 and 20, and Portion of Lāwa'i Road**

Dear Mr. Mahaney:

As you are aware, Cultural Surveys Hawai'i, Inc. (CSH) prepared a Cultural Impact Assessment (CIA) for Kukui'ula Development Company (Hawaii), LLC in February 2007 for the proposed Conservation District Improvements Project located in the area adjacent to and west of Spouting Horn Park in the Lawai Ahupua'a, Kōloa District, Island of Kaua'i.

Subsequent to the preparation of the CIA, modifications were made to the Project which included a reduction in the level of improvements initially proposed. Generally, if substantive changes are made to a development plan — particularly if project area boundaries are expanded — CSH re-contacts cultural consultation participants to inform them about the project changes and to invite further comment for a revised CIA. In the situation of the proposed Project, CSH has determined that it is not necessary to re-open the community consultation component of the CIA for the following reasons: 1) the scope and modified improvements of the Project have not substantially changed and have, in fact, been reduced; 2) the Project area boundaries remain unchanged; and 3) the Project was well-received by the CIA study participants and did not raise any substantial cultural concerns (although a few participants made minor suggestions regarding the removal of alien plant species and re-vegetation with native species aspect of the proposed plan).

Additionally, letters from the State Office of Hawaiian Affairs (OHA) and the Kaua'i Historic Preservation Review Commission (KHPRC) responding to the request for comments with regard to the proposed Project for the CIA were received after the community consultation component of the CIA and the completion of the CIA report. In their letters, both OHA and the KHPRC recommended contacting a few cultural practitioners and/or community representatives who had *not* been contacted in the initial community consultation. Given the relatively low impact and welcome nature of this re-vegetation with

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[info@culturalsurveys.com](mailto:info@culturalsurveys.com)

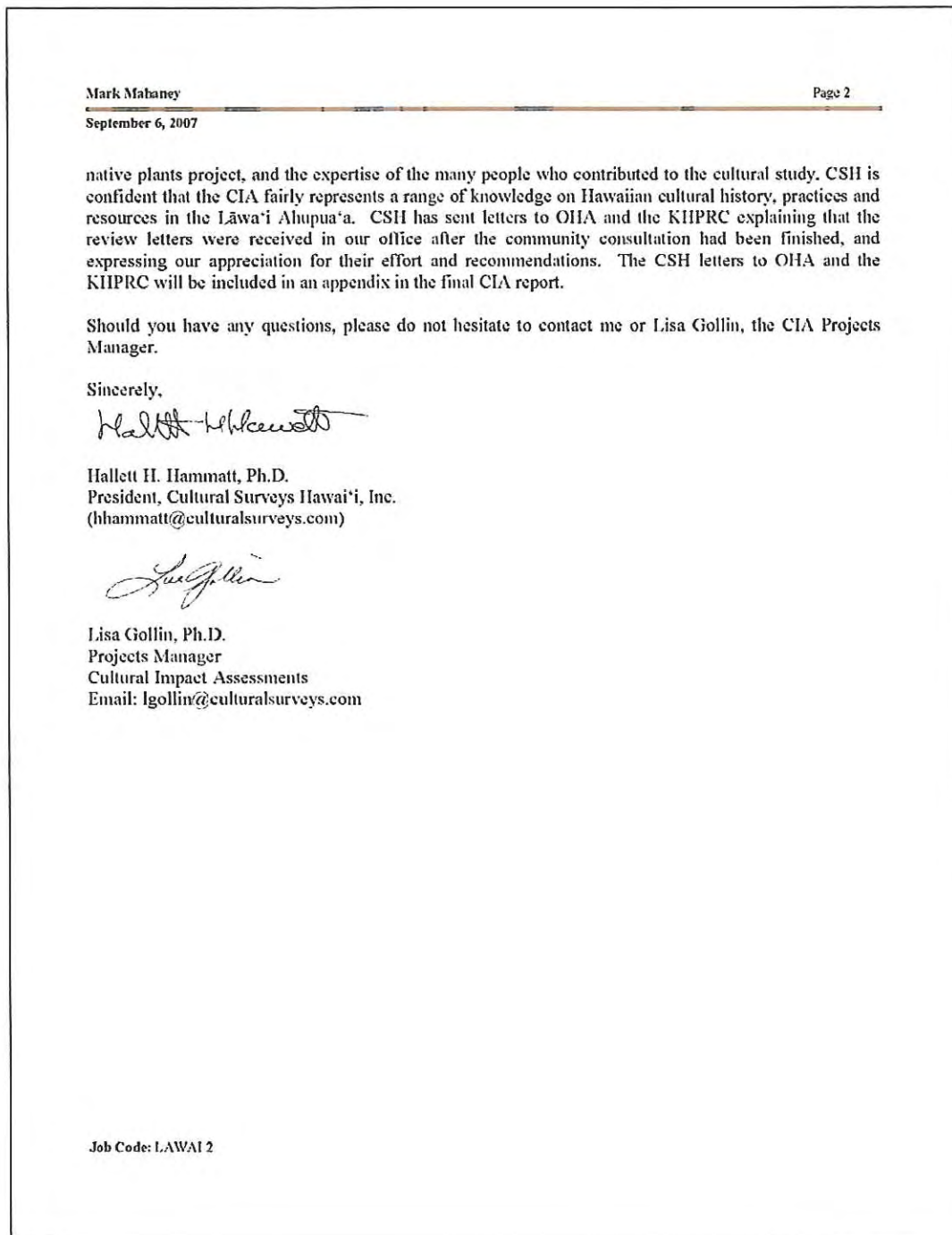



Figure 50. Letter from CSH to Kukui'ula Development Company (Hawai'i), LLC regarding community consultation

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

MEMORANDUM

**DATE:** October 9, 2007  
**TO:** Cultural Surveys Hawaii, Inc.  
Attn. Lisa Gollin, PhD.  
**FROM:** Kauai Historic Preservation Review Commission   
**SUBJECT:** Cultural Impact Assessment For TMK 2-6-02:12, 2-6-03:3 & 20, Kukuiula  
Dev. Company

---

The Kauai Historic Preservation Review Commission (KHPRC) met on October 4, 2007 to review your September 4, 2007 letter regarding the status of the Cultural Impact Assessment for the above project and the consideration of the KHPRC's input into the process. Your letter was accepted for the record and the KHPRC expressed their appreciation for your effort to include as many cultural and community consultations as possible.

Please feel free to call us should you require any further assistance regarding this matter.

Aloha.

Figure 51. Final October 9, 2007 letter from KHPRC





**APPENDIX G**

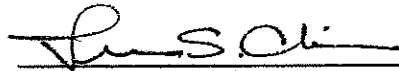
***Kukui'ula Conservation District Improvements  
Drainage Report***

**Prepared by  
Austin, Tsutsumi & Associates, Inc.  
December 2007**



**KUKUI'ULA  
CONSERVATION DISTRICT  
IMPROVEMENTS  
DRAINAGE REPORT  
Koloa, Kauai, Hawaii**





Exp.  
4/30/08

This work was prepared by me or under my supervision.

**Prepared for:**

**Kukui'ula Development Company (Hawaii), LLC  
P.O. Box 280  
Koloa, Kauai, Hawaii 96756**

**Prepared by:**

**Austin, Tsutsumi & Associates, Inc.  
Civil Engineers • Surveyors  
501 Sumner Street, Suite 521  
Honolulu, Hawaii 96817-5031**

**December 2007**



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- Table 2 Runoff Coefficient Calculation

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- Figure 2 Drainage Map - Proposed Conditions
- Figure 3 Silt Fence Detail
- Figure 4 Fiber Filtration Tube
- Figure 5 Stabilized Construction Entrance





**Drainage Report  
Kukui'ula  
Conservation District Improvements**

**I. Introduction**

The purpose of this drainage report is to investigate the nature of the proposed Kukui'ula Conservation District Improvements Project and to describe how the proposed improvements meet the requirements of the County of Kauai's Stormwater Runoff System Manual (2001). The proposed Conservation District Improvements will be developed by the Kukui'ula Development Company (Hawaii), LLC ("Applicant"). The Kukui'ula development, also being developed by the Applicant, is a resort-residential project located on approximately 1,002 acres adjacent to and mauka of the Project Site.

The areas within Kukui'ula ("Kukui'ula development") have been previously studied under the Kukui'ula Drainage System Master Plan Report, dated March 2003, and the Supplement No. 2 to the Drainage System Master Plan Report, dated May 2005. That report takes into account the runoff patterns and stormwater runoff rates from the Kukui'ula development and how they will be handled. The report was approved by the County of Kauai Department of Public Works on April 25, 2006.

**II. Project Description**

The Project Site encompasses approximately 10 acres identified as TMKs: (4) 2-6-2: 12; 2-6-03: 3 and 20; and portion of Lawai Road. The Project Site is located within the State Conservation District, with a portion of the Project Site within the County's Lawai Road right-of-way. The proposed Project improvements include the following:

- Development of an approximately 4- to 8-foot wide turfgrass pedestrian trail along the makai side of the Lawai Road right-of-way. A belowground irrigation line will run along the trail to maintain vegetative cover. The proposed foot trail will extend a distance of approximately 1,700 linear feet from the northeastern end of the Project Site at Lawai Road near Spouting Horn Park west to the National Tropical Botanical Garden ("NTBG") gate. The trail may be changed to a granular trail at the option of the Applicant. For drainage purposes, the trail is assumed to have a gravel surface.
- Removal/clearing of existing vegetation located along the makai side of Lawai Road (approximately 2.8 acres) and revegetation of the area with native, endemic and indigenous species common to the area or Polynesian-introduced.
- Selective vegetation removal of large invasive species in the lands makai of the revegetation limits and mauka of the coastal embankment (approximately 3.0 acres).

- Mowing of existing vegetation along the mauka side of Lawai Road fronting the existing rock wall along the Conservation District improvements area. No ground disturbance will occur in this area.
- Enhancement of existing dirt parking areas in three locations along the makai side of Lawai Road through the provision of gravel parking stalls.
- Approximately 700 linear feet of the existing NTBG tram road will be resurfaced with AC pavement west of the NTBG gate to the Kukui'ula project.

### **III. Existing Hydrology**

The total area studied for drainage purposes is 7 acres as shown on Figure 1. The existing area consists of Lawai Road which is A.C. paved, three unpaved parking pull-offs along the makai Lawai Road right-of-way, and undeveloped land covered with grass, weedy species, trees and scrub brush. There is also a NTBG tram road, which is A.C. paved in areas along the makai boundary of the Kukui'ula development. The tram road continues into the Kukui'ula development which is covered under a separate approved land use permit. The soils covering the area mauka of the rocky shoreline cliff within the Project Site are classified as Makaweli silty clay loam (MgC) consisting of well drained soils, with runoff being medium and the erosion hazard, moderate. The adjacent rocky shoreline cliff is classified as Rock Outcrop (rRO) consisting of exposed bedrock, which is basically basalt and andesite. The elevation ranges from sea level to 66 feet above mean sea level within the northwestern portion of the Project Site. The slopes in the areas that will be improved range from 3% to 20%.

Under existing conditions, stormwater runoff enters the Project Site from the mauka Kukui'ula property. The uphill lands were previously in sugarcane cultivation, but now lie fallow with grass, weeds and scrub brush. The stormwater runoff continues makai over Lawai Road and the NTBG tram road and through the Project Site, eventually running into the ocean at low spots within the site.

The existing Project Site runoff rate for the 2-year, 1-hour storm event is 9.69 cubic feet per second (cfs).

### **IV. Proposed Hydrology**

Generally, the proposed project improvements will allow existing stormwater runoff patterns to be maintained. The proposed off-site improvements within the Kukui'ula property will help to improve and control the stormwater runoff that currently enters the Project Site. The off-site lands of the Kukui'ula development will have vegetated buffers along its boundaries with drainage basins, swales and landscaping to control the existing erosion. The proposed improvements within the Project Site will nominally change the amount of hard surfaces, but the surfaces will remain porous, i.e. compacted gravel. The NTBG tram road resurfacing improvements will not increase stormwater runoff since there will be no change in impervious surface area. From the standpoint of vegetative cover, the proposed landscaping within the Project Site will

improve the area by covering areas which are currently barren, exposed and rutted earth.

The overall improvements within the Project Site will not significantly change the drainage area characteristics, as the only change in surface treatment is the addition of a pervious gravel path and gravel parking areas (see Figure 2). The proposed revegetation areas will actually improve existing drainage infiltration and sediment control, as planting is added or restored, and areas will be cleared and maintained; thereby protecting the shoreline and ocean resources.

The proposed Project Site runoff rate for the 2-year, 1-hour storm event is 10.73 cfs. This represents an increase of 1.04 cfs in storm runoff from existing conditions.

It should be noted that much of the runoff from the former sugarcane fields located mauka of the Project Site currently runs into the ocean. However, with the planned improvements for the Kukui'ula property, much of the stormwater runoff will be detained within the Kukui'ula property in order to prevent sediment from leaving the site and entering the Project Site and, ultimately, into the ocean. Stormwater discharge from the Kukui'ula property will be reduced to less than existing conditions, which will greatly contribute to the prevention of erosion that currently occurs within the Project Site. Therefore, although the improvements within the Project Site will result in a slight increase in the stormwater runoff rate from existing conditions, overall there will be a net decrease in stormwater runoff from the Project Site due to the planned detention of runoff within the mauka Kukui'ula property. As stated in the Kukui'ula Drainage Master Plan Report, the 100-year, 24-hour storm runoff rate from the planned Kukui'ula development is reduced from an existing peak runoff of 5,090 cfs to a proposed peak runoff of 4,369 cfs due to the planned increased detention volume.

## **V. Proposed Mitigation**

All vegetation removal within the project site will be completed with mechanical (i.e. hydroAx) and hand clearing methods. No grading will be undertaken, but minimal ground disturbance will occur during plant removal and revegetation and installation of the belowground turf trail irrigation system. For removal of the larger vegetation, methods such as brush-on herbicide will be used on the vegetation stumps. Soil will be used to infill small pocket areas within the rocky coastline to help establish the new vegetation as appropriate. A temporary aboveground irrigation system will be installed within this area for the establishment of the new vegetation.

Prior to any construction work including resurfacing, proper erosion and sediment controls, including water trucks and silt and dust fences, will be in place. Since the resurfacing work is over the existing A.C. pavement surface, there is no increase in the impervious surface area or stormwater runoff. Typically, the contractor will brush clean the existing pavement surface and will be required to control dust. Some water spraying may also be used to keep dust down, but will not be used to clean the pavement. Following preparation of the existing pavement surface, a tack layer of asphaltic emulsion will be spread to promote bonding between existing and new pavement, prior

to the new pavement being constructed. After the new pavement is laid, the surrounding area will be cleaned of all construction debris and remnant asphaltic material.

In order to address the potential of erosion and sediment due to stormwater runoff, temporary and permanent erosion control measures and Best Management Practices will be implemented prior to, during and following construction of the proposed improvements.

The most effective method of minimizing sediment in the stormwater runoff is to control erosion where it originates where surface soils are exposed. By reducing the rate of stormwater runoff from the mauka Kukui'ula property onto the Project Site, the erosive potential of the stormwater runoff is greatly reduced. The use of detention basins, diversion berms, and grassed level spreaders within the Kukui'ula property, in addition to the revegetation of currently undeveloped lands, will reduce and slow drainage runoff currently entering the Project Site.

Temporary erosion control measures for the project improvements will include phasing of construction work to minimize the overall amount of exposed surfaces and ground disturbance in manageably sized areas. Silt fencing will be installed along the makai boundary of the revegetation area to prevent sediment-laden stormwater runoff from flowing makai until the revegetation takes hold. During construction of the turfgrass trail, rolled fiber filtration tubing will be installed along the makai side of the trail to prevent sediment-laden stormwater runoff from flowing makai until the grass turf is established within the trail. Rolled fiber filtration fabric tubing will also be installed at regular intervals in the area between the turfgrass trail and the makai boundary of the revegetation area to prevent sediment-laden stormwater runoff from flowing makai until the revegetation takes hold. To control airborne dust and loose soil from wind forces, regular wetting of surfaces will be implemented during the vegetation clearing operations. Temporary irrigation lines will be installed aboveground, makai of the turfgrass trail to maintain plant life within the revegetated area and also to wet surfaces to insure dust control.

Construction vehicles will access the Project Site from the west along the unpaved road within the Kukui'ula property, and then through the NTBG gate to the eastern portion of Project Site. A gravel pad and washdown area will be placed at the construction entrance to prevent tracking of sediment onto public rights-of-way and to protect other access ways as well.

Permanent erosion control measures will be primarily revegetation of the Project Site by landscaping. The established turfgrass trail and improved gravel parking areas will also help control erosion.

The project will apply for National Pollution Discharge Elimination System (NPDES) General Permit coverage for stormwater discharge associated with construction activity prior to the start of construction.

Refer to Figures 3 to 5 for typical details of erosion control devices proposed to be used at the Project Site.



## **VI. Conclusion**

The proposed Conservation District Improvements project will produce no adverse effects from stormwater runoff to the adjacent shoreline and ocean areas and adjacent properties. The projected small increase in stormwater runoff will be offset by the large reduction of runoff from the adjacent mauka Kukui'ula property as described in the Kukui'ula Drainage Master Plan Report. Therefore, the overall rate of stormwater runoff into the ocean from the Project Site will be less than pre-development levels. In addition, the implementation of temporary and permanent erosion control measures and Best Management Practices prior to, during and following construction will insure that stormwater runoff quality will be maintained and will not degrade the surrounding environment.



**TABLES**

---



**TABLE 1  
DRAINAGE SUMMARY**

**Project:** Conservation District Improvements  
**Date:** 12/20/2007  
**By:** SK/ RE

I = Intensity of 2-Year, 1 Hour Rainfall = 1.8 in/hr

Condition	Area #	Area (acres)	Tc (min)	Corr. Factor	Adjusted (in/hr)	Land Use Or Surface Type	C	Q (cfs)
<b>Existing</b>								
	1	6.996	5.0	2.75	4.9	Mixed Area	0.28	<b>9.69</b>
<b>Proposed</b>								
	1	6.996	5.0	2.75	4.9	Mixed Area	0.31	<b>10.73</b>



**TABLE 2  
RUNOFF COEFFICIENT CALCULATION**

**Project:** Conservation District Improvements  
**Date:** 12/20/2007  
**By:** SK/ RE

**LAND USES OR SURFACE TYPES AT SITE:**  
(per Stormwater Runoff System Manual , County of Kaua'i)

<b>EXISTING CONDITIONS</b>	
Grass, Trees, Brush or Shrubs	C = 0.20
Gravel or Unpaved Road	C = 0.80
Paved	C = 0.87

**WEIGHTED RUNOFF COEFFICIENT CALCULATIONS:**

**EXISTING**

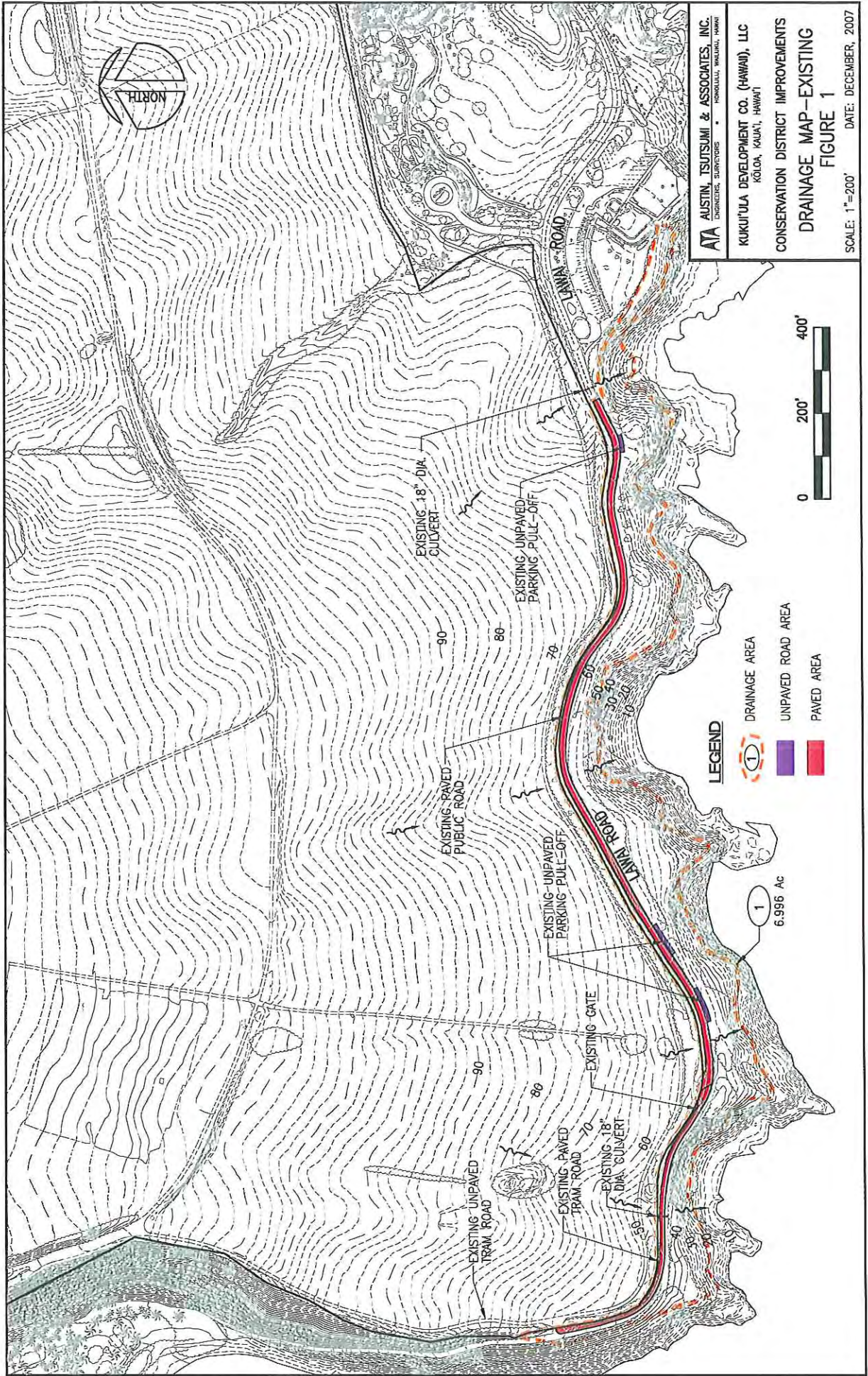
<b>Drainage Area 1:</b>		<b>Percent</b>	<b>Area (SF)</b>	<b>Area (AC)</b>	
Grass, Trees, Brush or Shrubs	C = 0.20	87.4%	266,342	6.114	
Unpaved Road	C = 0.80	0.7%	2,118	0.049	
Paved	C = 0.87	11.9%	36,267	0.833	
		<b>C = 0.28</b>	<b>100.0%</b>	<b>304,727</b>	<b>6.996</b>

**PROPOSED**

<b>Drainage Area 1:</b>		<b>Percent</b>	<b>Area (SF)</b>	<b>Area (AC)</b>	
Grass, Trees, Brush or Shrubs	C = 0.20	82.9%	252,742	5.802	
Gravel	C = 0.80	5.2%	15,718	0.361	
Paved	C = 0.87	11.9%	36,267	0.833	
		<b>C = 0.31</b>	<b>100.0%</b>	<b>304,727</b>	<b>6.996</b>

## **FIGURES**





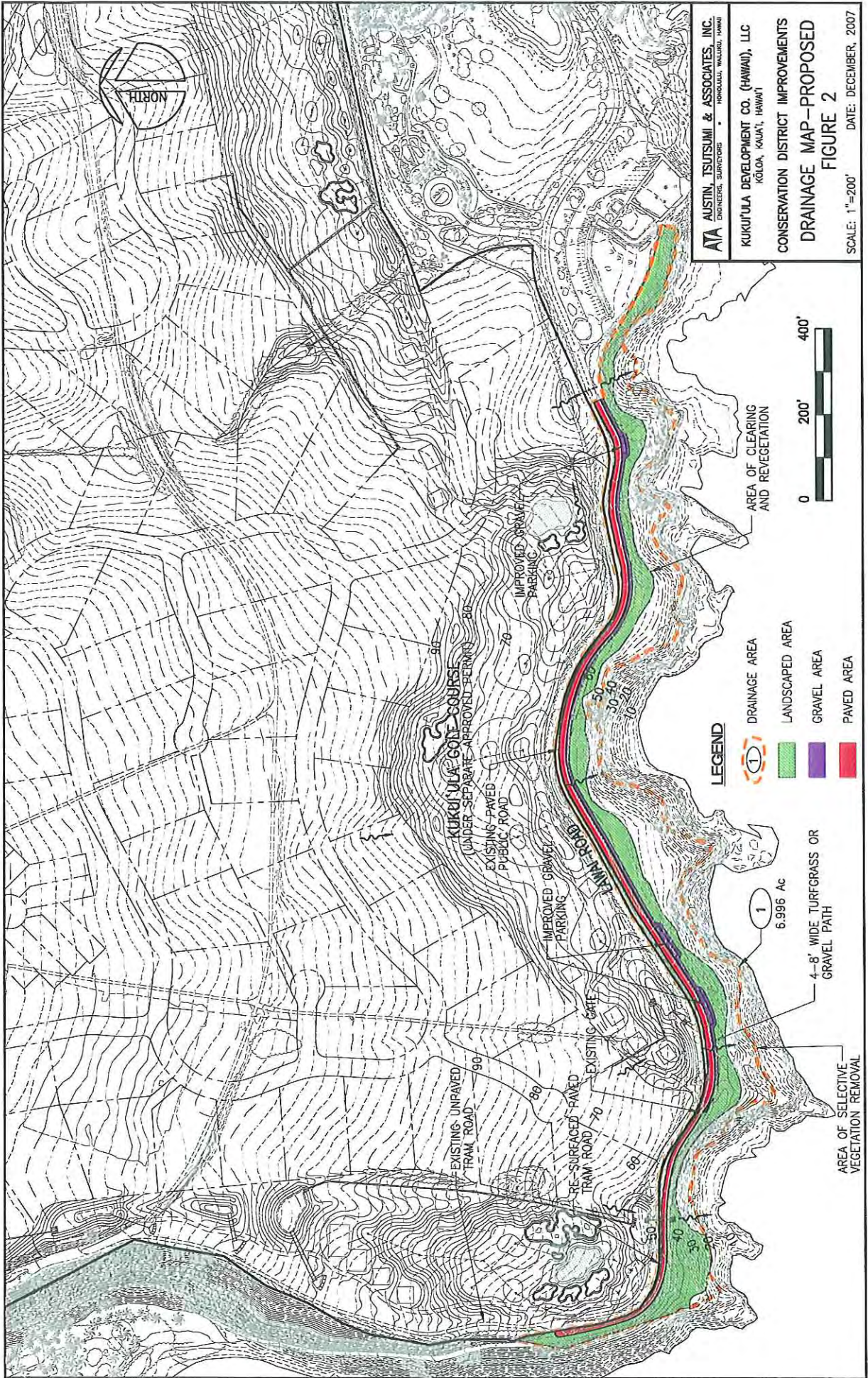
**ATA** AUSTIN, TSUTSUMI & ASSOCIATES, INC.  
ENGINEERS, SURVEYORS HONOLULU, HAWAII

KUKUI'ULA DEVELOPMENT CO. (HAWAII), LLC  
KŌLOA, KAUAI, HAWAII

CONSERVATION DISTRICT IMPROVEMENTS  
DRAINAGE MAP—EXISTING  
FIGURE 1

SCALE: 1"=200' DATE: DECEMBER, 2007





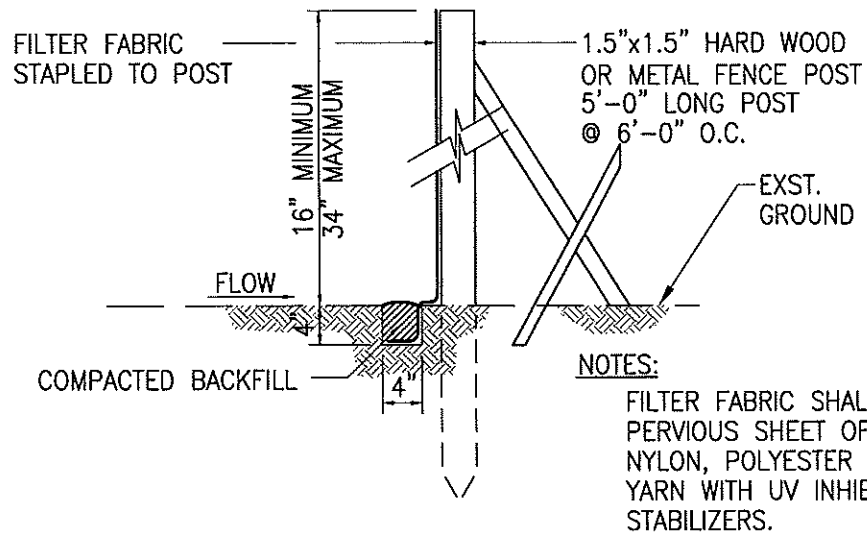
**ATA** **AUSTIN, TSUTSUMI & ASSOCIATES, INC.**  
 ENGINEERS, SURVEYORS • HONOLULU, WAHAIU, HAWAII  
**KUKU'ULA DEVELOPMENT CO. (HAWAII), LLC**  
 KOLOA, KAUAI, HAWAII  
**CONSERVATION DISTRICT IMPROVEMENTS**  
**DRAINAGE MAP—PROPOSED**  
**FIGURE 2**  
 SCALE: 1"=200' DATE: DECEMBER, 2007

**LEGEND**

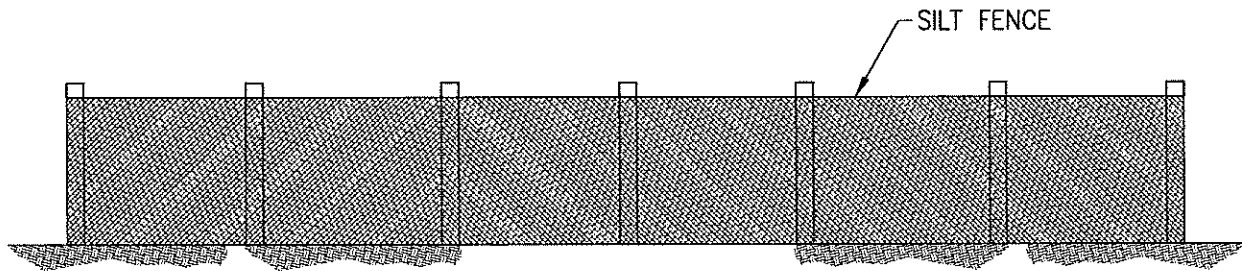
-  DRAINAGE AREA
-  LANDSCAPED AREA
-  GRAVEL AREA
-  PAVED AREA
-  6.996 Ac
-  4-8' WIDE TURFGRASS OR GRAVEL PATH
-  AREA OF SELECTIVE VEGETATION REMOVAL







**SECTION**  
NOT TO SCALE



**ELEVATION**  
NOT TO SCALE

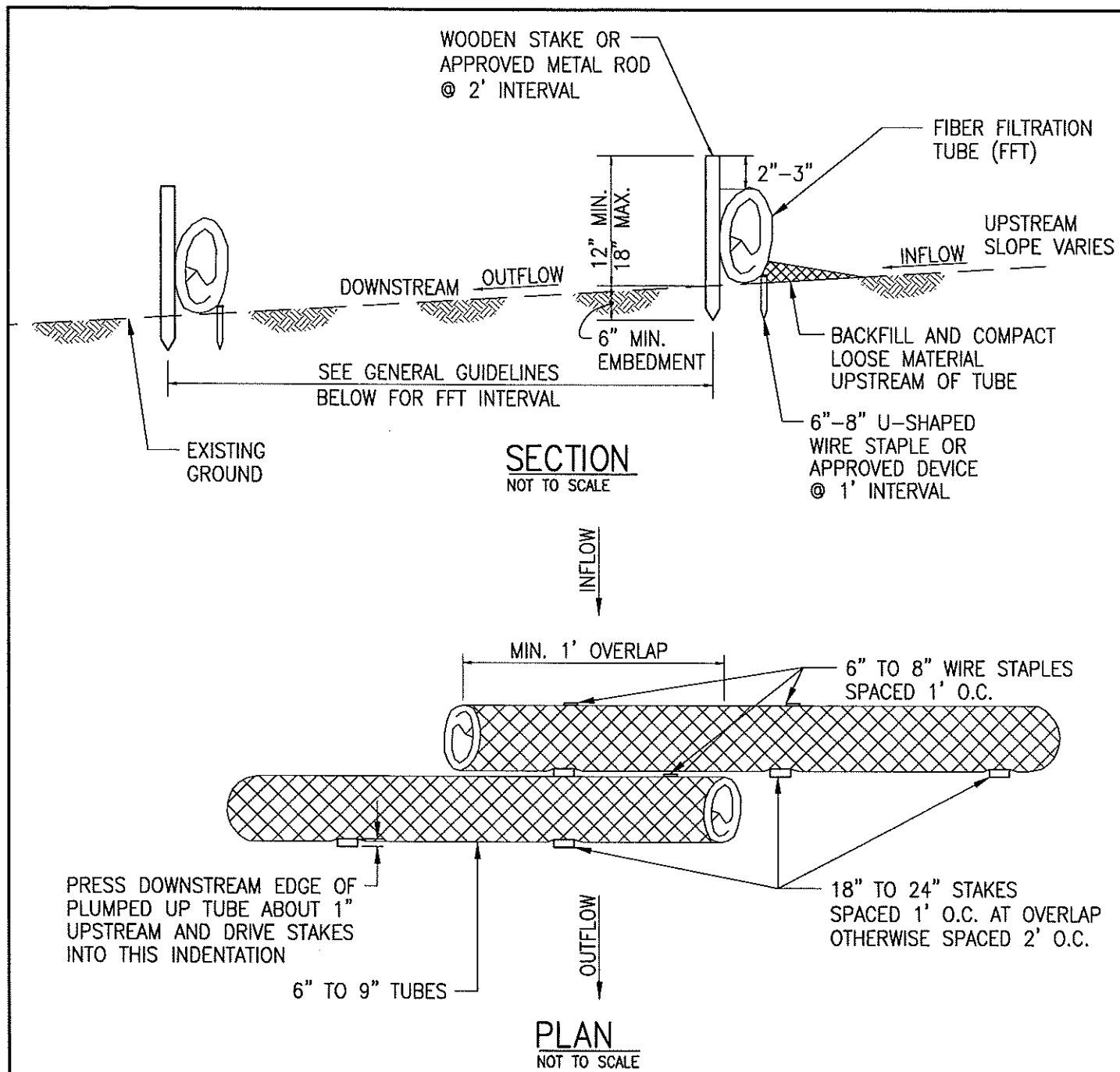
**FIGURE 3**

**Kukui'ula**  
Koloa, Kauai, Hawaii

**SILT FENCE DETAIL**

Prepared for:  
**Kukui'ula Development Company**  
(Hawaii), LLC

Prepared by:  
Austin, Tsutsumi & Associates, Inc.



**NOTES:**

FFT INTERVAL VARIES DEPENDING ON SITE CONDITIONS. ENGINEER SHALL DETERMINE APPROPRIATE JUDGMENT FOR FFT INTERVAL.  
 REPLACE TUBES WITH FLOCCULENT PER MANUFACTURE'S SPECIFICATIONS.

**GENERAL GUIDELINES FOR FFT INTERVAL**

SLOPE GRADIENT	FFT INTERVAL
1H : 1V	15'
2H : 1V	25'
3H : 1V	35'
4H : 1V	50'

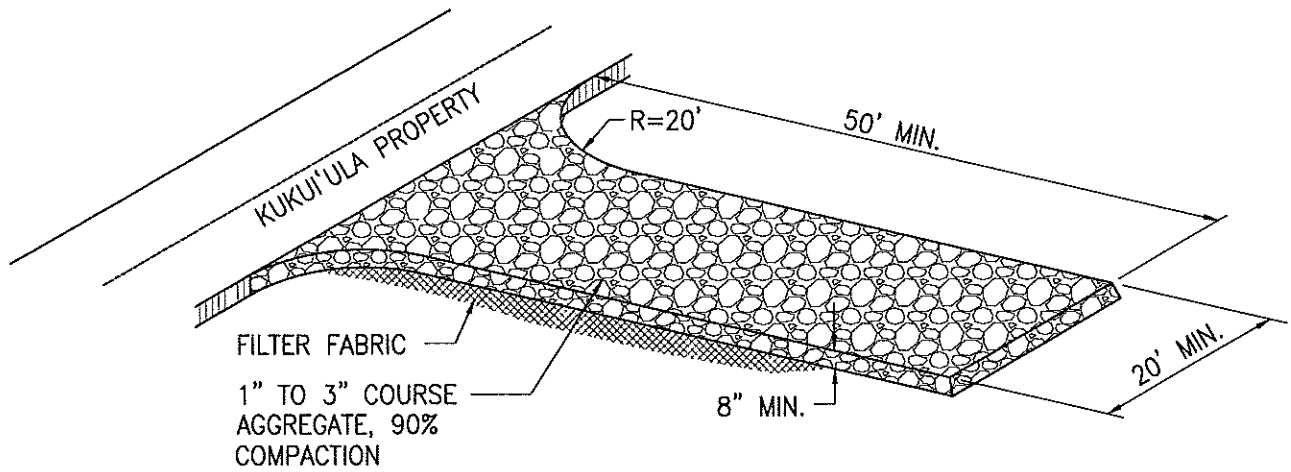
**FIGURE 4**

**Kukui`ula**  
 Koloa, Kauai, Hawaii

**FIBER FILTRATION TUBE**

Prepared for:  
**Kukui`ula Development Company**  
 (Hawaii), LLC

Prepared by:  
 Austin, Tsutsumi & Associates, Inc.



**PLAN**  
NOT TO SCALE

**FIGURE 5**

**STABILIZED  
CONSTRUCTION  
ENTRANCE**

**Kukui`ula**  
Koloa, Kauai, Hawaii

Prepared for:  
**Kukui`ula Development Company**  
(Hawaii), LLC

Prepared by:  
Austin, Tsutsumi & Associates, Inc.

